HG TECHNOLOGY CO., LTD.
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2019.07.1000 Gider Graphic Design

SOLID CARBIDE TOOLS

www.hgt.com.tw

SOLID CARBIDE TOOLS

Create the largest profit.
Improve and Elevate the Quality.

INTRODUCTION

HG TECHNOLOGY CO., LTD.,

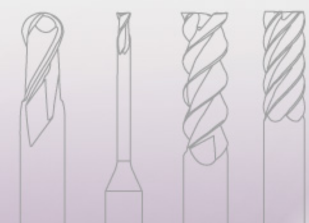
located at Changhua, Taiwan, dedicated to developing, designing, producing, and marketing cutting tools, comprises professionals with sophisticated processing experience that provide extensive services and ensure total customer satisfaction.

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 German 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.



Always improve and elevate the quality,
in order let our customers keep the best competition.

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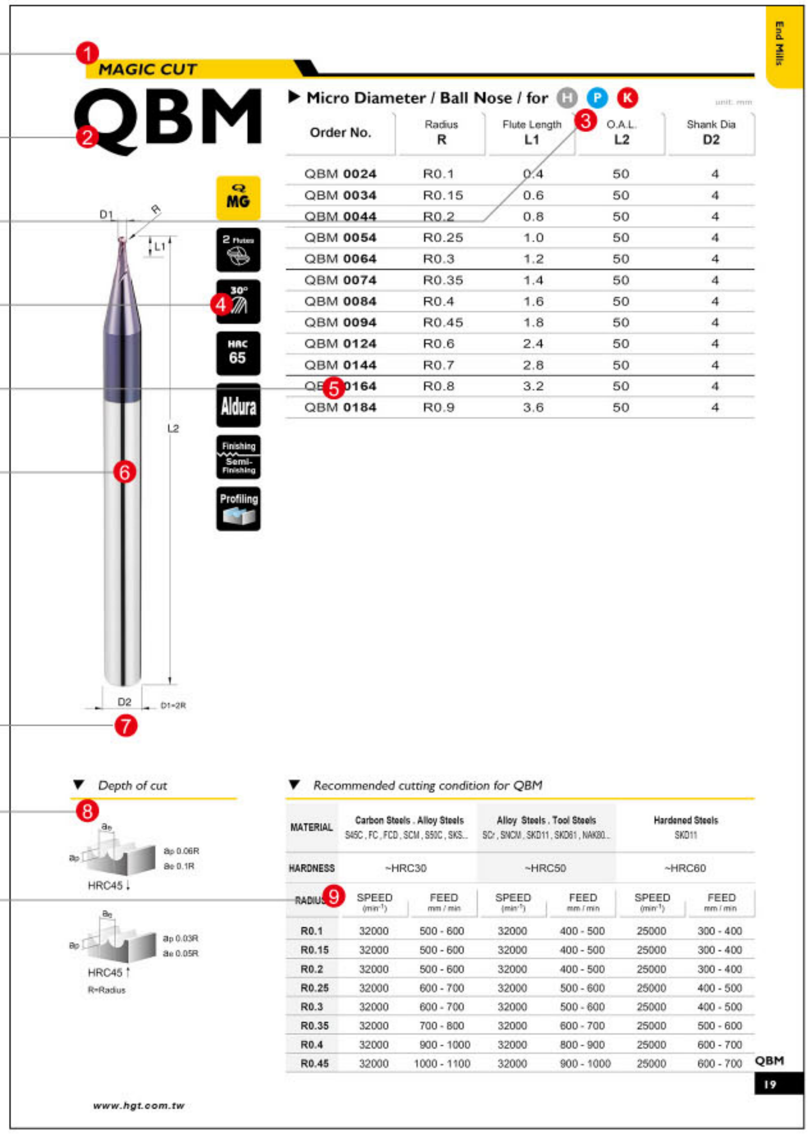
ITEM PAGE STRUCTURE

1. Product Name
2. Item Code
3. Working Material
4. Icons
5. Product specification
6. Product Image
7. Product diagram
8. Depth of cut
9. Recommended cutting condition



MAGIC CUT

QBM

End Mills

▶ Micro Diameter / Ball Nose / for H P K

unit: mm

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

▼ Depth of cut

▼ Recommended cutting condition for QBM

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	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

QBM 19

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THE SYSTEM CODE INTRODUCES

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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 Dia.	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 data are for reference. You may increase cutting data starting from 50%.

ICONS

Flutes
2 Flutes | 3 Flutes | 4 Flutes | 5 Flutes | 6 Flutes | α°≠β°

Helix Angle (0°,5°,7°,25°,30°,35°,45°,55°)
0° | 5° | 7° | 25° | 30° | 35° | 45° | 55° | 40°/43°

Work Material Hardness (40,55,60,65)
HRC 40 | HRC 55 | HRC 60 | HRC 65 | HRC 70

Coating
ALTiN | TiAlN | nAcoB | HELICA | Diamond | G100 | G300
i8 | Aldura | CrN | DLC | i-plus | G-plus

Roughing Pitch
Fine | Rough

Corner Radius (0.1 , 0.2 , 0.3 , 0.5 , 1 , 1.5 , 2)
R

Tip Angle (60° , 90° , 120°)
60° ß | 90° ß | 120° ß

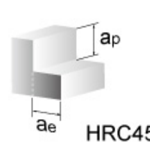
Applications
Planing | Slotting | Profiling | Profiling | Side | Side | Side | Side
Roughing | Semi-Finishing | Finishing | Finishing Semi-Finishing

Statistics For Drills

3xD	5xD	8xD	DIN 6537	DIN 6539	h6	h7	30°	140°
Drills Type	Drills Type	Drills Type	DIN Code	DIN Code	Shank Diament Tolerance	Cutting Flute Tolerance	Helix Angle	Tip Angle

DEPTH OF CUT

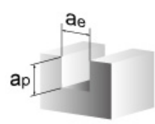
SIDE MILLING



HRC45↓

D1 6mm↓ ap=1.5D ae=0.02D
D1 6mm↑ ap=1.5D ae=0.05D

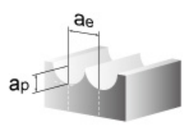
SLOTTING



HRC45↓

ap≤0.2D
ae=D1

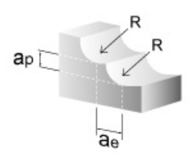
RADIUS



HRC45↓

ap≤0.04R
ae≤0.06R

PROFILING



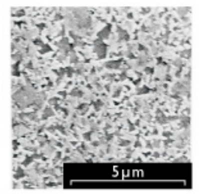
HRC45↓

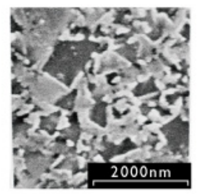
ap≤0.02R
ae≤0.02R

SOLID CARBIDE

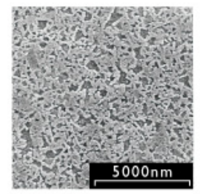
		QMG	SMG	MG
ISO-Classification		K10-K30	K40-K50	K40-K50
Diameter	(mm)	1.2-32.2	1.2-42.2	1.2-42.2
Co	(%)	9.0	12.0	10.0
$W/C+cr_3c_2+vc$	(%)	91.0	88.0	90.0
Density	(g/cm³)	14.40	14.05	14.5
HV_{30}	(kg/mm²)	1920	1680	1610
HRA	(ISO3738)	93.9	92.5	92.3
K_{IC}	(MNm-3/2)	9.3	10.0	10.5
TRS	(N/mm²)	> 4000	> 4000	> 4000
	A	≤ 02	≤ 02	≤ 02
Porosity	B	00	00	00
	C	00	00	00
WC-grain size	(µm)	0.2-0.5	0.5	0.6

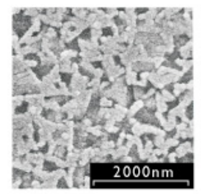
QMG



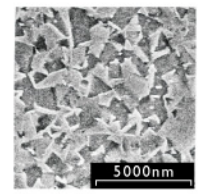


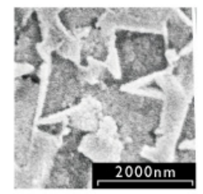
SMG





MG





	QMG	SMG	MG
Co %	9	12	10
WC incl. Doping (%)	89.83	88	90
Tungsten Carbide α	ø0.2µm	ø0.4µm	ø0.6µm

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 COATIING PROPERTIES

Coating Type	Symbol Color	Nanohard-ness(GPa)	Thickness (μm)	Friction Coefficient	Max usage Temp(°C)	Coating Temp(°C)
TIALN	BLACK	30	1 - 4	0.4	800	450↑
AITiN	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	33	1 - 4	0.3	500	
G300	SOFE GOLD	35	1 - 4	0.4	800	
i8	GOLD-BRASS	47	1 - 4	0.45	900	
Aldura	BLACK	32	1 - 4	0.35	1100	
G-plus	WHITE GOLD		1 - 4	0.25	550	
i-plus	COPPER		1 - 3	0.3	1200	

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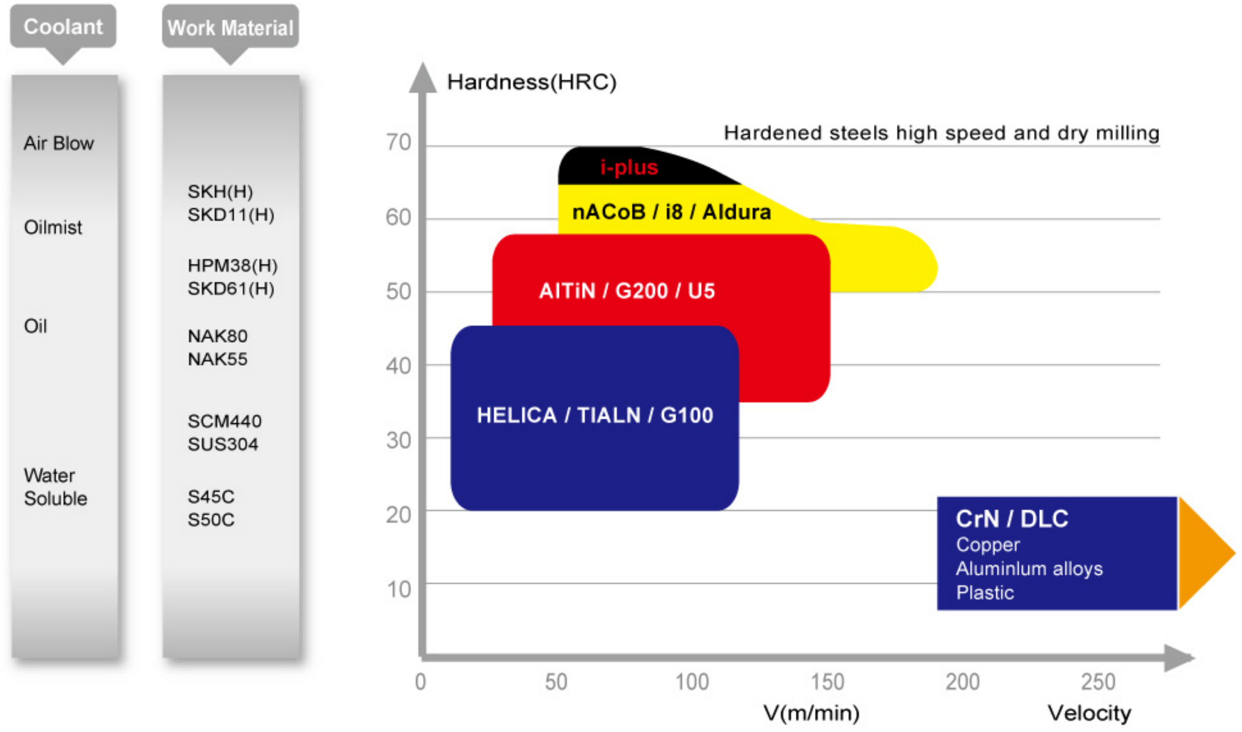
COATING APPLICATIONS

Coating Type	Symbol Color	Introduce coating on different materials
TIALN	BLACK	General steel for wet cutting (HRC35-45)
AITiN	BLACK	High Hard steel for Dry cutting (HRC45-65)
nACoB	BLUE	High Hard steel for Dry cutting (HRC55-65)
HELICA	COPPER	General steel, Cast iron, with special flute design and work on Stainless steel(EX: SEPS)
CrN	METAL-SILVER	Copper Alloy
DLC	BLACK	Aluminum Alloy
G100	BURGUNDY-VIOLET	General steel for wet cutting (HRC35-45)
G300	SOFT GOLD	Tough material, ex: Titanium Alloy, Nickel Alloy ,Stainless steel and Heat-resistant alloy
i8	GOLD-BRASS	High Hard steel for Dry and wet cutting(HRC55-65)
Aldura	BLACK	High Hard steel for Dry cutting (HRC55-65)
Diamond	BLACK GRAY	Graphite, Zirconium Oxide
G-plus	WHITE GOLD	Tough material, ex: Titanium Alloy, Nickel Alloy ,Stainless steel and Heat-resistant alloy
i-plus	COPPER	High Hard steel for Dry and wet cutting(HRC70)

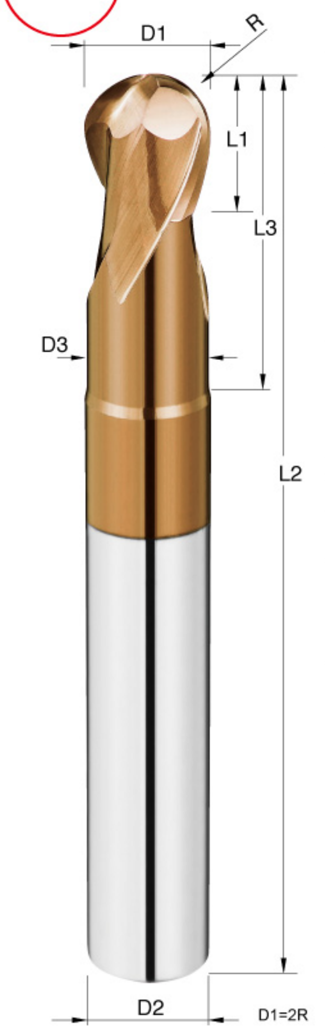


▲ Taiwan High Speed Rail

V70

V70B

NEW

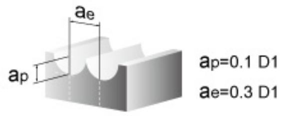


▶ Ball Nose / for H P

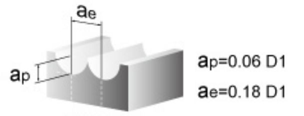
unit: mm

Order No.	Radius R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
V70B **0306**	R1.5	2.90	3	8	50	6
V70B **0406**	R2	3.88	4	10	50	6
V70B **0506**	R2.5	4.80	5	13	50	6
V70B **0606**	R3	5.80	6	15	50	6
V70B **0808**	R4	7.70	8	20	60	8
V70B **1010**	R5	9.60	10	25	75	10
V70B **1212**	R6	11.50	12	30	75	12

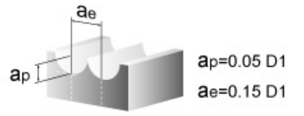
▼ *Depth of cut*



HRC55



HRC65



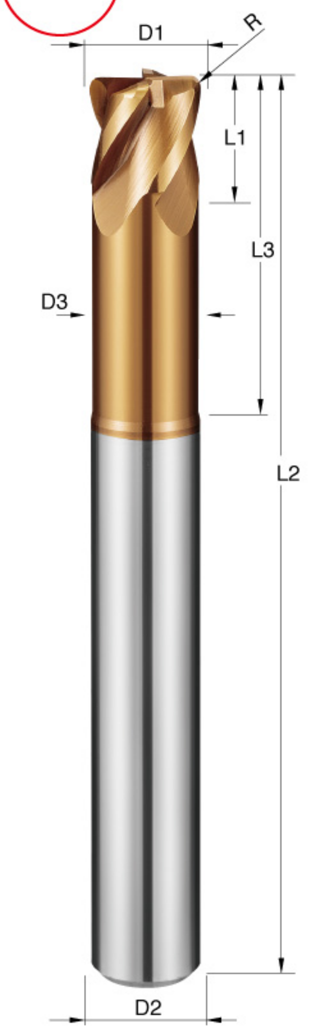
HRC70

▼ *Recommended cutting condition for V70B*

MATERIAL	Hardened Steels SKD61 , SKT4		Hardened Steels SKD11 , SKH51		Hardened Steels SKH , HAP	
HARDNESS	~HRC55		~HRC65		~HRC70	
RADIUS	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

V70R

NEW

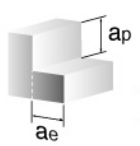


▶ Corner Radius / for H P

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

▼ *Depth of cut*



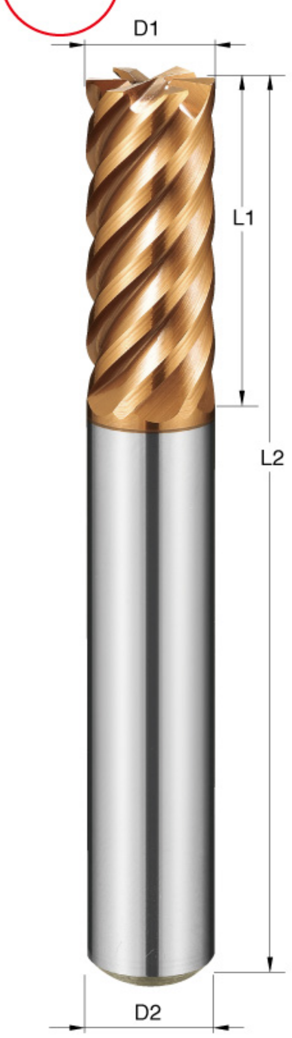
ap=1 D1
ae=0.03 D1

▼ *Recommended cutting condition for V70R*

MATERIAL	Hardened Steels SKD61 , SKT4		Hardened Steels SKD11 , SKH51		Hardened Steels SKS , SKH	
HARDNESS	~HRC55		~HRC65		~HRC70	
DIAMETER	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

V70E

NEW

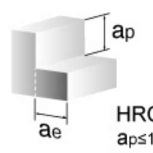


▶ Square / for H P

unit: mm

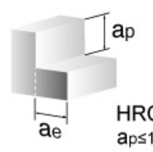
Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
V70E **0606**	6.0	16	50	6
V70E **0808**	8.0	20	60	8
V70E **1010**	10.0	25	75	10
V70E **1212**	12.0	30	75	12
V70E **1616**	16.0	40	100	16

▼ *Depth of cut*



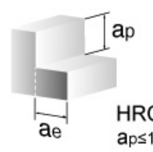
HRC55
ap≤1.5 D1

Dia	ae(mm)
6	0.3
8	0.4
10	0.5
12	0.6
16	0.8



HRC65
ap≤1.5 D1

Dia	ae(mm)
6	0.2
8	0.2
10	0.3
12	0.3
16	0.5



HRC70
ap≤1.0 D1

Dia	ae(mm)
6	0.1
8	0.1
10	0.2
12	0.2
16	0.3

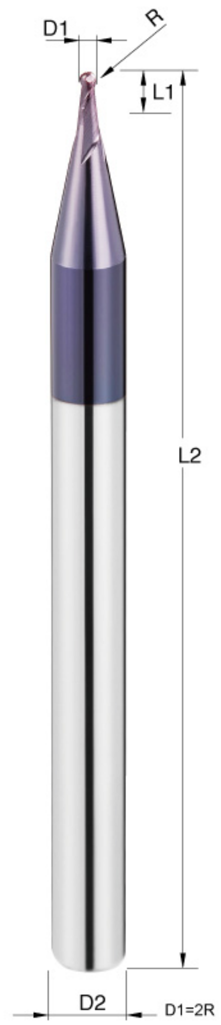
▼ *Recommended cutting condition for V70E*

MATERIAL	Hardened Steels SKD61 , SKT4		Hardened Steels SKD11		Hardened Steels SKS , SKH	
HARDNESS	~HRC55		~HRC65		~HRC70	
DIAMETER	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

▲ TAIPEI 101

MAGIC CUT

QBM



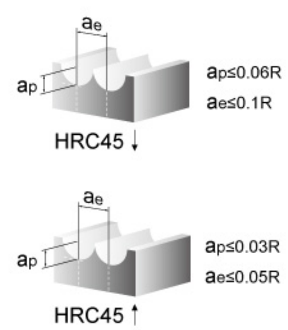
Q MG | 2 Flutes | 30° | HRC 65 | Aldura | Finishing Semi-Finishing | Profiling

▶ Micro Diameter / Ball Nose / for H P K

unit: mm

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

▼ *Depth of cut*



R=Radius

▼ *Recommended cutting condition for QBM*

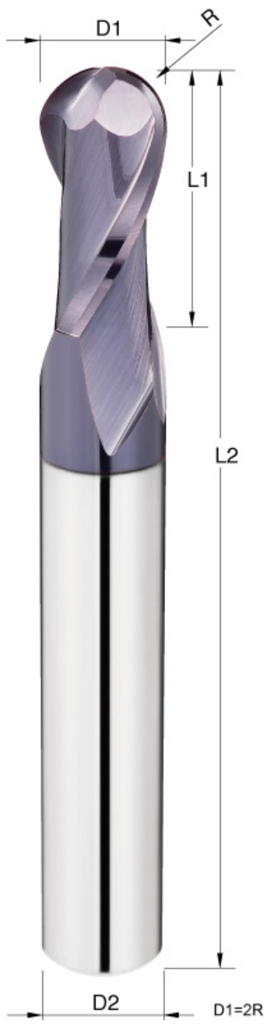
MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
RADIUS	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
R0.1	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

MAGIC CUT

QB

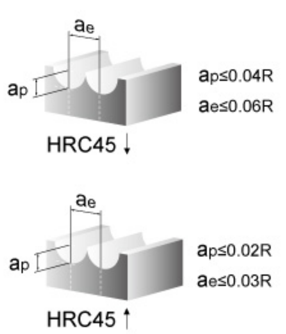
▶ **Ball Nose / for** H P K

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

▼ *Depth of cut*



R=Radius

▼ *Recommended cutting condition for QB*

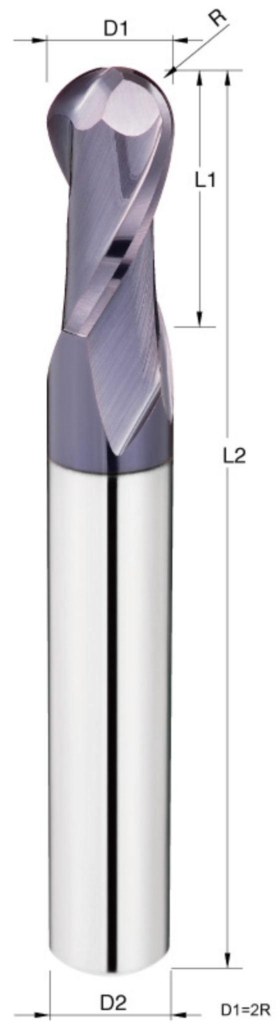
MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
RADIUS	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
R1	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

MAGIC CUT

QBG

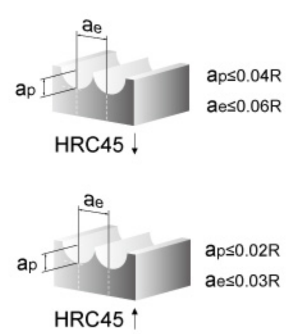
▶ **Ball Nose / for** H P K

unit: mm



Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2
QBG **0404**	R2	8	50	4
QBG **0606**	R3	12	50	6
QBG **0808**	R4	16	60	8
QBG **1010**	R5	20	75	10
QBG **1212**	R6	24	75	12

▼ *Depth of cut*



R=Radius

▼ *Recommended cutting condition for QBG*

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	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

MAGIC CUT

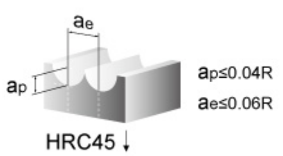
QBN

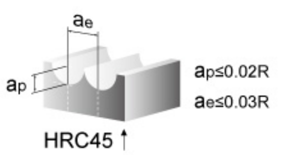
▶ **Ball Nose / for** H P K

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

▼ *Depth of cut*





R=Radius

▼ *Recommended cutting condition for QBN*

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	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

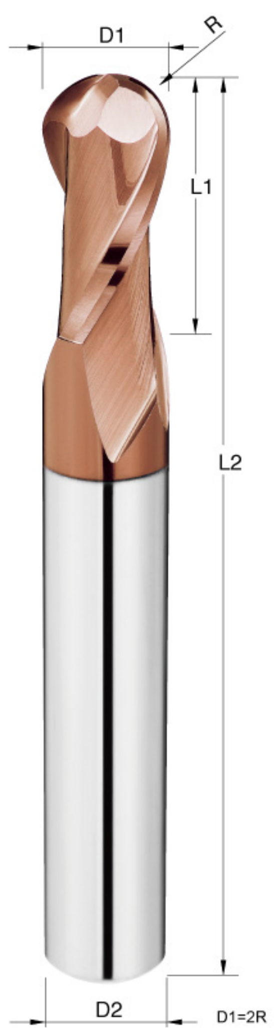
MAGIC CUT

QBX

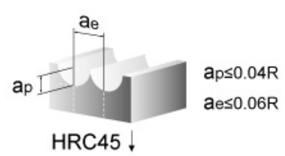
▶ **Ball Nose / for** H P K

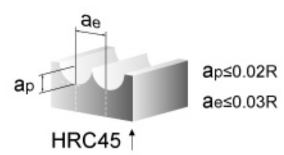
unit: mm

Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2
QBX **0104**	R0.5	2	50	4
QBX **0154**	R0.75	3	50	4
QBX **0204**	R1	4	50	4
QBX **0306**	R1.5	6	50	6
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



▼ *Depth of cut*





R=Radius

▼ *Recommended cutting condition for QBX*

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	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

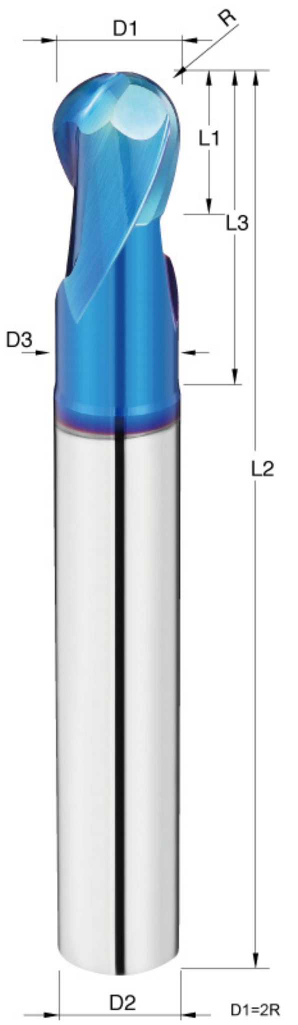
MAGIC CUT

QBHN

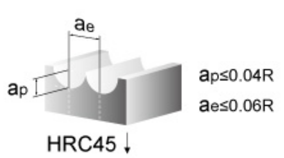
▶ Ball Nose / for H P K

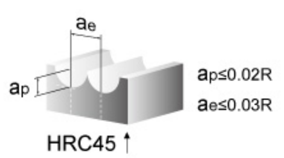
unit: mm

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



▼ *Depth of cut*





R=Radius

▼ *Recommended cutting condition for QBHN*

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	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

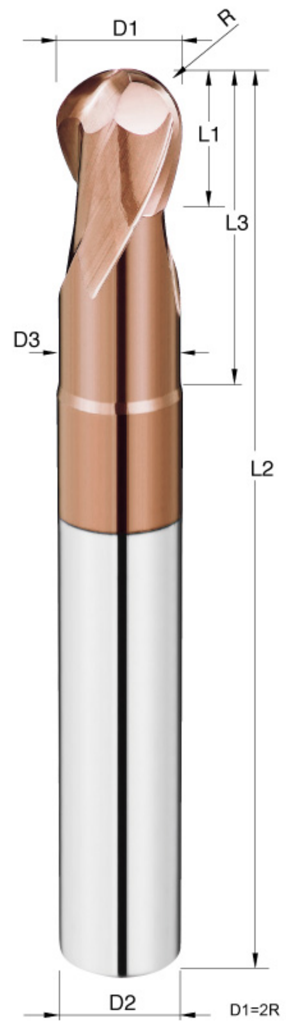
MAGIC CUT

QBHX

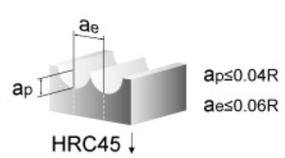
▶ Ball Nose / for H P K

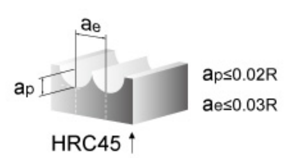
unit: mm

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



▼ *Depth of cut*





R=Radius

▼ *Recommended cutting condition for QBHX*

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	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

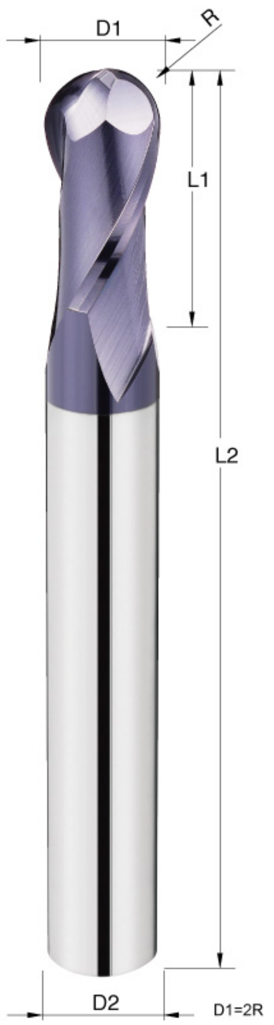
MAGIC CUT

QBLS.M.L

▶ Long Shank / Ball Nose / for H P K

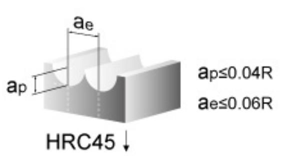
unit: mm

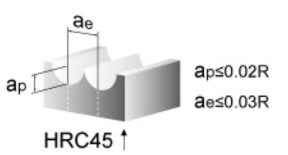
Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2
QBLS **0206**	R1	4	75	6
QBLS **0306**	R1.5	6	75	6
QBLS **0406**	R2	8	75	6
QBLS **0506**	R2.5	10	75	6
QBLS **0606**	R3	12	75	6
QBLS **0808**	R4	16	75	8
QBLM **0606**	R3	12	100	6
QBLM **0808**	R4	16	100	8
QBLM **1010**	R5	20	100	10
QBLM **1212**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



MG
2 Flutes
30°
HRC 65
ALTiN
Finishing
Semi-Finishing
Profiling

▼ *Depth of cut*





R=Radius

▼ *Recommended cutting condition for QBLS. QBLM. QBLL*

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	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
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

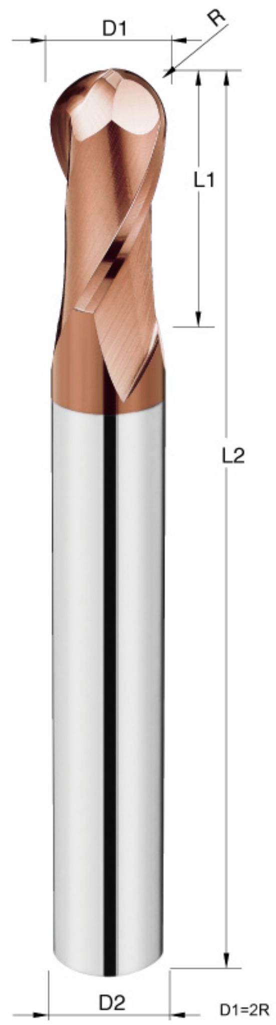
MAGIC CUT

QBLSX.MX.LX

▶ Long Shank / Ball Nose / for H P K

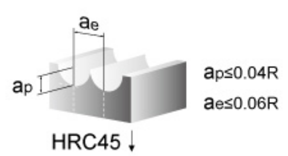
unit: mm

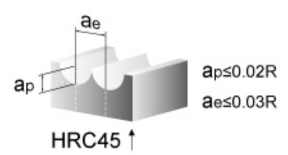
Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2
QBLSX **0206**	R1	4	75	6
QBLSX **0306**	R1.5	6	75	6
QBLSX **0406**	R2	8	75	6
QBLSX **0506**	R2.5	10	75	6
QBLSX **0606**	R3	12	75	6
QBLSX **0808**	R4	16	75	8
QBLMX **0606**	R3	12	100	6
QBLMX **0808**	R4	16	100	8
QBLMX **1010**	R5	20	100	10
QBLMX **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



MG
2 Flutes
30°
HRC 65
i8
Finishing
Semi-Finishing
Profiling

▼ *Depth of cut*





R=Radius

▼ *Recommended cutting condition for QBLSX. QBLMX. QBLLX*

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	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
R4	9000	2300	8000	1500	6200	1400
R5	7500	1900	6500	1200	5200	900
R6	6300	1600	5500	1000	4300	800

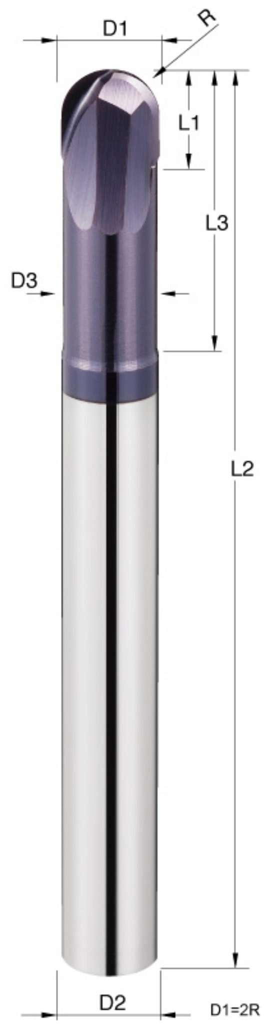
MAGIC CUT

QBP

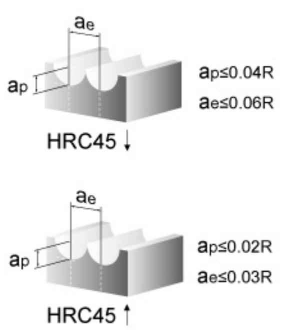
▶ Power Ball Nose / for H P K

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



▼ Depth of cut



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	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

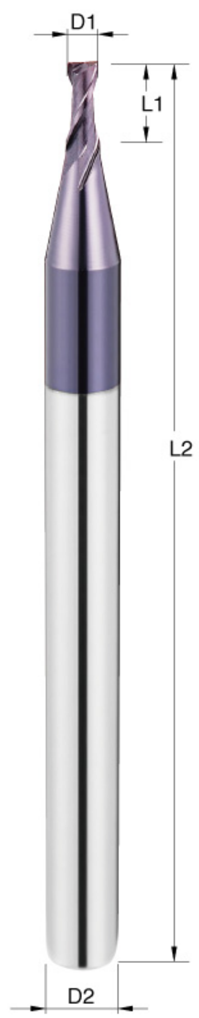
MAGIC CUT

QEM

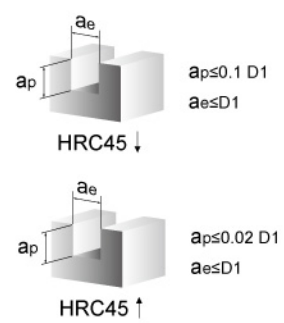
▶ Micro Diameter / Square / for H P K

unit: mm

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



▼ Depth of cut

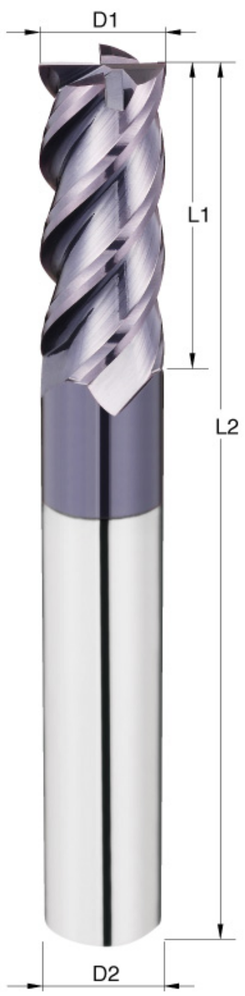


▼ Recommended cutting condition for QEM

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	
DIAMETER	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

MAGIC CUT

QEB



▶ **Square / for** H P K

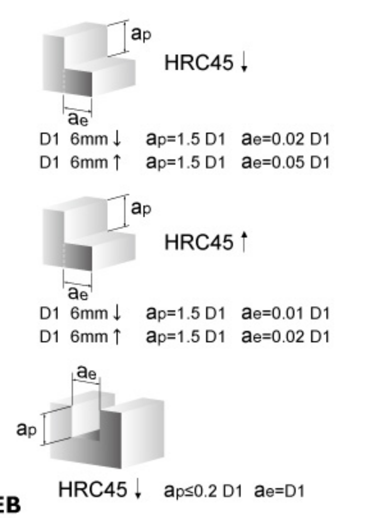
unit: mm

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

▼ *Recommended cutting condition for QEB*

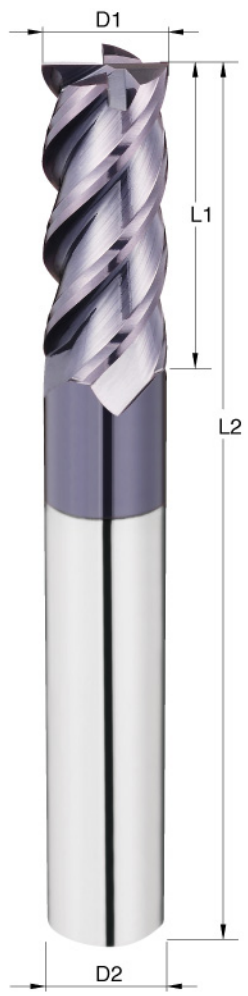
	MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
	HARDNESS	~HRC30		~HRC50		~HRC60	
	DIAMETER	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
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*



MAGIC CUT

QEBG



▶ **Square / for** H P K

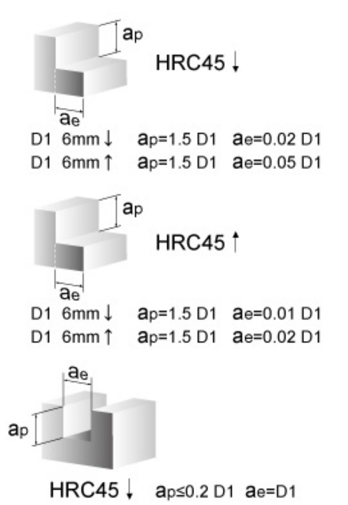
unit: mm

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

▼ *Recommended cutting condition for QEBG*

	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	
	DIAMETER	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
Side Milling	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
Grooving	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

▼ *Depth of cut*



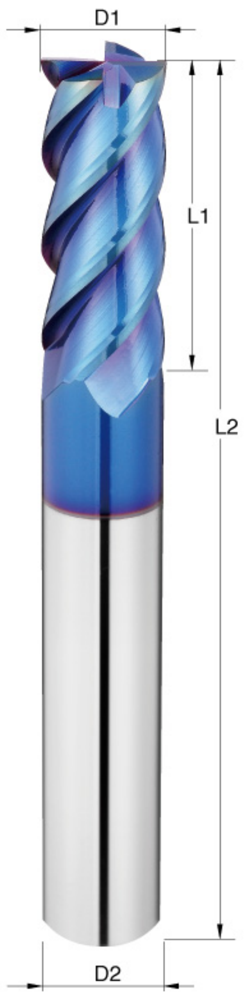
MAGIC CUT

QEBN

▶ Square / for H P K

unit: mm

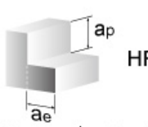
Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
QEBN **0304**	3.0	8	50	4
QEBN **0404**	4.0	11	50	4
QEBN **0506**	5.0	13	50	6
QEBN **0606**	6.0	16	50	6
QEBN **0808**	8.0	20	60	8
QEBN **1010**	10.0	25	75	10
QEBN **1212**	12.0	30	75	12
QEBN **1616**	16.0	40	100	16
QEBN **2020**	20.0	45	100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



▼ Recommended cutting condition for QEBN

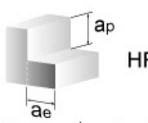
MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER	SPEED (min⁻¹)	FEED mm / min	SPEED (min⁻¹)	FEED mm / min	SPEED (min⁻¹)	FEED mm / min
Side Milling						
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



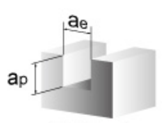
HRC45 ↓

D1 6mm ↓ a_p=1.5 D1 a_e=0.02 D1
D1 6mm ↑ a_p=1.5 D1 a_e=0.05 D1



HRC45 ↑

D1 6mm ↓ a_p=1.5 D1 a_e=0.01 D1
D1 6mm ↑ a_p=1.5 D1 a_e=0.02 D1



HRC45 ↓ $a_p \leq$0.2 D1

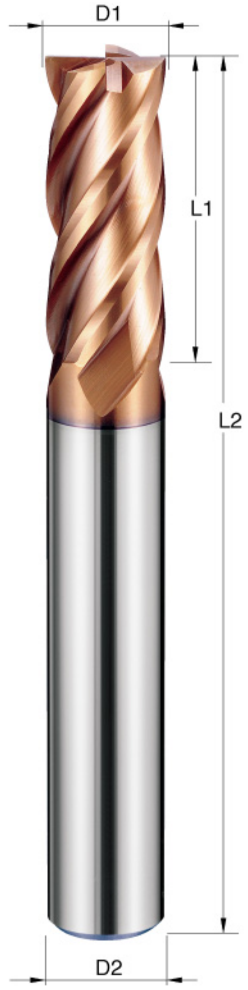
MAGIC CUT

QEX

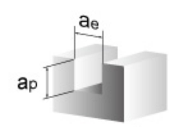
▶ Square / for H P K

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

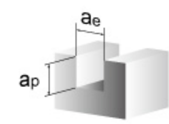


▼ Depth of cut



$a_p \leq$0.1 D1
$a_e \leq$D1

HRC45 ↓



$a_p \leq$0.02 D1
$a_e \leq$D1

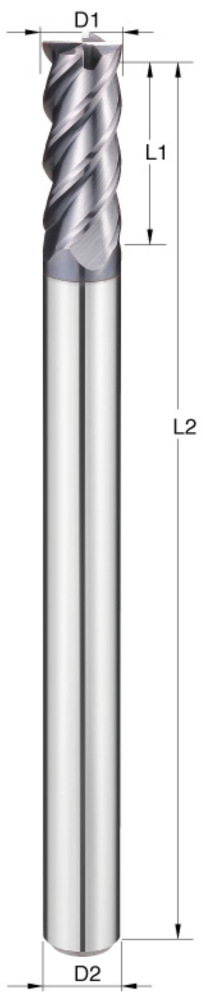
HRC45 ↑

▼ 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	
DIAMETER	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

MAGIC CUT

QELB



▶ Long Shank / Square / for H P K

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

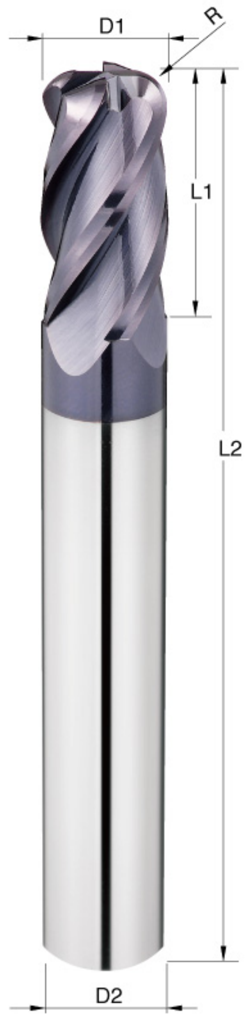
▼ *Depth of cut*

▼ *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	
DIAMETER	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

MAGIC CUT

QRD

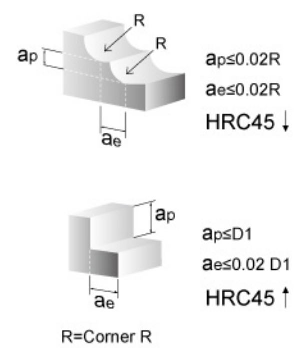


▶ Corner Radius / for H P K

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

▼ *Depth of cut*



▼ *Recommended cutting condition for QRD*

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	
DIAMETER	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

MAGIC CUT

QRDG

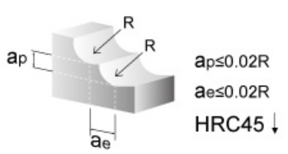
▶ Corner Radius / for H P K

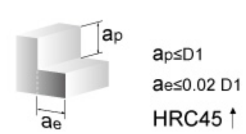
unit: mm

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

MG
4 Flutes
35°
R
HRC 65
Aldura
Finishing Semi-Finishing
Profiling

▼ Depth of cut





R=Corner R

▼ Recommended cutting condition for QRDG

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	
DIAMETER	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
4	16000	3200	10000	1900	4800	480
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

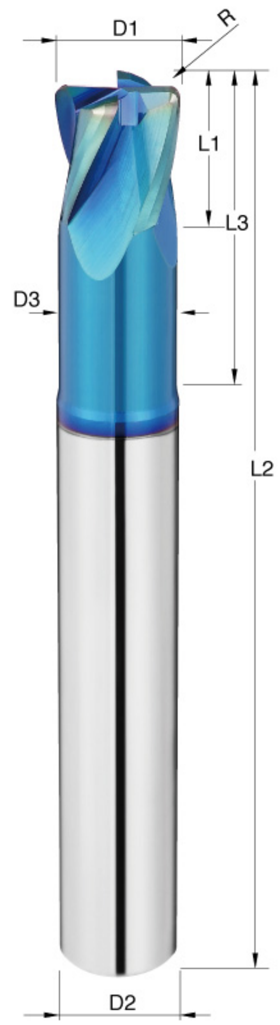
MAGIC CUT

QRHN

▶ Corner Radius / for H P K

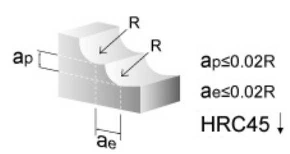
unit: mm

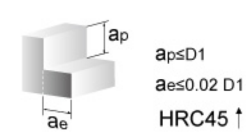
Order No.	Diameter D1	Corner R R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
QRHN **0305**	3.0	0.5	2.90	3	9	50	6
QRHN **0405**	4.0	0.5	3.88	4	12	50	6
QRHN **0605**	6.0	0.5	5.80	6	15	50	6
QRHN **0610**	6.0	1.0	5.80	6	15	50	6
QRHN **0805**	8.0	0.5	7.70	8	20	60	8
QRHN **0810**	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



MG
4 Flutes
25°
R
HRC 65
nAcoB
Finishing Semi-Finishing
Profiling

▼ Depth of cut





R=Corner R

▼ Recommended cutting condition for QRHN

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	
DIAMETER	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

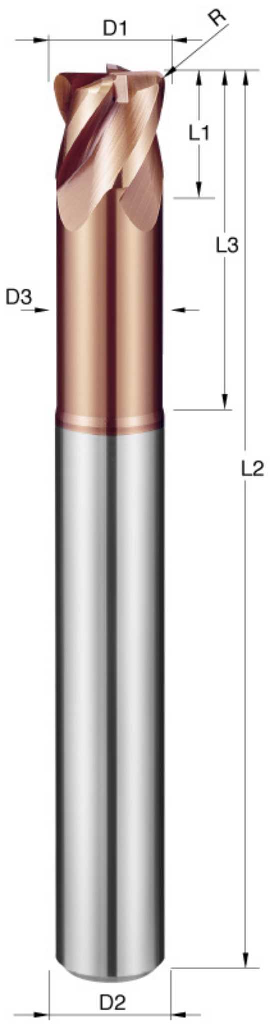
MAGIC CUT

QRHX

▶ Corner Radius / for H P K

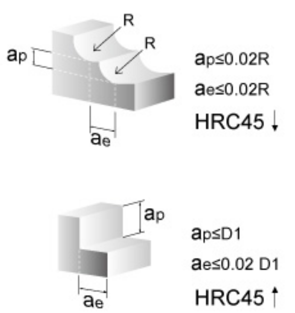
unit: mm

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



MG
4 Flutes
35°
R
HRC 65
i8
Finishing
Semi-Finishing
Profiling

▼ Depth of cut



▼ Recommended cutting condition for QRHX

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	
DIAMETER	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

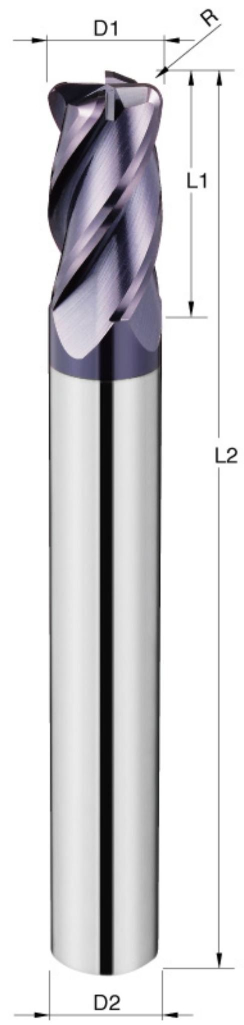
MAGIC CUT

QERC

▶ Long Shank / Corner Radius / for H P K

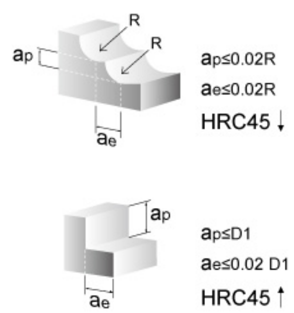
unit: mm

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



MG
4 Flutes
35°
R
HRC 65
ALTiN
Finishing
Semi-Finishing
Profiling

▼ Depth of cut



▼ Recommended cutting condition for QERC

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	
DIAMETER	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
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

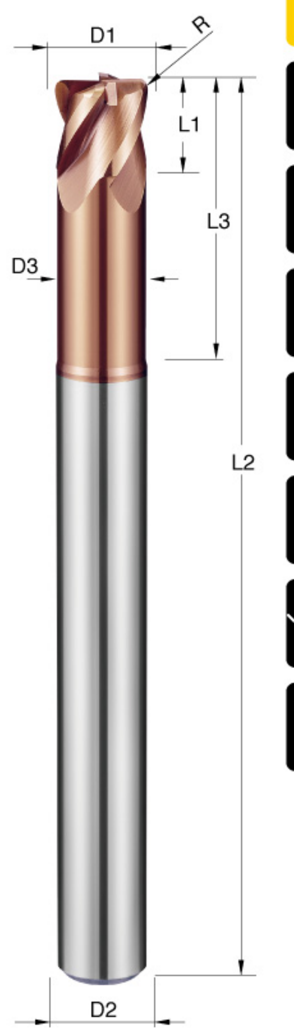
MAGIC CUT

QRHLX

▶ **Long Shank / Corner Radius / for H P K**

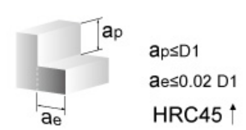
unit: mm

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



Q MG
4 Flutes
35°
R
HRC 65
i8
Finishing Semi-Finishing
Profiling

▼ *Depth of cut*



R=Corner R

▼ *Recommended cutting condition for 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	
DIAMETER	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
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

End Mills

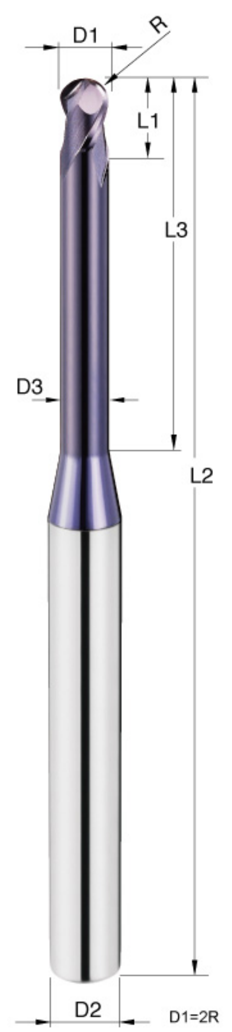
MAGIC CUT

QBF

▶ **Long Neck / Ball Nose / for H P K**

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	8	50	4
QBF **01212**	R0.6	1.15	2	12	50	4
QBF **01508**	R0.75	1.45	2	8	50	4
QBF **01512**	R0.75	1.45	2	12	50	4
QBF **01516**	R0.75	1.45	2	16	50	4
QBF **01520**	R0.75	1.45	2	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	8	50	4
QBF **02012**	R1	1.92	3	12	50	4
QBF **02016**	R1	1.92	3	16	50	4
QBF **02020**	R1	1.92	3	20	50	4
QBF **03008**	R1.5	2.90	4	8	50	6
QBF **03010**	R1.5	2.90	4	10	50	6
QBF **03016**	R1.5	2.90	4	16	50	6
QBF **03020**	R1.5	2.90	4	20	75	6
QBF **03025**	R1.5	2.90	4	25	75	6
QBF **04010**	R2	3.88	5	10	75	6
QBF **04015**	R2	3.88	5	15	75	6
QBF **04020**	R2	3.88	5	20	75	6
QBF **04025**	R2	3.88	5	25	75	6
QBF **04030**	R2	3.88	5	30	75	6

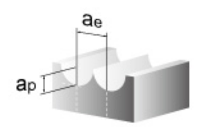


Q MG
2 Flutes
30°
HRC 65
ALTiN
Finishing Semi-Finishing
Profiling

▼ *Recommended cutting condition for QBF*

MATERIAL	Alloy Steels . Tool Steels . Hardened Steels S45C , SCM , S50C , SKS , SCr , SNCM , SKD11 , SKD61 , NAK80			
RADIUS	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

MAGIC CUT

QEFA

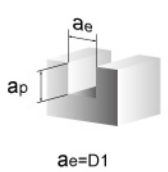
▶ Long Neck / Square / for H P K

unit: mm

MG
2 Flutes
35°
HRC 65
Aldura
Finishing Semi-Finishing
Slotting

Order No.	Diameter D1	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
QEFA **00504**	0.5	0.46	1	4	50	4
QEFA **00506**	0.5	0.46	1	6	50	4
QEFA **00604**	0.6	0.56	1.2	4	50	4
QEFA **00606**	0.6	0.56	1.2	6	50	4
QEFA **00804**	0.8	0.76	1.2	4	50	4
QEFA **00806**	0.8	0.76	1.2	6	50	4
QEFA **00808**	0.8	0.76	1.2	8	50	4
QEFA **01006**	1.0	0.95	1.5	6	50	4
QEFA **01008**	1.0	0.95	1.5	8	50	4
QEFA **01010**	1.0	0.95	1.5	10	50	4
QEFA **01012**	1.0	0.95	1.5	12	50	4
QEFA **01208**	1.2	1.15	2	8	50	4
QEFA **01212**	1.2	1.15	2	12	50	4
QEFA **01508**	1.5	1.45	2	8	50	4
QEFA **01510**	1.5	1.45	2	10	50	4
QEFA **01512**	1.5	1.45	2	12	50	4
QEFA **01516**	1.5	1.45	2	16	50	4
QEFA **01608**	1.6	1.54	2.5	8	50	4
QEFA **01612**	1.6	1.54	2.5	12	50	4
QEFA **01616**	1.6	1.54	2.5	16	50	4
QEFA **02008**	2.0	1.92	3	8	50	4
QEFA **02010**	2.0	1.92	3	10	50	4
QEFA **02012**	2.0	1.92	3	12	50	4
QEFA **02016**	2.0	1.92	3	16	50	4
QEFA **02020**	2.0	1.92	3	20	50	4
QEFA **02510**	2.5	2.40	3	10	50	4
QEFA **02512**	2.5	2.40	3	12	50	4
QEFA **02516**	2.5	2.40	3	16	50	4
QEFA **02520**	2.5	2.40	3	20	50	4
QEFA **03010**	3.0	2.90	4	10	50	6
QEFA **03012**	3.0	2.90	4	12	50	6
QEFA **03016**	3.0	2.90	4	16	50	6
QEFA **03020**	3.0	2.90	4	20	75	6
QEFA **03025**	3.0	2.90	4	25	75	6

▼ *Depth of cut*



▼ *Recommended cutting condition for QEFA*

MATERIAL		Alloy Steels . Tool Steels . Hardened Steels S45C , SCM , S50C , SKS , SCr , SNCM , SKD11 , SKD61 , NAK80		
DIAMETER	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	0.1
	8	15000	1200	0.05
	10	15000	1200	0.025
	12	15000	1200	0.018
2	8	12000	900	0.2
	10	8800	700	0.12
	12	7500	600	0.05
	16	7000	500	0.02
3	8	8000	600	0.5
	12	8000	600	0.45
	16	5500	450	0.18
	20	4000	300	0.15
	10	6000	400	0.7
	16	6000	400	0.4

MAGIC CUT

QRFA

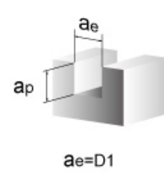
▶ Long Neck / Corner Radius / for H P K

unit: mm

MG
2 Flutes
35°
R
HRC 65
Aldura
Finishing Semi-Finishing
Slotting
Profiling

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

▼ *Depth of cut*



▼ *Recommended cutting condition for QRFA*

MATERIAL		Alloy Steels . Tool Steels . Hardened Steels S45C , SCM , S50C , SKS , SCr , SNCM , SKD11 , SKD61 , NAK80		
DIAMETER	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

MAGIC CUT

QRFB

▶ **Long Neck / Corner Radius / for H P K**

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
QRFB **01004**	1.0	0.1	0.95	1.0	4	50	4
QRFB **01006**	1.0	0.1	0.95	1.0	6	50	4
QRFB **01008**	1.0	0.1	0.95	1.0	8	50	4
QRFB **01010**	1.0	0.1	0.95	1.0	10	50	4
QRFB **01504**	1.5	0.2	1.45	1.5	4	50	4
QRFB **01506**	1.5	0.2	1.45	1.5	6	50	4
QRFB **01508**	1.5	0.2	1.45	1.5	8	50	4
QRFB **01510**	1.5	0.2	1.45	1.5	10	50	4
QRFB **01512**	1.5	0.2	1.45	1.5	12	50	4
QRFB **02008**	2.0	0.2	1.92	2.0	8	50	4
QRFB **02010**	2.0	0.2	1.92	2.0	10	50	4
QRFB **02012**	2.0	0.2	1.92	2.0	12	50	4
QRFB **02016**	2.0	0.2	1.92	2.0	16	50	4
QRFB **03008**	3.0	0.2	2.90	3.0	8	50	6
QRFB **03010**	3.0	0.2	2.90	3.0	10	50	6
QRFB **03012**	3.0	0.2	2.90	3.0	12	50	6
QRFB **03016**	3.0	0.2	2.90	3.0	16	50	6
QRFB **03020**	3.0	0.2	2.90	3.0	20	50	6

▲ SUN MOON LAKE, NANTOU, TAIWAN

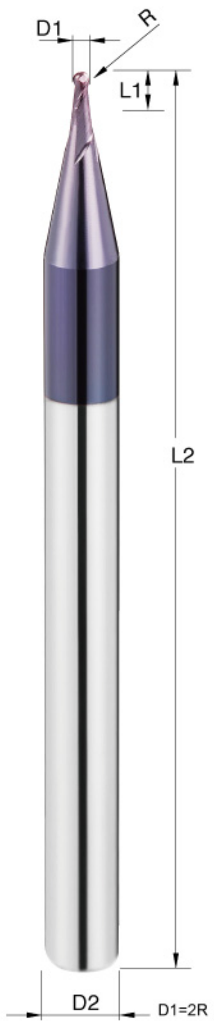
SUPER MILL

SBM

▶ **Micro Diameter / Ball Nose / for H P K**

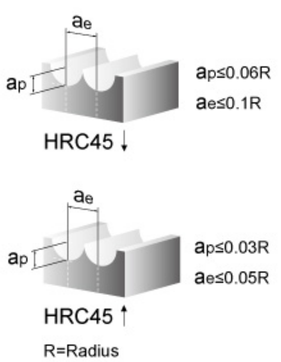
unit: mm

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



S MG
2 Flutes
30°
HRC 60
ALTiN
Finishing Semi-Finishing
Profiling

▼ *Depth of cut*



▼ *Recommended cutting condition for SBM*

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	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

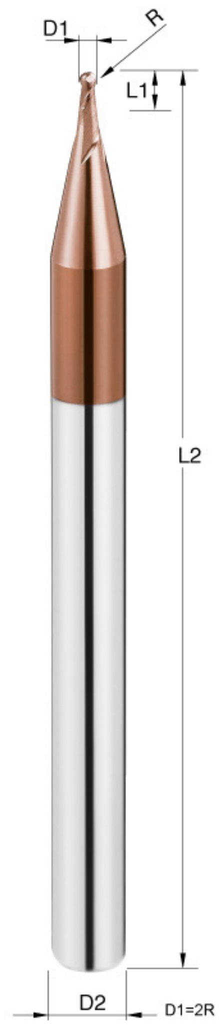
SUPER MILL

SBMX

▶ **Micro Diameter / Ball Nose / for H P K**

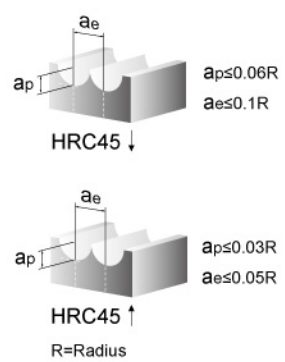
unit: mm

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



S MG
2 Flutes
30°
HRC 60
i8
Finishing Semi-Finishing
Profiling

▼ *Depth of cut*



▼ *Recommended cutting condition for SBMX*

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	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

SUPER MILL

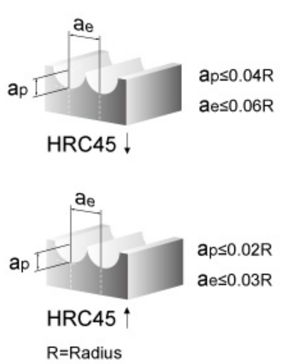
SB

▶ **Ball Nose / for** H P K

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

▼ *Depth of cut*



▼ *Recommended cutting condition for SB*

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	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

SUPER MILL

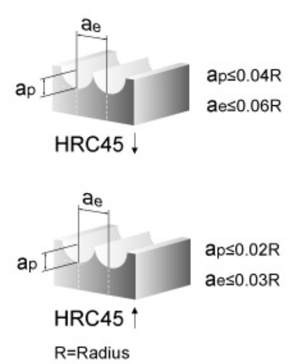
SBK

▶ **Ball Nose / for** H P K

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

▼ *Depth of cut*



▼ *Recommended cutting condition for SBK*

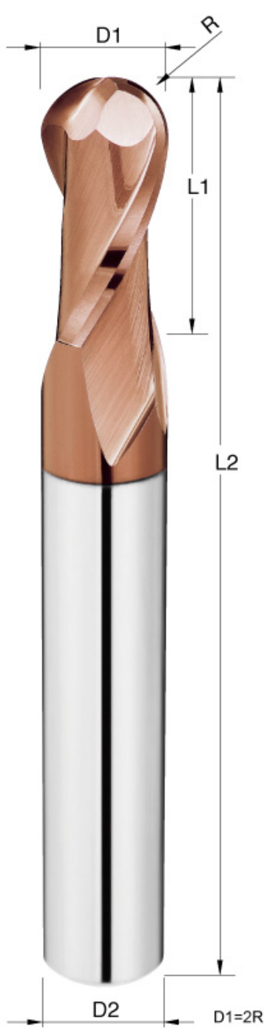
MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
RADIUS	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
R0.5	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

SUPER MILL

SBX

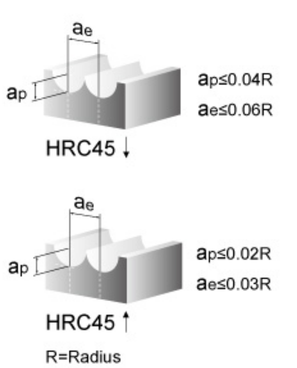
▶ Ball Nose / for H P K

unit: mm



Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2
SBX **0104**	R0.5	2	50	4
SBX **0154**	R0.75	3	50	4
SBX **0204**	R1	4	50	4
SBX **0306**	R1.5	6	50	6
SBX **0406**	R2	8	50	6
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

▼ *Depth of cut*



▼ *Recommended cutting condition for SBX*

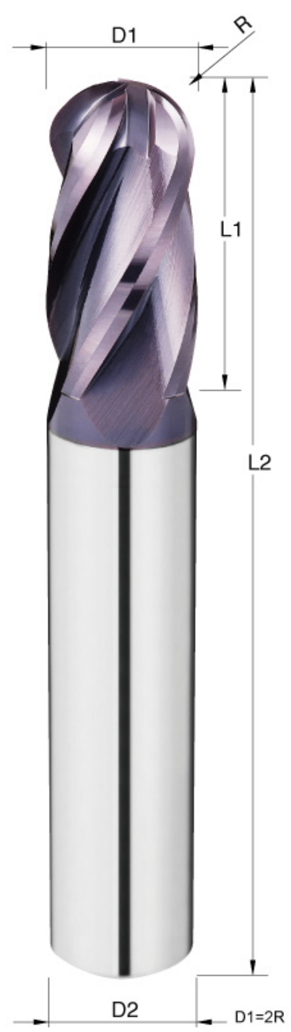
MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
RADIUS	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
R0.5	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

SUPER MILL

SBB

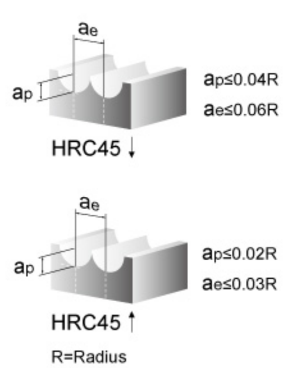
▶ Ball Nose / for H P K

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

▼ *Depth of cut*

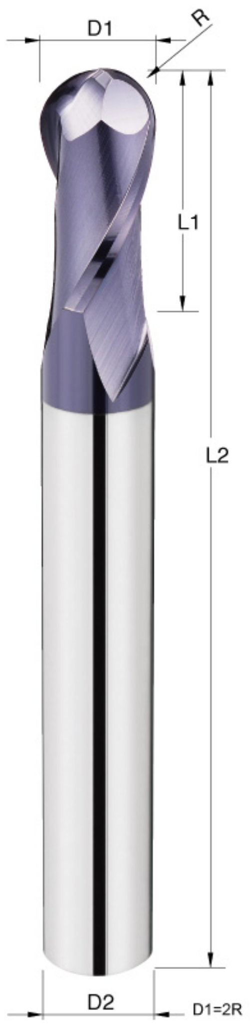


▼ *Recommended cutting condition for SBB*

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	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

SUPER MILL

SBLS.M.L

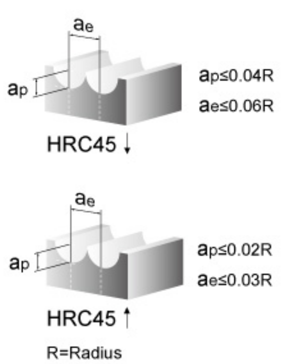


▶ Long Shank / Ball Nose / for H P K

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

▼ *Depth of cut*

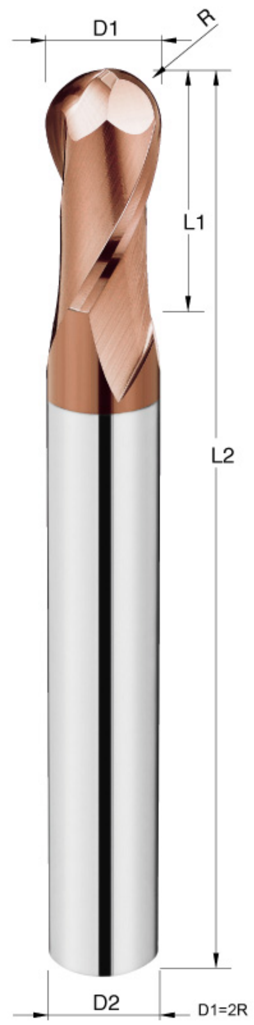


▼ *Recommended cutting condition for SBLS. SBLM. SBLL*

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	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

SUPER MILL

SBLSX.MX.LX

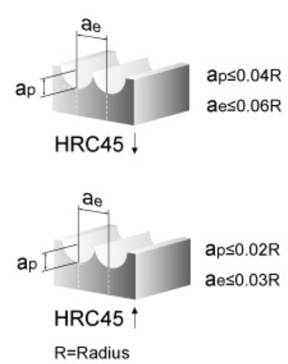


▶ Long Shank / Ball Nose / for H P K

unit: mm

Order No.	Radius R	Flute Length L1	O.A.L L2	Shank Dia D2
SBLSX **0206**	R1	4	75	6
SBLSX **0306**	R1.5	6	75	6
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 **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

▼ *Depth of cut*



▼ *Recommended cutting condition for SBLSX. SBLMX. SBLLX*

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	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

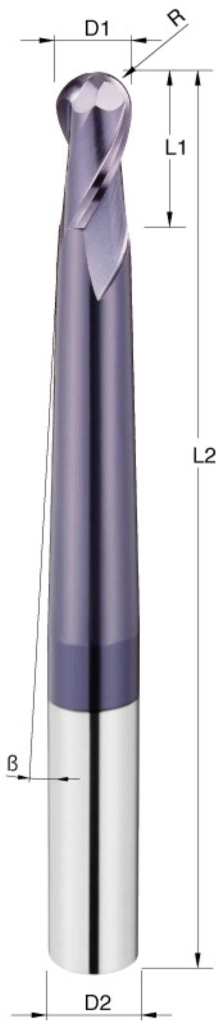
SUPER MILL

SBC

▶ Taper Neck / Ball Nose / for H P K

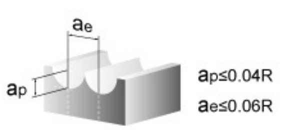
unit: mm

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°

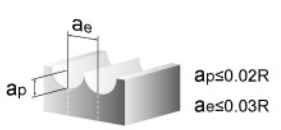


S MG
2 Flutes
30°
HRC 60
ALTiN
Finishing
Semi-Finishing
Profiling

▼ Depth of cut



HRC45 ↓



HRC45 ↑

R=Radius

▼ Recommended cutting condition for SBC

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	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

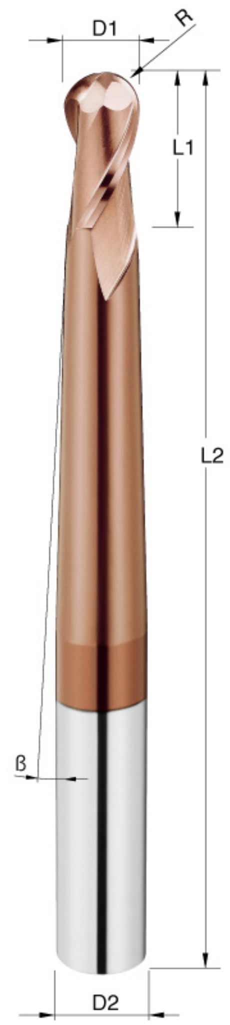
SUPER MILL

SBCX

▶ Taper Neck / Ball Nose / for H P K

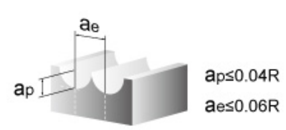
unit: mm

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°

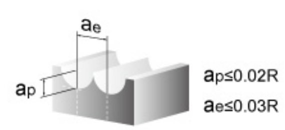


S MG
2 Flutes
30°
HRC 60
i8
Finishing
Semi-Finishing
Profiling

▼ Depth of cut



HRC45 ↓



HRC45 ↑

R=Radius

▼ Recommended cutting condition for 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	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

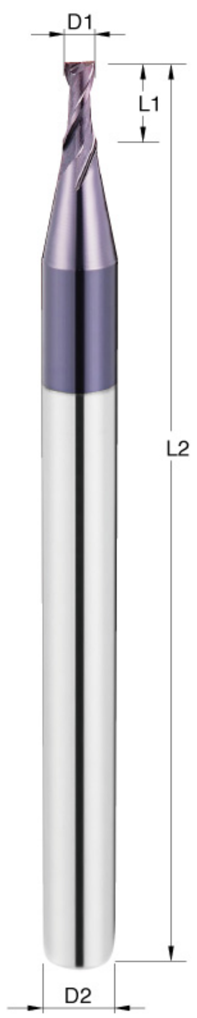
SUPER MILL

SEM

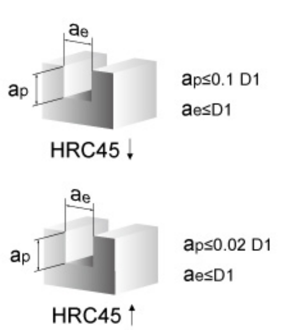
▶ Micro Diameter / Square / for H P K

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



▼ Depth of cut



▼ Recommended cutting condition for SEM

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	
DIAMETER	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

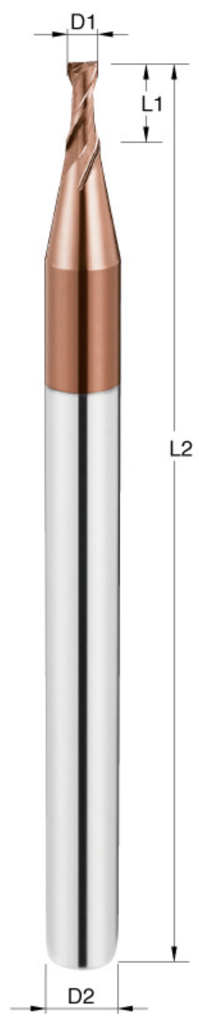
SUPER MILL

SEMX

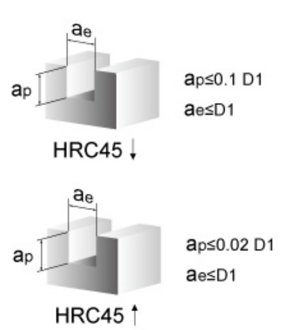
▶ Micro Diameter / Square / for H P K

unit: mm

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



▼ Depth of cut



▼ Recommended cutting condition for SEMX

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	
DIAMETER	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

SUPER MILL

SEA

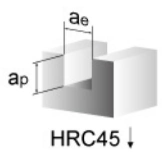
▶ **Square / for** H P K

unit: mm

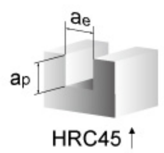
Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
SEA **0104**	1.0	3	50	4
SEA **0154**	1.5	4	50	4
SEA **0204**	2.0	6	50	4
SEA **0306**	3.0	8	50	6
SEA **0406**	4.0	11	50	6
SEA **0506**	5.0	13	50	6
SEA **0606**	6.0	16	50	6
SEA **0808**	8.0	20	60	8
SEA **1010**	10.0	25	75	10
SEA **1212**	12.0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

S MG
2 Flutes
35°
HRC 60
ALTiN
Finishing Semi-Finishing
Planing
Slotting

▼ *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 SEA*

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	
DIAMETER	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

SUPER MILL

SEB

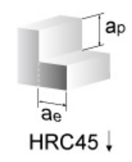
▶ **Square / for** H P K

unit: mm

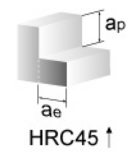
Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
SEB **0104**	1.0	3	50	4
SEB **0106**	1.0	3	50	6
SEB **0154**	1.5	4	50	4
SEB **0156**	1.5	4	50	6
SEB **0204**	2.0	6	50	4
SEB **0206**	2.0	6	50	6
SEB **0254**	2.5	8	50	4
SEB **0256**	2.5	8	50	6
SEB **0303**	3.0	8	50	3
SEB **0304**	3.0	8	50	4
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

S MG
4 Flutes
35°
HRC 60
ALTiN
Finishing Semi-Finishing
Planing
Side

▼ *Depth of cut*



ap≤1.5 D1
ae≤0.1 D1
HRC45 ↓



ap≤D1
ae≤0.05 D1
HRC45 ↑

▼ *Recommended cutting condition for SEB*

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	
DIAMETER	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

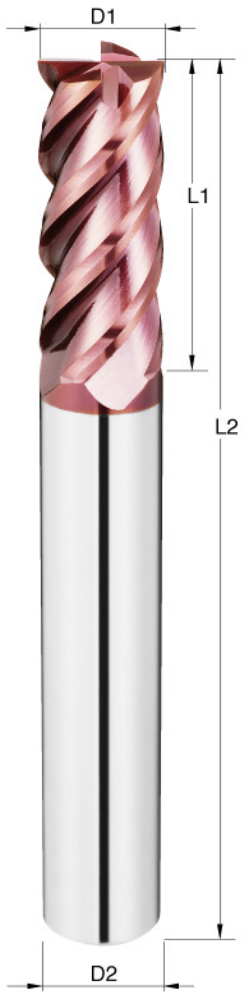
SUPER MILL

SEK

▶ Square / for H P K

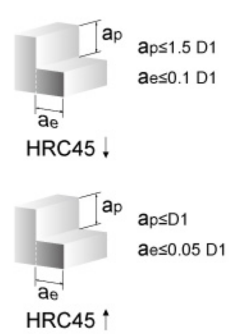
unit: mm

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



S MG
4 Flutes
45°
HRC 60
G100
Finishing
Semi-Finishing
Planing
Side

▼ Depth of cut



▼ Recommended cutting condition for SEK

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	
DIAMETER	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

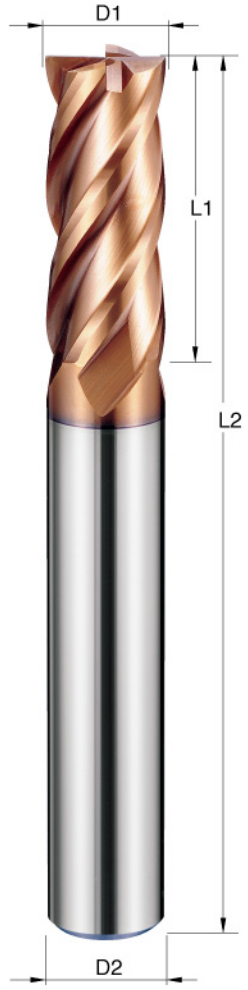
SUPER MILL

SEX

▶ Square / for H P K

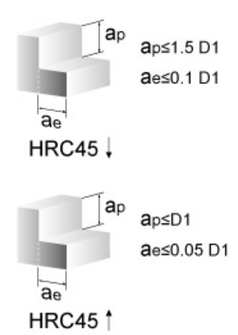
unit: mm

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



S MG
4 Flutes
35°
HRC 60
i8
Finishing
Semi-Finishing
Planing
Side

▼ Depth of cut



▼ Recommended cutting condition for SEX

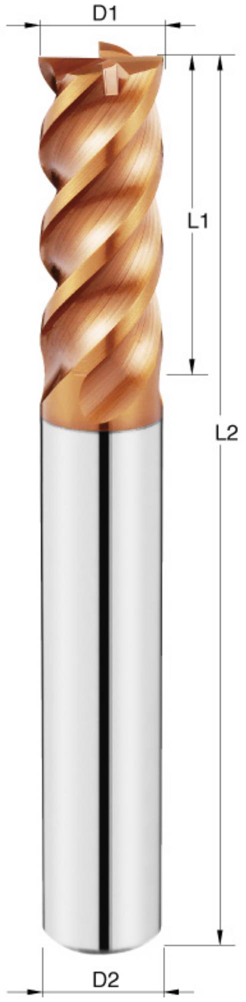
MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
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

SUPER MILL

SEP

▶ **Power / Square / for H P K**

unit: mm

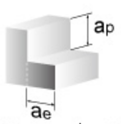


Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
SEP **0306**	3.0	8	50	6
SEP **0406**	4.0	11	50	6
SEP **0506**	5.0	13	50	6
SEP **0606**	6.0	16	50	6
SEP **0808**	8.0	20	60	8
SEP **1010**	10.0	25	75	10
SEP **1212**	12.0	30	75	12
SEP **1616**	16.0	40	100	16
SEP **2020**	20.0	45	100	20

▼ *Recommended cutting condition for SEP*

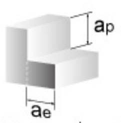
MATERIAL		Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS		~HRC30		~HRC50		~HRC60	
DIAMETER		SPEED (min⁻¹)	FEED mm / min	SPEED (min⁻¹)	FEED mm / min	SPEED (min⁻¹)	FEED mm / min
Side Milling	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*



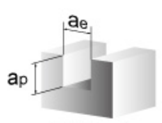
HRC45 ↓

D1 6mm ↓ a_p=1.5 D1 a_e=0.02 D1
D1 6mm ↑ a_p=1.5 D1 a_e=0.05 D1



HRC45 ↑

D1 6mm ↓ a_p=1.5 D1 a_e=0.01 D1
D1 6mm ↑ a_p=1.5 D1 a_e=0.02 D1



HRC45 ↓ a_p≤0.2 D1
a_e=D1

SUPER MILL

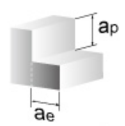
SEW

▶ **Square / for H P K**

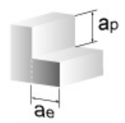
unit: mm

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

▼ *Depth of cut*



a_p≤1.5 D1
a_e≤0.4 D1
HRC45 ↓



a_p≤1.5 D1
a_e≤0.2 D1
HRC45 ↑

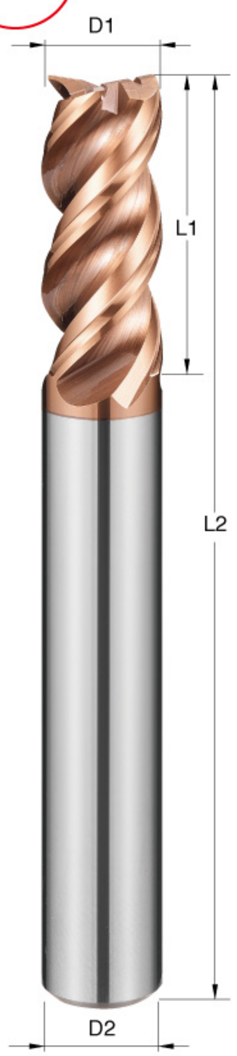
▼ *Recommended cutting condition for SEW*

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	
DIAMETER	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

SUPER MILL

ZPRO

NEW



▶ Square / for H P K

unit: mm

Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
ZPRO-**0206**	2.0	6	50	6
ZPRO-**0256**	2.5	6	50	6
ZPRO-**0306**	3.0	8	50	6
ZPRO-**0356**	3.5	8	50	6
ZPRO-**0406**	4.0	11	50	6
ZPRO-**0456**	4.5	11	50	6
ZPRO-**0506**	5.0	13	50	6
ZPRO-**1606**	6.0	16	50	6
ZPRO-**0808**	8.0	21	65	8
ZPRO-**1010**	10.0	25	80	10
ZPRO-**1212**	12.0	30	80	12

Carbon Steels	Alloy Steels	Pre-Hardened Steel	Hardened Steels		Stainless Steels	Aluminum Alloys	Heat resistant Alloy	Titanium Alloys
~HB225	HB225~352	HRC~48	HRC~56	HRC~65				
◎	◎	◎			○	○	○	○

▼ Recommended cutting condition for ZPRO

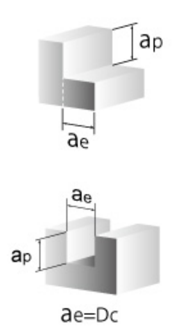
Side Milling

Material	Carbon Steels/Alloy Steels/Cast Irons		Pre-Hardened Steels		Stainless Steels	
	SS/S45C/SCM/FC		SKD11/SKD61···		SUS304/SUS316L···	
Depth of cut	ap:1.0Dc ae:0.5Dc		ap:1.0Dc ae:0.3Dc		ap:1.0Dc ae:0.2Dc	
Dia. (D1)	Speed (min^{-1})	Feed mm/min	Speed (min^{-1})	Feed mm/min	Speed (min^{-1})	Feed mm/min
2	19100	860	12740	380	9550	430
2.5	15280	915	10200	300	7640	460
3.0	12740	955	8490	765	6370	570
3.5	10920	980	7280	655	5460	570
4.0	9550	1140	6370	760	4780	570
4.5	8490	1020	5660	760	4250	640
5.0	7640	1030	5090	680	3800	680
6.0	6370	1140	4250	640	3200	670
8.0	4780	1140	3180	480	2390	570
10.0	3820	1140	2550	460	1910	510
12.0	3180	950	2120	440	1590	470

Slotting

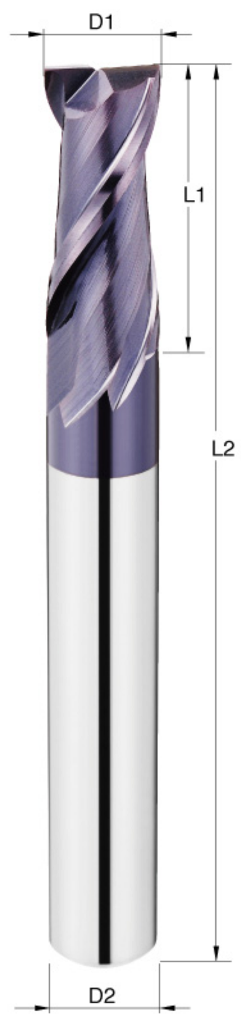
Material	Carbon Steels/Alloy Steels/Cast Irons		Pre-Hardened Steels		Stainless Steels	
	SS/S45C/SCM/FC		SKD11/SKD61···		SUS304/SUS316L···	
Depth of cut	ap:1.0Dc		ap:0.5Dc		ap:0.3Dc	
Dia. (D1)	Speed (min^{-1})	Feed mm/min	Speed (min^{-1})	Feed mm/min	Speed (min^{-1})	Feed mm/min
2	19100	510	12740	300	9550	345
2.5	15280	640	10200	240	7640	370
3.0	12740	660	8490	530	6370	450
3.5	10920	680	7280	460	5460	450
4.0	9550	800	6370	530	4780	450
4.5	8490	710	5660	530	4250	510
5.0	7640	720	5090	470	3800	540
6.0	6370	800	4250	510	3200	530
8.0	4780	800	3180	380	2390	450
10.0	3820	800	2550	370	1910	400
12.0	3180	670	2120	350	1590	380

▼ Depth of cut



SUPER MILL

SELA

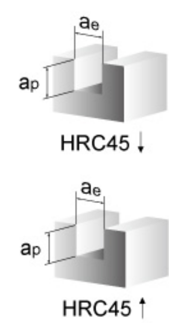


▶ Long Shank / Square / for H P K

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

▼ Depth of cut



D1<3 ap=0.15 D1
D1>3 ap=0.25 D1
ae=D1

D1<3 ap=0.05 D1
D1>3 ap=0.1 D1
ae=D1

▼ Recommended cutting condition for 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	
DIAMETER	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
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

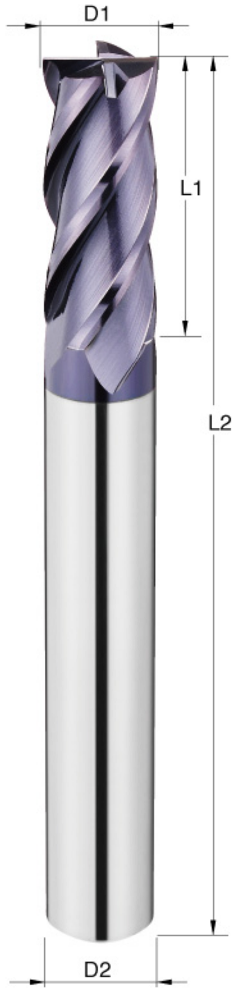
SUPER MILL

SELB

▶ Long Shank / Square / for H P K

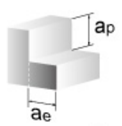
unit: mm

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

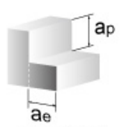


S MG · 4 Flutes · 35° · HRC 60 · ALTiN · Finishing / Semi-Finishing · Planing · Side

▼ *Depth of cut*



ap≤1.5 D1
ae≤0.1 D1
HRC45 ↓



ap≤D1
ae≤0.05 D1
HRC45 ↑

▼ *Recommended cutting condition for 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	
DIAMETER	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
16	1500	650	1000	300	500	150

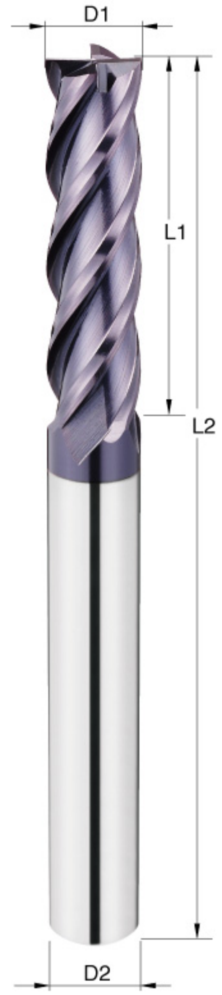
SUPER MILL

SELD

▶ Long Flute / Square / for H P K

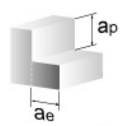
unit: mm

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

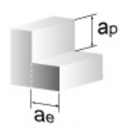


S MG · 4 Flutes · 35° · HRC 60 · ALTiN · Finishing / Semi-Finishing · Planing · Slotting · Side

▼ *Depth of cut*



ap≤2.5 D1
ae≤0.05 D1
HRC45 ↓



ap≤2D1
ae≤0.02 D1
HRC45 ↑

▼ *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	
DIAMETER	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

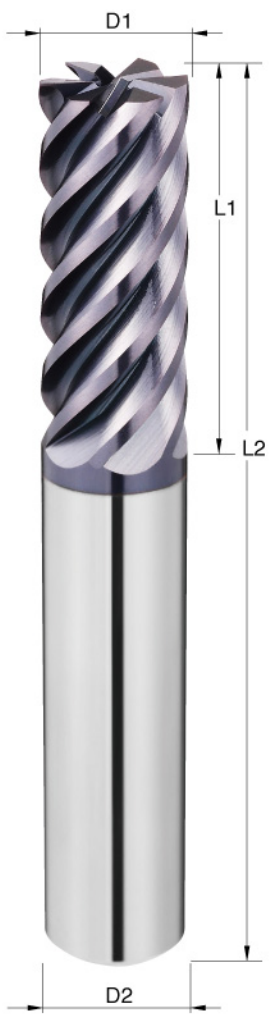
SUPER MILL

SHA

▶ **Square / for** H P K

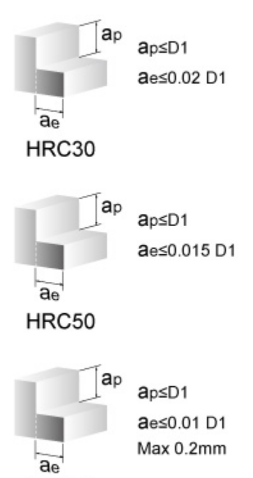
unit: mm

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 MG
6 Flutes
45°
HRC 60
ALTiN
Finishing
Side

▼ *Depth of cut*



▼ *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	
DIAMETER	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

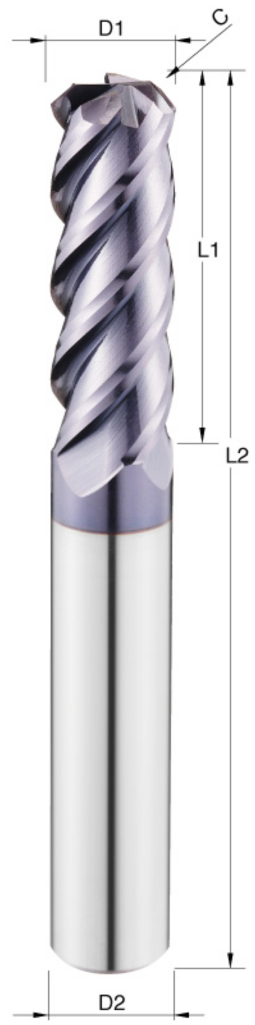
SUPER MILL

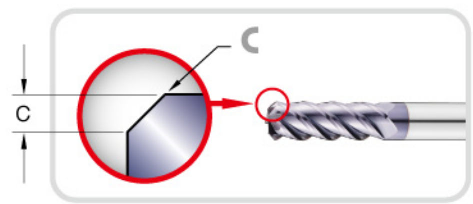
SEZ

▶ **Chamfer / Square / for** H P K

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





S MG
4 Flutes
45°
C
HRC 60
ALTiN
Finishing Semi-Finishing
Side
Slotting

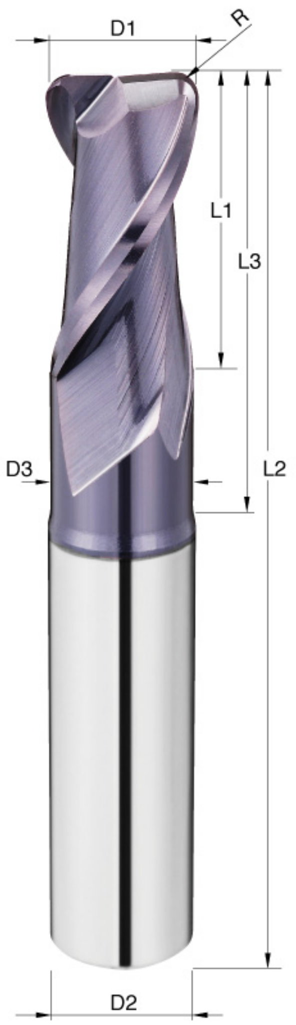
▼ *Depth of cut*

▼ *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	
DIAMETER	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

SUPER MILL

SRA

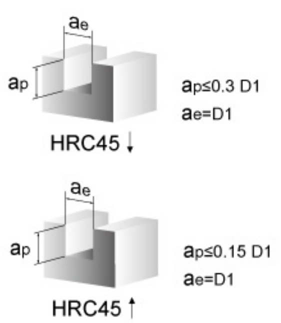


▶ Corner Radius / for H P K

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

▼ *Depth of cut*

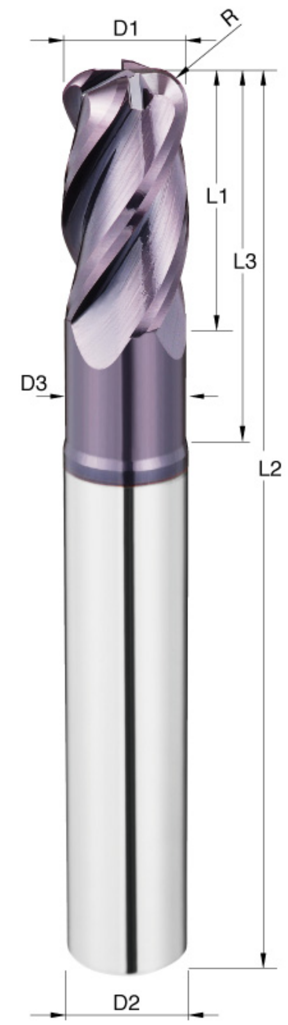


▼ *Recommended cutting condition for SRA*

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	
DIAMETER	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

SUPER MILL

SRB

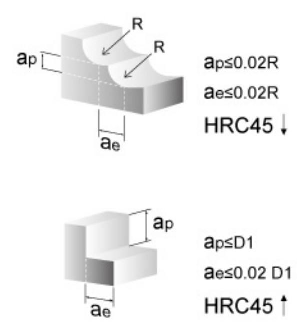


▶ Corner Radius / for H P K

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

▼ *Depth of cut*



R=Corner R

▼ *Recommended cutting condition for SRB*

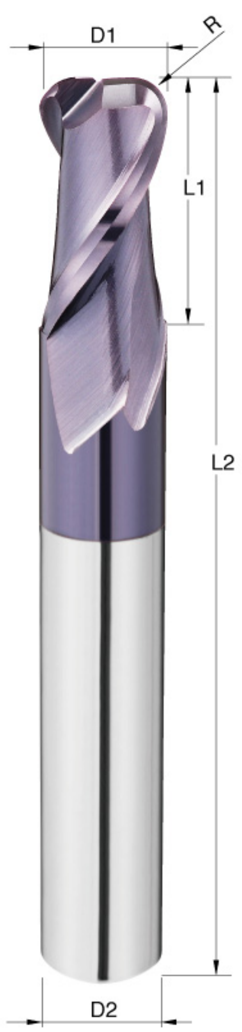
MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
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

SUPER MILL

SRC

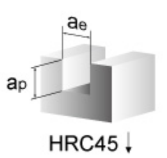
▶ Corner Radius / for H P K

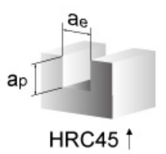
unit: mm



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

▼ *Depth of cut*





▼ *Recommended cutting condition for SRC*

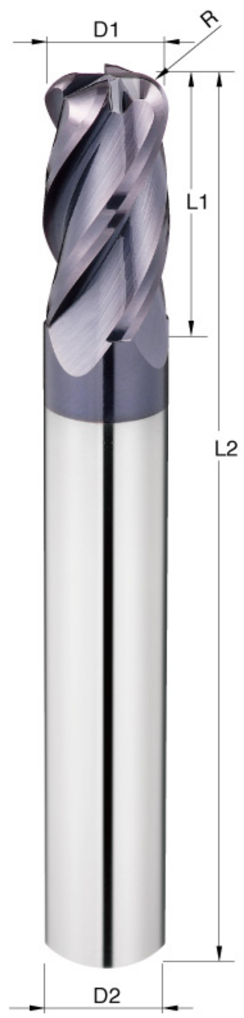
MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
DIAMETER	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
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

SUPER MILL

SRD

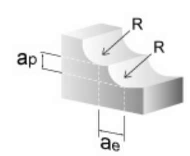
▶ Corner Radius / for H P K

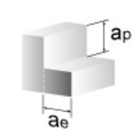
unit: mm



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

▼ *Depth of cut*





R=Corner R

▼ *Recommended cutting condition for SRD*

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	
DIAMETER	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

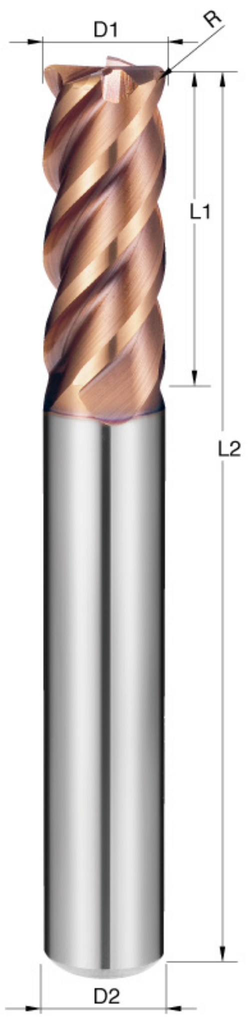
SUPER MILL

SRDX

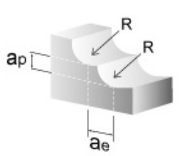
▶ **Corner Radius / for H P K**

unit: mm

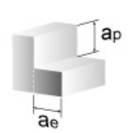
Order No.	Diameter D1	Corner R R	Flute Length L1	O.A.L. L2	Shank Dia D2
SRDX **0302**	3.0	0.2	6	50	3
SRDX **0305**	3.0	0.5	6	50	3
SRDX **0402**	4.0	0.2	8	50	4
SRDX **0405**	4.0	0.5	8	50	4
SRDX **0605**	6.0	0.5	12	50	6
SRDX **0610**	6.0	1.0	12	50	6
SRDX **0805**	8.0	0.5	16	60	8
SRDX **0810**	8.0	1.0	16	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



▼ *Depth of cut*



ap≤0.02R
ae≤0.02R
HRC45 ↓



ap≤D1
ae≤0.02 D1
HRC45 ↑

R=Corner R

▼ *Recommended cutting condition for SRDX*

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	
DIAMETER	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

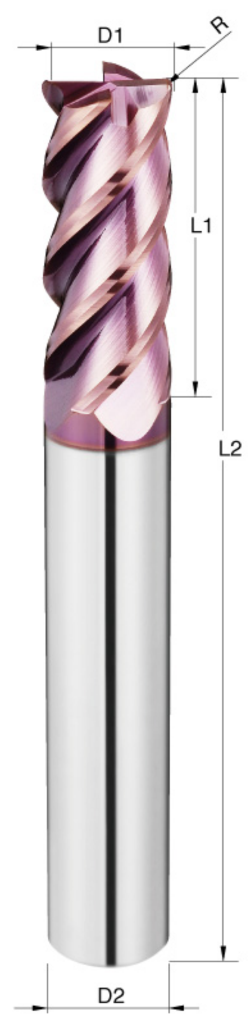
SUPER MILL

SRK

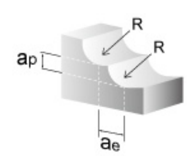
▶ **Corner Radius / for H P K**

unit: mm

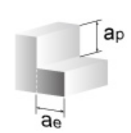
Order No.	Diameter D1	Corner R R	Flute Length L1	O.A.L. L2	Shank Dia D2
SRK **0302**	3.0	0.2	8	50	3
SRK **0305**	3.0	0.5	8	50	3
SRK **0402**	4.0	0.2	11	50	4
SRK **0405**	4.0	0.5	11	50	4
SRK **0410**	4.0	1.0	11	50	4
SRK **0602**	6.0	0.2	16	50	6
SRK **0605**	6.0	0.5	16	50	6
SRK **0610**	6.0	1.0	16	50	6
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



▼ *Depth of cut*



ap≤0.02R
ae≤0.02R
HRC45 ↓



ap≤D1
ae≤0.02 D1
HRC45 ↑

R=Corner R

▼ *Recommended cutting condition for SRK*

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	
DIAMETER	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

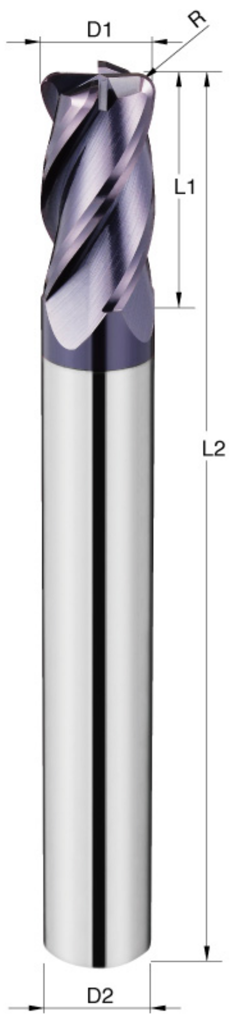
SUPER MILL

SERC

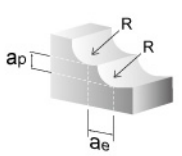
▶ Long Shank Corner Radius / for H P K

unit: mm

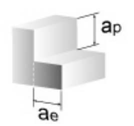
Order No.	Diameter D1	Corner R R	Flute Length L1	O.A.L. L2	Shank Dia D2
SERC **0605**	6.0	0.5	12	75	6
SERC **0605A**	6.0	0.5	12	100	6
SERC **0610**	6.0	1.0	12	75	6
SERC **0610A**	6.0	1.0	12	100	6
SERC **0805**	8.0	0.5	16	100	8
SERC **0810**	8.0	1.0	16	100	8
SERC **1005**	10.0	0.5	20	100	10
SERC **1010**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



▼ Depth of cut



ap≤0.02R
ae≤0.02R
HRC45 ↓



ap≤D1
ae≤0.02 D1
HRC45 ↑

R=Corner R

▼ Recommended cutting condition for SERC

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	
DIAMETER	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
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

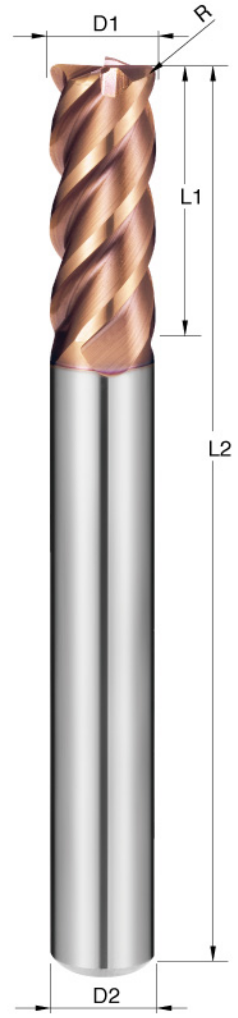
SUPER MILL

SERCX

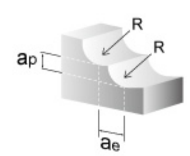
▶ Long Shank Corner Radius / for H P K

unit: mm

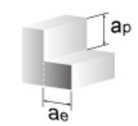
Order No.	Diameter D1	Corner R R	Flute Length L1	O.A.L. L2	Shank Dia D2
SERCX **0605**	6.0	0.5	12	75	6
SERCX **0610**	6.0	1.0	12	75	6
SERCX **0805**	8.0	0.5	16	100	8
SERCX **0810**	8.0	1.0	16	100	8
SERCX **1005**	10.0	0.5	20	100	10
SERCX **1010**	10.0	1.0	20	100	10
SERCX **1020**	10.0	2.0	20	100	10
SERCX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



▼ Depth of cut



ap≤0.02R
ae≤0.02R
HRC45 ↓



ap≤D1
ae≤0.02 D1
HRC45 ↑

R=Corner R

▼ Recommended cutting condition for 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	
DIAMETER	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
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

SUPER MILL

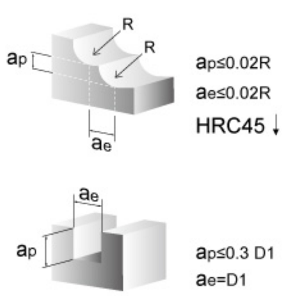
SRP

▶ Power Corner Radius / for H P K

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

▼ Depth of cut



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	
DIAMETER	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

SUPER MILL

SBF

▶ Long Neck / Ball Nose / for H P K

unit: mm

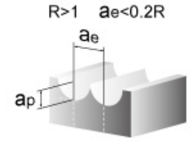
Order No.	Radius R	Neck Dia D3	Flute Length L1	Effective Length L3	O.A.L. L2	Shank Dia D2
SBF **00504**	R0.25	0.46	0.5	4	50	4
SBF **00506**	R0.25	0.46	0.5	6	50	4
SBF **00604**	R0.3	0.56	0.6	4	50	4
SBF **00606**	R0.3	0.56	0.6	6	50	4
SBF **00806**	R0.4	0.76	0.8	6	50	4
SBF **00808**	R0.4	0.76	0.8	8	50	4
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

▼ Recommended cutting condition for SBF

MATERIAL		Alloy Steels . Tool Steels . Hardened Steels S45C , SCM , S50C , SKS , SCr , SNCM , SKD11 , SKD61 , NAK80		
RADIUS	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

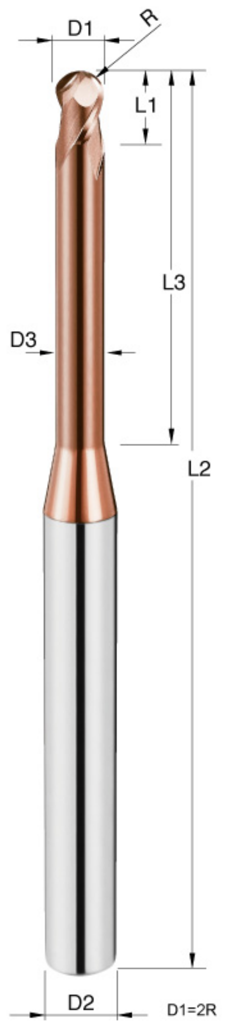
SUPER MILL

SBFX

▶ Long Neck / Ball Nose / for H P K

unit: mm

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

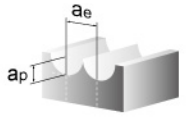


▼ Recommended cutting condition for SBFX

MATERIAL		Alloy Steels . Tool Steels . Hardened Steels S45C , SCM , S50C , SKS , SCr , SNCM , SKD11 , SKD61 , NAK80		
RADIUS	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

SUPER MILL

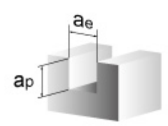
SEFA

▶ Long Neck / Square / for H P K

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

▼ Depth of cut



ae=D1

▼ Recommended cutting condition for SEFA

MATERIAL		Alloy Steels . Tool Steels . Hardened Steels S45C , SCM , S50C , SKS , SCr , SNCM , SKD11 , SKD61 , NAK80		
DIAMETER	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	0.1
	8	15000	1200	0.05
	10	15000	1200	0.025
	12	15000	1200	0.018
2	8	12000	900	0.2
	10	8800	700	0.12
	12	7500	600	0.05
	16	7000	500	0.02
3	10	8000	600	0.5
	12	8000	600	0.45
	16	5500	450	0.18
	20	4000	300	0.15
	25	6000	400	0.1

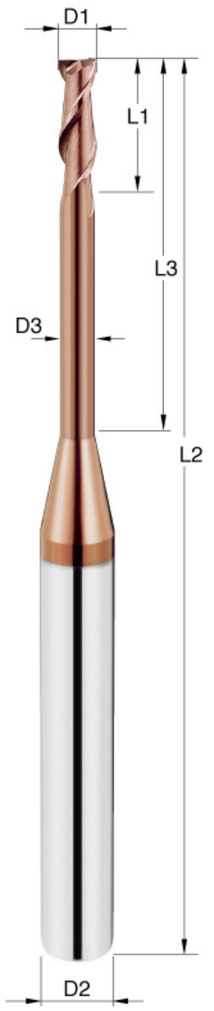
SUPER MILL

SEFAX

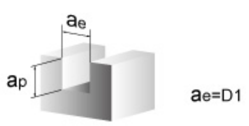
▶ Long Neck / Square / for H P K

unit: mm

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



▼ Depth of cut



▼ Recommended cutting condition for SEFAX

MATERIAL		Alloy Steels . Tool Steels . Hardened Steels S45C , SCM , S50C , SKS , SCr , SNCM , SKD11 , SKD61 , NAK80		
DIAMETER	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	0.1
	8	15000	1200	0.05
	10	15000	1200	0.025
	12	15000	1200	0.018
2	8	12000	900	0.2
	10	8800	700	0.12
	12	7500	600	0.05
	16	7000	500	0.02
3	10	8000	600	0.5
	12	8000	600	0.45
	16	5500	450	0.18
	20	4000	300	0.15
	25	6000	400	0.1

SUPER MILL

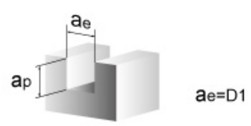
SEF

▶ Long Neck / Corner Radius / for H P K

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

▼ Depth of cut

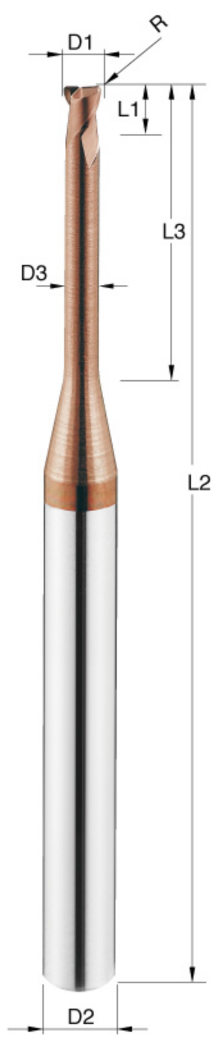


▼ Recommended cutting condition for SEF

MATERIAL		Alloy Steels . Tool Steels . Hardened Steels S45C , SCM , S50C , SKS , SCr , SNCM , SKD11 , SKD61 , NAK80		
DIAMETER	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

SUPER MILL

SEFX

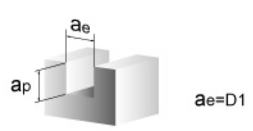


▶ Long Neck / Corner Radius / for H P K

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
SEFX **01004**	1.0	0.1	0.95	1.0	4	50	4
SEFX **01006**	1.0	0.1	0.95	1.0	6	50	4
SEFX **01008**	1.0	0.1	0.95	1.0	8	50	4
SEFX **01010**	1.0	0.1	0.95	1.0	10	50	4
SEFX **01504**	1.5	0.2	1.45	1.5	4	50	4
SEFX **01506**	1.5	0.2	1.45	1.5	6	50	4
SEFX **01508**	1.5	0.2	1.45	1.5	8	50	4
SEFX **01510**	1.5	0.2	1.45	1.5	10	50	4
SEFX **01512**	1.5	0.2	1.45	1.5	12	50	4
SEFX **02008**	2.0	0.2	1.92	2.0	8	50	4
SEFX **02010**	2.0	0.2	1.92	2.0	10	50	4
SEFX **02012**	2.0	0.2	1.92	2.0	12	50	4
SEFX **02016**	2.0	0.2	1.92	2.0	16	50	4
SEFX **03008**	3.0	0.2	2.90	3.0	8	50	6
SEFX **03010**	3.0	0.2	2.90	3.0	10	50	6
SEFX **03012**	3.0	0.2	2.90	3.0	12	50	6
SEFX **03016**	3.0	0.2	2.90	3.0	16	50	6
SEFX **03020**	3.0	0.2	2.90	3.0	20	50	6

▼ Depth of cut



▼ Recommended cutting condition for SEFX

MATERIAL		Alloy Steels . Tool Steels . Hardened Steels S45C , SCM , S50C , SKS , SCr , SNCM , SKD11 , SKD61 , NAK80		
DIAMETER	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

▲ THE TOWN OF CHIUFEN

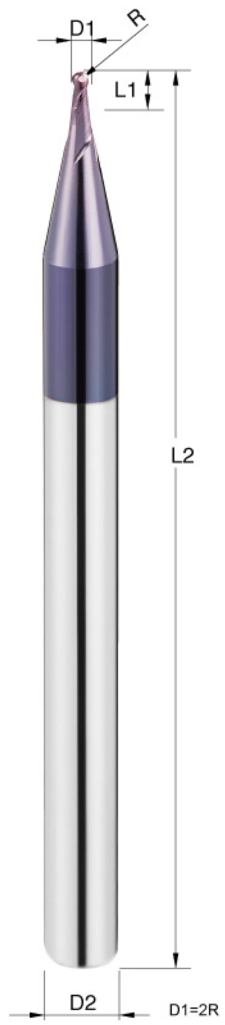
EFFICIENCY MILLS

BM

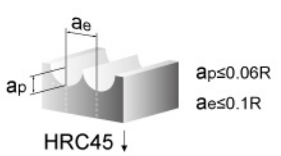
▶ Micro Diameter / Ball Nose / for P K

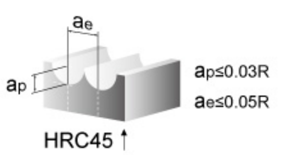
unit: mm

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



▼ Depth of cut





R=Radius

▼ 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	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

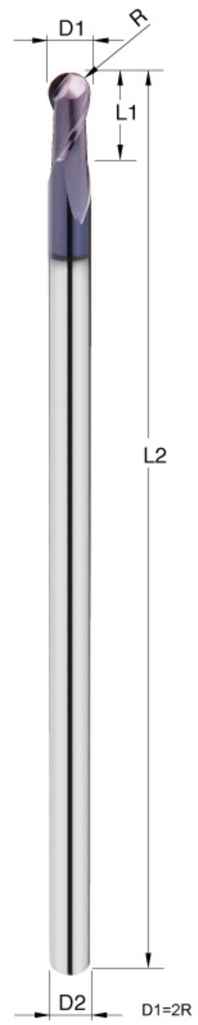
EFFICIENCY MILLS

BS

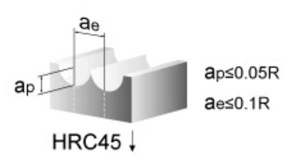
▶ Small Shank / Ball Nose / for P K

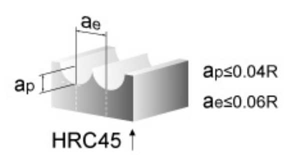
unit: mm

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



▼ Depth of cut





R=Radius

▼ Recommended cutting condition for BS

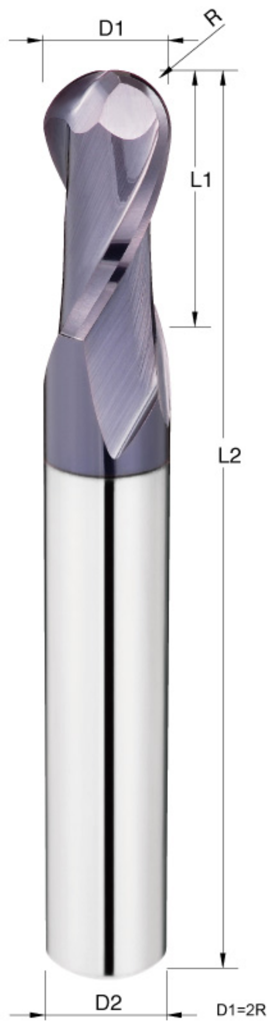
MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
RADIUS	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
R0.5	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

EFFICIENCY MILLS

BA

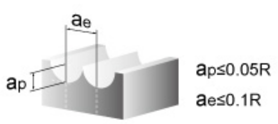
▶ Ball Nose / for P K

unit: mm

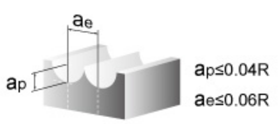


Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2
BA **0104**	R0.5	2	50	4
BA **0154**	R0.75	3	50	4
BA **0202**	R1	4	50	2
BA **0204**	R1	4	50	4
BA **0254**	R1.25	5	50	4
BA **0304**	R1.5	6	50	4
BA **0354**	R1.75	7	50	4
BA **0404**	R2	8	50	4
BA **0456**	R2.25	9	50	6
BA **0505**	R2.5	10	50	5
BA **0506**	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

▼ *Depth of cut*



HRC45 ↓



HRC45 ↑

R=Radius

▼ *Recommended cutting condition for BA*

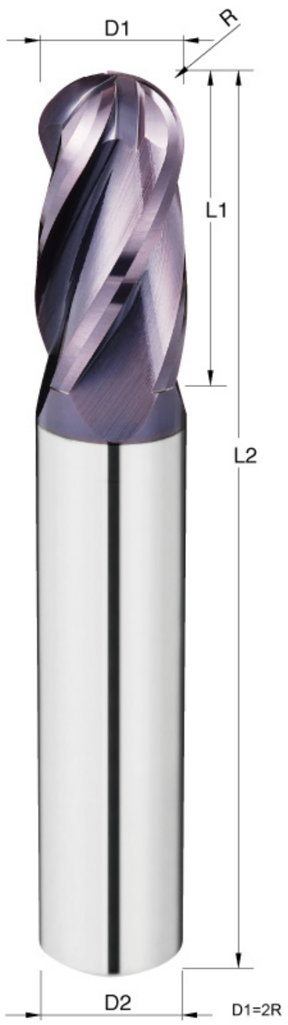
MATERIAL	Carbon Steels . Alloy Steels S45C , FC , FCD , SCM , S50C , SKS...		Alloy Steels . Tool Steels SCr , SNCM , SKD11 , SKD61 , NAK80...		Hardened Steels SKD11	
HARDNESS	~HRC30		~HRC50		~HRC60	
RADIUS	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
R0.5	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

EFFICIENCY MILLS

BB

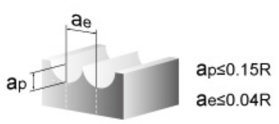
▶ Ball Nose / for P K

unit: mm

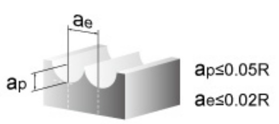


Order No.	Radius R	Flute Length L1	O.A.L. L2	Shank Dia D2
BB **0104**	R0.5	2	50	4
BB **0154**	R0.75	3	50	4
BB **0204**	R1	4	50	4
BB **0254**	R1.25	5	50	4
BB **0304**	R1.5	6	50	4
BB **0404**	R2	8	50	4
BB **0506**	R2.5	10	50	6
BB **0606**	R3	12	50	6
BB **0808**	R4	16	60	8
BB **1010**	R5	20	75	10
BB **1212**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

▼ *Depth of cut*



HRC45 ↓



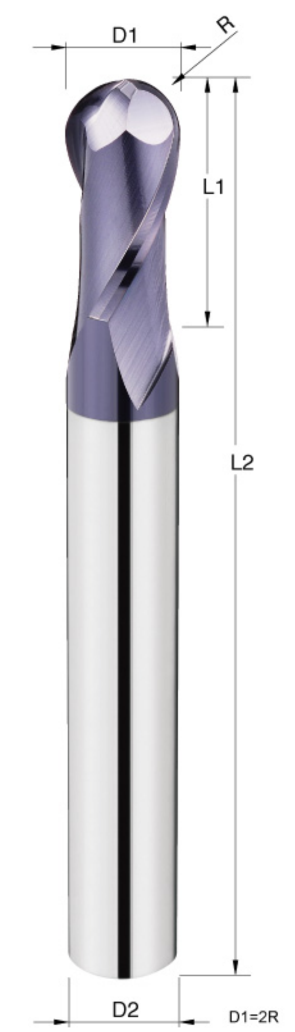
HRC45 ↑

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	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

BLS.BLM.BLL

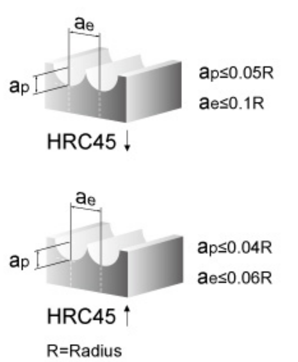


▶ Long Shank / Ball Nose / for P K

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

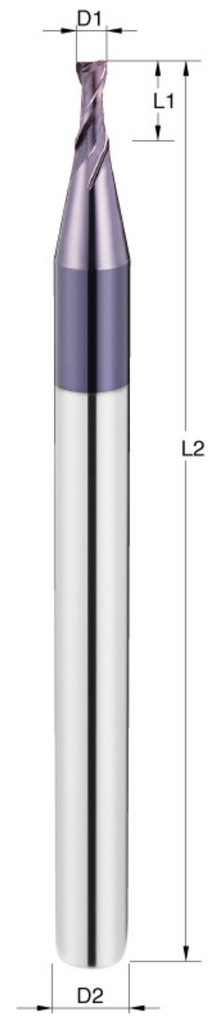
▼ Depth of cut



▼ Recommended cutting condition for 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	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

EM

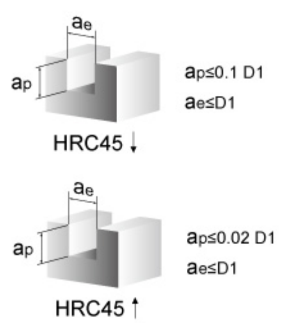


▶ Micro Diameter / Square / for P K

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

▼ Depth of cut



▼ 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	
DIAMETER	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

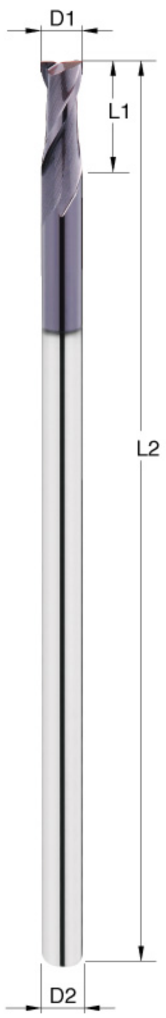
EFFICIENCY MILLS

ES

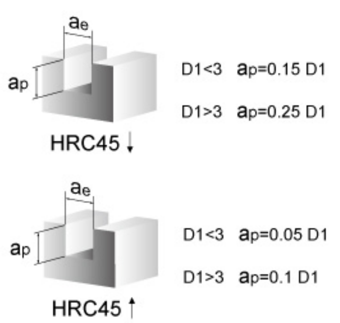
▶ Small Shank / Square / for P K

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



▼ Depth of cut



▼ Recommended cutting condition for ES

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	
DIAMETER	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

EFFICIENCY MILLS

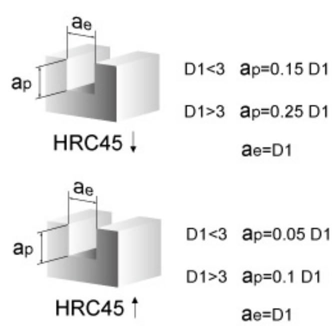
EA

▶ Square / for P K

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

▼ Depth of cut



▼ Recommended cutting condition for EA

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	
DIAMETER	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

EFFICIENCY MILLS

EB

▶ Square / for P K

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

▼ Depth of cut

▼ *Recommended cutting condition for EB*

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	
DIAMETER	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

EFFICIENCY MILLS

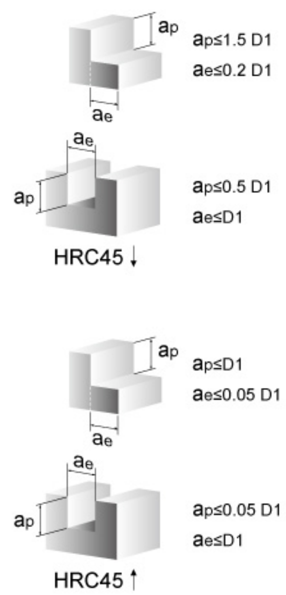
EC

▶ Square / for P K

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

▼ Depth of cut



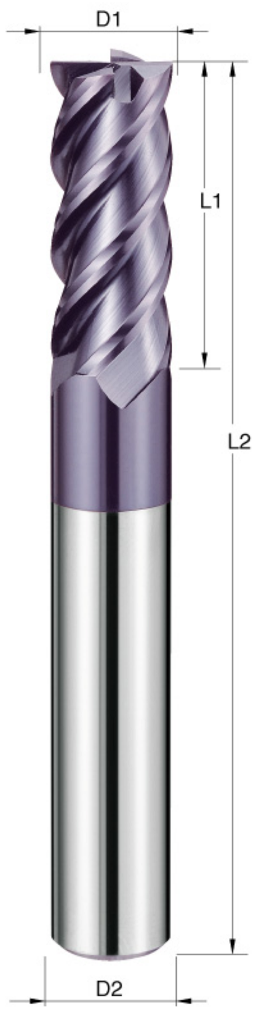
▼ *Recommended cutting condition for EC*

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	
DIAMETER	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

EFFICIENCY MILLS

ED



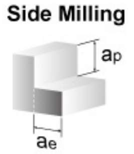
▶ Square / for P K M S

unit: mm

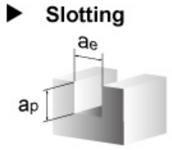
Order No.	Diameter D1	Flute Length L1	O.A.L. L2	Shank Dia D2
ED **0304**	3.0	8	50	4
ED **0404**	4.0	11	50	4
ED **0506**	5.0	13	50	6
ED **0606**	6.0	16	50	6
ED **0808**	8.0	20	60	8
ED **1010**	10.0	25	75	10
ED **1212**	12.0	30	75	12
ED **1616**	16.0	40	100	16

▼ *Depth of cut*

▶ Side Milling



▶ Slotting



▼ *Recommended cutting condition for ED*

Side Milling

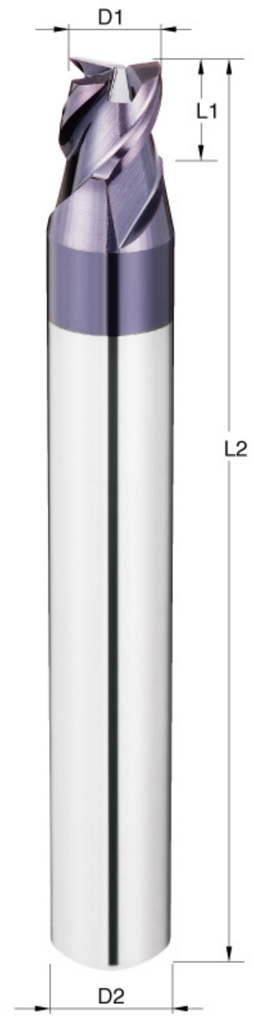
Material	Carbon Steels..		Stainless Steels		Titainium	
	SS/S45C/SCM/FC		SUS304/SUS316L		Ti6AL-4V	
Depth of cut	ap:1D1 ae:0.5D1		ap:1D1 ae:0.5D1		ap:1D1 ae:0.5D1	
Dia. (D1)	Speed (min^{-1})	Feed mm/min	Speed (min^{-1})	Feed mm/min	Speed (min^{-1})	Feed mm/min
3.0	12730	1020	8490	440	8490	440
4.0	9550	1150	6370	500	6370	500
5.0	7640	1220	5095	510	5095	510
6.0	6370	1220	4250	510	4250	510
8.0	4780	1150	3185	550	3185	550
10.0	3820	1220	2550	580	2550	580
12.0	3180	1020	2125	510	2125	510
16.0	2390	960	1595	450	1595	450

Slotting

Material	Carbon Steels..		Stainless Steels		Titainium	
	SS/S45C/SCM/FC		SUS304/SUS316L		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
3.0	11450	590	7400	240	7400	240
4.0	8590	680	5600	250	5600	250
5.0	6870	750	4500	300	4500	300
6.0	5730	840	3700	330	3700	330
8.0	4300	820	2800	330	2800	330
10.0	3430	850	2200	340	2200	340
12.0	2860	760	1900	310	1900	310
16.0	2150	720	1400	280	1400	280

EFFICIENCY MILLS

EP

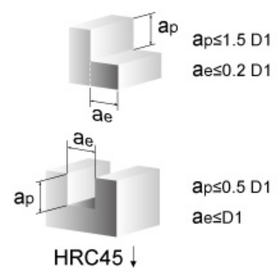


▶ Square / for P K

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

▼ *Depth of cut*



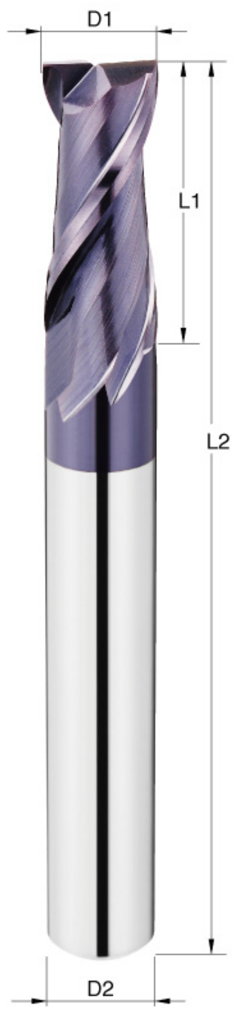
▼ *Recommended cutting condition for EP*

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	
DIAMETER	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)

( ):Grooving

EFFICIENCY MILLS

ELA

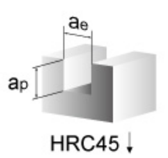


▶ Long Shank / Square / for P K

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

▼ *Depth of cut*

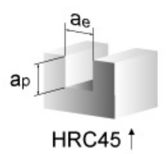


D1<3 ap=0.15 D1

D1>3 ap=0.25 D1

ae=D1

HRC45 ↓



D1<3 ap=0.05 D1

D1>3 ap=0.1 D1

ae=D1

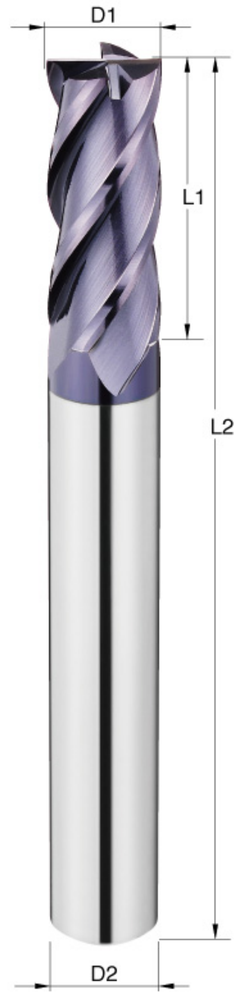
HRC45 ↑

▼ *Recommended cutting condition for 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	
DIAMETER	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min	SPEED (min^{-1})	FEED mm / min
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

EFFICIENCY MILLS

ELB

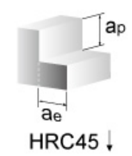


▶ Long Shank / Square / for P K

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

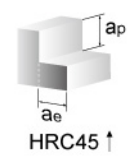
▼ *Depth of cut*



ap≤1.5 D1

ae≤0.1 D1

HRC45 ↓



ap≤D1

ae≤0.05 D1

HRC45 ↑

▼ *Recommended cutting condition for 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	
DIAMETER	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
16	1500	650	1000	300	500	150
20	1200	600	900	300	400	150