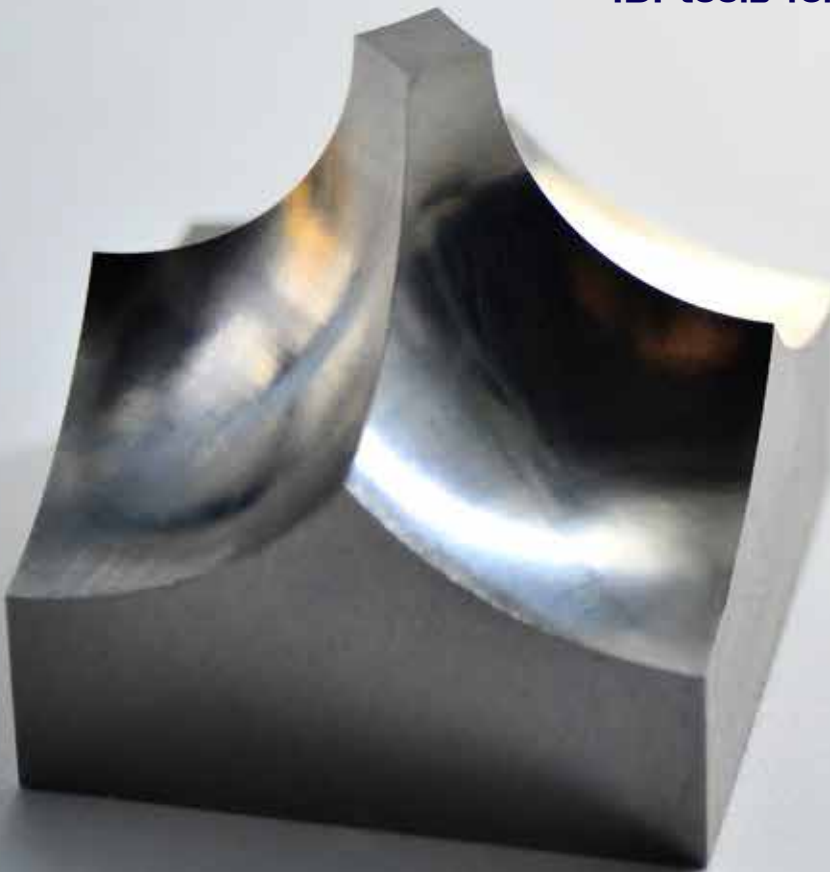




IDI tools for precision parts machining



Steel **Stainless** **Graphite** Work piece material

HRC Work piece hardness

0° Helix angle

Vari Variable Helix angle

 Two flutes

 Four flutes

 Tapered Tapered flute

 edge rounding

 polished flute edge

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Imperial System(inch)

Series	Image	Tool type	Series	No. of flute	Size	Application	Page	Carbon Steel	Alloyed Steel Tool Steel	Hardened Steel HRC55	Hardened Steel HRC62	Stainless Steel/ Titanium	Copper	Heat resistant alloy	Graphite	Composite
Q Quick mill <HRC40 non-sticky metal		square end	QES	2	1/64"-5/64"	Tools for non-hardened steel(<HRC40), non-sticky metal. Suitable for slotting, side milling, trochoidal milling, general machining and part machining. High speed tools for roughing, long tool life. Excellent surface finish for side walls and flat surfaces.	20	★	★		☉	○				
		square end	QES	4	3/32"-3/4"		22	★	★		☉	○				
		corner radius	QEC	4	3/32"-3/4"		24	★	★		☉	○				
		ball nose	QEB	2	1/64"-1/2"		28	★	★			○				
P Power Mill non-hardened stainless and titanium		square end	PES	2	1/64"-5/64"	Tools for non-hardened stainless steel, titanium milling. Suitable for slotting, side milling, trochoidal milling, general machining and part machining.	32	☉	☉				★	☉		
		square end	PES	4	3/32"-3/4"		34	☉	☉				★	☉		
		corner radius	PEC	4	3/32"-3/4"		36	☉	☉				★	☉		
		ball nose	PEB	2	1/64"-1/2"		40	☉	☉				★	☉		
H Hard milling HRC50 above		high feed	HFE	2, 4	3/32"-1/2"	Tools for small depth of cut, high feed, large ae%, non-steep geometry and hardened steel mold roughing.	44	☉	☉	★	☉	○			○	
		square end	HPSE	4	3/64"-1/2"	High perofrmance tools for hardened steel up to HRC62. Suitable for side milling, trochoidle milling, roughing and finishing.	46	☉	☉	★	★				○	
		corner radius	HPCE	4	3/64"-1/2"		47	☉	☉	★	★				○	
		ball nose	HXBE	2	0.01"-1/2"	Ultra high precision tools for hardened steel milling. Specially designed for high precision die and mold finishing.	50	☉	☉	★	★					
		ball nose	HDBE	2	0.01"-1/2"		54	☉	☉	★	☉	★			○	
		corner radius	HDCE	2	1/32"-1/16"		56	☉	☉	★	☉				○	
		corner radius	HQCE	4	3/32"-1/2"		57	☉	☉	★	☉				○	
D Diamond coated tools		roughing	DER	multiple	1/4"-1/2"	High precision and reliability diamond coated tools for graphite milling.	60								★	☉
		square end	DES	2	0.005"-1/16"		62								★	☉
		square end	DES	4	1/32"-1/2"		64								★	☉
		ball nose	DEB	2	0.005"-1/16"		66								★	☉
		ball nose	DEB	4	1/32"-1/2"		68								★	☉
		corner radius	DEC	2	3/64"-1/16"		70								★	☉
		corner radius	DEC	4	1/32"-1/2"		71								★	☉
		thread mill	DTME	3, 4	1/8"-3/8"		73								★	☉

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Metric System(mm)

Series	Image	Tool type	Series	No. of flute	Size	Application	Page	Carbon Steel	Alloyed Steel Tool Steel	Hardened Steel HRC55	Hardened Steel HRC62	Stailless Steel/ Titanium	Copper	Heat resistant alloy	Graphite	Composite
Q Quick mill <HRC40, non-sticky metal		square end	QMS	2	0.2-1.5	Tools for non-hardened steel(<HRC40), non-sticky metal. Suitable for slotting, side milling, trochoidal milling, general machining and part machining. High speed tools for roughing, long tool life. Excellent surface finish for side walls and flat surfaces.	76	★	★		◎	○				
		square end	QMS	4	2-20		78	★	★		◎	○				
		corner radius	QMC	4	2-20		80	★	★		◎	○				
		ball nose	QMB	2	0.2-12		84	★	★							
P Power Mill non-hardened stainless and titanium		square end	PMS	2	0.2-1.5	Tools for non-hardened stainless steel, titanium milling. Suitable for slotting, side milling, trochoidal milling, general machining and part machining.	88	◎	◎				★	◎		
		square end	PMS	4	2-20		90	◎	◎				★	◎		
		corner radius	PMC	4	2-20		92	◎	◎				★	◎		
		ball nose	PMB	2	0.2-12		96	◎	◎				★	◎		
H Hard milling		high feed	HFM	2, 4	1.5-12	Tools for small depth of cut, high feed, large ae%, non-steep geometry and hardened steel mold roughing.	100	◎	◎	★	◎	○			○	
		square end	HPS	4	1-12	High perofrmance tools for hardened steel up to HRC62. Suitable for side milling, trochoidle milling, roughing and finishing.	102	◎	◎	★	★	○			○	
		corner radius	HPC	4	1-12		103	◎	◎	★	★	○			○	
		ball nose	HXB	2	0.2-12	Ultra high profile and diameter precision tools for hardened steel milling. Specially designed for high precision die and mold finishing.	106	◎	◎	★	★					
		ball nose	HDB	2	0.2-6		110	◎	◎	★	◎	★			○	
		corner radius	HDC	2	0.2-1.8		114	◎	◎	★	◎	◎			○	
		corner radius	HQC	4	2-6		115	◎	◎	★	◎	◎			○	
D Diamond coated tools		roughing	DMR	multiple	6-12	High precision and reliability diamond coated tools for graphite milling.	119								★	◎
		square end	DMS	2	0.2-3		120								★	◎
		square end	DMS	4	2-12		124								★	◎
		ball nose	DMB	2	0.2-3		125								★	◎
		ball nose	DMB	4	0.5-12		128								★	◎
		corner radius	DMC	2	1-3		132								★	◎
		corner radius	DMC	4	2-12		134								★	◎
			inserts				135								★	◎

Dimension Code			
Code No.	inch	inch	mm
01	1/128	0.0078	0.1984
02	1/64	0.0156	0.3969
03	1/32	0.0313	0.7938
04	3/64	0.0469	1.1906
05	1/16	0.0625	1.5875
06	5/64	0.0781	1.9844
07	3/32	0.0938	2.3813
08	1/8	0.1250	3.175
09	9/64	0.1406	3.5719
10	5/32	0.1563	3.9688
11	3/16	0.1875	4.7625
12	1/4	0.2500	6.35
13	5/16	0.3125	7.9375
14	3/8	0.3750	9.525
15	7/16	0.4375	11.1125
16	1/2	0.5000	12.7
17	9/16	0.5625	14.2875
18	5/8	0.6250	15.875
19	13/20	0.6500	16.51
20	3/4	0.7500	19.05
21	4/5	0.8000	20.32
22	1	1.0000	25.4
23	1 1/8	1.1250	28.575
24	1 1/4	1.2500	31.75
25	1 3/8	1.3750	34.925
26	1 1/2	1.5000	38.1
27	1 5/8	1.6250	41.275
28	1 3/4	1.7500	44.45
29	1 7/8	1.8750	47.625
30	2	2.0000	50.8
31	2 1/2	2.5000	63.5
32	3	3.0000	76.2
33	4	4.0000	101.6
33A	4 1/8	4.1250	104.775
33B	4 1/4	4.2500	107.95
33C	4 3/8	4.3750	111.125

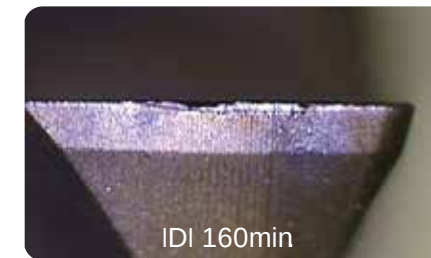
Dimension Code			
Code No.	inch	inch	mm
33D	4 1/2	4.5000	114.3
33E	4 5/8	4.6250	117.475
33F	4 3/4	4.7500	120.65
33G	4 7/8	4.8750	123.825
33H	5	5.0000	127
34	6	6.0000	152.4

High Feed Tools for Steel Mold Roughing

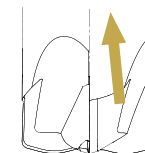
HFM / HFMC / HFE / HFEC

IDI high feed tool is the best choice when you need to remove your mold stock very quickly. Specially adapted for small axial depth of cut, high feed rate, and large radial step over, IDI HFM/HFE tools provide high efficient roughing process and leave smooth stock for finishing. Thanks to our ultra-fine carbide material, special geometry, and the new multilayer nanocomposite coating solution, we can achieve both high hardness and toughness for hardened steel mold roughing.

Material: Buderus 2344, HRC53
S7000rpm, F4572mm/min
ap0.2mm, ae 55%



- High lead angle conducts cutting force to axial direction allows long tool overhang without vibration even at high speed.



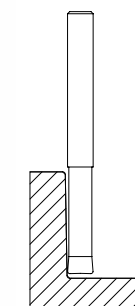
- Multilayer nanocomposite coating ensures high heat resistance during hard milling.



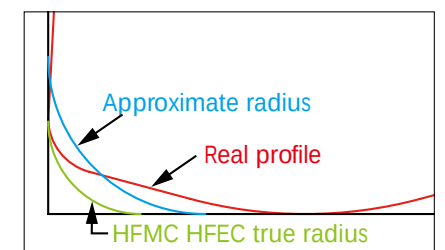
- Large space for fast chip evacuation

- Ultrafine carbide material provides excellent hardness and toughness during high feed milling.

- Strengthened flute base provides more stable cutting.



Large taper angle avoid interference with vertical walls.



Q series

Non-sticky unhardened(<HRC40) steel milling: carbon steel, alloyed steel, cast iron and tool steel. Suitable for slotting, side milling, trochoidal milling, general part machining.

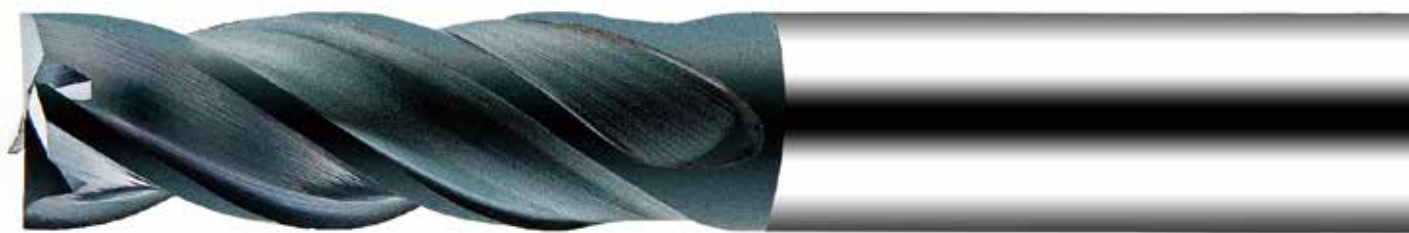
- higher Vc possible
- long tool life
- excellent finish for bottom surface and side walls
- good performance for deep depth HSC milling



P series

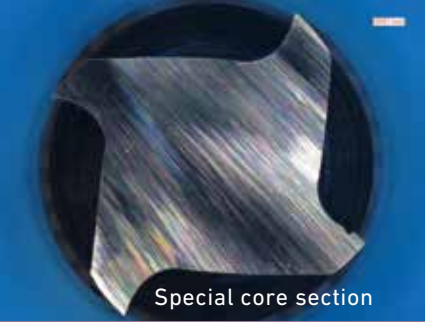
Unhardened(<HRC40) stainless steel 304, 316L, 420 milling. Suitable for slotting, side milling, trochoidal milling, general part machining.

- stable roughing and finishing process
- long tool life
- good surface finish of cut surface

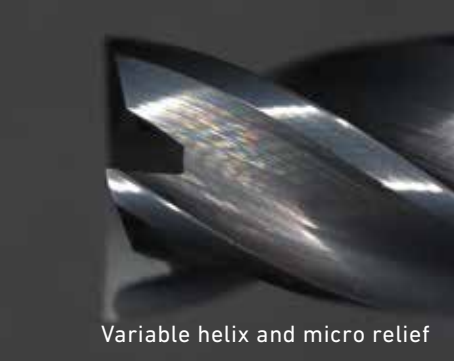




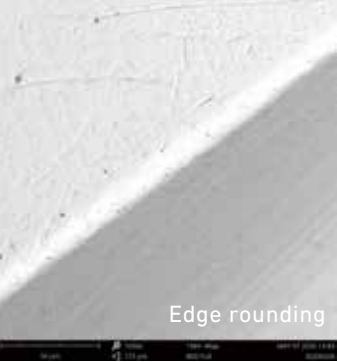
Variable index



Special core section



Variable helix and micro relief



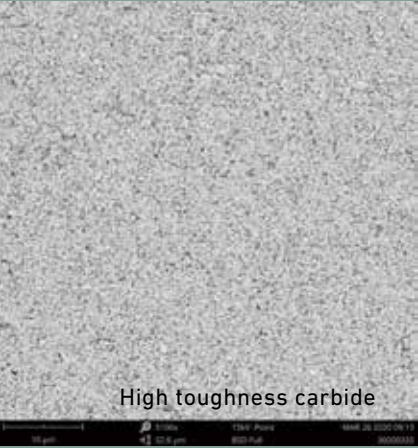
Edge rounding



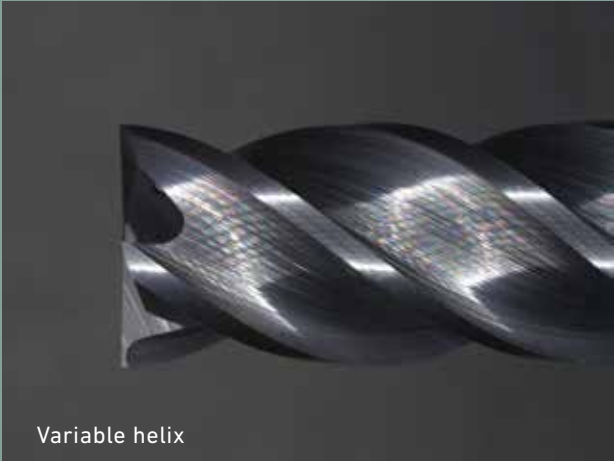
High abrasive resistant coating



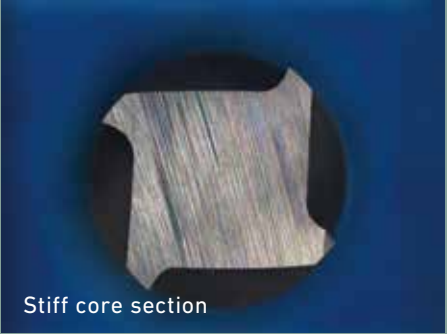
Ra 0.01 possible



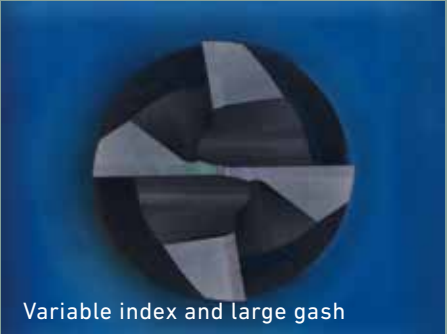
High toughness carbide



Variable helix



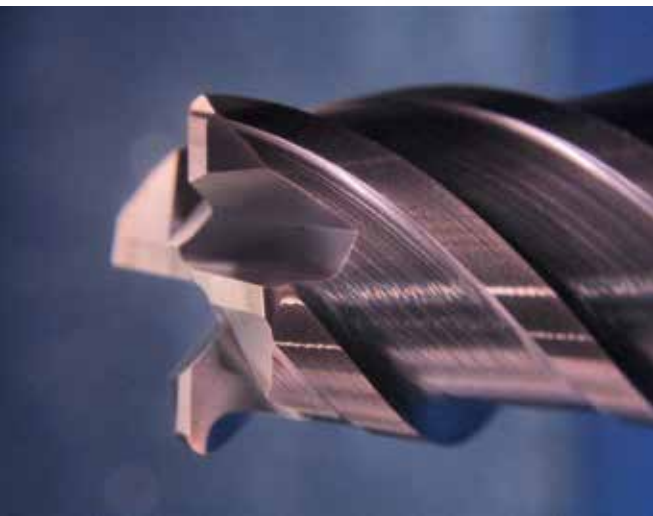
Stiff core section



Variable index and large gash

HPS/HPC hard milling tools

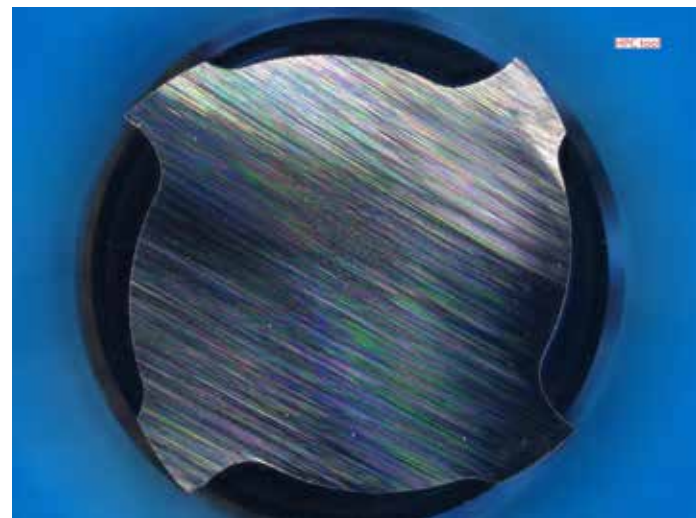
High stiffness flat end and corner radius tools for hardened steel milling. Suitable for side milling, trochoidal milling, die and mold roughing and finishing.



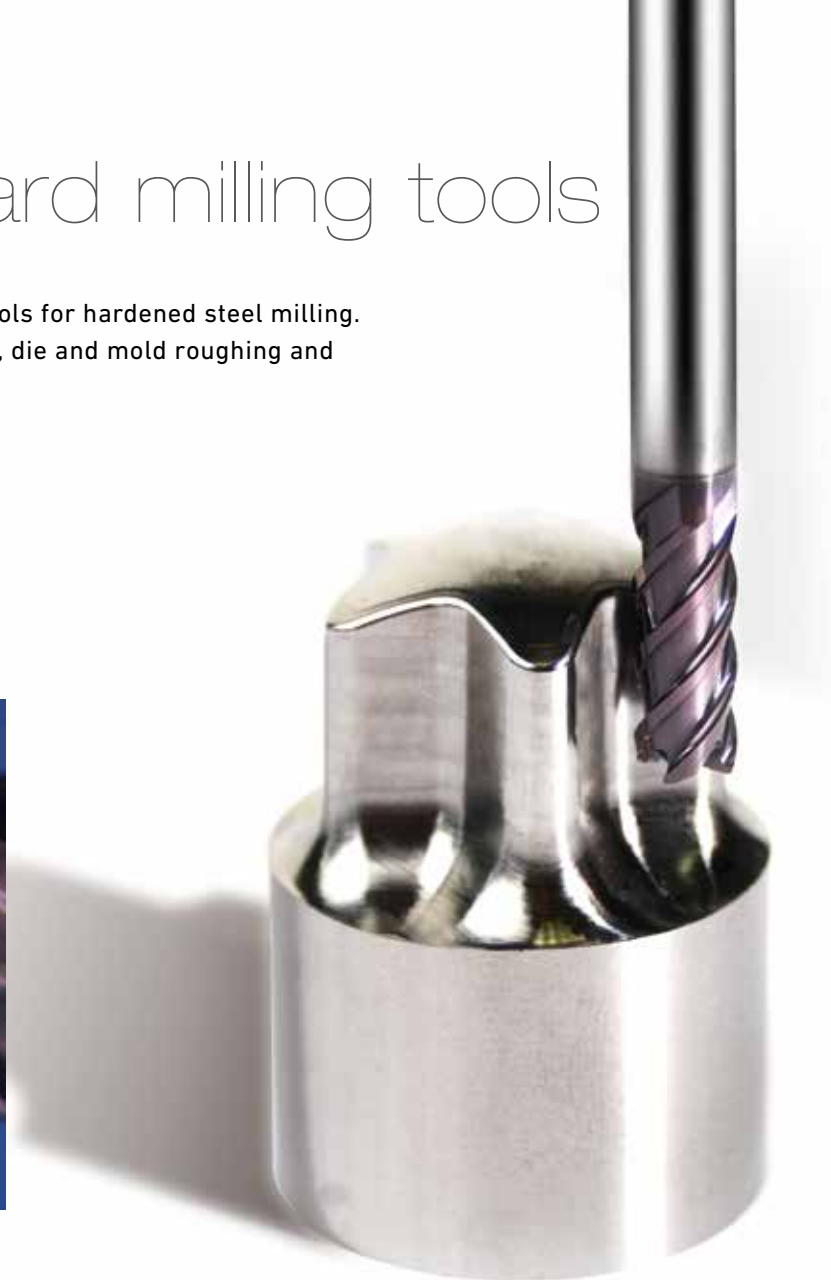
Polished tool and edge rounded flute edges



Strong and thick gash corner



HPS/HPC thick core



HDB/HDC/HQC for extremely high precision mold finishing

High precision tight tolerance tools for hardened steel milling. Designed for high precision die and mold finishing.

- Specially designed for hardened steel above HRC50, extremely good surface finish
- Full range of ball nose and corner radius tools for high precision finishing . Even D0.2R0.02 is standard.
- High geometry profile and high dimensional tolerance.
- High precision effective length
- Also suitable for P20 HRC38 and stainless 420 finishing. Long tool life and excellent surface finish.



Material: STAVAX HRC52
Size: 30x30x50mm

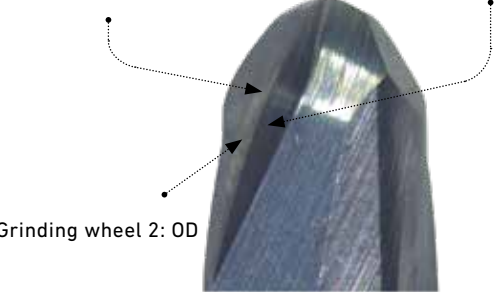
Roughing: S18000, F2000, ae 0.2, ap 0.2
Time: 6:44

Semi roughing: S18000, F2000, ae 0.08, ap0.05
Time: 2:31

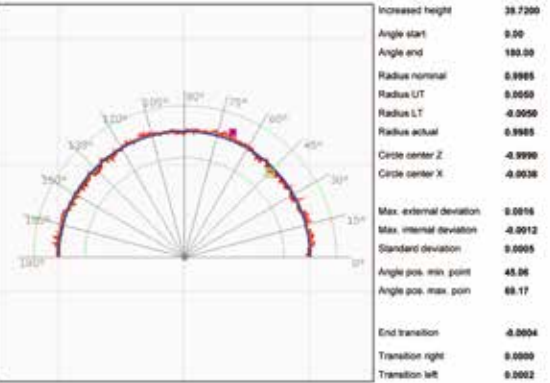
Finishing: S20000, F600, ae=0.02
Time: 24:00

IDI 2mm ball nose tool: HDB2006

Flute edge formed by only two wheels.
Grinding wheel 1: Gash grinding process

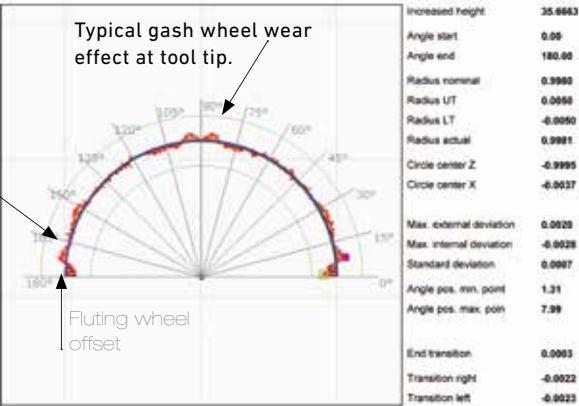
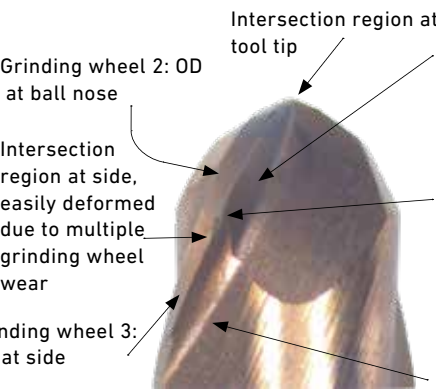


Grinding wheel 2: OD
Simple elegant flute edge formed by minimum number of grinding wheels ensures highest ball profile precision even in mass production.



Competitor's 2mm ball nose tool

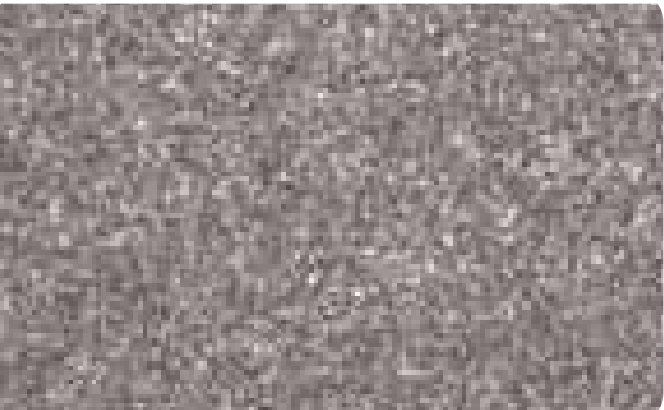
Intersection region at tool tip
Grinding wheel 2: OD at ball nose
Grinding wheel 2: Gash
Intersection region at side, easily deformed due to multiple grinding wheel wear
Flute edge formed by four grinding processes with four grinding wheels. Ball profile will easily be deteriorated by any one of the four wheels wear.
Grinding wheel 3: OD at side
Grinding wheel 1: fluting



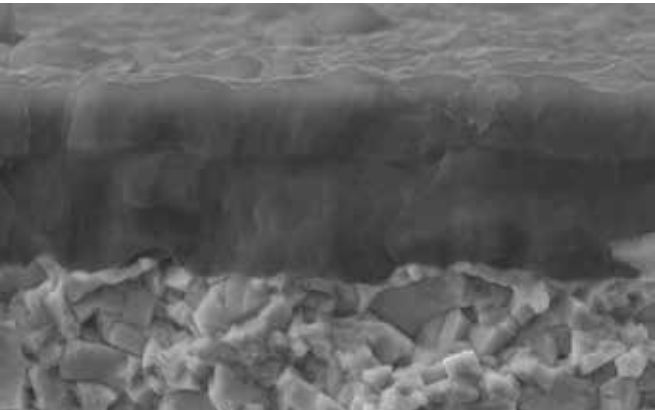
Gash wheel wear or exit position offset

Typical gash wheel wear effect at tool tip.

Fluting wheel offset



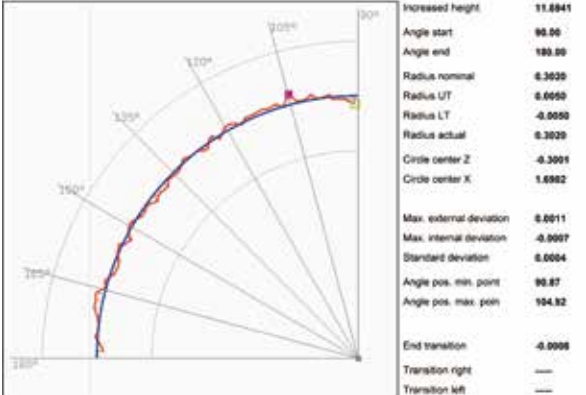
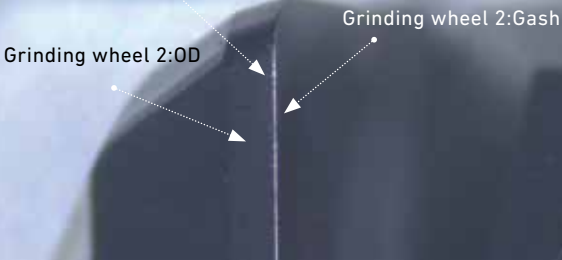
Ultrafine grain size carbide material is used to reach both hardness and toughness



BLA coating solution: good adhesion at high temperature, high wear resistance, good edge stability

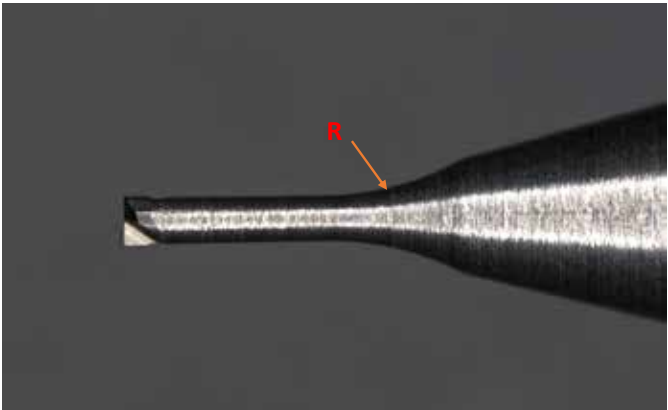
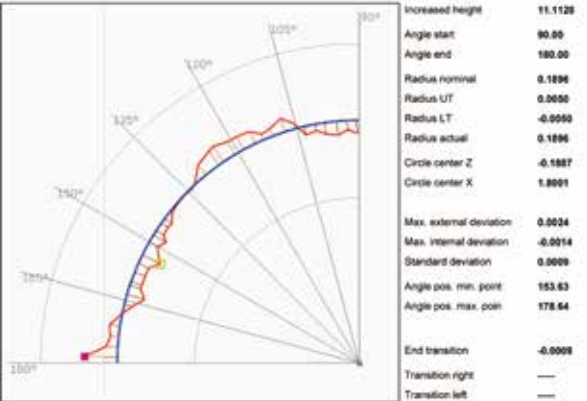
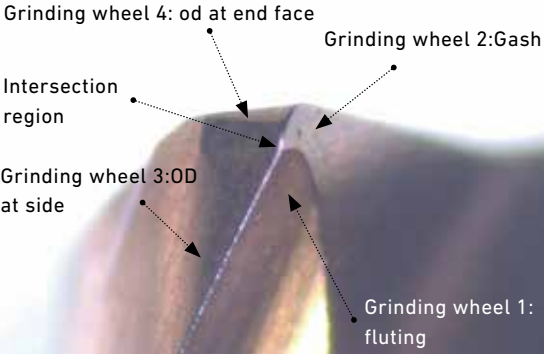
IDI 4mm corner radius nose tool: HQC4008

Flute edge formed by only two grinding process.



Competitor's 2mm corner radius tool

Grinding wheel 4: od at end face
Grinding wheel 2:Gash
Intersection region
Grinding wheel 3:OD at side
Grinding wheel 1: fluting



Radius geometry at neck end.
Minimize stress concentration.



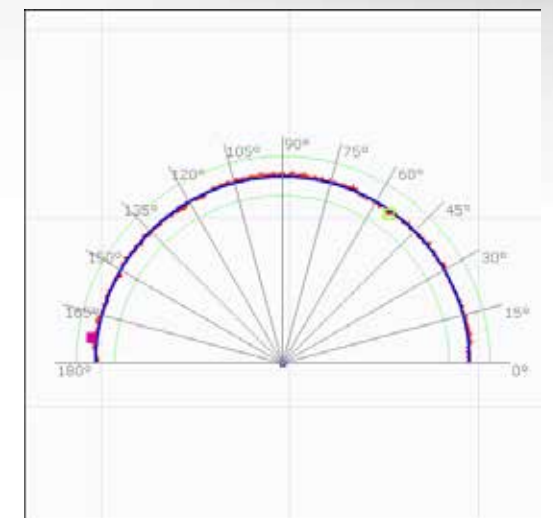
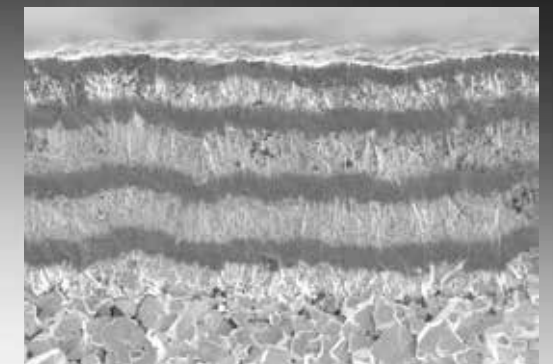
Sharp ball nose tool tip and special geometry angles give excellent surface finish.

Diamond Coated Tools for Graphite Electrodes Milling

Diamond coated tools was IDI' s first product line from the beginning of our company. The complexity of manufacturing diamond coated tools provided us very good experience in carbide material, tool grinding, coating and quality control techniques. Over the past 10 years, IDI has continuously improved our diamond tools by trying new materials, grinding methods, coating solutions and even tool cleaning procedures. New quality control instruments and techniques have been implemented to ensure tool quality & performance. Today, IDI is one of the few tool makers in the world that provides a complete product range of diamond tools with top precision and reliability. We provide both metric and imperial unit lines ranging from 0.2- 12mm and 0.010"-1/2" respectively. You can always find what you need for your graphite milling process.



Largest tool series for both metric and Imperial units and also inserts
Special carbide material and diamond coating, long tool life
High precision profile of ball and bull nose tools for accurate 3D shape milling
Highest stability from solid experience and tight QC control
100% QC check before putting in stock



IDI IMPERIAL SYSTEM

QES 2-flute square end tool

Quick mill, square end tool for carbon steel, alloyed steel, cast iron and tool steel. Suitable for slotting, side milling, trochoidal milling, general machining and part machining.



Dc: 0 ~ -0.0008"
Runout: 0.0004"
Ds: h5

unit: inch						
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
QES02-2-03-03-30	1/64	2	1/32	1/32	1/8	2
QES02-2-03-04-30	1/64	2	1/32	3/64	1/8	2
QES02-2-03-05-30	1/64	2	1/32	1/16	1/8	2
QES02-2-03-07-30	1/64	2	1/32	3/32	1/8	2
QES02-2-03-08-30	1/64	2	1/32	1/8	1/8	2
QES03-2-05-05-30	1/32	2	1/16	1/16	1/8	2
QES03-2-05-07-30	1/32	2	1/16	3/32	1/8	2
QES03-2-05-08-30	1/32	2	1/16	1/8	1/8	2
QES03-2-05-11-30	1/32	2	1/16	3/16	1/8	2
QES04-2-07-07-30	3/64	2	3/32	3/32	1/8	2
QES04-2-07-11-30	3/64	2	3/32	3/16	1/8	2
QES04-2-07-12-30	3/64	2	3/32	1/4	1/8	2
QES04-2-07-14-30	3/64	2	3/32	3/8	1/8	2
QES05-2-08-08-30	1/16	2	1/8	1/8	1/8	2
QES05-2-08-12-30	1/16	2	1/8	1/4	1/8	2
QES05-2-08-14-30	1/16	2	1/8	3/8	1/8	2
QES05-2-08-16-30	1/16	2	1/8	1/2	1/8	2
QES06-2-10-10-30	5/64	2	5/32	5/32	1/8	2
QES06-2-10-13-30	5/64	2	5/32	5/16	1/8	2
QES06-2-10-16-30	5/64	2	5/32	1/2	1/8	2

QES 4-flute square end tool

Quick mill, square end tool for carbon steel, alloyed steel, cast iron and tool steel. Suitable for slotting, side milling, trochoidal milling, general machining and part machining.



Dc: 0 ~ -0.0008"
Runout: 0.0004"
Ds: h5

unit: inch							
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L	
QES07-4-12-12-30	3/32	4	1/4	1/4	1/8	2	
QES07-4-12-14-30	3/32	4	1/4	3/8	1/8	2	
QES07-4-12-16-30	3/32	4	1/4	1/2	1/8	2	
QES07-4-12-18-30	3/32	4	1/4	5/8	1/8	2	
QES08-4-13-13-30	1/8	4	5/16	5/16	1/8	2	
QES08-4-16-16-30/12S	1/8	4	1/2	1/2	1/4	2	long flute
QES08-4-18-18-30/12S	1/8	4	5/8	5/8	1/4	2	extra long
QES11-4-16-16-30	3/16	4	1/2	1/2	3/16	2	
QES11-4-20-20-31/12S	3/16	4	3/4	3/4	1/4	2 1/2	long flute
QES11-4-22-22-32/12S	3/16	4	1	1	1/4	3	extra long
QES12-4-18-18-30	1/4	4	5/8	5/8	1/4	2	
QES12-4-22-22-31	1/4	4	1	1	1/4	2 1/2	long flute
QES12-4-24-24-32	1/4	4	1 1/4	1 1/4	1/4	3	extra long
QES13-4-21-21-31	5/16	4	4/5	4/5	5/16	2 1/2	
QES13-4-24-24-32	5/16	4	1 1/4	1 1/4	5/16	3	long flute
QES13-4-27-27-33	5/16	4	1 5/8	1 5/8	5/16	4	extra long
QES14-4-22-22-32	3/8	4	1	1	3/8	3	
QES14-4-26-26-33	3/8	4	1 1/2	1 1/2	3/8	4	long flute
QES14-4-29-29-33	3/8	4	1 7/8	1 7/8	3/8	4	extra long

unit: inch							
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L	
QES16-4-24-24-32	1/2	4	1 1/4	1 1/4	1/2	3	
QES16-4-30-30-33	1/2	4	2	2	1/2	4	long flute
QES16-4-31-31-33B	1/2	4	2 1/2	2 1/2	1/2	4 1/4	extra long
QES18-4-27-27-33B	5/8	4	1 5/8	1 5/8	5/8	4 1/4	
QES18-4-31-31-34	5/8	4	2 1/2	2 1/2	5/8	6	long flute
QES20-4-27-27-33B	3/4	4	1 5/8	1 5/8	3/4	4 1/4	
QES20-4-31-31-34	3/4	4	2 1/2	2 1/2	3/4	6	long flute

QEC 4-flute corner radius tool

Quick mill, corner radius tool for carbon steel, alloyed steel, cast iron and tool steel. Suitable for slotting, side milling, trochoidal milling, general machining and part machining.



Dc: 0 ~ -0.0008"
Runout: 0.0004"
Ds: h5

							unit: inch	
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Corner Radius CR xx	Shank Dia. Ds	Overall Length L	
QEC07-4-12-12-30Rxx	3/32	4	1/4	1/4	0.01/0.015	1/8	2	
QEC07-4-12-14-30Rxx	3/32	4	1/4	3/8	0.01/0.015	1/8	2	
QEC07-4-12-16-30Rxx	3/32	4	1/4	1/2	0.01/0.015	1/8	2	
QEC07-4-12-18-30Rxx	3/32	4	1/4	5/8	0.01/0.015	1/8	2	
QEC08-4-13-13-30Rxx	1/8	4	5/16	5/16	0.01/0.015/0.03	1/8	2	
QEC08-4-16-16-30Rxx/12S	1/8	4	1/2	1/2	0.01/0.015/0.03	1/4	2	long flute
QEC08-4-18-18-30Rxx/12S	1/8	4	5/8	5/8	0.01/0.015/0.03	1/4	2	extra long
QEC11-4-16-16-30Rxx	3/16	4	1/2	1/2	0.01/0.015/0.03	3/16	2	
QEC11-4-20-20-31Rxx/12S	3/16	4	3/4	3/4	0.01/0.015/0.03	1/4	2 1/2	long flute
QEC11-4-22-22-32Rxx/12S	3/16	4	1	1	0.01/0.015/0.03	1/4	3	extra long
QEC12-4-18-18-30Rxx	1/4	4	5/8	5/8	0.01/0.015/0.02/0.03	1/4	2	
QEC12-4-22-22-31Rxx	1/4	4	1	1	0.01/0.015/0.02/0.03	1/4	2 1/2	long flute
QEC12-4-24-24-32Rxx	1/4	4	1 1/4	1 1/4	0.01/0.015/0.02/0.03	1/4	3	extra long
QEC13-4-21-21-31Rxx	5/16	4	4/5	4/5	0.015/0.02/0.03	5/16	2 1/2	
QEC13-4-24-24-32Rxx	5/16	4	1 1/4	1 1/4	0.015/0.02/0.03	5/16	3	long flute
QEC13-4-27-27-33Rxx	5/16	4	1 5/8	1 5/8	0.015/0.02/0.03	5/16	4	extra long
QEC14-4-22-22-32Rxx	3/8	4	1	1	0.01/0.015/ 0.02/0.03/0.06	3/8	3	
QEC14-4-26-26-33Rxx	3/8	4	1 1/2	1 1/2	0.01/0.015/ 0.02/0.03/0.06	3/8	4	long flute
QEC14-4-29-29-33Rxx	3/8	4	1 7/8	1 7/8	0.01/0.015/ 0.02/0.03/0.06	3/8	4	extra long

Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Corner Radius CR xx	Shank Dia. Ds	Overall Length L	
QEC16-4-24-24-32Rxx	1/2	4	1 1/4	1 1/4	0.01/0.015/ 0.02/0.03/0.06	1/2	3	
QEC16-4-30-30-33Rxx	1/2	4	2	2	0.01/0.015/ 0.02/0.03/0.06	1/2	4	long flute
QEC16-4-31-31-33BRxx	1/2	4	2 1/2	2 1/2	0.01/0.015/ 0.02/0.03/0.06	1/2	4 1/4	extra long
QEC18-4-27-27-33BR0.06	5/8	4	1 5/8	1 5/8	0.06	5/8	4 1/4	
QEC18-4-31-31-34R0.06	5/8	4	2 1/2	2 1/2	0.06	5/8	6	long flute
QEC20-4-27-27-33BR0.06	3/4	4	1 5/8	1 5/8	0.06	3/4	4 1/4	
QEC20-4-31-31-34R0.06	3/4	4	2 1/2	2 1/2	0.06	3/4	6	long flute

QES/QEC cutting condition

Slotting, ap=1D								unit: inch	
Tool Dia.	No. of flutes	Carbon Steel, Cast Iron S50C, FC300 HRC28 below		Alloy Steel, Tool Steel SCM, SKS, SKD HRC28-33		Tool Steel, Prehardened Steel P20, NAK80 HRC33-40			
		S	F	S	F	S	F		
Dc	Z	S	F	S	F	S	F		
1/64	2	36910	2.1	36910	1.9	36910	1.7		
1/32	2	24072	5.9	24072	4.7	24072	3.8		
3/64	2	17381	8.5	17381	7.1	17381	6.2		
1/16	2	17047	11.1	15041	8.9	15041	7.7		
5/64	2	13641	12.3	12037	9.5	10432	8.1		
3/32	4	11374	20	10036	16	8698	14		
1/8	4	9028	31	8024	19	7021	17		
3/16	4	7355	35	7021	33	5683	18		
1/4	4	6520	46	5266	37	4263	23		
3/8	4	4347	44	3511	33	2842	22		
1/2	4	3260	39	2633	29	2132	20		
5/8	4	2608	32	2106	23	1705	19		
3/4	4	2173	27	1755	19	1421	16		

Side Milling, ap=1.5D, ae=0.2D								unit: inch	
Tool Dia.	No. of flutes	Carbon Steel, Cast Iron S50C, FC300 HRC28 below		Alloy Steel, Tool Steel SCM, SKS, SKD HRC28-33		Tool Steel, Prehardened Steel P20, NAK80 HRC33-40			
		S	F	S	F	S	F		
Dc	Z	S	F	S	F	S	F		
1/64	2	36910	3.5	36910	2.9	36910	2.3		
1/32	2	28084	11.1	28084	8.8	28084	7.7		
3/64	2	21392	16.8	20055	14.2	18718	11.8		
1/16	2	21058	19.9	20055	17.4	18049	12.8		
5/64	2	16851	19.9	16049	15.2	14444	11.4		
3/32	4	14050	33	13381	25	10705	17		
1/8	4	11034	52	10031	35	8024	19		
3/16	4	8692	55	7021	33	5683	22		
1/4	4	7523	77	6269	59	5266	37		
3/8	4	5015	63	4179	53	3511	39		
1/2	4	3761	47	3135	42	2633	31		
5/8	4	3009	38	2508	34	2106	25		
3/4	4	2508	32	2090	28	1755	21		

QEB 2-flute ball nose tool

Ball nose tool for unhardened non-sticky steel. Suitable for 3D geometry milling.



Dc: 0 ~ -0.0008"
Runout: 0.0004"
Ds: h5

unit: inch						
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
QEB02-2-03-03-30	1/64	2	1/32	1/32	1/8	2
QEB02-2-03-04-30	1/64	2	1/32	3/64	1/8	2
QEB02-2-03-05-30	1/64	2	1/32	1/16	1/8	2
QEB02-2-03-07-30	1/64	2	1/32	3/32	1/8	2
QEB02-2-03-08-30	1/64	2	1/32	1/8	1/8	2
QEB03-2-05-05-30	1/32	2	1/16	1/16	1/8	2
QEB03-2-05-07-30	1/32	2	1/16	3/32	1/8	2
QEB03-2-05-08-30	1/32	2	1/16	1/8	1/8	2
QEB03-2-05-11-30	1/32	2	1/16	3/16	1/8	2
QEB04-2-07-07-30	3/64	2	3/32	3/32	1/8	2
QEB04-2-07-11-30	3/64	2	3/32	3/16	1/8	2
QEB04-2-07-12-30	3/64	2	3/32	1/4	1/8	2
QEB04-2-07-14-30	3/64	2	3/32	3/8	1/8	2
QEB05-2-08-08-30	1/16	2	1/8	1/8	1/8	2
QEB05-2-08-12-30	1/16	2	1/8	1/4	1/8	2
QEB05-2-08-14-30	1/16	2	1/8	3/8	1/8	2
QEB05-2-08-16-30	1/16	2	1/8	1/2	1/8	2
QEB06-2-10-10-30	5/64	2	5/32	5/32	1/8	2
QEB06-2-10-13-30	5/64	2	5/32	5/16	1/8	2

Dc: 0 ~ -0.0008"
Runout: 0.0004"
Ds: h5

unit: inch						
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
QEB06-2-10-16-30	5/64	2	5/32	1/2	1/8	2
QEB07-2-11-11-30	3/32	2	3/16	3/16	1/8	2
QEB07-2-11-14-30	3/32	2	3/16	3/8	1/8	2
QEB07-2-11-16-30	3/32	2	3/16	1/2	1/8	2
QEB07-2-11-18-30	3/32	2	3/16	5/8	1/8	2
QEB08-2-12-12-30	1/8	2	1/4	1/4	1/8	2
QEB11-2-14-14-30	3/16	2	3/8	3/8	3/16	2
QEB12-2-16-16-30	1/4	2	1/2	1/2	1/4	2
QEB14-2-20-20-32	3/8	2	3/4	3/4	3/8	3
QEB16-2-22-22-32	1/2	2	1	1	1/2	3

QEB Cutting condition

unit: inch

Tool Dia.	No. of flutes	Roughing				Finishing			
		ae	ap	S	F	ae	ap	S	F
1/64	2	0.0012	0.0012	37939	15	0.0010	0.0008	38510	15
1/32	2	0.0028	0.0031	25318	40	0.0020	0.0016	21089	33
3/64	2	0.0079	0.0039	21694	68	0.0020	0.0020	18667	59
1/16	2	0.0098	0.0059	20572	81	0.0020	0.0020	17801	70
5/64	2	0.0118	0.0098	20557	105	0.0024	0.0020	17922	92
3/32	2	0.0118	0.0098	18544	95	0.0024	0.0020	16325	84
1/8	2	0.0197	0.0118	17146	95	0.0024	0.0020	15308	84
3/16	2	0.0236	0.0118	13762	81	0.0024	0.0020	13121	77
1/4	2	0.0315	0.0118	11820	74	0.0028	0.0020	13618	86
3/8	2	0.0591	0.0197	7496	53	0.0031	0.0024	9509	67
1/2	2	0.0709	0.0236	5910	47	0.0031	0.0028	6774	53

Note: For 1/4" tool above, when cutting steep geometry, use 70% S and F of above condition for finishing.

PES 2-flute square end tool

Square end tool for unhardened stainless steel. Suitable for slotting, side milling, trochoidal milling, general machining and part machining.



Dc: 0 ~ -0.0008"
Runout: 0.0004"
Ds: h5

unit: inch						
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
PES02-2-03-03-30	1/64	2	1/32	1/32	1/8	2
PES02-2-03-04-30	1/64	2	1/32	3/64	1/8	2
PES02-2-03-05-30	1/64	2	1/32	1/16	1/8	2
PES02-2-03-07-30	1/64	2	1/32	3/32	1/8	2
PES02-2-03-08-30	1/64	2	1/32	1/8	1/8	2
PES03-2-05-05-30	1/32	2	1/16	1/16	1/8	2
PES03-2-05-07-30	1/32	2	1/16	3/32	1/8	2
PES03-2-05-08-30	1/32	2	1/16	1/8	1/8	2
PES03-2-05-11-30	1/32	2	1/16	3/16	1/8	2
PES04-2-07-07-30	3/64	2	3/32	3/32	1/8	2
PES04-2-07-11-30	3/64	2	3/32	3/16	1/8	2
PES04-2-07-12-30	3/64	2	3/32	1/4	1/8	2
PES04-2-07-14-30	3/64	2	3/32	3/8	1/8	2
PES05-2-08-08-30	1/16	2	1/8	1/8	1/8	2
PES05-2-08-12-30	1/16	2	1/8	1/4	1/8	2
PES05-2-08-14-30	1/16	2	1/8	3/8	1/8	2
PES05-2-08-16-30	1/16	2	1/8	1/2	1/8	2
PES06-2-10-10-30	5/64	2	5/32	5/32	1/8	2
PES06-2-10-13-30	5/64	2	5/32	5/16	1/8	2
PES06-2-10-16-30	5/64	2	5/32	1/2	1/8	2

PES 4-flute square end tool

Square end tool for unhardened stainless steel. Suitable for slotting, side milling, trochoidal milling, general machining and part machining.



Dc: 0 ~ -0.0008"
Runout: 0.0004"
Ds: h5

unit: inch							
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L	
PES07-4-12-12-30	3/32	4	1/4	1/4	1/8	2	
PES07-4-12-14-30	3/32	4	1/4	3/8	1/8	2	
PES07-4-12-16-30	3/32	4	1/4	1/2	1/8	2	
PES07-4-12-18-30	3/32	4	1/4	5/8	1/8	2	
PES08-4-13-13-30	1/8	4	5/16	5/16	1/8	2	
PES08-4-16-16-30/12S	1/8	4	1/2	1/2	1/4	2	long flute
PES08-4-18-18-30/12S	1/8	4	5/8	5/8	1/4	2	extra long
PES11-4-16-16-30	3/16	4	1/2	1/2	3/16	2	
PES11-4-20-20-31/12S	3/16	4	3/4	3/4	1/4	2 1/2	long flute
PES11-4-22-22-32/12S	3/16	4	1	1	1/4	3	extra long
PES12-4-18-18-30	1/4	4	5/8	5/8	1/4	2	
PES12-4-22-22-31	1/4	4	1	1	1/4	2 1/2	long flute
PES12-4-24-24-32	1/4	4	1 1/4	1 1/4	1/4	3	extra long
PES13-4-21-21-31	5/16	4	4/5	4/5	5/16	2 1/2	
PES13-4-24-24-32	5/16	4	1 1/4	1 1/4	5/16	3	long flute
PES13-4-27-27-33	5/16	4	1 5/8	1 5/8	5/16	4	extra long
PES14-4-22-22-32	3/8	4	1	1	3/8	3	
PES14-4-26-26-33	3/8	4	1 1/2	1 1/2	3/8	4	long flute
PES14-4-29-29-33	3/8	4	1 7/8	1 7/8	3/8	4	extra long

unit: inch							
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L	
PES16-4-24-24-32	1/2	4	1 1/4	1 1/4	1/2	3	
PES16-4-30-30-33	1/2	4	2	2	1/2	4	long flute
PES16-4-31-31-33B	1/2	4	2 1/2	2 1/2	1/2	4 1/4	extra long
PES18-4-27-27-33B	5/8	4	1 5/8	1 5/8	5/8	4 1/4	
PES18-4-31-31-34	5/8	4	2 1/2	2 1/2	5/8	6	long flute
PES20-4-27-27-33B	3/4	4	1 5/8	1 5/8	3/4	4 1/4	
PES20-4-31-31-34	3/4	4	2 1/2	2 1/2	3/4	6	long flute

PEC 4-flute corner radius tool

Corner radius tool for unhardened stainless steel. Suitable for slotting, side milling, trochoidal milling, general machining and part machining.



Dc: 0 ~ -0.0008"
Runout: 0.0004"
Ds: h5

unit: inch							
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Corner Radius CR xx	Shank Dia. Ds	Overall Length L
PEC07-4-12-12-30Rxx	3/32	4	1/4	1/4	0.01/0.015	1/8	2
PEC07-4-12-14-30Rxx	3/32	4	1/4	3/8	0.01/0.015	1/8	2
PEC07-4-12-16-30Rxx	3/32	4	1/4	1/2	0.01/0.015	1/8	2
PEC07-4-12-18-30Rxx	3/32	4	1/4	5/8	0.01/0.015	1/8	2
PEC08-4-13-13-30Rxx	1/8	4	5/16	5/16	0.01/0.015/0.03	1/8	2
PEC08-4-16-16-30Rxx/12S	1/8	4	1/2	1/2	0.01/0.015/0.03	1/4	2
PEC08-4-18-18-30Rxx/12S	1/8	4	5/8	5/8	0.01/0.015/0.03	1/4	2
PEC11-4-16-16-30Rxx	3/16	4	1/2	1/2	0.01/0.015/0.03	3/16	2
PEC11-4-20-20-31Rxx/12S	3/16	4	3/4	3/4	0.01/0.015/0.03	1/4	2 1/2
PEC11-4-22-22-32Rxx/12S	3/16	4	1	1	0.01/0.015/0.03	1/4	3
PEC12-4-18-18-30Rxx	1/4	4	5/8	5/8	0.01/0.015/0.02/0.03	1/4	2
PEC12-4-22-22-31Rxx	1/4	4	1	1	0.01/0.015/0.02/0.03	1/4	2 1/2
PEC12-4-24-24-32Rxx	1/4	4	1 1/4	1 1/4	0.01/0.015/0.02/0.03	1/4	3
PEC13-4-21-21-31Rxx	5/16	4	4/5	4/5	0.015/0.02/0.03	5/16	2 1/2
PEC13-4-24-24-32Rxx	5/16	4	1 1/4	1 1/4	0.015/0.02/0.03	5/16	3
PEC13-4-27-27-33Rxx	5/16	4	1 5/8	1 5/8	0.015/0.02/0.03	5/16	4
PEC14-4-22-22-32Rxx	3/8	4	1	1	0.01/0.015/ 0.02/0.03/0.06	3/8	3
PEC14-4-26-26-33Rxx	3/8	4	1 1/2	1 1/2	0.01/0.015/ 0.02/0.03/0.06	3/8	4
PEC14-4-29-29-33Rxx	3/8	4	1 7/8	1 7/8	0.01/0.015/ 0.02/0.03/0.06	3/8	4

unit: inch							
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Corner Radius CR xx	Shank Dia. Ds	Overall Length L
PEC16-4-24-24-32Rxx	1/2	4	1 1/4	1 1/4	0.01/0.015/ 0.02/0.03/0.06	1/2	3
PEC16-4-30-30-33Rxx	1/2	4	2	2	0.01/0.015/ 0.02/0.03/0.06	1/2	4
PEC16-4-31-31-33BRxx	1/2	4	2 1/2	2 1/2	0.01/0.015/ 0.02/0.03/0.06	1/2	4 1/4
PEC18-4-27-27-33BR0.06	5/8	4	1 5/8	1 5/8	0.06	5/8	4 1/4
PEC18-4-31-31-34R0.06	5/8	4	2 1/2	2 1/2	0.06	5/8	6
PEC20-4-27-27-33BR0.06	3/4	4	1 5/8	1 5/8	0.06	3/4	4 1/4
PEC20-4-31-31-34R0.06	3/4	4	2 1/2	2 1/2	0.06	3/4	6

PES/PEC cutting condition

Slotting, ap=1D				unit: inch
		No. of flutes	Stainless 304, 316L, 420	
Tool Dia.	Z	S	F	
1/64	2	36910	9.0	
1/32	2	24072	11.8	
3/64	2	17381	14.2	
1/16	2	17047	20.9	
5/64	2	13641	22.3	
3/32	4	11374	37	
1/8	4	8526	42	
3/16	4	5683	28	
1/4	4	4012	20	
3/8	4	2675	17	
1/2	4	2006	16	
5/8	4	1605	21	
3/4	4	1337	17	

Side milling, ap=1.5D, ae=0.2D				unit: inch
		No. of flutes	Stainless 304, 316L, 420	
Tool Dia.	Z	S	F	
1/64	2	36910	8.7	
1/32	2	28084	22.1	
3/64	2	21392	25.3	
1/16	2	16044	20.2	
5/64	2	13641	21.5	
3/32	4	11374	27	
1/8	4	9028	43	
3/16	4	6352	40	
1/4	4	5015	32	
3/8	4	3344	34	
1/2	4	2508	28	
5/8	4	2006	25	
3/4	4	1672	26	

PEB 2-flute ball nose tool

Ball nose tool for unhardened stainless steel. Suitable for 3D geometry milling.



Dc: 0 ~ -0.0008"
Runout: 0.0004"
Ds: h5

unit: inch						
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
PEB02-2-03-03-30	1/64	2	1/32	1/32	1/8	2
PEB02-2-03-04-30	1/64	2	1/32	3/64	1/8	2
PEB02-2-03-05-30	1/64	2	1/32	1/16	1/8	2
PEB02-2-03-07-30	1/64	2	1/32	3/32	1/8	2
PEB02-2-03-08-30	1/64	2	1/32	1/8	1/8	2
PEB03-2-05-05-30	1/32	2	1/16	1/16	1/8	2
PEB03-2-05-07-30	1/32	2	1/16	3/32	1/8	2
PEB03-2-05-08-30	1/32	2	1/16	1/8	1/8	2
PEB03-2-05-11-30	1/32	2	1/16	3/16	1/8	2
PEB04-2-07-07-30	3/64	2	3/32	3/32	1/8	2
PEB04-2-07-11-30	3/64	2	3/32	3/16	1/8	2
PEB04-2-07-12-30	3/64	2	3/32	1/4	1/8	2
PEB04-2-07-14-30	3/64	2	3/32	3/8	1/8	2
PEB05-2-08-08-30	1/16	2	1/8	1/8	1/8	2
PEB05-2-08-12-30	1/16	2	1/8	1/4	1/8	2
PEB05-2-08-14-30	1/16	2	1/8	3/8	1/8	2
PEB05-2-08-16-30	1/16	2	1/8	1/2	1/8	2
PEB06-2-10-10-30	5/64	2	5/32	5/32	1/8	2
PEB06-2-10-13-30	5/64	2	5/32	5/16	1/8	2

Dc: 0 ~ -0.0008"
Runout: 0.0004"
Ds: h5

unit: inch						
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
PEB06-2-10-16-30	5/64	2	5/32	1/2	1/8	2
PEB07-2-11-11-30	3/32	2	3/16	3/16	1/8	2
PEB07-2-11-14-30	3/32	2	3/16	3/8	1/8	2
PEB07-2-11-16-30	3/32	2	3/16	1/2	1/8	2
PEB07-2-11-18-30	3/32	2	3/16	5/8	1/8	2
PEB08-2-12-12-30	1/8	2	1/4	1/4	1/8	2
PEB11-2-14-14-30	3/16	2	3/8	3/8	3/16	2
PEB12-2-16-16-30	1/4	2	1/2	1/2	1/4	2
PEB14-2-20-20-32	3/8	2	3/4	3/4	3/8	3
PEB16-2-22-22-32	1/2	2	1	1	1/2	3

PEB Cutting condition

unit: inch

Tool Dia.	No. of flutes	Roughing				Finishing			
		ae	ap	S	F	ae	ap	S	F
1/64	2	0.0012	0.0012	37939	15	0.0010	0.0008	38510	15
1/32	2	0.0028	0.0031	25318	40	0.0020	0.0016	21089	33
3/64	2	0.0079	0.0039	21694	77	0.0020	0.0020	18667	59
1/16	2	0.0098	0.0059	20572	81	0.0020	0.0020	17801	56
5/64	2	0.0118	0.0098	20557	81	0.0024	0.0020	17922	71
3/32	2	0.0118	0.0098	18544	73	0.0024	0.0020	16325	64
1/8	2	0.0197	0.0118	17146	74	0.0024	0.0020	15308	60
3/16	2	0.0236	0.0118	13762	65	0.0024	0.0020	13121	52
1/4	2	0.0315	0.0118	11820	56	0.0028	0.0020	13618	59
3/8	2	0.0591	0.0197	7496	47	0.0031	0.0024	9509	52
1/2	2	0.0709	0.0236	5910	42	0.0031	0.0028	6774	37

Note: For 1/4" tool above, when cutting steep geometry, use 70% S and F of above condition for finishing.

HFE high feed tools

Small cutting depth, high feed, high ae%, for non-steep geometry and hardened steel mold roughing.



Dc: 0 ~ -0.001"
Runout: 0.0004"
Ds: h5

unit: inch

Part No.	Tool Type	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia Ds	Overall Length L	CAM R	Recommended Stock leave for finishing
HFE07-2-05-12-30	High Feed	3/32	2	1/16	1/4	1/4	2	0.013	0.004
HFE07-2-05-14-30	High Feed	3/32	2	1/16	3/8	1/4	2	0.013	0.004
HFE07-2-05-16-30	High Feed	3/32	2	1/16	1/2	1/4	2	0.013	0.004
HFE08-2-06-13-30	High Feed	1/8	2	5/64	5/16	1/4	2	0.018	0.004
HFE08-2-06-16-30	High Feed	1/8	2	5/64	1/2	1/4	2	0.018	0.004
HFE08-2-06-18-30	High Feed	1/8	2	5/64	5/8	1/4	2	0.018	0.004
HFE11-2-08-16-30	High Feed	3/16	2	1/8	1/2	3/16	2	0.027	0.006
HFE11-2-08-18-30	High Feed	3/16	2	1/8	5/8	3/16	2	0.027	0.006
HFE11-2-08-20-30	High Feed	3/16	2	1/8	3/4	3/16	2	0.027	0.006
HFE11-2-08-22-30	High Feed	3/16	2	1/8	1	3/16	2	0.027	0.006
HFE12-4-10-18-30	High Feed	1/4	4	5/32	5/8	1/4	2	0.035	0.007
HFE12-4-10-20-30	High Feed	1/4	4	5/32	3/4	1/4	2	0.035	0.007
HFE12-4-10-22-30	High Feed	1/4	4	5/32	1	1/4	2	0.035	0.007
HFE12-4-10-22-32	High Feed	1/4	4	5/32	1	1/4	3	0.035	0.007
HFE14-4-10-25-32	High Feed	3/8	4	5/32	1 3/8	3/8	3	0.053	0.01
HFE14-4-10-25-33	High Feed	3/8	4	5/32	1 3/8	3/8	4	0.053	0.01
HFE16-4-10-26-32	High Feed	1/2	4	5/32	1 1/2	1/2	3	0.071	0.014
HFE16-4-10-26-33	High Feed	1/2	4	5/32	1 1/2	1/2	4	0.071	0.014

HFE cutting condition

unit: inch

Tool Dia.	No. of flutes	ae	ap	Steel HRC30-40			Steel HRC40-50			Steel HRC50-60		
				Vc=180m/min.			Vc=150m/min.			Vc=130m/min.		
				S	F	fz	S	F	fz	S	F	fz
1/8	2	45-75%	0.0039~0.0047	18046	101	0.0028	15039	84	0.0028	13034	73	0.0028
3/16	2	45-75%	0.0047~0.0059	12031	94	0.0039	10026	78	0.0039	8689	68	0.0039
1/4	4	45-75%	0.0059-0.0079	9028	213	0.0059	7523	178	0.0059	6520	154	0.0059
3/8	4	45-75%	0.0079-0.0157	6018	190	0.0079	5015	158	0.0079	4347	137	0.0079
1/2	4	45-75%	0.0079-0.0177	4514	177	0.0098	3761	147	0.0098	3260	128	0.0098

HPSE Hard milling square end tool

Square end tool for hardened steel milling, HRC50-62. Suitable for side milling, trochoidal milling.



Dc: 0 ~ -0.0008"
Runout: 0.0004"
Ds: h5

unit: inch						
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Eff. Length Leff.	Shank Dia. Ds	Overall Length L
HPSE04-4-08-08-30	3/64	4	1/8	1/8	1/4	2
HPSE04-4-08-11-30	3/64	4	1/8	3/16	1/4	2
HPSE04-4-08-12-30	3/64	4	1/8	1/4	1/4	2
HPSE05-4-10-10-30	1/16	4	5/32	5/32	1/4	2
HPSE05-4-10-12-30	1/16	4	5/32	1/4	1/4	2
HPSE05-4-10-14-30	1/16	4	5/32	3/8	1/4	2
HPSE06-4-11-11-30	5/64	4	3/16	3/16	1/4	2
HPSE06-4-11-13-30	5/64	4	3/16	5/16	1/4	2
HPSE06-4-11-16-30	5/64	4	3/16	1/2	1/4	2
HPSE07-4-12-12-30	3/32	4	1/4	1/4	1/4	2
HPSE07-4-12-14-30	3/32	4	1/4	3/8	1/4	2
HPSE07-4-12-16-30	3/32	4	1/4	1/2	1/4	2
HPSE08-4-13-13-30	1/8	4	5/16	5/16	1/4	2
HPSE11-4-16-16-30	3/16	4	1/2	1/2	3/16	2
HPSE12-4-18-18-30	1/4	4	5/8	5/8	1/4	2
HPSE13-4-21-21-31	5/16	4	4/5	4/5	5/16	2 1/2
HPSE14-4-21-21-32	3/8	4	4/5	4/5	3/8	3
HPSE16-4-23-23-32	1/2	4	1 1/8	1 1/8	1/2	3

HPCE Hard milling corner radius tool

Corner radius tool for hardened steel milling, HRC50-62. Suitable for side milling, trochoidal milling.



Dc: 0 ~ -0.0008"
CR:+/- 0.004"
Runout: 0.0004"
Ds: h5

unit: inch							
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Eff. Length Leff.	Corner Radius CR xx	Shank Dia. Ds	Overall Length L
HPCE04-4-08-08-30Rxx	3/64	4	1/8	1/8	0.01	1/4	2
HPCE04-4-08-11-30Rxx	3/64	4	1/8	3/16	0.01	1/4	2
HPCE04-4-08-12-30Rxx	3/64	4	1/8	1/4	0.01	1/4	2
HPCE05-4-10-10-30Rxx	1/16	4	5/32	5/32	0.01	1/4	2
HPCE05-4-10-12-30Rxx	1/16	4	5/32	1/4	0.01	1/4	2
HPCE05-4-10-14-30Rxx	1/16	4	5/32	3/8	0.01	1/4	2
HPCE06-4-11-11-30Rxx	5/64	4	3/16	3/16	0.01	1/4	2
HPCE06-4-11-13-30Rxx	5/64	4	3/16	5/16	0.01	1/4	2
HPCE06-4-11-16-30Rxx	5/64	4	3/16	1/2	0.01	1/4	2
HPCE07-4-12-12-30Rxx	3/32	4	1/4	1/4	0.01/0.015	1/4	2
HPCE07-4-12-14-30Rxx	3/32	4	1/4	3/8	0.01/0.015	1/4	2
HPCE07-4-12-16-30Rxx	3/32	4	1/4	1/2	0.01/0.015	1/4	2
HPCE08-4-13-13-30Rxx	1/8	4	5/16	5/16	0.01/0.015	1/4	2
HPCE11-4-16-16-30Rxx	3/16	4	1/2	1/2	0.01/0.015/0.03	3/16	2
HPCE12-4-18-18-30Rxx	1/4	4	5/8	5/8	0.01/0.015/0.03	1/4	2
HPCE13-4-21-21-31Rxx	5/16	4	4/5	4/5	0.015/0.03	5/16	2 1/2
HPCE14-4-21-21-32Rxx	3/8	4	4/5	4/5	0.01/0.015/0.02 0.03/0.06	3/8	3
HPCE16-4-23-23-32Rxx	1/2	4	1 1/8	1 1/8	0.01/0.015/0.02 0.03/0.06	1/2	3

HPSE/HPCE Cutting Condition

unit: inch

Tool Dia.	No. of flutes	Pre-hardened Steel HRC50-62				
		ae	ap	fz	S	F
3/64	4	0.0008	0.0469	0.0002	21399	17
1/16	4	0.0012	0.0625	0.0004	16049	26
5/64	4	0.0016	0.0781	0.0006	12839	31
3/32	4	0.0016	0.0938	0.0007	10699	30
1/8	4	0.0028	0.125	0.0012	8024	39
3/16	4	0.0039	0.2813	0.0016	5350	34
1/4	4	0.0079	0.375	0.0024	4012	39
3/8	4	0.0197	0.5625	0.0031	2675	33
1/2	4	0.0236	0.75	0.0035	2006	28

HXBE

High precision ball nose tools for hardened steel milling HRC55~62. Designed for high precision die and mold finishing.



Dia. 3/64"-1/2"mm with AlTiSiN-Blue coating



Dia. 0.01"~1/32" with AlTiSiN-golden reddish coating

Dc<Ds, R: +0.0002" ~ -0.0002"
Dc=Ds, R: -0.00008" ~ -0.00035"
R profile line form: +/-0.00012"
Runout: 0.0002"
Eff. Length Leff: +0.002" ~ +0.006"
Ds: h5

Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff. xx	unit: inch	
					Shank Dia. Ds	Overall Length L
HXBE0.01-xx-2	0.01	2	0.01	0.01/0.02/0.025/0.03/0.04/0.06/0.08/0.1	1/4	2
HXBE02-xx-2	1/64	2	0.01	0.01/0.02/0.04/0.06/0.08/0.1/0.12/0.14/0.16	1/4	2
HXBE03-xx-2	1/32	2	0.03	0.03/0.08/0.12/0.16/0.2/0.24/0.28/0.32/0.36/0.4	1/4	2
HXBE04-xx-2	3/64	2	0.05	0.05/0.08/0.12/0.16/0.2/0.24/0.28/0.32/0.36/0.4/0.44/0.48/0.52/0.56/0.6/0.64/0.68/0.72	1/4	2
HXBE05-xx-2	1/16	2	0.06	0.06/0.12/0.16/0.2/0.24/0.28/0.32/0.36/0.4/0.44/0.48/0.52/0.56/0.6/0.68/0.76	1/4	2
HXBE05-xx-3	1/16	2	0.06	0.06/0.12/0.16/0.2/0.24/0.28/0.32/0.36/0.4/0.44/0.48/0.52/0.56/0.6/0.68/0.76	1/4	3
HXBE06-xx-2	5/64	2	0.07	0.07/0.16/0.2/0.24/0.28/0.32/0.36/0.4/0.44/0.48/0.52/0.56/0.6/0.68/0.76	1/4	2
HXBE06-xx-3	5/64	2	0.07	0.07/0.16/0.2/0.24/0.28/0.32/0.36/0.4/0.44/0.48/0.52/0.56/0.6/0.68/0.76	1/4	3
HXBE07-xx-2	3/32	2	0.09	0.09/0.2/0.24/0.28/0.32/0.36/0.4/0.44/0.48/0.52/0.56/0.6/0.68/0.76	1/4	2
HXBE07-xx-3	3/32	2	0.09	0.09/0.2/0.24/0.28/0.32/0.36/0.4/0.44/0.48/0.52/0.56/0.6/0.68/0.76	1/4	3
HXBE08-xx-2	1/8	2	0.13	0.13/0.28//0.32/0.36/0.4/0.44/0.48/0.52/0.56/0.6/0.68/0.76/0.84/0.92/1/1.08/1.16/1.24	1/4	2
HXBE08-xx-3	1/8	2	0.13	0.13/0.28//0.32/0.36/0.4/0.44/0.48/0.52/0.56/0.6/0.68/0.76/0.84/0.92/1/1.08/1.16/1.24	1/4	3
HXBE11-xx-2	3/16	2	0.19	0.19/0.4/0.48/0.56/0.64/0.72/0.8/0.88/0.96/1.04/1.12/1.2	1/4	2
HXBE12-xx-2	1/4	2	0.25	0.25/0.52/0.6/0.68/0.76/0.84/0.92/1/1.08/1.16/1.24	1/4	2

Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff. xx	unit: inch	
					Shank Dia. Ds	Overall Length L
HXBE12-xx-3	1/4	2	0.25	0.25/0.52/0.6/0.68/0.76/0.84/0.92/1/1.08/1.16/1.24	1/4	3
HXBE13-xx-3	5/16	2	0.3	0.38/0.76/0.84/0.92/1/1.08/1.16/1.24/1.32/1.4/1.48/1.56	5/16	3
HXBE14-xx-3	3/8	2	0.38	0.38/0.76/0.84/0.92/1/1.08/1.16/1.24/1.32/1.4/1.48/1.56	3/8	3
HXBE14-xx-4	3/8	2	0.38	0.38/0.76/0.84/0.92/1.08/1.16/1.24/1.32/1.4/1.48/1.56/1.64/1.72/1.8/1.88/1.96/2.04	3/8	4
HXBE16-xx-3	1/2	2	0.5	0.5/1.08/1.16/1.24/1.32/1.4/1.48/1.56	1/2	3
HXBE16-xx-4	1/2	2	0.5	1.4/1.48/1.56/1.64/1.72/1.8/1.88/1.96/2.04/2.12/2.2/2.28/2.36	1/2	4

Order example: HXBE08-0.32-3
HXB: hard milling, 2 flute, ball nose
08: cutting diameter 1/8"
0.32: effective length 0.32"
3: overall length 3"

HXBE cutting condition

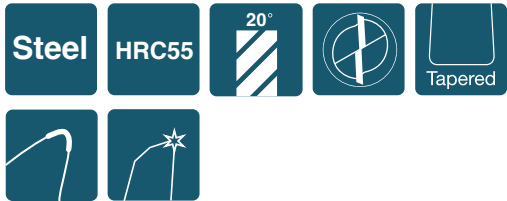
unit: inch

Tool Dia.	No. of flutes	Pre-hardened steel HRC56-62							
		Roughing				Finishing			
		ae	ap	S	F	stepover	stock for finishing	S	F
0.010	2	0.0012	0.0005	39005	12.3	0.0008	0.0004	40779	9.6
1/64	2	0.0016	0.0010	32694	15.4	0.0008	0.0008	36309	14.3
1/32	2	0.0028	0.0024	25040	39.4	0.0013	0.0012	26611	37.7
3/64	2	0.0031	0.0035	20032	55.2	0.0014	0.0016	20928	49.4
1/16	2	0.0079	0.0047	19121	75.3	0.0020	0.0020	19638	54.1
3/32	2	0.0079	0.0079	18227	100.5	0.0020	0.0020	19590	61.7
1/8	2	0.0098	0.0079	16597	98.0	0.0020	0.0020	17403	68.5
3/16	2	0.0157	0.0087	14335	90.3	0.0020	0.0020	15745	74.4
1/4	2	0.0157	0.0098	11605	73.1	0.0024	0.0020	13959	65.9
3/8	2	0.0276	0.0118	8615	81.4	0.0031	0.0039	11810	83.7
1/2	2	0.0315	0.0126	7200	68.0	0.0039	0.0039	10214	80.4

Note: For 1/4" tool above, when cutting steep geometry, use 70% S and F of above condition for finishing.

HDBE Hard milling ball nose tool

High precision ball nose tool for hardened steel milling.
Designed for high precision die and mold finishing.



Dc<Ds, R: +0.0002" ~ -0.0002"
Dc=Ds, R: -0.00008" ~ -0.00035"
R profile line form: +/-0.00012"
Runout: 0.0002"
Eff. Length Left: +0.002" ~ +0.006"
Ds: h5

unit: inch						
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Left xx	Shank Dia. Ds	Overall Length L
HDBE01-xx-2	0.01	2	0.01	0.01/ 0.02/0.025/0.03/0.04/0.06/0.08/0.1	1/4	2
HDBE02-xx-2	1/64	2	0.01	0.01/0.02/ 0.04/0.06/0.08/0.1/0.12/0.14/0.16	1/4	2
HDBE03-xx-2	1/32	2	0.03	0.03/0.08/0.12/0.16/0.2/0.24/0.28/0.32/0.36/0.4	1/4	2
HDBE04-xx-2.5	3/64	2	0.05	0.05/0.08/0.12/0.16/0.2/0.24/0.28/0.32/0.36/0.4/0.44/0.48/0.52/ 0.56/0.6/0.64/0.68/0.72	1/4	2.5
HDBE05-xx-2.5	1/16	2	0.06	0.06/0.12/0.16/0.2/0.24/0.28/0.32/0.36/0.4/0.44/0.48/0.52/0.56/ 0.6/0.68/0.76	1/4	2.5
HDBE05-xx-4	1/16	2	0.06	0.36/0.4/0.44/0.48/0.52/0.56/0.6/0.68/0.76/0.84/0.92/1	1/4	4
HDBE07-xx-2.5	3/32	2	0.09	0.09/0.2/0.24/0.28/0.32/0.36/0.4/0.44/0.48/0.52/0.56/0.6/0.68/ 0.76	1/4	2.5
HDBE07-xx-4	3/32	2	0.09	0.4/0.44/0.48/0.52/0.56/0.6/0.68/0.76/0.84/0.92/1	1/4	4
HDBE08-xx-2.5	1/8	2	0.13	0.13/0.28/0.32/0.36/0.4/0.44/0.48/0.52/0.56/0.6/0.68/0.76/0.84/ 0.92/1/1.08/1.16/1.24	1/4	2.5
HDBE08-xx-4	1/8	2	0.13	0.6/0.68/0.76/0.84/0.92/1/1.08/1.16/1.24	1/4	4
HDBE11-xx-2.5	3/16	2	0.19	0.19/0.4/0.48/0.56/0.64/0.72/0.8/0.88/0.96/1.04/1.12/1.2	1/4	2.5
HDBE11-xx-4	3/16	2	0.19	0.64/0.72/0.8/0.88/0.96/1.04/1.12/1.2	1/4	4
HDBE12-xx-2.5	1/4	2	0.25	0.25/0.52/0.6/0.68/0.76/0.84/0.92/1/1.08/1.16/1.24	1/4	2.5
HDBE12-xx-4	1/4	2	0.25	0.68/0.76/0.84/0.92/1/1.08/1.16/1.24	1/4	4
HDBE14-xx-2.5	3/8	2	0.38	0.38/0.76/0.84/0.92/1/1.08/1.16/1.24/1.32/1.4/1.48/1.56	3/8	2.5
HDBE14-xx-4	3/8	2	0.38	1.24/1.32/1.4/1.48/1.56/1.64/1.72/1.8/1.88/1.96/2.04	3/8	4
HDBE16-xx-2.5	1/2	2	0.5	0.5/1/1.08/1.16/1.24/1.32/1.4/1.48/1.56	1/2	2.5
HDBE16-xx-4	1/2	2	0.5	1.4/1.48/1.56/1.64/1.72/1.8/1.88/1.96/2.04/2.12/2.2/2.28/2.36	1/2	4

Order example: HDBE03-0.2-2
HDBE: hard milling, 2-flute, ball nose, imperial
03: cutting diameter 1/32"
0.2: effective length 0.2"
2: overall length 2"

HDBE cutting condition

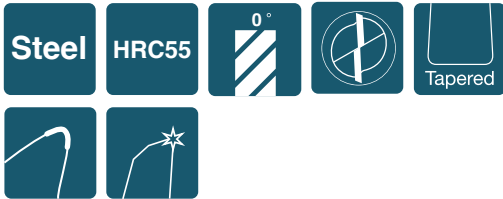
unit: inch

Tool Dia.	No. of flutes	Pre-hardened steel HRC48-55							
		Roughing				Finishing			
		ae	ap	S	F	stepover	stock for finishing	S	F
0.010	2	0.0014	0.0006	41488	13.1	0.0012	0.0004	41907	13.2
1/64	2	0.0020	0.0012	37939	17.9	0.0012	0.0008	38510	18.2
1/32	2	0.0031	0.0024	24281	38.2	0.0014	0.0012	26295	41.4
3/64	2	0.0039	0.0035	20234	55.8	0.0014	0.0016	22264	61.4
1/16	2	0.0098	0.0059	19200	75.6	0.0020	0.0020	21820	68.7
3/32	2	0.0118	0.0079	18087	99.7	0.0020	0.0020	19594	77.1
1/8	2	0.0138	0.0087	16787	99.1	0.0020	0.0020	18531	87.5
3/16	2	0.0177	0.0098	16490	103.9	0.0020	0.0020	18041	92.3
1/4	2	0.0197	0.0118	14183	89.3	0.0024	0.0020	17023	93.8
3/8	2	0.0335	0.0197	8995	85.0	0.0031	0.0039	10661	83.9
1/2	2	0.0433	0.0197	7737	73.1	0.0039	0.0039	9221	72.6

Note: For 1/4" tool above, when cutting steep geometry, use 70% S and F of above condition for finishing.

HDCE Hard milling corner radius 2-flute tool

High precision corner radius tool for hardened steel milling.
Designed for die and mold finishing.
Good for steep wall finishing, not suitable for side milling.



Dc: 0 ~ -0.0004"
R: +/-0.0002"
R profile line form: +/-0.00012"
Runout: 0.0002"
Eff. Length Leff: +0.002" ~ +0.006"
Ds: h5

unit: inch								
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff xx	Corner Radius CR oo	Shank Dia. Ds	Overall Length L	
HDCE03-xx-2Roo	1/32	2	0.02	0.02/0.08/0.12/0.16/0.2/0.24/0.28/0.32/0.36/0.4	0.005	1/4	2	
HDCE04-xx-2.5Roo	3/64	2	0.03	0.03/0.08/0.12/0.16/0.2/0.24/0.28/0.32/0.36/0.4/0.44/0.48/0.52/0.56/0.6/0.64/0.68/0.72	0.005/0.01	1/4	2.5	
HDCE05-xx-2.5Roo	1/16	2	0.04	0.04/0.12/0.16/0.2/0.24/0.28/0.32/0.36/0.4/0.44/0.48/0.52/0.56/0.6/0.68/0.76	0.01	1/4	2.5	

Order example: HDCE05-0.36-2.5R0.01
HDCE: hard milling, 2-flute, corner radius, imperial
05: cutting diameter 1/16"
0.36: effective length 0.36"
2.5: overall length 2.5"
R0.01: corner radius 0.01"

HQCE Hard milling corner radius 4-flute tool

High precision corner radius tool for hardened steel milling.
Designed for die and mold finishing.
Good for steep wall finishing, not suitable for side milling.



Dc<Ds, Dc: 0 ~ -0.0004"
Dc=Ds, Dc: -0.0002" ~ -0.0006"
CR: +/-0.0002"
R profile line form: +/-0.00012"
Runout: 0.0002"
Eff. Length Leff: +0.002"~ +0.006"
Ds: h5

unit: inch								
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff xx	Corner Radius CR oo	Shank Dia. Ds	Overall Length L	
HQCE07-xx-2.5Roo	3/32	4	0.07	0.07/0.2/0.24/0.28/0.32/0.36/0.4/0.44/0.48/0.52/0.56/0.6/0.68/0.76	0.01/0.015	1/4	2.5	
HQCE08-xx-2.5Roo	1/8	4	0.09	0.09/0.28/0.32/0.36/0.4/0.44/0.48/0.52/0.56/0.6/0.68/0.76/0.84/0.92/1/1.08/1.16/1.24	0.01/0.015	1/4	2.5	
HQCE11-xx-2.5Roo	3/16	4	0.13	0.13/0.4/0.48/0.56/0.64/0.72/0.8/0.88/0.96/1.04/1.12/1.2	0.01/0.015/0.02	1/4	2.5	
HQCE12-xx-2.5Roo	1/4	4	0.17	0.17/0.52/0.6/0.68/0.76/0.84/0.92/1/1.08/1.16/1.24	0.01/0.015/0.02/0.03/0.06	1/4	2.5	
HQCE14-xx-4-Roo	3/8	4	0.25	0.25/0.76/0.84/0.92/1/1.08/1.16/1.24/1.32/1.4/1.48/1.56/1.64/1.72/1.8/1.88/1.96/2.04	0.015/0.02/0.03/0.04/0.06	3/8	4	
HQCE16-xx-4-Roo	1/2	4	0.33	0.33/1/1.08/1.16/1.24/1.32/1.4/1.48/1.56/1.64/1.72/1.8/1.88/1.96/2.04/2.12/2.2/2.28/2.36	0.03/0.06	1/2	4	

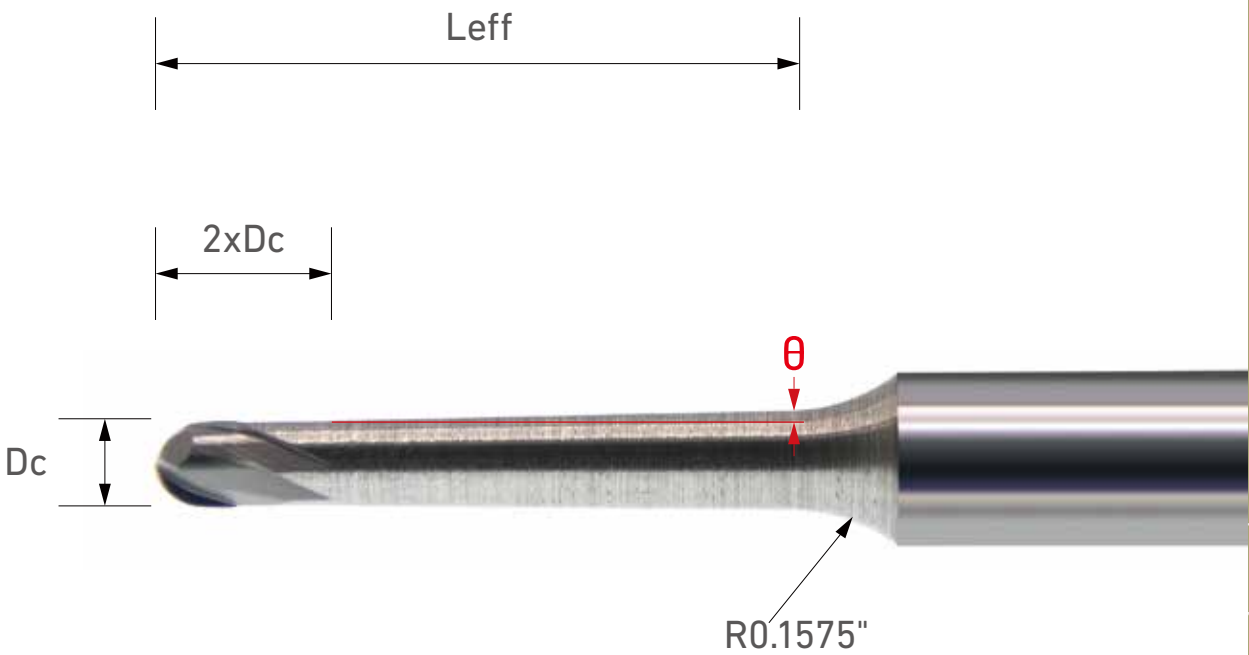
Order example: HQCE12-0.68-2.5R0.02
HQCE: hard milling, 4-flute, corner radius, imperial
12: cutting diameter 1/4"
0.68: effective length 0.68"
2.5: overall length 2.5"
R0.02: corner radius 0.02"

HDCE/HQCE cutting condition

unit: inch

Tool Dia.	No. of flutes	Pre-hardened steel HRC48-55							
		Roughing				Finishing 3D geometry			
		ae	ap	S	F	stepover	stock for finishing	S	F
1/32	2	0.0047	0.0024	24868	39.2	0.0014	0.0012	24868	39.2
3/64	2	0.0059	0.0035	19253	53.1	0.0014	0.0016	19253	53.1
1/16	2	0.0079	0.0047	18049	71.1	0.0020	0.0020	18049	71.1
3/32	4	0.0177	0.0079	14713	162.2	0.0020	0.0020	16051	151.7
1/8	4	0.0236	0.0087	12037	142.2	0.0020	0.0020	13040	123.2
3/16	4	0.0433	0.0098	8024	101.1	0.0020	0.0020	9361	88.4
1/4	4	0.0472	0.0118	6018	75.8	0.0024	0.0020	7021	66.3
3/8	4	0.0787	0.0197	4012	75.8	0.0028	0.0039	4848	53.4
1/2	4	0.0945	0.0197	3009	56.9	0.0031	0.0039	3761	41.5

Tapered hard milling tools



order example
HDBE12-0.84-Tθ-4
Hard milling tapered ball nose tool
12: Cutting diameter 1/4"
0.84: effective length(Leff) tapered
T: tapered
θ: tapered angle 0.5, 1, 1.5, 2, 2.5, 3(tolerance: ±0.2°)
4: overall length 4"

DER diamond coated tools

imperial size, for graphite roughing process



Dc: 0 ~ -0.0025"
Runout: 0.0004"
Leff.: +0.002~+0.006"
Ds: h5

unit: inch

Part No.	Cutting Dia. Dc	No. of flute	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
DER12-2-20-22-31	1/4	multiple	3/4	1	1/4	2 1/2
DER12-2-20-22-33	1/4	multiple	3/4	1	1/4	4
DER14-2-23-26-33	3/8	multiple	1 1/8	1 1/2	3/8	4
DER16-2-26-29-33	1/2	multiple	1 1/2	1 7/8	1/2	4

DES 2-flute diamond coated tools

2-flute, square end, imperial size, for graphite machining



Dc: 0 ~ -0.0008"
Runout: 0.0004"
Leff.: +0.002~-+0.006"
Ds: h5

unit: inch						
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia.	Overall Length L
DES0.005-2-0.01-0.01-2	0.005	2	0.01	0.01	1/8	2
DES0.01-2-0.02-0.05-2	0.01	2	0.02	0.05	1/8	2
DES0.01-2-0.02-0.1-2	0.01	2	0.02	0.1	1/8	2
DES0.01-2-0.02-0.15-2	0.01	2	0.02	0.15	1/8	2
DES0.02-2-0.04-0.04-2	0.02	2	0.04	0.04	1/8	2
DES0.02-2-0.04-0.1-2	0.02	2	0.04	0.1	1/8	2
DES0.02-2-0.04-0.15-2	0.02	2	0.04	0.15	1/8	2
DES0.02-2-0.04-0.25-2	0.02	2	0.04	0.25	1/8	2
DES02-2-04-04-30	1/64	2	3/64	3/64	1/8	2
DES02-2-04-10-30	1/64	2	3/64	5/32	1/8	2
DES03-2-07-07-30	1/32	2	3/32	3/32	1/8	2
DES03-2-07-13-30	1/32	2	3/32	5/16	1/8	2
DES03-2-07-16-30	1/32	2	3/32	1/2	1/8	2
DES04-2-09-09-30	3/64	2	9/64	9/64	1/8	2
DES04-2-09-13-30	3/64	2	9/64	5/16	1/8	2
DES04-2-09-16-30	3/64	2	9/64	1/2	1/8	2
DES04-2-09-20-30	3/64	2	9/64	3/4	1/8	2
DES05-2-11-11-30	1/16	2	3/16	3/16	1/8	2
DES05-2-11-14-30	1/16	2	3/16	3/8	1/8	2

unit: inch						
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
DES05-2-11-16-30	1/16	2	3/16	1/2	1/8	2
DES05-2-11-19-30	1/16	2	3/16	13/20	1/8	2
DES05-2-11-21-30	1/16	2	3/16	4/5	1/8	2
DES05-2-11-22-30	1/16	2	3/16	1	1/8	2

DES 4-flute diamond coated tools

4-flute, square end, imperial size, for graphite machining



Dc: 0 ~ -0.0008"
Runout: 0.0004"
Leff.: +0.002~-+0.006"
Ds: h5

unit: inch						
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
DES03-4-07-07-30	1/32	4	3/32	3/32	1/8	2
DES03-4-07-13-30	1/32	4	3/32	5/16	1/8	2
DES03-4-07-16-30	1/32	4	3/32	1/2	1/8	2
DES04-4-09-09-30	3/64	4	9/64	9/64	1/8	2
DES04-4-09-13-30	3/64	4	9/64	5/16	1/8	2
DES04-4-09-16-30	3/64	4	9/64	1/2	1/8	2
DES04-4-09-20-30	3/64	4	9/64	3/4	1/8	2
DES05-4-11-11-30	1/16	4	3/16	3/16	1/8	2
DES05-4-11-14-30	1/16	4	3/16	3/8	1/8	2
DES05-4-11-16-30	1/16	4	3/16	1/2	1/8	2
DES05-4-11-19-30	1/16	4	3/16	13/20	1/8	2
DES05-4-11-21-30	1/16	4	3/16	4/5	1/8	2
DES05-4-11-22-30	1/16	4	3/16	1	1/8	2
DES05-4-11-22-32	1/16	4	3/16	1	1/8	3
DES07-4-11-11-30	3/32	4	3/16	3/16	1/8	2
DES07-4-11-14-30	3/32	4	3/16	3/8	1/8	2
DES07-4-11-16-30	3/32	4	3/16	1/2	1/8	2
DES07-4-11-19-30	3/32	4	3/16	13/20	1/8	2
DES07-4-11-21-30	3/32	4	3/16	4/5	1/8	2
DES07-4-11-22-30	3/32	4	3/16	1	1/8	2
DES08-4-14-18-32	1/8	4	3/8	5/8	1/8	3
DES11-4-16-20-32	3/16	4	1/2	3/4	3/16	3

extra long

unit: inch						
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
DES11-4-16-20-33	3/16	4	1/2	3/4	3/16	4
DES12-4-20-22-31	1/4	4	3/4	1	1/4	2 1/2
DES12-4-20-22-33	1/4	4	3/4	1	1/4	4
DES12-4-20-22-34	1/4	4	3/4	1	1/4	6
DES14-4-23-26-33	3/8	4	1 1/8	1 1/2	3/8	4
DES14-4-23-26-34	3/8	4	1 1/8	1 1/2	3/8	6
DES16-4-26-29-33	1/2	4	1 1/2	1 7/8	1/2	4
DES16-4-26-29-34	1/2	4	1 1/2	1 7/8	1/2	6

DEB 2-flute diamond coated tools

2-flute, ball nose, imperial size, for graphite machining



Dc: 0 ~ -0.0008"
Runout: 0.0004"
Leff.: +0.002~-+0.006"
Ds: h5

unit: inch							
Part No.	Cutting Dia. Dc	Cutting Radius R	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
DEB0.005-2-0.01-0.01-2	0.005	0.0025	2	0.01	0.01	1/8	2
DEB0.01-2-0.02-0.02-2	0.01	0.005	2	0.02	0.02	1/8	2
DEB0.01-2-0.02-0.05-2	0.01	0.005	2	0.02	0.05	1/8	2
DEB0.01-2-0.02-0.1-2	0.01	0.005	2	0.02	0.1	1/8	2
DEB0.01-2-0.02-0.15-2	0.01	0.005	2	0.02	0.15	1/8	2
DEB0.02-2-0.04-0.04-2	0.02	0.01	2	0.04	0.04	1/8	2
DEB0.02-2-0.04-0.1-2	0.02	0.01	2	0.04	0.1	1/8	2
DEB0.02-2-0.04-0.15-2	0.02	0.01	2	0.04	0.15	1/8	2
DEB0.02-2-0.04-0.25-2	0.02	0.01	2	0.04	0.25	1/8	2
DEB02-2-04-04-30	1/64	1/128	2	3/64	3/64	1/8	2
DEB02-2-04-10-30	1/64	1/128	2	3/64	5/32	1/8	2
DEB03-2-07-07-30	1/32	1/64	2	3/32	3/32	1/8	2
DEB03-2-07-13-30	1/32	1/64	2	3/32	5/16	1/8	2
DEB03-2-07-16-30	1/32	1/64	2	3/32	1/2	1/8	2
DEB04-2-09-09-30	3/64	3/128	2	9/64	9/64	1/8	2
DEB04-2-09-13-30	3/64	3/128	2	9/64	5/16	1/8	2
DEB04-2-09-16-30	3/64	3/128	2	9/64	1/2	1/8	2
DEB04-2-09-20-30	3/64	3/128	2	9/64	3/4	1/8	2
DEB05-2-11-11-30	1/16	1/32	2	3/16	3/16	1/8	2
DEB05-2-11-14-30	1/16	1/32	2	3/16	3/8	1/8	2
DEB05-2-11-16-30	1/16	1/32	2	3/16	1/2	1/8	2
DEB05-2-11-19-30	1/16	1/32	2	3/16	13/20	1/8	2
DEB05-2-11-21-30	1/16	1/32	2	3/16	4/5	1/8	2

unit: inch							
Part No.	Cutting Dia. Dc	Cutting Radius R	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
DEB05-2-11-22-30	1/16	1/32	2	3/16	1	1/8	2

DEB 4-flute diamond coated tools

4-flute, ball nose, imperial size, for graphite machining



Dc: 0 ~ -0.0008"
Runout: 0.0002"
Leff.: +0.002~+0.006"
Ds: h5

unit: inch							
Part No.	Cutting Dia. Dc	Cutting Radius R	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
DEB03-4-07-07-30	1/32	1/64	4	3/32	3/32	1/8	2
DEB03-4-07-13-30	1/32	1/64	4	3/32	5/16	1/8	2
DEB03-4-07-16-30	1/32	1/64	4	3/32	1/2	1/8	2
DEB04-4-09-09-30	3/64	3/128	4	9/64	9/64	1/8	2
DEB04-4-09-13-30	3/64	3/128	4	9/64	5/16	1/8	2
DEB04-4-09-16-30	3/64	3/128	4	9/64	1/2	1/8	2
DEB04-4-09-20-30	3/64	3/128	4	9/64	3/4	1/8	2
DEB05-4-11-11-30	1/16	1/32	4	3/16	3/16	1/8	2
DEB05-4-11-14-30	1/16	1/32	4	3/16	3/8	1/8	2
DEB05-4-11-16-30	1/16	1/32	4	3/16	1/2	1/8	2
DEB05-4-11-19-30	1/16	1/32	4	3/16	13/20	1/8	2
DEB05-4-11-21-30	1/16	1/32	4	3/16	4/5	1/8	2
DEB05-4-11-22-30	1/16	1/32	4	3/16	1	1/8	2
DEB05-4-11-22-32	1/16	1/32	4	3/16	1	1/8	3
DEB07-4-11-11-30	3/32	3/64	4	3/16	3/16	1/8	2
DEB07-4-11-14-30	3/32	3/64	4	3/16	3/8	1/8	2
DEB07-4-11-16-30	3/32	3/64	4	3/16	1/2	1/8	2
DEB07-4-11-19-30	3/32	3/64	4	3/16	13/20	1/8	2
DEB07-4-11-21-30	3/32	3/64	4	3/16	4/5	1/8	2
DEB07-4-11-22-30	3/32	3/64	4	3/16	1	1/8	2
DEB08-4-08-18-32	1/8	1/16	4	1/8	5/8	1/8	3
DEB08-4-14-18-32	1/8	1/16	4	3/8	5/8	1/8	3
DEB11-4-16-20-32	3/16	3/32	4	1/2	3/4	3/16	3

extra long

stub flute

unit: inch							
Part No.	Cutting Dia. Dc	Cutting Radius R	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
DEB11-4-16-20-33	3/16	3/32	4	1/2	3/4	3/16	4
DEB12-4-12-22-31	1/4	1/8	4	1/4	1	1/4	2 1/2
DEB12-4-20-22-31	1/4	1/8	4	3/4	1	1/4	2 1/2
DEB12-4-12-22-33	1/4	1/8	4	1/4	1	1/4	4
DEB12-4-20-22-33	1/4	1/8	4	3/4	1	1/4	4
DEB12-4-20-22-34	1/4	1/8	4	3/4	1	1/4	6
DEB14-4-23-26-33	3/8	3/16	4	1 1/8	1 1/2	3/8	4
DEB14-4-23-26-34	3/8	3/16	4	1 1/8	1 1/2	3/8	6
DEB16-4-26-29-33	1/2	1/4	4	1 1/2	1 7/8	1/2	4
DEB16-4-26-29-34	1/2	1/4	4	1 1/2	1 7/8	1/2	6

stub flute

stub flute

DEC 2-flute diamond coated tools

2-flute, corner radius, imperial size, for graphite machining



Dc: 0 ~ -0.0008"
CR: +/- 0.0004"
Runout: 0.0004"
Leff.: +0.002~-+0.006"
Ds: h5

unit: inch							
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Corner Radius CR	Shank Dia. Ds	Overall Length L
DEC04-2-09-09-30/010	3/64	2	9/64	9/64	0.01	1/8	2
DEC04-2-09-13-30/010	3/64	2	9/64	5/16	0.01	1/8	2
DEC04-2-09-16-30/010	3/64	2	9/64	1/2	0.01	1/8	2
DEC04-2-09-20-30/010	3/64	2	9/64	3/4	0.01	1/8	2
DEC05-2-11-11-30/010	1/16	2	3/16	3/16	0.01	1/8	2
DEC05-2-11-14-30/010	1/16	2	3/16	3/8	0.01	1/8	2
DEC05-2-11-16-30/010	1/16	2	3/16	1/2	0.01	1/8	2
DEC05-2-11-19-30/010	1/16	2	3/16	13/20	0.01	1/8	2
DEC05-2-11-21-30/010	1/16	2	3/16	4/5	0.01	1/8	2
DEC05-2-11-22-30/010	1/16	2	3/16	1	0.01	1/8	2

DEC 4-flute diamond coated tools

4-flute, corner radius, imperial size, for graphite machining



Dc: 0 ~ -0.0008"
CR: +/- 0.0004"
Runout: 0.0004"
Leff.: +0.002~-+0.006"
Ds: h5

unit: inch							
PartNo.	Cutting Dia. Dc	No.of flutes	Flute Length Lf	Effective Length Leff.	Corner Radius CR xx	Shank Dia. Ds	Overall Length L
DEC03-4-07-07-30/005	1/32	4	3/32	3/32	0.005	1/8	2
DEC03-4-07-13-30/005	1/32	4	3/32	5/16	0.005	1/8	2
DEC03-4-07-16-30/005	1/32	4	3/32	1/2	0.005	1/8	2
DEC04-4-09-09-30/010	3/64	4	9/64	9/64	0.01	1/8	2
DEC04-4-09-13-30/010	3/64	4	9/64	5/16	0.01	1/8	2
DEC04-4-09-16-30/010	3/64	4	9/64	1/2	0.01	1/8	2
DEC04-4-09-20-30/010	3/64	4	9/64	3/4	0.01	1/8	2
DEC05-4-11-11-30/xx	1/16	4	3/16	3/16	0.01/0.015	1/8	2
DEC05-4-11-14-30/xx	1/16	4	3/16	3/8	0.01/0.015	1/8	2
DEC05-4-11-16-30/xx	1/16	4	3/16	1/2	0.01/0.015	1/8	2
DEC05-4-11-19-30/xx	1/16	4	3/16	13/20	0.01/0.015	1/8	2
DEC05-4-11-21-30/xx	1/16	4	3/16	4/5	0.01/0.015	1/8	2
DEC05-4-11-22-30/xx	1/16	4	3/16	1	0.01/0.015	1/8	2
DEC05-4-11-22-32/xx	1/16	4	3/16	1	0.01/0.015	1/8	3
DEC07-4-11-11-30/xx	3/32	4	3/16	3/16	0.01/0.015	1/8	2
DEC07-4-11-14-30/xx	3/32	4	3/16	3/8	0.01/0.015	1/8	2
DEC07-4-11-16-30/xx	3/32	4	3/16	1/2	0.01/0.015	1/8	2
DEC07-4-11-19-30/xx	3/32	4	3/16	13/20	0.01/0.015	1/8	2
DEC07-4-11-21-30/xx	3/32	4	3/16	4/5	0.01/0.015	1/8	2
DEC07-4-11-22-30/xx	3/32	4	3/16	1	0.01/0.015	1/8	2
DEC08-4-14-18-32/xx	1/8	4	3/8	5/8	0.015/0.03	1/8	3
DEC11-4-16-20-32/020	3/16	4	1/2	3/4	0.02	3/16	3

extra long

Dc: 0 ~ -0.0008"
CR: +/- 0.0004"
Runout: 0.0004"
Leff.: +0.002~+0.006"
Ds: h5

unit: inch							
PartNo.	Cutting Dia. Dc	No.of flutes	Flute Length Lf	Effective Length Leff.	Corner Radius CR xx	Shank Dia. Ds	Overall Length L
DEC11-4-16-20-33/xx	3/16	4	1/2	3/4	0.015/0.02/0.03/0.06	3/16	4
DEC12-4-20-22-31/xx	1/4	4	3/4	1	0.015/0.02/0.03/0.06	1/4	2 1/2
DEC12-4-20-22-33/xx	1/4	4	3/4	1	0.015/0.02/0.03/0.06	1/4	4
DEC12-4-20-22-34/020	1/4	4	3/4	1	0.02	1/4	6
DEC14-4-23-26-33/xx	3/8	4	1 1/8	1 1/2	0.03/0.04/0.06	3/8	4
DEC14-4-23-26-34/xx	3/8	4	1 1/8	1 1/2	0.03/0.04/0.06	3/8	6
DEC16-4-26-29-33/xx	1/2	4	1 1/2	1 7/8	0.03/0.04/0.06	1/2	4
DEC16-4-26-29-34/xx	1/2	4	1 1/2	1 7/8	0.03/0.04/0.06	1/2	6

DTME diamond coated thread mill

Single profile, diamond coated thread mill for graphite and abrasive non-ferrous materials machining.

Graphite



Dc: 0 ~ -0.0008"
Runout: 0.0004"
Leff.: +0.002~+0.006"
Ds: h5

unit: inch								
Part No.	Tool Type	Cutting Dia.	No. of flutes	Effective Length	mm	TPI	Shank	Overall Length
DTME08-14-30	single profile thread mill	1/8	3	0.375	M4-M5	32-36	1/8	2
DTME11-17-30	single profile thread mill	3/16	3	0.563	M6-M8	20-24	3/16	2
DTME12-20-31	single profile thread mill	1/4	4	0.750	M8-M10	16-20	1/4	2.5
DTME14-23-33	single profile thread mill	3/8	4	1.125	M12-M24	8-14	3/8	4



QMS 2-flute square end tool

Quick mill, square end tool for carbon steel, alloyed steel, cast iron and tool steel. Suitable for slotting, side milling, trochoidal milling, general machining and part machining.



Dc: 0 ~ -0.02mm
Runout: 0.01mm
Ds: h5

unit: mm						
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
QMS02-2-0.4-0.4-50	0.2	2	0.4	0.4	4	50
QMS03-2-0.6-0.6-50	0.3	2	0.6	0.6	4	50
QMS04-2-0.8-0.8-50	0.4	2	0.8	0.8	4	50
QMS05-2-1-1-50	0.5	2	1	1	4	50
QMS05-2-1-2-50	0.5	2	1	2	4	50
QMS05-2-1-3-50	0.5	2	1	3	4	50
QMS05-2-1-4-50	0.5	2	1	4	4	50
QMS06-2-1-1-50	0.6	2	1	1	4	50
QMS06-2-1-2-50	0.6	2	1	2	4	50
QMS06-2-1-3-50	0.6	2	1	3	4	50
QMS06-2-1-4-50	0.6	2	1	4	4	50
QMS08-2-2-2-50	0.8	2	2	2	4	50
QMS08-2-2-4-50	0.8	2	2	4	4	50
QMS08-2-2-6-50	0.8	2	2	6	4	50
QMS1-2-2-2-50	1	2	2	2	4	50
QMS1-2-2-4-50	1	2	2	4	4	50
QMS1-2-2-6-50	1	2	2	6	4	50
QMS1-2-2-8-50	1	2	2	8	4	50
QMS1.5-2-3-3-50	1.5	2	3	3	4	50

Dc: 0 ~ -0.02mm
Runout: 0.01mm
Ds: h5

unit: mm						
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
QMS1.5-2-3-6-50	1.5	2	3	6	4	50
QMS1.5-2-3-8-50	1.5	2	3	8	4	50
QMS1.5-2-3-10-50	1.5	2	3	10	4	50
QMS1.5-2-3-12-50	1.5	2	3	12	4	50

QMS 4-flute square end tool

Quick mill, square end tool for carbon steel, alloyed steel, cast iron and tool steel. Suitable for slotting, side milling, trochoidal milling, general machining and part machining.



Dc: 0 ~ -0.02mm
Runout: 0.01mm
Ds: h5

unit: mm							
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L	
QMS2-4-5-5-50	2	4	5	5	4	50	
QMS2-4-5-8-50	2	4	5	8	4	50	
QMS2-4-5-10-50	2	4	5	10	4	50	
QMS2-4-5-12-50	2	4	5	12	4	50	
QMS3-4-8-8-50	3	4	8	8	4	50	
QMS3-4-8-10-50	3	4	8	10	4	50	
QMS3-4-8-12-50	3	4	8	12	4	50	
QMS3-4-8-16-50	3	4	8	16	4	50	
QMS3-4-12-12-50/6S	3	4	12	12	6	50	long flute
QMS3-4-15-15-50/6S	3	4	15	15	6	50	extra long
QMS4-4-10-10-50	4	4	10	10	4	50	
QMS4-4-16-16-50/6S	4	4	16	16	6	50	long flute
QMS4-4-20-20-60/6S	4	4	20	20	6	60	extra long
QMS5-4-12-12-50	5	4	12	12	6	50	
QMS5-4-20-20-60	5	4	20	20	6	60	long flute
QMS5-4-25-25-75	5	4	25	25	6	75	extra long
QMS6-4-15-15-50	6	4	15	15	6	50	
QMS6-4-24-24-60	6	4	24	24	6	60	long flute
QMS6-4-30-30-75	6	4	30	30	6	75	extra long

unit: mm							
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L	
QMS8-4-20-20-60	8	4	20	20	8	60	
QMS8-4-32-32-75	8	4	32	32	8	75	long flute
QMS8-4-40-40-100	8	4	40	40	8	100	extra long
QMS10-4-25-25-75	10	4	25	25	10	75	
QMS10-4-40-40-100	10	4	40	40	10	100	long flute
QMS10-4-50-50-100	10	4	50	50	10	100	extra long
QMS12-4-30-30-75	12	4	30	30	12	75	
QMS12-4-50-50-100	12	4	50	50	12	100	long flute
QMS12-4-60-60-110	12	4	60	60	12	110	extra long
QMS16-4-40-40-110	16	4	40	40	16	110	
QMS16-4-60-60-150	16	4	60	60	16	150	long flute
QMS20-4-40-40-110	20	4	40	40	20	110	
QMS20-4-60-60-150	20	4	60	60	20	150	long flute

QMC 4-flute corner radius tool

Quick mill, corner radius tool for carbon steel, alloyed steel, cast iron and tool steel. Suitable for slotting, side milling, trochoidal milling, general machining and part machining.



Dc: 0 ~ -0.02mm
CR: +/- 0.01mm
Runout: 0.01mm
Ds: h5

unit: mm									
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Corner Radius CR xx	Shank Dia. Ds	Overall Length L		
QMC2-4-5-5-50R0.2	2	4	5	5	0.2	4	50		
QMC2-4-5-8-50R0.2	2	4	5	8	0.2	4	50		
QMC2-4-5-10-50R0.2	2	4	5	10	0.2	4	50		
QMC2-4-5-12-50R0.2	2	4	5	12	0.2	4	50		
QMC3-4-8-8-50Rxx	3	4	8	8	0.2/0.3/0.5	4	50		
QMC3-4-8-10-50Rxx	3	4	8	10	0.2/0.3/0.5	4	50		
QMC3-4-8-12-50Rxx	3	4	8	12	0.2/0.3/0.5	4	50		
QMC3-4-8-16-50Rxx	3	4	8	16	0.2/0.3/0.5	4	50		
QMC3-4-12-12-50Rxx/6S	3	4	12	12	0.2/0.3/0.5	6	50	long flute	
QMC3-4-15-15-50Rxx/6S	3	4	15	15	0.2/0.3/0.5	6	50	extra long	
QMC4-4-10-10-50Rxx	4	4	10	10	0.2/0.3/0.5	4	50		
QMC4-4-16-16-50Rxx/6S	4	4	16	16	0.2/0.3/0.5	6	50	long flute	
QMC4-4-20-20-60Rxx/6S	4	4	20	20	0.2/0.3/0.5	6	60	extra long	
QMC5-4-12-12-50Rxx	5	4	12	12	0.2/0.3/0.5	6	50		
QMC5-4-20-20-60Rxx	5	4	20	20	0.2/0.3/0.5	6	60	long flute	
QMC5-4-25-25-75Rxx	5	4	25	25	0.2/0.3/0.5	6	75	extra long	
QMC6-4-15-15-50Rxx	6	4	15	15	0.2/0.3/0.5	6	50		
QMC6-4-24-24-60Rxx	6	4	24	24	0.2/0.3/0.5	6	60	long flute	
QMC6-4-30-30-75Rxx	6	4	30	30	0.2/0.3/0.5	6	75	extra long	

unit: mm									
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Corner Radius CR xx	Shank Dia. Ds	Overall Length L		
QMC8-4-20-20-60Rxx	8	4	20	20	0.2/0.5	8	60		
QMC8-4-32-32-75Rxx	8	4	32	32	0.2/0.5	8	75	long flute	
QMC8-4-40-40-100Rxx	8	4	40	40	0.2/0.5	8	100	extra long	
QMC10-4-25-25-75Rxx	10	4	25	25	0.2/0.5/1	10	75		
QMC10-4-40-40-100Rxx	10	4	40	40	0.2/0.5/1	10	100	long flute	
QMC10-4-50-50-100Rxx	10	4	50	50	0.2/0.5/1	10	100	extra long	
QMC12-4-30-30-75Rxx	12	4	30	30	0.2/0.5/1	12	75		
QMC12-4-50-50-100Rxx	12	4	50	50	0.2/0.5/1	12	100	long flute	
QMC12-4-60-60-110Rxx	12	4	60	60	0.2/0.5/1	12	110	extra long	
QMC16-4-40-40-110R1	16	4	40	40	1	16	110		
QMC16-4-60-60-150R1	16	4	60	60	1	16	150	long flute	
QMC20-4-40-40-110R1	20	4	40	40	1	20	110		
QMC20-4-60-60-150R1	20	4	60	60	1	20	150	long flute	

QMS/QMC cutting condition

Slotting, ap=1D								unit: mm	
Tool Dia.		No. of flutes		Carbon Steel, Cast Iron S50C, FC300 HRC28 below		Alloy Steel, Tool Steel SCM, SKS, SKD HRC28-33		Tool Steel, Prehardened Steel P20, NAK80 HRC33-40	
Dc	Z	S	F	S	F	S	F		
0.2	2	39809	32	39809	28	39809	24		
0.3	2	37155	37	37155	33	37155	30		
0.4	2	36624	51	36624	48	36624	44		
0.5	2	35032	63	35032	53	35032	49		
0.6	2	31847	108	31847	96	31847	76		
0.8	2	23885	143	23885	119	23885	96		
1	2	20701	248	20701	215	20701	186		
1.5	2	18047	289	15924	239	15924	207		
2	4	13535	596	11943	480	10350	410		
3	4	9554	838	8493	510	7431	446		
4	4	8758	1051	8360	1003	6768	539		
6	4	6900	1242	5573	1003	4512	632		
8	4	5175	1097	4180	836	3384	609		
10	4	4140	1076	3344	807	2707	541		
12	4	3450	1035	2787	778	2256	541		
16	4	2588	776	2090	585	1692	406		
20	4	2070	621	1672	468	1354	325		

Side Milling, ap=1.5D, ae=0.2D								unit: mm	
Tool Dia.		No. of flutes		Carbon Steel, Cast Iron S50C, FC300 HRC28 below		Alloy Steel, Tool Steel SCM, SKS, SKD HRC28-33		Tool Steel, Prehardened Steel P20, NAK80 HRC33-40	
Dc	Z	S	F	S	F	S	F		
0.2	2	39809	64	39809	56	39809	48		
0.3	2	37155	74	37155	59	37155	52		
0.4	2	36624	88	36624	73	36624	59		
0.5	2	35032	105	35032	84	35032	77		
0.6	2	31847	191	31847	159	31847	140		
0.8	2	27866	279	27866	223	27866	195		
1	2	25478	510	23885	430	22293	357		
1.5	2	22293	535	21231	467	19108	382		
2	4	16720	1003	15924	764	12739	510		
3	4	11677	1401	10616	934	8493	510		
4	4	10350	1656	8360	1001	6768	677		
6	4	7962	2070	6635	1597	5573	1003		
8	4	5971	1791	4976	1393	4180	1003		
10	4	4777	1529	3981	1274	3344	940		
12	4	3981	1274	3317	1128	2787	836		
16	4	2986	1194	2289	824	1990	637		
20	4	2389	955	1831	659	1592	510		

QMB 2-flute ball nose tool

Ball nose tool for unhardened non-sticky steel. Suitable for 3D geometry milling.



Dc: 0 ~ -0.02mm
Runout: 0.01mm
Ds: h5

unit: mm						
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
QMB02-2-0.4-0.4-50	0.2	2	0.4	0.4	4	50
QMB03-2-0.6-0.6-50	0.3	2	0.6	0.6	4	50
QMB04-2-0.8-0.8-50	0.4	2	0.8	0.8	4	50
QMB05-2-1-1-50	0.5	2	1	1	4	50
QMB05-2-1-2-50	0.5	2	1	2	4	50
QMB05-2-1-3-50	0.5	2	1	3	4	50
QMB05-2-1-4-50	0.5	2	1	4	4	50
QMB06-2-1-1-50	0.6	2	1	1	4	50
QMB06-2-1-2-50	0.6	2	1	2	4	50
QMB06-2-1-3-50	0.6	2	1	3	4	50
QMB06-2-1-4-50	0.6	2	1	4	4	50
QMB08-2-2-2-50	0.8	2	2	2	4	50
QMB08-2-2-4-50	0.8	2	2	4	4	50
QMB08-2-2-6-50	0.8	2	2	6	4	50
QMB1-2-2-2-50	1	2	2	2	4	50
QMB1-2-2-4-50	1	2	2	4	4	50
QMB1-2-2-6-50	1	2	2	6	4	50
QMB1-2-2-8-50	1	2	2	8	4	50
QMB1.5-2-3-3-50	1.5	2	3	3	4	50
QMB1.5-2-3-6-50	1.5	2	3	6	4	50

Dc: 0 ~ -0.02mm
Runout: 0.01mm
Ds: h5

unit: mm						
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
QMB1.5-2-3-8-50	1.5	2	3	8	4	50
QMB1.5-2-3-10-50	1.5	2	3	10	4	50
QMB1.5-2-3-12-50	1.5	2	3	12	4	50
QMB2-2-4-4-50	2	2	4	4	4	50
QMB2-2-4-8-50	2	2	4	8	4	50
QMB2-2-4-10-50	2	2	4	10	4	50
QMB2-2-4-12-50	2	2	4	12	4	50
QMB3-2-6-6-50	3	2	6	6	4	50
QMB3-2-6-10-50	3	2	6	10	4	50
QMB3-2-6-12-50	3	2	6	12	4	50
QMB3-2-6-16-50	3	2	6	16	4	50
QMB4-2-8-8-50	4	2	8	8	4	50
QMB6-2-12-12-50	6	2	12	12	6	50
QMB8-2-16-16-60	8	2	16	16	8	60
QMB10-2-20-20-75	10	2	20	20	10	75
QMB12-2-24-24-75	12	2	24	24	12	75

QMB Cutting condition

unit: mm

Tool Dia.	No. of flutes	Roughing				Finishing			
		ae	ap	S	F	ae	ap	S	F
0.2	2	0.02	0.02	41932	126	0.008	0.008	42052	126
0.3	2	0.025	0.03	40694	163	0.01	0.01	41397	166
0.4	2	0.03	0.03	37785	378	0.025	0.02	38358	384
0.5	2	0.05	0.05	35032	701	0.03	0.025	26302	526
0.6	2	0.05	0.06	28309	849	0.04	0.035	24912	747
0.8	2	0.07	0.08	25212	1008	0.05	0.04	21005	840
1	2	0.2	0.1	23885	1911	0.05	0.05	20457	1637
1.5	2	0.25	0.15	21231	2123	0.05	0.05	18333	1833
2	2	0.3	0.25	20463	2660	0.06	0.05	17849	2320
3	2	0.5	0.3	17693	2477	0.06	0.05	15755	2206
4	2	0.6	0.3	15114	2267	0.06	0.05	14332	2150
6	2	0.8	0.3	12177	1948	0.07	0.05	14013	2242
8	2	1.2	0.4	9133	1644	0.08	0.06	11535	2076
10	2	1.5	0.5	7306	1315	0.08	0.06	9279	1670
12	2	1.8	0.6	6089	1218	0.08	0.07	6970	1394

Note: For 6mm tool above, when cutting steep geometry, use 70% S and F of above condition for finishing.

PMS 2-flute square end tool

Square end tool for unhardened stainless steel. Suitable for slotting, side milling, trochoidal milling, general machining and part machining.



Dc: 0 ~ -0.02mm
Runout: 0.005mm
Ds: h5

unit: mm						
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
PMS02-2-0.4-0.4-50	0.2	2	0.4	0.4	4	50
PMS03-2-0.6-0.6-50	0.3	2	0.6	0.6	4	50
PMS04-2-0.8-0.8-50	0.4	2	0.8	0.8	4	50
PMS05-2-1-1-50	0.5	2	1	1	4	50
PMS05-2-1-2-50	0.5	2	1	2	4	50
PMS05-2-1-3-50	0.5	2	1	3	4	50
PMS05-2-1-4-50	0.5	2	1	4	4	50
PMS06-2-1-1-50	0.6	2	1	1	4	50
PMS06-2-1-2-50	0.6	2	1	2	4	50
PMS06-2-1-3-50	0.6	2	1	3	4	50
PMS06-2-1-4-50	0.6	2	1	4	4	50
PMS08-2-2-2-50	0.8	2	2	2	4	50
PMS08-2-2-4-50	0.8	2	2	4	4	50
PMS08-2-2-6-50	0.8	2	2	6	4	50
PMS1-2-2-2-50	1	2	2	2	4	50
PMS1-2-2-4-50	1	2	2	4	4	50
PMS1-2-2-6-50	1	2	2	6	4	50
PMS1-2-2-8-50	1	2	2	8	4	50
PMS1.5-2-3-3-50	1.5	2	3	3	4	50

unit: mm						
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
PMS1.5-2-3-6-50	1.5	2	3	6	4	50
PMS1.5-2-3-8-50	1.5	2	3	8	4	50
PMS1.5-2-3-10-50	1.5	2	3	10	4	50
PMS1.5-2-3-12-50	1.5	2	3	12	4	50

PMS 4-flute square end tool

Square end tool for unhardened stainless steel. Suitable for slotting, side milling, trochoidal milling, general machining and part machining.



Dc: 0 ~ -0.02mm
Runout: 0.005mm
Ds: h5

unit: mm							
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L	
PMS2-4-5-5-50	2	4	5	5	4	50	
PMS2-4-5-8-50	2	4	5	8	4	50	
PMS2-4-5-10-50	2	4	5	10	4	50	
PMS2-4-5-12-50	2	4	5	12	4	50	
PMS3-4-8-8-50	3	4	8	8	4	50	
PMS3-4-8-10-50	3	4	8	10	4	50	
PMS3-4-8-12-50	3	4	8	12	4	50	
PMS3-4-8-16-50	3	4	8	16	4	50	
PMS3-4-12-12-50/6S	3	4	12	12	6	50	long flute
PMS3-4-15-15-50/6S	3	4	15	15	6	50	extra long
PMS4-4-10-10-50	4	4	10	10	4	50	
PMS4-4-16-16-50/6S	4	4	16	16	6	50	long flute
PMS4-4-20-20-60/6S	4	4	20	20	6	60	extra long
PMS5-4-12-12-50	5	4	12	12	6	50	
PMS5-4-20-20-60	5	4	20	20	6	60	long flute
PMS5-4-25-25-75	5	4	25	25	6	75	extra long
PMS6-4-15-15-50	5	4	15	15	6	50	
PMS6-4-24-24-60	6	4	24	24	6	60	long flute
PMS6-4-30-30-75	6	4	30	30	6	75	extra long

unit: mm							
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L	
PMS8-4-20-20-60	8	4	20	20	8	60	
PMS8-4-32-32-75	8	4	32	32	8	75	long flute
PMS8-4-40-40-100	8	4	40	40	8	100	extra long
PMS10-4-25-25-75	10	4	25	25	10	75	
PMS10-4-40-40-100	10	4	40	40	10	100	long flute
PMS10-4-50-50-100	10	4	50	50	10	100	extra long
PMS12-4-30-30-75	12	4	30	30	12	75	
PMS12-4-50-50-100	12	4	50	50	12	100	long flute
PMS12-4-60-60-110	12	4	60	60	12	110	extra long
PMS16-4-40-40-110	16	4	40	40	16	110	
PMS16-4-60-60-150	16	4	60	60	16	150	long flute
PMS20-4-40-40-110	20	4	40	40	20	110	
PMS20-4-60-60-150	20	4	60	60	20	150	long flute

PMC 4-flute corner radius tool

Corner radius tool for unhardened stainless steel. Suitable for slotting, side milling, trochoidal milling, general maching and part machining.



Dc: 0 ~ -0.02mm
Runout: 0.005mm
Ds: h5

unit: mm								
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Corner Radius CR xx	Shank Dia. Ds	Overall Length L	
PMC2-4-5-5-50R0.2	2	4	5	5	0.2	4	50	
PMC2-4-5-8-50R0.2	2	4	5	8	0.2	4	50	
PMC2-4-5-10-50R0.2	2	4	5	10	0.2	4	50	
PMC2-4-5-12-50R0.2	2	4	5	12	0.2	4	50	
PMC3-4-8-8-50Rxx	3	4	8	8	0.2/0.3/0.5	4	50	
PMC3-4-8-10-50Rxx	3	4	8	10	0.2/0.3/0.5	4	50	
PMC3-4-8-12-50Rxx	3	4	8	12	0.2/0.3/0.5	4	50	
PMC3-4-8-16-50Rxx	3	4	8	16	0.2/0.3/0.5	4	50	
PMC3-4-12-12-50Rxx/6S	3	4	12	12	0.2/0.3/0.5	6	50	long flute
PMC3-4-15-15-50Rxx/6S	3	4	15	15	0.2/0.3/0.5	6	50	extra long
PMC4-4-10-10-50Rxx	4	4	10	10	0.2/0.3/0.5	4	50	
PMC4-4-16-16-50Rxx/6S	4	4	16	16	0.2/0.3/0.5	6	50	long flute
PMC4-4-20-20-50Rxx/6S	4	4	20	20	0.2/0.3/0.5	6	60	extra long
PMC5-4-12-12-50Rxx	5	4	12	12	0.2/0.3/0.5	6	50	
PMC5-4-20-20-60Rxx	5	4	20	20	0.2/0.3/0.5	6	60	long flute
PMC5-4-25-25-75Rxx	5	4	25	25	0.2/0.3/0.5	6	75	extra long
PMC6-4-15-15-50Rxx	6	4	15	15	0.2/0.3/0.5	6	50	
PMC6-4-24-24-60Rxx	6	4	24	24	0.2/0.3/0.5	6	60	long flute
PMC6-4-30-30-75Rxx	6	4	30	30	0.2/0.3/0.5	6	75	extra long

unit: mm								
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Corner Radius CR xx	Shank Dia. Ds	Overall Length L	
PMC8-4-20-20-60Rxx	8	4	20	20	0.2/0.5	8	60	
PMC8-4-32-32-75Rxx	8	4	32	32	0.2/0.5	8	75	long flute
PMC8-4-40-40-100Rxx	8	4	40	40	0.2/0.5	8	100	extra long
PMC10-4-25-25-75Rxx	10	4	25	25	0.2/0.5/1	10	75	
PMC10-4-40-40-100Rxx	10	4	40	40	0.2/0.5/1	10	100	long flute
PMC10-4-50-50-100Rxx	10	4	50	50	0.2/0.5/1	10	100	extra long
PMC12-4-30-30-75Rxx	12	4	30	30	0.2/0.5/1	12	75	
PMC12-4-50-50-100Rxx	12	4	50	50	0.2/0.5/1	12	100	long flute
PMC12-4-60-60-110Rxx	12	4	60	60	0.2/0.5/1	12	110	extra long
PMC16-4-40-40-110R1	16	4	40	40	1	16	110	
PMC16-4-60-60-150R1	16	4	60	60	1	16	150	long flute
PMC20-4-40-40-110R1	20	4	40	40	1	20	110	
PMC20-4-60-60-150R1	20	4	60	60	1	20	150	long flute

PMS/PMC cutting condition

Slotting, ap=1D				unit: mm
		No. of flutes	Stainless 304, 316L, 420	
Tool Dia.	Z	S	F	
0.2	2	39809	80	
0.3	2	37155	149	
0.4	2	36624	220	
0.5	2	35032	350	
0.6	2	31847	318	
0.8	2	23885	287	
1	2	20701	414	
1.5	2	18047	541	
2	4	13535	1083	
3	4	9023	1083	
4	4	6768	812	
6	4	4246	510	
8	4	3185	382	
10	4	2548	408	
12	4	2123	425	
16	4	1592	510	
20	4	1274	408	

Side Milling, ap=1.5D, ae=0.2D				unit: mm
		No. of flutes	Stainless 304, 316L, 420	
Tool Dia.	Z	S	F	
0.2	2	39809	80	
0.3	2	37155	149	
0.4	2	36624	220	
0.5	2	35032	350	
0.6	2	31847	510	
0.8	2	27866	557	
1	2	25478	764	
1.5	2	16985	544	
2	4	13535	1083	
3	4	9554	1146	
4	4	7564	1210	
6	4	5308	849	
8	4	3981	796	
10	4	3185	828	
12	4	2654	743	
16	4	1990	637	
20	4	1592	637	

PMB 2-flute ball nose tool

Ball nose tool for unhardened stainless steel. Suitable for 3D geometry milling.



Dc: 0 ~ -0.02mm
Runout: 0.01mm
Ds: h5

unit: mm

Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
PMB02-2-0.4-0.4-50	0.2	2	0.4	0.4	4	50
PMB03-2-0.6-0.6-50	0.3	2	0.6	0.6	4	50
PMB04-2-0.8-0.8-50	0.4	2	0.8	0.8	4	50
PMB05-2-1-1-50	0.5	2	1	1	4	50
PMB05-2-1-2-50	0.5	2	1	2	4	50
PMB05-2-1-3-50	0.5	2	1	3	4	50
PMB05-2-1-4-50	0.5	2	1	4	4	50
PMB06-2-1-1-50	0.6	2	1	1	4	50
PMB06-2-1-2-50	0.6	2	1	2	4	50
PMB06-2-1-3-50	0.6	2	1	3	4	50
PMB06-2-1-4-50	0.6	2	1	4	4	50
PMB08-2-2-2-50	0.8	2	2	2	4	50
PMB08-2-2-4-50	0.8	2	2	4	4	50
PMB08-2-2-6-50	0.8	2	2	6	4	50
PMB1-2-2-2-50	1	2	2	2	4	50
PMB1-2-2-4-50	1	2	2	4	4	50
PMB1-2-2-6-50	1	2	2	6	4	50
PMB1-2-2-8-50	1	2	2	8	4	50
PMB1.5-2-3-3-50	1.5	2	3	3	4	50
PMB1.5-2-3-6-50	1.5	2	3	6	4	50

Dc: 0 ~ -0.02mm
Runout: 0.01mm
Ds: h5

unit: mm

Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
PMB1.5-2-3-8-50	1.5	2	3	8	4	50
PMB1.5-2-3-10-50	1.5	2	3	10	4	50
PMB1.5-2-3-12-50	1.5	2	3	12	4	50
PMB2-2-4-4-50	2	2	4	4	4	50
PMB2-2-4-8-50	2	2	4	8	4	50
PMB2-2-4-10-50	2	2	4	10	4	50
PMB2-2-4-12-50	2	2	4	12	4	50
PMB3-2-6-6-50	3	2	6	6	4	50
PMB3-2-6-10-50	3	2	6	10	4	50
PMB3-2-6-12-50	3	2	6	12	4	50
PMB3-2-6-16-50	3	2	6	16	4	50
PMB4-2-8-8-50	4	2	8	8	4	50
PMB6-2-12-12-50	6	2	12	12	6	50
PMB8-2-16-16-60	8	2	16	16	8	60
PMB10-2-20-20-75	10	2	20	20	10	75
PMB12-2-24-24-75	12	2	24	24	12	75

PMB Cutting condition

unit: mm

Tool Dia.	No. of flutes	Roughing				Finishing			
		ae	ap	S	F	ae	ap	S	F
0.2	2	0.02	0.02	41932	126	0.008	0.008	42052	126
0.3	2	0.025	0.03	40694	163	0.01	0.01	41397	166
0.4	2	0.03	0.03	37785	378	0.025	0.02	38358	384
0.5	2	0.05	0.05	35032	701	0.03	0.025	26302	526
0.6	2	0.05	0.06	28309	849	0.04	0.035	24912	747
0.8	2	0.07	0.08	25212	1008	0.05	0.04	21005	840
1	2	0.2	0.1	23885	2150	0.05	0.05	20457	1637
1.5	2	0.25	0.15	21231	2123	0.05	0.05	18333	1467
2	2	0.3	0.25	20463	2046	0.06	0.05	17849	1785
3	2	0.5	0.3	17693	1946	0.06	0.05	15755	1576
4	2	0.6	0.3	15114	1814	0.06	0.05	14332	1433
6	2	0.8	0.3	12177	1461	0.07	0.05	14013	1541
8	2	1.2	0.4	9133	1370	0.08	0.06	11535	1384
10	2	1.5	0.5	7306	1169	0.08	0.06	9279	1299
12	2	1.8	0.6	6089	1096	0.08	0.07	6970	976

Note: For 1/4" tool above, when cutting steep geometry, use 70% S and F of above condition for finishing.

HFM High feed tool

High feed tools, small cutting depth, high feed, high ae%, for non-steep geometry, hardened steel mold roughing.



Dc: 0 ~ -0.025mm
Runout: 0.01mm
Ds: h5

unit: mm

Part No.	Tool Type	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L	CAM R	Recommended Stock leave for finishing
HFM1.5-2-1-xx-50	High Feed	1.5	2	1	4/6/8/10	4	50	0.21	0.08
HFM2-2-1-xx-50	High Feed	2	2	1	5/8/10/12	4	50	0.28	0.1
HFM3-2-2-xx-50	High Feed	3	2	2	8/10/12/15	4	50	0.42	0.1
HFM4-2-2-xx-50	High Feed	4	2	2	10/12/14/16/20	4	50	0.57	0.12
HFM6-4-4-xx-50	High Feed	6	4	4	15/20/25	6	50	0.85	0.15
HFM6-4-4-25-75	High Feed	6	4	4	25	6	75	0.85	0.15
HFM8-4-4-30-75	High Feed	8	4	4	30	8	75	1.13	0.2
HFM10-4-4-35-75	High Feed	10	4	4	35	10	75	1.42	0.25
HFM10-4-4-35-100	High Feed	10	4	4	35	10	100	1.42	0.25
HFM12-4-4-40-75	High Feed	12	4	4	40	12	75	1.7	0.35
HFM12-4-4-40-100	High Feed	12	4	4	40	12	100	1.7	0.35

HFM cutting condition

unit: mm

Tool Dia.	No. of flutes	ae	ap	Steel HRC30-40			Steel HRC40-50			Steel HRC50-60		
				Vc=180m/min.			Vc=150m/min.			Vc=130m/min.		
				S	F	fz	S	F	fz	S	F	fz
2	2	45-75%	0.08	28662	4013	0.07	23885	3344	0.07	20701	2898	0.07
3	2	45-75%	0.1	19108	3822	0.1	15924	3185	0.1	13800	2760	0.1
4	2	45-75%	0.12	14331	3439	0.12	11943	2866	0.12	10350	2484	0.12
6	4	45-75%	0.15	9554	5732	0.15	7962	4777	0.15	6900	4140	0.15
8	4	45-75%	0.18	7166	4873	0.17	5971	4060	0.17	5175	3519	0.17
10	4	45-75%	0.2	5732	4586	0.2	4777	3822	0.2	4140	3312	0.2
12	4	45-75%	0.25	4777	4777	0.25	3981	3981	0.25	3450	3450	0.25

HPS Hard milling square end tool

Square end tool for hardened steel milling, HRC50-62.
Suitable for side milling, trochoidal milling.



Dc: 0 ~ -0.02mm
Runout: 0.005mm
Ds: h5

unit: mm

Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Eff. Length Leff.	Shank Dia. Ds	Overall Length L
HPS1-4-2-2-50	1	4	2	2	4	50
HPS1-4-2-4-50	1	4	2	4	4	50
HPS1-4-2-6-50	1	4	2	6	4	50
HPS1-4-2-8-50	1	4	2	8	4	50
HPS1.5-4-3-3-50	1.5	4	3	3	4	50
HPS1.5-4-3-6-50	1.5	4	3	6	4	50
HPS1.5-4-3-8-50	1.5	4	3	8	4	50
HPS1.5-4-3-10-50	1.5	4	3	10	4	50
HPS1.5-4-3-12-50	1.5	4	3	12	4	50
HPS2-4-5-5-50	2	4	5	5	4	50
HPS2-4-5-8-50	2	4	5	8	4	50
HPS2-4-5-10-50	2	4	5	10	4	50
HPS2-4-5-12-50	2	4	5	12	4	50
HPS3-4-8-8-50	3	4	8	8	4	50
HPS3-4-8-10-50	3	4	8	10	4	50
HPS3-4-8-12-50	3	4	8	12	4	50
HPS3-4-8-16-50	3	4	8	16	4	50
HPS4-4-10-10-50	4	4	10	10	4	50
HPS6-4-15-15-50	6	4	15	15	6	50
HPS8-4-20-20-60	8	4	20	20	8	60
HPS10-4-22-22-75	10	4	22	22	10	75
HPS12-4-26-26-75	12	4	26	26	12	75

HPC Hard milling corner radius tool

Corner radius tool for hardened steel milling, HRC50-62.
Suitable for side milling, trochoidal milling.



Dc: 0 ~ -0.02mm
CR:+/- 0.01mm
Runout: 0.01mm
Ds: h5

unit: mm

Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Eff. Length Leff.	Corner Radius CR xx	Shank Dia. Ds	Overall Length L
HPC1-4-2-2-50Rxx	1	4	2	2	0.1/0.2	4	50
HPC1-4-2-4-50Rxx	1	4	2	4	0.1/0.2	4	50
HPC1-4-2-6-50Rxx	1	4	2	6	0.1/0.2	4	50
HPC1-4-2-8-50Rxx	1	4	2	8	0.1/0.2	4	50
HPC1.5-4-3-3-50Rxx	1.5	4	3	3	0.1/0.2	4	50
HPC1.5-4-3-6-50Rxx	1.5	4	3	6	0.1/0.2	4	50
HPC1.5-4-3-8-50Rxx	1.5	4	3	8	0.1/0.2	4	50
HPC1.5-4-3-10-50Rxx	1.5	4	3	10	0.1/0.2	4	50
HPC1.5-4-3-12-50Rxx	1.5	4	3	12	0.1/0.2	4	50
HPC2-4-5-5-50R0.2	2	4	5	5	0.2	4	50
HPC2-4-5-8-50R0.2	2	4	5	8	0.2	4	50
HPC2-4-5-10-50R0.2	2	4	5	10	0.2	4	50
HPC2-4-5-12-50R0.2	2	4	5	12	0.2	4	50
HPC3-4-8-8-50Rxx	3	4	8	8	0.2/0.3/0.5	4	50
HPC3-4-8-10-50Rxx	3	4	8	10	0.2/0.3/0.5	4	50
HPC3-4-8-12-50Rxx	3	4	8	12	0.2/0.3/0.5	4	50
HPC3-4-8-16-50Rxx	3	4	8	16	0.2/0.3/0.5	4	50
HPC4-4-10-10-50Rxx	4	4	10	10	0.2/0.3/0.5	4	50
HPC6-4-15-15-50Rxx	6	4	15	15	0.2/0.3/0.5/1	6	50
HPC8-4-20-20-60Rxx	8	4	20	20	0.2/0.5	8	60
HPC10-4-22-22-75Rxx	10	4	22	22	0.2/0.5/1	10	75
HPC12-4-26-26-75Rxx	12	4	26	26	0.2/0.5/1	12	75

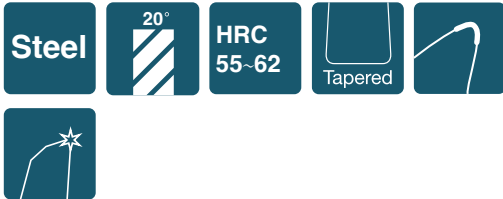
HPS/HPC Cutting Condition

unit: mm

Tool Dia.	No. of flutes	Pre-hardened Steel HRC50-62				
		ae	ap	fz	S	F
1	4	0.02	1	0.006	25478	611
1.5	4	0.03	1.5	0.01	16985	679
2	4	0.05	2	0.015	12739	764
3	4	0.08	3	0.03	8493	1019
4	4	0.1	6	0.04	6369	1019
6	4	0.2	9	0.06	4246	1019
8	4	0.4	12	0.075	3185	955
10	4	0.5	15	0.08	2548	815
12	4	0.6	18	0.09	2123	764

HXB

High precision ball nose tools for hardened steel milling
HRC55-62. Designed for high precision die and mold finishing.



Dia. 1-12mm with ALTiSiN-Blue coating



Dia. 0.2-0.8mm with ALTiSiN-golden reddish coating

Dc<Ds, R: +0.005 ~ -0.005mm
Dc=DS, R: -0.002 ~ -0.009mm
R profile line form: +/-0.003mm
Runout: 0.005mm
Eff. Length Leff: +0.005 ~ +0.015m
Ds: h5

unit: mm						
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff xx	Shank Dia. Ds	Overall Length L
HXB02xx-50/4S	0.2	2	0.2	0.2/0.5/1/1.5/2/2.5/3/3.5/4	4	50
HXB03xx-50/4S	0.3	2	0.2	0.2/0.5/1/1.5/2/2.5/3/3.5/4/4.5/5	4	50
HXB04xx-50/4S	0.4	2	0.3	0.3/1/1.5/2/2.5/3/3.5/4/4.5/5/5.5/6	4	50
HXB05xx-50/4S	0.5	2	0.4	0.4/1/1.5/2/2.5/3/3.5/4/4.5/5/5.5/6/6.5/7/7.5/8	4	50
HXB06xx-50/4S	0.6	2	0.5	0.5/1/1.5/2/2.5/3/3.5/4/4.5/5/5.5/6/6.5/7/7.5/8/8.5/9	4	50
HXB08xx-50/4S	0.8	2	0.6	0.6/2/3/4/5/6/7/8/9/10	4	50
HXB10xx-50/4S	1.0	2	0.8	0.8/2/3/4/5/6/7/8/9/10/11/12/13/14/15/16	4	50
HXB12xx-50/4S	1.2	2	1	1/2/3/4/5/6/7/8/9/10/11/12/13/14/15/16	4	50
HXB15xx-50/4S	1.5	2	1.3	1.3/3/4/5/6/7/8/9/10/11/12/13/14/15/16	4	50
HXB20xx-50/4S	2.0	2	1.7	1.7/4/5/6/7/8/9/10/11/12/13/14/15/16/17/18/19/20	4	50
HXB20xx-50/6S	2.0	2	1.7	1.7/4/5/6/7/8/9/10/11/12/13/14/15/16/17/18/19/20	6	50
HXB20xx-75/6S	2.0	2	1.7	1.7/4/5/6/7/8/9/10/11/12/13/14/15/16/17/18/19/20	6	75
HXB30xx-50/4S	3.0	2	2.5	2.5/5/6/7/8/9/10/11/12/13/14/15/16/18/20	4	50
HXB30xx-50/6S	3.0	2	2.5	2.5/5/6/7/8/9/10/11/12/13/14/15/16/18/20	6	50
HXB30xx-75/6S	3.0	2	2.5	2.5/5/6/7/8/9/10/11/12/13/14/15/16/18/20	6	75
HXB40xx-50/4S	4.0	2	3	3/7/8/9/10/11/12/13/14/15/16/18/20/22/24/26/28/30	4	50
HXB40xx-50/6S	4.0	2	3	3/7/8/9/10/11/12/13/14/15/16/18/20/22/24/26/28/30	6	50
HXB40xx-75/6S	4.0	2	3	3/7/8/9/10/11/12/13/14/15/16/18/20/22/24/26/28/30	6	75
HXB50xx-50/6S	5.0	2	3.5	3.5/8/9/10/11/12/13/14/15/16/18/20/22/24/26/28/30	6	50
HXB60xx-50/6S	6.0	2	4	4/8/9/10/11/12/13/14/15/16/18/20/22/24/26/28/30	6	50

unit: mm						
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff xx	Shank Dia. Ds	Overall Length L
HXB60xx-75/6S	6.0	2	4	4/8/9/10/11/12/13/14/15/16/18/20/22/24/26/28/30	6	75
HXB80xx-60/8S	8.0	2	7	7/16/18/20/22/24/26/28/30/32/34/36/38/40	8	60
HXB80xx-75/8S	8.0	2	7	7/16/18/20/22/24/26/28/30/32/34/36/38/40	8	75
HXB100xx-75/10S	10.0	2	8	8/20/22/24/26/28/30/32/34/36/38/40/42	10	75
HXB100xx-100/10S	10.0	2	8	8/20/22/24/26/28/30/32/34/36/38/40/42/44/46/48/50/52/54/56/58/60	10	100
HXB120xx-75/12S	12.0	2	10	10/24/26/28/30/32/34/36/38/40/42/44/46/48/50	12	75
HXB120xx-100/12S	12.0	2	10	10/24/26/28/30/32/34/36/38/40/42/44/46/48/50/52/54/56/58/60	12	100

Order example: HXB2012-75/6S
HXB: hard milling, 2 flute, ball nose
20: cutting diameter 2mm
12: effective length 12mm
75: overall length 75mm
6S: shank diameter 6mm

HXB cutting condition

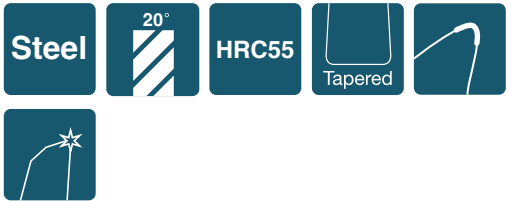
unit: mm									
Tool Dia.	No. of flutes	Pre-hardened steel HRC55-62							
		Roughing				Finishing			
		ae	ap	S	F	stepover	stock for finishing	S	F
0.2	2	0.020	0.012	40565	122	0.010	0.010	40376	162
0.3	2	0.030	0.012	35754	286	0.020	0.010	35779	215
0.4	2	0.040	0.025	32563	391	0.020	0.020	32147	321
0.5	2	0.050	0.028	29196	467	0.030	0.025	28933	405
0.6	2	0.060	0.040	25747	721	0.030	0.030	24111	386
0.8	2	0.070	0.060	24938	998	0.032	0.030	21897	788
1	2	0.080	0.090	22034	1542	0.035	0.040	22915	1375
1.2	2	0.100	0.090	21160	1904	0.040	0.040	22177	1331
1.4	2	0.150	0.100	20139	2014	0.050	0.050	20593	1318
1.5	2	0.180	0.100	19406	1941	0.050	0.050	19871	1391
1.6	2	0.200	0.120	19044	1904	0.050	0.050	19562	1369
1.8	2	0.200	0.150	18436	2212	0.050	0.050	19379	1550
2	2	0.200	0.170	18157	2179	0.050	0.050	18971	1518
2.5	2	0.200	0.200	17749	2485	0.050	0.050	18562	1485
3	2	0.250	0.200	17108	2566	0.050	0.050	17911	1791
3.5	2	0.250	0.200	16464	2470	0.050	0.050	17023	1702
4	2	0.300	0.200	16439	2630	0.050	0.050	16769	1677
5	2	0.400	0.220	13975	2236	0.050	0.050	15364	1844
6	2	0.400	0.250	11953	1912	0.060	0.050	14364	1724

unit: mm									
Tool Dia.	No. of flutes	Pre-hardened steel HRC55-62							
		Roughing				Finishing			
		ae	ap	S	F	stepover	stock for finishing	S	F
6	2	0.400	0.250	11953	1912	0.060	0.050	14364	1724
8	2	0.500	0.280	9748	1950	0.070	0.070	12311	1847
10	2	0.700	0.300	8401	2016	0.080	0.100	11523	2074
12	2	0.800	0.320	7413	1779	0.100	0.100	10510	2102

Note: For 6mm tool above, when cutting steep geometry, use 70% S and F of above condition for finishing.

HDB Hard milling ball nose tool

High precision ball nose tools for hardened steel milling.
Designed for high precision die and mold finishing.



Dc<Ds, R: +0.005 ~ -0.005mm
Dc=Ds, R: -0.002 ~ -0.009mm
R profile line form: +/-0.003mm
Runout: 0.005mm
Eff. Length Leff: +0.005 ~ +0.015mm
Ds: h5

unit: mm						
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff xx	Shank Dia. Ds	Overall Length L
HDB02xx-50/4S	0.2	2	0.2	0.2/0.5/1/1.5/2/2.5/3/3.5/4	4	50
HDB03xx-50/4S	0.3	2	0.2	0.2/0.5/1/1.5/2/2.5/3/3.5/4/4.5/5	4	50
HDB04xx-50/4S	0.4	2	0.3	0.3/1/1.5/2/2.5/3/3.5/4/4.5/5/5.5/6	4	50
HDB05xx-50/4S	0.5	2	0.4	0.4/1/1.5/2/2.5/3/3.5/4/4.5/5/5.5/6/6.5/7/7.5/8	4	50
HDB06xx-50/4S	0.6	2	0.5	0.5/1.5/2/2.5/3/3.5/4/4.5/5/5.5/6/6.5/7/7.5/8/8.5/9	4	50
HDB08xx-50/4S	0.8	2	0.6	0.6/2/3/4/5/6/7/8/9/10	4	50
HDB10xx-50/4S	1.0	2	0.8	0.8/2/3/4/5/6/7/8/9/10/11/12/13/14/15/16	4	50
HDB12xx-50/4S	1.2	2	1	1/2/3/4/5/6/7/8/9/10/11/12/13/14/15/16	4	50
HDB14xx-50/4S	1.4	2	1.2	1.2/2/3/4/5/6/7/8/9/10/11/12/13/14/15/16	4	50
HDB15xx-50/4S	1.5	2	1.3	1.3/3/4/5/6/7/8/9/10/11/12/13/14/15/16	4	50
HDB16xx-50/4S	1.6	2	1.4	1.4/3/4/5/6/7/8/9/10/11/12/13/14/15/16/17/18	4	50
HDB18xx-50/4S	1.8	2	1.6	1.6/4/5/6/7/8/9/10/11/12/13/14/15/16/17/18/19/20	4	50
HDB20xx-50/4S	2.0	2	1.7	1.7/4/5/6/7/8/9/10/11/12/13/14/15/16/17/18/19/20	4	50
HDB20xx-50/6S	2.0	2	1.7	1.7/4/5/6/7/8/9/10/11/12/13/14/15/16/17/18/19/20	6	50
HDB20xx-75/6S	2.0	2	1.7	1.7/4/5/6/7/8/9/10/11/12/13/14/15/16/17/18/19/20	6	75
HDB20xx-100/6S	2.0	2	1.7	1.7/4/5/6/7/8/9/10/11/12/13/14/15/16/17/18/19/20	6	100
HDB25xx-50/4S	2.5	2	2	2/5/6/7/8/9/10/11/12/13/14/15/16/17/18/19/20	4	50
HDB30xx-50/4S	3.0	2	2.5	2.5/5/6/7/8/9/10/11/12/13/14/15/16/18/20	4	50
HDB30xx-50/6S	3.0	2	2.5	2.5/5/6/7/8/9/10/11/12/13/14/15/16/18/20	6	50
HDB30xx-75/6S	3.0	2	2.5	2.5/5/6/7/8/9/10/11/12/13/14/15/16/18/20	6	75
HDB30xx-100/6S	3.0	2	2.5	2.5/5/6/7/8/9/10/11/12/13/14/15/16/18/20	6	100
HDB35xx-50/4S	3.5	2	3	3/6/7/8/9/10/11/12/13/14/15/16/18/20/22/24/26/28/30	4	50
HDB40xx-50/4S	4.0	2	3	3/7/8/9/10/11/12/13/14/15/16/18/20/22/24/26/28/30	4	50

Dc<Ds, R: +0.005 ~ -0.005mm
Dc=Ds, R: -0.002 ~ -0.009mm
R profile line form: +/-0.003mm
Runout: 0.005mm
Eff. Length Leff: +0.005 ~ +0.015mm
Ds: h5

unit: mm						
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff xx	Shank Dia. Ds	Overall Length L
HDB40xx-50/6S	4.0	2	3	3/7/8/9/10/11/12/13/14/15/16/18/20/22/24/26/28/30	6	50
HDB40xx-75/6S	4.0	2	3	3/7/8/9/10/11/12/13/14/15/16/18/20/22/24/26/28/30	6	75
HDB40xx-100/6S	4.0	2	3	3/7/8/9/10/11/12/13/14/15/16/18/20/22/24/26/28/30	6	100
HDB50xx-50/6S	5.0	2	3.5	3.5/8/9/10/11/12/13/14/15/16/18/20/22/24/26/28/30	6	50
HDB60xx-50/6S	6.0	2	4	4/8/9/10/11/12/13/14/15/16/18/20/22/24/26/28/30	6	50
HDB60xx-75/6S	6.0	2	4	4/8/9/10/11/12/13/14/15/16/18/20/22/24/26/28/30	6	75
HDB60xx-100/6S	6.0	2	4	4/8/9/10/11/12/13/14/15/16/18/20/22/24/26/28/30	6	100
HDB80xx-60/8S	8.0	2	7	7/16/18/20/22/24/26/28/30/32/34/36/38/40	8	60
HDB100xx-100/10S	10.0	2	8	8/20/22/24/26/28/30/32/34/36/38/40/42/44/46/48/50/52/54/56/58/60	10	100
HDB120xx-100/12S	12.0	2	10	10/24/26/28/30/32/34/36/38/40/42/44/46/48/50/52/54/56/58/60	12	100

Order example: HDB02005-50/4S
HDB: hard milling, 2 flute, ball nose
02: cutting diameter 0.2mm
005: effective length 0.5mm
50: overall length 50mm
4S: shank diameter 4mm

Order example: HDB2012-75/6S
HDB: hard milling, 2 flute, ball nose
20: cutting diameter 2mm
12: effective length 12mm
75: overall length 75mm
6S: shank diameter 6mm

HDB cutting condition

unit: mm

Tool Dia.	No. of flutes	Pre-hardened steel HRC48-55							
		Roughing				Finishing			
		ae	ap	S	F	stepover	stock for finishing	S	F
0.2	2	0.030	0.015	41715	125	0.020	0.010	41844	209
0.3	2	0.035	0.015	40184	321	0.030	0.010	41397	331
0.4	2	0.050	0.030	37785	453	0.030	0.020	38358	460
0.5	2	0.060	0.028	34923	559	0.035	0.025	37992	570
0.6	2	0.080	0.040	29790	834	0.035	0.030	35313	706
0.8	2	0.080	0.060	24182	967	0.035	0.030	26192	1048
1	2	0.100	0.090	22257	1558	0.035	0.040	24378	1706
1.2	2	0.100	0.100	21125	1901	0.040	0.040	23655	1656
1.4	2	0.180	0.120	20721	2072	0.050	0.050	22064	1545
1.5	2	0.200	0.120	20348	2035	0.050	0.050	21881	1751
1.6	2	0.250	0.150	19120	1912	0.050	0.050	21736	1739
1.8	2	0.300	0.180	18577	2229	0.050	0.050	20456	1841
2	2	0.300	0.200	18047	2166	0.050	0.050	19379	1938
2.5	2	0.300	0.200	17609	2465	0.050	0.050	19108	1911
3	2	0.350	0.220	17307	2596	0.050	0.050	19072	2289
3.5	2	0.400	0.250	16959	2544	0.050	0.050	18403	2208
4	2	0.400	0.250	16446	2631	0.050	0.050	18632	2236

unit: mm

Tool Dia.	No. of flutes	Pre-hardened steel HRC48-55							
		Roughing				Finishing			
		ae	ap	S	F	stepover	stock for finishing	S	F
5	2	0.450	0.250	16074	2572	0.050	0.050	18564	2413
6	2	0.500	0.300	14612	2338	0.060	0.050	17517	2452
8	2	0.650	0.400	10959	2192	0.070	0.070	13892	2501
10	2	0.850	0.500	8767	2104	0.080	0.100	10402	2080
12	2	1.100	0.500	7969	1912	0.100	0.100	9488	1898

Note: For 6mm tool above, when cutting steep geometry, use 70% S and F of above condition for finishing.

HDC Hard milling corner radius 2-flute tool

High precision corner radius tool for hardened steel milling.
Designed for die and mold finishing.
Good for steep wall finishing, not suitable for side milling.



Dc: 0 ~ -0.01mm
R: +/-0.005mm
R profile line form: +/-0.003mm
Runout: 0.005mm
Eff. Length Leff: +0.05 ~ +0.15mm
Ds: h5

unit: mm							
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff. xx	Corner radius CR oo	Shank Dia. Ds	Overall Length
HDC02xxRoo-50/4S	0.2	2	0.1	0.1/0.5/1/1.5/2/2.5/3/3.5/4	0.02/0.05	4	50
HDC03xxRoo-50/4S	0.3	2	0.1	0.1/0.5/1/1.5/2/2.5/3/3.5/4/4.5/5	0.02/0.05	4	50
HDC04xxRoo-50/4S	0.4	2	0.2	0.2/1/1.5/2/2.5/3/3.5/4/4.5/5/5.5/6	0.02/0.05	4	50
HDC05xxRoo-50/4S	0.5	2	0.2	0.2/1/1.5/2/2.5/3/3.5/4/4.5/5/5.5/6/6.5/7/7.5/8	0.02/0.05	4	50
HDC06xxRoo-50/4S	0.6	2	0.3	0.3/1.5/2/2.5/3/3.5/4/4.5/5/5.5/6/6.5/7/7.5/8/8.5/9	0.02/0.05	4	50
HDC08xxRoo-50/4S	0.8	2	0.4	0.4/2/3/4/5/6/7/8/9/10	0.05/0.1	4	50
HDC10xxRoo-50/4S	1.0	2	0.5	0.5/2/3/4/5/6/7/8/9/10/11/12/13/14/15/16	0.05/0.1/0.2	4	50
HDC12xxRoo-50/4S	1.2	2	0.6	0.6/2/3/4/5/6/7/8/9/10/11/12/13/14/15/16	0.1/0.2	4	50
HDC14xxRoo-50/4S	1.4	2	0.7	0.7/3/4/5/6/7/8/9/10/11/12/13/14/15/16	0.1/0.2	4	50
HDC15xxRoo-50/4S	1.5	2	0.8	0.8/3/4/5/6/7/8/9/10/11/12/13/14/15/16	0.1/0.2/0.3	4	50
HDC16xxRoo-50/4S	1.6	2	1	1/3/4/5/6/7/8/9/10/11/12/13/14/15/16/17/18	0.1/0.2/0.3	4	50
HDC18xxRoo-50/4S	1.8	2	1.2	1.2/3/4/5/6/7/8/9/10/11/12/13/14/15/16/17/18/19/20	0.1/0.2/0.3	4	50

Order example: HDC1506R0.1-50/4S
HDC: hard milling, 2 flute, corner radius
15: cutting diameter 1.5mm
06: effective length 6mm
R0.1: corner radius 0.1mm
50: overall length 50mm
4S: shank diameter 4mm

HQC Hard milling corner radius 4-flute tool

High precision corner radius tool for hardened steel milling.
Designed for die and mold finishing.
Good for steep wall finishing, not suitable for side milling.



Dc<Ds, Dc: 0 ~ -0.01mm
Dc=Ds, Dc: -0.005 ~ -0.015mm
R: +/-0.005mm
R profile line form: +/-0.003mm
Runout: 0.005mm
Eff. Length Leff: +0.05 ~ +0.15mm
Ds: h5

unit: mm							
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff. xx	Corner Radius CR oo	Shank Dia. Ds	Overall Length
HQC20xxRoo-50/4S	2.0	4	1	1/4/5/6/7/8/9/10/11/12/13/14/15/16/18/20	0.1/0.2/0.3/0.5	4	50
HQC25xxRoo-50/4S	2.5	4	1.5	1.5/4/5/6/7/8/9/10/11/12/13/14/15/16/18/20/22/24/26	0.1/0.2/0.3/0.5	4	50
HQC30xxRoo-50/4S	3.0	4	1.9	1.9/5/6/7/8/9/10/11/12/13/14/15/16/18/20/22/24/26/28/30	0.1/0.2/0.3/0.5	4	50
HQC35xxRoo-50/4S	3.5	4	2	2/5/6/7/8/9/10/11/12/13/14/15/16/18/20/22/24/26/28/30	0.1/0.2/0.3/0.5	4	50
HQC40xxRoo-50/4S	4.0	4	2.3	2.3/6/7/8/9/10/11/12/13/14/15/16/18/20/22/24/26/28/30	0.1/0.2/0.3/0.5	4	50
HQC50xxRoo-50/6S	5.0	4	2.8	2.8/6/7/8/9/10/11/12/13/14/15/16/18/20/22/24/26/28/30	0.1/0.2/0.3/0.5	6	50
HQC60xxRoo-50/6S	6.0	4	3.6	3.6/6/7/8/9/10/11/12/13/14/15/16/18/20/22/24/26/28/30	0.1/0.2/0.3/0.5	6	50

Order example: HQC6015R0.5-50/6S
HQC: hard milling, 4 flute, corner radius
60: cutting diameter 6mm
15: effective length 15mm
R0.5: corner radius R0.5mm
50: overall length 50mm
6S: shank diameter 6mm

HDC/HQC cutting condition

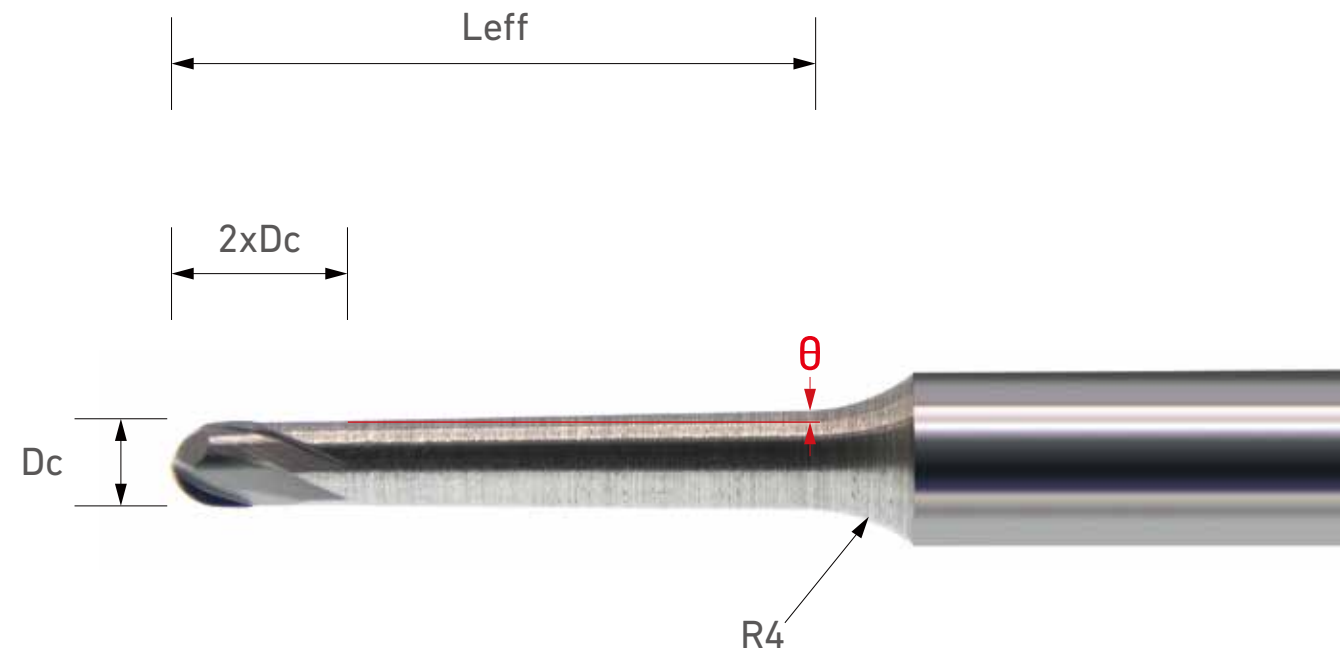
unit: mm

Tool Dia.	No. of flutes	Pre-hardened steel HRC48-55							
		Roughing				Finishing 3D geometry			
		ae	ap	S	F	stepover	stock for finishing	S	F
0.2	2	0.030	0.015	41879	126	0.020	0.010	41879	126
0.3	2	0.040	0.015	39278	314	0.030	0.010	39278	314
0.4	2	0.050	0.030	37420	449	0.030	0.020	37420	449
0.5	2	0.060	0.028	34395	550	0.035	0.025	34395	550
0.6	2	0.100	0.040	30786	862	0.035	0.030	30786	862
0.8	2	0.120	0.060	24682	987	0.035	0.030	24682	987
1	2	0.150	0.090	22930	1605	0.035	0.040	22930	1605
1.2	2	0.170	0.100	21231	1911	0.040	0.040	21231	1911
1.4	2	0.200	0.120	19336	1934	0.050	0.050	19336	1934
1.5	2	0.200	0.120	19108	1911	0.050	0.050	19108	1911
1.6	2	0.250	0.150	17914	1791	0.050	0.050	17914	1791
1.8	2	0.350	0.180	15924	1911	0.050	0.050	15924	1911
2	4	0.400	0.200	15127	3631	0.050	0.050	15924	3822
2.5	4	0.450	0.200	14013	3924	0.050	0.050	15287	3669
3	4	0.600	0.220	12739	3822	0.050	0.050	13800	3312
3.5	4	0.650	0.250	10919	3276	0.050	0.050	11829	2839
4	4	0.900	0.250	9554	3057	0.050	0.050	10350	2484
5	4	1.100	0.250	7643	2446	0.050	0.050	8917	2140

unit: mm

Tool Dia.	No. of flutes	Pre-hardened steel HRC48-55							
		Roughing				Finishing 3D geometry			
		ae	ap	S	F	stepover	stock for finishing	S	F
6	4	1.200	0.300	6369	2038	0.060	0.050	7431	1783
8	4	1.600	0.400	4777	1911	0.065	0.070	5772	1501
10	4	2.000	0.500	3822	1834	0.070	0.100	4618	1293
12	4	2.400	0.500	3185	1529	0.080	0.100	3981	1115

Tapered hard milling tools



order example
HDBE2020-T0-50
Hard milling tapered ball nose tool
20: Cutting diameter 2mm
20: effective length(Leff) tapered 20mm
T: tapered
0: tapered angle 0.5, 1, 1.5, 2, 2.5, 3(tolerance: ±0.2°)
50: overall length 50mm

DMR diamond coated tools

Metric size, for graphite roughing process



Dc: 0 ~ -0.06mm
Runout: 0.01mm
Leff.: +0.05~-+0.015mm
Ds: h5

unit: mm						
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
DMR6-2-18-23-60	6	multiple	18	23	6	60
DMR6-2-18-23-100	6	multiple	18	23	6	100
DMR8-2-24-35-100	8	multiple	24	35	8	100
DMR10-2-25-35-100	10	multiple	25	35	10	100
DMR12-2-30-40-100	12	multiple	30	40	12	100

DMS 2-flute diamond coated tools

2-flute, square end, metric size, for graphite machining



Dc: 0 ~ -0.02mm
Runout: 0.01mm
Leff.: +0.05~+0.15mm
Ds: h5

unit: mm

Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
DMS02-2-0.4-0.4-40	0.2	2	0.4	0.4	3	40
DMS03-2-0.5-0.5-40	0.3	2	0.5	0.5	3	40
DMS04-2-1-1-40	0.4	2	1	1	3	40
DMS04-2-1-2-40	0.4	2	1	2	3	40
DMS04-2-1-3-40	0.4	2	1	3	3	40
DMS04-2-1-4-40	0.4	2	1	4	3	40
DMS05-2-1-1-40	0.5	2	1	1	3	40
DMS05-2-1-4-40	0.5	2	1	4	3	40
DMS05-2-1-7-40	0.5	2	1	7	3	40
DMS05-2-1-10-40	0.5	2	1	10	3	40
DMS06-2-1-1-40	0.6	2	1	1	3	40
DMS06-2-1-5-40	0.6	2	1	5	3	40
DMS06-2-1-8-40	0.6	2	1	8	3	40
DMS06-2-1-12-40	0.6	2	1	12	3	40
DMS08-2-2-2-40	0.8	2	2	2	3	40
DMS08-2-2-7-40	0.8	2	2	7	3	40
DMS08-2-2-10-40	0.8	2	2	10	3	40
DMS08-2-2-15-40	0.8	2	2	15	3	40
DMS1-2-2-2-50	1	2	2	2	3	50
DMS1-2-2-6-50	1	2	2	6	3	50
DMS1-2-2-8-50	1	2	2	8	3	50
DMS1-2-2-10-50	1	2	2	10	3	50

*

unit: mm

Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
DMS1-2-2-12-50	1	2	2	12	3	50
DMS1-2-2-14-50	1	2	2	14	3	50
DMS1-2-2-16-50	1	2	2	16	3	50
DMS1-2-2-20-50	1	2	2	20	3	50
DMS1-2-2-25-50	1	2	2	25	3	50
DMS1.2-2-2-2-50	1.2	2	2	2	3	50
DMS1.2-2-2-6-50	1.2	2	2	6	3	50
DMS1.2-2-2-8-50	1.2	2	2	8	3	50
DMS1.2-2-2-10-50	1.2	2	2	10	3	50
DMS1.2-2-2-12-50	1.2	2	2	12	3	50
DMS1.2-2-2-14-50	1.2	2	2	14	3	50
DMS1.2-2-2-16-50	1.2	2	2	16	3	50
DMS1.2-2-2-20-50	1.2	2	2	20	3	50
DMS1.2-2-2-25-50	1.2	2	2	25	3	50
DMS1.5-2-3-6-50	1.5	2	3	6	3	50
DMS1.5-2-3-8-50	1.5	2	3	8	3	50
DMS1.5-2-3-10-50	1.5	2	3	10	3	50
DMS1.5-2-3-12-50	1.5	2	3	12	3	50
DMS1.5-2-3-14-50	1.5	2	3	14	3	50
DMS1.5-2-3-16-50	1.5	2	3	16	3	50
DMS1.5-2-3-20-50	1.5	2	3	20	3	50
DMS1.5-2-3-25-50	1.5	2	3	25	3	50

*

unit: mm						
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
DMS2-2-6-6-50	2	2	6	6	3	50
DMS2-2-6-10-50	2	2	6	10	3	50
DMS2-2-6-12-50	2	2	6	12	3	50
DMS2-2-6-14-50	2	2	6	14	3	50
DMS2-2-6-16-50	2	2	6	16	3	50
DMS2-2-6-20-50	2	2	6	20	3	50
DMS2-2-6-25-50	2	2	6	25	3	50
DMS3-2-9-15-75	3	2	9	15	3	75

*: modified from shorter effective length

DMS 4-flute diamond coated tools

4-flute, square end, metric size, for graphite machining



Dc: 0 ~ -0.02mm
Runout: 0.01mm
Leff.: +0.05~+0.15mm
Ds: h5

unit: mm						
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
DMS2-4-6-6-50	2	4	6	6	3	50
DMS2-4-6-10-50	2	4	6	10	3	50
DMS2-4-6-12-50	2	4	6	12	3	50
DMS2-4-6-14-50	2	4	6	14	3	50
DMS2-4-6-16-50	2	4	6	16	3	50
DMS2-4-6-20-50	2	4	6	20	3	50
DMS2-4-6-25-50	2	4	6	25	3	50
DMS3-4-9-15-75	3	4	9	15	3	75
DMS4-4-15-20-75	4	4	15	20	4	75
DMS4-4-15-20-100	4	4	15	20	4	100
DMS6-4-20-25-60	6	4	20	25	6	60
DMS6-4-20-25-100	6	4	20	25	6	100
DMS6-4-20-25-150	6	4	20	25	6	150
DMS8-4-25-35-100	8	4	25	35	8	100
DMS8-4-25-35-150	8	4	25	35	8	150
DMS10-4-25-35-100	10	4	25	35	10	100
DMS10-4-25-35-150	10	4	25	35	10	150
DMS12-4-25-35-100	12	4	25	35	12	100
DMS12-4-25-35-150	12	4	25	35	12	150

*: modified from shorter effective length

DMB 2-flute diamond coated tools

2-flute, ball nose, metric size, for graphite machining



Dc: 0 ~ -0.02mm
Runout: 0.01mm
Leff.: +0.05~+0.15mm
Ds: h5

unit: mm							
Part No.	Cutting Dia. Dc	Cutting Radius R	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
DMB02-2-0.4-0.4-40	0.2	0.1	2	0.4	0.4	3	40
DMB03-2-0.5-0.5-40	0.3	0.15	2	0.5	0.5	3	40
DMB04-2-1-1-40	0.4	0.2	2	1	1	3	40
DMB04-2-1-2-40	0.4	0.2	2	1	2	3	40
DMB04-2-1-3-40	0.4	0.2	2	1	3	3	40
DMB04-2-1-4-40	0.4	0.2	2	1	4	3	40
DMB05-2-1-1-40	0.5	0.25	2	1	1	3	40
DMB05-2-1-4-40	0.5	0.25	2	1	4	3	40
DMB05-2-1-7-40	0.5	0.25	2	1	7	3	40
DMB05-2-1-10-40	0.5	0.25	2	1	10	3	40
DMB06-2-1-1-40	0.6	0.3	2	1	1	3	40
DMB06-2-1-5-40	0.6	0.3	2	1	5	3	40
DMB06-2-1-8-40	0.6	0.3	2	1	8	3	40
DMB06-2-1-12-40	0.6	0.3	2	1	12	3	40
DMB08-2-2-2-40	0.8	0.4	2	2	2	3	40
DMB08-2-2-7-40	0.8	0.4	2	2	7	3	40
DMB08-2-2-10-40	0.8	0.4	2	2	10	3	40
DMB08-2-2-15-40	0.8	0.4	2	2	15	3	40
DMB1-2-2-2-50	1	0.5	2	2	2	3	50
DMB1-2-2-6-50	1	0.5	2	2	6	3	50
DMB1-2-2-8-50	1	0.5	2	2	8	3	50
DMB1-2-2-10-50	1	0.5	2	2	10	3	50

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unit: mm							
Part No.	Cutting Dia. Dc	Cutting Radius R	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
DMB1-2-2-12-50	1	0.5	2	2	12	3	50
DMB1-2-2-14-50	1	0.5	2	2	14	3	50
DMB1-2-2-16-50	1	0.5	2	2	16	3	50
DMB1-2-2-20-50	1	0.5	2	2	20	3	50
DMB1-2-2-25-50	1	0.5	2	2	25	3	50
DMB1.2-2-2-2-50	1.2	0.6	2	2	2	3	50
DMB1.2-2-2-6-50	1.2	0.6	2	2	6	3	50
DMB1.2-2-2-8-50	1.2	0.6	2	2	8	3	50
DMB1.2-2-2-10-50	1.2	0.6	2	2	10	3	50
DMB1.2-2-2-12-50	1.2	0.6	2	2	12	3	50
DMB1.2-2-2-14-50	1.2	0.6	2	2	14	3	50
DMB1.2-2-2-16-50	1.2	0.6	2	2	16	3	50
DMB1.2-2-2-20-50	1.2	0.6	2	2	20	3	50
DMB1.2-2-2-25-50	1.2	0.6	2	2	25	3	50
DMB1.5-2-3-6-50	1.5	0.75	2	3	6	3	50
DMB1.5-2-3-8-50	1.5	0.75	2	3	8	3	50
DMB1.5-2-3-10-50	1.5	0.75	2	3	10	3	50
DMB1.5-2-3-12-50	1.5	0.75	2	3	12	3	50
DMB1.5-2-3-14-50	1.5	0.75	2	3	14	3	50
DMB1.5-2-3-16-50	1.5	0.75	2	3	16	3	50
DMB1.5-2-3-20-50	1.5	0.75	2	3	20	3	50
DMB1.5-2-3-25-50	1.5	0.75	2	3	25	3	50

unit: mm							
Part No.	Cutting Dia. Dc	Cutting Radius R	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
DMB2-2-6-6-50	2	1	2	6	6	3	50
DMB2-2-6-10-50	2	1	2	6	10	3	50
DMB2-2-6-12-50	2	1	2	6	12	3	50
DMB2-2-6-14-50	2	1	2	6	14	3	50
DMB2-2-6-16-50	2	1	2	6	16	3	50
DMB2-2-6-20-50	2	1	2	6	20	3	50
DMB2-2-6-25-50	2	1	2	6	25	3	50
DMB3-2-9-15-75	3	1.5	2	9	15	3	75

*: modified from shorter effective length

DMB 4-flute diamond coated tools

4-flute, ball nose, metric size, for graphite machining



Dc: 0 ~ -0.02mm
Runout: 0.01mm
Leff.: +0.05 ~+0.15mm
Ds: h5

unit: mm							
Part No.	Cutting Dia. Dc	Cutting Radius R	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
DMB05-4-1-1-40	0.5	0.25	4	1	1	3	40
DMB05-4-1-4-40	0.5	0.25	4	1	4	3	40
DMB05-4-1-7-40	0.5	0.25	4	1	7	3	40
DMB05-4-1-10-40	0.5	0.25	4	1	10	3	40
DMB06-4-1-1-40	0.6	0.3	4	1	1	3	40
DMB06-4-1-5-40	0.6	0.3	4	1	5	3	40
DMB06-4-1-8-40	0.6	0.3	4	1	8	3	40
DMB06-4-1-12-40	0.6	0.3	4	1	12	3	40
DMB08-4-2-2-40	0.8	0.4	4	2	2	3	40
DMB08-4-2-7-40	0.8	0.4	4	2	7	3	40
DMB08-4-2-10-40	0.8	0.4	4	2	10	3	40
DMB08-4-2-15-40	0.8	0.4	4	2	15	3	40
DMB1-4-2-2-50	1	0.5	4	2	2	3	50
DMB1-4-2-6-50	1	0.5	4	2	6	3	50
DMB1-4-2-8-50	1	0.5	4	2	8	3	50
DMB1-4-2-10-50	1	0.5	4	2	10	3	50
DMB1-4-2-12-50	1	0.5	4	2	12	3	50
DMB1-4-2-14-50	1	0.5	4	2	14	3	50
DMB1-4-2-16-50	1	0.5	4	2	16	3	50
DMB1-4-2-20-50	1	0.5	4	2	20	3	50
DMB1-4-2-25-50	1	0.5	4	2	25	3	50
DMB1.5-4-3-6-50	1.5	0.75	4	3	6	3	50

unit: mm							
Part No.	Cutting Dia. Dc	Cutting Radius R	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
DMB1.5-4-3-8-50	1.5	0.75	4	3	8	3	50
DMB1.5-4-3-10-50	1.5	0.75	4	3	10	3	50
DMB1.5-4-3-12-50	1.5	0.75	4	3	12	3	50
DMB1.5-4-3-14-50	1.5	0.75	4	3	14	3	50
DMB1.5-4-3-16-50	1.5	0.75	4	3	16	3	50
DMB1.5-4-3-20-50	1.5	0.75	4	3	20	3	50
DMB1.5-4-3-25-50	1.5	0.75	4	3	25	3	50
DMB2-4-6-6-50	2	1	4	6	6	3	50
DMB2-4-6-10-50	2	1	4	6	10	3	50
DMB2-4-6-12-50	2	1	4	6	12	3	50
DMB2-4-6-14-50	2	1	4	6	14	3	50
DMB2-4-6-16-50	2	1	4	6	16	3	50
DMB2-4-6-20-50	2	1	4	6	20	3	50
DMB2-4-6-25-50	2	1	4	6	25	3	50
DMB3-4-9-15-75	3	1.5	4	9	15	3	75
DMB4-4-15-20-75	4	2	4	15	20	4	75
DMB4-4-15-20-100	4	2	4	15	20	4	100
DMB6-4-20-25-60	6	3	4	20	25	6	60
DMB6-4-20-25-100	6	3	4	20	25	6	100
DMB6-4-20-25-150	6	3	4	20	25	6	150
DMB8-4-25-35-100	8	4	4	25	35	8	100
DMB8-4-25-35-150	8	4	4	25	35	8	150

unit: mm

Part No.	Cutting Dia. Dc	Cutting Radius R	No. of flutes	Flute Length Lf	Effective Length Leff.	Shank Dia. Ds	Overall Length L
DMB10-4-25-35-100	10	5	4	25	35	10	100
DMB10-4-25-35-150	10	5	4	25	35	10	150
DMB12-4-25-35-100	12	6	4	25	35	12	100
DMB12-4-25-35-150	12	6	4	25	35	12	150

*: modified from shorter effective length

DMC 2-flute diamond coated tools

2-flute, corner radius, metric size, for graphite machining



Dc: 0 ~ -0.02mm
CR: +/- 0.01mm
Runout: 0.01mm
Leff.: +0.05~-+0.15mm
Ds: h5

							unit: mm
Part No.	Cutting Dia. Dc	No.of flutes	Flute Length Lf	Effective Length Leff.	Corner Radius CR xx	Shank Dia. Ds	Overall Length L
DMC1-2-2-2-50Rxx	1	2	2	2	0.1/0.2	3	50
DMC1-2-2-6-50Rxx	1	2	2	6	0.1/0.2	3	50
DMC1-2-2-8-50Rxx	1	2	2	8	0.1/0.2	3	50
DMC1-2-2-10-50Rxx	1	2	2	10	0.1/0.2	3	50
DMC1-2-2-12-50Rxx	1	2	2	12	0.1/0.2	3	50
DMC1-2-2-14-50Rxx	1	2	2	14	0.1/0.2	3	50
DMC1-2-2-16-50Rxx	1	2	2	16	0.1/0.2	3	50
DMC1-2-2-20-50Rxx	1	2	2	20	0.1/0.2	3	50
DMC1-2-2-25-50Rxx	1	2	2	25	0.1/0.2	3	50
DMC1.2-2-2-2-50Rxx	1.2	2	2	2	0.1/0.2	3	50
DMC1.2-2-2-6-50Rxx	1.2	2	2	6	0.1/0.2	3	50
DMC1.2-2-2-8-50Rxx	1.2	2	2	8	0.1/0.2	3	50
DMC1.2-2-2-10-50Rxx	1.2	2	2	10	0.1/0.2	3	50
DMC1.2-2-2-12-50Rxx	1.2	2	2	12	0.1/0.2	3	50
DMC1.2-2-2-14-50Rxx	1.2	2	2	14	0.1/0.2	3	50
DMC1.2-2-2-16-50Rxx	1.2	2	2	16	0.1/0.2	3	50
DMC1.2-2-2-20-50Rxx	1.2	2	2	20	0.1/0.2	3	50
DMC1.2-2-2-25-50Rxx	1.2	2	2	25	0.1/0.2	3	50
DMC1.5-2-3-6-50R0.2	1.5	2	3	6	0.2	3	50
DMC1.5-2-3-8-50R0.2	1.5	2	3	8	0.2	3	50
DMC1.5-2-3-10-50R0.2	1.5	2	3	10	0.2	3	50
DMC1.5-2-3-12-50R0.2	1.5	2	3	12	0.2	3	50

							unit: mm
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Corner Radius CR xx	Shank Dia. Ds	Overall Length L
DMC2-2-6-6-50Rxx	2	2	6	6	0.2/0.5	3	50
DMC2-2-6-10-50Rxx	2	2	6	10	0.2/0.5	3	50
DMC2-2-6-12-50Rxx	2	2	6	12	0.2/0.5	3	50
DMC2-2-6-14-50Rxx	2	2	6	14	0.2/0.5	3	50
DMC2-2-6-16-50Rxx	2	2	6	16	0.2/0.5	3	50
DMC2-2-6-20-50Rxx	2	2	6	20	0.2/0.5	3	50
DMC2-2-6-25-50Rxx	2	2	6	25	0.2/0.5	3	50
DMC3-2-9-15-75Rxx	3	2	9	15	0.2/0.5	3	75

*: modified from shorter effective length

DMC 4-flute diamond coated tools

4-flute, corner radius, metric size, for graphite machining



Dc: 0 ~ -0.02mm
CR:+/- 0.01mm
Runout: 0.01mm
Leff.: +0.05~+0.15mm
Ds: h5

unit: mm							
Part No.	Cutting Dia. Dc	No. of flutes	Flute Length Lf	Effective Length Leff.	Corner Radius CR xx	Shank Dia. Ds	Overall Length L
DMC2-4-6-6-50Rxx	2	4	6	6	0.2/0.5	3	50
DMC2-4-6-10-50Rxx	2	4	6	10	0.2/0.5	3	50
DMC2-4-6-12-50Rxx	2	4	6	12	0.2/0.5	3	50
DMC2-4-6-14-50Rxx	2	4	6	14	0.2/0.5	3	50
DMC2-4-6-16-50Rxx	2	4	6	16	0.2/0.5	3	50
DMC2-4-6-20-50Rxx	2	4	6	20	0.2/0.5	3	50
DMC2-4-6-25-50Rxx	2	4	6	25	0.2/0.5	3	50
DMC3-4-9-15-75Rxx	3	4	9	15	0.2/0.5	3	75
DMC4-4-15-20-75Rxx	4	4	15	20	0.3/0.5	4	75
DMC4-4-15-20-100Rxx	4	4	15	20	0.3/0.5	4	100
DMC6-4-20-25-60Rxx	6	4	20	25	0.3/0.5	6	60
DMC6-4-20-25-100Rxx	6	4	20	25	0.3/0.5	6	100
DMC6-4-20-25-150Rxx	6	4	20	25	0.3/0.5	6	150
DMC8-4-25-35-100R0.5	8	4	25	35	0.5	8	100
DMC8-4-25-35-150R0.5	8	4	25	35	0.5	8	150
DMC10-4-25-35-100Rxx	10	4	25	35	0.5/1	10	100
DMC10-4-25-35-150Rxx	10	4	25	35	0.5/1	10	150
DMC12-4-25-35-100Rxx	12	4	25	35	0.5/1	12	100
DMC12-4-25-35-150Rxx	12	4	25	35	0.5/1	12	150

*: modified from shorter effective length

Diamond coated inserts

unit: mm	
Part No.	Photos
RDHX0501	
RDHX0802	
SEHT1204	



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