

Carbide Endmill & Drill

High Speed Series



151

Items

8745

Tools

COGOTOOL, we always appreciate our customers.

As filling up new items like end mills of CBN /for SUS/ for cutting copper in order to meet customer demands, We line up about 8,745 items.

It is every product of COGOTOOL that all of our staff pay attention to production and quality control without any careless.

Continued from now on, COGOTOOL make our best to supply excellent products low-priced by advanced technology and efficient process improvement.

COGO TOOL

Carbide Endmill & Drill

High Speed Series **8745** Tools

- Line-up about 8,745 tools 151 items for various choice
- New special coating for maximizing anti-abrasion
- Strong cutting power for high speed and efficiency

Best for hard to cut material

Pre-hardened steels can be applied to medium to high hardness work pieces.(HRC40 ~ 62)

Dividing and double flute make it easy to prevent shaking and chip ejection.

Enables high performance milling in tough steels, low alloyed steels, high alloyed steels and hard to cut materials.



Roughing and Finishing End Mill(4 Flutes)



Structure which facilitates at the same time process of roughing and finishing/ 4 Flutes (2flute for Roughing, 2flute for Finishing)

Possible to process roughing and finishing at the same time/ Reduce time for setup (Improve Productivity)

Designed to suppress vibration during semi-roughing/ Reduce noise

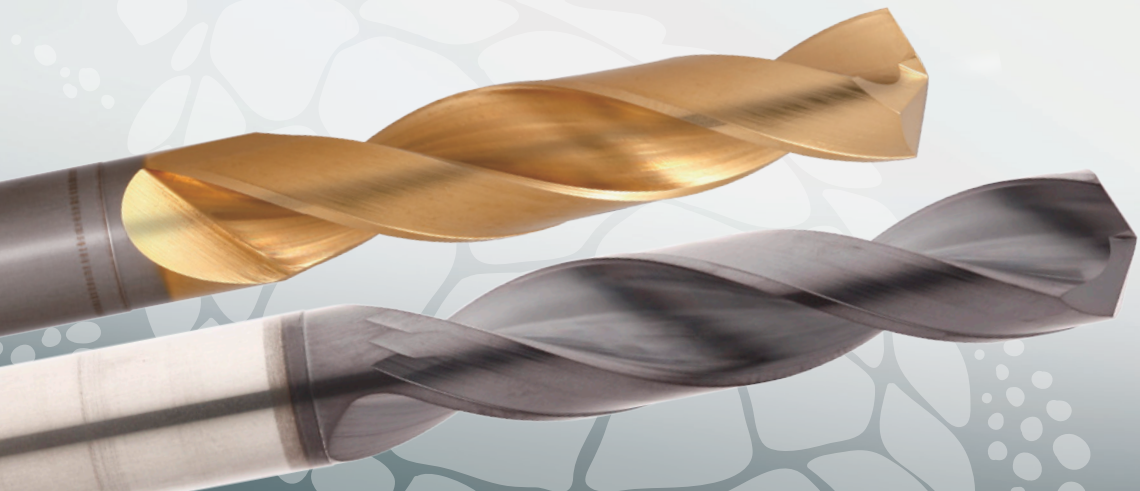
GBS Drill

Application: the best performance when drilling S45C, SCM, cast steels and cast iron etc. of automobile parts.

FLUTE design considering optimal tool stiffness and optimal chip evacuation.

New design enables high-precision work without the need for centering and reaming.

Unmanned work is possible by improving the life of the tool by using high-quality fine particles with excellent toughness and wear resistance.





DENTAL CARBIDE END MILLS



Champion of high hardness (HRC52~70)!

Design to increase the breakage-resistance.
New special coating for maximizing anti-abrasion.
Strong cutting power for high speed and efficiency.



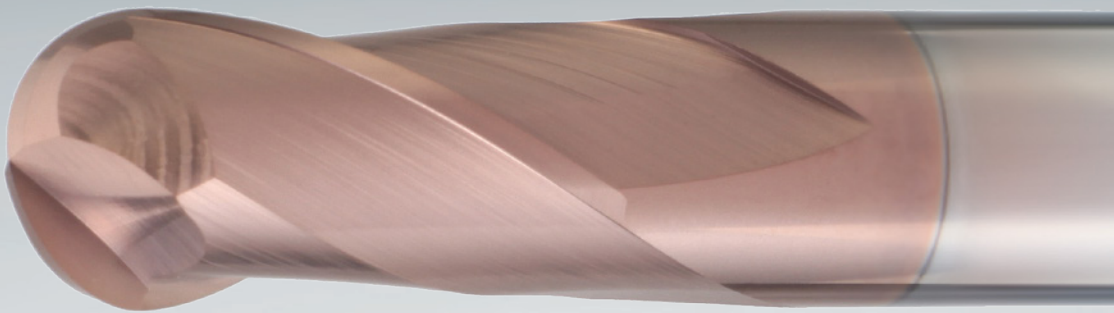
CBN End Mills

Cutting range < HRC90

10 times Longer life compared to Carbide
End Mill Tool life: 50Hours!



First in Korea! Ultra precision R tolerance



Ultra precision ball nose End Mill

Don't say any more about the QUALITY!

$\pm 0.003\text{mm}$

ULTRA PRECISION

$0.1R \leq R \leq 1R$ $\pm 0.002\text{mm}$

$1R < R \leq 2R$ $\pm 0.003\text{mm}$

$2R < R$ $\pm 0.005\text{mm}$

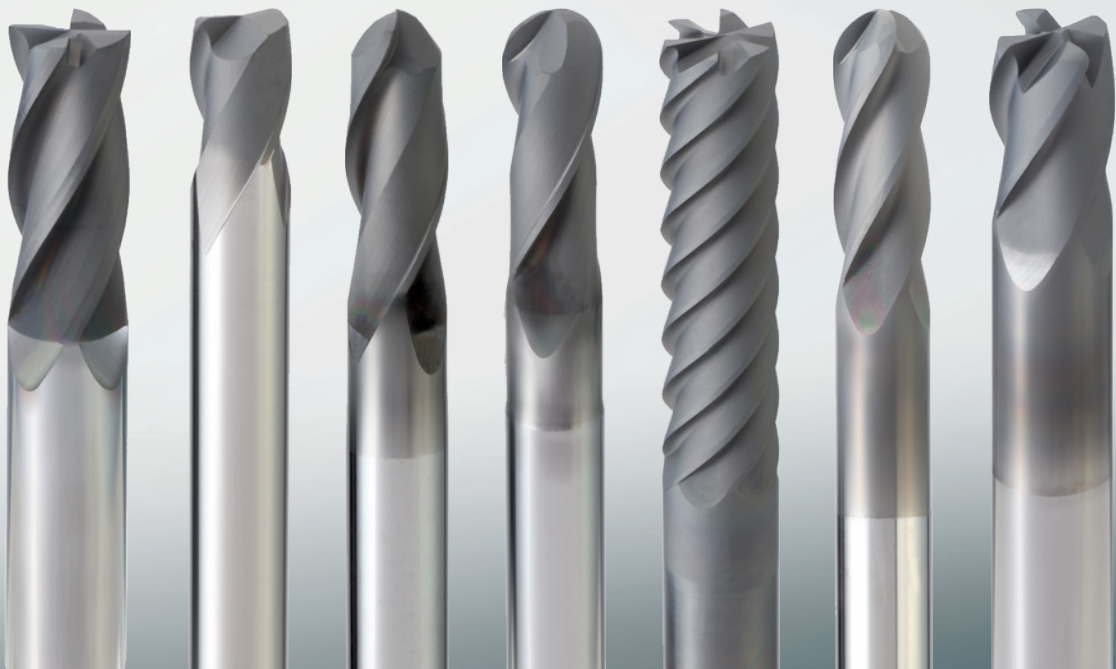
High abrasion resistance DIAMOND coating

COGO's Own Coating Method (CVD Diamond Coating) High
Resistance and Performance when to cut Graphite Multiple Product
Line

DIAMOND Coated End Mills for Graphite

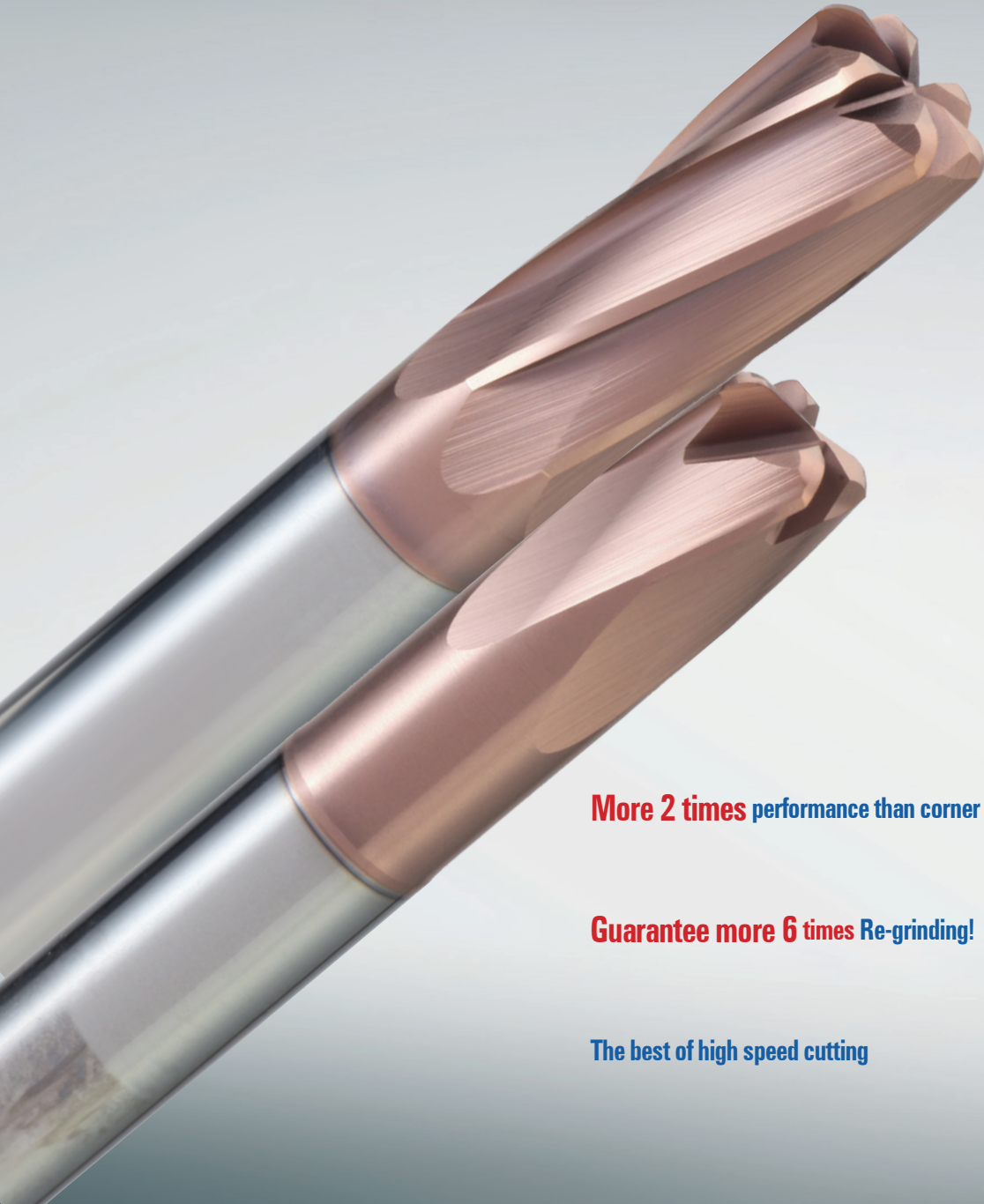
CVD diamond is a binderless-pure crystal, delivering identical
properties of single diamond crystal. COGO is applying the latest
CVD coating technology which has no residual Stress at the
interface for extending tool life.

Property	CVD Diamond	Mono Diamond	PCD	K10
(W/m•K) Thermal Conductivity	~ 1000	2,000	560	110
(Gpa) Hardness	80 ~ 100	50 ~ 100	50	18
(MPa•m ^{1/2}) Toughness	5 ~ 6	3.4	8 ~ 9	10.5
(Gpa) Tensile force	400 ~ 800	1,000 ~ 3,000	1260	-
(Gpa) Compressive strength	16.0	9.0	7.6	6.1
(Gpa) TRS	1.3	2.9	1.2	2.4



High speed machining hardened steels

Super End Mill

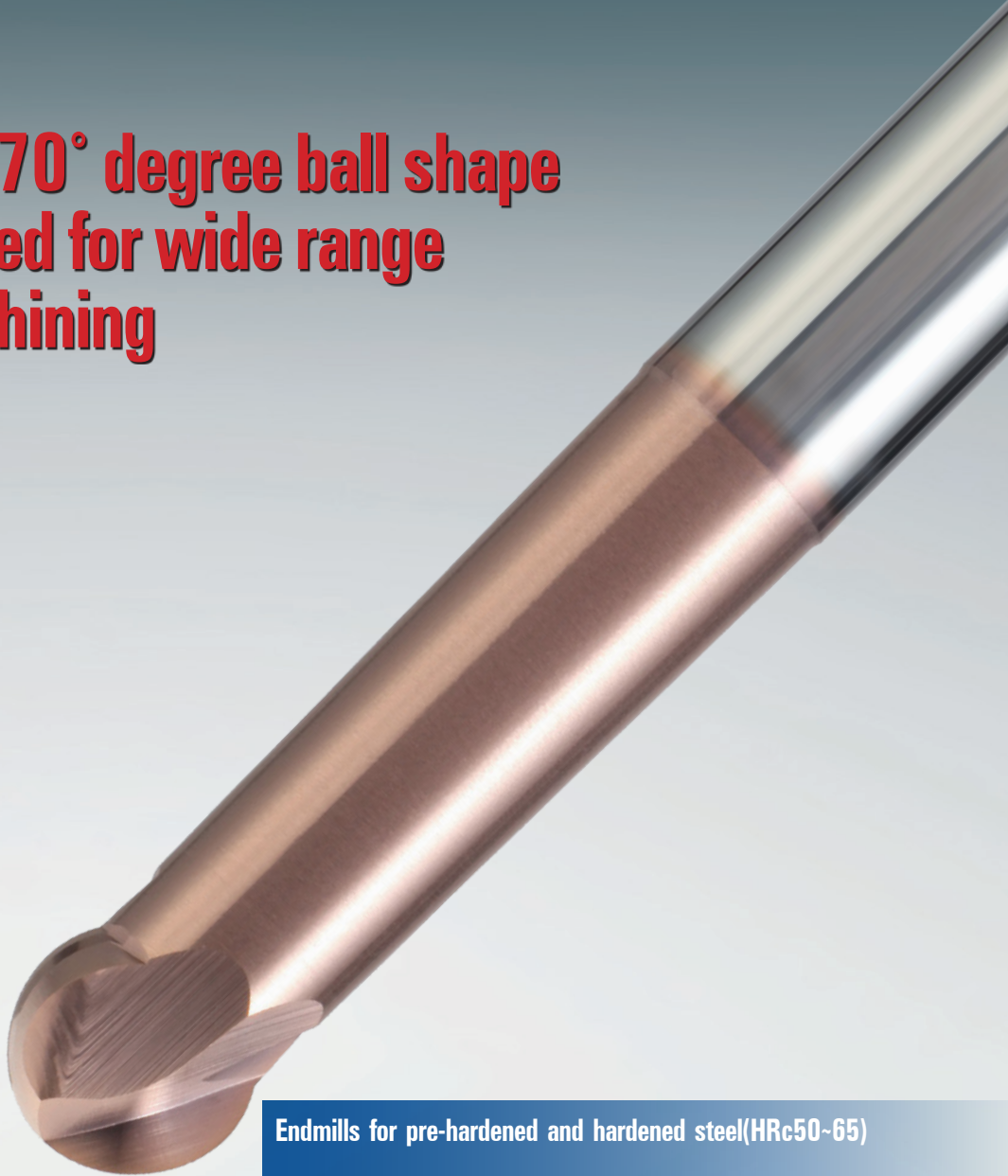


More 2 times performance than corner insert end mills!

Guarantee more 6 times Re-grinding!

The best of high speed cutting

230°, 270° degree ball shape Optimized for wide range 3D machining



Endmills for pre-hardened and hardened steel(HRc50~65)

- 230, 270degree ballshape for wide range 3D machining.
- Minimize chattering and fracturing by taper and straight designed flute.
- Outstanding performance at high speed machining by ultra fine(0.2 μ m) WC grade.

Minimize chattering by unequal flute spacing design

Excellent Chip Control End Mills for SUS

End Mills for alloy steel, SUS, Ti/Ni base alloy, Inconel and hard to cut materials.

- Minimize chattering by unequal flute spacing design.
- Excellent work surface finish by deep chip pocket.
- 42degree helix design for high speed, feed condition.
- Outstanding performance at high speed machining by ultra fine(0.2 μ m) WC grade.



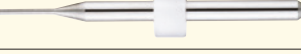
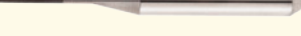
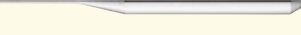
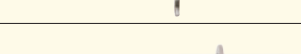
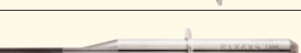
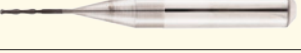
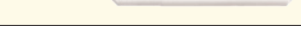


Ultra fine surface after machining

End Mills for Aluminum, Aluminum alloy, copper, copper alloy, CFRP, glass/carbon fiber, nonferrous and non-metallic materials

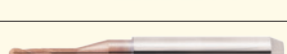
- Super DLC coating provides excellent work surface finish by high hardness and low friction.
- High precise edge tolerance.
- Outstanding performance at high speed machining by ultra fine($0.2\mu\text{m}$) WC grade

Dental End Mill & Drill INDEX

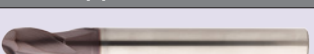
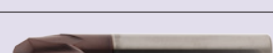
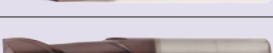
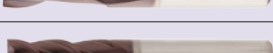
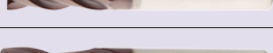
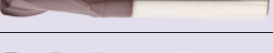
Series	EDP. NO	Appearance	Flutes	Type	Page
K DRILL	2GBS New		2 Flutes	Solid Drill	31
K DENTAL	EPD New		0	Electro Deposited Diamond	35
	2&3AMD New		2&3 Flutes	AMANN GIRRBACH	36
	1&2AMN New		1&2 Flutes	AMANN GIRRBACH	36
	2&3IMD New		2&3 Flutes	IMES-ICORE	37
	2IMB New		2 Flutes	IMES-ICORE	38
	1&2IMN New		1&2 Flutes	IMES-ICORE	38
	2&3ROD New		2&3 Flutes	ROLAND	39
	1&2RON New		1&2 Flutes	ROLAND	40
	2ROB New		2 Flutes	ROLAND	40
	2&3VHD New		2&3 Flutes	VHF	41
	2VHB New		2 Flutes	VHF	41
	1&2&3VHN New		1&2&3 Flutes	VHF	42
	2&3WID New		2&3 Flutes	WIELAND	43
	2WIB New		2 Flutes	WIELAND	43
	1&2&3WIN New		1&2&3 Flutes	WIELAND	44
	2&3ZID New		2&3 Flutes	ZIRKONZAHN	45
	2ZIB New		2 Flutes	ZIRKONZAHN	45
	1&2&3ZIN New		1&2&3 Flutes	ZIRKONZAHN	46

EDP. NO	Carbon Steels	Alloy Steels	Prehardened Steels	Heat treated steel			SUS	Copper	Glass Ceramic	Zirconia	Cobalt Chrom& Titanium	Plastic
				~HRC52	~HRC62	~HRC70	Stainless Steels					
2GBS	○						○					
EPD									●			
2&3AMD										●		
1&2AMN												●
2&3IMD										●		
2IMB											●	
1&2IMN												●
2&3ROD										●		
1&2RON												●
2ROB											●	
2&3VHD										●		
2VHB											●	
1&2&3VHN												●
2&3WID										●		
2WIB											●	
1&2&3WIN												●
2&3ZID										●		
2ZIB											●	
1&2&3ZIN												●

Dental End Mills INDEX

Series	EDP. NO	Appearance	Flutes	Type	Page
K DENTAL	2SID 		2 Flutes	SIRONA	47
	2SIB 		2 Flutes	SIRONA	47
	2SIN 		2 Flutes	SIRONA	47
	1ARD 		1 Flutes	ARUM	48
	2&3ARD 		2&3 Flutes	ARUM	48
	2ART 		2 Flutes	ARUM	48

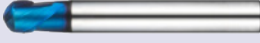
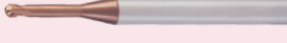
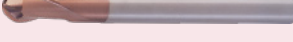
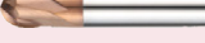
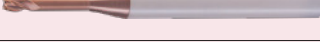
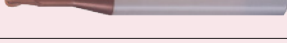
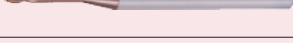
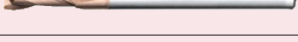
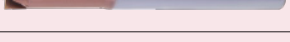
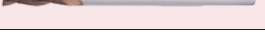
Carbide End Mills INDEX

Series	EDP. NO	Appearance	Flutes	Type	Page
S HARD	2WCB 		2 Flutes	Standard Ball	49
	2WSB 		2 Flutes	Short Ball	51
	2WCE 		2 Flutes	Square End Mills	52
	4WCE 		4 Flutes	Square End Mills	54
	2WCR 		2 Flutes	Rib Corner Radius	55
	4WCR 		4 Flutes	Rib Corner Radius	57
K CBN	2CRB		2 Flutes	CBN Ball End Mills	59
	2CCR		2 Flutes	CBN Corner Radius	59

EDP. NO	Carbon Steels	Alloy Steels	Prehardened Steels	Heat treated steel			SUS	Copper	Glass Ceramic	Zirconia	Cobalt Chrom& Titanium	Plastic
				~HRC52	~HRC62	~HRC70	Stainless Steels					
2SID										●		
2SIB											●	
2SIN												●
1ARD												●
2&3ARD										●		
2ART											●	

EDP. NO	Carbon Steels	Alloy Steels	Prehardened Steels	Heat treated steel			SUS	Aluminum	Copper	Graphite	Plastic
				~HRC52	~HRC62	~HRC70	Stainless Steels				
2WCB	○		○	●			●		○		
2WSB	○		○	●			●		○		
2WCE	○	○	○	●			●				
4WCE	○	○	○	●			●				
2WCR	○	○	○	●			●				
4WCR	○	○	○	●			●				
2CRB		●	●	●	●				●		
2CCR		●	●	●	●				●		

Carbide End Mills INDEX

Series	EDP. NO	Appearance	Flutes	Type	Page
B HARD	2BRB		2 Flutes	Rib Ball End Mills	62
	2BCB		2 Flutes	Standard Ball	64
	2&3BSB		2&3 Flutes	Short ball	65
	2BRE		2 Flutes	Rib End Mills	66
	4BRE		4 Flutes	Rib End Mills	67
	4&6BNR		4&6 Flutes	Corner Radius End Mills	68
	4BCE		4 Flutes	Square End Mills	69
K HARD	2KRB		2 Flutes	Rib Ball End Mills	70
	2KCB		2 Flutes	Standard Ball	73
	2KSB		2 Flutes	Short Ball	74
	2KRE		2 Flutes	Rib End Mills	76
	4KRE		4 Flutes	Rib End Mills	79
	2KCR		2 Flutes	Rib Corner Radius	81
	4KCR		4 Flutes	Rib Corner Radius	86
	2KNR		2 Flutes	Corner Radius End Mills	91
	4KNR		4 Flutes	Corner Radius End Mills	93
	4KCU		4 Flutes	High Speed & Feedrate	95
	2KCE		2 Flutes	Square End Mills	96
	4KCE		4 Flutes	Square End Mills	98

EDP. NO	Carbon Steels	Alloy Steels	Prehardened Steels	Heat treated steel			SUS	Aluminum	Copper	Graphite	Plastic
				~HRC52	~HRC62	~HRC70	Stainless Steels				
2BRB	○	○	●	●	●	●			○	○	
2BCB	○	○	●	●	●	●			○	○	
2&3BSB	○	○	●	●	●	●			○	○	
2BRE	○	○	●	●	●	●			○	○	
4BRE	○	●	●	●	●	●			○	○	
4&6BNR	○	●	●	●	●	●			○	○	
4BCE	○	●	●	●	●	●			○	○	
2KRB	○	○	●	●	●				○	○	
2KCB	○	○	●	●	●				○	○	
2KSB	○	○	●	●	●				○	○	
2KRE	○	○	●	●	●				○	○	
4KRE	○	●	●	●	●				○	○	
2KCR	○	●	●	●	●				○	○	
4KCR	○	●	●	●	●				○	○	
2KNR	○	●	●	●	●				○	○	
4KNR	○	●	●	●	●				○	○	
4KCU	○	●	●	●	●				○	○	
2KCE	○	○	●	●	●				○	○	
4KCE	○	●	●	●	●				○	○	

Carbide End Mills INDEX

Series	EDP. NO	Appearance	Flutes	Type	Page
K HARD	4KEM		4 Flutes	43° Square End Mills	99
	2KLE		2 Flutes	Long length End Mills	100
	4KLE		4 Flutes	Long length End Mills	102
K SPEED	2SSB		2刃 2 Flutes	Short Length Ball	103
	2UPB		2 Flutes	Ultra Precision Ball End Mills	104
	2SCB		2 Flutes	Standard Ball End Mills	105
	3SCB		3 Flutes	Standard Ball End Mills	107
	4SCB		4 Flutes	Standard Ball End Mills	108
	2SRB		2 Flutes	Rib Ball End Mills	109
	2SRE		2 Flutes	Rib End Mills	113
	4SRE		4 Flutes	Rib End Mills	116
	2SCE		2 Flutes	Standard End Mills	118
	4SCE		4 Flutes	Standard End Mills	119
	4SEM		4 Flutes	45° Helix End Mills	121
	6&8SEM		6&8 Flutes	45° Helix End Mills	122
	2LEM		2 Flutes	Long length End Mills	123
	4LEM		4 Flutes	Long length End Mills	125
	2RCR		2 Flutes	Rib Corner Radius	127
	4RCR		4 Flutes	Rib Corner Radius	132

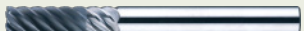
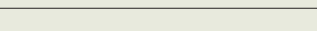
EDP. NO	Carbon Steels	Alloy Steels	Prehardened Steels	Heat treated steel			SUS	Aluminum	Copper	Graphite	Plastic
				~HRC52	~HRC62	~HRC70	Stainless Steels				
4KEM	○	●	●	●	●				○	○	
2KLE	○	○	●	●	●				○	○	
4KLE	○	○	●	●	●				○	○	
2SSB	●	●	●	●	○						
2UPB	●	●	●	●	○						
2SCB	●	●	●	●	○						
3SCB	●	●	●	●	○						
4SCB	●	●	●	●	○						
2SRB	●	●	●	●	○						
2SRE	●	●	●	○							
4SRE	●	●	●	●	○						
2SCE	●	●	●	○							
4SCE	●	●	●	●	○						
4SEM	●	●	●	●	○						
6&8SEM	●	●	●	●	○						
2LEM	●	●	●	○							
4LEM	●	●	●	●	○						
2RCR	●	●	●	●	○						
4RCR	●	●	●	●	○						

Carbide End Mills INDEX

Series	EDP. NO	Appearance	Flutes	Type	Page
K SPEED	2CNR		2 Flutes	Corner Radius End Mills	136
	4CNR		4 Flutes	Corner Radius End Mills	139
	4HCR		4 Flutes	45° Helix Radius Long	141
	6HCR		6 Flutes	45° Helix Radius Long	143
	4SCU		4 Flutes	High Speed Radius Cutter	145
	6SCU		6 Flutes	High Speed Radius Cutter	146
	2TBE		2 Flutes	Taper Neck Ball End Mills	147
	2TCR		2 Flutes	Taper Neck Corner Radius	151
	4TCR		4 Flutes	Taper Neck Corner Radius	153
	2DPH		2 Flutes	End Mills for 3D Cut 230°	154
	4DPH		4 Flutes	End Mills for 3D Cut 230°	155
	4DPM		4 Flutes	End Mills for 3D Cut 270°	156
	3&4SRM		3&4 Flutes	Roughing End Mills	157
	3&4HRM		3&4 Flutes	45°Helix Fine Pitch Roughing	159
K COPPER	2HOB		2 Flutes	45° Helix Rib Ball End Mills	161
	2OCR		2 Flutes	Rib Corner Radius	162
	3HOR		3 Flutes	45° Helix Rib Radius	163
K GRAPHITE	2DBL		2 Flutes	Diamond Coated Ball End Mills	165
	3DBL		3 Flutes	Diamond Coated Ball End Mills	167

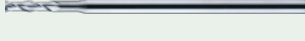
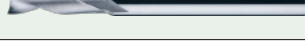
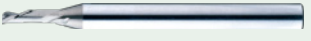
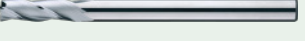
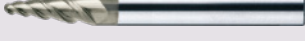
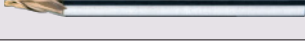
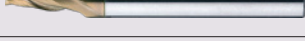
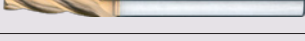
EDP. NO	Carbon Steels	Alloy Steels	Prehardened Steels	Heat treated steel			SUS	Aluminum	Copper	Graphite	Plastic
				~HRC52	~HRC62	~HRC70	Stainless Steels				
2CNR	●	●	●	●	○						
4CNR	●	●	●	●	○						
4HCR	●	●	●	●	○						
6HCR	●	●	●	●	○						
4SCU	●	●	●	●	○						
6SCU	●	●	●	●	○						
2TBE	●	●	●	●	○						
2TCR	●	●	●	●	○						
4TCR	●	●	●	●	○						
2DPH	●	●	●	●	○						
4DPH	●	●	●	●	○						
4DPM	●	●	●	●	○						
3&4SRM	●	●	●								
3&4HRM	●	●	●	○							
2HOB								○	●	○	○
2OCR								●	●	○	
3HOR							○	●	●	○	
2DBL										●	
3DBL										●	

Carbide End Mills INDEX

Series	EDP. NO	Appearance	Flutes	Type	Page
K GRAPHITE	4DBL		4 Flutes	Diamond Coated Ball End Mills	168
	2&3DLM		2&3 Flutes	Diamond Coated End Mills	169
	4&6DLM		4&6 Flutes	Diamond Coated End Mills	170
	2DLR		2 Flutes	Diamond Coated Radius	171
	4DLR		4 Flutes	Diamond Coated Radius	173
K G-TAC	2LCB		2 Flutes	G-TAC Coated Ball End Mills	175
	2LRB		2 Flutes	G-TAC Coated Rib Ball	176
	2LRE		2 Flutes	G-TAC Coated Rib End Mills	178
	3LHE		3 Flutes	45° Helix G-TAC Coated Rib	179
	2LCE		2 Flutes	G-TAC Coated End Mills	180
	2LCR		2 Flutes	G-TAC Coated Corner Radius	181
K SUS	4HSB		4 Flutes	45° Helix Ball End Mills	183
	3HSM		3 Flutes	45° Helix End Mills	184
	4NSM		4 Flutes	Non Symmetry End Mills	185
	4NSR		4 Flutes	Non Symmetry Corner Radius	186
K ALUMINUM	3AHM		3 Flutes	45° Helix Rib End Mills	188
	2AHE		2 Flutes	45° Helix End Mills	190
	3AHE		3 Flutes	45° Helix End Mills	191
	3AHR		3 Flutes	45° Helix Corner Radius	192

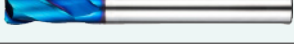
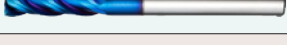
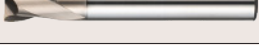
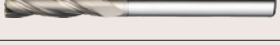
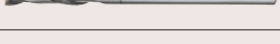
EDP. NO	Carbon Steels	Alloy Steels	Prehardened Steels	Heat treated steel			SUS	Aluminum	Copper	Graphite	Plastic
				~HRC52	~HRC62	~HRC70	Stainless Steels				
4DBL										●	
2&3DLM										●	
4&6DLM										●	
2DLR										●	
4DLR										●	
2LCB								●	●		●
2LRB								●	●		●
2LRE								●	●		●
3LHE								●	●		●
2LCE								●	●		●
2LCR								●	●		●
4HSB	●	●	●				●		●		
3HSM	●	●	●				●		●		
4NSM	●	●	●				●		●		
4NSR	●	●	●				●		●		
3AHM								●			○
2AHE								●			○
3AHE								●			○
3AHR								●			○

Carbide End Mills INDEX

Series	EDP. NO	Appearance	Flutes	Type	Page
K ALUMINUM	3ARR		3 Flutes	Semi Finishing&Roughing Radius	193
	3ARM		3 Flutes	Semi Finishing & Roughing	194
	3ARH		3 Flutes	45° Helix Roughing End Mills	195
K ABS	2NBE		2 Flutes	Ball End Mills	196
	3NBE		3 Flutes	Ball End Mills	197
	2NLB		2 Flutes	Micro Long Ball	199
	2NLE		2 Flutes	Micro Long End Mills	201
	1NEM		1 Flutes	End Mills	203
	1NRM		1 Flutes	Reverse Edge End Mills	204
	2NEM		2 Flutes	End Mills	205
	3NEM		3 Flutes	End Mills	206
K TAPER	3ITBD		3 Flutes	Taper Ball for Impeller	208
	2TBM		2 Flutes	Taper Ball End Mills	210
	2TEM		2 Flutes	Taper End Mills	212
	4TEM		4 Flutes	Taper End Mills	214
	4TRE		4 Flutes	Rib Taper End Mills	215
K GENERAL	2DRC		2 Flutes	Corner Rounding Cutter	217
	4DRC		4 Flutes	Corner Rounding Cutter	218
	1DTE		1 Flutes	Straight Flute Taper End Mills	219

EDP. NO	Carbon Steels	Alloy Steels	Prehardened Steels	Heat treated steel			SUS	Aluminum	Copper	Graphite	Plastic
				~HRC52	~HRC62	~HRC70	Stainless Steels				
3ARR								●			○
3ARM								●			○
3ARH								●			○
2NBE								●	○		●
3NBE								●	○		●
2NLB								●	○		●
2NLE								●	○		●
1NEM								●	○		●
1NRM								●	○		●
2NEM								●	○		●
3NEM								●	○		●
3ITBD	●	●	●	○			●		●	●	
2TBM	●	●	●	○			●		●	●	
2TEM	●	●	●	○			●		●	●	
4TEM	●	●	●	●			●		●	●	
4TRE	●	●	●	●	○						
2DRC	●	●	●	○			○		●		
4DRC	●	●	●	●	○		○		●		
1DTE	●	●	●				○		●		

Carbide End Mills INDEX

Series	EDP. NO	Appearance	Flutes	Type	Page
K GENERAL	2ATE		2 Flutes	Straight Flute Taper End Mills	220
	2AEN		2 Flutes	Centering End Mills	221
	2NPO		2 Flutes	NC spotting drill	222
K BLUE	4FNR 		4 Flutes	Roughing & Finishing	223
	4FCE 		4 Flutes	Roughing & Finishing	224
	2ECB		2 Flutes	Ball End Mills for heavy cuts	225
	2ECE		2 Flutes	Standard End Mills for heavy cuts	227
	4ECE		4 Flutes	Standard End Mills for heavy cuts	228
	2ECR		2 Flutes	Corner Radius for heavy cuts	229
	4ECR		4 Flutes	Corner Radius for heavy cuts	231
	3ESE		3 Flutes	End Mills for Heavy cuts	233
	4ESE		4 Flutes	End Mills for Heavy cuts	233
K G SERIES	2HGB		2 Flutes	Ball End Mills for Generality	235
	2HGE		2 Flutes	End Mills for Generality	237
	4HGE		4 Flutes	End Mills for Generality	238
	2NGR		2 Flutes	Corner Radius for Generality	240
	4NGR		4 Flutes	Corner Radius for Generality	242
	2LGM		2 Flutes	Long length Endmill for Generality	244
	4LGM		4 Flutes	Long length Endmill for Generality	245

EDP. NO	Carbon Steels	Alloy Steels	Prehardened Steels	Heat treated steel			SUS	Aluminum	Copper	Graphite	Plastic
				~HRC52	~HRC62	~HRC70	Stainless Steels				
2ATE	●	●	●	○			○		●		
2AEN								●	●		●
2NPO								●	●		●
4FNR	○	○	○				○				
4FCE	○	●	○				○				
2ECB	●	●	●	●	○				●		
2ECE	●	●	●	●	○				●		
4ECE	●	●	●	●	○				●		
2ECR	●	●	●	●	○				●		
4ECR	●	●	●	●	○				●		
3ESE	●	●	●				●		●		
4ESE	●	●	●				●		●		
2HGB	●	●	●	○					○		
2HGE	●	●	●	○					○		
4HGE	●	●	●	○					○		
2NGR	●	●	●	○					○		
4NGR	●	●	●	○					○		
2LGM	●	●	●	○					○		
4LGM	●	●	●	○					○		

Carbide End Mills INDEX

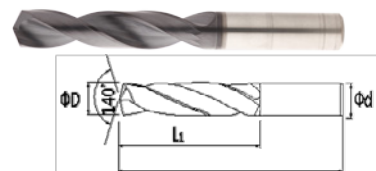
Series	EDP. NO	Appearance	Flutes	Type	Page
MIDAS	ABPF			Holder	247
	SP1Q			Square Insert	248
	SP1W			Ball Insert	248



COGOTOOL
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Application: the best performance when drilling S45C, SCM, cast steels and cast iron etc. of automobile parts.

- FLUTE design considering optimal tool stiffness and optimal chip evacuation
- New design enables high-precision work without the need for centering and reaming
- Unmanned work is possible by improving the life of the tool by using high-quality fine particles with excellent toughness and wear resistance.



TIN Coating available

Unit : mm

Order Number	Diameter	Length of Cut	Overall Length	Shank Dia
	D	L1	L	d
2GBS 015 120 S03	1.5	12	50	S03
2GBS 016 120 S03	1.6	12	50	S03
2GBS 017 120 S03	1.7	12	50	S03
2GBS 018 120 S03	1.8	12	50	S03
2GBS 019 120 S03	1.9	12	50	S03
2GBS 020 120 S03	2.0	12	50	S03
2GBS 021 120 S03	2.1	12	50	S03
2GBS 022 120 S03	2.2	12	50	S03
2GBS 023 200 S03	2.3	20	55	S03
2GBS 024 200 S03	2.4	20	55	S03
2GBS 025 200 S03	2.5	20	55	S03
2GBS 026 200 S03	2.6	20	55	S03
2GBS 027 200 S03	2.7	20	55	S03
2GBS 028 200 S03	2.8	20	55	S03
2GBS 029 200 S03	2.9	20	55	S03
2GBS 030 200 055	3.0	20	55	S03
2GBS 031 200 S03	3.1	20	55	S03
2GBS 032 200 S03	3.2	20	55	S03
2GBS 033 250 S04	3.3	25	55	S04
2GBS 034 250 S04	3.4	25	55	S04
2GBS 035 250 S04	3.5	25	55	S04
2GBS 036 250 S04	3.6	25	55	S04
2GBS 037 250 S04	3.7	25	55	S04
2GBS 038 250 S04	3.8	25	55	S04
2GBS 039 250 S04	3.9	25	55	S04
2GBS 040 250 055	4.0	25	55	S04
2GBS 041 250 S04	4.1	25	55	S04
2GBS 042 250 S04	4.2	25	55	S04
2GBS 043 320 S05	4.3	32	62	S05
2GBS 044 320 S05	4.4	32	62	S05
2GBS 045 320 S05	4.5	32	62	S05
2GBS 046 320 S05	4.6	32	62	S05
2GBS 047 320 S05	4.7	32	62	S05
2GBS 048 320 S05	4.8	32	62	S05
2GBS 049 320 S05	4.9	32	62	S05
2GBS 050 320 062	5.0	32	62	S05
2GBS 051 320 S05	5.1	32	62	S05
2GBS 052 320 S05	5.2	32	62	S05



Order Number	Diameter	Length of Cut	Overall Length	Shank Dia
	D	L1	L	d
2GBS 053 360 S06	5.3	36	66	S06
2GBS 054 360 S06	5.4	36	66	S06
2GBS 055 360 S06	5.5	36	66	S06
2GBS 056 360 S06	5.6	36	66	S06
2GBS 057 360 S06	5.7	36	66	S06
2GBS 058 360 S06	5.8	36	66	S06
2GBS 059 360 S06	5.9	36	66	S06
2GBS 060 360 S06	6.0	36	66	S06
2GBS 061 360 S06	6.1	36	66	S06
2GBS 062 360 S06	6.2	36	66	S06
2GBS 063 420 S07	6.3	42	74	S07
2GBS 064 420 S07	6.4	42	74	S07
2GBS 065 420 S07	6.5	42	74	S07
2GBS 066 420 S07	6.6	42	74	S07
2GBS 067 420 S07	6.7	42	74	S07
2GBS 068 420 S07	6.8	42	74	S07
2GBS 069 420 S07	6.9	42	74	S07
2GBS 070 420 S07	7.0	42	74	S07
2GBS 071 420 S07	7.1	42	74	S07
2GBS 072 420 S07	7.2	42	74	S07
2GBS 073 460 S08	7.3	46	79	S08
2GBS 074 460 S08	7.4	46	79	S08
2GBS 075 460 S08	7.5	46	79	S08
2GBS 076 460 S08	7.6	46	79	S08
2GBS 077 460 S08	7.7	46	79	S08
2GBS 078 460 S08	7.8	46	79	S08
2GBS 079 460 S08	7.9	46	79	S08
2GBS 080 460 S08	8.0	46	79	S08
2GBS 081 460 S08	8.1	46	79	S08
2GBS 082 460 S08	8.2	46	79	S08
2GBS 083 500 S09	8.3	50	84	S09
2GBS 084 500 S09	8.4	50	84	S09
2GBS 085 500 S09	8.5	50	84	S09
2GBS 086 500 S09	8.6	50	84	S09
2GBS 087 500 S09	8.7	50	84	S09
2GBS 088 500 S09	8.8	50	84	S09
2GBS 089 500 S09	8.9	50	84	S09
2GBS 090 500 S09	9.0	50	84	S09
2GBS 091 500 S09	9.1	50	84	S09
2GBS 092 500 S09	9.2	50	84	S09
2GBS 093 530 S10	9.3	53	89	S10
2GBS 094 530 S10	9.4	53	89	S10
2GBS 095 530 S10	9.5	53	89	S10
2GBS 096 530 S10	9.6	53	89	S10
2GBS 097 530 S10	9.7	53	89	S10
2GBS 098 530 S10	9.8	53	89	S10
2GBS 099 530 S10	9.9	53	89	S10
2GBS 100 530 S10	10.0	53	89	S10
2GBS 101 530 S10	10.1	53	89	S10
2GBS 102 530 S10	10.2	53	89	S10
2GBS 103 550 S11	10.3	55	95	S11
2GBS 104 550 S11	10.4	55	95	S11
2GBS 105 550 S11	10.5	55	95	S11
2GBS 106 550 S11	10.6	55	95	S11



Order Number	Diameter	Length of Cut	Overall Length	Shank Dia
	D	L1	L	d
2GBS 107 550 S11	10.7	55	95	S11
2GBS 108 550 S11	10.8	55	95	S11
2GBS 109 550 S11	10.9	55	95	S11
2GBS 110 550 095	11.0	55	95	S11
2GBS 111 550 S11	11.1	55	95	S11
2GBS 112 550 S11	11.2	55	95	S11
2GBS 113 620 S12	11.3	62	102	S12
2GBS 114 620 S12	11.4	62	102	S12
2GBS 115 620 S12	11.5	62	102	S12
2GBS 116 620 S12	11.6	62	102	S12
2GBS 117 620 S12	11.7	62	102	S12
2GBS 118 620 S12	11.8	62	102	S12
2GBS 119 620 S12	11.9	62	102	S12
2GBS 120 620 102	12.0	62	102	S12
2GBS 121 620 S12	12.1	62	102	S12
2GBS 122 620 S12	12.2	62	102	S12
2GBS 123 620 S13	12.3	62	102	S13
2GBS 124 620 S13	12.4	62	102	S13
2GBS 125 620 S13	12.5	62	102	S13
2GBS 126 620 S13	12.6	62	102	S13
2GBS 127 620 S13	12.7	62	102	S13
2GBS 128 620 S13	12.8	62	102	S13
2GBS 129 620 S13	12.9	62	102	S13
2GBS 130 620 102	13.0	62	102	S13
2GBS 131 620 S13	13.1	62	102	S13
2GBS 132 620 S13	13.2	62	102	S13
2GBS 133 640 S14	13.3	64	107	S14
2GBS 134 640 S14	13.4	64	107	S14
2GBS 135 640 S14	13.5	64	107	S14
2GBS 136 640 S14	13.6	64	107	S14
2GBS 137 640 S14	13.7	64	107	S14
2GBS 138 640 S14	13.8	64	107	S14
2GBS 139 640 S14	13.9	64	107	S14
2GBS 140 640 107	14.0	64	107	S14
2GBS 141 640 S14	14.1	64	107	S14
2GBS 142 640 S14	14.2	64	107	S14
2GBS 143 670 S15	14.3	67	111	S15
2GBS 144 670 S15	14.4	67	111	S15
2GBS 145 670 S15	14.5	67	111	S15
2GBS 146 670 S15	14.6	67	111	S15
2GBS 147 670 S15	14.7	67	111	S15
2GBS 148 670 S15	14.8	67	111	S15
2GBS 149 670 S15	14.9	67	111	S15
2GBS 150 670 111	15.0	67	111	S15
2GBS 151 670 S15	15.1	67	111	S15
2GBS 152 670 S15	15.2	67	111	S15
2GBS 153 690 S16	15.3	69	115	S16
2GBS 154 690 S16	15.4	69	115	S16
2GBS 155 690 S16	15.5	69	115	S16
2GBS 156 690 S16	15.6	69	115	S16
2GBS 157 690 S16	15.7	69	115	S16
2GBS 158 690 S16	15.8	69	115	S16
2GBS 159 690 S16	15.9	69	115	S16
2GBS 160 690 115	16.0	69	115	S16

Material	low carbon steel *alloy steel (C<0.35%) SS400*SCM~710N/mm ²		carbon steel *alloy steel (C<0.35%) S50C~1,060N/mm ²		SUJ2*SUS440		Stainless SUS300 series SUS400 series	
Vc	63~100m/min		63~100m/min		50~71m/min		25~40m/min	
Diameter (mm)	RPM (mm ²)	FEED (mm/rev)	RPM (mm ²)	FEED (mm/rev)	RPM (mm ²)	FEED (mm/rev)	RPM (mm ²)	FEED (mm/rev)
2	11,000	0.06 ~ 0.08	11,000	0.06 ~ 0.08	9,000	0.06 ~ 0.08	4,700	0.06 ~ 0.08
3	8,000	0.09 ~ 0.12	8,000	0.09 ~ 0.12	6,000	0.09 ~ 0.12	3,200	0.05 ~ 0.09
4	6,300	0.10 ~ 0.15	6,300	0.10 ~ 0.15	4,750	0.10 ~ 0.15	2,400	0.06 ~ 0.10
5	5,000	0.12 ~ 0.18	5,000	0.12 ~ 0.18	3,800	0.12 ~ 0.18	1,900	0.08 ~ 0.12
6	4,200	0.14 ~ 0.20	4,200	0.14 ~ 0.20	3,200	0.14 ~ 0.20	1,600	0.09 ~ 0.15
8	3,200	0.16 ~ 0.24	3,200	0.16 ~ 0.24	2,400	0.16 ~ 0.24	1,200	0.12 ~ 0.20
10	2,550	0.18 ~ 0.27	2,550	0.18 ~ 0.27	1,900	0.18 ~ 0.27	950	0.13 ~ 0.23
12	2,100	0.20 ~ 0.30	2,100	0.20 ~ 0.30	1,600	0.20 ~ 0.30	800	0.14 ~ 0.24
14	1,800	0.22 ~ 0.35	1,800	0.22 ~ 0.35	1,350	0.22 ~ 0.35	700	0.15 ~ 0.26
16	1,600	0.25 ~ 0.36	1,600	0.25 ~ 0.36	1,200	0.25 ~ 0.36	600	0.16 ~ 0.26
18	1,400	0.28 ~ 0.38	1,400	0.28 ~ 0.38	1,050	0.28 ~ 0.38	530	0.18 ~ 0.88
20	1,300	0.30 ~ 0.40	1,300	0.30 ~ 0.40	960	0.30 ~ 0.40	480	0.20 ~ 0.30

Material	SKD61 34~43HRC		43~48HRC		Cast iron FC250~350N/mm ²		Ductile iron FCD400~5000N/mm ²	
Vc	40~63m/min		32~45m/min		63~100m/min		50~80m/min	
Diameter (mm)	RPM (mm ²)	FEED (mm/rev)	RPM (mm ²)	FEED (mm/rev)	RPM (mm ²)	FEED (mm/rev)	RPM (mm ²)	FEED (mm/rev)
2	7,600	0.06 ~ 0.08	6,000	0.06 ~ 0.08	12,000	0.06 ~ 0.08	10,000	0.06 ~ 0.08
3	5,000	0.09 ~ 0.12	4,000	0.09 ~ 0.12	8,000	0.09 ~ 0.12	6,900	0.09 ~ 0.12
4	3,800	0.10 ~ 0.15	3,000	0.10 ~ 0.15	6,300	0.10 ~ 0.15	5,200	0.10 ~ 0.15
5	3,000	0.12 ~ 0.18	2,450	0.12 ~ 0.18	5,000	0.12 ~ 0.18	4,000	0.12 ~ 0.18
6	2,550	0.14 ~ 0.20	2,050	0.14 ~ 0.20	4,200	0.14 ~ 0.20	3,450	0.14 ~ 0.20
8	1,900	0.16 ~ 0.24	1,550	0.16 ~ 0.24	3,200	0.16 ~ 0.24	2,600	0.16 ~ 0.24
10	1,550	0.18 ~ 0.27	1,250	0.18 ~ 0.27	2,600	0.18 ~ 0.27	2,100	0.18 ~ 0.27
12	1,300	0.20 ~ 0.30	1,050	0.20 ~ 0.30	2,200	0.20 ~ 0.30	1,750	0.20 ~ 0.30
14	1,100	0.22 ~ 0.35	880	0.22 ~ 0.35	1,800	0.22 ~ 0.35	1,500	0.22 ~ 0.35
16	950	0.25 ~ 0.36	770	0.25 ~ 0.36	1,600	0.25 ~ 0.36	1,300	0.25 ~ 0.36
18	850	0.28 ~ 0.38	680	0.28 ~ 0.38	1,400	0.28 ~ 0.38	1,200	0.28 ~ 0.38
20	760	0.30 ~ 0.40	610	0.30 ~ 0.40	1,300	0.30 ~ 0.40	1,050	0.30 ~ 0.40

- Endmills for Glass Ceramic.

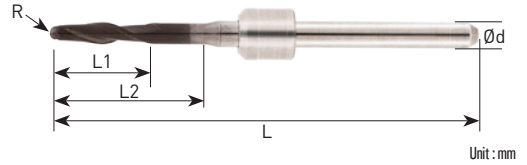


Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	R X D	L1	L	d
EPD 006 060 340	0.3R X 0.6	6	40	3
EPD 006 060 350	0.3R X 0.6	6	50	3
EPD 006 060 440	0.3R X 0.6	6	40	4
EPD 006 060 450	0.3R X 0.6	6	50	4
EPD 006 060 640	0.3R X 0.6	6	40	6
EPD 006 060 650	0.3R X 0.6	6	50	6
EPD 010 100 340	0.5R X 1	10	40	3
EPD 010 100 350	0.5R X 1	10	50	3
EPD 010 100 440	0.5R X 1	10	40	4
EPD 010 100 450	0.5R X 1	10	50	4
EPD 010 100 640	0.5R X 1	10	40	6
EPD 010 100 650	0.5R X 1	10	50	6
EPD 015 080 450	0.75R X 1.5	8	50	4
EPD 015 120 450	0.75R X 1.5	12	50	4
EPD 015 120 650	0.75R X 1.5	12	50	6
EPD 020 120 340	1R X 2	12	40	3
EPD 020 120 350	1R X 2	12	50	3
EPD 020 120 440	1R X 2	12	40	4
EPD 020 120 450	1R X 2	12	50	4
EPD 020 120 640	1R X 2	12	40	6
EPD 020 120 650	1R X 2	12	50	6
EPD 025 150 340	1.25R X 2.5	15	40	3
EPD 025 150 350	1.25R X 2.5	15	50	3
EPD 025 150 440	1.25R X 2.5	15	40	4
EPD 025 150 450	1.25R X 2.5	15	50	4
EPD 025 150 640	1.25R X 2.5	15	40	6
EPD 025 150 650	1.25R X 2.5	15	50	6

AMANN GIRRBACH**2&3AMD**

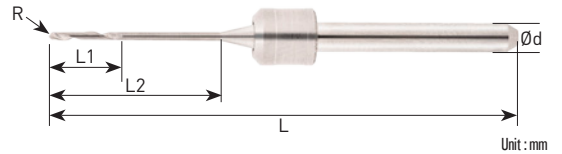
- 2&3 Flutes Endmills for Zirconia



Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R X D	L1	L2	L	d
2AMD 006 070 347	R0.3 X 0.6	2	7	47	3
2AMD 006 140 347	R0.3 X 0.6	2	14	47	3
2AMD 010 160 347	R0.5 X 1	2	16	47	3
2AMD 010 170 347	R0.5 X 1	6	17	47	3
2AMD 025 185 347	R1.25 X 2.5	4	18.5	47	3
2AMD 025 170 347	R1.25 X 2.5	9	17	47	3
3AMD 010 170 347	R0.5 X 1	6	17	47	3
3AMD 025 170 347	R1.25 X 2.5	9	17	47	3

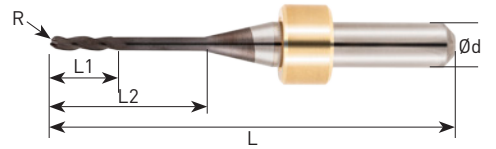
AMANN GIRRBACH**1&2AMN**

- 1&2 Flutes Endmills for PEEK & PMMA & WAX



Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R X D	L1	L2	L	d
1AMN 006 070 347	R0.3 X 0.6	2	7	47	3
1AMN 010 170 347	R0.5 X 1	6	17	47	3
1AMN 025 170 347	R1.25 X 2.5	9	17	47	3
2AMN 006 140 347	R0.3 X 0.6	2	14	47	3
2AMN 010 160 347	R0.5 X 1	2	16	47	3
2AMN 025 185 347	R1.25 X 2.5	4	18.5	47	3

• 2&3 Flutes Endmills for Zirconia



Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R X D	L1	L2	L	d
2IMD 006 082 348	R0.3 X 0.6	1.8	8.2	48	3
2IMD 006 070 348	R0.3 X 0.6	2	7	48	3
2IMD 006 070 653	R0.3 X 0.6	2	7	53	6
2IMD 0065 120 348	R0.325 X 0.65	2	12	48	3
2IMD 0065 120 653	R0.325 X 0.65	2	12	53	6
2IMD 010 160 348	R0.5 X 1	2	16	48	3
2IMD 010 160 653	R0.5 X 1	2	16	53	6
2IMD 010 120 348	R0.5 X 1	3	12	48	3
2IMD 020 200 348	R1 X 2	8	20	48	3
2IMD 020 200 653	R1 X 2	8	20	53	6
2IMD 025 125 348	R1.25 X 2.5	7.5	12.5	48	3
2IMD 025 200 348	R1.25 X 2.5	9	20	48	3
2IMD 025 200 653	R1.25 X 2.5	9	20	53	6
3IMD 010 160 348	R0.5 X 1	2	16	48	3
3IMD 010 160 653	R0.5 X 1	2	16	53	6
3IMD 020 200 348	R1 X 2	8	20	48	3
3IMD 020 200 653	R1 X 2	8	20	53	6
3IMD 025 200 348	R1.25 X 2.5	9	20	48	3
3IMD 025 200 653	R1.25 X 2.5	9	20	53	6

Applicable machine: Shank3 - Coritec one, 140i, 245i, 245i dry, 250i, 250i dry

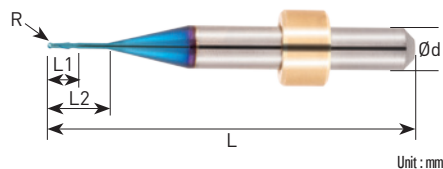
Shank6 - Coritec 250i, 350i Loader, 650i, 650i Loader

IMES-ICORE

2IMB



- 2 Flutes Endmills for Cobalt Chrom & Titanium.



Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R X D	L1	L2	L	d
2IMB 008 080 650	R0.4 X 0.8	3.5	8	50	6
2IMB 010 080 339	R0.5 X 1	3	8	39	3
2IMB 010 080 650	R0.5 X 1	3	8	50	6
2IMB 010 100 650	R0.5 X 1	3	10	50	6
2IMB 010 120 348	R0.5 X 1	3	12	48	3
2IMB 015 120 650	R0.75 X 1.5	4	12	50	6
2IMB 025 125 348	R1.25 X 2.5	7.5	12.5	48	3

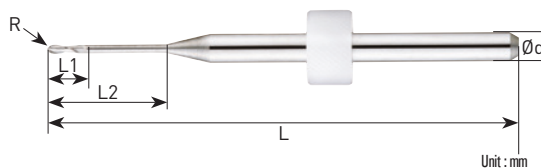
Applicable machine: Shank3 - Coritec one, 140i, 245i, 245i dry, 250i, 250i dry
Shank6 - Coritec 250i, 350i Loader, 650i, 650i Loader

IMES-ICORE

1&2IMN



- 1&2 Flutes Endmills for PEEK & PMMA & WAX

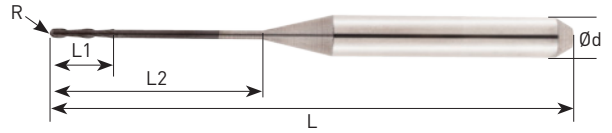


Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R X D	L1	L2	L	d
1IMN 006 070 348	R0.3 X 0.6	2	7	48	3
1IMN 006 070 653	R0.3 X 0.6	2	7	53	6
1IMN 0065 120 348	R0.325 X 0.65	2	12	48	3
1IMN 0065 120 653	R0.325 X 0.65	2	12	53	6
1IMN 010 160 348	R0.5 X 1	2	16	48	3
1IMN 010 160 653	R0.5 X 1	2	16	53	6
1IMN 020 200 348	R1 X 2	8	20	48	3
1IMN 020 200 653	R1 X 2	8	20	53	6
1IMN 025 200 348	R1.25 X 2.5	9	20	48	3
1IMN 025 200 653	R1.25 X 2.5	9	20	53	6
2IMN 006 082 348	R0.3 X 0.6	1.8	8.2	48	3
2IMN 010 120 348	R0.5 X 1	3	12	48	3
2IMN 025 125 348	R1.25 X 2.5	7.5	12.5	48	3

Applicable machine: Shank3 - Coritec one, 140i, 245i, 245i dry, 250i, 250i dry
Shank6 - Coritec 250i, 350i Loader, 650i, 650i Loader

• 2&3 Flutes Endmills for Zirconia

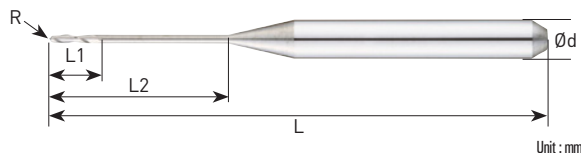


Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R X D	L1	L2	L	d
2ROD 006 060 450	R0.3 X 0.6	2	6	50	4
2ROD 006 082 450	R0.3 X 0.6	1.8	8.2	50	4
2ROD 006 140 450	R0.3 X 0.6	2	14	50	4
2ROD 010 120 450	R0.5 X 1	3	12	50	4
2ROD 010 160 348	R0.5 X 1	4	16	48	3
2ROD 010 160 450	R0.5 X 1	6	16	50	4
2ROD 010 200 450	R0.5 X 1	6	20	50	4
2ROD 020 140 450	R1 X 2	6	14	50	4
2ROD 020 200 348	R1 X 2	4.5	20	48	3
2ROD 020 200 450	R1 X 2	8	20	50	4
2ROD 025 220 348	R1.25 X 2.5	4.5	22	48	3
2ROD 030 200 450	R1.5 X 3	10	20	50	4
2ROD 030 250 348	R1.5 X 3	6	25	48	3
3ROD 010 160 450	R0.5 X 1	6	16	50	4
3ROD 010 200 450	R0.5 X 1	6	20	50	4
3ROD 020 200 450	R1 X 2	8	20	50	4
3ROD 030 200 450	R1.5 X 3	10	20	50	4

Applicable machine: Roland DWX-4/50/51/52

- 1&2 Flutes Endmills for PEEK & PMMA & WAX

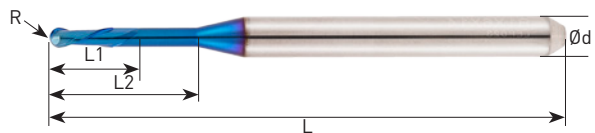


Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R X D	L1	L2	L	d
1RON 006 060 450	R0.3 X 0.6	2	6	50	4
1RON 006 140 450	R0.3 X 0.6	2	14	50	4
1RON 010 160 450	R0.5 X 1	6	16	50	4
1RON 010 200 450	R0.5 X 1	6	20	50	4
1RON 020 200 450	R1 X 2	8	20	50	4
1RON 030 200 450	R1.5 X 3	10	20	50	4
2RON 003 031 450	R0.15 X 0.3	0.9	3.1	50	4
2RON 006 060 450	R0.3 X 0.6	2	6	50	4
2RON 008 096 450	R0.4 X 0.8	2.4	9.6	50	4
2RON 010 120 450	R0.5 X 1	3	12	50	4
2RON 010 180 450	R0.5 X 1	4	18	50	4
2RON 020 140 450	R1 X 2	6	14	50	4
2RON 020 200 450	R1 X 2	5.5	20	50	4

Applicable machine: Roland DWX-4/50/51/52

- 2 Flutes Endmills for Cobalt Chrom & Titanium.

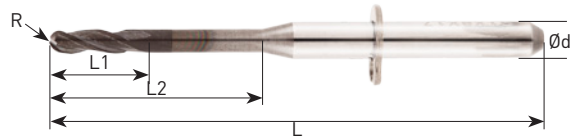


Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R X D	L1	L2	L	d
2ROB 006 060 450	R0.3 X 0.6	2	6	50	4
2ROB 010 120 450	R0.5 X 1	3	12	50	4
2ROB 020 140 450	R1 X 2	6	14	50	4

Applicable machine: Roland DWX-4/50/51/52

• 2&3 Flutes Endmills for Zirconia

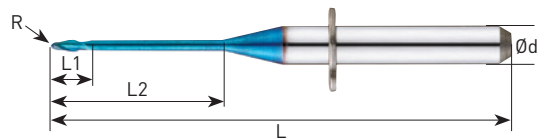


Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R X D	L1	L2	L	d
2VHD 006 030 340	R0.3 X 0.6	1.2	3	40	3
2VHD 006 050 335	R0.3 X 0.6	1.2	5	35	3
2VHD 006 070 340	R0.3 X 0.6	2	7	40	3
2VHD 006 088 335	R0.3 X 0.6	1.2	8.8	35	3
2VHD 006 088 340	R0.3 X 0.6	1.2	8.8	40	3
2VHD 006 110 340	R0.3 X 0.6	2	11	40	3
2VHD 010 130 335	R0.5 X 1	2	13	35	3
2VHD 010 160 335	R0.5 X 1	2	16	35	3
2VHD 010 160 340	R0.5 X 1	2	16	40	3
2VHD 010 170 340	R0.5 X 1	5	17	40	3
2VHD 020 160 335	R1 X 2	4	16	35	3
2VHD 020 160 340	R1 X 2	4	16	40	3
2VHD 020 170 340	R1 X 2	8	17	40	3
3VHD 010 170 340	R0.5 X 1	5	17	40	3
3VHD 020 170 340	R1 X 2	8	17	40	3

Applicable machine: 35L - 4-axis, K3, K4 / 40L - K5, S1, S2

• 2 Flutes Endmills for Cobalt Chrom & Titanium.

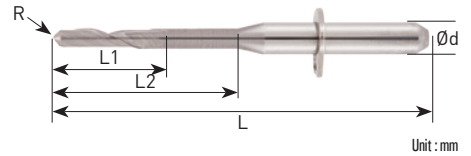


Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R X D	L1	L2	L	d
2VHB 010 130 335	R0.5 X 1	2	13	35	3
2VHB 020 160 335	R1 X 2	4	16	35	3

Applicable machine: 35L - 4-axis, K3, K4 / 40L - K5, S1, S2

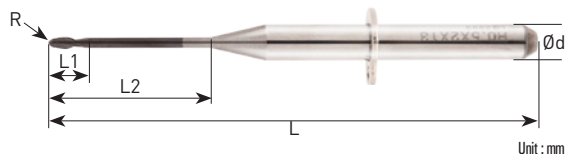
• 1&2&3 Flutes Endmills for PEEK & PMMA & WAX



Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R X D	L1	L2	L	d
1VHN 006 070 335	R0.3 X 0.6	2	7	35	3
1VHN 006 110 335	R0.3 X 0.6	2	11	35	3
1VHN 010 160 335	R0.5 X 1	5	16	35	3
1VHN 020 170 335	R1 X 2	8	17	35	3
2VHN 006 030 335	R0.3 X 0.6	1.2	3	35	3
2VHN 006 030 340	R0.3 X 0.6	1.2	3	40	3
2VHN 006 070 335	R0.3 X 0.6	2	7	35	3
2VHN 006 088 335	R0.3 X 0.6	1.2	8.8	35	3
2VHN 006 088 340	R0.3 X 0.6	1.2	8.8	40	3
2VHN 006 110 335	R0.3 X 0.6	2	11	35	3
2VHN 010 130 335	R0.5 X 1	2	13	35	3
2VHN 010 160 335	R0.5 X 1	5	16	35	3
2VHN 010 160 340	R0.5 X 1	2	16	40	3
2VHN 020 160 335	R1 X 2	4	16	35	3
2VHN 020 160 340	R1 X 2	4	16	40	3
2VHN 020 170 335	R1 X 2	8	17	35	3
3VHN 010 160 335	R0.5 X 1	5	16	35	3
3VHN 020 170 335	R1 X 2	8	17	35	3

Applicable machine: 35L - 4-axis, K3, K4 / 40L - K5, S1, S2

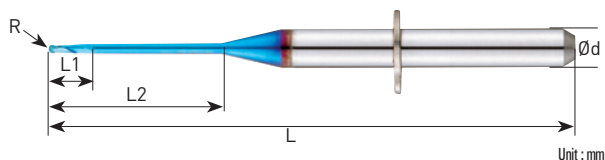
• 2&3 Flutes Endmills for Zirconia



Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R X D	L1	L2	L	d
2WID 006 070 340	R0.3 X 0.6	2	7	40	3
2WID 007 070 340	R0.35 X 0.7	2	7	40	3
2WID 007 086 335	R0.35 X 0.7	1.4	8.6	35	3
2WID 007 086 340	R0.35 X 0.7	1.4	8.6	40	3
2WID 010 130 335	R0.5 X 1	2	13	35	3
2WID 010 130 340	R0.5 X 1	2	13	40	3
2WID 010 170 340	R0.5 X 1	5	17	40	3
2WID 020 160 335	R1 X 2	4	16	35	3
2WID 020 160 340	R1 X 2	4	16	40	3
2WID 020 170 340	R1 X 2	8	17	40	3
2WID 025 150 335	R1.25 X 2.5	5	15	35	3
2WID 025 150 340	R1.25 X 2.5	5	15	40	3
2WID 025 200 340	R1.25 X 2.5	10	20	40	3
3WID 010 170 340	R0.5 X 1	5	17	40	3
3WID 020 170 340	R1 X 2	8	17	40	3
3WID 025 200 340	R1.25 X 2.5	10	20	40	3

Applicable machine: 35L - Wieland Zenotec Mini, 40L - Wieland Zenotec Select Hybrid

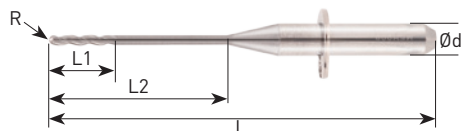
• 2 Flutes Endmills for Cobalt Chrom & Titanium.



Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R X D	L1	L2	L	d
2WIB 010 130 335	R0.5 X 1	2	13	35	3
2WIB 010 130 340	R0.5 X 1	2	13	40	3
2WIB 020 160 335	R1 X 2	4	16	35	3
2WIB 020 160 340	R1 X 2	4	16	40	3
2WIB 025 150 335	R1.25 X 2.5	5	15	35	3
2WIB 025 150 340	R1.25 X 2.5	5	15	40	3

Applicable machine: 35L - Wieland Zenotec Mini, 40L - Wieland Zenotec Select Hybrid

• 1&2&3 Flutes Endmills for PEEK & PMMA & WAX

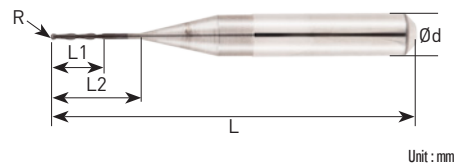


Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R X D	L1	L2	L	d
1WIN 006 070 335	R0.3 X 0.6	2	7	35	3
1WIN 006 070 340	R0.3 X 0.6	2	7	40	3
1WIN 007 070 335	R0.35 X 0.7	2	7	35	3
1WIN 007 070 340	R0.35 X 0.7	2	7	40	3
1WIN 010 160 335	R0.5 X 1	5	16	35	3
1WIN 010 170 340	R0.5 X 1	5	17	40	3
1WIN 020 170 335	R1 X 2	8	17	35	3
1WIN 020 170 340	R1 X 2	8	17	40	3
1WIN 025 200 335	R1.25 X 2.5	10	20	35	3
1WIN 025 200 340	R1.25 X 2.5	10	20	40	3
2WIN 003 034 335	R0.15 X 0.3	0.6	3.4	35	3
2WIN 003 034 340	R0.15 X 0.3	0.6	3.4	40	3
2WIN 006 070 335	R0.3 X 0.6	2	7	35	3
2WIN 007 070 335	R0.35 X 0.7	2	7	35	3
2WIN 007 086 335	R0.35 X 0.7	1.4	8.6	35	3
2WIN 007 086 340	R0.35 X 0.7	1.4	8.6	40	3
2WIN 010 130 335	R0.5 X 1	2	13	35	3
2WIN 010 130 340	R0.5 X 1	2	13	40	3
2WIN 010 160 335	R0.5 X 1	5	16	35	3
2WIN 020 160 335	R1 X 2	4	16	35	3
2WIN 020 160 340	R1 X 2	4	16	40	3
2WIN 020 170 335	R1 X 2	8	17	35	3
2WIN 025 150 335	R1.25 X 2.5	5	15	35	3
2WIN 025 150 340	R1.25 X 2.5	5	15	40	3
2WIN 025 200 335	R1.25 X 2.5	10	20	35	3
3WIN 010 160 335	R0.5 X 1	5	16	35	3
3WIN 020 170 335	R1 X 2	8	17	35	3
3WIN 025 200 335	R1.25 X 2.5	10	20	35	3

Applicable machine: 35L - Wieland Zenotec Mini, 40L - Wieland Zenotec Select Hybrid

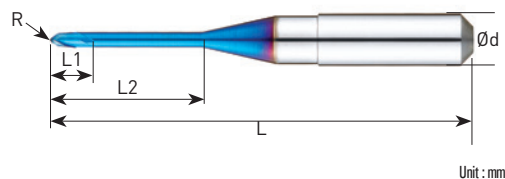
- 2&3 Flutes Endmills for Zirconia



Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R X D	L1	L2	L	d
2ZID 005 050 357	R0.25 X 0.5	3	5	57	3
2ZID 005 050 650	R0.25 X 0.5	3	5	50	6
2ZID 010 120 650	R0.5 X 1	6	12	50	6
2ZID 010 160 357	R0.5 X 1	8	16	57	3
2ZID 020 180 357	R1 X 2	10	18	57	3
2ZID 020 180 650	R1 X 2	10	18	50	6
3ZID 010 120 650	R0.5 X 1	6	12	50	6
3ZID 010 160 357	R0.5 X 1	8	16	57	3
3ZID 020 180 357	R1 X 2	10	18	57	3
3ZID 020 180 650	R1 X 2	10	18	50	6

All items are step type of ZIRKONZAHN

- 2 Flutes Endmills for Cobalt Chrom & Titanium.

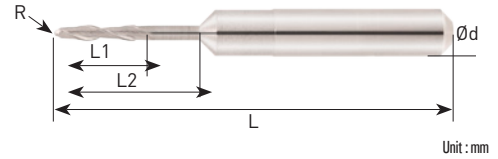


Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R X D	L1	L2	L	d
2ZIB 020 180 650	R1 X 2	3	18	50	6
2ZIB 030 180 650	R1.5 X 3	4	18	50	6

All items are step type of ZIRKONZAHN



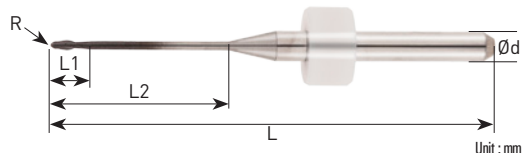
• 1&2&3 Flutes Endmills for PEEK & PMMA & WAX



Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R X D	L1	L2	L	d
1ZIN 005 050 357	R0.25 X 0.5	3	5	57	3
1ZIN 005 050 650	R0.25 X 0.5	3	5	50	6
1ZIN 010 120 650	R0.5 X 1	6	12	50	6
1ZIN 010 160 357	R0.5 X 1	8	16	57	3
1ZIN 020 180 357	R1 X 2	10	18	57	3
1ZIN 020 180 650	R1 X 2	10	18	50	6
2ZIN 005 050 357	R0.25 X 0.5	3	5	57	3
2ZIN 005 050 650	R0.25 X 0.5	3	5	50	6
2ZIN 010 120 650	R0.5 X 1	6	12	50	6
2ZIN 010 160 357	R0.5 X 1	8	16	57	3
2ZIN 020 180 357	R1 X 2	10	18	57	3
2ZIN 020 180 650	R1 X 2	10	18	50	6
3ZIN 010 120 650	R0.5 X 1	6	12	50	6
3ZIN 010 160 357	R0.5 X 1	8	16	57	3
3ZIN 020 180 357	R1 X 2	10	18	57	3
3ZIN 020 180 650	R1 X 2	10	18	50	6

All items are step type of ZIRKONZAHN

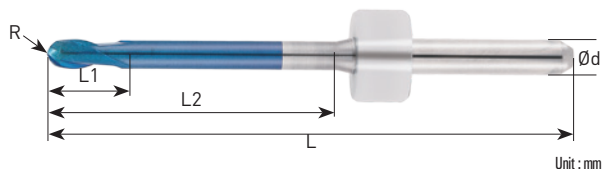
• 2 Flutes Endmills for Zirconia



Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R X D	L1	L2	L	d
2SID 005 040 342	R0.25 X 0.5	1	4	42	3
2SID 010 170 343	R0.5 X 1	3	17	43	3
2SID 025 200 344	R1.25 X 2.5	4	20	44	3

Applicable machine: MC X5

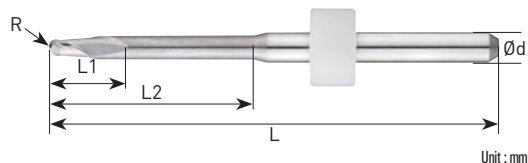
• 2 Flutes Endmills for Cobalt Chrom & Titanium.



Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R X D	L1	L2	L	d
2SIB 010 140 343	R0.5 X 1	3	14	43	3
2SIB 025 240 344	R1.25 X 2.5	4	24	44	3

Applicable machine: MC X5

• 2 Flutes Endmills for PEEK & PMMA & WAX

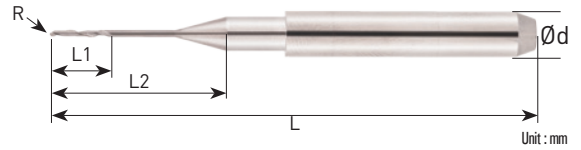


Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R X D	L1	L2	L	d
2SIN 005 040 342	R0.25 X 0.5	1	4	42	3
2SIN 010 140 343	R0.5 X 1	3	14	43	3
2SIN 025 200 344	R1.25 X 2.5	4	20	44	3

Applicable machine: MC X5

ARUM**1ARD**

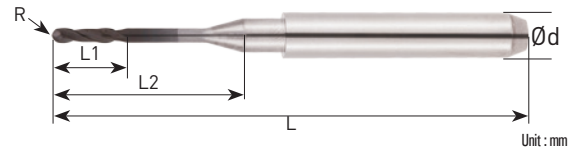
- 1 Flutes Endmills for PEEK & PMMA & WAX



Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R X D	L1	L2	L	d
1ARD 006 130 663	0.3R X 0.6	2	13	63	6
1ARD 010 160 663	0.5R X 1	6	16	63	6
1ARD 020 200 663	1R X 2	8	20	63	6

ARUM**2&3ARD**

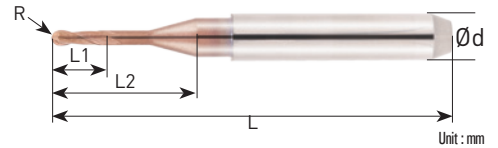
- 2&3 Flutes Endmills for Zirconia



Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R X D	L1	L2	L	d
2ARD 006 130 663	0.3R X 0.6	2	13	63	6
2ARD 010 160 663	0.5R X 1	6	16	63	6
2ARD 020 200 663	1R X 2	8	20	63	6
3ARD 010 160 663	0.5R X 1	6	16	63	6
3ARD 020 200 663	1R X 2	8	20	63	6

ARUM**2ART**

- 2 Flutes Endmills for Cobalt Chrom & Titanium.

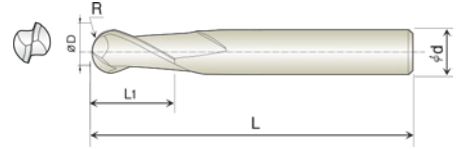


Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R X D	L1	L2	L	d
2ART 010 080 650	0.5R X 1	2	8	50	6
2ART 015 100 650	0.75R X 1.5	3	10	50	6
2ART 020 120 650	1R X 2	6	12	50	6
2ART 030 120 650	1.5R X 3	8	12	50	6

2Flutes Ball Endmill

Pre-hardened steels can be applied to medium to high hardness work pieces.(HRC40 ~ 62)

- Dividing and double flute make it easy to prevent shaking and chip ejection.
- Enables high performance milling in tough steels, low alloyed steels, high alloyed steels and hard to cut materials.



Size	D Tolerance
D ≤ φ5	+0~-0.01
φ6-φ12	-0.005~-0.015

Unit : mm

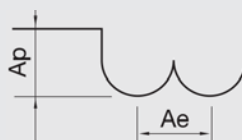
Order Number	Diameter	Length of Cut	Effective Length	Overall Length	Shank Dia
	RxD	L1	L2	L	d
2WCB 002 003 S04	R0.1 X 0.2	0.3		40	4
2WCB 003 004 S04	R0.15 X 0.3	0.4		40	4
2WCB 004 004 S04	R0.2 X 0.4	0.4		40	4
2WCB 005 009 S04	R0.25 X 0.5	0.9		50	4
2WCB 006 012 S04	R0.3 X 0.6	1.2		50	4
2WCB 008 015 S06	R0.4 X 0.8	1.5		50	6
2WCB 010 020 S06	R0.5 X 1	2		50	6
2WCB 015 040 S06	R0.75 X 1.5	4		50	6
2WCB 020 050 S06	R1.0 X 2	5		60	6
2WCB 025 060 S06	R1.25 X 2.5	6		60	6
2WCB 030 080 S03	R1.5 X 3	8		60	3
2WCB 030 080 S06	R1.5 X 3	8		60	6
2WCB 035 080 S06	R1.75 X 3.5	8		60	6
2WCB 040 080 060	R2.0 X 4	8		60	4
2WCB 040 080 S06	R2.0 X 4	8		70	6
2WCB 050 100 S06	R2.5 X 5	10		80	6
2WCB 060 120 090	R3.0 X 6	12	22	90	6
2WCB 080 140 100	R4.0 X 8	14	24	100	8
2WCB 100 180 100	R5.0 X 10	18	30	100	10
2WCB 120 220 110	R6.0 X 12	22	32	110	12

Material	Copper				Hardened Steel/ Prehardened Steels NAK/ SKD			
Hardness					30~45HRC			
Radius	RPM	FEED	Ae Radial Depth	Ap Axial Depth	RPM	FEED	Ae Radial Depth	Ap Axial Depth
R0.1	54000	430	0.012	0.008	54000	630	0.02	0.06
R0.15	54000	720	0.02	0.013	54000	750	0.03	0.09
R0.2	54000	870	0.028	0.016	54000	1000	0.04	0.12
R0.25	56000	1250	0.035	0.022	53000	1250	0.05	0.15
R0.3	58000	1510	0.042	0.026	52000	1380	0.06	0.18
R0.4	52000	1870	0.056	0.036	48000	1500	0.08	0.24
R0.5	41000	1660	0.063	0.04	45000	1560	0.1	0.3
R0.75	27000	1830	0.087	0.068	35000	1600	0.15	0.45
R1	20000	1780	0.112	0.089	30000	1850	0.2	0.6
R1.25	16000	1840	0.067	0.115	25500	1600	0.25	0.542
R1.5	13000	2220	0.197	0.171	25500	2520	0.3	0.957
R2	10000	2080	0.266	0.208	21000	2450	0.4	1.38
R2.5	8300	1990	0.215	0.24	18000	2560	0.5	1.66
R3	6900	1940	0.29	0.281	16000	2700	0.6	2.34
R4	5720	1000	0.4	0.175	12500	2300	0.8	3.1
R5	4550	700	0.5	0.154	10500	2200	1	3.75
R6	3770	600	0.6	0.159	9000	1850	1.2	4.42

Material	Hardened Steel SKD/SKT				Hardened Steel SKD/SKT			
Hardness	45HRC~55HRC				55HRC~65HRC			
Radius	RPM	FEED	Ae Radial Depth	Ap Axial Depth	RPM	FEED	Ae Radial Depth	Ap Axial Depth
R0.1	44300	450	0.04	0.012	30000	300	0.023	0.008
R0.15	44300	600	0.024	0.072	32800	450	0.015	0.042
R0.2	44300	800	0.032	0.096	32800	600	0.02	0.056
R0.25	43500	1000	0.04	0.12	32200	750	0.025	0.07
R0.3	42650	1100	0.048	0.144	31500	825	0.03	0.086
R0.4	39500	1200	0.064	0.192	29250	900	0.04	0.112
R0.5	36900	1250	0.08	0.24	27300	940	0.05	0.14
R0.75	28700	1280	0.12	0.36	21500	960	0.075	0.21
R1	24600	1480	0.16	0.48	18250	1110	0.1	0.28
R1.25	21000	1280	0.2	0.43	15500	960	0.125	0.251
R1.5	21000	2050	0.24	0.766	15500	1530	0.15	0.447
R2	17300	1960	0.32	1.1	12800	1470	0.2	0.644
R2.5	14800	2050	0.4	1.33	11000	1530	0.25	0.77
R3	13000	2160	0.48	1.87	9600	1620	0.3	1.09
R4	10250	1840	0.64	2.48	7600	1380	0.4	1.446
R5	8650	1780	0.8	3	6400	1340	0.5	1.75
R6	7380	1480	0.96	3.54	5450	1110	0.6	2.06

Depth of
Cut

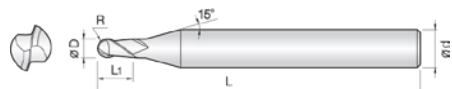
- Ap : Axial Depth
- Ae : Radial Depth
- D : Outside Diameter
- n : Speed
- Vf : Feed



2Flutes Short Ball Endmill

Pre-hardened steels can be applied to medium to high hardness work pieces.(HRC40 - 62)

- Dividing and double flute make it easy to prevent shaking and chip ejection.
- Enables high performance milling in tough steels, low alloyed steels, high alloyed steels and hard to cut materials.



Size	D Tolerance
D ≤ Φ5	+0~-0.01
Φ6~Φ12	-0.005~-0.015

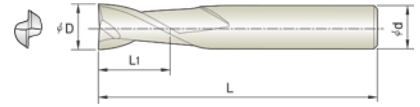
Unit : mm

Order Number	Diameter	Length of Cut	Effective Length	Overall Length	Shank Dia
	RxD	L1	L2	L	d
2WSB 010 010 S06	R0.5X1.0	1	2.5	40	6
2WSB 015 015 S06	R0.75X1.5	1.5	3.8	40	6
2WSB 020 020 S06	R1.0X2.0	2	6	50	6
2WSB 025 025 S06	R1.25X2.5	2.5	6	50	6
2WSB 030 030 S06	R1.5X3.0	3	8	50	6
2WSB 040 050 S06	R2.0X4.0	5	10	50	6
2WSB 050 060 S06	R2.5X5.0	6	12	50	6
2WSB 060 070 060	R3.0X6.0	7	15	60	6
2WSB 080 100 060	R4.0X8.0	10	20	60	8
2WSB 100 120 070	R5.0X10.0	12	25	70	10
2WSB 120 140 080	R6.0X12.0	14	30	80	12

2Flutes Standard Endmill

Pre-hardened steels can be applied to medium to high hardness work pieces.(HRC40 ~ 62)

- Dividing and double flute make it easy to prevent shaking and chip ejection.
- Enables high performance milling in tough steels, low alloyed steels, high alloyed steels and hard to cut materials.

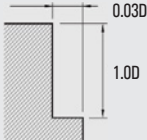


Size	D Tolerance
D < Φ6	+0~-0.01
Φ6~Φ12	-0.01~-0.025

Unit : mm

Order Number	Diameter	Length of Cut	Overall Length	Shank Dia
	D	L1	L2	L
2WCE 002 003 S04	0.2	0.3	40	4
2WCE 003 004 S04	0.3	0.4	40	4
2WCE 004 006 S04	0.4	0.6	40	4
2WCE 005 010 S04	0.5	1	45	4
2WCE 006 012 S04	0.6	1.2	45	4
2WCE 007 014 S04	0.7	1.4	45	4
2WCE 008 016 S04	0.8	1.6	45	4
2WCE 009 020 S04	0.9	2	45	4
2WCE 010 030 S06	1.0	3	45	6
2WCE 012 040 S06	1.2	4	45	6
2WCE 015 040 S06	1.5	4	45	6
2WCE 020 060 S06	2.0	6	45	6
2WCE 025 080 S06	2.5	8	50	6
2WCE 030 100 S06	3.0	10	50	6
2WCE 035 100 S06	3.5	10	50	6
2WCE 040 100 S05	4.0	10	55	4
2WCE 040 120 S06	4.0	12	55	6
2WCE 045 150 S06	4.5	15	55	6
2WCE 050 150 S06	5.0	15	55	6
2WCE 060 150 S05	6.0	15	55	6
2WCE 070 200 S08	7.0	20	65	8
2WCE 080 200 S05	8.0	20	65	8
2WCE 090 250 S10	9.0	25	70	10
2WCE 100 250 S07	10.0	25	70	10
2WCE 120 300 S08	12.0	30	80	12

Slotting										
Material	Alloy Steels/Heat Resistant Steels		Hardened Steels/ Prehardened steels				Hardened Steels			
			NAK/SKD		STAVX/SKD/SKT		SKD11/SKD61		SKD/SKD11	
Hardness	30HRC ~ 40HRC		40HRC ~ 50HRC		50HRC ~ 55HRC		55HRC ~ 60HRC		60HRC ~ 65HRC	
Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
0.2mm	50000	130	45000	115	40000	95	33000	60	33000	45
0.3mm	50000	190	45000	140	40000	115	33000	70	25000	50
0.4mm	50000	235	45000	180	40000	140	33000	90	25000	55
0.5mm	50000	370	45000	280	40000	220	33000	140	25000	85
0.6mm	50000	470	45000	360	40000	285	30000	160	25000	105
0.8mm	50000	600	40000	440	30000	295	25000	185	19000	110
0.9mm	49000	655	39000	520	27800	330	22700	205	17500	125
1mm	48000	750	38000	570	25500	360	20500	215	16000	135
2mm	33300	850	26000	680	17500	420	14500	260	11000	160
3mm	21800	850	17300	680	11500	420	9500	260	7500	160
4mm	16700	880	13200	700	8800	440	7200	270	5600	170
5mm	15700	1000	12500	805	8300	500	6400	285	5100	180
6mm	13100	950	10350	770	6900	480	5300	280	4200	180
8mm	9880	930	7800	720	5200	445	4000	255	3200	165
10mm	7800	850	6150	680	4100	415	3200	240	2550	155
12mm	6650	850	5250	680	3500	415	2650	240	2100	155
Depth of Cut										

Side cutting										
Material	Alloy Steels/Heat Resistant Steels		Hardened Steels/ Prehardened steels				Hardened Steels			
			NAK/SKD		STAVX/SKD/SKT		SKD11/SKD61		SKD/SKD11	
Hardness	30HRC ~ 40HRC		40HRC ~ 50HRC		50HRC ~ 55HRC		55HRC ~ 60HRC		60HRC ~ 65HRC	
Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1mm	50000	100	45000	100	40000	90	33000	50	33000	40
2mm	50000	130	45000	115	40000	95	33000	60	33000	45
3mm	50000	190	45000	140	40000	115	33000	70	25000	50
4mm	50000	235	45000	180	40000	140	33000	90	25000	55
5mm	50000	370	45000	280	40000	220	33000	140	25000	85
6mm	50000	470	45000	360	40000	285	30000	160	25000	105
8mm	50000	600	40000	440	30000	295	25000	185	19000	110
10mm	49000	655	39000	520	27800	330	22700	205	17500	125
12mm	48000	750	38000	570	25500	360	20500	215	16000	135
Depth of Cut										

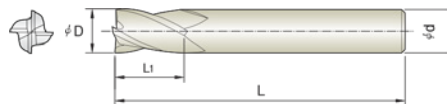


Sharp Edge

4Flutes Standard Endmill

Pre-hardened steels can be applied to medium to high hardness work pieces.(HRC40 ~ 62)

- Dividing and double flute make it easy to prevent shaking and chip ejection.
- Enables high performance milling in tough steels, low alloyed steels, high alloyed steels and hard to cut materials.



Size	D Tolerance
D < Φ6	+0~-0.01
Φ6~Φ12	-0.01~-0.025
Φ12~Φ16	-0.015~-0.03

Unit : mm

Order Number	Diameter	Length of Cut	Overall Length	Shank Dia
	D	L1	L	d
4WCE 010 030 S04	1.0	3	45	4
4WCE 015 040 S04	1.5	4	45	4
4WCE 020 060 S06	2.0	6	45	6
4WCE 025 080 S06	2.5	8	50	6
4WCE 030 100 S06	3.0	10	50	6
4WCE 035 100 S06	3.5	10	50	6
4WCE 040 100 S05	4.0	10	55	4
4WCE 040 120 S06	4.0	12	55	6
4WCE 045 150 S06	4.5	15	55	6
4WCE 050 150 S06	5.0	15	55	6
4WCE 060 150 S05	6.0	15	55	6
4WCE 080 200 S05	8.0	20	65	8
4WCE 100 250 S07	10.0	25	70	10
4WCE 120 300 S08	12	30	80	12
4WCE 140 450 S16	14	45	100	16
4WCE 160 450 S10	16	45	100	16

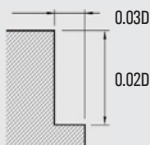
4WCE

• RPM : rev/min • Feed : mm/min

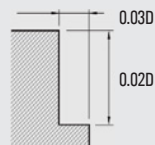
Material	Alloy Steels/Heat Resistant Steels		Hardened Steels	
			NAK/SKD	
Hardness	30HRC ~ 40HRC		40HRC ~ 50HRC	
Diameter	RPM	FEED	RPM	FEED
1mm	48000	1480	38000	1050
2mm	33300	1750	26000	1250
3mm	21800	1750	17300	1250
4mm	16700	1800	13200	1300
5mm	15700	2000	12500	1500
6mm	13100	1950	10350	1400
7mm	11000	1900	9000	1380

Material	Alloy Steels/Heat Resistant Steels		Hardened Steels	
			NAK/SKD	
Hardness	30HRC ~ 40HRC		40HRC ~ 50HRC	
Diameter	RPM	FEED	RPM	FEED
8mm	9880	1880	7800	1350
9mm	7800	1750	6150	1260
10mm	6650	1750	5250	1260
11mm	5600	1680	4300	1150
12mm	5600	1680	4300	1150
14mm	4650	1600	3500	1050
16mm	4650	1600	3500	1050

Depth of Cut



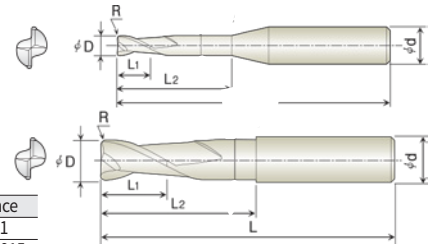
Depth of Cut



2Flutes Corner Radius End Mills

Pre-hardened steels can be applied to medium to high hardness work pieces.(HRC40 - 62)

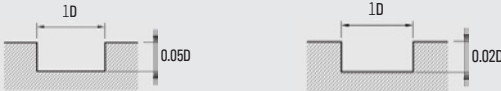
- Dividing and double flute make it easy to prevent shaking and chip ejection.
- Enables high performance milling in tough steels, low alloyed steels, high alloyed steels and hard to cut materials.
- Various size of Corner Radius is applied for protection from chipping.

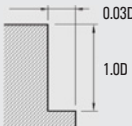


Size	D Tolerance
$D \leq \Phi 5$	$+0 \sim -0.01$
$\Phi 6 \sim \Phi 12$	$-0.005 \sim -0.015$

Unit: mm

Order Number	Diameter	Length of Cut	Effective Length	Overall Length	Shank Dia
	D X R	L1	L2	L	d
2WCR 010 001 S06	1 X R0.1	2.5	3	50	6
2WCR 010 002 S06	1 X R0.2	2.5	3	50	6
2WCR 010 003 S06	1 X R0.3	2.5	3	50	6
2WCR 015 001 S06	1.5 X R0.1	4.0	4.5	50	6
2WCR 015 002 S06	1.5 X R0.2	4.0	4.5	50	6
2WCR 015 003 S06	1.5 X R0.3	4.0	4.5	50	6
2WCR 020 002 S06	2 X R0.2	4.0	6	50	6
2WCR 020 003 S06	2 X R0.3	4.0	6	50	6
2WCR 020 005 S06	2 X R0.5	4.0	6	50	6
2WCR 025 002 S06	2.5 X R0.2	6.0	8	50	6
2WCR 025 003 S06	2.5 X R0.3	6.0	8	50	6
2WCR 025 005 S06	2.5 X R0.5	6.0	8	50	6
2WCR 030 002 S06	3 X R0.2	8.0	10	50	6
2WCR 030 003 S06	3 X R0.3	8.0	10	50	6
2WCR 030 005 S06	3 X R0.5	8.0	10	50	6
2WCR 040 002 S06	4 X R0.2	10.0	12	50	6
2WCR 040 003 S06	4 X R0.3	10.0	12	50	6
2WCR 040 005 S06	4 X R0.5	10.0	12	50	6
2WCR 040 010 S06	4 X R1.0	10.0	12	50	6
2WCR 050 002 S06	5 X R0.2	13.0	15	55	6
2WCR 050 003 S06	5 X R0.3	13.0	15	55	6
2WCR 050 005 S06	5 X R0.5	13.0	15	55	6
2WCR 050 010 S06	5 X R1.0	13.0	15	55	6
2WCR 060 002 055	6 X R0.2	13.0	15	55	6
2WCR 060 003 055	6 X R0.3	13.0	15	55	6
2WCR 060 005 055	6 X R0.5	13.0	15	55	6
2WCR 060 010 055	6 X R1.0	13.0	15	55	6
2WCR 080 002 065	8 X R0.2	16.0	20	65	8
2WCR 080 003 065	8 X R0.3	16.0	20	65	8
2WCR 080 005 065	8 X R0.5	16.0	20	65	8
2WCR 080 010 065	8 X R1.0	16.0	20	65	8
2WCR 080 015 065	8 X R1.5	16.0	20	65	8
2WCR 100 002 070	10 X R0.2	22.0	25	70	10
2WCR 100 003 070	10 X R0.3	22.0	25	70	10
2WCR 100 005 070	10 X R0.5	22.0	25	70	10
2WCR 100 010 070	10 X R1.0	22.0	25	70	10
2WCR 100 015 070	10 X R1.5	22.0	25	70	10
2WCR 100 020 070	10 X R2.0	22.0	25	70	10
2WCR 120 002 080	12 X R0.2	26.0	30	80	12
2WCR 120 003 080	12 X R0.3	26.0	30	80	12
2WCR 120 005 080	12 X R0.5	26.0	30	80	12
2WCR 120 010 080	12 X R1.0	26.0	30	80	12
2WCR 120 015 080	12 X R1.5	26.0	30	80	12
2WCR 120 020 080	12 X R2.0	26.0	30	80	12

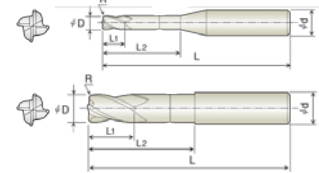
Slotting										
Material	Alloy Steels/Heat Resistant Steels		Hardened Steels/ Prehardened steels				Hardened Steels			
			NAK/SKD		STAVX/SKD/SKT		SKD11/SKD61		SKD/SKD11	
Hardness			40HRc ~ 50HRc		50HRc ~ 55HRc		55HRc ~ 60HRc		60HRc ~ 65HRc	
Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1mm	48000	600	38000	456	25500	288	20500	172	16000	108
2mm	33300	680	26000	544	17500	336	14500	208	11000	128
3mm	21800	680	17300	544	11500	336	9500	208	7500	128
4mm	16700	704	13200	560	8800	352	7200	216	5600	136
5mm	15700	800	12500	644	8300	400	6400	228	5100	144
6mm	13100	760	10350	646	6900	384	5300	224	4200	144
8mm	9880	744	7800	576	5200	356	4000	204	3200	132
10mm	7800	680	6150	544	4100	332	3200	192	2550	124
12mm	6650	680	5250	544	3500	332	2650	192	2100	124
Depth of Cut										

Side Cutting										
Material	Alloy Steels/Heat Resistant Steels		Hardened Steels/ Prehardened steels				Hardened Steels			
			NAK/SKD		STAVX/SKD/SKT		SKD11/SKD61		SKD/SKD11	
Hardness			40HRc ~ 50HRc		50HRc ~ 55HRc		55HRc ~ 60HRc		60HRc ~ 65HRc	
Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1mm	48000	840	38000	656	25500	408	20500	248	16000	152
2mm	33300	960	26000	776	17500	480	14500	296	11000	184
3mm	21800	960	17300	776	11500	480	9500	296	7500	184
4mm	16700	1000	13200	800	8800	500	7200	308	5600	192
5mm	15700	1160	12500	920	8300	568	6400	328	5100	208
6mm	13100	1080	10350	880	6900	552	5300	320	4200	204
8mm	9880	1056	7800	824	5200	508	4000	292	3200	188
10mm	7800	960	6150	776	4100	472	3200	272	2550	176
12mm	6650	960	5250	776	3500	472	2650	272	2100	176
Depth of Cut										

4Flutes Corner Radius End Mills

Pre-hardened steels can be applied to medium to high hardness work pieces.(HRC40 - 62)

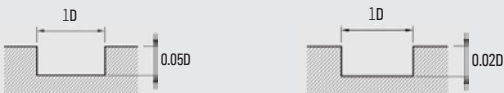
- Dividing and double flute make it easy to prevent shaking and chip ejection.
- Enables high performance milling in tough steels, low alloyed steels, high alloyed steels and hard to cut materials.
- Various size of Corner Radius is applied for protection from chipping.

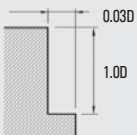


Size	D Tolerance
D ≤ Φ5	+0~-0.01
Φ6~Φ12	-0.005~-0.015

Unit : mm

Order Number	Diameter	Length of Cut	Effective Length	Overall Length	Shank Dia
	D X R	L1	L2	L	d
4WCR 020 002 S06	2 X R0.2	4.0	6	50	6
4WCR 020 003 S06	2 X R0.3	4.0	6	50	6
4WCR 020 005 S06	2 X R0.5	4.0	6	50	6
4WCR 030 002 S06	3 X R0.2	8.0	12	50	6
4WCR 030 003 S06	3 X R0.3	8.0	12	50	6
4WCR 030 005 S06	3 X R0.5	8.0	12	50	6
4WCR 040 002 S06	4 X R0.2	10.0	15	50	6
4WCR 040 003 S06	4 X R0.3	10.0	15	50	6
4WCR 040 005 S06	4 X R0.5	10.0	15	50	6
4WCR 040 010 S06	4 X R1.0	10.0	15	50	6
4WCR 050 005 S06	5 X R0.5	13.0	15	60	6
4WCR 050 010 S06	5 X R1.0	13.0	15	60	6
4WCR 060 002 060	6 X R0.2	13.0	18	60	6
4WCR 060 003 060	6 X R0.3	13.0	18	60	6
4WCR 060 005 060	6 X R0.5	13.0	18	60	6
4WCR 060 010 060	6 X R1.0	13.0	18	60	6
4WCR 060 015 060	6 X R1.5	13.0	18	60	6
4WCR 060 020 060	6 X R2.0	13.0	18	60	6
4WCR 080 002 065	8 X R0.2	19.0	24	65	8
4WCR 080 003 065	8 X R0.3	19.0	24	65	8
4WCR 080 005 065	8 X R0.5	19.0	24	65	8
4WCR 080 010 065	8 X R1.0	19.0	24	65	8
4WCR 080 015 065	8 X R1.5	19.0	24	65	8
4WCR 080 020 065	8 X R2.0	19.0	24	65	8
4WCR 100 002 070	10 X R0.2	22.0	30	70	10
4WCR 100 003 070	10 X R0.3	22.0	30	70	10
4WCR 100 005 070	10 X R0.5	22.0	30	70	10
4WCR 100 010 070	10 X R1.0	22.0	30	70	10
4WCR 100 015 070	10 X R1.5	22.0	30	70	10
4WCR 100 020 070	10 X R2.0	22.0	30	70	10
4WCR 100 030 070	10 X R3.0	22.0	30	70	10
4WCR 120 002 080	12 X R0.2	26.0	36	80	12
4WCR 120 003 080	12 X R0.3	26.0	36	80	12
4WCR 120 005 080	12 X R0.5	26.0	36	80	12
4WCR 120 010 080	12 X R1.0	26.0	36	80	12
4WCR 120 015 080	12 X R1.5	26.0	36	80	12
4WCR 120 020 080	12 X R2.0	26.0	36	80	12
4WCR 120 030 080	12 X R3.0	26.0	36	80	12

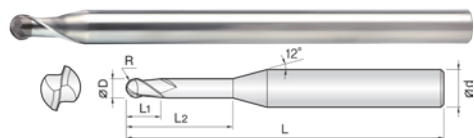
Slotting										
Material	Alloy Steels/Heat Resistant Steels		Hardened Steels/ Prehardened steels				Hardened Steels			
			NAK/SKD		STAVX/SKD/SKT		SKD11/SDK61		SKD/SKD11	
Hardness			HRc 40 ~ HRc 50		HRc 50 ~ HRc 55		HRc 55 ~ HRc 60		HRc 60 ~ HRc 65	
Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2mm	40000	820	31200	660	21000	410	17400	250	13200	160
3mm	26200	820	20800	660	13800	410	11400	250	9000	160
4mm	20100	850	15900	680	10600	430	8700	260	6800	170
5mm	18900	960	15000	780	10000	480	7700	280	6200	180
6mm	15800	920	12500	780	8300	470	6400	270	5100	180
8mm	11900	900	9400	700	6300	430	4800	250	3900	160
10mm	9400	820	7400	660	5000	400	3900	240	3100	150
12mm	8000	820	6300	660	4200	400	3200	240	2600	150
Depth of Cut										

Side Cutting										
Material	Alloy Steels/Heat Resistant Steels		Hardened Steels/ Prehardened steels				Hardened Steels			
			NAK/SKD		STAVX/SKD/SKT		SKD11/SDK61		SKD/SKD11	
Hardness			HRc 40 ~ HRc 50		HRc 50 ~ HRc 55		HRc 55 ~ HRc 60		HRc 60 ~ HRc 65	
Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2mm	40000	1150	31200	930	21000	580	17400	360	13200	220
3mm	26200	1150	20800	930	13800	580	11400	360	9000	220
4mm	20000	1200	15800	960	10600	600	8600	370	6700	230
5mm	18800	1390	15000	1180	10000	680	7700	390	6100	250
6mm	15700	1300	12400	1060	8300	660	6400	380	5000	240
8mm	11900	1270	9400	990	6200	610	4800	350	3800	230
10mm	9400	1150	7400	930	4900	570	3800	330	3100	210
12mm	8000	1150	6300	930	4200	570	3200	330	2500	210
Depth of Cut										

2 Flutes CBN High Speed Ball End Mills

Applicable finish processing for hardened mold steel and graphite

• Materials: CBN



Radius tolerance $\pm 0.005\text{mm}$

Unit : mm

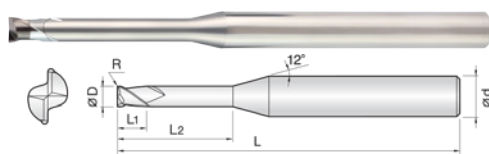
Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	L1	L2	L	d
2CRB 002 003 S04	0.2X0.1R	0.3	0.3	54	4
2CRB 002 005 S04	0.2X0.1R	0.5	0.5	54	4
2CRB 003 003 S04	0.3X0.15R	0.3	0.3	54	4
2CRB 003 008 S04	0.3X0.15R	0.3	0.8	54	4
2CRB 004 004 S04	0.4X0.2R	0.4	0.4	54	4
2CRB 004 010 S04	0.4X0.2R	0.4	1.0	54	4
2CRB 005 005 S04	0.5X0.25R	0.5	0.5	54	4
2CRB 005 010 S04	0.5X0.25R	0.5	1.0	54	4
2CRB 005 020 S04	0.5X0.25R	0.5	2.0	54	4
2CRB 006 006 S04	0.6X0.3R	0.6	0.6	54	4
2CRB 006 020 S04	0.6X0.3R	0.6	2.0	54	4
2CRB 008 007 S04	0.8X0.4R	0.7	0.7	54	4
2CRB 008 020 S04	0.8X0.4R	0.7	2.0	54	4
2CRB 010 008 S04	1X0.5R	0.8	0.8	54	4
2CRB 010 020 S04	1X0.5R	0.8	2.0	54	4

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	L1	L2	L	d
2CRB 010 040 S04	1X0.5R	0.8	4.0	54	4
2CRB 012 020 S04	1.2X0.6R	1.0	2.0	54	4
2CRB 012 030 S04	1.2X0.6R	1.0	3.0	54	4
2CRB 012 050 S04	1.2X0.6R	1.0	5.0	54	4
2CRB 015 020 S04	1.5X0.75R	1.4	2.0	54	4
2CRB 015 040 S04	1.5X0.75R	1.4	4.0	54	4
2CRB 015 060 S04	1.5X0.75R	1.4	6.0	54	4
2CRB 020 030 S04	2X1.0R	1.7	3.0	54	4
2CRB 020 050 S06	2X1.0R	1.7	5.0	64	6
2CRB 020 100 S04	2X1.0R	1.7	10.0	54	4
2CRB 030 060 S04	3X1.5R	2.3	6.0	54	4
2CRB 030 080 S06	3X1.5R	2.3	8.0	66	6
2CRB 040 120 S06	4X2.0R	3.0	12.0	67	6
2CRB 040 160 S06	4X2.0R	3.0	16.0	67	6

2 Flutes CBN High Speed Corner Radius End Mills

Applicable finish processing for hardened mold steel and graphite

• Materials: CBN



Radius tolerance $\pm 0.005\text{mm}$

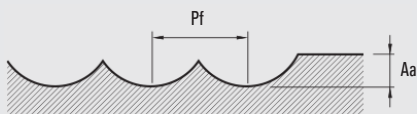
Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	L1	L2	L	d
2CCR 002 003 003	0.2X0.03R	0.3	0.3	54	4
2CCR 002 003 005	0.2X0.03R	0.5	0.5	54	4
2CCR 003 005 003	0.3X0.05R	0.3	0.3	54	4
2CCR 003 005 008	0.3X0.05R	0.3	0.8	54	4
2CCR 004 005 010	0.4X0.05R	0.4	1.0	54	4
2CCR 004 010 010	0.4X0.1R	0.4	1.0	54	4
2CCR 005 005 015	0.5X0.05R	0.5	1.5	54	4
2CCR 005 010 015	0.5X0.1R	0.5	1.5	54	4
2CCR 006 005 020	0.6X0.05R	0.6	2.0	54	4
2CCR 006 010 020	0.6X0.1R	0.6	2.0	54	4
2CCR 008 010 020	0.8X0.1R	0.8	2.0	54	4
2CCR 010 010 020	1X0.1R	0.9	2.0	54	4
2CCR 010 020 020	1X0.2R	0.9	2.0	54	4
2CCR 012 010 030	1.2X0.1R	1.0	3.0	54	4
2CCR 012 020 030	1.2X0.2R	1.0	3.0	54	4
2CCR 015 010 020	1.5X0.1R	1.4	2.0	54	4
2CCR 015 010 040	1.5X0.1R	1.4	4.0	54	4
2CCR 015 020 020	1.5X0.2R	1.4	2.0	54	4

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	L1	L2	L	d
2CCR 015 020 040	1.5X0.2R	1.4	4.0	54	4
2CCR 020 010 030	2X0.1R	1.7	3.0	54	4
2CCR 020 010 050	2X0.1R	1.7	5.0	64	6
2CCR 020 020 030	2X0.2R	1.7	3.0	54	4
2CCR 020 020 050	2X0.2R	1.7	5.0	64	6
2CCR 030 010 060	3X0.1R	2.3	6.0	54	4
2CCR 030 010 080	3X0.1R	2.3	8.0	66	6
2CCR 030 020 060	3X0.2R	2.3	6.0	54	4
2CCR 030 020 080	3X0.2R	2.3	8.0	66	6
2CCR 030 030 060	3X0.3R	2.3	6.0	54	4
2CCR 030 030 080	3X0.3R	2.3	8.0	66	6
2CCR 040 010 120	4X0.1R	3.0	12.0	67	6
2CCR 040 020 120	4X0.2R	3.0	12.0	67	6
2CCR 040 030 120	4X0.3R	3.0	12.0	67	6
2CCR 040 050 120	4X0.5R	3.0	12.0	67	6

Material		NAK, KP4M				STAVAX				STD / SKD				SKH			
Hardness		~ 40HRC				~ 52HRC				~ 62HRC				~ 68HRC			
Radius	Effective Length	Aa	Pf	RPM	FEED	Aa	Pf	RPM	FEED	Aa	Pf	RPM	FEED	Aa	Pf	RPM	FEED
R0.1	0.3	0.005	0.008	38,000	260	0.003	0.010	38,000	250	0.003	0.008	38,000	230	0.003	0.007	38,000	220
	0.5	0.005	0.005	38,000	220	0.003	0.006	38,000	210	0.002	0.006	38,000	190	0.002	0.005	38,000	180
R0.15	0.3	0.006	0.012	38,000	410	0.006	0.010	38,000	340	0.006	0.010	38,000	300	0.006	0.01	38,000	250
	0.8	0.005	0.010	38,000	380	0.005	0.008	38,000	300	0.005	0.008	38,000	270	0.005	0.008	38,000	260
R0.2	0.4	0.009	0.012	38,000	450	0.007	0.013	38,000	460	0.007	0.012	38,000	420	0.007	0.012	38,000	410
	1	0.007	0.010	38,000	420	0.006	0.010	38,000	430	0.006	0.010	38,000	380	0.006	0.010	35,000	350
R0.25	0.5	0.010	0.016	38,000	500	0.008	0.017	38,000	550	0.008	0.017	38,000	520	0.008	0.017	35,000	400
	1	0.008	0.014	36,000	500	0.007	0.013	34,000	480	0.007	0.013	34,000	440	0.007	0.013	31,000	340
	2	0.006	0.012	35,000	500	0.006	0.010	30,000	400	0.006	0.010	30,000	360	0.006	0.010	28,000	290
R0.3	0.6	0.012	0.018	38,000	740	0.010	0.020	38,000	720	0.010	0.020	38,000	630	0.010	0.020	35,000	500
	2	0.010	0.014	38,000	700	0.008	0.014	35,000	630	0.008	0.015	35,000	540	0.008	0.015	32,000	420
R0.4	0.7	0.015	0.025	38,000	860	0.013	0.025	35,000	760	0.013	0.025	35,000	700	0.013	0.025	32,000	530
	2	0.010	0.020	33,000	700	0.010	0.017	30,000	630	0.010	0.018	30,000	540	0.010	0.018	28,000	430
R0.5	0.8	0.020	0.030	38,000	1,000	0.016	0.030	35,000	900	0.016	0.030	35,000	800	0.016	0.030	32,000	630
	2	0.017	0.026	36,000	900	0.015	0.025	32,000	800	0.014	0.027	32,000	700	0.014	0.027	29,000	540
	4	0.015	0.020	30,000	700	0.012	0.020	26,000	630	0.012	0.020	25,000	500	0.012	0.020	22,000	380
R0.6	2	0.020	0.040	36,000	2,000	0.024	0.035	36,000	1,500	0.020	0.032	36,000	1,300	0.015	0.025	35,000	1,000
	3	0.020	0.040	35,000	1,800	0.020	0.030	35,000	1,100	0.015	0.030	35,000	1,000	0.012	0.025	32,000	900
	5	0.020	0.035	28,000	1,400	0.018	0.033	26,000	900	0.018	0.030	26,000	800	0.018	0.025	24,000	700
R0.75	2	0.025	0.040	38,000	3,000	0.025	0.040	35,000	1,100	0.025	0.030	35,000	1,000	0.020	0.030	32,000	900
	4	0.025	0.030	35,000	2,700	0.025	0.030	33,000	1,000	0.020	0.030	30,000	900	0.020	0.025	27,000	800
	6	0.020	0.030	30,000	2,200	0.020	0.025	30,000	900	0.020	0.020	26,000	800	0.020	0.020	24,000	700
R1	3	0.030	0.050	35,000	2,200	0.020	0.040	35,000	1,200	0.020	0.035	35,000	1,000	0.020	0.030	32,000	900
	5	0.030	0.050	32,000	1,900	0.020	0.035	32,000	1,000	0.020	0.030	32,000	900	0.020	0.030	30,000	800
	10	0.020	0.035	24,000	900	0.015	0.030	20,000	700	0.015	0.025	20,000	600	0.015	0.020	16,000	450
R1.5	6	0.040	0.050	30,000	1,400	0.030	0.040	28,000	1,100	0.033	0.040	28,000	1,000	0.033	0.040	22,000	760
	8	0.035	0.060	28,000	1,200	0.030	0.040	25,000	1,000	0.030	0.040	25,000	900	0.030	0.040	20,000	660
R2	12	0.040	0.060	30,000	2,400	0.030	0.050	28,000	1,400	0.030	0.050	25,000	1,200	0.030	0.040	20,000	1,000
	16	0.030	0.050	24,000	1,800	0.030	0.040	22,000	1,000	0.030	0.040	20,000	800	0.020	0.040	16,000	750

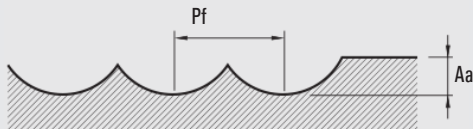
Depth of Cut



• RPM : rev/min • Feed : mm/min

Material		NAK, KP4M				STAVAX				STD / SKD				SKH			
Hardness		~ 40HRC				~ 52HRC				~ 62HRC				~ 68HRC			
Radius	Effective Length	Aa	Pf	RPM	FEED	Aa	Pf	RPM	FEED	Aa	Pf	RPM	FEED	Aa	Pf	RPM	FEED
R0.03	0.3	0.005	0.008	38,000	260	0.003	0.010	38,000	250	0.003	0.008	38,000	230	0.003	0.007	38,000	220
	0.5	0.005	0.005	38,000	220	0.003	0.006	38,000	210	0.002	0.006	38,000	190	0.002	0.005	38,000	180
R0.05	0.3	0.006	0.012	38,000	420	0.006	0.010	38,000	340	0.006	0.010	38,000	300	0.006	0.01	38,000	250
	0.8	0.005	0.010	38,000	380	0.005	0.008	38,000	300	0.005	0.008	38,000	270	0.005	0.008	38,000	260
	1	0.007	0.010	38,000	420	0.006	0.010	38,000	430	0.006	0.010	38,000	380	0.006	0.010	35,000	350
R0.1	1	0.007	0.010	38,000	420	0.006	0.010	38,000	430	0.006	0.010	38,000	380	0.006	0.010	35,000	350
R0.05	1.5	0.007	0.014	38,000	550	0.007	0.012	35,000	500	0.007	0.012	35,000	450	0.007	0.012	30,000	330
R0.1		0.007	0.014	38,000	550	0.007	0.012	35,000	500	0.007	0.012	35,000	450	0.007	0.012	30,000	330
R0.05		0.010	0.014	38,000	700	0.008	0.014	35,000	630	0.008	0.015	35,000	540	0.008	0.015	32,000	420
R0.1	2	0.010	0.014	38,000	700	0.008	0.014	35,000	630	0.008	0.015	35,000	540	0.008	0.015	32,000	420
		0.010	0.020	33,000	700	0.010	0.017	30,000	630	0.010	0.018	30,000	540	0.010	0.018	28,000	430
		0.020	0.030	38,000	1,000	0.016	0.030	35,000	900	0.016	0.030	35,000	800	0.016	0.030	32,000	630
R0.2	3	0.020	0.030	38,000	1,000	0.016	0.030	35,000	900	0.016	0.030	35,000	800	0.016	0.030	32,000	630
R0.1		0.020	0.040	35,000	2,000	0.020	0.030	35,000	1,100	0.150	0.030	35,000	1,000	0.012	0.025	32,000	900
R0.2		0.020	0.040	35,000	2,000	0.020	0.030	35,000	1,100	0.150	0.030	35,000	1,000	0.012	0.025	32,000	900
R0.1	2	0.025	0.040	38,000	3,000	0.025	0.040	35,000	1,100	0.025	0.030	35,000	1,000	0.020	0.030	32,000	900
	4	0.025	0.030	35,000	2,700	0.025	0.030	33,000	1,000	0.020	0.030	30,000	900	0.020	0.025	27,000	800
R0.2	2	0.025	0.040	38,000	3,000	0.025	0.040	35,000	1,100	0.025	0.030	35,000	1,000	0.020	0.030	32,000	900
	4	0.025	0.030	35,000	2,700	0.025	0.030	33,000	1,000	0.020	0.030	30,000	900	0.020	0.025	27,000	800
R0.1	3	0.030	0.050	32,000	1,900	0.020	0.035	32,000	1,000	0.020	0.030	32,000	900	0.020	0.030	30,000	800
	5	0.025	0.045	30,000	1,600	0.020	0.035	28,000	900	0.020	0.030	28,000	800	0.020	0.030	24,000	650
R0.2	3	0.030	0.050	32,000	1,900	0.020	0.035	32,000	1,000	0.020	0.030	32,000	900	0.020	0.030	30,000	800
	5	0.025	0.045	30,000	1,600	0.020	0.035	28,000	900	0.020	0.030	28,000	800	0.020	0.030	24,000	650
R0.1	6	0.040	0.050	24,000	2,200	0.030	0.040	28,000	1,100	0.033	0.040	28,000	1,000	0.033	0.040	22,000	760
	8	0.035	0.060	20,000	1,700	0.030	0.040	25,000	1,000	0.030	0.040	25,000	900	0.030	0.040	20,000	660
R0.2	6	0.040	0.050	24,000	2,200	0.030	0.040	28,000	1,100	0.033	0.040	28,000	1,000	0.033	0.040	22,000	760
	8	0.035	0.060	20,000	1,700	0.030	0.040	25,000	1,000	0.030	0.040	25,000	900	0.030	0.040	20,000	660
R0.3	6	0.040	0.050	24,000	2,200	0.030	0.040	28,000	1,100	0.033	0.040	28,000	1,000	0.033	0.040	22,000	760
	8	0.035	0.060	20,000	1,700	0.030	0.040	25,000	1,000	0.030	0.040	25,000	900	0.030	0.040	20,000	660
R0.1	12	0.040	0.060	28,000	2,200	0.030	0.050	25,000	1,200	0.030	0.050	22,000	1,000	0.030	0.040	20,000	800
R0.2		0.040	0.060	28,000	2,200	0.030	0.050	25,000	1,200	0.030	0.050	22,000	1,000	0.030	0.040	20,000	800
R0.3		0.040	0.060	28,000	2,200	0.030	0.050	25,000	1,200	0.030	0.050	22,000	1,000	0.030	0.040	20,000	800
R0.5		0.030	0.050	24,000	1,800	0.030	0.040	22,000	1,000	0.030	0.040	20,000	800	0.020	0.040	16,000	750

Depth of Cut

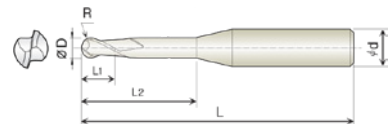




2 Flutes Rib Ball End Mills

Endmills for pre-hardened and hardened steel (HRC52-70)

- Designed for high speed cutting of hardened steels over HRc52.
- Maximize the wear-resistance due to TiSiN-S coating.



Size	D Tolerance
D ≤ Ø5	+0~-0.01mm
Ø6-Ø12	+0~-0.015mm

Unit : mm

Order Number	Diameter	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
	R×D				
2BRB 001 002 S04	R0.05 X 0.1	0.1	0.2	45	4
2BRB 001 003 S04	R0.05 X 0.1	0.1	0.3	45	4
2BRB 001 005 S04	R0.05 X 0.1	0.1	0.5	45	4
2BRB 002 006 S04	R0.1 X 0.2	0.2	0.6	45	4
2BRB 002 010 S04	R0.1 X 0.2	0.2	1	45	4
2BRB 002 015 S04	R0.1 X 0.2	0.2	1.5	45	4
2BRB 003 010 S04	R0.15 X 0.3	0.3	1	45	4
2BRB 003 015 S04	R0.15 X 0.3	0.3	1.5	45	4
2BRB 003 020 S04	R0.15 X 0.3	0.3	2	45	4
2BRB 003 025 S04	R0.15 X 0.3	0.3	2.5	45	4
2BRB 003 030 S04	R0.15 X 0.3	0.3	3	45	4
2BRB 004 010 S04	R0.2 X 0.4	0.4	1	45	4
2BRB 004 015 S04	R0.2 X 0.4	0.4	1.5	45	4
2BRB 004 020 S04	R0.2 X 0.4	0.4	2	45	4
2BRB 004 025 S04	R0.2 X 0.4	0.4	2.5	45	4
2BRB 004 030 S04	R0.2 X 0.4	0.4	3	45	4
2BRB 004 040 S04	R0.2 X 0.4	0.4	4	45	4
2BRB 004 050 S04	R0.2 X 0.4	0.4	5	45	4
2BRB 005 010 S04	R0.25 X 0.5	0.5	1	45	4
2BRB 005 015 S04	R0.25 X 0.5	0.5	1.5	45	4
2BRB 005 020 S04	R0.25 X 0.5	0.5	2	45	4
2BRB 005 025 S04	R0.25 X 0.5	0.5	2.5	45	4
2BRB 005 030 S04	R0.25 X 0.5	0.5	3	45	4
2BRB 005 040 S04	R0.25 X 0.5	0.5	4	45	4
2BRB 005 050 S04	R0.25 X 0.5	0.5	5	45	4
2BRB 005 060 S04	R0.25 X 0.5	0.5	6	45	4
2BRB 005 080 S04	R0.25 X 0.5	0.5	8	45	4
2BRB 006 020 S04	R0.3 X 0.6	0.6	2	45	4
2BRB 006 030 S04	R0.3 X 0.6	0.6	3	45	4

Order Number	Diameter	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
	R×D				
2BRB 006 040 S04	R0.3 X 0.6	0.6	4	45	4
2BRB 006 050 S04	R0.3 X 0.6	0.6	5	45	4
2BRB 006 060 S04	R0.3 X 0.6	0.6	6	45	4
2BRB 006 080 S04	R0.3 X 0.6	0.6	8	45	4
2BRB 006 100 S04	R0.3 X 0.6	0.6	10	45	4
2BRB 008 020 S04	R0.4 X 0.8	0.8	2	45	4
2BRB 008 030 S04	R0.4 X 0.8	0.8	3	45	4
2BRB 008 040 S04	R0.4 X 0.8	0.8	4	45	4
2BRB 008 050 S04	R0.4 X 0.8	0.8	5	45	4
2BRB 008 060 S04	R0.4 X 0.8	0.8	6	45	4
2BRB 008 080 S04	R0.4 X 0.8	0.8	8	45	4
2BRB 008 100 S04	R0.4 X 0.8	0.8	10	45	4
2BRB 008 120 S04	R0.4 X 0.8	0.8	12	45	4
2BRB 010 030 S04	R0.5 X 1	1	3	45	4
2BRB 010 040 S04	R0.5 X 1	1	4	45	4
2BRB 010 050 S04	R0.5 X 1	1	5	45	4
2BRB 010 060 S04	R0.5 X 1	1	6	45	4
2BRB 010 070 S04	R0.5 X 1	1	7	45	4
2BRB 010 080 S04	R0.5 X 1	1	8	45	4
2BRB 010 090 S04	R0.5 X 1	1	9	45	4
2BRB 010 100 S04	R0.5 X 1	1	10	45	4
2BRB 010 120 S04	R0.5 X 1	1	12	45	4
2BRB 010 140 S04	R0.5 X 1	1	14	50	4
2BRB 010 160 S04	R0.5 X 1	1	16	50	4
2BRB 010 180 S04	R0.5 X 1	1	18	50	4
2BRB 010 200 S04	R0.5 X 1	1	20	50	4
2BRB 012 040 S04	R0.6 X 1.2	1.2	4	45	4
2BRB 012 060 S04	R0.6 X 1.2	1.2	6	45	4
2BRB 012 080 S04	R0.6 X 1.2	1.2	8	45	4



Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
2BRB 012 100 S04	R0.6 X 1.2	1.2	10	45	4
2BRB 012 120 S04	R0.6 X 1.2	1.2	12	45	4
2BRB 015 040 S04	R0.75 X 1.5	1.5	4	45	4
2BRB 015 060 S04	R0.75 X 1.5	1.5	6	45	4
2BRB 015 080 S04	R0.75 X 1.5	1.5	8	45	4
2BRB 015 100 S04	R0.75 X 1.5	1.5	10	45	4
2BRB 015 120 S04	R0.75 X 1.5	1.5	12	45	4
2BRB 015 140 S04	R0.75 X 1.5	1.5	14	50	4
2BRB 015 160 S04	R0.75 X 1.5	1.5	16	50	4
2BRB 015 180 S04	R0.75 X 1.5	1.5	18	50	4
2BRB 015 200 S04	R0.75 X 1.5	1.5	20	50	4
2BRB 020 060 S04	R1.0 X 2	2	6	45	4
2BRB 020 080 S04	R1.0 X 2	2	8	45	4
2BRB 020 100 S04	R1.0 X 2	2	10	45	4
2BRB 020 120 S04	R1.0 X 2	2	12	45	4
2BRB 020 140 S04	R1.0 X 2	2	14	50	4
2BRB 020 160 S04	R1.0 X 2	2	16	50	4
2BRB 020 180 S04	R1.0 X 2	2	18	50	4
2BRB 020 200 S04	R1.0 X 2	2	20	50	4
2BRB 020 250 S04	R1.0 X 2	2	25	60	4
2BRB 020 300 S04	R1.0 X 2	2	30	70	4
2BRB 025 080 S04	R1.25 X 2.5	2.5	8	45	4
2BRB 025 100 S04	R1.25 X 2.5	2.5	10	45	4
2BRB 025 120 S04	R1.25 X 2.5	2.5	12	45	4
2BRB 025 160 S04	R1.25 X 2.5	2.5	16	50	4
2BRB 025 200 S04	R1.25 X 2.5	2.5	20	50	4
2BRB 030 080 S06	R1.5 X 3	3	8	50	6
2BRB 030 100 S06	R1.5 X 3	3	10	50	6
2BRB 030 120 S06	R1.5 X 3	3	12	50	6
2BRB 030 140 S06	R1.5 X 3	3	14	60	6
2BRB 030 160 S06	R1.5 X 3	3	16	60	6
2BRB 030 180 S06	R1.5 X 3	3	18	60	6
2BRB 030 200 S06	R1.5 X 3	3	20	60	6
2BRB 030 250 S06	R1.5 X 3	3	25	65	6
2BRB 030 300 S06	R1.5 X 3	3	30	70	6
2BRB 030 350 S06	R1.5 X 3	3	35	80	6
2BRB 040 100 S06	R2.0 X 4	4	10	50	6

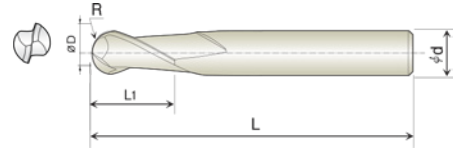
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2 Flutes Standard Ball End Mills

Endmills for pre-hardened and hardened steel (HRC52-70)

- Designed for high speed cutting of hardened steels over HRc52.
- Maximize the wear-resistance due to TiSiN-S coating.



Size	D Tolerance
D ≤ Ø5	+0~-0.01
Ø6-Ø12	+0~-0.015

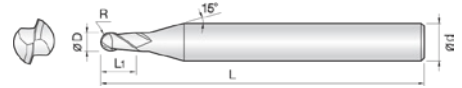
Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	R×D	L1	L	d
2BCB 001 002 S04	R0.05 X 0.1	0.2	45	4
2BCB 002 004 S04	R0.1 X 0.2	0.4	45	4
2BCB 003 006 S04	R0.15 X 0.3	0.6	45	4
2BCB 004 008 S04	R0.2 X 0.4	0.8	45	4
2BCB 005 010 S04	R0.25 X 0.5	1	45	4
2BCB 006 012 S04	R0.3 X 0.6	1.2	45	4
2BCB 007 015 S04	R0.35 X 0.7	1.5	45	4
2BCB 008 015 S04	R0.4 X 0.8	1.5	45	4
2BCB 010 020 S04	R0.5 X 1	2	50	4
2BCB 010 020 S06	R0.5 X 1	2	50	6
2BCB 012 025 S04	R0.6 X 1.2	2.5	50	4
2BCB 015 040 S04	R0.75 X 1.5	4	50	4
2BCB 015 040 S06	R0.75 X 1.5	4	50	6
2BCB 020 050 S04	R1.0 X 2	5	50	4
2BCB 020 050 S06	R1.0 X 2	5	60	6
2BCB 025 060 S06	R1.25 X 2.5	6	60	6
2BCB 030 080 S03	R1.5 X 3	8	60	3
2BCB 030 080 S04	R1.5 X 3	8	60	4
2BCB 030 080 S06	R1.5 X 3	8	80	6
2BCB 035 080 S06	R1.75 X 3.5	8	60	6
2BCB 040 080 S04	R2.0 X 4	8	80	4
2BCB 040 080 S06	R2.0 X 4	8	70	6
2BCB 045 100 S06	R2.25 X 4.5	10	70	6
2BCB 050 100 S06	R2.5 X 5	10	80	6
2BCB 055 120 S06	R2.75 X 5.5	12	80	6
2BCB 060 120 090	R3.0 X 6	12	90	6
2BCB 070 140 S08	R3.5 X 7	14	100	8
2BCB 080 140 100	R4.0 X 8	14	100	8
2BCB 090 180 S10	R4.5 X 9	18	100	10
2BCB 100 180 100	R5.0 X 10	18	100	10
2BCB 120 220 110	R6.0 X 12	22	110	12

2&3 Flutes Short Ball End Mills

Endmills for pre-hardened and hardened steel (HRC52-70)

- Designed for high speed cutting of hardened steels over HRC52.
- Maximize the wear-resistance due to TiSiN-S coating.



Size	D Tolerance
$D \leq \varnothing 5$	$+0 \sim -0.010\text{mm}$
$D \geq \varnothing 6$	$+0 \sim -0.015\text{mm}$

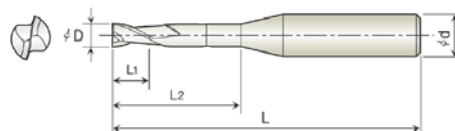
Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	R×D	L1	L	d
2BSB 001 001 S04	R0.05 X 0.1	0.1	40	4
2BSB 002 002 S04	R0.1 X 0.2	0.2	40	4
2BSB 003 003 S04	R0.15 X 0.3	0.3	40	4
2BSB 004 004 S04	R0.2 X 0.4	0.4	40	4
2BSB 005 005 S04	R0.25 X 0.5	0.5	40	4
2BSB 006 006 S04	R0.3 X 0.6	0.6	40	4
2BSB 007 007 S04	R0.35 X 0.7	0.7	40	4
2BSB 008 008 S04	R0.4 X 0.8	0.8	40	4
2BSB 009 009 S04	R0.45 X 0.9	0.9	40	4
2BSB 010 015 S06	R0.5 X 1	1.5	40	6
2BSB 015 023 S06	R0.75 X 1.5	2.3	40	6
2BSB 020 030 S06	R1.0 X 2	3	45	6
2BSB 030 045 S06	R1.5 X 3	4.5	45	6
2BSB 040 060 S06	R2.0 X 4	6	45	6
2BSB 050 075 S06	R2.5 X 5	7.5	50	6
2BSB 060 080 060	R3.0 X 6	8	60	6
2BSB 080 110 060	R4.0 X 8	11	60	8
2BSB 100 130 060	R5.0 X 10	13	60	10
2BSB 120 150 060	R6.0 X 12	15	60	12
3BSB 010 015 S06	R0.5 X 1	1.5	40	6
3BSB 020 030 S06	R1.0 X 2	3	45	6
3BSB 030 045 S06	R1.5 X 3	4.5	45	6
3BSB 040 060 S06	R2.0 X 4	6	45	6
3BSB 050 075 S06	R2.5 X 5	7.5	50	6
3BSB 060 080 060	R3.0 X 6	8	60	6
3BSB 080 110 060	R4.0 X 8	11	60	8
3BSB 100 130 060	R5.0 X 10	13	60	10
3BSB 120 150 060	R6.0 X 12	15	60	12

2 Flutes Square Rib End Mills

Endmills for pre-hardened and hardened steel (HRC52-70)

- Designed for high speed cutting of hardened steels over HRC52.
- Maximize the wear-resistance due to TISIN-S coating.



Size	D Tolerance
Ø0.1~Ø0.5	+0~-0.005
Ø0.6~Ø0.9	+0~-0.01

Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D	L1	L2	L	d
2BRE 001 003 S04	0.1	0.15	0.3	45	4
2BRE 001 005 S04	0.1	0.15	0.5	45	4
2BRE 002 005 S04	0.2	0.3	0.5	45	4
2BRE 002 010 S04	0.2	0.3	1	45	4
2BRE 003 005 S04	0.3	0.45	0.5	45	4
2BRE 003 010 S04	0.3	0.45	1	45	4
2BRE 003 015 S04	0.3	0.45	1.5	45	4
2BRE 003 020 S04	0.3	0.45	2	45	4
2BRE 003 025 S04	0.3	0.45	2.5	45	4
2BRE 003 030 S04	0.3	0.45	3	45	4
2BRE 004 010 S04	0.4	0.6	1	45	4
2BRE 004 015 S04	0.4	0.6	1.5	45	4
2BRE 004 020 S04	0.4	0.6	2	45	4
2BRE 004 025 S04	0.4	0.6	2.5	45	4
2BRE 004 030 S04	0.4	0.6	3	45	4
2BRE 004 035 S04	0.4	0.6	3.5	45	4
2BRE 004 040 S04	0.4	0.6	4	45	4
2BRE 005 010 S04	0.5	0.7	1	45	4
2BRE 005 020 S04	0.5	0.7	2	45	4
2BRE 005 030 S04	0.5	0.7	3	45	4
2BRE 005 040 S04	0.5	0.7	4	45	4
2BRE 005 050 S04	0.5	0.7	5	45	4
2BRE 005 060 S04	0.5	0.7	6	45	4
2BRE 005 080 S04	0.5	0.7	8	45	4
2BRE 006 020 S04	0.6	0.9	2	45	4
2BRE 006 030 S04	0.6	0.9	3	45	4
2BRE 006 040 S04	0.6	0.9	4	45	4

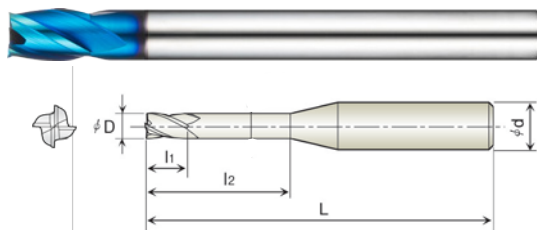
Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D	L1	L2	L	d
2BRE 006 050 S04	0.6	0.9	5	45	4
2BRE 006 060 S04	0.6	0.9	6	45	4
2BRE 006 080 S04	0.6	0.9	8	45	4
2BRE 006 100 S04	0.6	0.9	10	45	4
2BRE 007 020 S04	0.7	1	2	45	4
2BRE 007 040 S04	0.7	1	4	45	4
2BRE 007 060 S04	0.7	1	6	45	4
2BRE 007 080 S04	0.7	1	8	45	4
2BRE 007 100 S04	0.7	1	10	45	4
2BRE 007 120 S04	0.7	1	12	45	4
2BRE 008 020 S04	0.8	1.2	2	45	4
2BRE 008 030 S04	0.8	1.2	3	45	4
2BRE 008 040 S04	0.8	1.2	4	45	4
2BRE 008 050 S04	0.8	1.2	5	45	4
2BRE 008 060 S04	0.8	1.2	6	45	4
2BRE 008 080 S04	0.8	1.2	8	45	4
2BRE 008 100 S04	0.8	1.2	10	45	4
2BRE 008 120 S04	0.8	1.2	12	45	4
2BRE 009 060 S04	0.9	1.3	6	45	4
2BRE 009 080 S04	0.9	1.3	8	45	4
2BRE 009 100 S04	0.9	1.3	10	45	4



4 Flutes Square Rib End Mills

Endmills for pre-hardened and hardened steel (HRC52~70)

- Designed for high speed cutting of hardened steels over HRC52.
- Maximize the wear-resistance due to TiSiN-S coating.



Size	D Tolerance
φ1~φ5	+0~-0.01
φ6~φ12	+0~-0.015

Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D	L1	L2	L	d
4BRE 010 030 S04	1	1.5	3	45	4
4BRE 010 040 S04	1	1.5	4	45	4
4BRE 010 060 S04	1	1.5	6	45	4
4BRE 010 080 S04	1	1.5	8	45	4
4BRE 010 100 S04	1	1.5	10	45	4
4BRE 015 040 S04	1.5	2.3	4	45	4
4BRE 015 060 S04	1.5	2.3	6	45	4
4BRE 015 080 S04	1.5	2.3	8	45	4
4BRE 015 100 S04	1.5	2.3	10	45	4
4BRE 015 120 S04	1.5	2.3	12	45	4
4BRE 015 160 S04	1.5	2.3	16	50	4
4BRE 020 060 S04	2	3	6	45	4
4BRE 020 080 S04	2	3	8	45	4
4BRE 020 100 S04	2	3	10	45	4
4BRE 020 120 S04	2	3	12	45	4
4BRE 020 160 S04	2	3	16	50	4
4BRE 020 200 S04	2	3	20	50	4
4BRE 030 080 S06	3	4.5	8	50	6
4BRE 030 100 S06	3	4.5	10	50	6
4BRE 030 120 S06	3	4.5	12	50	6
4BRE 030 160 S06	3	4.5	16	60	6
4BRE 030 200 S06	3	4.5	20	60	6
4BRE 040 100 S06	4	6	10	50	6
4BRE 040 120 S06	4	6	12	50	6
4BRE 040 160 S06	4	6	16	60	6
4BRE 040 200 S06	4	6	20	60	6
4BRE 040 250 S06	4	6	25	65	6

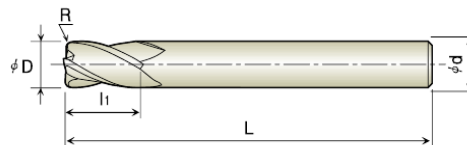
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4&6 Flutes Corner Radius End Mills

Endmills for pre-hardened and hardened steel (HRC52-70)

- Designed for high speed cutting of hardened steels over HRc52.
- Maximize the wear-resistance due to TiSiN-S coating.



Size	D Tolerance
φ1~φ5	+0~-0.01
φ6~φ12	+0~-0.02

Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	RxD	L1	L	d
4BNR 010 001 S04	R0.1 X 1	2.5	45	4
4BNR 010 002 S04	R0.2 X 1	2.5	45	4
4BNR 010 003 S04	R0.3 X 1	2.5	45	4
4BNR 015 001 S04	R0.1 X 1.5	4	45	4
4BNR 015 002 S04	R0.2 X 1.5	4	45	4
4BNR 015 003 S04	R0.3 X 1.5	4	45	4
4BNR 015 005 S04	R0.5 X 1.5	4	45	4
4BNR 020 001 S04	R0.1 X 2	6	45	4
4BNR 020 002 S04	R0.2 X 2	6	45	4
4BNR 020 003 S04	R0.3 X 2	6	45	4
4BNR 020 005 S04	R0.5 X 2	6	45	4
4BNR 025 001 S04	R0.1 X 2.5	6	50	4
4BNR 025 002 S04	R0.2 X 2.5	6	50	4
4BNR 025 003 S04	R0.3 X 2.5	6	50	4
4BNR 025 005 S04	R0.5 X 2.5	6	50	4
4BNR 030 001 S06	R0.1 X 3	8	60	6
4BNR 030 002 S06	R0.2 X 3	8	60	6
4BNR 030 003 S06	R0.3 X 3	8	60	6
4BNR 030 005 S06	R0.5 X 3	8	60	6
4BNR 040 001 S06	R0.1 X 4	10	70	6
4BNR 040 002 S06	R0.2 X 4	10	70	6
4BNR 040 003 S06	R0.3 X 4	10	70	6
4BNR 040 005 S06	R0.5 X 4	10	70	6
4BNR 040 010 S06	R1.0 X 4	10	70	6
4BNR 050 001 S06	R0.1 X 5	13	75	6
4BNR 050 002 S06	R0.2 X 5	13	75	6
4BNR 050 003 S06	R0.3 X 5	13	75	6
4BNR 050 005 S06	R0.5 X 5	13	75	6

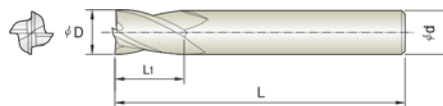
Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	RxD	L1	L	d
4BNR 050 010 S06	R1.0 X 5	13	75	6
4BNR 060 001 090	R0.1 X 6	13	90	6
4BNR 060 002 090	R0.2 X 6	13	90	6
4BNR 060 003 090	R0.3 X 6	13	90	6
4BNR 060 005 090	R0.5 X 6	13	90	6
4BNR 060 010 090	R1.0 X 6	13	90	6
4BNR 080 001 100	R0.1 X 8	19	100	8
4BNR 080 002 100	R0.2 X 8	19	100	8
4BNR 080 003 100	R0.3 X 8	19	100	8
4BNR 080 005 100	R0.5 X 8	19	100	8
4BNR 080 010 100	R1.0 X 8	19	100	8
4BNR 080 020 100	R2.0 X 8	19	100	8
4BNR 100 002 100	R0.2 X 10	22	100	10
4BNR 100 003 100	R0.3 X 10	22	100	10
4BNR 100 005 100	R0.5 X 10	22	100	10
4BNR 100 010 100	R1.0 X 10	22	100	10
4BNR 100 020 100	R2.0 X 10	22	100	10
4BNR 120 002 110	R0.2 X 12	26	110	12
4BNR 120 003 110	R0.3 X 12	26	110	12
4BNR 120 005 110	R0.5 X 12	26	110	12
4BNR 120 010 110	R1.0 X 12	26	110	12
4BNR 120 020 110	R2.0 X 12	26	110	12
6BNR 030 005 S06	R0.5 X 3	8	50	6
6BNR 040 005 S06	R0.5 X 4	10	50	6
6BNR 060 005 S06	R0.5 X 6	13	50	6
6BNR 080 005 065	R0.5 X 8	19	65	8
6BNR 100 005 070	R0.5 X 10	22	70	10
6BNR 120 005 080	R0.5 X 12	26	80	10



4 Flutes Square End Mills

Endmills for pre-hardened and hardened steel (HRC52~70)

- Designed for high speed cutting of hardened steels over HRC52.
- Maximize the wear-resistance due to TiSiN-S coating.



Size	D Tolerance
φ1~φ5	+0~-0.01
φ6~φ12	+0~-0.02

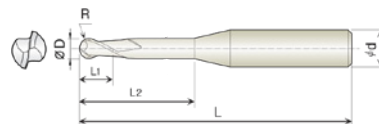
Unit : mm

[illegible]

2 Flutes Rib Ball End Mills

Endmills for pre-hardened and hardened steel (HRC52-60)

- Designed for high speed cutting of hardened steels over HRc52.
- Maximize the wear-resistance due to TiSiN coating.



Size	D Tolerance
D ≥ Ø5	+0~-0.01mm
Ø6~Ø12	+0~-0.015mm

Unit : mm

Order Number	Diameter	Length of cut		Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	L	d
2KRB 001 003 S04	R0.05X0.1	0.1	0.3	45	4	
2KRB 001 005 S04	R0.05X0.1	0.1	0.5	45	4	
2KRB 0015 005 S04	R0.075X0.15	0.15	0.5	45	4	
2KRB 0016 005 S04	R0.08X0.16	0.16	0.5	45	4	
2KRB 002 005 S04	R0.1X0.2	0.2	0.5	45	4	
2KRB 002 005 S06	R0.1X0.2	0.2	0.5	50	6	
2KRB 002 010 S04	R0.1X0.2	0.2	1	45	4	
2KRB 002 015 S04	R0.1X0.2	0.2	1.5	45	4	
2KRB 002 020 S04	R0.1X0.2	0.2	2	45	4	
2KRB 002 025 S04	R0.1X0.2	0.2	2.5	45	4	
2KRB 002 030 S04	R0.1X0.2	0.2	3	45	4	
2KRB 0025 008 S04	R0.125X0.25	0.25	0.8	45	4	
2KRB 003 005 S04	R0.15X0.3	0.3	0.5	45	4	
2KRB 003 010 S04	R0.15X0.3	0.3	1	45	4	
2KRB 003 015 S04	R0.15X0.3	0.3	1.5	45	4	
2KRB 003 020 S04	R0.15X0.3	0.3	2	45	4	
2KRB 003 025 S04	R0.15X0.3	0.3	2.5	45	4	
2KRB 003 030 S04	R0.15X0.3	0.3	3	45	4	
2KRB 003 035 S04	R0.15X0.3	0.3	3.5	45	4	
2KRB 003 040 S04	R0.15X0.3	0.3	4	45	4	
2KRB 003 050 S04	R0.15X0.3	0.3	5	45	4	
2KRB 004 010 S04	R0.2X0.4	0.4	1	45	4	
2KRB 004 010 S06	R0.2X0.4	0.4	1	50	6	
2KRB 004 015 S04	R0.2X0.4	0.4	1.5	45	4	
2KRB 004 020 S04	R0.2X0.4	0.4	2	45	4	
2KRB 004 025 S04	R0.2X0.4	0.4	2.5	45	4	
2KRB 004 030 S04	R0.2X0.4	0.4	3	45	4	
2KRB 004 035 S04	R0.2X0.4	0.4	3.5	45	4	
2KRB 004 040 S04	R0.2X0.4	0.4	4	45	4	
2KRB 004 045 S04	R0.2X0.4	0.4	4.5	45	4	
2KRB 004 050 S04	R0.2X0.4	0.4	5	45	4	
2KRB 004 060 S04	R0.2X0.4	0.4	6	45	4	
2KRB 004 080 S04	R0.2X0.4	0.4	8	45	4	
2KRB 004 100 S04	R0.2X0.4	0.4	10	45	4	
2KRB 005 010 S04	R0.25X0.5	0.5	1	45	4	
2KRB 005 015 S04	R0.25X0.5	0.5	1.5	45	4	
2KRB 005 015 S06	R0.25X0.5	0.5	1.5	50	6	
2KRB 005 020 S04	R0.25X0.5	0.5	2	45	4	
2KRB 005 025 S04	R0.25X0.5	0.5	2.5	45	4	
2KRB 005 030 S04	R0.25X0.5	0.5	3	45	4	
2KRB 005 035 S04	R0.25X0.5	0.5	3.5	45	4	

Order Number	Diameter	Length of cut		Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	L	d
2KRB 005 040 S04	R0.25X0.5	0.5	4	45	4	
2KRB 005 045 S04	R0.25X0.5	0.5	4.5	45	4	
2KRB 005 050 S04	R0.25X0.5	0.5	5	45	4	
2KRB 005 060 S04	R0.25X0.5	0.5	6	45	4	
2KRB 005 080 S04	R0.25X0.5	0.5	8	45	4	
2KRB 005 100 S04	R0.25X0.5	0.5	10	45	4	
2KRB 005 120 S04	R0.25X0.5	0.5	12	45	4	
2KRB 005 140 S04	R0.25X0.5	0.5	14	45	4	
2KRB 006 010 S04	R0.3X0.6	0.6	1	45	4	
2KRB 006 015 S06	R0.3X0.6	0.6	1.5	50	6	
2KRB 006 020 S04	R0.3X0.6	0.6	2	45	4	
2KRB 006 030 S04	R0.3X0.6	0.6	3	45	4	
2KRB 006 040 S04	R0.3X0.6	0.6	4	45	4	
2KRB 006 050 S04	R0.3X0.6	0.6	5	45	4	
2KRB 006 060 S04	R0.3X0.6	0.6	6	45	4	
2KRB 006 080 S04	R0.3X0.6	0.6	8	45	4	
2KRB 006 100 S04	R0.3X0.6	0.6	10	45	4	
2KRB 006 120 S04	R0.3X0.6	0.6	12	45	4	
2KRB 006 140 S04	R0.3X0.6	0.6	14	45	4	
2KRB 006 160 S04	R0.3X0.6	0.6	16	45	4	
2KRB 007 020 S04	R0.35X0.7	0.7	2	45	4	
2KRB 007 040 S04	R0.35X0.7	0.7	4	45	4	
2KRB 007 060 S04	R0.35X0.7	0.7	6	45	4	
2KRB 007 080 S04	R0.35X0.7	0.7	8	45	4	
2KRB 007 100 S04	R0.35X0.7	0.7	10	45	4	
2KRB 007 120 S04	R0.35X0.7	0.7	12	45	4	
2KRB 008 020 S04	R0.4X0.8	0.8	2	45	4	
2KRB 008 020 S06	R0.4X0.8	0.8	2	50	6	
2KRB 008 030 S04	R0.4X0.8	0.8	3	45	4	
2KRB 008 040 S04	R0.4X0.8	0.8	4	45	4	
2KRB 008 050 S04	R0.4X0.8	0.8	5	45	4	
2KRB 008 060 S04	R0.4X0.8	0.8	6	45	4	
2KRB 008 080 S04	R0.4X0.8	0.8	8	45	4	
2KRB 008 100 S04	R0.4X0.8	0.8	10	45	4	
2KRB 008 120 S04	R0.4X0.8	0.8	12	45	4	
2KRB 008 140 S04	R0.4X0.8	0.8	14	45	4	
2KRB 008 160 S04	R0.4X0.8	0.8	16	45	4	
2KRB 009 040 S04	R0.45X0.9	0.9	4	45	4	
2KRB 010 020 S04	R0.5X1	1	2	45	4	
2KRB 010 025 S06	R0.5X1	1	2.5	50	6	
2KRB 010 030 S04	R0.5X1	1	3	45	4	

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
2KRB 010 040 S04	R0.5X1	1	4	45	4
2KRB 010 050 S04	R0.5X1	1	5	45	4
2KRB 010 060 S04	R0.5X1	1	6	45	4
2KRB 010 080 S04	R0.5X1	1	8	45	4
2KRB 010 100 S04	R0.5X1	1	10	45	4
2KRB 010 120 S04	R0.5X1	1	12	45	4
2KRB 010 140 S04	R0.5X1	1	14	50	4
2KRB 010 160 S04	R0.5X1	1	16	50	4
2KRB 010 180 S04	R0.5X1	1	18	50	4
2KRB 010 200 S04	R0.5X1	1	20	50	4
2KRB 010 220 S04	R0.5X1	1	22	60	4
2KRB 010 250 S04	R0.5X1	1	25	60	4
2KRB 010 300 S04	R0.5X1	1	30	70	4
2KRB 012 030 S06	R0.6X1.2	1.2	3	50	6
2KRB 012 040 S04	R0.6X1.2	1.2	4	45	4
2KRB 012 060 S04	R0.6X1.2	1.2	6	45	4
2KRB 012 080 S04	R0.6X1.2	1.2	8	45	4
2KRB 012 100 S04	R0.6X1.2	1.2	10	45	4
2KRB 012 120 S04	R0.6X1.2	1.2	12	45	4
2KRB 012 140 S04	R0.6X1.2	1.2	14	50	4
2KRB 012 160 S04	R0.6X1.2	1.2	16	50	4
2KRB 012 200 S04	R0.6X1.2	1.2	20	50	4
2KRB 012 240 S04	R0.6X1.2	1.2	24	60	4
2KRB 014 060 S04	R0.7X1.4	1.4	6	45	4
2KRB 014 080 S04	R0.7X1.4	1.4	8	45	4
2KRB 014 120 S04	R0.7X1.4	1.4	12	45	4
2KRB 014 160 S04	R0.7X1.4	1.4	16	50	4
2KRB 015 030 S04	R0.75X1.5	1.5	3	45	4
2KRB 015 040 S04	R0.75X1.5	1.5	4	45	4
2KRB 015 040 S06	R0.75X1.5	1.5	4	50	6
2KRB 015 060 S04	R0.75X1.5	1.5	6	45	4
2KRB 015 080 S04	R0.75X1.5	1.5	8	45	4
2KRB 015 100 S04	R0.75X1.5	1.5	10	45	4
2KRB 015 120 S04	R0.75X1.5	1.5	12	45	4
2KRB 015 140 S04	R0.75X1.5	1.5	14	50	4
2KRB 015 160 S04	R0.75X1.5	1.5	16	50	4
2KRB 015 180 S04	R0.75X1.5	1.5	18	50	4
2KRB 015 200 S04	R0.75X1.5	1.5	20	50	4
2KRB 015 220 S04	R0.75X1.5	1.5	22	60	4
2KRB 015 250 S04	R0.75X1.5	1.5	25	60	4
2KRB 015 300 S04	R0.75X1.5	1.5	30	70	4
2KRB 015 350 S04	R0.75X1.5	1.5	35	70	4
2KRB 015 400 S04	R0.75X1.5	1.5	40	80	4
2KRB 016 060 S04	R0.8X1.6	1.6	6	45	4
2KRB 016 080 S04	R0.8X1.6	1.6	8	45	4
2KRB 016 120 S04	R0.8X1.6	1.6	12	45	4
2KRB 016 160 S04	R0.8X1.6	1.6	16	50	4
2KRB 016 200 S04	R0.8X1.6	1.6	20	50	4
2KRB 018 060 S04	R0.9X1.8	1.8	6	45	4
2KRB 018 080 S04	R0.9X1.8	1.8	8	45	4
2KRB 018 120 S04	R0.9X1.8	1.8	12	45	4
2KRB 018 160 S04	R0.9X1.8	1.8	16	50	4

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
2KRB 018 200 S04	R0.9X1.8	1.8	20	50	4
2KRB 020 040 S04	R1.0X2	2	4	45	4
2KRB 020 060 S04	R1.0X2	2	6	45	4
2KRB 020 060 S06	R1.0X2	2	6	50	6
2KRB 020 080 S04	R1.0X2	2	8	45	4
2KRB 020 100 S04	R1.0X2	2	10	45	4
2KRB 020 120 S04	R1.0X2	2	12	45	4
2KRB 020 140 S04	R1.0X2	2	14	50	4
2KRB 020 160 S04	R1.0X2	2	16	50	4
2KRB 020 180 S04	R1.0X2	2	18	50	4
2KRB 020 200 S04	R1.0X2	2	20	50	4
2KRB 020 220 S04	R1.0X2	2	22	60	4
2KRB 020 250 S04	R1.0X2	2	25	60	4
2KRB 020 300 S04	R1.0X2	2	30	70	4
2KRB 020 350 S04	R1.0X2	2	35	70	4
2KRB 020 400 S04	R1.0X2	2	40	80	4
2KRB 020 450 S04	R1.0X2	2	45	80	4
2KRB 020 500 S04	R1.0X2	2	50	90	4
2KRB 025 060 S06	R1.25X2.5	2.5	6	50	6
2KRB 025 080 S04	R1.25X2.5	2.5	8	45	4
2KRB 025 100 S04	R1.25X2.5	2.5	10	45	4
2KRB 025 120 S04	R1.25X2.5	2.5	12	45	4
2KRB 025 160 S04	R1.25X2.5	2.5	16	50	4
2KRB 025 200 S04	R1.25X2.5	2.5	20	50	4
2KRB 025 250 S04	R1.25X2.5	2.5	25	60	4
2KRB 025 300 S04	R1.25X2.5	2.5	30	70	4
2KRB 025 350 S04	R1.25X2.5	2.5	35	70	4
2KRB 025 400 S04	R1.25X2.5	2.5	40	80	4
2KRB 030 060 S03	R1.5X3	3	6	60	3
2KRB 030 060 S06	R1.5X3	3	6	50	6
2KRB 030 080 S06	R1.5X3	3	8	50	6
2KRB 030 100 S06	R1.5X3	3	10	50	6
2KRB 030 120 S06	R1.5X3	3	12	50	6
2KRB 030 140 S06	R1.5X3	3	14	60	6
2KRB 030 160 S06	R1.5X3	3	16	60	6
2KRB 030 180 S06	R1.5X3	3	18	60	6
2KRB 030 200 S06	R1.5X3	3	20	60	6
2KRB 030 250 S06	R1.5X3	3	25	65	6
2KRB 030 300 S06	R1.5X3	3	30	70	6
2KRB 030 350 S06	R1.5X3	3	35	80	6
2KRB 030 400 S06	R1.5X3	3	40	80	6
2KRB 030 450 S06	R1.5X3	3	45	90	6
2KRB 030 500 S06	R1.5X3	3	50	100	6
2KRB 030 600 S06	R1.5X3	3	60	110	6
2KRB 030 650 S06	R1.5X3	3	65	110	6
2KRB 030 700 S06	R1.5X3	3	70	110	6
2KRB 040 080 070	R2.0X4	4	8	70	4
2KRB 040 080 S06	R2.0X4	4	8	50	6
2KRB 040 100 S06	R2.0X4	4	10	50	6
2KRB 040 120 S06	R2.0X4	4	12	50	6
2KRB 040 140 S06	R2.0X4	4	14	60	6
2KRB 040 160 S06	R2.0X4	4	16	60	6

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
2KRB 040 200 S06	R2.0X4	4	20	60	6
2KRB 040 250 S06	R2.0X4	4	25	65	6
2KRB 040 300 S06	R2.0X4	4	30	70	6
2KRB 040 350 S06	R2.0X4	4	35	80	6
2KRB 040 400 S06	R2.0X4	4	40	80	6
2KRB 040 450 S06	R2.0X4	4	45	90	6
2KRB 040 500 S06	R2.0X4	4	50	100	6
2KRB 040 550 S06	R2.0X4	4	55	110	6
2KRB 040 600 S06	R2.0X4	4	60	110	6
2KRB 040 650 S06	R2.0X4	4	65	110	6
2KRB 040 700 S06	R2.0X4	4	70	110	6
2KRB 050 120 S06	R2.5X5	5	12	50	6
2KRB 050 160 S06	R2.5X5	5	16	60	6
2KRB 050 200 S06	R2.5X5	5	20	60	6
2KRB 050 250 S06	R2.5X5	5	25	65	6
2KRB 050 300 S06	R2.5X5	5	30	70	6
2KRB 050 400 S06	R2.5X5	5	40	80	6

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
2KRB 050 450 S06	R2.5X5	5	45	90	6
2KRB 050 500 S06	R2.5X5	5	50	100	6
2KRB 050 600 S06	R2.5X5	5	60	110	6
2KRB 050 650 S06	R2.5X5	5	65	110	6
2KRB 050 700 S06	R2.5X5	5	70	110	6
2KRB 060 150 060	R3.0X6	7	15	60	6
2KRB 060 300 070	R3.0X6	6	30	70	6
2KRB 060 300 090	R3.0X6	6	30	90	6
2KRB 080 200 060	R4.0X8	10	20	60	8
2KRB 080 300 080	R4.0X8	8	30	80	8
2KRB 100 250 070	R5.0X10	12	25	70	10
2KRB 100 350 100	R5.0X10	10	35	100	10
2KRB 120 300 080	R6.0X12	14	30	80	12
2KRB 120 400 110	R6.0X12	12	40	110	12

2KRB/2BRB

RPM : rev./min • Feed : mm/min

Work Material	PREHARDENED STEELS NAK			HARDENED STEELS SKD61, STAVAX			HARDENED STEELS SKD11			COPPER ALLOYS		
Hardness (HRC)	HRC30 ~ 45			HRC45 ~ 55			HRC55 ~ 65					
Radius of Ball Nose	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)
R0.05	0.001 ~ 0.005	38,000 ~ 50,000	50 ~ 80	0.001 ~ 0.005	38,000 ~ 50,000	40 ~ 60	0.001 ~ 0.004	38,000 ~ 50,000	30 ~ 50	0.003 ~ 0.010	38,000 ~ 50,000	50 ~ 100
R0.1	0.001 ~ 0.010	38,000 ~ 50,000	200 ~ 350	0.001 ~ 0.009	38,000 ~ 50,000	200 ~ 280	0.001 ~ 0.005	38,000 ~ 50,000	150 ~ 240	0.010 ~ 0.020	38,000 ~ 50,000	200 ~ 500
R0.15	0.004 ~ 0.018	38,000 ~ 50,000	200 ~ 600	0.003 ~ 0.014	38,000 ~ 50,000	200 ~ 400	0.003 ~ 0.012	38,000 ~ 50,000	150 ~ 350	0.010 ~ 0.025	38,000 ~ 50,000	300 ~ 800
R0.2	0.005 ~ 0.020	30,000 ~ 45,000	250 ~ 800	0.003 ~ 0.014	30,000 ~ 45,000	200 ~ 500	0.003 ~ 0.011	30,000 ~ 45,000	160 ~ 400	0.010 ~ 0.030	30,000 ~ 42,000	300 ~ 1,000
R0.25	0.006 ~ 0.020	25,000 ~ 42,000	300 ~ 700	0.004 ~ 0.014	25,000 ~ 42,000	250 ~ 500	0.003 ~ 0.011	25,000 ~ 42,000	220 ~ 400	0.010 ~ 0.030	30,000 ~ 42,000	500 ~ 1,400
R0.3	0.006 ~ 0.030	22,000 ~ 40,000	300 ~ 1,200	0.006 ~ 0.030	22,000 ~ 40,000	250 ~ 800	0.003 ~ 0.015	20,000 ~ 27,000	210 ~ 380	0.010 ~ 0.100	24,000 ~ 40,000	350 ~ 1,600
R0.4	0.006 ~ 0.100	20,000 ~ 40,000	260 ~ 1,800	0.006 ~ 0.080	20,000 ~ 40,000	240 ~ 1,500	0.006 ~ 0.021	20,000 ~ 40,000	190 ~ 480	0.030 ~ 0.100	20,000 ~ 40,000	450 ~ 2,000
R0.5	0.010 ~ 0.200	20,000 ~ 38,000	500 ~ 2,800	0.010 ~ 0.080	20,000 ~ 38,000	300 ~ 2,400	0.007 ~ 0.025	12,000 ~ 17,000	230 ~ 420	0.050 ~ 0.200	20,000 ~ 40,000	800 ~ 3,000
R0.6	0.050 ~ 0.100	20,000 ~ 30,000	600 ~ 2,500	0.020 ~ 0.060	20,000 ~ 30,000	400 ~ 2,300	0.011 ~ 0.020	13,000 ~ 14,000	260 ~ 450	0.060 ~ 0.100	20,000 ~ 30,000	1,000 ~ 2,500
R0.75	0.050 ~ 0.200	18,000 ~ 30,000	600 ~ 3,100	0.020 ~ 0.180	18,000 ~ 30,000	550 ~ 2,500	0.010 ~ 0.030	8,500 ~ 11,000	200 ~ 400	0.100 ~ 0.300	18,000 ~ 30,000	1,200 ~ 3,000
R1.0	0.050 ~ 0.200	12,000 ~ 25,000	800 ~ 2,400	0.030 ~ 0.120	12,000 ~ 20,000	850 ~ 2,300	0.015 ~ 0.035	7,000 ~ 8,500	280 ~ 400	0.100 ~ 0.400	12,000 ~ 20,000	1,200 ~ 3,000
R1.5	0.050 ~ 0.200	10,000 ~ 20,000	1,100 ~ 3,800	0.030 ~ 0.180	10,000 ~ 20,000	900 ~ 2,900	0.020 ~ 0.050	5,200 ~ 6,000	380 ~ 550	0.200 ~ 0.500	16,000 ~ 20,000	1,800 ~ 4,000
R2.0	0.100 ~ 0.300	10,000 ~ 20,000	1,300 ~ 3,900	0.080 ~ 0.180	10,000 ~ 20,000	1,800 ~ 3,000	0.050 ~ 0.090	4,000 ~ 4,600	380 ~ 590	0.300 ~ 0.500	16,000 ~ 20,000	2,600 ~ 4,000
R2.5	0.100 ~ 0.300	9,000 ~ 20,000	1,500 ~ 3,900	0.050 ~ 0.200	8,000 ~ 18,000	1,300 ~ 3,800	0.030 ~ 0.160	6,000 ~ 16,000	450 ~ 1,000	0.300 ~ 0.500	9,000 ~ 20,000	2,600 ~ 4,000
R3.0	0.100 ~ 0.300	8,000 ~ 18,000	1,800 ~ 3,900	0.050 ~ 0.200	8,000 ~ 18,000	1,500 ~ 3,800	0.030 ~ 0.160	6,000 ~ 16,000	450 ~ 1,000	0.300 ~ 0.500	8,000 ~ 18,000	2,600 ~ 4,000
R4.0	0.150 ~ 0.350	8,000 ~ 12,000	2,000 ~ 4,000	0.100 ~ 0.250	6,000 ~ 10,000	1,800 ~ 3,700	0.080 ~ 0.200	4,000 ~ 8,000	800 ~ 1,500	0.300 ~ 0.500	8,000 ~ 12,000	2,600 ~ 5,000
R5.0	0.200 ~ 0.400	6,000 ~ 11,000	2,000 ~ 4,000	0.100 ~ 0.300	4,000 ~ 9,000	1,800 ~ 3,700	0.080 ~ 0.250	3,000 ~ 8,000	800 ~ 1,500	0.300 ~ 0.500	6,000 ~ 11,000	2,600 ~ 5,000
R6.0	0.300 ~ 0.500	5,000 ~ 10,000	2,000 ~ 4,000	0.200 ~ 0.400	3,000 ~ 8,000	1,800 ~ 3,700	0.150 ~ 0.350	2,000 ~ 6,000	800 ~ 1,500	0.300 ~ 0.500	5,000 ~ 10,000	2,600 ~ 5,000

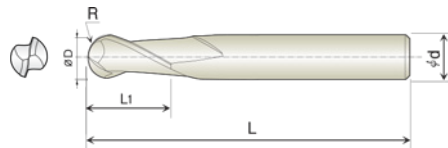
Depth of Cut



2 Flutes Standard Ball End Mills

Endmills for pre-hardened and hardened steel (HRC52-60)

- Designed for high speed cutting of hardened steels over HRC52.
- Maximize the wear-resistance due to TiSiN coating.



Size	D Tolerance
D < Ø5	+0~-0.01
Ø6~Ø20	+0~-0.015

Unit : mm

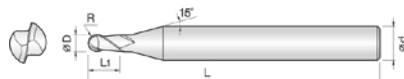
Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	R×D	L1	L	d
2KCB 001 002 S04	R0.05X 0.1	0.2	45	4
2KCB 0015 003 S04	R0.075X 0.15	0.3	45	4
2KCB 002 004 S04	R0.1X 0.2	0.4	45	4
2KCB 003 006 S04	R0.15X 0.3	0.6	45	4
2KCB 004 008 S04	R0.2X 0.4	0.8	45	4
2KCB 004 008 S06	R0.2X 0.4	0.8	45	6
2KCB 005 010 S04	R0.25X 0.5	1	45	4
2KCB 005 010 S06	R0.25X 0.5	1	45	6
2KCB 006 012 S04	R0.3X 0.6	1.2	45	4
2KCB 006 012 S06	R0.3X 0.6	1.2	45	6
2KCB 007 015 S04	R0.35X 0.7	1.5	45	4
2KCB 008 015 S04	R0.4X 0.8	1.5	45	4
2KCB 008 015 S06	R0.4X 0.8	1.5	45	6
2KCB 010 020 S03	R0.5X 1	2	50	3
2KCB 010 020 S04	R0.5X 1	2	50	4
2KCB 010 020 S06	R0.5X 1	2	50	6
2KCB 012 025 S03	R0.6X 1.2	2.5	50	3
2KCB 012 025 S04	R0.6X 1.2	2.5	50	4
2KCB 012 025 S06	R0.6X 1.2	2.5	50	6
2KCB 015 040 S03	R0.75X 1.5	4	50	3
2KCB 015 040 S04	R0.75X 1.5	4	50	4
2KCB 015 040 S06	R0.75X 1.5	4	50	6
2KCB 015 040 070	R0.75X 1.5	4	70	6
2KCB 015 040 100	R0.75X 1.5	4	100	6
2KCB 020 050 S03	R1.0X 2	5	50	3
2KCB 020 050 S04	R1.0X 2	5	50	4
2KCB 020 050 S06	R1.0X 2	5	60	6
2KCB 020 050 080	R1.0X 2	5	80	6
2KCB 020 050 100	R1.0X 2	5	100	6
2KCB 025 060 S03	R1.25X 2.5	6	50	3
2KCB 025 060 S04	R1.25X 2.5	6	50	4
2KCB 025 060 S06	R1.25X 2.5	6	60	6
2KCB 025 060 080	R1.25X 2.5	6	80	6
2KCB 025 060 100	R1.25X 2.5	6	100	6
2KCB 030 080 S03	R1.5X 3	8	60	3
2KCB 030 080 S04	R1.5X 3	8	60	4
2KCB 030 080 S06	R1.5X 3	8	60	6
2KCB 030 080 080	R1.5X 3	8	80	6

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	R×D	L1	L	d
2KCB 030 080 100	R1.5X 3	8	100	6
2KCB 035 080 S06	R1.75X 3.5	8	60	6
2KCB 040 080 060	R2.0X 4	8	60	4
2KCB 040 080 080	R2.0X 4	8	80	4
2KCB 040 080 S06	R2.0X 4	8	70	6
2KCB 040 080 090	R2.0X 4	8	90	6
2KCB 040 080 120	R2.0X 4	8	120	6
2KCB 045 100 S06	R2.25X 4.5	10	70	6
2KCB 050 100 S06	R2.5X 5	10	80	6
2KCB 055 120 S06	R2.75X 5.5	12	80	6
2KCB 060 120 075	R3.0X 6	12	75	6
2KCB 060 120 080	R3.0X 6	12	80	6
2KCB 060 120 090	R3.0X 6	12	90	6
2KCB 060 120 120	R3.0X 6	12	120	6
2KCB 060 120 150	R3.0X 6	12	150	6
2KCB 070 140 S08	R3.5X 7	14	100	8
2KCB 080 140 075	R4.0X 8	14	75	8
2KCB 080 140 100	R4.0X 8	14	100	8
2KCB 080 140 130	R4.0X 8	14	130	8
2KCB 080 140 150	R4.0X 8	14	150	8
2KCB 090 180 S10	R4.5X 9	18	100	10
2KCB 100 180 075	R5.0X 10	18	75	10
2KCB 100 180 100	R5.0X 10	18	100	10
2KCB 100 180 130	R5.0X 10	18	130	10
2KCB 100 180 150	R5.0X 10	18	150	10
2KCB 100 180 180	R5.0X 10	18	180	10
2KCB 110 220 S12	R5.5X 11	22	110	12
2KCB 120 220 110	R6.0X 12	22	110	12
2KCB 120 220 130	R6.0X 12	22	130	12
2KCB 120 220 150	R6.0X 12	22	150	12
2KCB 120 220 200	R6.0X 12	22	200	12
2KCB 130 240 S14	R6.5X 13	24	110	14
2KCB 140 240 110	R7.0X 14	24	110	14
2KCB 160 300 110	R8.0X 16	30	110	16
2KCB 160 300 150	R8.0X 16	30	150	16
2KCB 200 380 110	R10.0X 20	38	110	20
2KCB 200 380 150	R10.0X 20	38	150	20

2 Flutes Short Ball End Mills

Endmills for pre-hardened and hardened steel (HRC52-60)

- Designed for high speed cutting of hardened steels over HRC52.
- Maximize the wear-resistance due to TiSiN coating.



Size	D Tolerance
$D \leq \phi 5$	+0~-0.010mm
$D \geq \phi 6$	+0~-0.015mm

Unit : mm

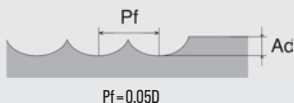
Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	R×D	L1	L	d
2KSB 001 001 S04	R0.05X 0.1	0.1	40	4
2KSB 002 002 S04	R0.1X 0.2	0.2	40	4
2KSB 002 003 S04	R0.1X 0.2	0.3	40	4
2KSB 003 003 S04	R0.15X 0.3	0.3	40	4
2KSB 004 004 S04	R0.2X 0.4	0.4	40	4
2KSB 004 006 S04	R0.2X 0.4	0.6	40	4
2KSB 005 005 S04	R0.25X 0.5	0.5	40	4
2KSB 006 006 S04	R0.3X 0.6	0.6	40	4
2KSB 007 007 S04	R0.35X 0.7	0.7	40	4
2KSB 008 008 S04	R0.4X 0.8	0.8	40	4
2KSB 009 009 S04	R0.45X 0.9	0.9	40	4
2KSB 010 010 S04	R0.5X 1	1	40	4
2KSB 010 010 S06	R0.5X 1	1	40	6
2KSB 010 015 S04	R0.5X 1	1.5	40	4
2KSB 010 015 S06	R0.5X 1	1.5	40	6
2KSB 015 015 S04	R0.75X 1.5	1.5	40	4
2KSB 015 015 S06	R0.75X 1.5	1.5	40	6
2KSB 015 023 S04	R0.75X 1.5	2.3	40	4
2KSB 015 023 S06	R0.75X 1.5	2.3	40	6
2KSB 020 020 S04	R1.0X 2	2	45	4
2KSB 020 020 S06	R1.0X 2	2	45	6
2KSB 020 030 S04	R1.0X 2	3	45	4
2KSB 020 030 S06	R1.0X 2	3	45	6
2KSB 030 030 S04	R1.5X 3	3	45	4
2KSB 030 030 S06	R1.5X 3	3	45	6
2KSB 030 045 S04	R1.5X 3	4.5	45	4
2KSB 030 045 S06	R1.5X 3	4.5	45	6
2KSB 040 040 S04	R2.0X 4	4	45	4
2KSB 040 040 S06	R2.0X 4	4	45	6
2KSB 040 060 S04	R2.0X 4	6	45	4
2KSB 040 060 S06	R2.0X 4	6	45	6
2KSB 050 050 S06	R2.5X 5	5	50	6
2KSB 050 075 S06	R2.5X 5	7.5	50	6
2KSB 060 060 S06	R3.0X 6	6	50	6
2KSB 060 080 S06	R3.0X 6	8	60	6
2KSB 080 080 S06	R4.0X 8	8	50	8
2KSB 080 110 S06	R4.0X 8	11	60	8
2KSB 100 100 S06	R5.0X 10	10	60	10
2KSB 100 130 S06	R5.0X 10	13	60	10
2KSB 120 120 S06	R6.0X 12	12	60	12
2KSB 120 150 S06	R6.0X 12	15	60	12

2KCB, 2KSB, 2BCB, 2&3BSB

• RPM : rev./min • Feed : mm/min

Work Material	PREHARDENED STEELS NAK			HARDENED STEELS SKD61, STAVAX			HARDENED STEELS SKD11		
Hardness (HRC)	HRC30 ~ 45			HRC45 ~ 55			HRC55 ~ 65		
Radius of Ball Nose	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)
R0.05	0.003	50,000	170	0.002	42,000	150	0.001	40,000	100
R0.1	0.004	50,000	200	0.003	42,000	180	0.002	40,000	120
R0.15	0.005	45,000	320	0.004	42,000	300	0.003	40,000	180
R0.2	0.006	45,000	420	0.005	42,000	400	0.004	40,000	240
R0.25	0.007	45,000	530	0.006	42,000	500	0.005	40,000	300
R0.3	0.008	42,000	1,000	0.007	40,000	1,200	0.006	40,000	800
R0.4	0.100	42,000	1,400	0.009	40,000	1,600	0.008	40,000	1,000
R0.5	0.10	40,000	2,600	0.10	30,000	2,000	0.10	25,000	1,300
R0.75	0.15	30,000	3,000	0.10	30,000	2,500	0.10	25,000	1,800
R1.0	0.20	25,000	3,000	0.20	25,000	2,500	0.15	20,000	1,800
R1.25	0.20	25,000	3,000	0.20	20,000	2,500	0.15	16,000	1,800
R1.5	0.20	20,000	3,000	0.20	18,000	2,500	0.15	14,000	2,000
R2.0	0.25	20,000	3,000	0.20	16,000	2,500	0.15	12,000	2,000
R2.5	0.25	18,000	3,000	0.20	14,000	2,500	0.15	9,000	2,000
R3.0	0.30	18,000	3,300	0.25	16,000	2,800	0.15	8,000	2,000
R4.0	0.40	16,000	3,300	0.30	12,000	2,800	0.20	7,000	1,500
R5.0	0.50	13,000	3,400	0.40	10,000	2,600	0.30	5,000	1,300
R6.0	0.60	7,000	2,000	0.50	6,000	1,800	0.40	4,000	1,100
R6.5	0.60	7,000	2,000	0.50	6,000	1,800	0.40	4,000	1,100
R7.0	0.70	5,000	1,800	0.60	4,000	1,300	0.45	3,000	800
R8.0	0.70	4,000	1,500	0.60	3,500	1,000	0.45	2,500	800
R10.0	0.80	2,500	1,200	0.70	2,000	1,000	0.50	1,800	800

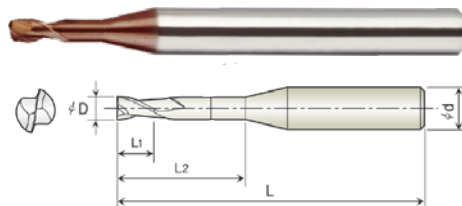
Depth of Cut



2 Flutes Square Rib End Mills

Endmills for pre-hardened and hardened steel (HRC52-60)

- Designed for high speed cutting of hardened steels over HRc52.
- Maximize the wear-resistance due to TiSiN coating.



Size	D Tolerance
D<Φ6	+0~-0.01
D≥Φ6	+0~-0.015

Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D	L1	L2	L	d
2KRE 001 003 S04	0.1	0.15	0.3	45	4
2KRE 001 005 S04	0.1	0.15	0.5	45	4
2KRE 002 005 S04	0.2	0.3	0.5	45	4
2KRE 002 010 S04	0.2	0.3	1	45	4
2KRE 002 015 S04	0.2	0.3	1.5	45	4
2KRE 002 020 S04	0.2	0.3	2	45	4
2KRE 002 025 S04	0.2	0.3	2.5	45	4
2KRE 002 030 S04	0.2	0.3	3	45	4
2KRE 003 005 S04	0.3	0.45	0.5	45	4
2KRE 003 010 S04	0.3	0.45	1	45	4
2KRE 003 015 S04	0.3	0.45	1.5	45	4
2KRE 003 020 S04	0.3	0.45	2	45	4
2KRE 003 025 S04	0.3	0.45	2.5	45	4
2KRE 003 030 S04	0.3	0.45	3	45	4
2KRE 003 035 S04	0.3	0.45	3.5	45	4
2KRE 003 040 S04	0.3	0.45	4	45	4
2KRE 003 050 S04	0.3	0.45	5	45	4
2KRE 004 010 S04	0.4	0.6	1	45	4
2KRE 004 015 S04	0.4	0.6	1.5	45	4
2KRE 004 020 S04	0.4	0.6	2	45	4
2KRE 004 025 S04	0.4	0.6	2.5	45	4
2KRE 004 030 S04	0.4	0.6	3	45	4
2KRE 004 035 S04	0.4	0.6	3.5	45	4
2KRE 004 040 S04	0.4	0.6	4	45	4
2KRE 004 050 S04	0.4	0.6	5	45	4
2KRE 004 060 S04	0.4	0.6	6	45	4
2KRE 004 080 S04	0.4	0.6	8	45	4
2KRE 004 100 S04	0.4	0.6	10	45	4
2KRE 005 010 S04	0.5	0.7	1	45	4
2KRE 005 020 S04	0.5	0.7	2	45	4
2KRE 005 030 S04	0.5	0.7	3	45	4
2KRE 005 040 S04	0.5	0.7	4	45	4
2KRE 005 050 S04	0.5	0.7	5	45	4
2KRE 005 060 S04	0.5	0.7	6	45	4
2KRE 005 080 S04	0.5	0.7	8	45	4
2KRE 005 100 S04	0.5	0.7	10	45	4
2KRE 005 120 S04	0.5	0.7	12	45	4
2KRE 005 140 S04	0.5	0.7	14	45	4
2KRE 006 020 S04	0.6	0.9	2	45	4
2KRE 006 030 S04	0.6	0.9	3	45	4
2KRE 006 040 S04	0.6	0.9	4	45	4

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D	L1	L2	L	d
2KRE 006 050 S04	0.6	0.9	5	45	4
2KRE 006 060 S04	0.6	0.9	6	45	4
2KRE 006 080 S04	0.6	0.9	8	45	4
2KRE 006 100 S04	0.6	0.9	10	45	4
2KRE 006 120 S04	0.6	0.9	12	45	4
2KRE 006 140 S04	0.6	0.9	14	45	4
2KRE 006 160 S04	0.6	0.9	16	45	4
2KRE 007 020 S04	0.7	1	2	45	4
2KRE 007 040 S04	0.7	1	4	45	4
2KRE 007 060 S04	0.7	1	6	45	4
2KRE 007 080 S04	0.7	1	8	45	4
2KRE 007 100 S04	0.7	1	10	45	4
2KRE 007 120 S04	0.7	1	12	45	4
2KRE 008 020 S04	0.8	1.2	2	45	4
2KRE 008 030 S04	0.8	1.2	3	45	4
2KRE 008 040 S04	0.8	1.2	4	45	4
2KRE 008 050 S04	0.8	1.2	5	45	4
2KRE 008 060 S04	0.8	1.2	6	45	4
2KRE 008 080 S04	0.8	1.2	8	45	4
2KRE 008 100 S04	0.8	1.2	10	45	4
2KRE 008 120 S04	0.8	1.2	12	45	4
2KRE 008 140 S04	0.8	1.2	14	45	4
2KRE 009 060 S04	0.9	1.3	6	45	4
2KRE 009 080 S04	0.9	1.3	8	45	4
2KRE 009 100 S04	0.9	1.3	10	45	4
2KRE 010 020 S04	1	1.5	2	45	4
2KRE 010 030 S04	1	1.5	3	45	4
2KRE 010 040 S04	1	1.5	4	45	4
2KRE 010 050 S04	1	1.5	5	45	4
2KRE 010 060 S04	1	1.5	6	45	4
2KRE 010 080 S04	1	1.5	8	45	4
2KRE 010 100 S04	1	1.5	10	45	4
2KRE 010 120 S04	1	1.5	12	45	4
2KRE 010 140 S04	1	1.5	14	50	4
2KRE 010 160 S04	1	1.5	16	50	4
2KRE 010 180 S04	1	1.5	18	50	4
2KRE 010 200 S04	1	1.5	20	50	4
2KRE 010 250 S04	1	1.5	25	60	4
2KRE 010 300 S04	1	1.5	30	70	4
2KRE 012 040 S04	1.2	1.8	4	45	4
2KRE 012 060 S04	1.2	1.8	6	45	4

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D	L1	L2	L	d
2KRE 012 080 S04	1.2	1.8	8	45	4
2KRE 012 100 S04	1.2	1.8	10	45	4
2KRE 012 120 S04	1.2	1.8	12	45	4
2KRE 012 160 S04	1.2	1.8	16	50	4
2KRE 012 200 S04	1.2	1.8	20	50	4
2KRE 012 250 S04	1.2	1.8	25	60	4
2KRE 012 300 S04	1.2	1.8	30	70	4
2KRE 014 060 S04	1.4	2.1	6	45	4
2KRE 014 080 S04	1.4	2.1	8	45	4
2KRE 014 100 S04	1.4	2.1	10	45	4
2KRE 014 120 S04	1.4	2.1	12	45	4
2KRE 014 140 S04	1.4	2.1	14	50	4
2KRE 014 160 S04	1.4	2.1	16	50	4
2KRE 014 200 S04	1.4	2.1	20	50	4
2KRE 015 040 S04	1.5	2.3	4	45	4
2KRE 015 060 S04	1.5	2.3	6	45	4
2KRE 015 080 S04	1.5	2.3	8	45	4
2KRE 015 100 S04	1.5	2.3	10	45	4
2KRE 015 120 S04	1.5	2.3	12	45	4
2KRE 015 140 S04	1.5	2.3	14	50	4
2KRE 015 160 S04	1.5	2.3	16	50	4
2KRE 015 180 S04	1.5	2.3	18	50	4
2KRE 015 200 S04	1.5	2.3	20	50	4
2KRE 015 250 S04	1.5	2.3	25	60	4
2KRE 015 300 S04	1.5	2.3	30	70	4
2KRE 016 100 S04	1.6	2.4	10	45	4
2KRE 016 120 S04	1.6	2.4	12	45	4
2KRE 016 140 S04	1.6	2.4	14	50	4
2KRE 016 180 S04	1.6	2.4	18	50	4
2KRE 018 100 S04	1.8	2.7	10	45	4
2KRE 018 140 S04	1.8	2.7	14	50	4
2KRE 018 180 S04	1.8	2.7	18	50	4
2KRE 020 040 S04	2	3	4	45	4
2KRE 020 060 S04	2	3	6	45	4
2KRE 020 080 S04	2	3	8	45	4
2KRE 020 100 S04	2	3	10	45	4
2KRE 020 120 S04	2	3	12	45	4
2KRE 020 140 S04	2	3	14	50	4
2KRE 020 160 S04	2	3	16	50	4
2KRE 020 180 S04	2	3	18	50	4
2KRE 020 200 S04	2	3	20	50	4
2KRE 020 220 S04	2	3	22	60	4
2KRE 020 250 S04	2	3	25	60	4
2KRE 020 300 S04	2	3	30	70	4
2KRE 020 350 S04	2	3	35	70	4
2KRE 020 400 S04	2	3	40	80	4
2KRE 020 450 S04	2	3	45	80	4
2KRE 020 500 S04	2	3	50	90	4
2KRE 025 080 S04	2.5	3.8	8	45	4
2KRE 025 100 S04	2.5	3.8	10	45	4
2KRE 025 120 S04	2.5	3.8	12	45	4
2KRE 025 160 S04	2.5	3.8	16	50	4
2KRE 025 200 S04	2.5	3.8	20	50	4
2KRE 025 250 S04	2.5	3.8	25	60	4

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D	L1	L2	L	d
2KRE 025 300 S04	2.5	3.8	30	70	4
2KRE 025 350 S04	2.5	3.8	35	70	4
2KRE 025 400 S04	2.5	3.8	40	80	4
2KRE 025 500 S04	2.5	3.8	50	90	4
2KRE 030 080 S06	3	4.5	8	50	6
2KRE 030 100 S06	3	4.5	10	50	6
2KRE 030 120 S06	3	4.5	12	50	6
2KRE 030 140 S06	3	4.5	14	60	6
2KRE 030 160 S06	3	4.5	16	60	6
2KRE 030 180 S06	3	4.5	18	60	6
2KRE 030 200 S06	3	4.5	20	60	6
2KRE 030 250 S06	3	4.5	25	65	6
2KRE 030 300 S06	3	4.5	30	70	6
2KRE 030 350 S06	3	4.5	35	80	6
2KRE 030 400 S06	3	4.5	40	80	6
2KRE 030 450 S06	3	4.5	45	90	6
2KRE 030 500 S06	3	4.5	50	100	6
2KRE 030 600 S06	3	4.5	60	110	6
2KRE 040 080 S06	4	6	8	50	6
2KRE 040 100 S06	4	6	10	50	6
2KRE 040 120 S06	4	6	12	50	6
2KRE 040 160 S06	4	6	16	60	6
2KRE 040 200 S06	4	6	20	60	6
2KRE 040 250 S06	4	6	25	65	6
2KRE 040 300 S06	4	6	30	70	6
2KRE 040 350 S06	4	6	35	80	6
2KRE 040 400 S06	4	6	40	80	6
2KRE 040 450 S06	4	6	45	90	6
2KRE 040 500 S06	4	6	50	100	6
2KRE 040 550 S06	4	6	55	110	6
2KRE 040 600 S06	4	6	60	110	6
2KRE 050 160 S06	5	8	16	60	6
2KRE 050 200 S06	5	8	20	60	6
2KRE 050 250 S06	5	8	25	65	6
2KRE 050 300 S06	5	8	30	70	6
2KRE 050 350 S06	5	8	35	80	6
2KRE 050 400 S06	5	8	40	80	6
2KRE 050 500 S06	5	8	50	100	6
2KRE 050 600 S06	5	8	60	110	6
2KRE 060 200 060	6	9	20	60	6
2KRE 060 300 070	6	9	30	70	6
2KRE 060 400 090	6	9	40	90	6
2KRE 060 500 100	6	9	50	100	6
2KRE 060 600 110	6	9	60	110	6
2KRE 080 200 065	8	12	20	65	8
2KRE 080 300 080	8	12	30	80	8
2KRE 080 400 100	8	12	40	100	8
2KRE 100 250 070	10	15	25	70	10
2KRE 100 350 100	10	15	35	100	10
2KRE 100 450 100	10	15	45	100	10
2KRE 120 300 080	12	18	30	80	12
2KRE 120 400 110	12	18	40	110	12
2KRE 120 500 110	12	18	50	110	12

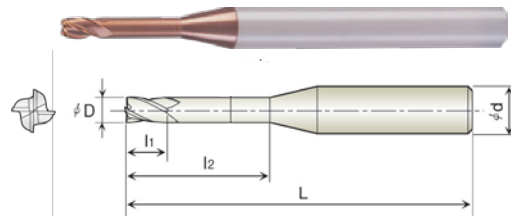
Depth of Cut



4 Flutes Square Rib End Mills

Endmills for pre-hardened and hardened steel (HRC52-60)

- Designed for high speed cutting of hardened steels over HRc52.
- Maximize the wear-resistance due to TiSiN coating.



Size	D Tolerance
$D < \Phi 6$	$+0 \sim -0.01$
$D \geq \Phi 6$	$+0 \sim -0.015$

Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D	L1	L2	L	d
4KRE 008 020 S04	0.8	1.2	2	45	4
4KRE 008 040 S04	0.8	1.2	4	45	4
4KRE 008 060 S04	0.8	1.2	6	45	4
4KRE 008 080 S04	0.8	1.2	8	45	4
4KRE 008 100 S04	0.8	1.2	10	45	4
4KRE 008 120 S04	0.8	1.2	12	45	4
4KRE 008 160 S04	0.8	1.2	16	45	4
4KRE 009 020 S04	0.9	1.4	2	45	4
4KRE 009 060 S04	0.9	1.4	6	45	4
4KRE 009 080 S04	0.9	1.4	8	45	4
4KRE 009 100 S04	0.9	1.4	10	45	4
4KRE 010 020 S04	1	1.5	2	45	4
4KRE 010 030 S04	1	1.5	3	45	4
4KRE 010 040 S04	1	1.5	4	45	4
4KRE 010 060 S04	1	1.5	6	45	4
4KRE 010 080 S04	1	1.5	8	45	4
4KRE 010 100 S04	1	1.5	10	45	4
4KRE 010 120 S04	1	1.5	12	45	4
4KRE 010 140 S04	1	1.5	14	50	4
4KRE 010 160 S04	1	1.5	16	50	4
4KRE 010 200 S04	1	1.5	20	50	4
4KRE 010 250 S04	1	1.5	25	60	4
4KRE 012 040 S04	1.2	1.8	4	45	4
4KRE 012 060 S04	1.2	1.8	6	45	4
4KRE 012 080 S04	1.2	1.8	8	45	4
4KRE 012 100 S04	1.2	1.8	10	45	4
4KRE 012 120 S04	1.2	1.8	12	45	4
4KRE 012 160 S04	1.2	1.8	16	50	4
4KRE 015 040 S04	1.5	2.3	4	45	4
4KRE 015 060 S04	1.5	2.3	6	45	4
4KRE 015 080 S04	1.5	2.3	8	45	4
4KRE 015 100 S04	1.5	2.3	10	45	4
4KRE 015 120 S04	1.5	2.3	12	45	4

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D	L1	L2	L	d
4KRE 015 160 S04	1.5	2.3	16	50	4
4KRE 015 200 S04	1.5	2.3	20	50	4
4KRE 015 250 S04	1.5	2.3	25	60	4
4KRE 020 040 S04	2	3	4	45	4
4KRE 020 060 S04	2	3	6	45	4
4KRE 020 080 S04	2	3	8	45	4
4KRE 020 100 S04	2	3	10	45	4
4KRE 020 120 S04	2	3	12	45	4
4KRE 020 140 S04	2	3	14	50	4
4KRE 020 160 S04	2	3	16	50	4
4KRE 020 180 S04	2	3	18	50	4
4KRE 020 200 S04	2	3	20	50	4
4KRE 020 250 S04	2	3	25	60	4
4KRE 020 300 S04	2	3	30	70	4
4KRE 025 100 S04	2.5	3.8	10	45	4
4KRE 025 120 S04	2.5	3.8	12	45	4
4KRE 025 160 S04	2.5	3.8	16	50	4
4KRE 025 200 S04	2.5	3.8	20	50	4
4KRE 025 250 S04	2.5	3.8	25	60	4
4KRE 025 300 S04	2.5	3.8	30	70	4
4KRE 030 060 S06	3	4.5	6	45	6
4KRE 030 080 S06	3	4.5	8	50	6
4KRE 030 100 S06	3	4.5	10	50	6
4KRE 030 120 S06	3	4.5	12	50	6
4KRE 030 160 S06	3	4.5	16	60	6
4KRE 030 200 S06	3	4.5	20	60	6
4KRE 030 250 S06	3	4.5	25	65	6
4KRE 030 300 S06	3	4.5	30	70	6
4KRE 030 350 S06	3	4.5	35	80	6
4KRE 030 400 S06	3	4.5	40	80	6
4KRE 040 080 S06	4	6	8	50	6
4KRE 040 100 S06	4	6	10	50	6
4KRE 040 120 S06	4	6	12	50	6

Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D	L1	L2	L	d
4KRE 040 160 S06	4	6	16	60	6
4KRE 040 200 S06	4	6	20	60	6
4KRE 040 250 S06	4	6	25	65	6
4KRE 040 300 S06	4	6	30	70	6
4KRE 040 400 S06	4	6	40	80	6
4KRE 040 450 S06	4	6	45	90	6
4KRE 040 500 S06	4	6	50	100	6
4KRE 050 160 S06	5	8	16	60	6
4KRE 050 200 S06	5	8	20	60	6
4KRE 050 250 S06	5	8	25	65	6
4KRE 050 300 S06	5	8	30	70	6
4KRE 050 400 S06	5	8	40	80	6
4KRE 050 500 S06	5	8	50	100	6

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D	L1	L2	L	d
4KRE 060 200 060	6	9	20	60	6
4KRE 060 300 070	6	9	30	70	6
4KRE 060 400 090	6	9	40	90	6
4KRE 060 500 100	6	9	50	100	6
4KRE 080 200 065	8	12	20	65	8
4KRE 080 300 080	8	12	30	80	8
4KRE 080 400 100	8	12	40	100	8
4KRE 100 250 070	10	15	25	70	10
4KRE 100 350 100	10	15	35	100	10
4KRE 100 450 100	10	15	45	100	10
4KRE 120 300 080	12	18	30	80	12
4KRE 120 400 110	12	18	40	110	12
4KRE 120 500 110	12	18	50	110	12

4KRE/4BRE

• RPM : rev/min • Feed : mm/min

Work Material	PREHARDENED STEELS NAK			HARDENED STEELS SKD61, STAVAX			HARDENED STEELS SKD11		
Hardness (HRC)	HRC30 ~ 45			HRC45 ~ 55			HRC55 ~ 65		
Outside Diameter	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)
0.8	0.005 ~ 0.040	15,000 ~ 28,000	250 ~ 900	0.005 ~ 0.025	12,000 ~ 25,000	250 ~ 900	0.002 ~ 0.040	10,000 ~ 20,000	100 ~ 650
1	0.010 ~ 0.050	12,000 ~ 25,000	400 ~ 2,000	0.003 ~ 0.030	10,000 ~ 20,000	300 ~ 1,800	0.002 ~ 0.040	8,000 ~ 18,000	200 ~ 1,200
1.2	0.010 ~ 0.050	10,000 ~ 25,000	500 ~ 2,000	0.007 ~ 0.050	9,000 ~ 20,000	300 ~ 1,600	0.003 ~ 0.040	7,000 ~ 18,000	200 ~ 1,200
1.5	0.020 ~ 0.060	9,000 ~ 23,000	700 ~ 2,000	0.010 ~ 0.030	8,000 ~ 20,000	400 ~ 1,600	0.005 ~ 0.040	7,000 ~ 18,000	200 ~ 1,200
2	0.030 ~ 0.080	7,000 ~ 20,000	800 ~ 2,000	0.015 ~ 0.050	6,000 ~ 18,000	400 ~ 1,600	0.010 ~ 0.050	5,000 ~ 15,000	200 ~ 1,200
3	0.050 ~ 0.100	5,000 ~ 16,000	800 ~ 2,000	0.020 ~ 0.060	5,000 ~ 15,000	400 ~ 1,600	0.015 ~ 0.070	4,000 ~ 10,000	200 ~ 1,200
4	0.050 ~ 0.150	4,500 ~ 14,000	800 ~ 2,000	0.025 ~ 0.080	4,000 ~ 10,000	400 ~ 2,000	0.025 ~ 0.070	3,000 ~ 8,000	200 ~ 1,200
5	0.050 ~ 0.120	3,500 ~ 12,000	600 ~ 1,500	0.040 ~ 0.100	3,000 ~ 8,000	400 ~ 1,000	0.030 ~ 0.080	2,500 ~ 6,000	250 ~ 800
6	0.050 ~ 0.120	3,500 ~ 12,000	600 ~ 1,500	0.040 ~ 0.120	3,000 ~ 8,000	400 ~ 1,000	0.030 ~ 0.080	2,500 ~ 6,000	250 ~ 800
8	0.060 ~ 0.150	4,500 ~ 10,000	450 ~ 1,000	0.050 ~ 0.120	2,500 ~ 7,000	350 ~ 900	0.040 ~ 0.100	2,000 ~ 5,000	300 ~ 700
10	0.080 ~ 0.150	4,000 ~ 8,000	500 ~ 1,000	0.060 ~ 0.120	2,000 ~ 5,000	300 ~ 800	0.040 ~ 0.100	2,000 ~ 4,500	300 ~ 700
12	0.080 ~ 0.200	3,500 ~ 7,000	500 ~ 1,000	0.070 ~ 0.180	2,000 ~ 4,000	300 ~ 800	0.050 ~ 0.120	1,500 ~ 4,000	300 ~ 650

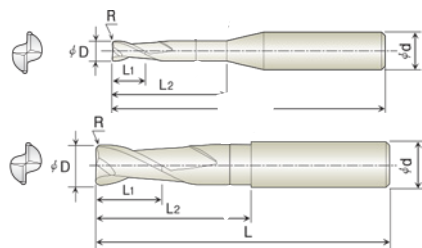
Depth of Cut



2 Flutes Rib Corner Radius End Mills

Endmills for pre-hardened and hardened steel (HRC52-60)

- Designed for high speed cutting of hardened steels over HRc52.
- Maximize the wear-resistance due to TiSiN coating.



Size	D Tolerance
D < Ø6	+0~-0.010mm
D ≥ Ø6	+0~-0.015mm

Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
2KCR 002 0002 005	R0.02 X 0.2	0.3	0.5	45	4
2KCR 002 0002 010	R0.02 X 0.2	0.3	1	45	4
2KCR 002 0002 015	R0.02 X 0.2	0.3	1.5	45	4
2KCR 002 0005 010	R0.05 X 0.2	0.3	1	45	4
2KCR 002 0005 015	R0.05 X 0.2	0.3	1.5	45	4
2KCR 003 0005 010	R0.05 X 0.3	0.45	1	45	4
2KCR 003 0005 020	R0.05 X 0.3	0.45	2	45	4
2KCR 003 0005 030	R0.05 X 0.3	0.45	3	45	4
2KCR 004 0005 010	R0.05 X 0.4	0.6	1	45	4
2KCR 004 0005 020	R0.05 X 0.4	0.6	2	45	4
2KCR 004 0005 030	R0.05 X 0.4	0.6	3	45	4
2KCR 004 0005 040	R0.05 X 0.4	0.6	4	45	4
2KCR 004 001 010	R0.1 X 0.4	0.6	1	45	4
2KCR 004 001 015	R0.1 X 0.4	0.6	1.5	45	4
2KCR 004 001 020	R0.1 X 0.4	0.6	2	45	4
2KCR 004 001 030	R0.1 X 0.4	0.6	3	45	4
2KCR 004 001 040	R0.1 X 0.4	0.6	4	45	4
2KCR 005 0002 010	R0.02 X 0.5	0.7	1	45	4
2KCR 005 0002 015	R0.02 X 0.5	0.7	1.5	45	4
2KCR 005 0002 020	R0.02 X 0.5	0.7	2	45	4
2KCR 005 0002 025	R0.02 X 0.5	0.7	2.5	45	4
2KCR 005 0002 030	R0.02 X 0.5	0.7	3	45	4
2KCR 005 0002 040	R0.02 X 0.5	0.7	4	45	4
2KCR 005 0002 050	R0.02 X 0.5	0.7	5	45	4
2KCR 005 0002 060	R0.02 X 0.5	0.7	6	45	4
2KCR 005 0002 080	R0.02 X 0.5	0.7	8	45	4
2KCR 005 0002 100	R0.02 X 0.5	0.7	10	45	4
2KCR 005 0005 010	R0.05 X 0.5	0.7	1	45	4
2KCR 005 0005 015	R0.05 X 0.5	0.7	1.5	45	4
2KCR 005 0005 020	R0.05 X 0.5	0.7	2	45	4
2KCR 005 0005 025	R0.05 X 0.5	0.7	2.5	45	4
2KCR 005 0005 030	R0.05 X 0.5	0.7	3	45	4
2KCR 005 0005 040	R0.05 X 0.5	0.7	4	45	4
2KCR 005 0005 050	R0.05 X 0.5	0.7	5	45	4
2KCR 005 0005 060	R0.05 X 0.5	0.7	6	45	4
2KCR 005 0005 080	R0.05 X 0.5	0.7	8	45	4
2KCR 005 0005 100	R0.05 X 0.5	0.7	10	45	4
2KCR 005 001 010	R0.1 X 0.5	0.7	1	45	4
2KCR 005 001 015	R0.1 X 0.5	0.7	1.5	45	4
2KCR 005 001 020	R0.1 X 0.5	0.7	2	45	4
2KCR 005 001 025	R0.1 X 0.5	0.7	2.5	45	4
2KCR 005 001 030	R0.1 X 0.5	0.7	3	45	4

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
2KCR 005 001 040	R0.1 X 0.5	0.7	4	45	4
2KCR 005 001 050	R0.1 X 0.5	0.7	5	45	4
2KCR 005 001 060	R0.1 X 0.5	0.7	6	45	4
2KCR 005 001 080	R0.1 X 0.5	0.7	8	45	4
2KCR 005 001 100	R0.1 X 0.5	0.7	10	45	4
2KCR 006 0002 020	R0.02 X 0.6	0.9	2	45	4
2KCR 006 0002 030	R0.02 X 0.6	0.9	3	45	4
2KCR 006 0002 040	R0.02 X 0.6	0.9	4	45	4
2KCR 006 0002 060	R0.02 X 0.6	0.9	6	45	4
2KCR 006 0002 080	R0.02 X 0.6	0.9	8	45	4
2KCR 006 0002 100	R0.02 X 0.6	0.9	10	45	4
2KCR 006 0005 020	R0.05 X 0.6	0.9	2	45	4
2KCR 006 0005 030	R0.05 X 0.6	0.9	3	45	4
2KCR 006 0005 040	R0.05 X 0.6	0.9	4	45	4
2KCR 006 0005 060	R0.05 X 0.6	0.9	6	45	4
2KCR 006 0005 080	R0.05 X 0.6	0.9	8	45	4
2KCR 006 0005 100	R0.05 X 0.6	0.9	10	45	4
2KCR 006 001 020	R0.1 X 0.6	0.9	2	45	4
2KCR 006 001 030	R0.1 X 0.6	0.9	3	45	4
2KCR 006 001 040	R0.1 X 0.6	0.9	4	45	4
2KCR 006 001 060	R0.1 X 0.6	0.9	6	45	4
2KCR 006 001 080	R0.1 X 0.6	0.9	8	45	4
2KCR 006 001 100	R0.1 X 0.6	0.9	10	45	4
2KCR 007 001 020	R0.1 X 0.7	1	2	45	4
2KCR 007 001 040	R0.1 X 0.7	1	4	45	4
2KCR 007 001 060	R0.1 X 0.7	1	6	45	4
2KCR 008 0002 020	R0.02 X 0.8	1.2	2	45	4
2KCR 008 0002 040	R0.02 X 0.8	1.2	4	45	4
2KCR 008 0002 060	R0.02 X 0.8	1.2	6	45	4
2KCR 008 0002 080	R0.02 X 0.8	1.2	8	45	4
2KCR 008 0002 100	R0.02 X 0.8	1.2	10	45	4
2KCR 008 0005 020	R0.05 X 0.8	1.2	2	45	4
2KCR 008 0005 040	R0.05 X 0.8	1.2	4	45	4
2KCR 008 0005 060	R0.05 X 0.8	1.2	6	45	4
2KCR 008 0005 080	R0.05 X 0.8	1.2	8	45	4
2KCR 008 0005 100	R0.05 X 0.8	1.2	10	45	4
2KCR 008 001 020	R0.1 X 0.8	1.2	2	45	4
2KCR 008 001 040	R0.1 X 0.8	1.2	4	45	4
2KCR 008 001 060	R0.1 X 0.8	1.2	6	45	4
2KCR 008 001 080	R0.1 X 0.8	1.2	8	45	4
2KCR 008 001 100	R0.1 X 0.8	1.2	10	45	4
2KCR 008 002 020	R0.2 X 0.8	1.2	2	45	4

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
2KCR 008 002 040	R0.2X0.8	1.2	4	45	4
2KCR 008 002 060	R0.2X0.8	1.2	6	45	4
2KCR 008 002 080	R0.2X0.8	1.2	8	45	4
2KCR 008 002 100	R0.2X0.8	1.2	10	45	4
2KCR 010 0005 040	R0.05X1	1.5	4	45	4
2KCR 010 0005 060	R0.05X1	1.5	6	45	4
2KCR 010 0005 080	R0.05X1	1.5	8	45	4
2KCR 010 0005 100	R0.05X1	1.5	10	45	4
2KCR 010 0005 120	R0.05X1	1.5	12	45	4
2KCR 010 0005 160	R0.05X1	1.5	16	50	4
2KCR 010 0005 200	R0.05X1	1.5	20	50	4
2KCR 010 0005 220	R0.05X1	1.5	22	60	4
2KCR 010 0005 250	R0.05X1	1.5	25	60	4
2KCR 010 001 040	R0.1X1	1.5	4	45	4
2KCR 010 001 060	R0.1X1	1.5	6	45	4
2KCR 010 001 080	R0.1X1	1.5	8	45	4
2KCR 010 001 100	R0.1X1	1.5	10	45	4
2KCR 010 001 120	R0.1X1	1.5	12	45	4
2KCR 010 001 160	R0.1X1	1.5	16	50	4
2KCR 010 001 200	R0.1X1	1.5	20	50	4
2KCR 010 001 220	R0.1X1	1.5	22	60	4
2KCR 010 001 250	R0.1X1	1.5	25	60	4
2KCR 010 002 040	R0.2X1	1.5	4	45	4
2KCR 010 002 060	R0.2X1	1.5	6	45	4
2KCR 010 002 080	R0.2X1	1.5	8	45	4
2KCR 010 002 100	R0.2X1	1.5	10	45	4
2KCR 010 002 120	R0.2X1	1.5	12	45	4
2KCR 010 002 160	R0.2X1	1.5	16	50	4
2KCR 010 002 200	R0.2X1	1.5	20	50	4
2KCR 010 002 220	R0.2X1	1.5	22	60	4
2KCR 010 002 250	R0.2X1	1.5	25	60	4
2KCR 010 0025 040	R0.25X1	1.5	4	65	6
2KCR 010 0025 080	R0.25X1	1.5	8	65	6
2KCR 010 003 040	R0.3X1	1.5	4	45	4
2KCR 010 003 060	R0.3X1	1.5	6	45	4
2KCR 010 003 080	R0.3X1	1.5	8	45	4
2KCR 010 003 100	R0.3X1	1.5	10	45	4
2KCR 010 003 120	R0.3X1	1.5	12	45	4
2KCR 010 003 160	R0.3X1	1.5	16	50	4
2KCR 010 003 200	R0.3X1	1.5	20	50	4
2KCR 010 003 220	R0.3X1	1.5	22	60	4
2KCR 010 003 250	R0.3X1	1.5	25	60	4
2KCR 012 001 040	R0.1X1.2	1.8	4	45	4
2KCR 012 001 060	R0.1X1.2	1.8	6	45	4
2KCR 012 001 080	R0.1X1.2	1.8	8	45	4
2KCR 012 001 100	R0.1X1.2	1.8	10	45	4
2KCR 012 001 120	R0.1X1.2	1.8	12	45	4
2KCR 012 001 160	R0.1X1.2	1.8	16	50	4
2KCR 012 001 200	R0.1X1.2	1.8	20	50	4
2KCR 012 002 040	R0.2X1.2	1.8	4	45	4
2KCR 012 002 060	R0.2X1.2	1.8	6	45	4
2KCR 012 002 080	R0.2X1.2	1.8	8	45	4
2KCR 012 002 100	R0.2X1.2	1.8	10	45	4
2KCR 012 002 120	R0.2X1.2	1.8	12	45	4
2KCR 012 002 160	R0.2X1.2	1.8	16	50	4
2KCR 012 002 200	R0.2X1.2	1.8	20	50	4
2KCR 012 003 040	R0.3X1.2	1.8	4	45	4

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
2KCR 012 003 060	R0.3X1.2	1.8	6	45	4
2KCR 012 003 080	R0.3X1.2	1.8	8	45	4
2KCR 012 003 100	R0.3X1.2	1.8	10	45	4
2KCR 012 003 120	R0.3X1.2	1.8	12	45	4
2KCR 012 003 160	R0.3X1.2	1.8	16	50	4
2KCR 012 003 200	R0.3X1.2	1.8	20	50	4
2KCR 015 001 040	R0.1X1.5	2.3	4	45	4
2KCR 015 001 060	R0.1X1.5	2.3	6	45	4
2KCR 015 001 080	R0.1X1.5	2.3	8	45	4
2KCR 015 001 100	R0.1X1.5	2.3	10	45	4
2KCR 015 001 120	R0.1X1.5	2.3	12	45	4
2KCR 015 001 160	R0.1X1.5	2.3	16	50	4
2KCR 015 001 200	R0.1X1.5	2.3	20	50	4
2KCR 015 001 220	R0.1X1.5	2.3	22	60	4
2KCR 015 001 250	R0.1X1.5	2.3	25	60	4
2KCR 015 002 040	R0.2X1.5	2.3	4	45	4
2KCR 015 002 060	R0.2X1.5	2.3	6	45	4
2KCR 015 002 080	R0.2X1.5	2.3	8	45	4
2KCR 015 002 100	R0.2X1.5	2.3	10	45	4
2KCR 015 002 120	R0.2X1.5	2.3	12	45	4
2KCR 015 002 160	R0.2X1.5	2.3	16	50	4
2KCR 015 002 200	R0.2X1.5	2.3	20	50	4
2KCR 015 002 220	R0.2X1.5	2.3	22	60	4
2KCR 015 002 250	R0.2X1.5	2.3	25	60	4
2KCR 015 003 040	R0.3X1.5	2.3	4	45	4
2KCR 015 003 060	R0.3X1.5	2.3	6	45	4
2KCR 015 003 080	R0.3X1.5	2.3	8	45	4
2KCR 015 003 100	R0.3X1.5	2.3	10	45	4
2KCR 015 003 120	R0.3X1.5	2.3	12	45	4
2KCR 015 003 160	R0.3X1.5	2.3	16	50	4
2KCR 015 003 200	R0.3X1.5	2.3	20	50	4
2KCR 015 003 220	R0.3X1.5	2.3	22	60	4
2KCR 015 003 250	R0.3X1.5	2.3	25	60	4
2KCR 015 005 040	R0.5X1.5	2.3	4	45	4
2KCR 015 005 060	R0.5X1.5	2.3	6	45	4
2KCR 015 005 080	R0.5X1.5	2.3	8	45	4
2KCR 015 005 100	R0.5X1.5	2.3	10	45	4
2KCR 015 005 120	R0.5X1.5	2.3	12	45	4
2KCR 015 005 160	R0.5X1.5	2.3	16	50	4
2KCR 015 005 200	R0.5X1.5	2.3	20	50	4
2KCR 015 005 220	R0.5X1.5	2.3	22	60	4
2KCR 015 005 250	R0.5X1.5	2.3	25	60	4
2KCR 020 001 040	R0.1X2	3	4	45	4
2KCR 020 001 060	R0.1X2	3	6	45	4
2KCR 020 001 080	R0.1X2	3	8	45	4
2KCR 020 001 100	R0.1X2	3	10	45	4
2KCR 020 001 120	R0.1X2	3	12	45	4
2KCR 020 001 160	R0.1X2	3	16	50	4
2KCR 020 001 200	R0.1X2	3	20	50	4
2KCR 020 001 250	R0.1X2	3	25	60	4
2KCR 020 001 300	R0.1X2	3	30	70	4
2KCR 020 002 040	R0.2X2	3	4	45	4
2KCR 020 002 060	R0.2X2	3	6	45	4
2KCR 020 002 080	R0.2X2	3	8	45	4

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
2KCR 020 002 100	R0.2X2	3	10	45	4
2KCR 020 002 120	R0.2X2	3	12	45	4
2KCR 020 002 160	R0.2X2	3	16	50	4
2KCR 020 002 200	R0.2X2	3	20	50	4
2KCR 020 002 250	R0.2X2	3	25	60	4
2KCR 020 002 300	R0.2X2	3	30	70	4
2KCR 020 003 040	R0.3X2	3	4	45	4
2KCR 020 003 060	R0.3X2	3	6	45	4
2KCR 020 003 080	R0.3X2	3	8	45	4
2KCR 020 003 100	R0.3X2	3	10	45	4
2KCR 020 003 120	R0.3X2	3	12	45	4
2KCR 020 003 160	R0.3X2	3	16	50	4
2KCR 020 003 200	R0.3X2	3	20	50	4
2KCR 020 003 250	R0.3X2	3	25	60	4
2KCR 020 003 300	R0.3X2	3	30	70	4
2KCR 020 005 040	R0.5X2	3	4	45	4
2KCR 020 005 060	R0.5X2	3	6	45	4
2KCR 020 005 080	R0.5X2	3	8	45	4
2KCR 020 005 100	R0.5X2	3	10	45	4
2KCR 020 100 S06	R0.5X2	3	10	70	6
2KCR 020 005 120	R0.5X2	3	12	45	4
2KCR 020 120 S06	R0.5X2	3	12	70	6
2KCR 020 005 160	R0.5X2	3	16	50	4
2KCR 020 160 S06	R0.5X2	3	16	70	6
2KCR 020 005 180	R0.5X2	3	18	50	4
2KCR 020 005 200	R0.5X2	3	20	50	4
2KCR 020 005 250	R0.5X2	3	25	60	4
2KCR 020 005 300	R0.5X2	3	30	70	4
2KCR 025 001 100	R0.1X2.5	3.8	10	45	4
2KCR 025 001 160	R0.1X2.5	3.8	16	50	4
2KCR 025 001 200	R0.1X2.5	3.8	20	50	4
2KCR 025 001 250	R0.1X2.5	3.8	25	60	4
2KCR 025 001 300	R0.1X2.5	3.8	30	70	4
2KCR 025 002 100	R0.2X2.5	3.8	10	45	4
2KCR 025 002 160	R0.2X2.5	3.8	16	50	4
2KCR 025 002 200	R0.2X2.5	3.8	20	50	4
2KCR 025 002 250	R0.2X2.5	3.8	25	60	4
2KCR 025 002 300	R0.2X2.5	3.8	30	70	4
2KCR 025 003 100	R0.3X2.5	3.8	10	45	4
2KCR 025 003 160	R0.3X2.5	3.8	16	50	4
2KCR 025 003 200	R0.3X2.5	3.8	20	50	4
2KCR 025 003 250	R0.3X2.5	3.8	25	60	4
2KCR 025 003 300	R0.3X2.5	3.8	30	70	4
2KCR 025 005 100	R0.5X2.5	3.8	10	45	4
2KCR 025 005 140	R0.5X2.5	3.8	14	50	4
2KCR 025 005 160	R0.5X2.5	3.8	16	50	4
2KCR 025 005 180	R0.5X2.5	3.8	18	50	4
2KCR 025 005 200	R0.5X2.5	3.8	20	50	4
2KCR 025 005 250	R0.5X2.5	3.8	25	60	4
2KCR 025 005 300	R0.5X2.5	3.8	30	70	4
2KCR 025 010 100	R1.0X2.5	3.8	10	45	4
2KCR 030 001 080	R0.1X3	4.5	8	50	6
2KCR 030 001 100	R0.1X3	4.5	10	50	6
2KCR 030 001 120	R0.1X3	4.5	12	50	6
2KCR 030 001 160	R0.1X3	4.5	16	60	6
2KCR 030 001 200	R0.1X3	4.5	20	60	6
2KCR 030 001 250	R0.1X3	4.5	25	65	6

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
2KCR 030 001 300	R0.1X3	4.5	30	70	6
2KCR 030 001 350	R0.1X3	4.5	35	80	6
2KCR 030 001 400	R0.1X3	4.5	40	80	6
2KCR 030 002 080	R0.2X3	4.5	8	50	6
2KCR 030 002 100	R0.2X3	4.5	10	50	6
2KCR 030 002 120	R0.2X3	4.5	12	50	6
2KCR 030 002 160	R0.2X3	4.5	16	60	6
2KCR 030 002 200	R0.2X3	4.5	20	60	6
2KCR 030 002 250	R0.2X3	4.5	25	65	6
2KCR 030 002 300	R0.2X3	4.5	30	70	6
2KCR 030 002 350	R0.2X3	4.5	35	80	6
2KCR 030 002 400	R0.2X3	4.5	40	80	6
2KCR 030 003 080	R0.3X3	4.5	8	50	6
2KCR 030 003 100	R0.3X3	4.5	10	50	6
2KCR 030 003 120	R0.3X3	4.5	12	50	6
2KCR 030 003 160	R0.3X3	4.5	16	60	6
2KCR 030 003 200	R0.3X3	4.5	20	60	6
2KCR 030 003 250	R0.3X3	4.5	25	65	6
2KCR 030 003 300	R0.3X3	4.5	30	70	6
2KCR 030 003 350	R0.3X3	4.5	35	80	6
2KCR 030 003 400	R0.3X3	4.5	40	80	6
2KCR 030 005 080	R0.5X3	4.5	8	50	6
2KCR 030 005 100	R0.5X3	4.5	10	50	6
2KCR 030 005 120	R0.5X3	4.5	12	50	6
2KCR 030 120 75L	R0.5X3	4.5	12	75	6
2KCR 030 005 160	R0.5X3	4.5	16	60	6
2KCR 030 005 200	R0.5X3	4.5	20	60	6
2KCR 030 200 75L	R0.5X3	4.5	20	75	6
2KCR 030 005 250	R0.5X3	4.5	25	65	6
2KCR 030 005 300	R0.5X3	4.5	30	70	6
2KCR 030 005 350	R0.5X3	4.5	35	80	6
2KCR 030 005 400	R0.5X3	4.5	40	80	6
2KCR 030 010 080	R1.0X3	4.5	8	50	6
2KCR 030 010 100	R1.0X3	4.5	10	50	6
2KCR 030 010 120	R1.0X3	4.5	12	50	6
2KCR 030 010 160	R1.0X3	4.5	16	60	6
2KCR 030 010 200	R1.0X3	4.5	20	60	6
2KCR 030 010 250	R1.0X3	4.5	25	65	6
2KCR 030 010 300	R1.0X3	4.5	30	70	6
2KCR 030 010 350	R1.0X3	4.5	35	80	6
2KCR 030 010 400	R1.0X3	4.5	40	80	6
2KCR 035 005 100	R0.5X3.5	4.5	10	50	6
2KCR 035 005 160	R0.5X3.5	4.5	16	60	6
2KCR 040 001 080	R0.1X4	6	8	50	6
2KCR 040 001 100	R0.1X4	6	10	50	6
2KCR 040 001 120	R0.1X4	6	12	50	6
2KCR 040 001 160	R0.1X4	6	16	60	6
2KCR 040 001 200	R0.1X4	6	20	60	6
2KCR 040 001 250	R0.1X4	6	25	65	6
2KCR 040 001 300	R0.1X4	6	30	70	6
2KCR 040 001 350	R0.1X4	6	35	80	6
2KCR 040 001 400	R0.1X4	6	40	80	6
2KCR 040 001 450	R0.1X4	6	45	90	6
2KCR 040 001 500	R0.1X4	6	50	100	6
2KCR 040 002 080	R0.2X4	6	8	50	6
2KCR 040 002 100	R0.2X4	6	10	50	6
2KCR 040 002 120	R0.2X4	6	12	50	6



0.02R-1.5R

2R-3R

/Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
2KCR 040 002 160	R0.2X4	6	16	60	6
2KCR 040 002 200	R0.2X4	6	20	60	6
2KCR 040 002 250	R0.2X4	6	25	65	6
2KCR 040 002 300	R0.2X4	6	30	70	6
2KCR 040 002 350	R0.2X4	6	35	80	6
2KCR 040 002 400	R0.2X4	6	40	80	6
2KCR 040 002 450	R0.2X4	6	45	90	6
2KCR 040 002 500	R0.2X4	6	50	100	6
2KCR 040 003 080	R0.3X4	6	8	50	6
2KCR 040 003 100	R0.3X4	6	10	50	6
2KCR 040 003 120	R0.3X4	6	12	50	6
2KCR 040 003 160	R0.3X4	6	16	60	6
2KCR 040 003 200	R0.3X4	6	20	60	6
2KCR 040 003 250	R0.3X4	6	25	65	6
2KCR 040 003 300	R0.3X4	6	30	70	6
2KCR 040 003 350	R0.3X4	6	35	80	6
2KCR 040 003 400	R0.3X4	6	40	80	6
2KCR 040 003 450	R0.3X4	6	45	90	6
2KCR 040 003 500	R0.3X4	6	50	100	6
2KCR 040 005 080	R0.5X4	6	8	50	6
2KCR 040 005 100	R0.5X4	6	10	50	6
2KCR 040 005 120	R0.5X4	6	12	50	6
2KCR 040 120 75L	R0.5X4	6	12	75	6
2KCR 040 005 160	R0.5X4	6	16	60	6
2KCR 040 005 200	R0.5X4	6	20	60	6
2KCR 040 200 75L	R0.5X4	6	20	75	6
2KCR 040 005 250	R0.5X4	6	25	65	6
2KCR 040 250 75L	R0.5X4	6	25	75	6
2KCR 040 005 300	R0.5X4	6	30	70	6
2KCR 040 005 350	R0.5X4	6	35	80	6
2KCR 040 005 400	R0.5X4	6	40	80	6
2KCR 040 005 450	R0.5X4	6	45	90	6
2KCR 040 005 500	R0.5X4	6	50	100	6
2KCR 040 010 080	R1.0X4	6	8	50	6
2KCR 040 010 100	R1.0X4	6	10	50	6
2KCR 040 010 120	R1.0X4	6	12	50	6
2KCR 040 010 75L	R1.0X4	6	12	75	6
2KCR 040 010 160	R1.0X4	6	16	60	6
2KCR 040 010 200	R1.0X4	6	20	60	6
2KCR 040 010 250	R1.0X4	6	25	65	6
2KCR 040 010 300	R1.0X4	6	30	70	6
2KCR 040 010 350	R1.0X4	6	35	80	6
2KCR 040 010 400	R1.0X4	6	40	80	6
2KCR 040 010 450	R1.0X4	6	45	90	6
2KCR 040 010 500	R1.0X4	6	50	100	6
2KCR 050 002 150	R0.2X5	7.5	15	60	6
2KCR 050 002 250	R0.2X5	7.5	25	65	6
2KCR 050 002 300	R0.2X5	7.5	30	70	6
2KCR 050 002 400	R0.2X5	7.5	40	80	6
2KCR 050 002 500	R0.2X5	7.5	50	100	6
2KCR 050 005 180	R0.5X5	7.5	18	60	6
2KCR 050 005 250	R0.5X5	7.5	25	65	6
2KCR 050 005 300	R0.5X5	7.5	30	70	6
2KCR 050 005 400	R0.5X5	7.5	40	80	6
2KCR 050 005 500	R0.5X5	7.5	50	100	6
2KCR 050 010 180	R1.0X5	7.5	18	60	6
2KCR 050 010 250	R1.0X5	7.5	25	65	6
2KCR 050 010 300	R1.0X5	7.5	30	70	6

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
2KCR 050 010 400	R1.0X5	7.5	40	80	6
2KCR 050 010 500	R1.0X5	7.5	50	100	6
2KCR 060 001 200	R0.1X6	9	20	60	6
2KCR 060 001 400	R0.1X6	9	40	90	6
2KCR 060 002 200	R0.2X6	9	20	60	6
2KCR 060 002 400	R0.2X6	9	40	90	6
2KCR 060 003 200	R0.3X6	9	20	60	6
2KCR 060 003 400	R0.3X6	9	40	90	6
2KCR 060 005 200	R0.5X6	9	20	60	6
2KCR 060 005 400	R0.5X6	9	40	90	6
2KCR 060 010 200	R1.0X6	9	20	60	6
2KCR 060 010 400	R1.0X6	9	40	90	6
2KCR 060 015 200	R1.5X6	9	20	60	6
2KCR 060 015 400	R1.5X6	9	40	90	6
2KCR 080 002 240	R2.0X8	12	24	65	8
2KCR 080 002 400	R0.2X8	12	40	100	8
2KCR 080 003 240	R0.3X8	12	24	65	8
2KCR 080 003 400	R0.3X8	12	40	100	8
2KCR 080 005 240	R0.5X8	12	24	65	8
2KCR 080 005 80L	R0.5X8	12	24	80	8
2KCR 080 005 400	R0.5X8	12	40	100	8
2KCR 080 010 240	R1.0X8	12	24	65	8
2KCR 080 010 80L	R1.0X8	12	24	80	8
2KCR 080 010 400	R1.0X8	12	40	100	8
2KCR 080 015 240	R1.5X8	12	24	65	8
2KCR 080 015 400	R1.5X8	12	40	100	8
2KCR 080 020 240	R2.0X8	12	24	65	8
2KCR 100 002 300	R0.2X10	15	30	70	10
2KCR 100 002 400	R0.2X10	15	40	100	10
2KCR 100 003 300	R0.3X10	15	30	70	10
2KCR 100 003 400	R0.3X10	15	40	100	10
2KCR 100 005 300	R0.5X10	15	30	70	10
2KCR 100 005 400	R0.5X10	15	40	100	10
2KCR 100 010 300	R1.0X10	15	30	70	10
2KCR 100 010 400	R1.0X10	15	40	100	10
2KCR 100 015 300	R1.5X10	15	30	70	10
2KCR 100 015 400	R1.5X10	15	40	100	10
2KCR 100 020 300	R2.0X10	15	30	70	10
2KCR 100 020 400	R2.0X10	15	40	100	10
2KCR 120 002 300	R2.0X12	18	30	80	12
2KCR 120 002 500	R0.2X12	18	50	110	12
2KCR 120 003 300	R0.3X12	18	30	80	12
2KCR 120 003 500	R0.3X12	18	50	110	12
2KCR 120 005 300	R0.5X12	18	30	80	12
2KCR 120 005 500	R0.5X12	18	50	110	12
2KCR 120 010 300	R1.0X12	18	30	80	12
2KCR 120 010 500	R1.0X12	18	50	110	12
2KCR 120 015 300	R1.5X12	18	30	80	12
2KCR 120 015 500	R1.5X12	18	50	110	12
2KCR 120 020 300	R2.0X12	18	30	80	12
2KCR 120 020 500	R2.0X12	18	50	110	12
2KCR 120 030 300	R3.0X12	18	30	80	12
2KCR 120 030 500	R3.0X12	18	50	110	12
2KCR 160 005 400	R0.5X16	24	40	110	16
2KCR 160 005 150L	R0.5X16	24	40	150	16
2KCR 160 010 400	R1.0X16	24	40	110	16
2KCR 160 010 150L	R1.0X16	24	40	150	16

2KCR, 2KNR

• RPM : rev/min • Feed : mm/min

Work Material	PREHARDENED STEELS NAK			HARDENED STEELS SKD61, STAVAX			COPPER ALLOYS		
Hardness (HRC)	HRC30 ~ 45			HRC45 ~ 55					
Outside Diameter	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)
0.2	0.002 ~ 0.005	30,000 ~ 38,000	80 ~ 150	0.002 ~ 0.005	32,000 ~ 42,000	60 ~ 120	0.002 ~ 0.005	30,000 ~ 38,000	120 ~ 220
0.3	0.005 ~ 0.007	28,000 ~ 35,000	100 ~ 200	0.003 ~ 0.006	30,000 ~ 36,000	80 ~ 160	0.005 ~ 0.018	28,000 ~ 35,000	180 ~ 260
0.4	0.005 ~ 0.010	25,000 ~ 30,000	200 ~ 350	0.003 ~ 0.008	28,000 ~ 35,000	120 ~ 300	0.005 ~ 0.024	25,000 ~ 30,000	200 ~ 360
0.5	0.005 ~ 0.020	18,000 ~ 30,000	200 ~ 500	0.005 ~ 0.010	20,000 ~ 25,000	150 ~ 350	0.005 ~ 0.030	22,000 ~ 30,000	220 ~ 600
0.6	0.006 ~ 0.030	18,000 ~ 30,000	180 ~ 600	0.006 ~ 0.020	12,000 ~ 25,000	100 ~ 400	0.006 ~ 0.030	18,000 ~ 30,000	250 ~ 650
0.7	0.007 ~ 0.030	18,000 ~ 30,000	140 ~ 650	0.007 ~ 0.020	12,000 ~ 25,000	100 ~ 450	0.007 ~ 0.050	18,000 ~ 30,000	250 ~ 700
0.8	0.008 ~ 0.030	14,000 ~ 25,000	250 ~ 1,100	0.008 ~ 0.025	12,000 ~ 25,000	150 ~ 900	0.008 ~ 0.060	14,000 ~ 25,000	400 ~ 1,400
1	0.010 ~ 0.050	14,000 ~ 25,000	250 ~ 1,100	0.005 ~ 0.050	10,000 ~ 20,000	150 ~ 900	0.010 ~ 0.080	14,000 ~ 25,000	500 ~ 2,000
1.2	0.010 ~ 0.050	11,000 ~ 25,000	300 ~ 1,100	0.008 ~ 0.050	10,000 ~ 18,000	150 ~ 800	0.010 ~ 0.080	11,000 ~ 25,000	600 ~ 2,000
1.5	0.015 ~ 0.090	10,000 ~ 20,000	300 ~ 1,600	0.005 ~ 0.060	8,000 ~ 18,000	180 ~ 1,000	0.015 ~ 0.090	10,000 ~ 20,000	800 ~ 2,000
2	0.020 ~ 0.120	9,000 ~ 18,000	300 ~ 2,000	0.010 ~ 0.050	8,000 ~ 16,000	250 ~ 1,000	0.020 ~ 0.130	9,000 ~ 18,000	1,200 ~ 2,500
2.5	0.050 ~ 0.130	8,000 ~ 18,000	300 ~ 2,000	0.035 ~ 0.070	8,000 ~ 16,000	250 ~ 1,000	0.050 ~ 0.130	8,000 ~ 18,000	1,200 ~ 2,800
3	0.030 ~ 0.150	5,000 ~ 18,000	400 ~ 1,800	0.010 ~ 0.080	6,000 ~ 10,000	250 ~ 1,000	0.030 ~ 0.200	5,000 ~ 18,000	1,500 ~ 3,000
4	0.030 ~ 0.200	5,000 ~ 14,000	500 ~ 1,500	0.025 ~ 0.200	4,000 ~ 10,000	300 ~ 1,000	0.030 ~ 0.300	5,000 ~ 14,000	1,500 ~ 3,200
5	0.100 ~ 0.200	5,000 ~ 14,000	500 ~ 1,800	0.100 ~ 0.200	4,000 ~ 13,000	400 ~ 1,500	0.100 ~ 0.400	5,000 ~ 14,000	1,500 ~ 3,200
6	0.100 ~ 0.200	4,000 ~ 9,000	1,000 ~ 2,000	0.100 ~ 0.200	4,000 ~ 13,000	800 ~ 1,200	0.200 ~ 0.400	8,000 ~ 14,000	2,500 ~ 3,500
8	0.100 ~ 0.200	3,500 ~ 6,000	1,000 ~ 2,000	0.100 ~ 0.200	3,500 ~ 7,500	800 ~ 1,200	0.200 ~ 0.400	7,000 ~ 12,000	2,500 ~ 4,000
10	0.100 ~ 0.200	3,000 ~ 5,000	1,000 ~ 2,000	0.100 ~ 0.200	3,000 ~ 6,000	800 ~ 1,200	0.200 ~ 0.400	5,000 ~ 12,000	2,500 ~ 4,500
12	0.100 ~ 0.200	3,000 ~ 5,000	1,000 ~ 2,000	0.100 ~ 0.200	3,000 ~ 5,000	800 ~ 1,200	0.200 ~ 0.400	3,000 ~ 9,000	2,500 ~ 4,500
16	0.100 ~ 0.200	1,800 ~ 3,000	1,000 ~ 2,000	0.100 ~ 0.200	1,800 ~ 3,000	800 ~ 1,200	0.200 ~ 0.400	1,800 ~ 3,000	2,500 ~ 4,500
20	0.100 ~ 0.200	1,200 ~ 2,500	1,000 ~ 2,000	0.100 ~ 0.200	1,200 ~ 2,500	800 ~ 1,200	0.200 ~ 0.400	1,200 ~ 2,500	2,500 ~ 4,500

Depth of Cut



4KCR, 4KNR, 4BNR

• RPM : rev/min • Feed : mm/min

Work Material	PREHARDENED STEELS NAK			HARDENED STEELS SKD61, STAVAX			HARDENED STEELS SKD11		
Hardness (HRC)	HRC30 ~ 45			HRC45 ~ 55			HRC55 ~ 65		
Outside Diameter	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)
0.8	0.006 ~ 0.030	12,000 ~ 25,000	250 ~ 1,000	0.004 ~ 0.025	12,000 ~ 25,000	250 ~ 1,000	0.002 ~ 0.020	12,000 ~ 25,000	250 ~ 1,000
1	0.007 ~ 0.050	10,000 ~ 25,000	600 ~ 2,000	0.005 ~ 0.040	8,000 ~ 20,000	500 ~ 1,800	0.003 ~ 0.030	5,000 ~ 16,000	500 ~ 1,800
1.2	0.009 ~ 0.045	10,000 ~ 25,000	500 ~ 1,000	0.006 ~ 0.040	8,000 ~ 20,000	500 ~ 1,800	0.004 ~ 0.030	8,000 ~ 20,000	500 ~ 1,800
1.5	0.010 ~ 0.050	8,000 ~ 20,000	450 ~ 2,000	0.007 ~ 0.040	7,000 ~ 20,000	350 ~ 1,600	0.005 ~ 0.030	5,000 ~ 15,000	350 ~ 1,600
2	0.015 ~ 0.060	7,000 ~ 18,000	500 ~ 1,800	0.010 ~ 0.050	8,000 ~ 15,000	450 ~ 1,500	0.005 ~ 0.030	5,000 ~ 12,000	450 ~ 1,500
2.5	0.030 ~ 0.070	7,000 ~ 14,000	600 ~ 1,500	0.020 ~ 0.050	8,000 ~ 15,000	500 ~ 1,400	0.008 ~ 0.030	4,500 ~ 10,000	500 ~ 1,400
3	0.020 ~ 0.100	5,000 ~ 18,000	700 ~ 2,200	0.015 ~ 0.060	6,000 ~ 12,000	600 ~ 1,800	0.008 ~ 0.030	4,500 ~ 10,000	600 ~ 1,800
4	0.025 ~ 0.100	4,500 ~ 12,000	700 ~ 2,000	0.010 ~ 0.060	4,000 ~ 10,000	600 ~ 1,500	0.008 ~ 0.050	3,000 ~ 8,500	600 ~ 1,500
5	0.100 ~ 0.200	5,000 ~ 8,000	1,000 ~ 2,000	0.050 ~ 0.100	3,500 ~ 10,000	1,000 ~ 1,600	0.030 ~ 0.050	3,500 ~ 7,000	800 ~ 1,300
6	0.050 ~ 0.150	4,000 ~ 10,000	2,000 ~ 3,500	0.030 ~ 0.100	3,500 ~ 10,000	2,000 ~ 3,000	0.010 ~ 0.060	3,500 ~ 7,000	1,200 ~ 2,000
8	0.050 ~ 0.150	6,500 ~ 9,000	2,500 ~ 3,600	0.030 ~ 0.100	5,000 ~ 7,500	2,000 ~ 3,000	0.020 ~ 0.050	4,500 ~ 6,000	1,500 ~ 2,500
10	0.050 ~ 0.150	5,000 ~ 7,500	2,300 ~ 3,000	0.030 ~ 0.100	4,000 ~ 6,000	1,800 ~ 2,300	0.020 ~ 0.050	3,500 ~ 5,500	1,200 ~ 2,000
12	0.050 ~ 0.200	3,000 ~ 5,000	1,700 ~ 2,500	0.030 ~ 0.120	3,000 ~ 5,000	1,500 ~ 2,000	0.020 ~ 0.050	2,800 ~ 4,000	1,000 ~ 1,600
16	0.050 ~ 0.200	1,500 ~ 2,800	1,500 ~ 3,000	0.030 ~ 0.120	1,500 ~ 2,800	1,500 ~ 2,000	0.020 ~ 0.050	2,800 ~ 4,000	1,000 ~ 1,600
20	0.050 ~ 0.200	1,200 ~ 2,500	1,500 ~ 3,000	0.030 ~ 0.120	1,200 ~ 2,500	1,500 ~ 2,000	0.020 ~ 0.050	2,800 ~ 4,000	1,000 ~ 1,600

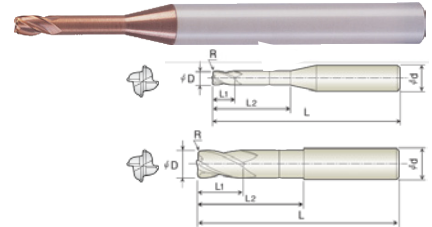
Depth of Cut



4 Flutes Rib Corner Radius End Mills

Endmills for pre-hardened and hardened steel (HRC52-60)

- Designed for high speed cutting of hardened steels over HRC52.
- Maximize the wear-resistance due to TiSiN coating.



Size	D Tolerance
D < Ø6	+0~-0.010mm
D ≥ Ø6	+0~-0.015mm

/Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
4KCR 008 0002 020	R0.02X0.8	1.2	2	45	4
4KCR 008 0002 040	R0.02X0.8	1.2	4	45	4
4KCR 008 0002 060	R0.02X0.8	1.2	6	45	4
4KCR 008 0002 080	R0.02X0.8	1.2	8	45	4
4KCR 008 0002 100	R0.02X0.8	1.2	10	45	4
4KCR 008 0005 020	R0.05X0.8	1.2	2	45	4
4KCR 008 0005 040	R0.05X0.8	1.2	4	45	4
4KCR 008 0005 060	R0.05X0.8	1.2	6	45	4
4KCR 008 0005 080	R0.05X0.8	1.2	8	45	4
4KCR 008 0005 100	R0.05X0.8	1.2	10	45	4
4KCR 008 001 020	R0.1X0.8	1.2	2	45	4
4KCR 008 001 040	R0.1X0.8	1.2	4	45	4
4KCR 008 001 060	R0.1X0.8	1.2	6	45	4
4KCR 008 001 080	R0.1X0.8	1.2	8	45	4
4KCR 008 001 100	R0.1X0.8	1.2	10	45	4
4KCR 010 0002 040	R0.02X1	1.5	4	45	4
4KCR 010 0002 060	R0.02X1	1.5	6	45	4
4KCR 010 0002 080	R0.02X1	1.5	8	45	4
4KCR 010 0002 100	R0.02X1	1.5	10	45	4
4KCR 010 0002 120	R0.02X1	1.5	12	45	4
4KCR 010 0002 160	R0.02X1	1.5	16	50	4
4KCR 010 0002 200	R0.02X1	1.5	20	50	4
4KCR 010 0005 040	R0.05X1	1.5	4	45	4
4KCR 010 0005 060	R0.05X1	1.5	6	45	4
4KCR 010 0005 080	R0.05X1	1.5	8	45	4
4KCR 010 0005 100	R0.05X1	1.5	10	45	4
4KCR 010 0005 120	R0.05X1	1.5	12	45	4
4KCR 010 0005 160	R0.05X1	1.5	16	50	4
4KCR 010 0005 200	R0.05X1	1.5	20	50	4
4KCR 010 001 040	R0.1X1	1.5	4	45	4
4KCR 010 001 060	R0.1X1	1.5	6	45	4
4KCR 010 001 080	R0.1X1	1.5	8	45	4
4KCR 010 001 100	R0.1X1	1.5	10	45	4
4KCR 010 001 120	R0.1X1	1.5	12	45	4
4KCR 010 001 160	R0.1X1	1.5	16	50	4
4KCR 010 001 200	R0.1X1	1.5	20	50	4
4KCR 010 002 040	R0.2X1	1.5	4	45	4
4KCR 010 002 060	R0.2X1	1.5	6	45	4
4KCR 010 002 080	R0.2X1	1.5	8	45	4
4KCR 010 002 100	R0.2X1	1.5	10	45	4
4KCR 010 002 120	R0.2X1	1.5	12	45	4

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
4KCR 010 002 160	R0.2X1	1.5	16	50	4
4KCR 010 002 200	R0.2X1	1.5	20	50	4
4KCR 010 003 040	R0.3X1	1.5	4	45	4
4KCR 010 003 060	R0.3X1	1.5	6	45	4
4KCR 010 003 080	R0.3X1	1.5	8	45	4
4KCR 010 003 100	R0.3X1	1.5	10	45	4
4KCR 010 003 120	R0.3X1	1.5	12	45	4
4KCR 010 003 160	R0.3X1	1.5	16	50	4
4KCR 010 003 200	R0.3X1	1.5	20	50	4
4KCR 012 0002 040	R0.02X1.2	1.8	4	45	4
4KCR 012 0002 060	R0.02X1.2	1.8	6	45	4
4KCR 012 0002 080	R0.02X1.2	1.8	8	45	4
4KCR 012 0002 100	R0.02X1.2	1.8	10	45	4
4KCR 012 0002 120	R0.02X1.2	1.8	12	45	4
4KCR 012 0002 160	R0.02X1.2	1.8	16	50	4
4KCR 012 0002 200	R0.02X1.2	1.8	20	50	4
4KCR 012 0005 040	R0.05X1.2	1.8	4	45	4
4KCR 012 0005 060	R0.05X1.2	1.8	6	45	4
4KCR 012 0005 080	R0.05X1.2	1.8	8	45	4
4KCR 012 0005 100	R0.05X1.2	1.8	10	45	4
4KCR 012 0005 120	R0.05X1.2	1.8	12	45	4
4KCR 012 0005 160	R0.05X1.2	1.8	16	50	4
4KCR 012 0005 200	R0.05X1.2	1.8	20	50	4
4KCR 012 001 040	R0.1X1.2	1.8	4	45	4
4KCR 012 001 060	R0.1X1.2	1.8	6	45	4
4KCR 012 001 080	R0.1X1.2	1.8	8	45	4
4KCR 012 001 100	R0.1X1.2	1.8	10	45	4
4KCR 012 001 120	R0.1X1.2	1.8	12	45	4
4KCR 012 001 160	R0.1X1.2	1.8	16	50	4
4KCR 012 001 200	R0.1X1.2	1.8	20	50	4
4KCR 012 002 040	R0.2X1.2	1.8	4	45	4
4KCR 012 002 060	R0.2X1.2	1.8	6	45	4
4KCR 012 002 080	R0.2X1.2	1.8	8	45	4
4KCR 012 002 100	R0.2X1.2	1.8	10	45	4
4KCR 012 002 120	R0.2X1.2	1.8	12	45	4
4KCR 012 002 160	R0.2X1.2	1.8	16	50	4
4KCR 012 002 200	R0.2X1.2	1.8	20	50	4
4KCR 012 003 040	R0.3X1.2	1.8	4	45	4
4KCR 012 003 060	R0.3X1.2	1.8	6	45	4
4KCR 012 003 080	R0.3X1.2	1.8	8	45	4
4KCR 012 003 100	R0.3X1.2	1.8	10	45	4



0.078-1.58

79-79



/Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
4KCR 012 003 120	R0.3 X 1.2	1.8	12	45	4
4KCR 012 003 160	R0.3 X 1.2	1.8	16	50	4
4KCR 012 003 200	R0.3 X 1.2	1.8	20	50	4
4KCR 015 0002 040	R0.02 X 1.5	2.3	4	45	4
4KCR 015 0002 060	R0.02 X 1.5	2.3	6	45	4
4KCR 015 0002 080	R0.02 X 1.5	2.3	8	45	4
4KCR 015 0002 100	R0.02 X 1.5	2.3	10	45	4
4KCR 015 0002 120	R0.02 X 1.5	2.3	12	45	4
4KCR 015 0002 160	R0.02 X 1.5	2.3	16	50	4
4KCR 015 0002 200	R0.02 X 1.5	2.3	20	50	4
4KCR 015 0002 220	R0.02 X 1.5	2.3	22	60	4
4KCR 015 0002 250	R0.02 X 1.5	2.3	25	60	4
4KCR 015 0005 040	R0.05 X 1.5	2.3	4	45	4
4KCR 015 0005 060	R0.05 X 1.5	2.3	6	45	4
4KCR 015 0005 080	R0.05 X 1.5	2.3	8	45	4
4KCR 015 0005 100	R0.05 X 1.5	2.3	10	45	4
4KCR 015 0005 120	R0.05 X 1.5	2.3	12	45	4
4KCR 015 0005 160	R0.05 X 1.5	2.3	16	50	4
4KCR 015 0005 200	R0.05 X 1.5	2.3	20	50	4
4KCR 015 0005 220	R0.05 X 1.5	2.3	22	60	4
4KCR 015 0005 250	R0.05 X 1.5	2.3	25	60	4
4KCR 015 001 040	R0.1 X 1.5	2.3	4	45	4
4KCR 015 001 060	R0.1 X 1.5	2.3	6	45	4
4KCR 015 001 080	R0.1 X 1.5	2.3	8	45	4
4KCR 015 001 100	R0.1 X 1.5	2.3	10	45	4
4KCR 015 001 120	R0.1 X 1.5	2.3	12	45	4
4KCR 015 001 160	R0.1 X 1.5	2.3	16	50	4
4KCR 015 001 200	R0.1 X 1.5	2.3	20	50	4
4KCR 015 001 220	R0.1 X 1.5	2.3	22	60	4
4KCR 015 001 250	R0.1 X 1.5	2.3	25	60	4
4KCR 015 002 040	R0.2 X 1.5	2.3	4	45	4
4KCR 015 002 060	R0.2 X 1.5	2.3	6	45	4
4KCR 015 002 080	R0.2 X 1.5	2.3	8	45	4
4KCR 015 002 100	R0.2 X 1.5	2.3	10	45	4
4KCR 015 002 120	R0.2 X 1.5	2.3	12	45	4
4KCR 015 002 160	R0.2 X 1.5	2.3	16	50	4
4KCR 015 002 200	R0.2 X 1.5	2.3	20	50	4
4KCR 015 002 220	R0.2 X 1.5	2.3	22	60	4
4KCR 015 002 250	R0.2 X 1.5	2.3	25	60	4
4KCR 015 003 040	R0.3 X 1.5	2.3	4	45	4
4KCR 015 003 060	R0.3 X 1.5	2.3	6	45	4
4KCR 015 003 080	R0.3 X 1.5	2.3	8	45	4
4KCR 015 003 100	R0.3 X 1.5	2.3	10	45	4
4KCR 015 003 120	R0.3 X 1.5	2.3	12	45	4
4KCR 015 003 160	R0.3 X 1.5	2.3	16	50	4
4KCR 015 003 200	R0.3 X 1.5	2.3	20	50	4
4KCR 015 003 220	R0.3 X 1.5	2.3	22	60	4
4KCR 015 003 250	R0.3 X 1.5	2.3	25	60	4
4KCR 015 005 040	R0.5 X 1.5	2.3	4	45	4
4KCR 015 005 060	R0.5 X 1.5	2.3	6	45	4
4KCR 015 005 080	R0.5 X 1.5	2.3	8	45	4
4KCR 015 005 100	R0.5 X 1.5	2.3	10	45	4

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
4KCR 015 005 120	R0.5 X 1.5	2.3	12	45	4
4KCR 015 005 160	R0.5 X 1.5	2.3	16	50	4
4KCR 015 005 200	R0.5 X 1.5	2.3	20	50	4
4KCR 015 005 220	R0.5 X 1.5	2.3	22	60	4
4KCR 015 005 250	R0.5 X 1.5	2.3	25	60	4
4KCR 020 0002 040	R0.02 X 2	3	4	45	4
4KCR 020 0002 060	R0.02 X 2	3	6	45	4
4KCR 020 0002 080	R0.02 X 2	3	8	45	4
4KCR 020 0002 100	R0.02 X 2	3	10	45	4
4KCR 020 0002 120	R0.02 X 2	3	12	45	4
4KCR 020 0002 140	R0.02 X 2	3	14	50	4
4KCR 020 0002 160	R0.02 X 2	3	16	50	4
4KCR 020 0002 180	R0.02 X 2	3	18	50	4
4KCR 020 0002 200	R0.02 X 2	3	20	50	4
4KCR 020 0002 220	R0.02 X 2	3	22	60	4
4KCR 020 0002 250	R0.02 X 2	3	25	60	4
4KCR 020 0002 300	R0.02 X 2	3	30	70	4
4KCR 020 0002 350	R0.02 X 2	3	35	70	4
4KCR 020 0005 040	R0.05 X 2	3	4	45	4
4KCR 020 0005 060	R0.05 X 2	3	6	45	4
4KCR 020 0005 080	R0.05 X 2	3	8	45	4
4KCR 020 0005 100	R0.05 X 2	3	10	45	4
4KCR 020 0005 120	R0.05 X 2	3	12	45	4
4KCR 020 0005 140	R0.05 X 2	3	14	50	4
4KCR 020 0005 160	R0.05 X 2	3	16	50	4
4KCR 020 0005 180	R0.05 X 2	3	18	50	4
4KCR 020 0005 200	R0.05 X 2	3	20	50	4
4KCR 020 0005 220	R0.05 X 2	3	22	60	4
4KCR 020 0005 250	R0.05 X 2	3	25	60	4
4KCR 020 0005 300	R0.05 X 2	3	30	70	4
4KCR 020 0005 350	R0.05 X 2	3	35	70	4
4KCR 020 001 040	R0.1 X 2	3	4	45	4
4KCR 020 001 060	R0.1 X 2	3	6	45	4
4KCR 020 001 080	R0.1 X 2	3	8	45	4
4KCR 020 001 100	R0.1 X 2	3	10	45	4
4KCR 020 001 120	R0.1 X 2	3	12	45	4
4KCR 020 001 140	R0.1 X 2	3	14	50	4
4KCR 020 001 160	R0.1 X 2	3	16	50	4
4KCR 020 001 180	R0.1 X 2	3	18	50	4
4KCR 020 001 200	R0.1 X 2	3	20	50	4
4KCR 020 001 220	R0.1 X 2	3	22	60	4
4KCR 020 001 250	R0.1 X 2	3	25	60	4
4KCR 020 001 300	R0.1 X 2	3	30	70	4
4KCR 020 001 350	R0.1 X 2	3	35	70	4
4KCR 020 002 040	R0.2 X 2	3	4	45	4
4KCR 020 002 060	R0.2 X 2	3	6	45	4
4KCR 020 002 080	R0.2 X 2	3	8	45	4
4KCR 020 002 100	R0.2 X 2	3	10	45	4
4KCR 020 002 120	R0.2 X 2	3	12	45	4
4KCR 020 002 140	R0.2 X 2	3	14	50	4
4KCR 020 002 160	R0.2 X 2	3	16	50	4
4KCR 020 002 180	R0.2 X 2	3	18	50	4



0.02R-1.5R

2R-3R

/Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
4KCR 020 002 200	R0.2X2	3	20	50	4
4KCR 020 002 220	R0.2X2	3	22	60	4
4KCR 020 002 250	R0.2X2	3	25	60	4
4KCR 020 002 300	R0.2X2	3	30	70	4
4KCR 020 002 350	R0.2X2	3	35	70	4
4KCR 020 003 040	R0.3X2	3	4	45	4
4KCR 020 003 060	R0.3X2	3	6	45	4
4KCR 020 003 080	R0.3X2	3	8	45	4
4KCR 020 003 100	R0.3X2	3	10	45	4
4KCR 020 003 120	R0.3X2	3	12	45	4
4KCR 020 003 140	R0.3X2	3	14	50	4
4KCR 020 003 160	R0.3X2	3	16	50	4
4KCR 020 003 180	R0.3X2	3	18	50	4
4KCR 020 003 200	R0.3X2	3	20	50	4
4KCR 020 003 220	R0.3X2	3	22	60	4
4KCR 020 003 250	R0.3X2	3	25	60	4
4KCR 020 003 300	R0.3X2	3	30	70	4
4KCR 020 003 350	R0.3X2	3	35	70	4
4KCR 020 005 040	R0.5X2	3	4	45	4
4KCR 020 005 060	R0.5X2	3	6	45	4
4KCR 020 005 080	R0.5X2	3	8	45	4
4KCR 020 005 100	R0.5X2	3	10	45	4
4KCR 020 005 120	R0.5X2	3	12	45	4
4KCR 020 005 140	R0.5X2	3	14	50	4
4KCR 020 005 160	R0.5X2	3	16	50	4
4KCR 020 005 180	R0.5X2	3	18	50	4
4KCR 020 005 200	R0.5X2	3	20	50	4
4KCR 020 005 220	R0.5X2	3	22	60	4
4KCR 020 005 250	R0.5X2	3	25	60	4
4KCR 020 005 300	R0.5X2	3	30	70	4
4KCR 020 005 350	R0.5X2	3	35	70	4
4KCR 025 001 060	R0.1X2.5	3.8	6	45	4
4KCR 025 001 080	R0.1X2.5	3.8	8	45	4
4KCR 025 001 100	R0.1X2.5	3.8	10	45	4
4KCR 025 001 120	R0.1X2.5	3.8	12	45	4
4KCR 025 001 160	R0.1X2.5	3.8	16	50	4
4KCR 025 001 200	R0.1X2.5	3.8	20	50	4
4KCR 025 001 250	R0.1X2.5	3.8	25	60	4
4KCR 025 001 300	R0.1X2.5	3.8	30	70	4
4KCR 025 002 060	R0.2X2.5	3.8	6	45	4
4KCR 025 002 080	R0.2X2.5	3.8	8	45	4
4KCR 025 002 100	R0.2X2.5	3.8	10	45	4
4KCR 025 002 120	R0.2X2.5	3.8	12	45	4
4KCR 025 002 160	R0.2X2.5	3.8	16	50	4
4KCR 025 002 200	R0.2X2.5	3.8	20	50	4
4KCR 025 002 250	R0.2X2.5	3.8	25	60	4
4KCR 025 002 300	R0.2X2.5	3.8	30	70	4
4KCR 025 003 060	R0.3X2.5	3.8	6	45	4
4KCR 025 003 080	R0.3X2.5	3.8	8	45	4
4KCR 025 003 100	R0.3X2.5	3.8	10	45	4
4KCR 025 003 120	R0.3X2.5	3.8	12	45	4
4KCR 025 003 160	R0.3X2.5	3.8	16	50	4

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
4KCR 025 003 200	R0.3X2.5	3.8	20	50	4
4KCR 025 003 250	R0.3X2.5	3.8	25	60	4
4KCR 025 003 300	R0.3X2.5	3.8	30	70	4
4KCR 025 005 060	R0.5X2.5	3.8	6	45	4
4KCR 025 005 080	R0.5X2.5	3.8	8	45	4
4KCR 025 005 100	R0.5X2.5	3.8	10	45	4
4KCR 025 005 120	R0.5X2.5	3.8	12	45	4
4KCR 025 005 160	R0.5X2.5	3.8	16	50	4
4KCR 025 005 200	R0.5X2.5	3.8	20	50	4
4KCR 025 005 250	R0.5X2.5	3.8	25	60	4
4KCR 025 005 300	R0.5X2.5	3.8	30	70	4
4KCR 030 001 080	R0.1X3	4.5	8	50	6
4KCR 030 001 100	R0.1X3	4.5	10	50	4
4KCR 030 001 S06	R0.1X3	4.5	10	50	6
4KCR 030 001 120	R0.1X3	4.5	12	50	6
4KCR 030 001 160	R0.1X3	4.5	16	60	6
4KCR 030 001 200	R0.1X3	4.5	20	60	6
4KCR 030 001 250	R0.1X3	4.5	25	65	6
4KCR 030 001 300	R0.1X3	4.5	30	70	6
4KCR 030 001 350	R0.1X3	4.5	35	80	6
4KCR 030 001 400	R0.1X3	4.5	40	80	6
4KCR 030 001 500	R0.1X3	4.5	50	100	6
4KCR 030 002 080	R0.2X3	4.5	8	50	6
4KCR 030 002 100	R0.2X3	4.5	10	50	3
4KCR 030 002 S04	R0.2X3	4.5	10	50	4
4KCR 030 002 S06	R0.2X3	4.5	10	50	6
4KCR 030 002 120	R0.2X3	4.5	12	50	6
4KCR 030 002 160	R0.2X3	4.5	16	60	6
4KCR 030 002 200	R0.2X3	4.5	20	60	6
4KCR 030 002 250	R0.2X3	4.5	25	65	6
4KCR 030 002 300	R0.2X3	4.5	30	70	6
4KCR 030 002 350	R0.2X3	4.5	35	80	6
4KCR 030 002 400	R0.2X3	4.5	40	80	6
4KCR 030 002 500	R0.2X3	4.5	50	100	6
4KCR 030 003 080	R0.3X3	4.5	8	50	6
4KCR 030 003 100	R0.3X3	4.5	10	50	3
4KCR 030 003 S04	R0.3X3	4.5	10	50	4
4KCR 030 003 S06	R0.3X3	4.5	10	50	6
4KCR 030 003 120	R0.3X3	4.5	12	50	6
4KCR 030 003 160	R0.3X3	4.5	16	60	6
4KCR 030 003 200	R0.3X3	4.5	20	60	6
4KCR 030 003 250	R0.3X3	4.5	25	65	6
4KCR 030 003 300	R0.3X3	4.5	30	70	6
4KCR 030 003 350	R0.3X3	4.5	35	80	6
4KCR 030 003 400	R0.3X3	4.5	40	80	6
4KCR 030 003 500	R0.3X3	4.5	50	100	6
4KCR 030 005 080	R0.5X3	4.5	8	50	6
4KCR 030 005 100	R0.5X3	4.5	10	50	3
4KCR 030 005 S04	R0.5X3	4.5	10	50	4
4KCR 030 005 S06	R0.5X3	4.5	10	50	6
4KCR 030 005 120	R0.5X3	4.5	12	50	6
4KCR 030 005 160	R0.5X3	4.5	16	60	6



0.02R-1.5R

2R-3R

/Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
4KCR 030 005 200	R0.5X3	4.5	20	60	6
4KCR 030 005 250	R0.5X3	4.5	25	65	6
4KCR 030 005 300	R0.5X3	4.5	30	70	6
4KCR 030 005 350	R0.5X3	4.5	35	75	6
4KCR 030 005 400	R0.5X3	4.5	40	80	6
4KCR 030 005 500	R0.5X3	4.5	50	100	6
4KCR 030 010 080	R1.0X3	4.5	8	50	6
4KCR 030 010 100	R1.0X3	4.5	10	50	3
4KCR 030 010 S04	R1.0X3	4.5	10	50	4
4KCR 030 010 S06	R1.0X3	4.5	10	50	6
4KCR 030 010 120	R1.0X3	4.5	12	50	6
4KCR 030 010 160	R1.0X3	4.5	16	60	6
4KCR 030 010 200	R1.0X3	4.5	20	60	6
4KCR 030 010 250	R1.0X3	4.5	25	65	6
4KCR 030 010 300	R1.0X3	4.5	30	70	6
4KCR 030 010 350	R1.0X3	4.5	35	80	6
4KCR 030 010 400	R1.0X3	4.5	40	80	6
4KCR 030 010 500	R1.0X3	4.5	50	100	6
4KCR 040 001 080	R0.1X4	6	8	50	6
4KCR 040 001 100	R0.1X4	6	10	50	6
4KCR 040 001 120	R0.1X4	6	12	50	4
4KCR 040 001 S06	R0.1X4	6	12	50	6
4KCR 040 001 160	R0.1X4	6	16	60	6
4KCR 040 001 200	R0.1X4	6	20	60	6
4KCR 040 001 250	R0.1X4	6	25	65	6
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4KCR 040 001 350	R0.1X4	6	35	80	6
4KCR 040 001 400	R0.1X4	6	40	80	6
4KCR 040 001 450	R0.1X4	6	45	90	6
4KCR 040 001 500	R0.1X4	6	50	100	6
4KCR 040 002 080	R0.2X4	6	8	50	6
4KCR 040 002 100	R0.2X4	6	10	50	6
4KCR 040 002 120	R0.2X4	6	12	50	4
4KCR 040 002 S06	R0.2X4	6	12	50	6
4KCR 040 002 160	R0.2X4	6	16	60	6
4KCR 040 002 200	R0.2X4	6	20	60	6
4KCR 040 002 250	R0.2X4	6	25	65	6
4KCR 040 002 300	R0.2X4	6	30	70	6
4KCR 040 002 350	R0.2X4	6	35	80	6
4KCR 040 002 400	R0.2X4	6	40	80	6
4KCR 040 002 450	R0.2X4	6	45	90	6
4KCR 040 002 500	R0.2X4	6	50	100	6
4KCR 040 003 080	R0.3X4	6	8	50	6
4KCR 040 003 100	R0.3X4	6	10	50	6
4KCR 040 003 120	R0.3X4	6	12	50	4
4KCR 040 003 S06	R0.3X4	6	12	50	6
4KCR 040 003 160	R0.3X4	6	16	60	6
4KCR 040 003 200	R0.3X4	6	20	60	6
4KCR 040 003 250	R0.3X4	6	25	65	6
4KCR 040 003 300	R0.3X4	6	30	70	6
4KCR 040 003 350	R0.3X4	6	35	80	6
4KCR 040 003 400	R0.3X4	6	40	80	6

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
4KCR 040 003 450	R0.3X4	6	45	90	6
4KCR 040 003 500	R0.3X4	6	50	100	6
4KCR 040 005 080	R0.5X4	6	8	50	6
4KCR 040 005 100	R0.5X4	6	10	50	6
4KCR 040 005 120	R0.5X4	6	12	50	4
4KCR 040 005 S06	R0.5X4	6	12	50	6
4KCR 040 005 160	R0.5X4	6	16	50	4
4KCR 040 005 100L	R0.5X4	6	16	100	4
4KCR 040 160 S06	R0.5X4	6	16	60	6
4KCR 040 005 200	R0.5X4	6	20	60	6
4KCR 040 005 250	R0.5X4	6	25	65	6
4KCR 040 005 300	R0.5X4	6	30	70	6
4KCR 040 005 350	R0.5X4	6	35	80	6
4KCR 040 005 400	R0.5X4	6	40	80	6
4KCR 040 005 450	R0.5X4	6	45	90	6
4KCR 040 005 500	R0.5X4	6	50	100	6
4KCR 040 010 080	R1.0X4	6	8	50	6
4KCR 040 010 100	R1.0X4	6	10	50	6
4KCR 040 010 120	R1.0X4	6	12	50	4
4KCR 040 120 S06	R1.0X4	6	12	50	6
4KCR 040 010 160	R1.0X4	6	16	50	4
4KCR 040 010 S06	R1.0X4	6	16	60	6
4KCR 040 010 200	R1.0X4	6	20	60	6
4KCR 040 010 250	R1.0X4	6	25	65	6
4KCR 040 010 300	R1.0X4	6	30	70	6
4KCR 040 010 350	R1.0X4	6	35	80	6
4KCR 040 010 400	R1.0X4	6	40	80	6
4KCR 040 010 450	R1.0X4	6	45	90	6
4KCR 040 010 500	R1.0X4	6	50	100	6
4KCR 050 001 180	R0.1X5	7.5	18	60	6
4KCR 050 001 300	R0.1X5	7.5	30	70	6
4KCR 050 001 400	R0.1X5	7.5	40	80	6
4KCR 050 001 500	R0.1X5	7.5	50	100	6
4KCR 050 002 180	R0.2X5	7.5	18	60	6
4KCR 050 002 300	R0.2X5	7.5	30	70	6
4KCR 050 002 400	R0.2X5	7.5	40	80	6
4KCR 050 002 500	R0.2X5	7.5	50	100	6
4KCR 050 003 180	R0.3X5	7.5	18	60	6
4KCR 050 003 300	R0.3X5	7.5	30	70	6
4KCR 050 003 400	R0.3X5	7.5	40	80	6
4KCR 050 003 500	R0.3X5	7.5	50	100	6
4KCR 050 005 180	R0.5X5	7.5	18	60	6
4KCR 050 005 300	R0.5X5	7.5	30	70	6
4KCR 050 005 400	R0.5X5	7.5	40	80	6
4KCR 050 005 500	R0.5X5	7.5	50	100	6
4KCR 050 010 180	R1.0X5	7.5	18	60	6
4KCR 050 010 300	R1.0X5	7.5	30	70	6
4KCR 050 010 400	R1.0X5	7.5	40	80	6
4KCR 050 010 500	R1.0X5	7.5	50	100	6
4KCR 060 001 200	R0.1X6	9	20	60	6
4KCR 060 001 400	R0.1X6	9	40	90	6
4KCR 060 001 500	R0.1X6	9	50	100	6

4KCR Corner



0.02R-1.5R

2R-3R

Unit : mm

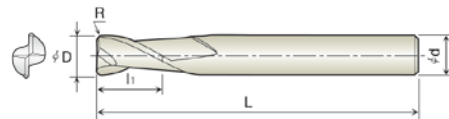
Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
4KCR 060 002 200	R0.2X6	9	20	60	6
4KCR 060 002 75L	R0.2X6	9	20	75	6
4KCR 060 002 100L	R0.2X6	9	20	100	6
4KCR 060 002 300	R0.2X6	9	30	80	6
4KCR 060 002 400	R0.2X6	9	40	90	6
4KCR 060 002 500	R0.2X6	9	50	100	6
4KCR 060 003 200	R0.3X6	9	20	60	6
4KCR 060 003 75L	R0.3X6	9	20	75	6
4KCR 060 003 100L	R0.3X6	9	20	100	6
4KCR 060 003 300	R0.3X6	9	30	80	6
4KCR 060 003 400	R0.3X6	9	40	90	6
4KCR 060 003 500	R0.3X6	9	50	100	6
4KCR 060 005 200	R0.5X6	9	20	60	6
4KCR 060 005 75L	R0.5X6	9	20	75	6
4KCR 060 005 100L	R0.5X6	9	20	100	6
4KCR 060 005 300	R0.5X6	9	30	80	6
4KCR 060 005 400	R0.5X6	9	40	90	6
4KCR 060 005 500	R0.5X6	9	50	100	6
4KCR 060 010 200	R1.0X6	9	20	60	6
4KCR 060 010 75L	R1.0X6	9	20	75	6
4KCR 060 010 100L	R1.0X6	9	20	100	6
4KCR 060 010 300	R1.0X6	9	30	80	6
4KCR 060 010 400	R1.0X6	9	40	90	6
4KCR 060 010 500	R1.0X6	9	50	100	6
4KCR 060 015 200	R1.5X6	9	20	60	6
4KCR 060 015 75L	R1.5X6	9	20	75	6
4KCR 060 015 100L	R1.5X6	9	20	100	6
4KCR 060 015 300	R1.5X6	9	30	80	6
4KCR 060 015 400	R1.5X6	9	40	90	6
4KCR 060 015 500	R1.5X6	9	50	100	6
4KCR 060 020 200	R2.0X6	9	20	60	6
4KCR 060 020 75L	R2.0X6	9	20	75	6
4KCR 060 020 100L	R2.0X6	9	20	100	6
4KCR 060 020 400	R2.0X6	9	40	90	6
4KCR 080 001 240	R0.1X8	12	24	65	8
4KCR 080 002 240	R0.2X8	12	24	65	8
4KCR 080 002 75L	R0.2X8	12	24	75	8
4KCR 080 002 100L	R0.2X8	12	24	100	8
4KCR 080 003 240	R0.3X8	12	24	65	8
4KCR 080 003 75L	R0.3X8	12	24	75	8
4KCR 080 003 100L	R0.3X8	12	24	100	8
4KCR 080 005 240	R0.5X8	12	24	65	8
4KCR 080 005 75L	R0.5X8	12	24	75	8
4KCR 080 005 100L	R0.5X8	12	24	100	8
4KCR 080 005 300	R0.5X8	12	30	90	8
4KCR 080 005 400	R0.5X8	12	40	100	8
4KCR 080 010 240	R1.0X8	12	24	65	8
4KCR 080 010 75L	R1.0X8	12	24	75	8
4KCR 080 010 100L	R1.0X8	12	24	100	8
4KCR 080 010 125L	R1.0X8	12	24	125	8
4KCR 080 010 300	R1.0X8	12	30	90	8
4KCR 080 010 400	R1.0X8	12	40	100	8

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
4KCR 080 015 240	R1.5X8	12	24	65	8
4KCR 080 015 75L	R1.5X8	12	24	75	8
4KCR 080 015 100L	R1.5X8	12	24	100	8
4KCR 080 015 400	R1.5X8	12	40	100	8
4KCR 080 020 240	R2.0X8	12	24	65	8
4KCR 080 020 75L	R2.0X8	12	24	75	8
4KCR 080 020 300	R2.0X8	12	30	90	8
4KCR 100 002 300	R0.2X10	15	30	70	10
4KCR 100 002 75L	R0.2X10	15	30	75	10
4KCR 100 002 100L	R0.2X10	15	30	100	10
4KCR 100 003 300	R0.3X10	15	30	70	10
4KCR 100 003 75L	R0.3X10	15	30	75	10
4KCR 100 003 100L	R0.3X10	15	30	100	10
4KCR 100 005 300	R0.5X10	15	30	70	10
4KCR 100 005 75L	R0.5X10	15	30	75	10
4KCR 100 005 100L	R0.5X10	15	30	100	10
4KCR 100 005 400	R0.5X10	15	40	100	10
4KCR 100 010 300	R1.0X10	15	30	70	10
4KCR 100 010 75L	R1.0X10	15	30	75	10
4KCR 100 010 100L	R1.0X10	15	30	100	10
4KCR 100 010 150L	R1.0X10	15	30	150	10
4KCR 100 010 400	R1.0X10	15	40	100	10
4KCR 100 015 300	R1.5X10	15	30	70	10
4KCR 100 015 75L	R1.5X10	15	30	75	10
4KCR 100 015 100L	R1.5X10	15	30	100	10
4KCR 100 015 400	R1.5X10	15	40	100	10
4KCR 100 020 300	R2.0X10	15	30	70	10
4KCR 100 020 75L	R2.0X10	15	30	75	10
4KCR 100 020 100L	R2.0X10	15	30	100	10
4KCR 100 020 400	R2.0X10	15	40	100	10
4KCR 100 025 300	R2.5X10	15	30	70	10
4KCR 120 003 300	R0.3X12	18	30	80	12
4KCR 120 003 110L	R0.3X12	18	30	110	12
4KCR 120 005 300	R0.5X12	18	30	80	12
4KCR 120 005 110L	R0.5X12	18	30	110	12
4KCR 120 005 150L	R0.5X12	18	30	150	12
4KCR 120 005 400	R0.5X12	18	40	110	12
4KCR 120 010 300	R1.0X12	18	30	80	12
4KCR 120 010 110L	R1.0X12	18	30	110	12
4KCR 120 010 150L	R1.0X12	18	30	150	12
4KCR 120 010 400	R1.0X12	18	40	110	12
4KCR 120 015 300	R1.5X12	18	30	80	12
4KCR 120 015 110L	R1.5X12	18	30	110	12
4KCR 120 015 400	R1.5X12	18	40	110	12
4KCR 120 020 300	R2.0X12	18	30	80	12
4KCR 120 020 110L	R2.0X12	18	30	110	12
4KCR 120 020 150L	R2.0X12	18	30	150	12
4KCR 120 020 200L	R2.0X12	18	30	200	12
4KCR 120 020 400	R2.0X12	18	40	110	12
4KCR 120 030 300	R3.0X12	18	30	80	12
4KCR 120 030 110L	R3.0X12	18	30	110	12

2 Flutes Corner Radius End Mills

Endmills for pre-hardened and hardened steel (HRC52-60)

- Maximize the wear-resistance due to TiSiN coating.
- Geometry design to protect the breakage of cutting edge and improve the cutting performance.



Size	D Tolerance
D ≤ Φ5	+0~-0.01
Φ6~Φ12	+0~-0.015
D ≥ Φ14	+0~-0.02

Unit: mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	R×D	L1	L	d
2KNR 002 0002 S04	0.2XR0.02	0.4	45	4
2KNR 002 0005 S04	0.2XR0.05	0.4	45	4
2KNR 003 0002 S04	0.3XR0.02	0.6	45	4
2KNR 003 0005 S04	0.3XR0.05	0.6	45	4
2KNR 003 001 S04	0.3XR0.1	0.6	45	4
2KNR 004 0002 S04	0.4XR0.02	0.8	45	4
2KNR 004 0005 S04	0.4XR0.05	0.8	45	4
2KNR 004 001 S04	0.4XR0.1	0.8	45	4
2KNR 005 0002 S04	0.5XR0.02	1	45	4
2KNR 005 0005 S04	0.5XR0.05	1	45	4
2KNR 005 001 S04	0.5XR0.1	1	45	4
2KNR 006 0002 S04	0.6XR0.02	1.2	45	4
2KNR 006 0005 S04	0.6XR0.05	1.2	45	4
2KNR 006 001 S04	0.6XR0.1	1.2	45	4
2KNR 006 002 S04	0.6XR0.2	1.2	45	4
2KNR 007 0005 S04	0.7XR0.05	1.4	45	4
2KNR 007 001 S04	0.7XR0.1	1.4	45	4
2KNR 007 002 S04	0.7XR0.2	1.4	45	4
2KNR 008 0002 S04	0.8XR0.02	1.6	45	4
2KNR 008 0005 S04	0.8XR0.05	1.6	45	4
2KNR 008 001 S04	0.8XR0.1	1.6	45	4
2KNR 008 002 S04	0.8XR0.2	1.6	45	4
2KNR 009 0005 S04	0.9XR0.05	1.8	45	4
2KNR 009 001 S04	0.9XR0.1	1.8	45	4
2KNR 010 0002 S04	1XR0.02	2.5	45	4
2KNR 010 0005 S04	1XR0.05	2.5	45	4
2KNR 010 001 S04	1XR0.1	2.5	45	4
2KNR 010 002 S04	1XR0.2	2.5	45	4
2KNR 010 003 S04	1XR0.3	2.5	45	4
2KNR 012 0002 S04	1.2XR0.02	3.2	45	4
2KNR 012 0005 S04	1.2XR0.05	3.2	45	4
2KNR 012 001 S04	1.2XR0.1	3.2	45	4
2KNR 012 002 S04	1.2XR0.2	3.2	45	4
2KNR 012 003 S04	1.2XR0.3	3.2	45	4
2KNR 015 0002 S04	1.5XR0.02	4	45	4
2KNR 015 0005 S04	1.5XR0.05	4	45	4
2KNR 015 001 S04	1.5XR0.1	4	45	4

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	R×D	L1	L	d
2KNR 015 002 S04	1.5XR0.2	4	45	4
2KNR 015 003 S04	1.5XR0.3	4	45	4
2KNR 015 005 S04	1.5XR0.5	4	45	4
2KNR 020 0002 S04	2XR0.02	6	45	4
2KNR 020 0005 S04	2XR0.05	6	45	4
2KNR 020 001 S04	2XR0.1	6	45	4
2KNR 020 002 S04	2XR0.2	6	45	4
2KNR 020 003 S04	2XR0.3	6	45	4
2KNR 020 005 S04	2XR0.5	6	45	4
2KNR 025 0005 S04	2.5XR0.05	6	50	4
2KNR 025 001 S04	2.5XR0.1	6	50	4
2KNR 025 002 S04	2.5XR0.2	6	50	4
2KNR 025 003 S04	2.5XR0.3	6	50	4
2KNR 025 005 S04	2.5XR0.5	6	50	4
2KNR 030 0005 S06	3XR0.05	8	60	6
2KNR 030 001 S06	3XR0.1	8	60	6
2KNR 030 002 S06	3XR0.2	8	60	6
2KNR 030 003 S06	3XR0.3	8	60	6
2KNR 030 005 S06	3XR0.5	8	60	6
2KNR 030 010 S06	3XR1.0	8	60	6
2KNR 035 001 S06	3.5XR0.1	9	70	6
2KNR 035 002 S06	3.5XR0.2	9	70	6
2KNR 035 003 S06	3.5XR0.3	9	70	6
2KNR 035 005 S06	3.5XR0.5	9	70	6
2KNR 035 010 S06	3.5XR1.0	9	70	6
2KNR 040 0005 S06	4XR0.05	10	60	4
2KNR 040 0005 S06	4XR0.05	10	70	6
2KNR 040 001 S06	4XR0.1	10	60	4
2KNR 040 001 S06	4XR0.1	10	70	6
2KNR 040 002 S06	4XR0.2	10	60	4
2KNR 040 002 S06	4XR0.2	10	70	6
2KNR 040 003 S06	4XR0.3	10	60	4
2KNR 040 003 S06	4XR0.3	10	70	6
2KNR 040 005 S06	4XR0.5	10	60	4
2KNR 040 005 S06	4XR0.5	10	70	6
2KNR 040 010 S06	4XR1.0	10	60	4
2KNR 040 010 S06	4XR1.0	10	70	6



0.02R-1.5R

2R-3R

Unit : mm

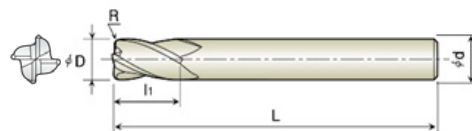
Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	R×D	L1	L	d
2KNR 045 001 S06	4.5 XR0.1	11	75	6
2KNR 045 002 S06	4.5 XR0.2	11	75	6
2KNR 045 003 S06	4.5 XR0.3	11	75	6
2KNR 045 005 S06	4.5 XR0.5	11	75	6
2KNR 050 001 S06	5 XR0.1	13	75	6
2KNR 050 002 S06	5 XR0.2	13	75	6
2KNR 050 003 S06	5 XR0.3	13	75	6
2KNR 050 005 S06	5 XR0.5	13	75	6
2KNR 050 010 S06	5 XR1.0	13	75	6
2KNR 060 0005 060	6 XR0.05	11	60	6
2KNR 060 0005 090	6 XR0.05	13	90	6
2KNR 060 001 060	6 XR0.1	11	60	6
2KNR 060 001 090	6 XR0.1	13	90	6
2KNR 060 002 060	6 XR0.2	11	60	6
2KNR 060 002 090	6 XR0.2	13	90	6
2KNR 060 003 060	6 XR0.3	11	60	6
2KNR 060 003 090	6 XR0.3	13	90	6
2KNR 060 005 060	6 XR0.5	11	60	6
2KNR 060 005 090	6 XR0.5	13	90	6
2KNR 060 010 060	6 XR1.0	11	60	6
2KNR 060 010 090	6 XR1.0	13	90	6
2KNR 060 015 060	6 XR1.5	11	60	6
2KNR 060 015 090	6 XR1.5	13	90	6
2KNR 060 020 060	6 XR2.0	11	60	6
2KNR 060 020 090	6 XR2.0	13	90	6
2KNR 060 025 090	6 XR2.5	13	90	6
2KNR 080 001 070	8 XR0.1	16	70	8
2KNR 080 001 100	8 XR0.1	19	100	8
2KNR 080 002 070	8 XR0.2	16	70	8
2KNR 080 002 100	8 XR0.2	19	100	8
2KNR 080 003 070	8 XR0.3	16	70	8
2KNR 080 003 100	8 XR0.3	19	100	8
2KNR 080 005 070	8 XR0.5	16	70	8
2KNR 080 005 100	8 XR0.5	19	100	8
2KNR 080 010 070	8 XR1.0	16	70	8
2KNR 080 010 100	8 XR1.0	19	100	8
2KNR 080 015 070	8 XR1.5	16	70	8
2KNR 080 015 100	8 XR1.5	19	100	8
2KNR 080 020 070	8 XR2.0	16	70	8
2KNR 080 020 100	8 XR2.0	19	100	8
2KNR 080 025 100	8 XR2.5	19	100	8
2KNR 080 030 100	8 XR3.0	19	100	8
2KNR 080 035 100	8 XR3.5	19	100	8
2KNR 100 001 075	10 XR0.1	19	75	10
2KNR 100 001 100	10 XR0.1	22	100	10
2KNR 100 002 075	10 XR0.2	19	75	10
2KNR 100 002 100	10 XR0.2	22	100	10
2KNR 100 003 075	10 XR0.3	19	75	10

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	R×D	L1	L	d
2KNR 100 003 100	10 XR0.3	22	100	10
2KNR 100 005 075	10 XR0.5	19	75	10
2KNR 100 005 100	10 XR0.5	22	100	10
2KNR 100 010 075	10 XR1.0	19	75	10
2KNR 100 010 100	10 XR1.0	22	100	10
2KNR 100 015 075	10 XR1.5	19	75	10
2KNR 100 015 100	10 XR1.5	22	100	10
2KNR 100 020 075	10 XR2.0	19	75	10
2KNR 100 020 100	10 XR2.0	22	100	10
2KNR 100 025 100	10 XR2.5	22	100	10
2KNR 100 030 100	10 XR3.0	22	100	10
2KNR 100 040 100	10 XR4.0	22	100	10
2KNR 120 001 080	12 XR0.1	22	80	12
2KNR 120 001 110	12 XR0.1	26	110	12
2KNR 120 002 080	12 XR0.2	22	80	12
2KNR 120 002 110	12 XR0.2	26	110	12
2KNR 120 003 080	12 XR0.3	22	80	12
2KNR 120 003 110	12 XR0.3	26	110	12
2KNR 120 005 080	12 XR0.5	22	80	12
2KNR 120 005 110	12 XR0.5	26	110	12
2KNR 120 005 130	12 XR0.5	26	130	12
2KNR 120 010 080	12 XR1.0	22	80	12
2KNR 120 010 110	12 XR1.0	26	110	12
2KNR 120 010 130	12 XR1.0	26	130	12
2KNR 120 015 080	12 XR1.5	22	80	12
2KNR 120 015 110	12 XR1.5	26	110	12
2KNR 120 015 130	12 XR1.5	26	130	12
2KNR 120 020 080	12 XR2.0	22	80	12
2KNR 120 020 110	12 XR2.0	26	110	12
2KNR 120 020 130	12 XR2.0	26	130	12
2KNR 120 025 110	12 XR2.5	26	110	12
2KNR 120 030 110	12 XR3.0	26	110	12
2KNR 120 040 110	12 XR4.0	26	110	12
2KNR 120 050 110	12 XR5.0	26	110	12
2KNR 160 005 110	16 XR0.5	32	110	16
2KNR 160 005 150	16 XR0.5	32	150	16
2KNR 160 010 110	16 XR1.0	32	110	16
2KNR 160 010 150	16 XR1.0	32	150	16
2KNR 160 015 110	16 XR1.5	32	110	16
2KNR 160 020 110	16 XR2.0	32	110	16
2KNR 160 030 110	16 XR3.0	32	110	16
2KNR 200 005 110	20 XR0.5	38	110	20
2KNR 200 005 150	20 XR0.5	38	150	20
2KNR 200 010 110	20 XR1.0	38	110	20
2KNR 200 010 150	20 XR1.0	38	150	20
2KNR 200 015 110	20 XR1.5	38	110	20
2KNR 200 020 110	20 XR2.0	38	110	20
2KNR 200 030 110	20 XR3.0	38	110	20

4 Flutes Corner Radius End Mills

Endmills for pre-hardened and hardened steel (HRC52-60)

- Designed for high speed cutting of hardened steels over HRC52.
- Maximize the wear-resistance due to TiSiN coating.



Size	D Tolerance
$D \leq \Phi 5$	+0~-0.01
$\Phi 6 \sim \Phi 12$	+0~-0.015
$D \geq \Phi 14$	+0~-0.02

Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank dia
	R×D	L1	L	d
4KNR 010 0002 S04	R0.02 X 1	2.5	45	4
4KNR 010 0005 S04	R0.05 X 1	2.5	45	4
4KNR 010 001 S04	R0.1 X 1	2.5	45	4
4KNR 010 002 S04	R0.2 X 1	2.5	45	4
4KNR 010 003 S04	R0.3 X 1	2.5	45	4
4KNR 012 0002 S04	R0.02 X 1.2	3.2	45	4
4KNR 012 0005 S04	R0.05 X 1.2	3.2	45	4
4KNR 012 001 S04	R0.1 X 1.2	3.2	45	4
4KNR 012 002 S04	R0.2 X 1.2	3.2	45	4
4KNR 012 003 S04	R0.3 X 1.2	3.2	45	4
4KNR 015 0002 S04	R0.02 X 1.5	4	45	4
4KNR 015 0005 S04	R0.05 X 1.5	4	45	4
4KNR 015 001 S04	R0.1 X 1.5	4	45	4
4KNR 015 002 S04	R0.2 X 1.5	4	45	4
4KNR 015 003 S04	R0.3 X 1.5	4	45	4
4KNR 015 005 S04	R0.5 X 1.5	4	45	4
4KNR 020 0002 S04	R0.02 X 2	6	45	4
4KNR 020 0005 S04	R0.05 X 2	6	45	4
4KNR 020 001 S04	R0.1 X 2	6	45	4
4KNR 020 002 S04	R0.2 X 2	6	45	4
4KNR 020 003 S04	R0.3 X 2	6	45	4
4KNR 020 005 S04	R0.5 X 2	6	45	4
4KNR 025 0005 S04	R0.05 X 2.5	6	50	4
4KNR 025 001 S04	R0.1 X 2.5	6	50	4
4KNR 025 002 S04	R0.2 X 2.5	6	50	4
4KNR 025 003 S04	R0.3 X 2.5	6	50	4
4KNR 025 005 S04	R0.5 X 2.5	6	50	4
4KNR 030 0005 S06	R0.05 X 3	8	60	6
4KNR 030 001 S06	R0.1 X 3	8	60	6
4KNR 030 002 S06	R0.2 X 3	8	60	6
4KNR 030 003 S06	R0.3 X 3	8	60	6
4KNR 030 005 S06	R0.5 X 3	8	60	6
4KNR 030 010 S06	R1 X 3	8	60	6

Order Number	Diameter	Length of cut	Overall Length	Shank dia
	R×D	L1	L	d
4KNR 035 001 S06	R0.1 X 3.5	9	70	6
4KNR 035 002 S06	R0.2 X 3.5	9	70	6
4KNR 035 003 S06	R0.3 X 3.5	9	70	6
4KNR 035 005 S06	R0.5 X 3.5	9	70	6
4KNR 035 010 S06	R1 X 3.5	9	70	6
4KNR 040 0005 S06	R0.05 X 4	10	60	4
4KNR 040 0005 S06	R0.05 X 4	10	70	6
4KNR 040 001 S06	R0.1 X 4	10	60	4
4KNR 040 001 S06	R0.1 X 4	10	70	6
4KNR 040 002 S06	R0.2 X 4	10	60	4
4KNR 040 002 S06	R0.2 X 4	10	70	6
4KNR 040 003 S06	R0.3 X 4	10	60	4
4KNR 040 003 S06	R0.3 X 4	10	70	6
4KNR 040 005 S06	R0.5 X 4	10	60	4
4KNR 040 005 S06	R0.5 X 4	10	70	6
4KNR 040 010 S06	R1 X 4	10	60	4
4KNR 040 010 S06	R1 X 4	10	70	6
4KNR 045 001 S06	R0.1 X 4.5	11	75	6
4KNR 045 002 S06	R0.2 X 4.5	11	75	6
4KNR 045 003 S06	R0.3 X 4.5	11	75	6
4KNR 045 005 S06	R0.5 X 4.5	11	75	6
4KNR 050 001 S06	R0.1 X 5	13	75	6
4KNR 050 002 S06	R0.2 X 5	13	75	6
4KNR 050 003 S06	R0.3 X 5	13	75	6
4KNR 050 005 S06	R0.5 X 5	13	75	6
4KNR 050 010 S06	R1 X 5	13	75	6
4KNR 060 0005 S06	R0.05 X 6	11	60	6
4KNR 060 0005 S06	R0.05 X 6	13	90	6
4KNR 060 001 S06	R0.1 X 6	11	60	6
4KNR 060 001 S06	R0.1 X 6	13	90	6
4KNR 060 002 S06	R0.2 X 6	11	60	6
4KNR 060 002 S06	R0.2 X 6	13	90	6
4KNR 060 003 S06	R0.3 X 6	11	60	6



0.02R-1.5R

2R-3R

Unit : mm

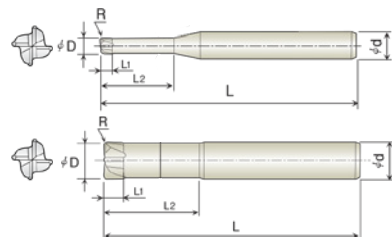
Order Number	Diameter	Length of cut	Overall Length	Shank dia
	R×D	L1	L	d
4KNR 060 003 090	R0.3 X 6	13	90	6
4KNR 060 005 060	R0.5 X 6	11	60	6
4KNR 060 005 090	R0.5 X 6	13	90	6
4KNR 060 010 060	R1 X 6	11	60	6
4KNR 060 010 090	R1 X 6	13	90	6
4KNR 060 015 060	R1.5 X 6	11	60	6
4KNR 060 015 090	R1.5 X 6	13	90	6
4KNR 060 020 060	R2 X 6	11	60	6
4KNR 060 020 090	R2 X 6	13	90	6
4KNR 060 025 090	R2.5 X 6	13	90	6
4KNR 080 001 070	R0.1 X 8	16	70	8
4KNR 080 001 100	R0.1 X 8	19	100	8
4KNR 080 002 070	R0.2 X 8	16	70	8
4KNR 080 002 100	R0.2 X 8	19	100	8
4KNR 080 003 070	R0.3 X 8	16	70	8
4KNR 080 003 100	R0.3 X 8	19	100	8
4KNR 080 005 070	R0.5 X 8	16	70	8
4KNR 080 005 100	R0.5 X 8	19	100	8
4KNR 080 010 070	R1 X 8	16	70	8
4KNR 080 010 100	R1 X 8	19	100	8
4KNR 080 015 070	R1.5 X 8	16	70	8
4KNR 080 015 100	R1.5 X 8	19	100	8
4KNR 080 020 070	R2 X 8	16	70	8
4KNR 080 020 100	R2 X 8	19	100	8
4KNR 080 025 100	R2.5 X 8	19	100	8
4KNR 080 030 100	R3 X 8	19	100	8
4KNR 080 350 100	R3.5 X 8	19	100	8
4KNR 100 001 075	R0.1 X 10	19	75	10
4KNR 100 001 100	R0.1 X 10	22	100	10
4KNR 100 002 075	R0.2 X 10	19	75	10
4KNR 100 002 100	R0.2 X 10	22	100	10
4KNR 100 003 075	R0.3 X 10	19	75	10
4KNR 100 003 100	R0.3 X 10	22	100	10
4KNR 100 005 075	R0.5 X 10	19	75	10
4KNR 100 005 100	R0.5 X 10	22	100	10
4KNR 100 010 075	R1 X 10	19	75	10
4KNR 100 010 100	R1 X 10	22	100	10
4KNR 100 015 075	R1.5 X 10	19	75	10
4KNR 100 015 100	R1.5 X 10	22	100	10
4KNR 100 020 075	R2 X 10	19	75	10
4KNR 100 020 100	R2 X 10	22	100	10
4KNR 100 025 100	R2.5 X 10	22	100	10

Order Number	Diameter	Length of cut	Overall Length	Shank dia
	R×D	L1	L	d
4KNR 100 030 100	R3 X 10	22	100	10
4KNR 100 040 100	R4 X 10	22	100	10
4KNR 120 001 080	R0.1 X 12	22	80	12
4KNR 120 001 110	R0.1 X 12	26	110	12
4KNR 120 002 080	R0.2 X 12	22	80	12
4KNR 120 002 110	R0.2 X 12	26	110	12
4KNR 120 003 080	R0.3 X 12	22	80	12
4KNR 120 003 110	R0.3 X 12	26	110	12
4KNR 120 005 080	R0.5 X 12	22	80	12
4KNR 120 005 110	R0.5 X 12	26	110	12
4KNR 120 005 130	R0.5 X 12	26	130	12
4KNR 120 010 080	R1 X 12	22	80	12
4KNR 120 010 110	R1 X 12	26	110	12
4KNR 120 010 130	R1 X 12	26	130	12
4KNR 120 015 080	R1.5 X 12	22	80	12
4KNR 120 015 110	R1.5 X 12	26	110	12
4KNR 120 015 130	R1.5 X 12	26	130	12
4KNR 120 020 080	R2 X 12	22	80	12
4KNR 120 020 110	R2 X 12	26	110	12
4KNR 120 020 130	R2 X 12	26	130	12
4KNR 120 025 110	R2.5 X 12	26	110	12
4KNR 120 030 110	R3 X 12	26	110	12
4KNR 120 040 110	R4 X 12	26	110	12
4KNR 120 050 110	R5 X 12	26	110	12
4KNR 160 005 110	R0.5 X 16	32	110	16
4KNR 160 005 150	R0.5 X 16	32	150	16
4KNR 160 010 110	R1 X 16	32	110	16
4KNR 160 010 150	R1 X 16	32	150	16
4KNR 160 015 110	R1.5 X 16	32	110	16
4KNR 160 020 110	R2 X 16	32	110	16
4KNR 160 030 110	R3 X 16	32	110	16
4KNR 200 005 110	R0.5 X 20	38	110	20
4KNR 200 005 150	R0.5 X 20	38	150	20
4KNR 200 010 110	R1 X 20	38	110	20
4KNR 200 010 150	R1 X 20	38	150	20
4KNR 200 015 110	R1.5 X 20	38	110	20
4KNR 200 020 110	R2 X 20	38	110	20
4KNR 200 030 110	R3 X 20	38	110	20

4 Flutes Corner Radius for High Speed & Feedrate

Endmills for pre-hardened and hardened steel (HRC52-60)

- Designed for high speed cutting of hardened steels over HRc50.
- Maximize the wear-resistance due to TiSiN coating.



Size	D Tolerance
D < Ø6	+0~-0.010mm
D ≥ Ø6	+0~-0.015mm

Unit : mm

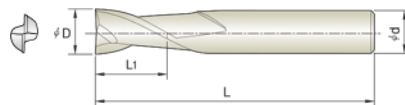
Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
4KCU 015 003 040	R0.3 X 1.5	0.8	4	45	6
4KCU 020 005 060	R0.5 X 2	1	6	50	6
4KCU 020 005 70L	R0.5 X 2	1	6	70	6
4KCU 030 005 080	R0.5 X 3	1.5	8	50	6
4KCU 030 005 70L	R0.5 X 3	1.5	8	70	6
4KCU 030 010 080	R1.0 X 3	1.5	8	50	6
4KCU 030 010 200	R1.0 X 3	1.5	20	60	6
4KCU 040 005 120	R0.5 X 4	2	12	60	6
4KCU 040 005 70L	R0.5 X 4	2	12	70	6
4KCU 040 005 160	R0.5 X 4	2	16	60	6
4KCU 040 160 70L	R0.5 X 4	2	16	70	6
4KCU 040 010 120	R1.0 X 4	2	12	60	6
4KCU 040 010 70L	R1.0 X 4	2	12	70	6
4KCU 040 010 160	R1.0 X 4	2	16	60	6
4KCU 040 160 070	R1.0 X 4	2	16	70	6
4KCU 050 010 150	R1.0 X 5	2.5	15	60	6
4KCU 060 005 120	R0.5 X 6	3	12	60	6
4KCU 060 005 150	R0.5 X 6	3	15	60	6
4KCU 060 005 80L	R0.5 X 6	3	15	80	6
4KCU 060 005 200	R0.5 X 6	3	20	80	6
4KCU 060 005 300	R0.5 X 6	3	30	80	6
4KCU 060 010 150	R1.0 X 6	3	15	60	6
4KCU 060 010 80L	R1.0 X 6	3	15	80	6
4KCU 060 010 200	R1.0 X 6	3	20	80	6
4KCU 060 010 300	R1.0 X 6	3	30	80	6
4KCU 060 015 150	R1.5 X 6	3	15	60	6

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
4KCU 080 005 200	R0.5 X 8	4	20	65	8
4KCU 080 005 90L	R0.5 X 8	4	20	90	8
4KCU 080 005 100L	R0.5 X 8	4	20	100	8
4KCU 080 005 400	R0.5 X 8	4	40	90	8
4KCU 080 010 200	R1.0 X 8	4	20	65	8
4KCU 080 010 90L	R1.0 X 8	4	20	90	8
4KCU 080 010 100L	R1.0 X 8	4	20	100	8
4KCU 080 010 300	R1.0 X 8	4	30	90	8
4KCU 080 010 400	R1.0 X 8	4	40	90	8
4KCU 080 020 200	R2.0 X 8	4	20	65	8
4KCU 080 020 100L	R2.0 X 8	4	20	100	8
4KCU 100 005 250	R0.5 X 10	5	25	70	10
4KCU 100 005 100L	R0.5 X 10	5	25	100	10
4KCU 100 010 250	R1.0 X 10	5	25	70	10
4KCU 100 010 100L	R1.0 X 10	5	25	100	10
4KCU 100 010 110L	R1.0 X 10	5	25	110	10
4KCU 100 010 400	R1.0 X 10	5	40	100	10
4KCU 100 020 200	R2.0 X 10	5	20	70	10
4KCU 100 020 250	R2.0 X 10	5	25	70	10
4KCU 100 020 110L	R2.0 X 10	5	25	110	10
4KCU 120 010 300	R1.0 X 12	6	30	80	12
4KCU 120 010 110L	R1.0 X 12	6	30	110	12
4KCU 120 010 400	R1.0 X 12	6	40	110	12
4KCU 120 020 300	R2.0 X 12	6	30	80	12
4KCU 120 020 110L	R2.0 X 12	6	30	110	12
4KCU 120 020 400	R2.0 X 12	6	40	110	12

2 Flutes Square End Mills

Endmills for pre-hardened and hardened steel (HRC52-60)

- Designed for high speed cutting of hardened steels over HRC52.
- Maximize the wear-resistance due to TiSiN coating.



Size	D Tolerance
D < Ø6	+0~-0.010mm
D ≥ Ø6	+0~-0.015mm

/Unit: mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
2KCE 001 002 S04	0.1	0.2	45	4
2KCE 002 004 S04	0.2	0.4	45	4
2KCE 003 006 S04	0.3	0.6	45	4
2KCE 004 008 S04	0.4	0.8	45	4
2KCE 005 010 S03	0.5	1	45	3
2KCE 005 010 S04	0.5	1	45	4
2KCE 006 012 S03	0.6	1.2	45	3
2KCE 006 012 S04	0.6	1.2	45	4
2KCE 007 014 S04	0.7	1.4	45	4
2KCE 008 016 S03	0.8	1.6	45	3
2KCE 008 016 S04	0.8	1.6	45	4
2KCE 009 018 S04	0.9	1.8	45	4
2KCE 010 025 S03	1	2.5	45	3
2KCE 010 025 S04	1	2.5	45	4
2KCE 010 025 S06	1	2.5	45	6
2KCE 012 040 S03	1.2	4	45	3
2KCE 012 040 S04	1.2	4	45	4
2KCE 012 040 S06	1.2	4	45	6
2KCE 014 040 S06	1.4	4	45	6
2KCE 015 040 S03	1.5	4	45	3
2KCE 015 040 S04	1.5	4	45	4
2KCE 015 040 S06	1.5	4	45	6
2KCE 016 040 S06	1.6	4	45	6
2KCE 018 045 S06	1.8	4.5	45	6
2KCE 020 060 S03	2	6	45	3
2KCE 020 060 S04	2	6	45	4
2KCE 020 060 S06	2	6	45	6
2KCE 022 060 S06	2.2	6	45	6
2KCE 024 080 S06	2.4	8	50	6
2KCE 025 080 S03	2.5	8	50	3
2KCE 025 080 S04	2.5	8	50	4
2KCE 025 080 S06	2.5	8	50	6

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
2KCE 026 080 S06	2.6	8	50	6
2KCE 028 080 S06	2.8	8	50	6
2KCE 030 080 S04	3	8	50	4
2KCE 030 100 S03	3	10	50	3
2KCE 030 100 S06	3	10	50	6
2KCE 035 100 S06	3.5	10	50	6
2KCE 040 120 050	4	12	50	4
2KCE 040 120 S06	4	12	50	6
2KCE 045 120 S06	4.5	12	50	6
2KCE 050 150 S06	5	15	50	6
2KCE 055 150 S06	5.5	15	50	6
2KCE 060 150 050	6	15	50	6
2KCE 065 160 S08	6.5	16	60	8
2KCE 070 200 S08	7	20	65	8
2KCE 075 200 S08	7.5	20	65	8
2KCE 080 200 065	8	20	65	8
2KCE 085 200 S10	8.5	20	65	10
2KCE 090 250 S10	9	25	70	10
2KCE 095 250 S10	9.5	25	70	10
2KCE 100 250 070	10	25	70	10
2KCE 105 250 S12	10.5	25	75	12
2KCE 110 250 S12	11	25	75	12
2KCE 115 250 S12	11.5	25	75	12
2KCE 120 300 080	12	30	80	12
2KCE 130 350 S14	13	35	90	14
2KCE 140 350 090	14	35	90	14
2KCE 150 350 S16	15	35	100	16
2KCE 160 400 100	16	40	100	16
2KCE 180 450 100	18	45	100	18
2KCE 200 450 100	20	45	100	20

Work Material	PREHARDENED STEELS NAK			HARDENED STEELS SKD61, STAVAX			HARDENED STEELS SKD11		
Hardness (HRC)	HRC30 ~ 45			HRC45 ~ 55			HRC55 ~ 65		
Outside Diameter	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)
0.1	0.01	38,000 ~ 50,000	50 ~ 80	0.005	32,000 ~ 45,000	50 ~ 80	0.003	30,000 ~ 40,000	50 ~ 80
0.2	0.02	30,000 ~ 50,000	60 ~ 240	0.01	28,000 ~ 42,000	60 ~ 240	0.005	25,000 ~ 38,000	50 ~ 100
0.3	0.03	30,000 ~ 48,000	60 ~ 350	0.015	25,000 ~ 40,000	60 ~ 350	0.008	22,000 ~ 35,000	60 ~ 150
0.4	0.04	25,000 ~ 40,000	150 ~ 500	0.02	20,000 ~ 35,000	150 ~ 500	0.01	18,000 ~ 32,000	70 ~ 150
0.5	0.05	16,000 ~ 30,000	150 ~ 500	0.025	12,000 ~ 25,000	150 ~ 500	0.013	15,000 ~ 30,000	70 ~ 150
0.6	0.06	16,000 ~ 30,000	230 ~ 620	0.03	12,000 ~ 25,000	230 ~ 620	0.02	12,000 ~ 25,000	80 ~ 150
0.7	0.07	16,000 ~ 30,000	330 ~ 650	0.04	12,000 ~ 25,000	330 ~ 650	0.02	12,000 ~ 25,000	80 ~ 150
0.8	0.08	16,000 ~ 30,000	250 ~ 900	0.04	12,000 ~ 25,000	250 ~ 900	0.02	12,000 ~ 25,000	80 ~ 150
1	0.1	25,000 ~ 32,000	150 ~ 500	0.05	16,000 ~ 24,000	150 ~ 500	0.03	12,000 ~ 20,000	90 ~ 120
1.5	0.15	18,000 ~ 25,000	200 ~ 500	0.08	10,000 ~ 15,000	200 ~ 500	0.04	8,000 ~ 15,000	100 ~ 150
2	0.2	16,000 ~ 20,000	200 ~ 500	0.1	8,000 ~ 13,000	200 ~ 500	0.05	7,000 ~ 12,000	100 ~ 150
2.5	0.25	10,000 ~ 15,000	200 ~ 500	0.13	7,000 ~ 12,000	200 ~ 500	0.06	6,000 ~ 12,000	120 ~ 230
3	0.3	8,000 ~ 13,000	200 ~ 500	0.15	6,000 ~ 11,000	200 ~ 500	0.08	5,000 ~ 10,000	150 ~ 250
4	0.4	7,000 ~ 12,000	200 ~ 600	0.2	5,000 ~ 10,000	200 ~ 600	0.1	4,000 ~ 9,000	150 ~ 250
5	0.5	6,500 ~ 10,000	200 ~ 500	0.25	4,000 ~ 8,500	200 ~ 500	0.13	3,500 ~ 7,500	150 ~ 230
6	0.6	6,500 ~ 10,000	200 ~ 600	0.3	4,000 ~ 8,500	200 ~ 600	0.15	3,500 ~ 7,500	150 ~ 230
8	1.2	4,500 ~ 8,000	200 ~ 400	0.4	2,500 ~ 6,500	150 ~ 400	0.2	2,500 ~ 5,000	120 ~ 200
10	1.5	3,000 ~ 6,000	200 ~ 400	0.5	2,000 ~ 5,500	150 ~ 400	0.25	2,000 ~ 4,500	120 ~ 200
12	1.8	2,500 ~ 5,000	200 ~ 400	0.6	1,500 ~ 3,500	150 ~ 400	0.3	1,500 ~ 3,200	120 ~ 200

Depth of Cut

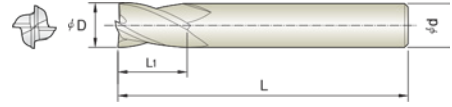
Work Material	PREHARDENED STEELS NAK			HARDENED STEELS SKD61, STAVAX			HARDENED STEELS SKD11		
Hardness (HRC)	HRC30 ~ 45			HRC45 ~ 55			HRC55 ~ 65		
Outside Diameter	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)
1.5	0.030 ~ 0.050	28,000 ~ 38,000	2,500 ~ 6,000	0.030 ~ 0.050	20,000 ~ 30,000	2,000 ~ 5,000	0.005 ~ 0.015	15,000 ~ 25,000	1,000 ~ 4,000
2	0.050 ~ 0.100	25,000 ~ 35,000	3,500 ~ 8,000	0.050 ~ 0.100	20,000 ~ 28,000	2,500 ~ 7,000	0.005 ~ 0.025	15,000 ~ 22,000	1,500 ~ 6,000
3	0.050 ~ 0.100	20,000 ~ 27,000	5,000 ~ 8,000	0.050 ~ 0.100	15,000 ~ 23,000	4,000 ~ 7,000	0.008 ~ 0.025	10,000 ~ 18,000	3,000 ~ 6,000
4	0.050 ~ 0.100	13,000 ~ 18,000	5,000 ~ 8,000	0.050 ~ 0.100	8,000 ~ 15,000	4,000 ~ 7,000	0.008 ~ 0.050	6,000 ~ 12,000	3,000 ~ 6,000
5	0.050 ~ 0.150	8,000 ~ 13,000	5,000 ~ 8,000	0.050 ~ 0.150	6,500 ~ 10,000	4,000 ~ 7,000	0.030 ~ 0.050	4,500 ~ 8,000	3,000 ~ 6,000
6	0.050 ~ 0.150	8,000 ~ 13,000	5,000 ~ 8,000	0.050 ~ 0.150	6,500 ~ 10,000	4,000 ~ 7,000	0.010 ~ 0.050	4,500 ~ 8,000	3,000 ~ 6,000
8	0.050 ~ 0.150	6,000 ~ 9,500	5,000 ~ 9,000	0.050 ~ 0.150	5,000 ~ 7,500	4,000 ~ 8,000	0.020 ~ 0.050	4,000 ~ 6,500	3,000 ~ 7,000
10	0.050 ~ 0.150	6,000 ~ 8,000	5,000 ~ 10,000	0.050 ~ 0.150	4,000 ~ 7,000	4,000 ~ 9,000	0.020 ~ 0.050	3,000 ~ 5,500	3,000 ~ 7,000
12	0.050 ~ 0.150	5,000 ~ 7,000	5,000 ~ 10,000	0.050 ~ 0.150	4,000 ~ 6,000	4,000 ~ 9,000	0.020 ~ 0.050	3,000 ~ 5,000	3,000 ~ 7,000

Depth of Cut

4 Flutes Square End Mills

Endmills for pre-hardened and hardened steel (HRC52-60)

- Designed for high speed cutting of hardened steels over HRC52.
- Maximize the wear-resistance due to TiSiN coating.



Size	D Tolerance
D < Ø6	+0~-0.010mm
D ≥ Ø6	+0~-0.015mm

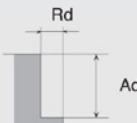
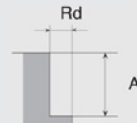
/Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
4KCE 008 016 S04	0.8	1.6	45	4
4KCE 010 025 S04	1	2.5	45	4
4KCE 010 025 S06	1	2.5	45	6
4KCE 012 040 S04	1.2	4	45	4
4KCE 015 040 S04	1.5	4	45	4
4KCE 015 040 S06	1.5	4	45	6
4KCE 020 060 S04	2	6	45	4
4KCE 020 060 S06	2	6	45	6
4KCE 025 080 S04	2.5	8	45	4
4KCE 025 080 S06	2.5	8	45	6
4KCE 030 100 S03	3	10	50	3
4KCE 030 100 S04	3	10	50	4
4KCE 030 100 S06	3	10	50	6
4KCE 035 100 S06	3.5	10	50	6
4KCE 040 120 S05	4	12	50	4
4KCE 040 120 S06	4	12	50	6
4KCE 045 120 S06	4.5	12	50	6
4KCE 050 150 S06	5	15	50	6

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
4KCE 055 150 S06	5.5	15	50	6
4KCE 060 150 S05	6	15	50	6
4KCE 060 150 S075	6	15	75	6
4KCE 060 150 100	6	15	100	6
4KCE 070 200 S08	7	20	65	8
4KCE 080 200 S065	8	20	65	8
4KCE 080 200 S075	8	20	75	8
4KCE 080 200 100	8	20	100	8
4KCE 100 250 S070	10	25	70	10
4KCE 100 250 S075	10	25	75	10
4KCE 100 250 100	10	25	100	10
4KCE 120 300 S080	12	30	80	12
4KCE 120 300 100	12	30	100	12
4KCE 140 350 S090	14	35	90	14
4KCE 160 400 100	16	40	100	16
4KCE 180 450 100	18	45	100	18
4KCE 200 450 100	20	45	100	20

4KCE/4BCE

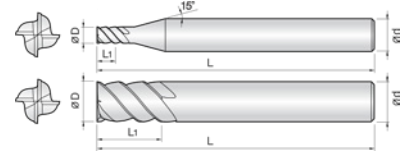
• RPM : rev./min • Feed : mm/min

Work Material	PREHARDENED STEELS NAK			HARDENED STEELS SKD61, STAVAX			HARDENED STEELS SKD11		
Hardness (HRC)	HRC30 ~ 45			HRC45 ~ 55			HRC55 ~ 65		
Outside Diameter	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)
0.8	0.04	15,000 ~ 28,000	250 ~ 900	0.04	12,000 ~ 25,000	250 ~ 900	0.01	10,000 ~ 20,000	100 ~ 650
1	0.05	12,000 ~ 25,000	400 ~ 2,000	0.05	10,000 ~ 20,000	300 ~ 1,800	0.02	8,000 ~ 18,000	200 ~ 1,200
1.2	0.06	10,000 ~ 25,000	500 ~ 2,000	0.06	9,000 ~ 20,000	300 ~ 1,600	0.02	7,000 ~ 18,000	200 ~ 1,200
1.5	0.08	9,000 ~ 23,000	700 ~ 2,000	0.08	8,000 ~ 20,000	400 ~ 1,600	0.03	7,000 ~ 18,000	200 ~ 1,200
2	0.1	7,000 ~ 20,000	800 ~ 2,000	0.1	6,000 ~ 18,000	400 ~ 1,600	0.04	5,000 ~ 15,000	200 ~ 1,200
3	0.3	5,000 ~ 16,000	800 ~ 2,000	0.3	5,000 ~ 15,000	400 ~ 1,600	0.06	4,000 ~ 10,000	200 ~ 1,200
4	0.4	4,500 ~ 14,000	800 ~ 2,000	0.4	4,000 ~ 10,000	400 ~ 2,000	0.08	3,000 ~ 8,000	200 ~ 1,200
5	0.5	3,500 ~ 12,000	600 ~ 1,500	0.5	3,000 ~ 8,000	400 ~ 1,000	0.1	2,500 ~ 6,000	250 ~ 800
6	0.6	3,500 ~ 12,000	600 ~ 1,500	0.6	3,000 ~ 8,000	400 ~ 1,000	0.12	2,500 ~ 6,000	250 ~ 800
8	1.2	2,500 ~ 10,000	450 ~ 1,000	0.8	2,500 ~ 7,000	350 ~ 900	0.16	2,000 ~ 5,000	300 ~ 700
10	1.5	2,000 ~ 7,500	500 ~ 1,000	1	2,000 ~ 5,000	300 ~ 800	0.2	2,000 ~ 4,500	300 ~ 700
12	1.8	1,800 ~ 7,000	500 ~ 1,000	1.2	2,000 ~ 4,000	300 ~ 800	0.24	1,500 ~ 4,000	300 ~ 650
Depth of Cut	 Rd = 1.5D Rd = 0.05D (0.8 ≤ D ≤ Φ2) Rd = 0.10D (3 ≤ D ≤ Φ6) Rd = 0.15D (7 ≤ D ≤ Φ12)			 Rd = 0.03D					

4 Flutes 43° Square End Mills

Endmills for pre-hardened and hardened steel (HRC52-60)

- Designed for high speed cutting of hardened steels over HRC50.
- Maximize the wear-resistance due to TiSiN coating.



Size	D Tolerance
$D < \varnothing 6$	$+0 \sim -0.010 \text{ mm}$
$D \geq \varnothing 6$	$+0 \sim -0.015 \text{ mm}$

/Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
4KEM 010 020 S04	1	2	45	4
4KEM 010 020 S06	1	2	45	6
4KEM 015 040 S04	1.5	4	45	4
4KEM 015 040 S06	1.5	4	45	6
4KEM 020 050 S04	2	5	45	4
4KEM 020 050 S06	2	5	45	6
4KEM 030 080 S03	3	8	50	3
4KEM 030 080 S04	3	8	45	4
4KEM 030 080 S06	3	8	50	6
4KEM 040 100 060	4	10	60	4
4KEM 040 100 S06	4	10	50	6

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
4KEM 040 120 045	4	12	45	4
4KEM 050 130 S06	5	13	50	6
4KEM 060 150 050	6	15	50	6
4KEM 060 150 075	6	15	75	6
4KEM 080 200 065	8	20	65	8
4KEM 080 200 075	8	20	75	8
4KEM 100 250 070	10	25	70	10
4KEM 100 250 075	10	25	75	10
4KEM 120 300 080	12	30	80	12
4KEM 160 400 100	16	40	100	16
4KEM 200 450 100	20	45	100	20

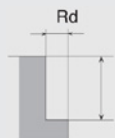
4KEM_Square

4KEM

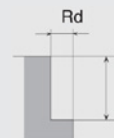
• RPM : rev/min • Feed : mm/min

Work Material	PREHARDENED STEELS NAK			HARDENED STEELS SKD61, STAVAX			HARDENED STEELS SKD11		
Hardness (HRC)	HRC30 ~ 45			HRC45 ~ 55			HRC55 ~ 65		
Outside Diameter	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)
1	0.05	12,000 ~ 25,000	400 ~ 2,000	0.05	10,000 ~ 20,000	300 ~ 1,800	0.02	8,000 ~ 18,000	200 ~ 1,200
1.2	0.06	10,000 ~ 25,000	500 ~ 2,000	0.06	9,000 ~ 20,000	300 ~ 1,600	0.02	7,000 ~ 18,000	200 ~ 1,200
1.5	0.08	9,000 ~ 23,000	700 ~ 2,000	0.08	8,000 ~ 20,000	400 ~ 1,600	0.03	7,000 ~ 18,000	200 ~ 1,200
2	0.1	7,000 ~ 20,000	800 ~ 2,000	0.1	6,000 ~ 18,000	400 ~ 1,600	0.04	5,000 ~ 15,000	200 ~ 1,200
3	0.3	5,000 ~ 16,000	800 ~ 2,000	0.3	5,000 ~ 15,000	400 ~ 1,600	0.06	4,000 ~ 10,000	200 ~ 1,200
4	0.4	4,500 ~ 14,000	800 ~ 2,000	0.4	4,000 ~ 10,000	400 ~ 2,000	0.08	3,000 ~ 8,000	200 ~ 1,200
5	0.5	3,500 ~ 12,000	600 ~ 1,500	0.5	3,000 ~ 8,000	400 ~ 1,000	0.1	2,500 ~ 6,000	250 ~ 800
6	0.6	3,500 ~ 12,000	600 ~ 1,500	0.6	3,000 ~ 8,000	400 ~ 1,000	0.12	2,500 ~ 6,000	250 ~ 800
8	1.2	2,500 ~ 10,000	450 ~ 1,000	1.2	2,500 ~ 7,000	350 ~ 900	0.16	2,000 ~ 5,000	300 ~ 700
10	1.5	2,000 ~ 7,500	500 ~ 1,000	1.5	2,000 ~ 5,000	300 ~ 800	0.2	2,000 ~ 4,500	300 ~ 700
12	1.8	1,800 ~ 7,000	500 ~ 1,000	1.8	2,000 ~ 4,000	300 ~ 800	0.24	1,500 ~ 4,000	300 ~ 650

Depth of Cut



Ad = 1.5D
Rd = 0.05D (0.8 ≤ D ≤ Φ2)
Rd = 0.10D (3 ≤ D ≤ Φ6)
Rd = 0.15D (7 ≤ D ≤ Φ12)



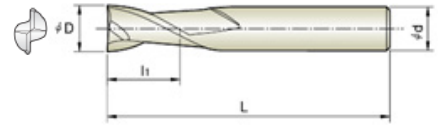
Ad Rd = 0.03D



2 Flutes Long Length End Mills

Endmills for pre-hardened and hardened steel (HRC52-60)

- Maximize the wear-resistance due to TiSiN coating.
- Geometry design to protect the breakage of cutting edge and improve the cutting performance.

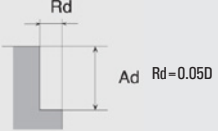
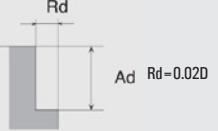


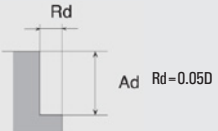
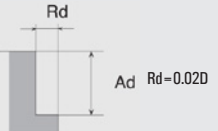
Size	D Tolerance
$D \leq \Phi 5$	$+0 \sim -0.01$
$\Phi 6 \sim \Phi 12$	$+0 \sim -0.02$
$D \geq \Phi 14$	$+0 \sim -0.03$

/Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
2KLE 010 030 S06	1	3	60	6
2KLE 010 050 S06	1	5	60	6
2KLE 010 070 S06	1	7	60	6
2KLE 010 100 S06	1	10	60	6
2KLE 010 120 S06	1	12	60	6
2KLE 010 150 S06	1	15	60	6
2KLE 015 060 S06	1.5	6	60	6
2KLE 015 080 S06	1.5	8	60	6
2KLE 015 100 S06	1.5	10	60	6
2KLE 015 150 S06	1.5	15	60	6
2KLE 015 200 S06	1.5	20	60	6
2KLE 020 100 S06	2	10	60	6
2KLE 020 120 S06	2	12	60	6
2KLE 020 150 S06	2	15	60	6
2KLE 020 200 S06	2	20	60	6
2KLE 030 120 S06	3	12	70	6
2KLE 030 150 S06	3	15	70	6
2KLE 030 200 S06	3	20	70	6
2KLE 030 250 S06	3	25	70	6
2KLE 030 300 S06	3	30	70	6
2KLE 040 150 S06	4	15	70	6
2KLE 040 200 S06	4	20	70	6
2KLE 040 300 S06	4	30	75	6
2KLE 040 350 S06	4	35	75	6
2KLE 040 400 S06	4	40	80	6
2KLE 050 200 S06	5	20	70	6
2KLE 050 250 S06	5	25	70	6
2KLE 050 300 S06	5	30	75	6
2KLE 050 400 S06	5	40	80	6
2KLE 060 200 070	6	20	70	6
2KLE 060 200 100	6	20	100	6
2KLE 060 250 075	6	25	75	6
2KLE 060 300 080	6	30	80	6
2KLE 060 350 080	6	35	80	6
2KLE 060 400 090	6	40	90	6
2KLE 080 250 075	8	25	75	8

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
2KLE 080 250 100	8	25	100	8
2KLE 080 300 080	8	30	80	8
2KLE 080 350 080	8	35	80	8
2KLE 080 400 090	8	40	90	8
2KLE 080 450 100	8	45	100	8
2KLE 080 500 100	8	50	100	8
2KLE 080 550 100	8	55	100	8
2KLE 100 300 080	10	30	80	10
2KLE 100 350 100	10	35	100	10
2KLE 100 400 100	10	40	100	10
2KLE 100 450 100	10	45	100	10
2KLE 100 500 100	10	50	100	10
2KLE 100 550 110	10	55	110	10
2KLE 100 600 110	10	60	110	10
2KLE 100 650 120	10	65	120	10
2KLE 100 700 120	10	70	120	10
2KLE 120 300 100	12	30	100	12
2KLE 120 350 100	12	35	100	12
2KLE 120 400 100	12	40	100	12
2KLE 120 450 100	12	45	100	12
2KLE 120 500 100	12	50	100	12
2KLE 120 550 110	12	55	110	12
2KLE 120 600 110	12	60	110	12
2KLE 120 700 130	12	70	130	12
2KLE 120 800 130	12	80	130	12
2KLE 140 500 110	14	50	110	14
2KLE 160 400 150	16	40	150	16
2KLE 160 550 120	16	55	120	16
2KLE 160 700 130	16	70	130	16
2KLE 160 800 150	16	80	150	16
2KLE 200 500 150	20	50	150	20
2KLE 200 600 130	20	60	130	20
2KLE 200 800 150	20	80	150	20
2KLE 200 1000 200	20	100	200	20
2KLE 250 750 150	25	75	150	25

Work Material	PREHARDENED STEELS NAK			HARDENED STEELS SKD61, STAVAX			HARDENED STEELS SKD11		
Hardness (HRC)	HRC30 ~ 45			HRC45 ~ 55			HRC55 ~ 65		
Outside Diameter	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)
1	1.0	10,000 ~ 15,000	40 ~ 80	1	7,000 ~ 12,000	40 ~ 80	0.5	7,000 ~ 12,000	40 ~ 80
1.5	1.5	9,000 ~ 13,000	40 ~ 80	1.5	6,000 ~ 10,000	40 ~ 80	0.75	6,000 ~ 10,000	40 ~ 80
2	2.0	5,000 ~ 8,000	40 ~ 80	2	3,000 ~ 6,000	40 ~ 80	1	3,000 ~ 6,000	40 ~ 80
2.5	2.5	4,500 ~ 7,000	40 ~ 80	2.5	2,500 ~ 5,000	40 ~ 80	1.25	2,500 ~ 5,000	40 ~ 80
3	3.0	4,000 ~ 6,000	40 ~ 80	3	2,000 ~ 4,000	40 ~ 80	1.5	2,000 ~ 4,000	40 ~ 80
4	4.0	3,000 ~ 5,000	50 ~ 100	4	1,500 ~ 3,000	50 ~ 100	2	1,500 ~ 3,000	50 ~ 100
5	5.0	2,500 ~ 4,500	50 ~ 100	5	1,500 ~ 2,500	50 ~ 100	2.5	1,500 ~ 2,500	50 ~ 100
6	6.0	2,000 ~ 4,000	50 ~ 100	6	1,500 ~ 2,000	50 ~ 100	3	1,500 ~ 2,000	50 ~ 100
8	8.0	1,800 ~ 2,500	50 ~ 100	8	1,800 ~ 2,500	50 ~ 100	4	1,800 ~ 2,500	50 ~ 100
10	10.0	1,500 ~ 2,000	50 ~ 100	10	1,500 ~ 2,000	50 ~ 100	5	1,500 ~ 2,000	50 ~ 100
12	12.0	1,200 ~ 1,800	40 ~ 80	12	600 ~ 1,000	40 ~ 80	6	600 ~ 1,000	40 ~ 80
16	16.0	800 ~ 1,500	40 ~ 80	16	400 ~ 800	40 ~ 80	8	400 ~ 800	40 ~ 80
20	20.0	700 ~ 1,200	40 ~ 80	20	300 ~ 700	40 ~ 80	10	300 ~ 700	40 ~ 80
25	25.0	500 ~ 800	40 ~ 80	25	250 ~ 600	40 ~ 80	12.5	250 ~ 600	40 ~ 80
Depth of Cut									

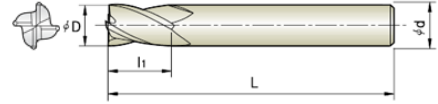
Work Material	PREHARDENED STEELS NAK			HARDENED STEELS SKD61, STAVAX			HARDENED STEELS SKD11		
Hardness (HRC)	HRC30 ~ 45			HRC45 ~ 55			HRC55 ~ 65		
Outside Diameter	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)	Depth of Cut Ad(mm)	SPEED (min ⁻¹)	FEED (mm/min)
1.0	1.0	10,000 ~ 15,000	40 ~ 80	1	7,000 ~ 12,000	40 ~ 80	0.5	7,000 ~ 12,000	40 ~ 80
1.5	1.5	9,000 ~ 13,000	40 ~ 80	1.5	6,000 ~ 10,000	40 ~ 80	0.75	6,000 ~ 10,000	40 ~ 80
2.0	2.0	5,000 ~ 8,000	40 ~ 80	2	3,000 ~ 6,000	40 ~ 80	1	3,000 ~ 6,000	40 ~ 80
2.5	2.5	4,500 ~ 7,000	40 ~ 80	2.5	2,500 ~ 5,000	40 ~ 80	1.25	2,500 ~ 5,000	40 ~ 80
3.0	3.0	4,000 ~ 6,000	40 ~ 80	3	2,000 ~ 4,000	40 ~ 80	1.5	2,000 ~ 4,000	40 ~ 80
4.0	4.0	3,000 ~ 5,000	50 ~ 100	4	1,500 ~ 3,000	50 ~ 100	2	1,500 ~ 3,000	50 ~ 100
5.0	5.0	2,500 ~ 4,500	50 ~ 100	5	1,500 ~ 2,500	50 ~ 100	2.5	1,500 ~ 2,500	50 ~ 100
6.0	6.0	2,000 ~ 4,000	50 ~ 100	6	1,500 ~ 2,000	50 ~ 100	3	1,500 ~ 2,000	50 ~ 100
8.0	8.0	1,800 ~ 2,500	50 ~ 100	8	1,800 ~ 2,500	50 ~ 100	4	1,800 ~ 2,500	50 ~ 100
10.0	10.0	1,500 ~ 2,000	50 ~ 100	10	1,500 ~ 2,000	50 ~ 100	5	1,500 ~ 2,000	50 ~ 100
12.0	12.0	1,200 ~ 1,800	40 ~ 80	12	600 ~ 1,000	40 ~ 80	6	600 ~ 1,000	40 ~ 80
16.0	16.0	800 ~ 1,500	40 ~ 80	16	400 ~ 800	40 ~ 80	8	400 ~ 800	40 ~ 80
20.0	20.0	700 ~ 1,200	40 ~ 80	20	300 ~ 700	40 ~ 80	10	300 ~ 700	40 ~ 80
25.0	25.0	500 ~ 800	40 ~ 80	25	250 ~ 600	40 ~ 80	12.5	250 ~ 600	40 ~ 80
Depth of Cut									



4 Flutes Long Length End Mills

Endmills for pre-hardened and hardened steel (HRC52-60)

- Maximize the wear-resistance due to TiSiN coating.
- Geometry design to protect the breakage of cutting edge and improve the cutting performance.



Size	D Tolerance
$D \leq \Phi 5$	$+0 \sim -0.01$
$\Phi 6 \sim \Phi 12$	$+0 \sim -0.02$
$D \geq \Phi 14$	$+0 \sim -0.03$

Unit : mm

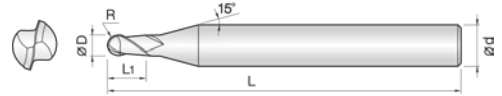
Order Number	Diameter	Length of cut	Overall Length	Shank Dia V
	D	L1	L	d
4KLE 010 030 S06	1	3	60	6
4KLE 010 050 S06	1	5	60	6
4KLE 010 070 S06	1	7	60	6
4KLE 015 060 S06	1.5	6	60	6
4KLE 015 080 S06	1.5	8	60	6
4KLE 015 100 S06	1.5	10	60	6
4KLE 020 080 S06	2	8	60	6
4KLE 020 100 S06	2	10	60	6
4KLE 020 120 S06	2	12	60	6
4KLE 020 150 S06	2	15	60	6
4KLE 030 100 S06	3	10	70	6
4KLE 030 150 S06	3	15	70	6
4KLE 030 200 S06	3	20	70	6
4KLE 030 250 S06	3	25	70	6
4KLE 030 300 S06	3	30	70	6
4KLE 040 120 S06	4	12	70	6
4KLE 040 150 070	4	15	70	4
4KLE 040 150 S06	4	15	70	6
4KLE 040 200 070	4	20	70	4
4KLE 040 200 S06	4	20	70	6
4KLE 040 250 S06	4	25	70	6
4KLE 040 300 S06	4	30	75	6
4KLE 040 350 S06	4	35	75	6
4KLE 040 400 S06	4	40	80	6
4KLE 050 200 S06	5	20	70	6
4KLE 050 250 S06	5	25	70	6
4KLE 050 300 S06	5	30	75	6
4KLE 050 400 S06	5	40	80	6
4KLE 060 200 070	6	20	70	6
4KLE 060 200 100	6	20	100	6
4KLE 060 250 075	6	25	75	6
4KLE 060 250 100	6	25	100	6
4KLE 060 300 080	6	30	80	6
4KLE 060 350 080	6	35	80	6
4KLE 060 400 090	6	40	90	6
4KLE 080 250 075	8	25	75	8
4KLE 080 250 100	8	25	100	8
4KLE 080 300 080	8	30	80	8

Order Number	Diameter	Length of cut	Overall Length	Shank Dia V
	D	L1	L	d
4KLE 080 300 100	8	30	100	8
4KLE 080 300 150	8	30	150	8
4KLE 080 350 080	8	35	80	8
4KLE 080 400 090	8	40	90	8
4KLE 080 450 100	8	45	100	8
4KLE 080 500 100	8	50	100	8
4KLE 080 550 100	8	55	100	8
4KLE 100 300 080	10	30	80	10
4KLE 100 350 100	10	35	100	10
4KLE 100 350 150	10	35	150	10
4KLE 100 400 100	10	40	100	10
4KLE 100 450 100	10	45	100	10
4KLE 100 500 100	10	50	100	10
4KLE 100 550 110	10	55	110	10
4KLE 100 600 110	10	60	110	10
4KLE 100 650 120	10	65	120	10
4KLE 100 700 120	10	70	120	10
4KLE 120 300 100	12	30	100	12
4KLE 120 350 100	12	35	100	12
4KLE 120 400 100	12	40	100	12
4KLE 120 400 150	12	40	150	12
4KLE 120 450 100	12	45	100	12
4KLE 120 500 100	12	50	100	12
4KLE 120 550 110	12	55	110	12
4KLE 120 600 110	12	60	110	12
4KLE 120 700 130	12	70	130	12
4KLE 120 800 150	12	80	150	12
4KLE 140 500 110	14	50	110	14
4KLE 160 400 150	16	40	150	16
4KLE 160 550 120	16	55	120	16
4KLE 160 700 130	16	70	130	16
4KLE 160 900 150	16	90	150	16
4KLE 200 1000 200	20	100	200	20
4KLE 200 500 150	20	50	150	20
4KLE 200 600 130	20	60	130	20
4KLE 200 800 150	20	80	150	20
4KLE 250 750 150	25	75	150	25

2 Flutes High Speed Short Length Ball End Mills

Endmills for pre-hardened and hardened steel (HRC50-)

- High precise edge tolerance.
- Short overall length for easy use with shrinking chuck.
- Very nice work surface finish.



Size	D Tolerance
$D \leq \varnothing 6$	+0 ~ -0.01mm
$D > \varnothing 6$	+0 ~ -0.015mm

/Unit : mm

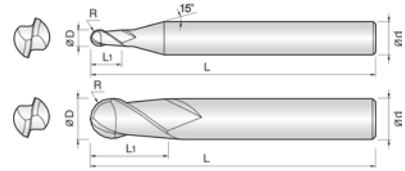
Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	R X D	L1	L	d
2SSB 002 002 S04	0.1R X 0.2	0.2	38	4
2SSB 003 003 S04	0.15R X 0.3	0.3	38	4
2SSB 004 004 S04	0.2R X 0.4	0.4	38	4
2SSB 005 005 S04	0.25R X 0.5	0.5	38	4
2SSB 006 006 S04	0.3R X 0.6	0.6	38	4
2SSB 007 007 S04	0.35R X 0.7	0.7	38	4
2SSB 008 008 S04	0.4R X 0.8	0.8	38	4
2SSB 009 009 S04	0.45R X 0.9	0.9	38	4
2SSB 010 010 S04	0.5R X 1	1	40	4
2SSB 010 010 S06	0.5R X 1	1	40	6
2SSB 015 015 S04	0.75R X 1.5	1.5	40	4
2SSB 015 015 S06	0.75R X 1.5	1.5	40	6
2SSB 020 020 S04	1R X 2	2	45	4
2SSB 020 020 S06	1R X 2	2	45	6
2SSB 030 030 S04	1.5R X 3	3	45	4
2SSB 030 030 S06	1.5R X 3	3	45	6
2SSB 040 040 S04	2R X 4	4	45	4
2SSB 040 040 S06	2R X 4	4	45	6
2SSB 050 050 S06	2.5R X 5	5	50	6
2SSB 060 060 050	3R X 6	6	50	6
2SSB 060 060 060	3R X 6	6	60	6
2SSB 080 080 050	4R X 8	8	50	8
2SSB 080 080 060	4R X 8	8	60	8
2SSB 100 100 060	5R X 10	10	60	10
2SSB 100 100 070	5R X 10	10	70	10
2SSB 120 120 060	6R X 12	12	60	12
2SSB 120 120 070	6R X 12	12	70	12



2 Flutes Ultra Precision Standard Length Ball End Mills

Endmills for precise cutting ($\pm 2\mu\text{m}$) of pre-hardened steel (HRC50-62)

- High precise edge tolerance.
- Very nice work surface finish.



Size	D Tolerance
$D \leq \varnothing 6$	$+0 \sim -0.01\text{mm}$
$D > \varnothing 6$	$+0 \sim -0.015\text{mm}$

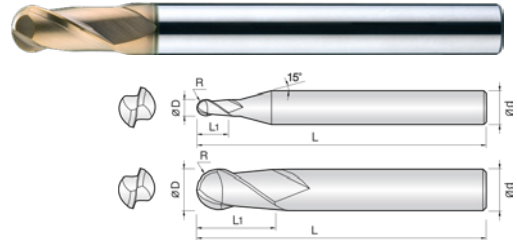
/Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	R×D	L1	L	d
2UPB 002 004 S04	0.1R X 0.2	0.4	40	4
2UPB 003 006 S04	0.15R X 0.3	0.6	40	4
2UPB 004 008 S04	0.2R X 0.4	0.8	40	4
2UPB 005 010 S04	0.25R X 0.5	1	45	4
2UPB 006 012 S04	0.3R X 0.6	1.2	45	4
2UPB 007 015 S04	0.35R X 0.7	1.5	45	4
2UPB 008 020 S04	0.4R X 0.8	2	45	4
2UPB 009 020 S04	0.45R X 0.9	2	45	4
2UPB 010 025 S04	0.5R X 1	2.5	50	4
2UPB 010 025 S06	0.5R X 1	2.5	50	6
2UPB 012 030 S04	0.6R X 1.2	3	50	4
2UPB 015 040 S04	0.75R X 1.5	4	50	4
2UPB 015 040 S06	0.75R X 1.5	4	50	6
2UPB 020 050 S04	1R X 2	5	50	4
2UPB 020 050 S06	1R X 2	5	50	6
2UPB 025 060 S04	1.25R X 2.5	6	50	4
2UPB 030 080 S04	1.5R X 3	8	50	4
2UPB 030 080 S06	1.5R X 3	8	60	6
2UPB 035 080 S06	1.75R X 3.5	8	60	6
2UPB 040 080 S04	2R X 4	8	60	4
2UPB 040 080 S06	2R X 4	8	70	6
2UPB 045 080 S06	2.25R X 4.5	8	70	6
2UPB 050 100 S06	2.5R X 5	10	75	6
2UPB 055 100 S06	2.75R X 5.5	10	75	6
2UPB 060 120 S08	3R X 6	12	80	6
2UPB 070 140 S08	3.5R X 7	14	80	8
2UPB 080 140 S090	4R X 8	14	90	8
2UPB 100 180 100	5R X 10	18	100	10
2UPB 120 220 110	6R X 12	22	110	12

2 Flutes High Speed Standard Length Ball End Mills

Endmills for pre-hardened and hardened steel(HRC50-62)

- High precise edge tolerance.
- Very nice work surface finish.



Size	D Tolerance
D ≤ Ø6	+0~-0.01mm
D > Ø6	+0~-0.015mm

/Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	R×D	L1	L	d
2SCB 001 002 S04	0.05R X 0.1	0.2	40	4
2SCB 0015 003 S04	0.075R X 0.15	0.3	40	4
2SCB 002 004 S04	0.1R X 0.2	0.4	40	4
2SCB 003 006 S04	0.15R X 0.3	0.6	40	4
2SCB 004 008 S04	0.2R X 0.4	0.8	40	4
2SCB 005 010 S04	0.25R X 0.5	1	45	4
2SCB 006 012 S04	0.3R X 0.6	1.2	45	4
2SCB 007 015 S04	0.35R X 0.7	1.5	45	4
2SCB 008 020 S04	0.4R X 0.8	2	45	4
2SCB 009 020 S04	0.45R X 0.9	2	45	4
2SCB 010 025 S04	0.5R X 1	2.5	50	4
2SCB 010 025 S06	0.5R X 1	2.5	50	6
2SCB 010 025 070	0.5R X 1	2.5	70	6
2SCB 010 025 100	0.5R X 1	2.5	100	6
2SCB 012 030 S04	0.6R X 1.2	3	50	4
2SCB 015 040 S04	0.75R X 1.5	4	50	4
2SCB 015 040 S06	0.75R X 1.5	4	50	6
2SCB 015 040 070	0.75R X 1.5	4	70	6
2SCB 015 040 100	0.75R X 1.5	4	100	6
2SCB 020 050 S04	1R X 2	5	50	4
2SCB 020 050 S06	1R X 2	5	50	6
2SCB 020 050 075	1R X 2	5	75	6
2SCB 020 050 100	1R X 2	5	100	6
2SCB 025 060 S04	1.25R X 2.5	6	50	4
2SCB 025 060 S06	1.25R X 2.5	6	75	6
2SCB 025 060 100	1.25R X 2.5	6	100	6
2SCB 030 080 S03	1.5R X 3	8	60	3
2SCB 030 080 S04	1.5R X 3	8	50	4
2SCB 030 080 S06	1.5R X 3	8	60	6
2SCB 030 080 080	1.5R X 3	8	80	6
2SCB 030 080 100	1.5R X 3	8	100	6
2SCB 035 080 S06	1.75R X 3.5	8	60	6
2SCB 040 080 060	2R X 4	8	60	4

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	R×D	L1	L	d
2SCB 040 080 080	2R X 4	8	80	4
2SCB 040 080 S06	2R X 4	8	70	6
2SCB 040 080 090	2R X 4	8	90	6
2SCB 040 080 120	2R X 4	8	120	6
2SCB 045 080 S06	2.25R X 4.5	8	70	6
2SCB 050 080 S05	2.5R X 5	8	80	5
2SCB 050 100 S06	2.5R X 5	10	75	6
2SCB 055 100 S06	2.75R X 5.5	10	75	6
2SCB 060 100 060	3R X 6	10	60	6
2SCB 060 120 080	3R X 6	12	80	6
2SCB 060 120 100	3R X 6	12	100	6
2SCB 060 120 120	3R X 6	12	120	6
2SCB 070 140 S08	3.5R X 7	14	80	8
2SCB 080 140 090	4R X 8	14	90	8
2SCB 080 140 110	4R X 8	14	110	8
2SCB 080 140 150	4R X 8	14	150	8
2SCB 090 160 S10	4.5R X 9	16	100	10
2SCB 100 180 100	5R X 10	18	100	10
2SCB 100 180 120	5R X 10	18	120	10
2SCB 100 180 150	5R X 10	18	150	10
2SCB 100 180 180	5R X 10	18	180	10
2SCB 110 200 S12	5.5R X 11	20	110	12
2SCB 120 220 110	6R X 12	22	110	12
2SCB 120 220 130	6R X 12	22	130	12
2SCB 120 220 150	6R X 12	22	150	12
2SCB 120 220 200	6R X 12	22	200	12
2SCB 130 240 S14	6.5R X 13	24	110	14
2SCB 140 240 S14	7R X 14	24	110	14
2SCB 160 300 130	8R X 16	30	130	16
2SCB 160 300 160	8R X 16	30	160	16
2SCB 160 300 200	8R X 16	30	200	16
2SCB 200 380 160	10R X 20	38	160	20
2SCB 200 380 200	10R X 20	38	200	20

Material		Copper				Prehardened Steels / Hardened Steels NAK / SKD				Hardened Steels SKD / SKT				Hardened Steels SKD / SKT			
Hardness						30HRC ~ 45HRC				45HRC ~ 55HRC				55HRC ~ 65HRC			
Radius	Cutting Length	RPM	FEED	Ae Radial Depth	Ap Axial Depth	RPM	FEED	Ae Radial Depth	Ap Axial Depth	RPM	FEED	Ae Radial Depth	Ap Axial Depth	RPM	FEED	Ae Radial Depth	Ap Axial Depth
R0.05	0.2	40,000	250	0.040	0.008	40,000	250	0.040	0.004	30,000	180	0.030	0.003	X	X	X	X
R0.1	0.2	50,000	400	0.006	0.010	50,000	600	0.050	0.015	41,300	450	0.040	0.012	30,000	300	0.023	0.008
	0.4	50,000	400	0.005	0.004	50,000	230	0.035	0.015	41,300	240	0.030	0.080	30,000	220	0.018	0.006
R0.15	0.3	50,000	680	0.010	0.015	50,000	680	0.080	0.025	41,300	550	0.062	0.020	30,000	410	0.035	0.012
	0.6	50,000	680	0.010	0.010	50,000	620	0.065	0.022	41,300	530	0.045	0.020	30,000	380	0.025	0.010
R0.2	0.4	50,000	790	0.014	0.023	50,000	910	0.110	0.035	41,300	750	0.086	0.028	30,000	540	0.050	0.015
	0.8	50,000	790	0.014	0.010	50,000	800	0.100	0.035	41,300	600	0.080	0.028	30,000	490	0.044	0.015
R0.25	0.5	52,000	1,050	0.017	0.030	49,000	1,050	0.140	0.045	40,800	900	0.110	0.035	28,800	700	0.065	0.021
	1	52,000	1,050	0.017	0.018	46,000	950	0.120	0.040	38,300	700	0.080	0.030	26,600	550	0.053	0.020
R0.3	0.6	54,000	1,210	0.021	0.038	48,000	1,180	0.150	0.055	39,600	1,000	0.120	0.043	27,500	750	0.078	0.025
	1.2	54,000	1,210	0.020	0.020	45,500	920	0.145	0.050	37,500	720	0.110	0.040	27,000	520	0.067	0.020
R0.4	0.8	48,000	1,570	0.030	0.050	45,000	1,200	0.180	0.070	36,500	1,100	0.180	0.060	26,500	810	0.100	0.035
	2	48,000	1,570	0.025	0.030	42,000	980	0.150	0.060	33,500	800	0.150	0.050	23,800	550	0.080	0.035
R0.5	1	32,800	1,300	0.032	0.050	36,000	1,200	0.240	0.080	29,500	1,000	0.192	0.064	21,840	750	0.112	0.040
	2.5	32,800	1,300	0.032	0.020	33,600	1,000	0.204	0.080	28,000	800	0.160	0.064	20,700	600	0.094	0.040
R0.6	3	21,760	1,120	0.032	0.014	25,600	640	0.141	0.077	20,160	520	0.112	0.061	14,700	380	0.079	0.038
R0.75	1.5	21,600	1,500	0.054	0.070	28,000	1,280	0.360	0.120	23,000	1,024	0.288	0.096	17,200	760	0.168	0.060
	4	21,600	1,500	0.054	0.042	27,200	800	0.260	0.120	20,800	640	0.208	0.096	15,400	480	0.122	0.060
R1	2	16,000	1,500	0.071	0.090	24,000	1,480	0.480	0.160	20,000	1,184	0.360	0.128	14,600	890	0.224	0.080
	5	16,000	1,400	0.071	0.054	21,200	1,080	0.348	0.160	17,600	864	0.278	0.128	13,000	650	0.162	0.080
R1.25	6	12,800	1,500	0.012	0.054	20,400	1,280	0.434	0.200	16,800	1,024	0.344	0.160	12,400	760	0.201	0.100
R1.5	3	10,400	1,800	0.137	0.158	20,400	2,010	0.766	0.240	16,800	1,640	0.613	0.192	12,400	1,200	0.358	0.120
	8	10,400	1,800	0.137	0.080	20,400	1,900	0.612	0.240	16,800	1,500	0.490	0.192	12,400	1,100	0.286	0.120
R2	4	8,000	1,700	0.166	0.213	16,800	1,960	0.880	0.320	14,000	1,560	0.880	0.256	10,200	1,200	0.512	0.160
	8	8,000	1,700	0.166	0.107	16,800	1,880	0.800	0.320	14,000	1,500	0.653	0.256	10,200	1,120	0.381	0.160
R2.5	5	6,600	1,600	0.192	0.172	14,400	2,040	1.328	0.400	11,800	1,600	1.064	0.320	8,800	1,200	0.616	0.200
	10	6,600	1,600	0.192	0.160	14,400	1,960	1.200	0.400	11,800	1,600	0.960	0.320	8,800	1,170	0.560	0.200
R3	6	5,500	1,500	0.225	0.232	12,800	2,160	1.872	0.480	10,400	1,720	1.496	0.384	7,700	1,200	1.520	0.240
	12	5,500	1,500	0.225	0.184	12,800	1,920	1.224	0.480	10,400	1,500	0.980	0.384	7,700	1,150	0.572	0.240
R4	8	4,500	800	0.140	0.320	10,000	1,840	2.480	0.640	8,200	1,400	1.984	0.512	6,000	1,100	1.157	0.320
	14	4,500	800	0.140	0.320	10,000	1,600	2.000	0.640	8,200	1,200	1.312	0.512	6,000	960	0.766	0.320
R5	10	3,600	560	0.123	0.400	8,400	1,760	3.000	0.800	6,900	1,400	2.400	0.640	5,100	1,070	1.400	0.400
	18	3,600	560	0.123	0.400	8,400	1,300	2.040	0.800	6,900	1,100	1.632	0.640	5,100	810	0.952	0.400
R6	22	3,000	480	0.127	0.480	7,200	1,400	3.530	0.960	5,900	1,180	2.224	0.768	4,300	890	1.648	0.480
R8	30	2,200	460	0.115	0.450	6,800	1,630	3.870	1.120	4,900	1,100	2.350	0.790	4,000	810	1.742	0.500
R10	38	2,000	470	0.100	0.400	6,200	1,450	4.120	1.100	3,900	1,100	2.530	0.840	3,100	800	1.866	0.520

Depth of Cut

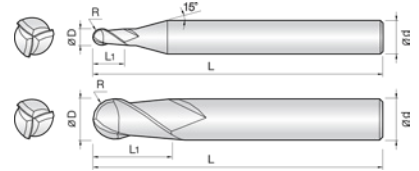


■ In case of slotting, decrease feed rate more than 50% the table.

3 Flutes High Speed Standard Length Ball End Mills

Endmills for pre-hardened and hardened steel (HRC50-65)

- High precise edge tolerance.
- High speed, feed applicable by 3 flute ball edge.



Size	D Tolerance
$D \leq \varnothing 6$	+0 ~ -0.01mm
$D > \varnothing 6$	+0 ~ -0.015mm

/Unit : mm

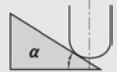
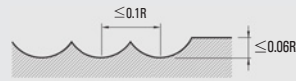
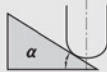
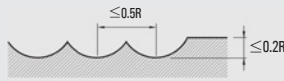
Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	R×D	L1	L	d
3SCB 020 050 S06	1R X 2	5	50	6
3SCB 030 080 S06	1.5R X 3	8	65	6
3SCB 040 080 S04	2R X 4	8	60	4
3SCB 040 080 S06	2R X 4	8	70	6
3SCB 050 100 S06	2.5R X 5	10	75	6
3SCB 060 120 S06	3R X 6	12	80	6
3SCB 080 140 S08	4R X 8	14	90	8
3SCB 100 180 S10	5R X 10	18	100	10
3SCB 120 220 S12	6R X 12	22	110	12

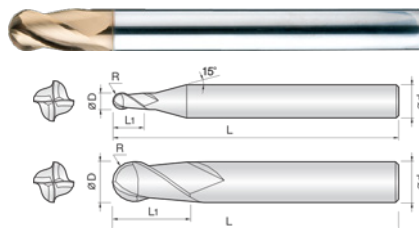
3SCB

• RPM : rev./min • Feed : mm/min

Material	for Roughing								for Finishing							
	Alloy Steels/ Tool Steels/ Prehardened Steels SKD61 / NAK				Hardened Steels SKD61				Alloy Steels/ Tool Steels/ Prehardened Steels SKD61 / NAK				Hardened Steels SKD61			
	~ 45HRC				45 ~ 55HRC				~ 45HRC				45 ~ 55HRC			
Radius	$\alpha \leq 15^\circ$		$\alpha > 15^\circ$		$\alpha \leq 15^\circ$		$\alpha > 15^\circ$		$\alpha \leq 15^\circ$		$\alpha > 15^\circ$		$\alpha \leq 15^\circ$		$\alpha > 15^\circ$	
	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R1	28,800	2,700	22,500	1,100	16,200	1,300	14,400	580	28,800	2,900	28,800	1,400	22,500	1,800	18,000	700
R1.5	22,800	3,000	18,000	1,200	13,100	1,500	11,400	630	22,900	3,700	23,400	1,600	18,900	2,100	14,900	800
R2	16,700	3,300	13,000	1,300	10,000	1,600	8,300	670	23,000	4,500	18,000	1,800	15,300	2,400	11,700	900
R2.5	14,200	3,500	11,000	1,300	8,500	1,700	7,100	700	21,000	5,000	15,800	1,900	13,500	2,500	10,400	1,000
R3	11,700	3,600	9,000	1,400	6,900	1,700	5,800	720	18,000	5,500	13,500	2,000	11,700	2,900	9,000	1,100
R4	9,000	4,500	7,000	1,800	5,400	2,100	4,300	830	13,500	6,800	10,000	2,400	9,000	3,400	6,800	1,300
R5	7,200	4,500	5,900	1,800	4,300	2,000	3,400	780	10,800	6,800	8,100	2,400	7,200	3,400	5,400	1,300
R6	5,900	4,100	4,800	1,600	3,600	1,900	2,900	760	9,000	6,300	6,800	2,300	6,000	3,200	4,500	1,200

Depth of Cut





Size	D Tolerance
$D \leq \varnothing 6$	$+0 \sim -0.01\text{mm}$
$D > \varnothing 6$	$+0 \sim -0.015\text{mm}$

/Unit : mm

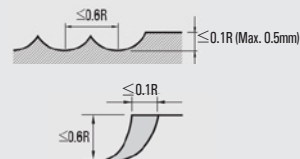
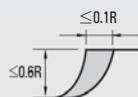
Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	R×D	L1	L	d
4SCB 030 080 S06	1.5R X 3	8	60	6
4SCB 040 080 S04	2R X 4	8	60	4
4SCB 040 080 S06	2R X 4	8	70	6
4SCB 050 100 S06	2.5R X 5	10	80	6
4SCB 060 120 S06	3R X 6	12	90	6
4SCB 080 140 S08	4R X 8	14	100	8
4SCB 100 180 S10	5R X 10	18	100	10
4SCB 120 220 S12	6R X 12	22	110	12
4SCB 160 300 S16	8R X 16	30	130	16

4SCB

• RPM : rev./min • Feed : mm/min

Material	Alloy Steels/ Prehardened Steels SCM / SKD61 / SKD11 / NAK		Hardened Steels SKD61 / SUS420		Hardened Steels SKD11 / SKH / SKS	
Hardness	~ 45HRC		45 ~ 55HRC		55 ~ 62HRC	
Radius	RPM	FEED	RPM	FEED	RPM	FEED
R1	28,000	1600 ~ 4800	20,000	1040 ~ 2880	12,800	640 ~ 1200
R1.5	26,400	1600 ~ 4800	16,000	960 ~ 2720	10,400	640 ~ 1200
R2	20,000	1600 ~ 4800	13,600	960 ~ 2720	8,000	640 ~ 1200
R2.5	18,400	1600 ~ 4800	12,000	960 ~ 2720	7,200	640 ~ 1200
R3	16,000	1440 ~ 4400	10,400	960 ~ 2960	6,600	560 ~ 1200
R4	12,000	1760 ~ 4000	8,000	1120 ~ 2720	5,000	560 ~ 1040
R5	9,600	1840 ~ 3680	6,400	1200 ~ 2400	4,000	560 ~ 800
R6	8,000	1520 ~ 3280	5,300	1040 ~ 2160	3,300	560 ~ 800
R8	6,000	1280 ~ 2560	4,000	880 ~ 1760	2,500	480 ~ 640

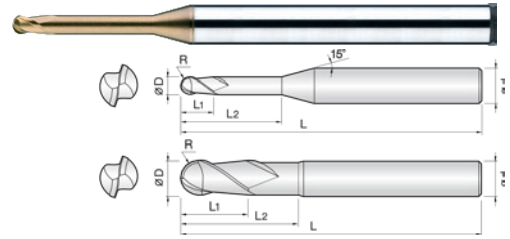
Depth of Cut



2 Flutes High Speed Rib Ball End Mills

Endmills for pre-hardened and hardened steel (HRC50-65)

- High precise edge tolerance.
- Very nice work surface finish.



Size	D Tolerance
D ≤ Ø6	+0~-0.01mm
D > Ø6	+0~-0.015mm

/Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
2SRB 001 003 S04	0.05R X 0.1	0.3	-	40	4
2SRB 001 005 S04	0.05R X 0.1	0.5	-	40	4
2SRB 002 005 S04	0.1R X 0.2	0.2	0.5	40	4
2SRB 002 010 S04	0.1R X 0.2	0.2	1	40	4
2SRB 002 015 S04	0.1R X 0.2	0.2	1.5	40	4
2SRB 002 020 S04	0.1R X 0.2	0.2	2	40	4
2SRB 003 010 S04	0.15R X 0.3	0.3	1	40	4
2SRB 003 015 S04	0.15R X 0.3	0.3	1.5	40	4
2SRB 003 020 S04	0.15R X 0.3	0.3	2	40	4
2SRB 003 030 S04	0.15R X 0.3	0.3	3	40	4
2SRB 003 040 S04	0.15R X 0.3	0.3	4	40	4
2SRB 003 050 S04	0.15R X 0.3	0.3	5	40	4
2SRB 004 010 S04	0.2R X 0.4	0.4	1	40	4
2SRB 004 020 S04	0.2R X 0.4	0.4	2	40	4
2SRB 004 030 S04	0.2R X 0.4	0.4	3	40	4
2SRB 004 040 S04	0.2R X 0.4	0.4	4	40	4
2SRB 004 050 S04	0.2R X 0.4	0.4	5	40	4
2SRB 004 060 S04	0.2R X 0.4	0.4	6	40	4
2SRB 004 080 S04	0.2R X 0.4	0.4	8	40	4
2SRB 004 100 S04	0.2R X 0.4	0.4	10	40	4
2SRB 005 010 S04	0.25R X 0.5	0.5	1	45	4
2SRB 005 020 S04	0.25R X 0.5	0.5	2	45	4
2SRB 005 030 S04	0.25R X 0.5	0.5	3	45	4
2SRB 005 040 S04	0.25R X 0.5	0.5	4	45	4
2SRB 005 050 S04	0.25R X 0.5	0.5	5	45	4
2SRB 005 060 S04	0.25R X 0.5	0.5	6	45	4
2SRB 005 080 S04	0.25R X 0.5	0.5	8	45	4
2SRB 005 100 S04	0.25R X 0.5	0.5	10	45	4
2SRB 005 120 S04	0.25R X 0.5	0.5	12	45	4
2SRB 005 140 S04	0.25R X 0.5	0.5	14	45	4
2SRB 006 010 S04	0.3R X 0.6	0.6	1	45	4

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
2SRB 006 020 S04	0.3R X 0.6	0.6	2	45	4
2SRB 006 030 S04	0.3R X 0.6	0.6	3	45	4
2SRB 006 040 S04	0.3R X 0.6	0.6	4	45	4
2SRB 006 050 S04	0.3R X 0.6	0.6	5	45	4
2SRB 006 060 S04	0.3R X 0.6	0.6	6	45	4
2SRB 006 080 S04	0.3R X 0.6	0.6	8	45	4
2SRB 006 100 S04	0.3R X 0.6	0.6	10	45	4
2SRB 006 120 S04	0.3R X 0.6	0.6	12	45	4
2SRB 006 140 S04	0.3R X 0.6	0.6	14	45	4
2SRB 006 160 S04	0.3R X 0.6	0.6	16	45	4
2SRB 007 020 S04	0.35R X 0.7	0.7	2	45	4
2SRB 007 040 S04	0.35R X 0.7	0.7	4	45	4
2SRB 007 080 S04	0.35R X 0.7	0.7	8	45	4
2SRB 007 100 S04	0.35R X 0.7	0.7	10	45	4
2SRB 007 120 S04	0.35R X 0.7	0.7	12	45	4
2SRB 008 020 S04	0.4R X 0.8	0.8	2	45	4
2SRB 008 040 S04	0.4R X 0.8	0.8	4	45	4
2SRB 008 060 S04	0.4R X 0.8	0.8	6	45	4
2SRB 008 080 S04	0.4R X 0.8	0.8	8	45	4
2SRB 008 100 S04	0.4R X 0.8	0.8	10	45	4
2SRB 008 120 S04	0.4R X 0.8	0.8	12	45	4
2SRB 008 140 S04	0.4R X 0.8	0.8	14	45	4
2SRB 008 160 S04	0.4R X 0.8	0.8	16	45	4
2SRB 009 040 S04	0.45R X 0.9	0.9	4	45	4
2SRB 010 020 S04	0.5R X 1	1	2	45	4
2SRB 010 020 S06	0.5R X 1	1	2	50	6
2SRB 010 030 S04	0.5R X 1	1	3	45	4
2SRB 010 030 S06	0.5R X 1	1	3	50	6
2SRB 010 040 S04	0.5R X 1	1	4	45	4
2SRB 010 040 S06	0.5R X 1	1	4	50	6
2SRB 010 050 S04	0.5R X 1	1	5	45	4

2SRB Ball



Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
2SRB 010 050 S06	0.5R X 1	1	5	50	6
2SRB 010 060 S04	0.5R X 1	1	6	45	4
2SRB 010 060 S06	0.5R X 1	1	6	50	6
2SRB 010 080 S04	0.5R X 1	1	8	45	4
2SRB 010 080 S06	0.5R X 1	1	8	50	6
2SRB 010 100 S04	0.5R X 1	1	10	50	4
2SRB 010 100 S06	0.5R X 1	1	10	50	6
2SRB 010 120 S04	0.5R X 1	1	12	50	4
2SRB 010 120 S06	0.5R X 1	1	12	50	6
2SRB 010 140 S04	0.5R X 1	1	14	50	4
2SRB 010 140 S06	0.5R X 1	1	14	50	6
2SRB 010 160 S04	0.5R X 1	1	16	50	4
2SRB 010 160 S06	0.5R X 1	1	16	60	6
2SRB 010 180 S04	0.5R X 1	1	18	50	4
2SRB 010 180 S06	0.5R X 1	1	18	60	6
2SRB 010 200 S04	0.5R X 1	1	20	50	4
2SRB 010 200 S06	0.5R X 1	1	20	60	6
2SRB 010 220 S04	0.5R X 1	1	22	60	4
2SRB 010 220 S06	0.5R X 1	1	22	65	6
2SRB 010 250 S04	0.5R X 1	1	25	60	4
2SRB 012 040 S04	0.6R X 1.2	1.2	4	45	4
2SRB 012 040 S06	0.6R X 1.2	1.2	4	50	6
2SRB 012 060 S04	0.6R X 1.2	1.2	6	45	4
2SRB 012 060 S06	0.6R X 1.2	1.2	6	50	6
2SRB 012 080 S04	0.6R X 1.2	1.2	8	45	4
2SRB 012 080 S06	0.6R X 1.2	1.2	8	50	6
2SRB 012 100 S04	0.6R X 1.2	1.2	10	50	4
2SRB 012 100 S06	0.6R X 1.2	1.2	10	50	6
2SRB 012 120 S04	0.6R X 1.2	1.2	12	50	4
2SRB 012 120 S06	0.6R X 1.2	1.2	12	50	6
2SRB 012 160 S04	0.6R X 1.2	1.2	16	50	4
2SRB 012 160 S06	0.6R X 1.2	1.2	16	60	6
2SRB 012 200 S04	0.6R X 1.2	1.2	20	50	4
2SRB 012 200 S06	0.6R X 1.2	1.2	20	60	6
2SRB 012 240 S04	0.6R X 1.2	1.2	24	60	4
2SRB 012 240 S06	0.6R X 1.2	1.2	24	65	6
2SRB 014 060 S04	0.7R X 1.4	1.4	6	45	4
2SRB 014 080 S04	0.7R X 1.4	1.4	8	45	4
2SRB 014 120 S04	0.7R X 1.4	1.4	12	50	4
2SRB 014 160 S04	0.7R X 1.4	1.4	16	50	4

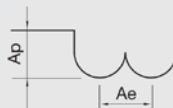
Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
2SRB 015 030 S04	0.75R X 1.5	1.5	3	45	4
2SRB 015 030 S06	0.75R X 1.5	1.5	3	50	6
2SRB 015 040 S04	0.75R X 1.5	1.5	4	45	4
2SRB 015 040 S06	0.75R X 1.5	1.5	4	50	6
2SRB 015 060 S04	0.75R X 1.5	1.5	6	45	4
2SRB 015 060 S06	0.75R X 1.5	1.5	6	50	6
2SRB 015 080 S04	0.75R X 1.5	1.5	8	45	4
2SRB 015 080 S06	0.75R X 1.5	1.5	8	50	6
2SRB 015 100 S04	0.75R X 1.5	1.5	10	50	4
2SRB 015 100 S06	0.75R X 1.5	1.5	10	50	6
2SRB 015 120 S04	0.75R X 1.5	1.5	12	50	4
2SRB 015 120 S06	0.75R X 1.5	1.5	12	50	6
2SRB 015 140 S04	0.75R X 1.5	1.5	14	50	4
2SRB 015 140 S06	0.75R X 1.5	1.5	14	50	6
2SRB 015 160 S04	0.75R X 1.5	1.5	16	50	4
2SRB 015 160 S06	0.75R X 1.5	1.5	16	60	6
2SRB 015 180 S04	0.75R X 1.5	1.5	18	50	4
2SRB 015 180 S06	0.75R X 1.5	1.5	18	60	6
2SRB 015 200 S04	0.75R X 1.5	1.5	20	50	4
2SRB 015 200 S06	0.75R X 1.5	1.5	20	60	6
2SRB 015 220 S04	0.75R X 1.5	1.5	22	60	4
2SRB 015 220 S06	0.75R X 1.5	1.5	22	65	6
2SRB 015 250 S04	0.75R X 1.5	1.5	25	60	4
2SRB 015 250 S06	0.75R X 1.5	1.5	25	65	6
2SRB 015 300 S04	0.75R X 1.5	1.5	30	70	4
2SRB 015 300 S06	0.75R X 1.5	1.5	30	70	6
2SRB 015 350 S04	0.75R X 1.5	1.5	35	70	4
2SRB 016 060 S04	0.8R X 1.6	1.6	6	45	4
2SRB 016 080 S04	0.8R X 1.6	1.6	8	45	4
2SRB 016 120 S04	0.8R X 1.6	1.6	12	50	4
2SRB 016 160 S04	0.8R X 1.6	1.6	16	50	4
2SRB 016 200 S04	0.8R X 1.6	1.6	20	50	4
2SRB 018 060 S04	0.9R X 1.8	1.8	6	45	4
2SRB 018 080 S04	0.9R X 1.8	1.8	8	45	4
2SRB 018 120 S04	0.9R X 1.8	1.8	12	50	4
2SRB 018 160 S04	0.9R X 1.8	1.8	16	50	4
2SRB 018 200 S04	0.9R X 1.8	1.8	20	50	4
2SRB 020 040 S04	1R X 2	2	4	45	4
2SRB 020 040 S06	1R X 2	2	4	50	6
2SRB 020 060 S04	1R X 2	2	6	45	4

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
2SRB 020 060 S06	1R X 2	2	6	50	6
2SRB 020 080 S04	1R X 2	2	8	45	4
2SRB 020 080 S06	1R X 2	2	8	50	6
2SRB 020 100 S04	1R X 2	2	10	50	4
2SRB 020 100 S06	1R X 2	2	10	50	6
2SRB 020 120 S04	1R X 2	2	12	50	4
2SRB 020 120 S06	1R X 2	2	12	50	6
2SRB 020 140 S04	1R X 2	2	14	50	4
2SRB 020 140 S06	1R X 2	2	14	50	6
2SRB 020 160 S04	1R X 2	2	16	50	4
2SRB 020 160 S06	1R X 2	2	16	60	6
2SRB 020 180 S04	1R X 2	2	18	50	4
2SRB 020 180 S06	1R X 2	2	18	60	6
2SRB 020 200 S04	1R X 2	2	20	50	4
2SRB 020 200 S06	1R X 2	2	20	60	6
2SRB 020 220 S04	1R X 2	2	22	60	4
2SRB 020 220 S06	1R X 2	2	22	65	6
2SRB 020 250 S04	1R X 2	2	25	60	4
2SRB 020 250 S06	1R X 2	2	25	65	6
2SRB 020 300 S04	1R X 2	2	30	70	4
2SRB 020 300 S06	1R X 2	2	30	70	6
2SRB 020 350 S04	1R X 2	2	35	70	4
2SRB 020 350 S06	1R X 2	2	35	75	6
2SRB 020 400 S04	1R X 2	2	40	80	4
2SRB 020 400 S06	1R X 2	2	40	80	6
2SRB 020 450 S04	1R X 2	2	45	80	4
2SRB 025 080 S04	1.25R X 2.5	2.5	8	45	4
2SRB 025 100 S04	1.25R X 2.5	2.5	10	50	4
2SRB 025 160 S04	1.25R X 2.5	2.5	16	50	4
2SRB 025 200 S04	1.25R X 2.5	2.5	20	60	4
2SRB 025 250 S04	1.25R X 2.5	2.5	25	60	4
2SRB 025 300 S04	1.25R X 2.5	2.5	30	70	4
2SRB 025 350 S04	1.25R X 2.5	2.5	35	70	4
2SRB 030 060 S06	1.5R X 3	3	6	50	6
2SRB 030 080 S06	1.5R X 3	3	8	50	6
2SRB 030 100 S06	1.5R X 3	3	10	50	6
2SRB 030 120 S06	1.5R X 3	3	12	50	6
2SRB 030 160 S06	1.5R X 3	3	16	60	6
2SRB 030 200 S06	1.5R X 3	3	20	60	6
2SRB 030 250 S06	1.5R X 3	3	25	65	6

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
2SRB 030 300 S06	1.5R X 3	3	30	70	6
2SRB 030 350 S06	1.5R X 3	3	35	75	6
2SRB 030 400 S06	1.5R X 3	3	40	80	6
2SRB 030 450 S06	1.5R X 3	3	45	90	6
2SRB 030 500 S06	1.5R X 3	3	50	100	6
2SRB 030 600 S06	1.5R X 3	3	60	100	6
2SRB 040 080 S06	2R X 4	4	8	50	6
2SRB 040 100 S06	2R X 4	4	10	50	6
2SRB 040 120 S06	2R X 4	4	12	50	6
2SRB 040 160 S06	2R X 4	4	16	60	6
2SRB 040 200 S06	2R X 4	4	20	60	6
2SRB 040 250 S06	2R X 4	4	25	65	6
2SRB 040 300 S06	2R X 4	4	30	70	6
2SRB 040 350 S06	2R X 4	4	35	75	6
2SRB 040 400 S06	2R X 4	4	40	80	6
2SRB 040 450 S06	2R X 4	4	45	90	6
2SRB 040 500 S06	2R X 4	4	50	100	6
2SRB 040 550 S06	2R X 4	4	55	100	6
2SRB 040 600 S06	2R X 4	4	60	100	6
2SRB 050 160 S06	2.5R X 5	6	16	60	6
2SRB 050 200 S06	2.5R X 5	6	20	60	6
2SRB 050 250 S06	2.5R X 5	6	25	70	6
2SRB 050 300 S06	2.5R X 5	6	30	75	6
2SRB 050 400 S06	2.5R X 5	6	40	80	6
2SRB 050 450 S06	2.5R X 5	6	45	90	6
2SRB 050 500 S06	2.5R X 5	6	50	100	6
2SRB 050 600 S06	2.5R X 5	6	60	100	6
2SRB 060 150 S06	3R X 6	10	15	55	6
2SRB 060 300 S06	3R X 6	10	30	110	6
2SRB 080 250 060	4R X 8	12	25	60	8
2SRB 080 300 100	4R X 8	12	30	100	8
2SRB 100 300 070	5R X 10	16	30	70	10
2SRB 100 350 100	5R X 10	16	35	100	10
2SRB 120 300 075	6R X 12	18	30	75	12
2SRB 120 400 110	6R X 12	18	40	110	12
2SRB 120 400 110	6R X 12	18	40	110	12

Material		Copper				Prehardened Steels / Hardened Steels NAK / SKD				Hardened Steels SKD / SKT				Hardened Steels SKD / SKT			
Hardness						30HRC ~ 45HRC				45HRC ~ 55HRC				55HRC ~ 65HRC			
Radius	Effective Length	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
R0.05	0.3	50,000	80	0.004	0.004	45,000	70	0.004	0.004	45,000	50	0.002	0.002	45,000	40	0.002	0.002
	0.5	50,000	70	0.004	0.004	45,000	60	0.002	0.002	45,000	30	0.002	0.002	45,000	30	0.002	0.002
R0.1	0.5	50,000	410	0.010	0.010	45,000	330	0.006	0.007	45,000	260	0.006	0.006	45,000	220	0.005	0.006
	1	50,000	360	0.007	0.008	45,000	310	0.004	0.005	45,000	230	0.004	0.004	45,000	200	0.004	0.004
R0.15	1.5	42,000	300	0.006	0.006	42,000	230	0.003	0.004	42,000	180	0.003	0.004	42,000	150	0.003	0.003
	1	50,000	620	0.012	0.013	45,000	460	0.010	0.010	38,000	350	0.090	0.010	38,000	290	0.007	0.009
R0.2	3	40,000	440	0.008	0.009	34,000	300	0.006	0.007	28,000	220	0.005	0.005	28,000	180	0.004	0.005
	5	33,000	280	0.004	0.005	24,000	180	0.003	0.003	20,000	140	0.003	0.003	18,000	100	0.002	0.002
R0.25	1	51,000	850	0.021	0.034	45,000	640	0.016	0.022	33,000	430	0.013	0.022	33,000	360	0.011	0.021
	3	46,000	640	0.015	0.016	37,000	400	0.010	0.010	27,000	260	0.009	0.010	27,000	220	0.008	0.010
R0.3	5	33,000	390	0.008	0.016	25,000	310	0.008	0.010	22,000	240	0.006	0.010	22,000	190	0.004	0.005
	1	53,000	1,300	0.026	0.047	38,000	800	0.020	0.033	28,000	530	0.014	0.032	28,000	260	0.007	0.020
R0.35	5	44,000	860	0.012	0.014	29,000	460	0.008	0.008	26,000	370	0.007	0.010	26,000	180	0.006	0.009
	10	32,000	440	0.008	0.016	24,000	380	0.007	0.010	24,000	310	0.005	0.010	23,000	180	0.005	0.009
R0.4	1	53,000	1,630	0.030	0.140	33,000	800	0.022	0.091	23,000	500	0.019	0.091	22,000	430	0.014	0.091
	5	42,000	920	0.014	0.068	24,000	420	0.012	0.043	22,000	330	0.008	0.042	22,000	280	0.007	0.040
R0.45	10	26,000	450	0.006	0.032	20,000	300	0.005	0.020	19,000	260	0.004	0.020	19,000	200	0.003	0.018
	2	51,000	1,900	0.054	0.160	29,000	680	0.045	0.100	23,000	460	0.038	0.100	22,000	380	0.030	0.100
R0.5	6	43,000	1,210	0.035	0.100	24,000	530	0.028	0.068	18,000	350	0.020	0.068	18,000	290	0.015	0.065
	10	19,000	560	0.022	0.080	1,700	390	0.020	0.050	16,000	340	0.015	0.050	14,000	280	0.010	0.050
R0.55	2	42,000	1,800	0.068	0.320	28,000	750	0.052	0.220	18,000	450	0.040	0.220	15,000	450	0.008	0.140
	5	42,000	1,800	0.068	0.320	28,000	750	0.052	0.220	18,000	450	0.040	0.220	15,000	450	0.008	0.140
R0.6	10	25,000	970	0.024	0.086	13,600	500	0.020	0.056	12,500	380	0.014	0.056	11,400	260	0.008	0.050
	16	14,700	600	0.018	0.086	11,400	400	0.016	0.056	10,300	320	0.012	0.056	9,600	210	0.005	0.030
R0.75	3	26,000	2,000	0.167	0.320	18,000	960	0.120	0.210	10,800	560	0.100	0.210	10,000	500	0.090	0.210
	10	22,000	1,400	0.100	0.220	12,300	650	0.080	0.170	8,100	400	0.062	0.170	8,100	380	0.050	0.160
R0.8	18	10,100	520	0.030	0.160	10,100	420	0.022	0.110	8,000	360	0.020	0.110	8,000	340	0.012	0.110
	30	8,200	430	0.014	0.080	8,200	380	0.012	0.050	7,900	350	0.010	0.050	7,900	330	0.010	0.050
R1	4	22,000	2,040	0.220	0.520	17,500	1,160	0.180	0.350	12,200	900	0.140	0.350	12,200	750	0.120	0.350
	10	22,000	1,880	0.180	0.350	17,500	1,020	0.140	0.230	12,200	810	0.110	0.230	12,200	660	0.090	0.230
R1.5	20	13,300	970	0.090	0.165	13,300	500	0.060	0.110	10,600	500	0.055	0.110	10,600	410	0.035	0.110
	30	8,500	530	0.025	0.070	8,500	400	0.020	0.050	8,500	400	0.015	0.050	8,500	320	0.015	0.045
R2	6	14,000	2,700	0.250	0.500	12,000	1,520	0.200	0.340	8,200	1,100	0.160	0.320	5,400	610	0.160	0.320
	10	14,000	2,700	0.250	0.500	12,000	1,520	0.200	0.340	8,200	1,100	0.160	0.320	5,400	610	0.160	0.300
R2.5	20	11,700	1,870	0.200	0.450	10,300	1,230	0.145	0.320	7,100	940	0.120	0.310	4,800	550	0.080	0.300
	30	9,100	1,350	0.120	0.220	7,800	680	0.100	0.150	7,100	680	0.080	0.150	4,800	320	0.070	0.300
R3	8	10,500	2,510	0.350	0.850	8,700	1,460	0.290	0.550	6,000	1,110	0.220	0.500	6,000	880	0.150	0.500
	20	10,500	2,510	0.350	0.850	8,700	1,460	0.290	0.550	6,000	1,110	0.220	0.500	6,000	880	0.150	0.500
R4	30	9,300	1,700	0.250	0.500	7,400	1,150	0.200	0.320	5,500	880	0.150	0.300	5,500	680	0.130	0.300
	40	6,800	1,220	0.150	0.500	6,000	880	0.132	0.320	5,500	880	0.100	0.300	5,500	680	0.090	0.300
R5	15	9,000	2,400	0.380	0.800	7,000	1,250	0.300	0.700	5,000	950	0.220	0.700	5,000	750	0.200	0.650
	25	9,000	2,000	0.380	0.800	7,000	1,150	0.300	0.550	5,000	900	0.220	0.550	5,000	680	0.200	0.500
R6	40	7,800	1,100	0.250	0.800	5,600	700	0.200	0.550	4,100	550	0.150	0.550	4,100	420	0.130	0.500
R7	15	7,000	2,230	0.500	1.000	6,800	1,470	0.420	0.800	4,800	1,100	0.300	0.800	3,700	720	0.300	0.800
	30	7,000	1,510	0.380	0.900	6,000	1,400	0.300	0.650	4,200	980	0.220	0.650	3,700	660	0.220	0.600
R8	25	6,800	1,470	0.410	1.000	6,000	980	0.350	0.750	4,100	760	0.180	0.600	3,800	610	0.200	0.630
	30	6,400	1,400	0.380	1.000	5,800	940	0.300	0.750	4,000	720	0.160	0.600	3,600	600	0.200	0.600
R9	30	5,200	1,120	0.560	1.200	4,900	940	0.370	0.900	4,000	710	0.200	0.670	3,500	590	0.200	0.650
	35	5,000	1,080	0.500	1.000	4,500	900	0.350	0.850	3,800	680	0.150	0.600	3,200	540	0.200	0.600
R10	30	4,300	920	0.650	1.400	4,000	820	0.420	0.900	3,600	690	0.250	0.600	3,000	500	0.250	0.600
	40	4,100	900	0.600	1.200	3,800	8,000	0.400	0.850	3,400	650	0.200	0.600	3,000	500	0.200	0.600

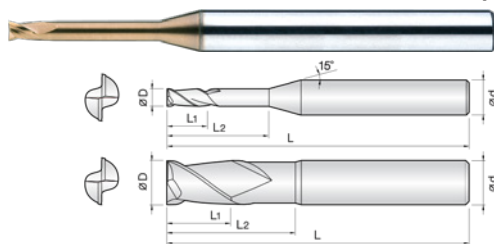
Depth
of Cut



2 Flutes High Speed Rib End Mills

Endmills for pre-hardened and hardened steel (HRc50-)

- High precise edge tolerance.
- Reinforced edge design for preventing edge chipping.



Size	D Tolerance
D ≤ Ø6	+0 ~ -0.01mm
D > Ø6	+0 ~ -0.015mm

/Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D	L1	L2	L	d
2SRE 001 003 S04	0.1	0.3	-	40	4
2SRE 001 005 S04	0.1	0.5	-	40	4
2SRE 002 005 S04	0.2	0.2	0.5	40	4
2SRE 002 010 S04	0.2	0.2	1	40	4
2SRE 002 015 S04	0.2	0.2	1.5	40	4
2SRE 002 020 S04	0.2	0.2	2	40	4
2SRE 003 010 S04	0.3	0.3	1	40	4
2SRE 003 015 S04	0.3	0.3	1.5	40	4
2SRE 003 020 S04	0.3	0.3	2	40	4
2SRE 003 030 S04	0.3	0.3	3	40	4
2SRE 003 040 S04	0.3	0.3	4	40	4
2SRE 003 050 S04	0.3	0.3	5	40	4
2SRE 004 010 S04	0.4	0.4	1	40	4
2SRE 004 020 S04	0.4	0.4	2	40	4
2SRE 004 030 S04	0.4	0.4	3	40	4
2SRE 004 040 S04	0.4	0.4	4	40	4
2SRE 004 050 S04	0.4	0.4	5	40	4
2SRE 004 060 S04	0.4	0.4	6	40	4
2SRE 004 080 S04	0.4	0.4	8	40	4
2SRE 004 100 S04	0.4	0.4	10	40	4
2SRE 005 020 S04	0.5	0.5	2	40	4
2SRE 005 030 S04	0.5	0.5	3	40	4
2SRE 005 040 S04	0.5	0.5	4	40	4
2SRE 005 050 S04	0.5	0.5	5	40	4
2SRE 005 060 S04	0.5	0.5	6	40	4
2SRE 005 080 S04	0.5	0.5	8	40	4
2SRE 005 100 S04	0.5	0.5	10	40	4
2SRE 005 120 S04	0.5	0.5	12	45	4
2SRE 005 140 S04	0.5	0.5	14	45	4
2SRE 006 020 S04	0.6	0.6	2	40	4
2SRE 006 030 S04	0.6	0.6	3	40	4
2SRE 006 040 S04	0.6	0.6	4	40	4
2SRE 006 050 S04	0.6	0.6	5	40	4
2SRE 006 060 S04	0.6	0.6	6	40	4
2SRE 006 080 S04	0.6	0.6	8	40	4
2SRE 006 100 S04	0.6	0.6	10	40	4
2SRE 006 120 S04	0.6	0.6	12	45	4
2SRE 006 140 S04	0.6	0.6	14	45	4
2SRE 006 160 S04	0.6	0.6	16	45	4

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D	L1	L2	L	d
2SRE 007 020 S04	0.7	0.7	2	40	4
2SRE 007 040 S04	0.7	0.7	4	40	4
2SRE 007 060 S04	0.7	0.7	6	40	4
2SRE 007 080 S04	0.7	0.7	8	40	4
2SRE 007 100 S04	0.7	0.7	10	40	4
2SRE 007 120 S04	0.7	0.7	12	45	4
2SRE 008 020 S04	0.8	0.8	2	40	4
2SRE 008 040 S04	0.8	0.8	4	40	4
2SRE 008 060 S04	0.8	0.8	6	40	4
2SRE 008 080 S04	0.8	0.8	8	40	4
2SRE 008 100 S04	0.8	0.8	10	40	4
2SRE 008 120 S04	0.8	0.8	12	45	4
2SRE 008 140 S04	0.8	0.8	14	45	4
2SRE 009 060 S04	0.9	0.8	6	40	4
2SRE 009 080 S04	0.9	0.9	8	40	4
2SRE 009 100 S04	0.9	0.9	10	40	4
2SRE 010 020 S04	1	1	2	45	4
2SRE 010 030 S04	1	1	3	45	4
2SRE 010 040 S04	1	1	4	45	4
2SRE 010 050 S04	1	1	5	45	4
2SRE 010 060 S04	1	1	6	45	4
2SRE 010 080 S04	1	1	8	45	4
2SRE 010 100 S04	1	1	10	45	4
2SRE 010 120 S04	1	1	12	45	4
2SRE 010 140 S04	1	1	14	45	4
2SRE 010 160 S04	1	1	16	50	4
2SRE 010 180 S04	1	1	18	50	4
2SRE 010 200 S04	1	1	20	50	4
2SRE 010 250 S04	1	1	25	60	4
2SRE 010 300 S04	1	1	30	70	4
2SRE 012 040 S04	1.2	1.2	4	45	4
2SRE 012 060 S04	1.2	1.2	6	45	4
2SRE 012 080 S04	1.2	1.2	8	45	4
2SRE 012 100 S04	1.2	1.2	10	45	4
2SRE 012 120 S04	1.2	1.2	12	45	4
2SRE 012 160 S04	1.2	1.2	16	50	4
2SRE 012 200 S04	1.2	1.2	20	50	4
2SRE 012 250 S04	1.2	1.2	25	60	4
2SRE 012 300 S04	1.2	1.2	30	70	4



Ø0.1 - Ø6

Ø6 - Ø12

Shield Edge

/Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D	L1	L2	L	d
2SRE 014 060 S04	1.4	1.4	6	45	4
2SRE 014 080 S04	1.4	1.4	8	45	4
2SRE 014 100 S04	1.4	1.4	10	45	4
2SRE 014 140 S04	1.4	1.4	14	45	4
2SRE 014 160 S04	1.4	1.4	16	50	4
2SRE 014 200 S04	1.4	1.4	20	50	4
2SRE 015 040 S04	1.5	1.5	4	45	4
2SRE 015 060 S04	1.5	1.5	6	45	4
2SRE 015 080 S04	1.5	1.5	8	45	4
2SRE 015 100 S04	1.5	1.5	10	45	4
2SRE 015 120 S04	1.5	1.5	12	45	4
2SRE 015 140 S04	1.5	1.5	14	50	4
2SRE 015 160 S04	1.5	1.5	16	50	4
2SRE 015 180 S04	1.5	1.5	18	50	4
2SRE 015 200 S04	1.5	1.5	20	50	4
2SRE 015 250 S04	1.5	1.5	25	60	4
2SRE 015 300 S04	1.5	1.5	30	70	4
2SRE 016 100 S04	1.6	1.6	10	45	4
2SRE 016 140 S04	1.6	1.6	14	45	4
2SRE 016 180 S04	1.6	1.6	18	60	4
2SRE 018 100 S04	1.8	1.8	10	45	4
2SRE 018 140 S04	1.8	1.8	14	45	4
2SRE 018 180 S04	1.8	1.8	18	50	4
2SRE 020 040 S04	2	2	4	45	4
2SRE 020 060 S04	2	2	6	45	4
2SRE 020 080 S04	2	2	8	45	4
2SRE 020 100 S04	2	2	10	45	4
2SRE 020 120 S04	2	2	12	45	4
2SRE 020 140 S04	2	2	14	45	4
2SRE 020 160 S04	2	2	16	50	4
2SRE 020 180 S04	2	2	18	50	4
2SRE 020 200 S04	2	2	20	50	4
2SRE 020 220 S04	2	2	22	60	4
2SRE 020 250 S04	2	2	25	60	4
2SRE 020 300 S04	2	2	30	60	4
2SRE 020 350 S04	2	2	35	70	4
2SRE 020 400 S04	2	2	40	80	4
2SRE 020 450 S04	2	2	45	80	4
2SRE 020 500 S04	2	2	50	90	4
2SRE 025 080 S04	2.5	2.5	8	45	4
2SRE 025 100 S04	2.5	2.5	10	45	4
2SRE 025 120 S04	2.5	2.5	12	45	4
2SRE 025 160 S04	2.5	2.5	16	50	4
2SRE 025 200 S04	2.5	2.5	20	50	4
2SRE 025 250 S04	2.5	2.5	25	60	4
2SRE 025 300 S04	2.5	2.5	30	70	4
2SRE 025 350 S04	2.5	2.5	35	70	4
2SRE 025 400 S04	2.5	2.5	40	80	4
2SRE 025 500 S04	2.5	2.5	50	90	4

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D	L1	L2	L	d
2SRE 030 060 S06	3	3	6	45	6
2SRE 030 080 S06	3	3	8	45	6
2SRE 030 100 S06	3	3	10	45	6
2SRE 030 120 S06	3	3	12	50	6
2SRE 030 160 S06	3	3	16	55	6
2SRE 030 200 S06	3	3	20	60	6
2SRE 030 250 S06	3	3	25	65	6
2SRE 030 300 S06	3	3	30	70	6
2SRE 030 350 S06	3	3	35	75	6
2SRE 030 400 S06	3	3	40	80	6
2SRE 030 450 S06	3	3	45	90	6
2SRE 030 500 S06	3	3	50	100	6
2SRE 030 600 S06	3	3	60	100	6
2SRE 040 080 S06	4	4	8	50	6
2SRE 040 100 S06	4	4	10	50	6
2SRE 040 120 S06	4	4	12	50	6
2SRE 040 160 S06	4	4	16	55	6
2SRE 040 200 S06	4	4	20	60	6
2SRE 040 250 S06	4	4	25	65	6
2SRE 040 300 S06	4	4	30	70	6
2SRE 040 350 S06	4	4	35	75	6
2SRE 040 400 S06	4	4	40	80	6
2SRE 040 450 S06	4	4	45	90	6
2SRE 040 500 S06	4	4	50	100	6
2SRE 040 550 S06	4	4	55	100	6
2SRE 040 600 S06	4	4	60	100	6
2SRE 050 160 S06	5	6	16	55	6
2SRE 050 200 S06	5	6	20	60	6
2SRE 050 250 S06	5	6	25	65	6
2SRE 050 300 S06	5	6	30	70	6
2SRE 050 350 S06	5	6	35	75	6
2SRE 050 400 S06	5	6	40	80	6
2SRE 050 500 S06	5	6	50	100	6
2SRE 050 600 S06	5	6	60	100	6
2SRE 060 200 S06	6	10	20	60	6
2SRE 060 300 S06	6	10	30	75	6
2SRE 060 400 S06	6	10	40	80	6
2SRE 060 500 S06	6	10	50	90	6
2SRE 060 600 S06	6	10	60	110	6
2SRE 080 200 S08	8	12	20	65	8
2SRE 080 300 S08	8	12	30	80	8
2SRE 080 400 S08	8	12	40	100	8
2SRE 100 250 S10	10	15	25	70	10
2SRE 100 350 S10	10	15	35	80	10
2SRE 100 450 S10	10	15	45	100	10
2SRE 120 300 S12	12	18	30	80	12
2SRE 120 400 S12	12	18	40	100	12
2SRE 120 500 S12	12	18	50	120	12

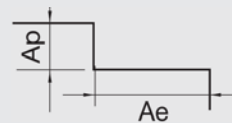
Material		Carbon Steels			Alloy Steels SK / SCM / SUS			Prehardened Steels / Hardened Steels NAK / SKD			Hardened Steels SKD / SKT			Hardened Steels SKD / SKT			Ae Milling amount for side Milling	
Hardness		(S45C/S50C) ~225HB			225 ~ 325HB			35HRC ~ 45HRC			45HRC ~ 55HRC			55HRC ~ 60HRC				
Outside Diameter	Effective Length	RPM	FEED	Ap Axial Depth	RPM	FEED	Ap Axial Depth	RPM	FEED	Ap Axial Depth	RPM	FEED	Ap Axial Depth	RPM	FEED	Ap Axial Depth		
0.1mm	0.3	50,000	70	0.004	50,000	60	0.004	50,000	50	0.002	40,800	30	0.001	X	X	X	X	
	0.5	50,000	60	0.004	50,000	50	0.004	50,000	40	0.002	40,800	20	0.001	X	X	X	X	
0.2mm	0.5	52,000	310	0.006	52,000	290	0.005	52,000	250	0.003	40,800	160	0.002	13,000	8	0.001	0.096	
	1	46,900	270	0.005	46,900	240	0.005	46,900	210	0.004	36,800	140	0.003	X	X	X	0.014	
0.3mm	1.5	45,200	220	0.003	45,200	210	0.003	45,200	180	0.002	35,500	120	0.002	X	X	X	0.004	
	1	56,000	520	0.009	56,000	460	0.008	56,000	410	0.006	48,100	310	0.004	11,600	12	0.003	0.064	
0.4mm	3	29,800	210	0.002	29,800	200	0.002	29,800	170	0.001	22,500	110	0.001	11,600	8	0.001	0.002	
	5	20,400	90	0.001	20,400	80	0.001	20,400	70	0.001	16,300	50	0.001	X	X	X	X	
0.5mm	1	52,000	610	0.012	52,000	580	0.010	44,600	420	0.008	35,700	280	0.005	11,600	17	0.003	0.024	
	5	36,500	350	0.003	31,200	280	0.003	28,100	220	0.002	21,100	140	0.001	11,600	12	0.001	0.002	
0.8mm	10	30,000	140	0.001	22,500	100	0.001	20,700	80	0.001	16,500	60	0.001	X	X	X	0.001	
	2	52,000	840	0.020	50,000	720	0.016	37,600	470	0.014	28,500	310	0.010	11,000	15	0.005	0.072	
1mm	6	30,400	400	0.005	26,500	300	0.005	20,700	220	0.004	17,700	150	0.002	11,000	14	0.001	0.002	
	10	22,500	220	0.002	19,200	160	0.001	17,900	140	0.001	12,600	90	0.001	11,000	11	0.001	0.001	
1.5mm	4	34,100	830	0.032	28,100	650	0.028	21,100	450	0.022	17,300	300	0.015	7,000	17	0.010	0.056	
	8	21,100	490	0.011	17,300	370	0.010	15,200	270	0.008	10,800	180	0.005	7,000	15	0.003	0.007	
2mm	12	16,700	310	0.005	11,800	240	0.004	11,000	180	0.003	9,300	120	0.002	7,000	10	0.001	0.002	
	4	30,100	1,070	0.050	24,400	770	0.040	19,500	480	0.030	15,200	370	0.025	5,700	13	0.010	0.136	
2.5mm	10	17,200	500	0.012	14,200	370	0.010	11,800	280	0.008	10,000	190	0.006	5,700	10	0.003	0.009	
	20	10,500	180	0.004	9,600	140	0.003	8,800	120	0.002	6,900	80	0.001	X	X	X	0.002	
3mm	30	8,700	50	0.002	7,200	30	0.002	7,100	20	0.001	5,500	20	0.001	X	X	X	0.001	
	6	20,000	980	0.065	17,500	740	0.055	12,400	450	0.050	10,500	300	0.035	8,900	50	0.020	0.200	
4mm	10	14,600	650	0.040	12,800	500	0.030	10,200	350	0.025	7,800	250	0.020	8,900	11	0.010	0.040	
	20	9,700	320	0.010	8,200	260	0.009	7,200	200	0.008	5,900	130	0.005	X	X	X	0.006	
5mm	30	7,900	180	0.006	6,500	130	0.005	6,000	110	0.004	4,800	80	0.002	X	X	X	0.002	
	6	18,500	1,250	0.085	16,400	930	0.070	11,500	550	0.055	9,000	400	0.042	8,900	200	0.020	0.656	
6mm	10	13,500	820	0.060	11,600	600	0.050	8,700	450	0.040	6,800	300	0.030	8,900	40	0.015	0.120	
	20	8,700	450	0.025	7,500	360	0.022	6,000	260	0.015	5,000	170	0.012	X	X	X	0.016	
7mm	30	700	280	0.010	5,900	210	0.008	5,000	160	0.006	4,000	120	0.005	X	X	X	0.005	
	40	5,300	180	0.005	4,500	130	0.004	4,200	110	0.003	3,000	60	0.002	X	X	X	0.002	
8mm	8	14,000	1,240	0.100	11,800	950	0.080	8,800	650	0.070	7,200	420	0.050	8,900	200	0.030	0.680	
	20	8,000	620	0.045	6,900	470	0.040	5,700	330	0.030	4,500	230	0.020	8,900	12	0.010	0.040	
9mm	30	6,000	420	0.018	5,300	300	0.015	4,500	230	0.012	3,700	150	0.008	X	X	X	0.012	
	40	5,100	270	0.006	4,500	200	0.005	4,100	150	0.004	3,100	110	0.003	X	X	X	0.006	
10mm	10	10,600	1,150	0.120	8,700	850	0.100	6,200	560	0.080	5,000	400	0.055	7,300	200	0.030	0.800	
	20	6,800	670	0.060	6,000	520	0.055	4,900	380	0.040	3,900	260	0.030	7,300	25	0.015	0.088	
11mm	30	5,900	500	0.035	4,800	370	0.030	4,200	270	0.020	3,200	180	0.015	7,300	8	0.008	0.024	
	40	4,900	350	0.015	4,200	260	0.015	3,600	200	0.010	2,800	130	0.008	X	X	X	0.011	
12mm	10	8,500	1,280	0.130	7,100	950	0.100	5,100	600	0.090	4,100	410	0.060	6,000	380	0.040	1.456	
	20	5,800	800	0.100	4,800	600	0.080	3,500	400	0.065	2,900	280	0.050	5,800	72	0.030	0.320	
13mm	30	4,800	590	0.060	3,700	440	0.050	3,100	310	0.045	2,300	210	0.025	5,800	22	0.015	0.080	
	40	3,900	450	0.040	3,200	310	0.035	2,600	230	0.025	2,100	160	0.020	5,800	8	0.009	0.032	
14mm	16	5,800	1,040	0.150	4,800	760	0.150	3,300	460	0.110	2,600	330	0.080	4,600	430	0.050	1.440	
	30	4,100	610	0.120	3,200	480	0.100	2,400	320	0.070	1,800	200	0.060	4,600	60	0.025	0.200	
15mm	20	3,900	890	0.160	3,600	680	0.140	2,400	440	0.120	1,900	310	0.080	3,800	580	0.050	1.480	
	40	2,800	570	0.110	2,100	390	0.100	1,600	240	0.070	1,200	150	0.050	3,800	72	0.030	0.176	
16mm	20	3,200	910	0.180	2,800	710	0.160	2,300	450	0.130	1,700	330	0.090	3,400	580	0.050	1.600	
	40	2,600	600	0.120	2,000	410	0.100	1,500	250	0.800	1,100	160	0.060	3,400	84	0.035	0.200	
17mm	25	2,900	890	0.200	2,700	680	0.180	2,100	430	0.130	1,500	310	0.080	3,200	540	0.050	1.760	
	45	2,200	580	0.140	2,000	400	0.120	1,300	220	0.700	900	150	0.050	3,200	76	0.030	0.240	
18mm	30	2,500	710	0.220	2,300	580	0.200	2,000	400	0.140	1,400	280	0.080	3,000	540	0.050	1.840	
	50	1,900	420	0.160	1,700	350	0.130	1,500	200	0.800	800	140	0.050	3,000	72	0.030	0.280	

Depth of Cut

Slotting
• Ap : Axial Depth
• D : Outside Diameter



Side Milling
• Ap : Axial Depth
• Ae : Radial Depth

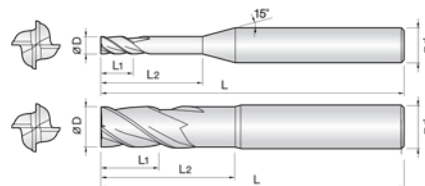




00.8 - 06

08 - 012

Shield Edge



Size	D Tolerance
$D \leq \phi 6$	$+0 \sim -0.01\text{mm}$
$D > \phi 6$	$+0 \sim -0.015\text{mm}$

/Unit : mm

Order Number	Diameter	Length of cut		Effective Length	Overall Length	Shank Dia
	D	L1	L2	L	d	
4SRE 008 020 S04	0.8	0.8	2	45	4	
4SRE 008 040 S04	0.8	0.8	4	45	4	
4SRE 008 060 S04	0.8	0.8	6	45	4	
4SRE 008 080 S04	0.8	0.8	8	45	4	
4SRE 008 100 S04	0.8	0.8	10	45	4	
4SRE 008 120 S04	0.8	0.8	12	45	4	
4SRE 008 160 S04	0.8	0.8	16	50	4	
4SRE 009 020 S04	0.9	0.9	2	45	4	
4SRE 009 060 S04	0.9	0.9	6	45	4	
4SRE 009 080 S04	0.9	0.9	8	45	4	
4SRE 009 100 S04	0.9	0.9	10	45	4	
4SRE 010 030 S04	1	1	3	45	4	
4SRE 010 040 S04	1	1	4	45	4	
4SRE 010 060 S04	1	1	6	45	4	
4SRE 010 080 S04	1	1	8	45	4	
4SRE 010 100 S04	1	1	10	45	4	
4SRE 010 120 S04	1	1	12	45	4	
4SRE 010 160 S04	1	1	16	50	4	
4SRE 010 200 S04	1	1	20	50	4	
4SRE 010 250 S04	1	1	25	60	4	
4SRE 012 060 S04	1.2	1.2	6	45	4	
4SRE 012 080 S04	1.2	1.2	8	45	4	
4SRE 012 100 S04	1.2	1.2	10	45	4	
4SRE 012 120 S04	1.2	1.2	12	45	4	
4SRE 012 160 S04	1.2	1.2	16	50	4	
4SRE 015 060 S04	1.5	1.5	6	45	4	
4SRE 015 080 S04	1.5	1.5	8	45	4	
4SRE 015 100 S04	1.5	1.5	10	45	4	
4SRE 015 120 S04	1.5	1.5	12	45	4	
4SRE 015 160 S04	1.5	1.5	16	50	4	
4SRE 015 200 S04	1.5	1.5	20	50	4	
4SRE 015 250 S04	1.5	1.5	25	60	4	
4SRE 020 060 S04	2	2	6	45	4	
4SRE 020 080 S04	2	2	8	45	4	
4SRE 020 100 S04	2	2	10	45	4	
4SRE 020 120 S04	2	2	12	45	4	
4SRE 020 160 S04	2	2	16	50	4	
4SRE 020 200 S04	2	2	20	50	4	
4SRE 020 250 S04	2	2	25	60	4	
4SRE 020 300 S04	2	2	30	70	4	
4SRE 025 100 S04	2.5	2.5	10	45	4	

Order Number	Diameter	Length of cut		Effective Length	Overall Length	Shank Dia
	D	L1	L2	L	d	
4SRE 025 120 S04	2.5	2.5	12	45	4	
4SRE 025 160 S04	2.5	2.5	16	50	4	
4SRE 025 200 S04	2.5	2.5	20	50	4	
4SRE 025 250 S04	2.5	2.5	25	60	4	
4SRE 025 300 S04	2.5	2.5	30	70	4	
4SRE 030 100 S06	3	3	10	45	6	
4SRE 030 120 S06	3	3	12	50	6	
4SRE 030 160 S06	3	3	16	55	6	
4SRE 030 200 S06	3	3	20	60	6	
4SRE 030 250 S06	3	3	25	65	6	
4SRE 030 300 S06	3	3	30	70	6	
4SRE 030 350 S06	3	3	35	75	6	
4SRE 030 400 S06	3	3	40	80	6	
4SRE 040 100 S06	4	4	10	50	6	
4SRE 040 120 S06	4	4	12	50	6	
4SRE 040 160 S06	4	4	16	55	6	
4SRE 040 200 S06	4	4	20	60	6	
4SRE 040 250 S06	4	4	25	65	6	
4SRE 040 300 S06	4	4	30	70	6	
4SRE 040 400 S06	4	4	40	80	6	
4SRE 040 450 S06	4	4	45	90	6	
4SRE 040 500 S06	4	4	50	100	6	
4SRE 050 160 S06	5	5	16	55	6	
4SRE 050 200 S06	5	5	20	60	6	
4SRE 050 250 S06	5	5	25	65	6	
4SRE 050 300 S06	5	5	30	70	6	
4SRE 050 400 S06	5	5	40	80	6	
4SRE 050 500 S06	5	5	50	100	6	
4SRE 060 200 S06	6	6	20	60	6	
4SRE 060 300 S06	6	6	30	75	6	
4SRE 060 400 S06	6	6	40	80	6	
4SRE 060 500 S06	6	6	50	90	6	
4SRE 080 200 S08	8	10	20	65	8	
4SRE 080 300 S08	8	10	30	80	8	
4SRE 080 400 S08	8	10	40	100	8	
4SRE 100 250 S10	10	15	25	70	10	
4SRE 100 350 S10	10	15	35	90	10	
4SRE 100 450 S10	10	15	45	110	10	
4SRE 120 300 S12	12	18	30	80	12	
4SRE 120 400 S12	12	18	40	100	12	
4SRE 120 500 S12	12	18	50	120	12	

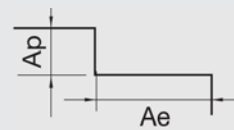
Material		Carbon Steels / Alloy Steels S45C / S50C / SK / SCM / SUS				Prehardened Steels / Hardened Steels NAK / SKD				Hardened Steels SKD / SKT				Hardened Steels SKD / SKT			
Hardness		~ 325HB				30HRC ~ 45HRC				45HRC ~ 55HRC				55HRC ~ 65HRC			
Outside Diameter	Effective Length	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
0.8mm	4	21,000	950	0.015	0.150	21,500	640	0.010	0.160	17,200	450	0.010	0.150	9,800	220	0.005	0.100
	8	17,800	710	0.010	0.020	13,800	480	0.007	0.019	11,000	340	0.005	0.018	8,500	170	0.003	0.012
	12	14,700	500	0.007	0.006	11,000	360	0.006	0.006	8,800	250	0.004	0.006	7,200	120	0.002	0.003
1mm	4	19,800	900	0.030	0.300	20,500	620	0.020	0.300	16,200	440	0.015	0.250	9,100	210	0.008	0.185
	10	15,800	620	0.012	0.020	12,000	430	0.010	0.020	9,400	300	0.008	0.018	7,300	140	0.004	0.010
	16	10,500	300	0.007	0.005	10,000	200	0.006	0.005	8,000	140	0.004	0.004	5,300	70	0.002	0.002
1.2mm	6	17,200	1,000	0.034	0.200	15,200	700	0.025	0.190	12,000	500	0.018	0.170	8,800	250	0.010	0.110
	10	15,000	750	0.025	0.040	12,000	520	0.020	0.030	9,500	360	0.012	0.035	7,000	180	0.007	0.026
	16	10,700	320	0.012	0.010	9,700	250	0.006	0.008	7,500	170	0.004	0.008	5,100	80	0.004	0.005
1.5mm	6	14,800	1,100	0.065	0.450	13,300	740	0.050	0.440	10,400	570	0.030	0.400	7,600	290	0.020	0.250
	10	13,100	850	0.041	0.100	10,300	600	0.038	0.100	8,500	430	0.025	0.080	6,500	210	0.015	0.050
	20	8,500	260	0.010	0.010	7,500	200	0.010	0.010	6,000	130	0.007	0.010	3,800	38	0.003	0.007
2mm	6	14,300	1,500	0.065	0.070	11,900	1,000	0.050	0.050	9,500	760	0.030	0.050	7,000	380	0.020	0.040
	10	12,000	980	0.050	0.340	9,500	800	0.040	0.300	7,500	570	0.025	0.250	6,000	280	0.015	0.200
	20	8,100	380	0.015	0.040	6,700	250	0.010	0.035	5,100	180	0.008	0.030	3,200	40	0.003	0.020
2.5mm	30	6,300	220	0.006	0.010	5,400	160	0.005	0.010	4,300	110	0.003	0.010	2,200	10	0.001	0.005
	12	10,000	800	0.050	0.450	7,600	680	0.040	0.420	6,000	480	0.025	0.400	5,300	310	0.016	0.250
	20	7,300	480	0.025	0.090	6,300	400	0.020	0.090	4,800	280	0.015	0.080	3,300	270	0.010	0.050
3mm	30	5,600	300	0.010	0.025	4,200	330	0.009	0.025	3,300	230	0.006	0.025	2,100	200	0.002	0.015
	10	8,600	820	0.070	0.925	6,800	710	0.050	0.900	5,200	500	0.030	0.800	4,800	380	0.020	0.550
	20	6,400	540	0.040	0.200	5,800	480	0.030	0.200	4,500	330	0.020	0.150	3,200	320	0.012	0.110
4mm	30	5,000	370	0.020	0.060	4,100	400	0.015	0.055	3,200	270	0.012	0.050	2,100	240	0.008	0.035
	40	4,400	260	0.010	0.022	3,900	300	0.012	0.025	3,000	220	0.008	0.022	1,800	150	0.005	0.014
	12	7,000	940	0.100	2.700	4,700	720	0.100	2.500	3,900	500	0.070	2.300	3,900	440	0.040	1.400
5mm	20	5,100	600	0.060	0.650	4,100	540	0.074	0.612	3,400	380	0.060	0.500	3,100	360	0.032	0.350
	30	4,000	440	0.040	0.200	3,600	440	0.050	0.165	2,800	310	0.040	0.160	2,100	270	0.025	0.100
	40	3,400	340	0.025	0.080	2,800	360	0.040	0.070	2,200	250	0.025	0.070	1,700	170	0.015	0.050
6mm	16	5,000	850	0.120	2.800	3,900	650	0.100	2.700	3,100	460	0.070	2.600	3,100	460	0.043	1.530
	35	3,000	440	0.070	0.300	2,700	470	0.055	0.255	2,100	320	0.040	0.240	1,800	250	0.020	0.162
	50	2,300	280	0.030	0.090	1,800	300	0.020	0.090	1,400	210	0.012	0.080	1,300	100	0.009	0.055
8mm	20	3,700	760	0.150	3.220	3,100	680	0.120	3.200	2,400	480	0.090	3.000	3,100	570	0.050	2.000
	40	2,100	400	0.075	0.400	1,900	440	0.050	0.380	1,600	310	0.040	0.350	1,600	220	0.025	0.230
	20	3,500	800	0.170	3.540	2,900	690	0.140	3.500	2,400	490	0.100	3.200	2,900	580	0.052	2.100
10mm	40	2,000	430	0.085	0.550	1,800	450	0.055	0.350	1,400	320	0.040	0.420	1,800	230	0.027	0.240
	25	2,700	820	0.175	3.620	2,500	700	0.150	3.560	2,100	490	0.110	3.250	2,500	580	0.055	2.250
	45	1,600	400	0.090	0.554	1,400	430	0.050	0.354	1,100	310	0.045	0.430	1,400	240	0.028	0.255
12mm	30	2,300	790	0.188	3.660	2,100	730	0.155	3.600	1,700	490	0.120	3.330	2,100	590	0.058	2.450
	50	1,300	360	0.094	0.560	1,050	380	0.052	0.360	1,000	320	0.050	0.440	1,000	250	0.029	0.260

Depth of Cut

Slotting
• Ap : Axial Depth
• D : Outside Diameter



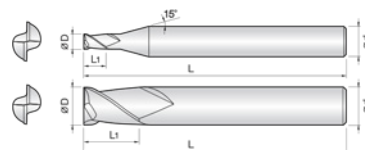
Side Milling
• Ap : Axial Depth
• Ae : Radial Depth



2 Flutes High Speed Standard Length End Mills

Endmills for pre-hardened and hardened steel (HRC50-)

- High precise edge tolerance.
- Reinforced edge design for preventing edge chipping.



Size	D Tolerance
D < Ø1	+0~ -0.005mm
D ≤ Ø5.5	+0~ -0.01mm
D > Ø5.5	+0~ -0.02mm

/Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
2SCE 0005 0008 S04	0.05	0.08	38	4
2SCE 0006 001 S04	0.06	0.1	38	4
2SCE 0007 0012 S04	0.07	0.12	38	4
2SCE 0008 0015 S04	0.08	0.15	38	4
2SCE 0009 0017 S04	0.09	0.17	38	4
2SCE 001 002 S04	0.1	0.2	38	4
2SCE 0015 003 S04	0.15	0.3	38	4
2SCE 002 004 S04	0.2	0.4	38	4
2SCE 0025 005 S04	0.25	0.5	38	4
2SCE 003 006 S04	0.3	0.6	38	4
2SCE 0035 007 S04	0.35	0.7	38	4
2SCE 004 008 S04	0.4	0.8	38	4
2SCE 0045 009 S04	0.45	0.9	38	4
2SCE 005 010 S04	0.5	1	38	4
2SCE 0055 011 S04	0.55	1.1	38	4
2SCE 006 012 S04	0.6	1.2	38	4
2SCE 0065 013 S04	0.65	1.3	38	4
2SCE 007 014 S04	0.7	1.4	38	4
2SCE 0075 015 S04	0.75	1.5	38	4
2SCE 008 016 S04	0.8	1.6	38	4
2SCE 0085 017 S04	0.85	1.7	38	4
2SCE 009 020 S04	0.9	2	38	4
2SCE 0095 020 S04	0.95	2	38	4
2SCE 010 025 S04	1	2.5	40	4
2SCE 010 025 S06	1	2.5	40	6
2SCE 010 025 S060	1	2.5	60	6
2SCE 011 027 S04	1.1	2.7	40	4
2SCE 012 030 S04	1.2	3	40	4
2SCE 012 030 S060	1.2	3	60	6
2SCE 013 032 S04	1.3	3.2	40	4
2SCE 014 035 S04	1.4	3.5	40	4
2SCE 015 040 S04	1.5	4	40	4
2SCE 015 040 S06	1.5	4	40	6
2SCE 015 040 S060	1.5	4	60	6
2SCE 016 040 S04	1.6	4	40	4
2SCE 017 042 S04	1.7	4.2	40	4
2SCE 018 045 S04	1.8	4.5	40	4
2SCE 019 050 S04	1.9	5	40	4
2SCE 020 060 S04	2	6	40	4
2SCE 020 060 S06	2	6	40	6
2SCE 020 060 S060	2	6	60	6
2SCE 021 060 S04	2.1	6	40	4

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
2SCE 022 060 S04	2.2	6	40	4
2SCE 023 060 S04	2.3	6	40	4
2SCE 024 080 S04	2.4	8	45	4
2SCE 025 080 S04	2.5	8	45	4
2SCE 025 080 S06	2.5	8	45	6
2SCE 025 080 S070	2.5	8	70	6
2SCE 026 080 S04	2.6	8	45	4
2SCE 027 080 S04	2.7	8	45	4
2SCE 028 080 S04	2.8	8	45	4
2SCE 029 080 S04	2.9	8	45	4
2SCE 030 080 S04	3	8	45	3
2SCE 030 080 S04	3	8	45	4
2SCE 030 080 S06	3	8	45	6
2SCE 030 080 S070	3	8	70	6
2SCE 035 100 S06	3.5	10	45	6
2SCE 040 100 S04	4	10	45	4
2SCE 040 110 S06	4	11	45	6
2SCE 040 110 S070	4	11	70	6
2SCE 045 110 S06	4.5	11	45	6
2SCE 050 130 S06	5	13	50	6
2SCE 050 130 S080	5	13	80	6
2SCE 055 130 S06	5.5	13	50	6
2SCE 060 130 S06	6	13	50	6
2SCE 060 130 S080	6	13	80	6
2SCE 065 160 S08	6.5	16	60	8
2SCE 070 160 S08	7	16	60	8
2SCE 075 160 S08	7.5	16	60	8
2SCE 080 190 S08	8	19	60	8
2SCE 085 190 S10	8.5	19	70	10
2SCE 090 190 S10	9	19	70	10
2SCE 095 190 S10	9.5	19	70	10
2SCE 100 220 S10	10	22	70	10
2SCE 105 220 S12	10.5	22	75	12
2SCE 110 220 S12	11	22	75	12
2SCE 115 220 S12	11.5	22	75	12
2SCE 120 260 S12	12	26	75	12
2SCE 140 260 S14	14	26	80	14
2SCE 140 260 S16	14	26	90	16
2SCE 160 350 S16	16	35	100	16
2SCE 180 350 S18	18	35	100	18
2SCE 200 400 S20	20	40	100	20



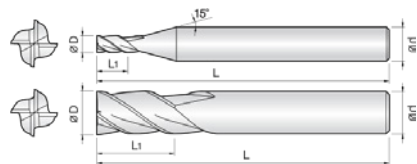
00.8 ~ 05.5 06 ~ 020

Shield Edge

4 Flutes High Speed Standard Length End Mills

Endmills for pre-hardened and hardened steel (HRC50-)

- High precise edge tolerance.
- Reinforced edge design for preventing edge chipping.

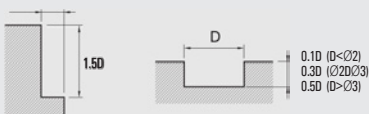
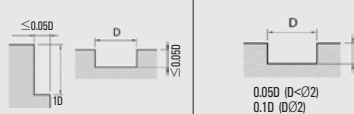
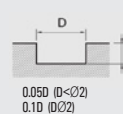


Size	D Tolerance
D ≤ 05.5	+0 ~ -0.01mm
D > 05.5	+0 ~ -0.02mm

/Unit: mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
4SCE 008 020 S04	0.8	2	38	4
4SCE 010 025 S04	1	2.5	40	4
4SCE 010 025 S06	1	2.5	40	6
4SCE 010 025 060	1	2.5	60	6
4SCE 010 025 080	1	2.5	80	6
4SCE 012 030 S04	1.2	3	40	4
4SCE 012 030 S06	1.2	3	40	6
4SCE 012 030 060	1.2	3	60	6
4SCE 015 040 S04	1.5	4	40	4
4SCE 015 040 S06	1.5	4	40	6
4SCE 015 040 060	1.5	4	60	6
4SCE 015 040 080	1.5	4	80	6
4SCE 020 060 S04	2	6	40	4
4SCE 020 060 S06	2	6	40	6
4SCE 020 060 060	2	6	60	6
4SCE 020 060 100	2	6	100	6
4SCE 025 080 S04	2.5	8	45	4
4SCE 025 080 S06	2.5	8	45	6
4SCE 025 080 070	2.5	8	70	6
4SCE 025 080 100	2.5	8	100	6
4SCE 030 080 S03	3	8	45	3
4SCE 030 080 S04	3	8	45	4
4SCE 030 080 S06	3	8	45	6
4SCE 030 080 070	3	8	70	6
4SCE 030 080 100	3	8	100	6
4SCE 035 100 S06	3.5	10	45	6
4SCE 040 110 S04	4	11	45	4
4SCE 040 110 S06	4	11	45	6
4SCE 040 110 070	4	11	70	6
4SCE 040 110 100	4	11	100	6
4SCE 045 110 S06	4.5	11	45	6
4SCE 050 130 S06	5	13	50	6
4SCE 050 130 080	5	13	80	6

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
4SCE 050 130 100	5	13	100	6
4SCE 055 130 S06	5.5	13	50	6
4SCE 060 130 S06	6	13	50	6
4SCE 060 130 080	6	13	80	6
4SCE 060 130 100	6	13	100	6
4SCE 065 160 S08	6.5	16	60	8
4SCE 070 160 S08	7	16	60	8
4SCE 075 160 S08	7.5	16	60	8
4SCE 080 190 S08	8	19	60	8
4SCE 085 190 S10	8.5	19	70	10
4SCE 090 190 S10	9	19	70	10
4SCE 095 190 S10	9.5	19	70	10
4SCE 100 220 S10	10	22	70	10
4SCE 105 220 S12	10.5	22	75	12
4SCE 110 220 S12	11	22	75	12
4SCE 115 220 S12	11.5	22	75	12
4SCE 120 260 S12	12	26	75	12
4SCE 140 260 S14	14	26	80	14
4SCE 140 260 S16	14	26	90	16
4SCE 160 350 S16	16	35	100	16
4SCE 180 350 S18	18	35	100	18
4SCE 200 400 S20	20	40	100	20

Material	Carbon Steels / Alloy Steels S45C / S50C / SK / SCM		Hardened Steels / Prehardened Steels NAK / SKD		Stainless Steels SUS304 / SUS316		Hardened Steels SKD11 / SKD61 / SKT		High Speed Spindle Milling
Hardness	~ 30HRC		30 ~ 45HRC				45 ~ 55HRC		
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	
0.05mm	40,000	40	40,000	35	40,000	30	40,000	20	o
0.08mm	40,000	70	40,000	60	40,000	55	40,000	40	o
0.1mm	40,000	90	40,000	80	40,000	70	40,000	60	o
0.3mm	40,000	140	40,000	130	40,000	130	40,000	80	o
0.5mm	40,000	300	40,000	280	30,000	220	30,000	100	o
1mm	28,000 (18,000)	550 (120)	18,000 (11,000)	350 (70)	14,000 (9,000)	28 (60)	14,000 (8,500)	140 (30)	o
2mm	14,000 (10,000)	850 (180)	9,000 (6800)	550 (110)	7,000 (5,500)	420 (90)	7,200 (4,500)	140 (45)	o
3mm	8,000	200	5,000	130	4,200	110	3,000	55	x
4mm	7,000	290	4,000	180	3,400	110	2,500	60	x
5mm	5,600	300	3,200	180	2,400	110	2,200	65	x
6mm	4,900	340	2,900	190	2,200	130	1,800	80	x
8mm	3,600	360	2,200	190	1,600	130	1,300	95	x
10mm	2,800	310	1,700	150	1,300	110	1,200	80	x
12mm	2,400	260	1,400	130	1,000	90	950	70	x
14mm	2,000	230	1,250	110	900	80	800	60	x
16mm	1,800	190	1,100	100	800	70	700	50	x
18mm	1,600	175	1,000	90	710	65	650	45	x
20mm	1,400	160	900	80	640	60	600	40	x
Depth of Cut	≤ 0.10 (D ≤ 03) ≤ 0.20 (D > 03) 						≤ 0.050 		

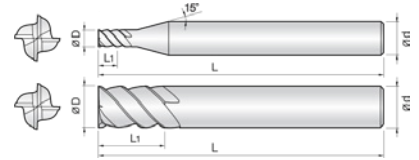
Material	Carbon Steels / Alloy Steels S45C / S50C / SK / SCM		Hardened Steels / Prehardened Steels NAK / SKD		Stainless Steels SUS304 / SUS316		Hardened Steels SKD11 / SKD61 / SKT		Hardened Steels SKD / SKT	
Hardness	~ 30HRC		30 ~ 45HRC				45 ~ 55HRC		55 ~ 60HRC	
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
0.8mm	14,000	220	8,000	120	7,600	90	6,000	40	3,500	18
1mm	13,000	230	7,500	140	7,200	100	5,500	50	3,000	20
1.5mm	11,000	240	7,000	150	6,000	110	5,000	55	2,600	23
2mm	10,000	250	6,800	160	5,800	120	4,500	60	2,200	25
3mm	7,500	270	4,900	180	4,000	150	3,000	75	1,700	50
4mm	6,800	500	4,000	300	3,400	250	2,500	100	1,300	65
5mm	5,600	540	3,200	320	2,800	270	2,000	110	1,100	65
6mm	5,000	580	3,000	320	2,500	290	1,800	120	900	65
8mm	3,700	650	2,100	320	1,800	300	1,400	150	700	60
10mm	2,800	540	1,700	260	1,400	270	1,200	130	600	60
12mm	2,700	470	1,400	220	1,200	210	1,000	120	490	50
14mm	2,200	390	1,300	190	1,050	180	850	100	420	40
16mm	1,800	340	1,100	160	910	160	700	90	380	35
18mm	1,600	280	900	140	750	130	600	70	300	25
20mm	1,200	220	700	110	590	100	490	50	230	20
Depth of Cut	</									

■ The table is based on side machining. In case of slotting, please refer to only 80% of Feed and as for slotting for sus, RPM is 60% of above table / 40% of Feed.

4 Flutes High Speed 45° Helix End Mills

Endmills for pre-hardened and hardened steel (HRC50-)

- High precise edge tolerance.
- Reinforced edge design for preventing edge chipping.
- 45° degree helix design for high speed, feed condition.



Size	D Tolerance
D ≤ Ø5	+0 ~ -0.01mm
D > Ø5	+0 ~ -0.02mm

/Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
4SEM 010 025 S06	1	2.5	40	6
4SEM 010 035 S06	1	3.5	40	6
4SEM 015 040 S06	1.5	4	40	6
4SEM 015 060 S06	1.5	6	40	6
4SEM 020 050 S06	2	5	40	6
4SEM 020 080 S06	2	8	45	6
4SEM 030 080 S06	3	8	45	6
4SEM 030 120 S06	3	12	50	6
4SEM 040 110 S06	4	11	45	6
4SEM 040 160 S06	4	16	55	6
4SEM 050 130 S06	5	13	50	6
4SEM 050 180 S06	5	18	60	6
4SEM 060 130 S06	6	13	50	6

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
4SEM 060 200 S06	6	20	60	6
4SEM 080 200 S08	8	20	60	8
4SEM 080 250 S08	8	25	70	8
4SEM 100 220 S10	10	22	70	10
4SEM 100 300 S10	10	30	80	10
4SEM 120 260 S12	12	26	75	12
4SEM 120 400 S12	12	40	90	12
4SEM 120 500 S12	12	50	100	12
4SEM 160 350 S16	16	35	90	16
4SEM 160 500 S16	16	50	110	16
4SEM 200 400 S20	20	40	100	20
4SEM 200 500 S20	20	50	110	20

4SEM

• RPM : rev./min • Feed : mm/min

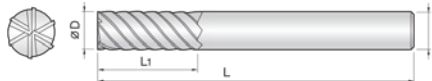
Material	Alloy Steels / Tool Steels Prehardened Steels SKD11 / SKD61 / NAK		Hardened Steels SKD61 / SKD11 / STAVAX		Hardened Steels SKD11 / SKD / SKS	
Hardness	~ 55HRC		55 ~ 65HRC		60 ~ 65HRC	
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED
1mm	32,000	800	16,000	400	8,000	200
1.5mm	28,000	1,000	14,000	500	7,000	250
2mm	25,600	1,200	12,800	600	6,400	300
3mm	21,600	2,500	10,400	1,300	5,500	660
4mm	16,800	3,000	8,000	1,400	4,500	800
5mm	14,400	3,400	7,100	1,700	3,600	900
6mm	12,800	4,600	6,400	2,300	3,200	1,120
8mm	9,600	4,600	4,800	2,300	2,400	1,120
10mm	7,600	4,600	3,800	2,300	1,900	1,120
12mm	6,400	3,800	3,200	1,900	1,600	960
16mm	4,800	2,900	2,400	1,400	1,200	720
20mm	3,800	2,300	1,900	1,100	1,000	570
Depth of Cut						



6&8 Flutes High Speed 45° Helix End Mills

Endmills for pre-hardened and hardened steel (HRC50-)

- Precise run-out and tolerance for finish machining.
- Reinforced edge design for preventing edge chipping.
- 45° degree helix design for high speed, feed condition.



Size	D Tolerance
D ≤ Ø8	+0 ~ -0.02mm
D > Ø8	-0.01 ~ -0.03mm

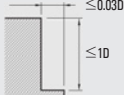
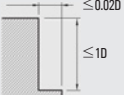
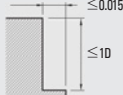
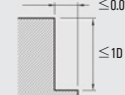
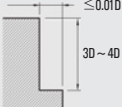
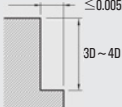
/Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
6SEM 030 100 S06	3	10	50	6
6SEM 040 120 S06	4	12	50	6
6SEM 050 150 S06	5	15	50	6
6SEM 060 150 S06	6	15	50	6
6SEM 060 200 S06	6	20	60	6
6SEM 060 250 S06	6	25	65	6
6SEM 080 200 S08	8	20	60	8
6SEM 080 250 S08	8	25	65	8
6SEM 080 300 S08	8	30	75	8
6SEM 080 350 S08	8	35	80	8
6SEM 100 250 S10	10	25	70	10
6SEM 100 350 S10	10	35	90	10
6SEM 100 450 S10	10	45	100	10
6SEM 120 300 S12	12	30	80	12

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
6SEM 120 400 S12	12	40	90	12
6SEM 120 500 S12	12	50	100	12
6SEM 160 350 S16	16	35	90	16
6SEM 160 500 S16	16	50	110	16
6SEM 160 650 S16	16	65	120	16
6SEM 160 800 S16	16	80	150	16
6SEM 160 900 S16	16	90	160	16
6SEM 200 450 S20	20	45	100	20
6SEM 200 600 S20	20	60	120	20
6SEM 200 800 S20	20	80	150	20
6SEM 200 900 S20	20	90	160	20
6SEM 200 1000 S20	20	100	160	20
6SEM 200 1100 S20	20	110	170	20
8SEM 250 1250 S25	25	125	200	25

6SEM/8SEM

• RPM : rev./min • Feed : mm/min

Material		Alloy Steels / Tools Steels / Prehardened Steels SKD11 / SKD61 / NAK		Hardened Steels SKD61 / SKD11 / SUS420		Hardened Steels SKD11 / SKH / SKS		Hardened Steels SKD11 / SKH / SKS	
Hardness		~ 45HRC		45HRC ~ 55HRC		55HRC ~ 60HRC		60HRC ~ 65HRC	
Outside Diameter	Length of Cut	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6mm	15	3,200	820	2,600	600	2,200	540	2,000	500
	25	1,700	360	1,300	260	1,100	190	900	150
8mm	20	2,400	750	2,000	600	1,700	510	1,500	470
	30	1,300	340	1,000	250	800	180	700	170
10mm	25	1,900	680	1,600	480	1,400	400	1,200	360
	45	1,000	330	800	230	700	180	500	120
12mm	30	1,600	650	1,300	500	1,100	440	1,000	380
	50	650	250	500	170	400	130	320	100
16mm	35	1,200	570	1,000	430	900	360	740	330
	65	640	250	500	180	400	130	320	100
20mm	45	1,000	500	800	370	660	320	600	290
	80	510	220	400	150	320	110	300	90
25mm (8F)	125	510	230	400	160	320	120	300	90
Depth of Cut	Short type								
	Long type								



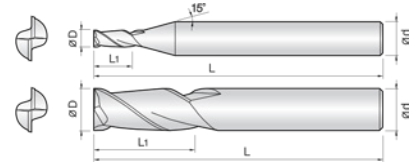
Ø1 ~ Ø5 Ø6 ~ Ø25

Shield Edge

2 Flutes Long Length End Mills

Endmills for various work materials, hardened steel, pre-hardened steel, tool steel and cast iron. (-HRC52)

- Improve tool performance by even run-out and tolerance control.
- Minimize edge chipping by improving corner strength.



Size	D Tolerance
D ≤ Ø5	+0 ~ -0.01mm
D > Ø5	-0.01 ~ -0.03mm

/Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
2LEM 010 030 S06	1	3	60	6
2LEM 010 050 S06	1	5	60	6
2LEM 010 070 S06	1	7	60	6
2LEM 010 100 S06	1	10	60	6
2LEM 015 060 S06	1.5	6	60	6
2LEM 015 075 S06	1.5	7.5	60	6
2LEM 015 100 S06	1.5	10	60	6
2LEM 015 150 S06	1.5	15	60	6
2LEM 020 060 S06	2	6	60	6
2LEM 020 100 S06	2	10	60	6
2LEM 020 150 S06	2	15	60	6
2LEM 030 120 S06	3	12	70	6
2LEM 030 150 S06	3	15	70	6
2LEM 030 200 S06	3	20	70	6
2LEM 030 250 S06	3	25	70	6
2LEM 040 150 S06	4	15	70	6
2LEM 040 200 S06	4	20	70	6
2LEM 040 300 S06	4	30	75	6
2LEM 050 200 S06	5	20	70	6
2LEM 050 250 S06	5	25	75	6
2LEM 050 300 S06	5	30	80	6
2LEM 060 200 S06	6	20	75	6
2LEM 060 200 100	6	20	100	6
2LEM 060 250 S06	6	25	75	6
2LEM 060 300 S06	6	30	80	6
2LEM 080 250 S08	8	25	75	8
2LEM 080 250 100	8	25	100	8
2LEM 080 300 S08	8	30	80	8
2LEM 080 350 S08	8	35	80	8

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
2LEM 080 400 S08	8	40	90	8
2LEM 080 500 S08	8	50	100	8
2LEM 100 300 S10	10	30	80	10
2LEM 100 300 110	10	30	110	10
2LEM 100 350 S10	10	35	90	10
2LEM 100 400 S10	10	40	90	10
2LEM 100 500 S10	10	50	100	10
2LEM 100 600 S10	10	60	110	10
2LEM 120 300 S12	12	30	90	12
2LEM 120 350 110	12	35	110	12
2LEM 120 400 S12	12	40	100	12
2LEM 120 500 S12	12	50	100	12
2LEM 120 600 S12	12	60	110	12
2LEM 120 700 S12	12	70	130	12
2LEM 140 500 S14	14	50	110	14
2LEM 160 400 160	16	40	160	16
2LEM 160 550 S16	16	55	120	16
2LEM 160 700 S16	16	70	130	16
2LEM 160 800 S16	16	80	160	16
2LEM 200 500 160	20	50	160	20
2LEM 200 600 S20	20	60	130	20
2LEM 200 1000 S20	20	100	200	20
2LEM 250 750 S25	25	75	160	25

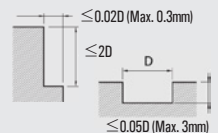
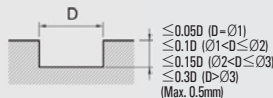
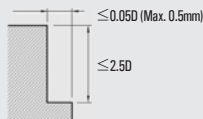
Side Milling

Material	Carbon Steels / Alloy Steels S45C / S50C / SK / SCM		Hardened Steels / Prehardened Steels NAK / SKD		Stainless Steels SUS304 / SUS316		Hardened Steels SKD61	
Hardness	~ 30HRC		30 ~ 45HRC				45 ~ 55HRC	
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1mm	9,400	40	7,700	30	5,500	15	4,900	15
1.5mm	6,000	45	5,500	35	4,000	20	3,500	18
2mm	5,100	50	4,100	40	3,000	25	2,600	20
3mm	3,600	55	2,900	50	2,200	35	1,800	25
4mm	2,900	70	2,300	55	1,800	45	1,400	30
5mm	2,500	85	2,000	70	1,500	50	1,300	35
6mm	2,100	100	1,700	85	1,300	65	1,100	45
8mm	1,600	110	1,300	85	1,000	70	900	45
10mm	1,400	110	1,100	85	800	65	700	45
12mm	1,100	85	950	80	700	50	600	35
16mm	900	70	700	55	500	40	430	25
20mm	700	55	550	40	400	35	340	20
25mm	600	40	440	35	300	25	300	15

Slotting

1mm	9,400	40	7,700	30	5,500	15	4,900	12
1.5mm	6,000	45	5,500	35	4,000	20	3,500	12
2mm	5,100	45	4,100	40	3,000	25	2,600	12
3mm	3,600	55	2,900	50	2,200	35	1,800	15
4mm	2,900	35	2,300	25	1,400	15	1,400	15
5mm	2,500	40	2,000	35	1,200	20	1,300	15
6mm	2,100	50	1,700	45	1,000	25	1,100	20
8mm	1,600	55	1,300	45	800	30	900	20
10mm	1,400	55	1,100	45	650	25	700	20
12mm	1,100	40	950	40	550	20	600	15
16mm	900	35	700	25	400	15	430	12
20mm	700	25	550	20	320	13	340	11
25mm	600	20	440	15	250	10	300	8

Depth of Cut





Q13 ~ Q15 Q16 ~ Q25

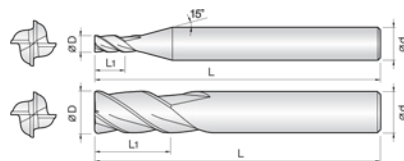
Q16 ~ Q25

Shield Edge

4Flutes Long Length End Mills

Endmills for various work materials, hardened steel, pre-hardened steel, tool steel and cast iron. (~HRC55)

- Improve tool performance by even run-out and tolerance control.
- Minimize edge chipping by improving corner strength.

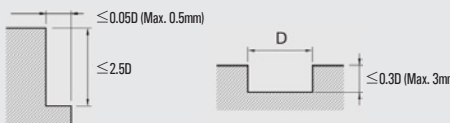
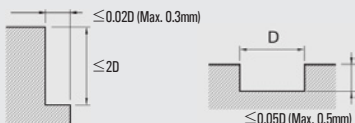


Size	D Tolerance
$D \leq \varnothing 5$	+0~-0.01mm
$D > \varnothing 5$	-0.01~-0.03mm

/Unit: mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
4LEM 010 030 S06	1	3	60	6
4LEM 010 050 S06	1	5	60	6
4LEM 015 060 S06	1.5	6	60	6
4LEM 015 080 S06	1.5	8	60	6
4LEM 020 080 S06	2	8	60	6
4LEM 020 100 S06	2	10	60	6
4LEM 030 100 S06	3	10	70	6
4LEM 030 150 S06	3	15	70	6
4LEM 030 200 S06	3	20	70	6
4LEM 030 250 S06	3	25	70	6
4LEM 040 120 S06	4	12	70	6
4LEM 040 150 S04	4	15	70	4
4LEM 040 150 S06	4	15	70	6
4LEM 040 200 S04	4	20	70	4
4LEM 040 200 S06	4	20	70	6
4LEM 040 250 S06	4	25	70	6
4LEM 040 300 S06	4	30	75	6
4LEM 050 200 S06	5	20	70	6
4LEM 050 250 S06	5	25	75	6
4LEM 050 300 S06	5	30	80	6
4LEM 060 200 S06	6	20	75	6
4LEM 060 200 100	6	20	100	6
4LEM 060 250 S06	6	25	75	6
4LEM 060 300 S06	6	30	80	6
4LEM 060 350 S06	6	35	80	6
4LEM 080 250 S08	8	25	75	8
4LEM 080 250 100	8	25	100	8
4LEM 080 300 S08	8	30	80	8
4LEM 080 350 S08	8	35	90	8
4LEM 080 400 S08	8	40	90	8
4LEM 080 450 S08	8	45	100	8
4LEM 100 300 S10	10	30	80	10
4LEM 100 300 110	10	30	110	10

[illegible]

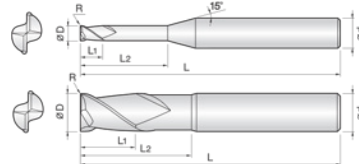
Material	Carbon Steels S50 / SCM		Alloy Steels/ Tool Steels/ Prehardened Steels SKD61 / NAK		Stainless Steels SUS304 / SUS316		Hardened Steels SKD61		Hardened Steels SKD11	
Hardness	~ 30HRC		30 ~ 45HRC				45 ~ 55HRC		55 ~ 60HRC	
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1mm	4,500	60	4,000	50	3,000	40	2,500	20	2,000	15
1.5mm	4,200	70	3,600	60	2,700	45	2,200	25	1,800	18
2mm	4,000	80	3,300	70	2,500	50	2,000	30	1,600	20
3mm	3,600	90	2,900	80	2,200	60	1,800	40	1,500	25
4mm	2,900	120	2,300	90	1,800	70	1,400	50	1,200	30
5mm	2,500	150	2,000	120	1,500	90	1,300	60	1,000	30
6mm	2,100	170	1,700	150	1,300	110	1,100	70	900	40
8mm	1,600	190	1,300	150	1,000	130	900	70	680	40
10mm	1,400	190	1,100	150	800	110	700	70	550	40
12mm	1,100	150	900	120	700	90	570	60	450	30
16mm	900	120	700	90	500	70	420	40	340	25
20mm	680	90	550	70	400	60	340	35	270	20
25mm	550	70	450	60	300	40	270	30	210	17
Depth of Cut										

- In case of slotting, decrease feed rate more than 50% the table.
60% of speed and 40% of feed on the table , when to slotting SUS.

2 Flutes Rib Corner Radius End Mills

Endmills for pre-hardened and hardened steel (HRC50-)

- High precise edge tolerance.
- Designed for minimizing edge chipping by corner R shape.
- Various corner R and flute length for wide range application.



Size	D Tolerance
D ≤ Ø6	+0~-0.01mm
D > Ø6	+0~-0.015mm

/Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	L1	L2	L	d
2RCR 002 0002 010	0.2 X R0.02	0.2	1	40	4
2RCR 002 0002 015	0.2 X R0.02	0.2	1.5	40	4
2RCR 002 0005 010	0.2 X R0.05	0.2	1	40	4
2RCR 002 0005 015	0.2 X R0.05	0.2	1.5	40	4
2RCR 003 0005 010	0.3 X R0.05	0.3	1	40	4
2RCR 003 0005 020	0.3 X R0.05	0.3	2	40	4
2RCR 003 0005 030	0.3 X R0.05	0.3	3	40	4
2RCR 004 0005 010	0.4 X R0.05	0.4	1	40	4
2RCR 004 0005 020	0.4 X R0.05	0.4	2	40	4
2RCR 004 0005 030	0.4 X R0.05	0.4	3	40	4
2RCR 004 0005 040	0.4 X R0.05	0.4	4	40	4
2RCR 004 001 010	0.4 X R0.1	0.4	1	40	4
2RCR 004 001 015	0.4 X R0.1	0.4	1.5	40	4
2RCR 004 001 020	0.4 X R0.1	0.4	2	40	4
2RCR 004 001 030	0.4 X R0.1	0.4	3	40	4
2RCR 004 001 040	0.4 X R0.1	0.4	4	40	4
2RCR 005 0005 010	0.5 X R0.05	0.5	1	45	4
2RCR 005 0005 015	0.5 X R0.05	0.5	1.5	45	4
2RCR 005 0005 020	0.5 X R0.05	0.5	2	45	4
2RCR 005 0005 025	0.5 X R0.05	0.5	2.5	45	4
2RCR 005 0005 030	0.5 X R0.05	0.5	3	45	4
2RCR 005 0005 040	0.5 X R0.05	0.5	4	45	4
2RCR 005 0005 050	0.5 X R0.05	0.5	5	45	4
2RCR 005 0005 060	0.5 X R0.05	0.5	6	45	4
2RCR 005 001 010	0.5 X R0.1	0.5	1	45	4
2RCR 005 001 015	0.5 X R0.1	0.5	1.5	45	4
2RCR 005 001 020	0.5 X R0.1	0.5	2	45	4
2RCR 005 001 025	0.5 X R0.1	0.5	2.5	45	4
2RCR 005 001 030	0.5 X R0.1	0.5	3	45	4
2RCR 005 001 040	0.5 X R0.1	0.5	4	45	4
2RCR 005 001 050	0.5 X R0.1	0.5	5	45	4
2RCR 005 001 060	0.5 X R0.1	0.5	6	45	4
2RCR 006 0005 020	0.6 X R0.05	0.6	2	45	4
2RCR 006 0005 030	0.6 X R0.05	0.6	3	45	4
2RCR 006 0005 040	0.6 X R0.05	0.6	4	45	4

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	L1	L2	L	d
2RCR 006 0005 060	0.6 X R0.05	0.6	6	45	4
2RCR 006 0005 080	0.6 X R0.05	0.6	8	45	4
2RCR 006 001 020	0.6 X R0.1	0.6	2	45	4
2RCR 006 001 030	0.6 X R0.1	0.6	3	45	4
2RCR 006 001 040	0.6 X R0.1	0.6	4	45	4
2RCR 006 001 060	0.6 X R0.1	0.6	6	45	4
2RCR 006 001 080	0.6 X R0.1	0.6	8	45	4
2RCR 007 001 020	0.7 X R0.1	0.7	2	45	4
2RCR 007 001 040	0.7 X R0.1	0.7	4	45	4
2RCR 007 001 060	0.7 X R0.1	0.7	6	45	4
2RCR 008 001 020	0.8 X R0.1	0.8	2	45	4
2RCR 008 001 040	0.8 X R0.1	0.8	4	45	4
2RCR 008 001 060	0.8 X R0.1	0.8	6	45	4
2RCR 008 001 080	0.8 X R0.1	0.8	8	45	4
2RCR 008 002 020	0.8 X R0.2	0.8	2	45	4
2RCR 008 002 040	0.8 X R0.2	0.8	4	45	4
2RCR 008 002 060	0.8 X R0.2	0.8	6	45	4
2RCR 008 002 080	0.8 X R0.2	0.8	8	45	4
2RCR 010 001 040	1 X R0.1	1	4	45	4
2RCR 010 001 060	1 X R0.1	1	6	45	4
2RCR 010 001 080	1 X R0.1	1	8	45	4
2RCR 010 001 100	1 X R0.1	1	10	50	4
2RCR 010 001 120	1 X R0.1	1	12	50	4
2RCR 010 001 160	1 X R0.1	1	16	50	4
2RCR 010 001 200	1 X R0.1	1	20	50	4
2RCR 010 002 040	1 X R0.2	1	4	45	4
2RCR 010 002 060	1 X R0.2	1	6	45	4
2RCR 010 002 080	1 X R0.2	1	8	45	4
2RCR 010 002 100	1 X R0.2	1	10	50	4
2RCR 010 002 120	1 X R0.2	1	12	50	4
2RCR 010 002 160	1 X R0.2	1	16	50	4
2RCR 010 002 200	1 X R0.2	1	20	50	4
2RCR 010 003 040	1 X R0.3	1	4	45	4
2RCR 010 003 060	1 X R0.3	1	6	45	4
2RCR 010 003 080	1 X R0.3	1	8	45	4

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	L1	L2	L	d
2RCR 010 003 100	1XR0.3	1	10	50	4
2RCR 010 003 120	1XR0.3	1	12	50	4
2RCR 010 003 160	1XR0.3	1	16	50	4
2RCR 010 003 200	1XR0.3	1	20	50	4
2RCR 012 001 040	1.2XR0.1	1.2	4	45	4
2RCR 012 001 060	1.2XR0.1	1.2	6	45	4
2RCR 012 001 080	1.2XR0.1	1.2	8	45	4
2RCR 012 001 100	1.2XR0.1	1.2	10	50	4
2RCR 012 001 120	1.2XR0.1	1.2	12	50	4
2RCR 012 001 160	1.2XR0.1	1.2	16	50	4
2RCR 012 001 200	1.2XR0.1	1.2	20	50	4
2RCR 012 002 040	1.2XR0.2	1.2	4	45	4
2RCR 012 002 060	1.2XR0.2	1.2	6	45	4
2RCR 012 002 080	1.2XR0.2	1.2	8	45	4
2RCR 012 002 100	1.2XR0.2	1.2	10	50	4
2RCR 012 002 120	1.2XR0.2	1.2	12	50	4
2RCR 012 002 160	1.2XR0.2	1.2	16	50	4
2RCR 012 002 200	1.2XR0.2	1.2	20	50	4
2RCR 012 003 040	1.2XR0.3	1.2	4	45	4
2RCR 012 003 060	1.2XR0.3	1.2	6	45	4
2RCR 012 003 080	1.2XR0.3	1.2	8	45	4
2RCR 012 003 100	1.2XR0.3	1.2	10	50	4
2RCR 012 003 120	1.2XR0.3	1.2	12	50	4
2RCR 012 003 160	1.2XR0.3	1.2	16	50	4
2RCR 012 003 200	1.2XR0.3	1.2	20	50	4
2RCR 015 001 040	1.5XR0.1	1.5	4	45	4
2RCR 015 001 060	1.5XR0.1	1.5	6	45	4
2RCR 015 001 080	1.5XR0.1	1.5	8	45	4
2RCR 015 001 100	1.5XR0.1	1.5	10	50	4
2RCR 015 001 120	1.5XR0.1	1.5	12	50	4
2RCR 015 001 160	1.5XR0.1	1.5	16	50	4
2RCR 015 001 200	1.5XR0.1	1.5	20	50	4
2RCR 015 001 220	1.5XR0.1	1.5	22	60	4
2RCR 015 001 250	1.5XR0.1	1.5	25	60	4
2RCR 015 002 040	1.5XR0.2	1.5	4	45	4
2RCR 015 002 060	1.5XR0.2	1.5	6	45	4
2RCR 015 002 080	1.5XR0.2	1.5	8	45	4
2RCR 015 002 100	1.5XR0.2	1.5	10	50	4
2RCR 015 002 120	1.5XR0.2	1.5	12	50	4
2RCR 015 002 160	1.5XR0.2	1.5	16	50	4
2RCR 015 002 200	1.5XR0.2	1.5	20	50	4
2RCR 015 002 220	1.5XR0.2	1.5	22	60	4
2RCR 015 002 250	1.5XR0.2	1.5	25	60	4
2RCR 015 003 040	1.5XR0.3	1.5	4	45	4
2RCR 015 003 060	1.5XR0.3	1.5	6	45	4
2RCR 015 003 080	1.5XR0.3	1.5	8	45	4
2RCR 015 003 100	1.5XR0.3	1.5	10	50	4

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	L1	L2	L	d
2RCR 015 003 120	1.5XR0.3	1.5	12	50	4
2RCR 015 003 160	1.5XR0.3	1.5	16	50	4
2RCR 015 003 200	1.5XR0.3	1.5	20	50	4
2RCR 015 003 220	1.5XR0.3	1.5	22	60	4
2RCR 015 003 250	1.5XR0.3	1.5	25	60	4
2RCR 015 005 040	1.5XR0.5	1.5	4	45	4
2RCR 015 005 060	1.5XR0.5	1.5	6	45	4
2RCR 015 005 080	1.5XR0.5	1.5	8	45	4
2RCR 015 005 100	1.5XR0.5	1.5	10	50	4
2RCR 015 005 120	1.5XR0.5	1.5	12	50	4
2RCR 015 005 160	1.5XR0.5	1.5	16	50	4
2RCR 015 005 200	1.5XR0.5	1.5	20	50	4
2RCR 015 005 220	1.5XR0.5	1.5	22	60	4
2RCR 015 005 250	1.5XR0.5	1.5	25	60	4
2RCR 020 001 060	2XR0.1	2	6	45	4
2RCR 020 001 080	2XR0.1	2	8	45	4
2RCR 020 001 100	2XR0.1	2	10	50	4
2RCR 020 001 120	2XR0.1	2	12	50	4
2RCR 020 001 160	2XR0.1	2	16	50	4
2RCR 020 001 200	2XR0.1	2	20	50	4
2RCR 020 001 250	2XR0.1	2	25	60	4
2RCR 020 001 300	2XR0.1	2	30	70	4
2RCR 020 002 060	2XR0.2	2	6	45	4
2RCR 020 002 080	2XR0.2	2	8	45	4
2RCR 020 002 100	2XR0.2	2	10	50	4
2RCR 020 002 120	2XR0.2	2	12	50	4
2RCR 020 002 160	2XR0.2	2	16	50	4
2RCR 020 002 200	2XR0.2	2	20	50	4
2RCR 020 002 250	2XR0.2	2	25	60	4
2RCR 020 002 300	2XR0.2	2	30	70	4
2RCR 020 003 060	2XR0.3	2	6	45	4
2RCR 020 003 080	2XR0.3	2	8	45	4
2RCR 020 003 100	2XR0.3	2	10	50	4
2RCR 020 003 120	2XR0.3	2	12	50	4
2RCR 020 003 160	2XR0.3	2	16	50	4
2RCR 020 003 200	2XR0.3	2	20	50	4
2RCR 020 003 250	2XR0.3	2	25	60	4
2RCR 020 003 300	2XR0.3	2	30	70	4
2RCR 020 005 060	2XR0.5	2	6	45	4
2RCR 020 005 080	2XR0.5	2	8	45	4
2RCR 020 005 100	2XR0.5	2	10	50	4
2RCR 020 005 120	2XR0.5	2	12	50	4
2RCR 020 005 160	2XR0.5	2	16	50	4
2RCR 020 005 200	2XR0.5	2	20	50	4
2RCR 020 005 250	2XR0.5	2	25	60	4
2RCR 020 005 300	2XR0.5	2	30	70	4
2RCR 025 001 100	2.5XR0.1	2.5	10	50	4

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	L1	L2	L	d
2RCR 025 001 160	2.5×R0.1	2.5	16	50	4
2RCR 025 001 200	2.5×R0.1	2.5	20	50	4
2RCR 025 001 250	2.5×R0.1	2.5	25	60	4
2RCR 025 001 300	2.5×R0.1	2.5	30	70	4
2RCR 025 002 100	2.5×R0.2	2.5	10	50	4
2RCR 025 002 160	2.5×R0.2	2.5	16	50	4
2RCR 025 002 200	2.5×R0.2	2.5	20	50	4
2RCR 025 002 250	2.5×R0.2	2.5	25	60	4
2RCR 025 002 300	2.5×R0.2	2.5	30	70	4
2RCR 025 003 100	2.5×R0.3	2.5	10	50	4
2RCR 025 003 160	2.5×R0.3	2.5	16	50	4
2RCR 025 003 200	2.5×R0.3	2.5	20	50	4
2RCR 025 003 250	2.5×R0.3	2.5	25	60	4
2RCR 025 003 300	2.5×R0.3	2.5	30	70	4
2RCR 025 005 100	2.5×R0.5	2.5	10	50	4
2RCR 025 005 160	2.5×R0.5	2.5	16	50	4
2RCR 025 005 200	2.5×R0.5	2.5	20	50	4
2RCR 025 005 250	2.5×R0.5	2.5	25	60	4
2RCR 025 005 300	2.5×R0.5	2.5	30	70	4
2RCR 030 001 100	3×R0.1	3	10	50	6
2RCR 030 001 120	3×R0.1	3	12	55	6
2RCR 030 001 160	3×R0.1	3	16	55	6
2RCR 030 001 200	3×R0.1	3	20	60	6
2RCR 030 001 250	3×R0.1	3	25	65	6
2RCR 030 001 300	3×R0.1	3	30	70	6
2RCR 030 001 350	3×R0.1	3	35	75	6
2RCR 030 001 400	3×R0.1	3	40	80	6
2RCR 030 002 100	3×R0.2	3	10	50	6
2RCR 030 002 120	3×R0.2	3	12	55	6
2RCR 030 002 160	3×R0.2	3	16	55	6
2RCR 030 002 200	3×R0.2	3	20	60	6
2RCR 030 002 250	3×R0.2	3	25	65	6
2RCR 030 002 300	3×R0.2	3	30	70	6
2RCR 030 002 350	3×R0.2	3	35	75	6
2RCR 030 002 400	3×R0.2	3	40	80	6
2RCR 030 003 100	3×R0.3	3	10	50	6
2RCR 030 003 120	3×R0.3	3	12	55	6
2RCR 030 003 160	3×R0.3	3	16	55	6
2RCR 030 003 200	3×R0.3	3	20	60	6
2RCR 030 003 250	3×R0.3	3	25	65	6
2RCR 030 003 300	3×R0.3	3	30	70	6
2RCR 030 003 350	3×R0.3	3	35	75	6
2RCR 030 003 400	3×R0.3	3	40	80	6
2RCR 030 005 100	3×R0.5	3	10	50	6
2RCR 030 005 120	3×R0.5	3	12	55	6
2RCR 030 005 160	3×R0.5	3	16	55	6
2RCR 030 005 200	3×R0.5	3	20	60	6

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	L1	L2	L	d
2RCR 030 005 250	3×R0.5	3	25	65	6
2RCR 030 005 300	3×R0.5	3	30	70	6
2RCR 030 005 350	3×R0.5	3	35	75	6
2RCR 030 005 400	3×R0.5	3	40	80	6
2RCR 030 010 100	3×R1	3	10	50	6
2RCR 030 010 120	3×R1	3	12	55	6
2RCR 030 010 160	3×R1	3	16	55	6
2RCR 030 010 200	3×R1	3	20	60	6
2RCR 030 010 250	3×R1	3	25	65	6
2RCR 030 010 300	3×R1	3	30	70	6
2RCR 030 010 350	3×R1	3	35	75	6
2RCR 030 010 400	3×R1	3	40	80	6
2RCR 040 001 050	4×R0.1	4	12	50	4
2RCR 040 001 070	4×R0.1	4	20	70	4
2RCR 040 001 120	4×R0.1	4	12	55	6
2RCR 040 001 160	4×R0.1	4	16	55	6
2RCR 040 001 200	4×R0.1	4	20	60	6
2RCR 040 001 250	4×R0.1	4	25	65	6
2RCR 040 001 300	4×R0.1	4	30	70	6
2RCR 040 001 350	4×R0.1	4	35	75	6
2RCR 040 001 400	4×R0.1	4	40	80	6
2RCR 040 001 450	4×R0.1	4	45	90	6
2RCR 040 001 500	4×R0.1	4	50	100	6
2RCR 040 002 050	4×R0.2	4	12	50	4
2RCR 040 002 070	4×R0.2	4	20	70	4
2RCR 040 002 120	4×R0.2	4	12	55	6
2RCR 040 002 160	4×R0.2	4	16	55	6
2RCR 040 002 200	4×R0.2	4	20	60	6
2RCR 040 002 250	4×R0.2	4	25	65	6
2RCR 040 002 300	4×R0.2	4	30	70	6
2RCR 040 002 350	4×R0.2	4	35	75	6
2RCR 040 002 400	4×R0.2	4	40	80	6
2RCR 040 002 450	4×R0.2	4	45	90	6
2RCR 040 002 500	4×R0.2	4	50	100	6
2RCR 040 003 050	4×R0.3	4	12	50	4
2RCR 040 003 070	4×R0.3	4	20	70	4
2RCR 040 003 120	4×R0.3	4	12	55	6
2RCR 040 003 160	4×R0.3	4	16	55	6
2RCR 040 003 200	4×R0.3	4	20	60	6
2RCR 040 003 250	4×R0.3	4	25	65	6
2RCR 040 003 300	4×R0.3	4	30	70	6
2RCR 040 003 350	4×R0.3	4	35	75	6
2RCR 040 003 400	4×R0.3	4	40	80	6
2RCR 040 003 450	4×R0.3	4	45	90	6
2RCR 040 003 500	4×R0.3	4	50	100	6
2RCR 040 005 050	4×R0.5	4	12	50	4
2RCR 040 005 070	4×R0.5	4	20	70	4



002 ~ 06

08 ~ 018

/Unit : mm

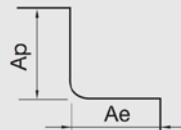
Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	L1	L2	L	d
2RCR 040 005 120	4 X R0.5	4	12	55	6
2RCR 040 005 160	4 X R0.5	4	16	55	6
2RCR 040 005 200	4 X R0.5	4	20	60	6
2RCR 040 005 250	4 X R0.5	4	25	65	6
2RCR 040 005 300	4 X R0.5	4	30	70	6
2RCR 040 005 350	4 X R0.5	4	35	75	6
2RCR 040 005 400	4 X R0.5	4	40	80	6
2RCR 040 005 450	4 X R0.5	4	45	90	6
2RCR 040 005 500	4 X R0.5	4	50	100	6
2RCR 040 010 050	4 X R1	4	12	50	4
2RCR 040 010 070	4 X R1	4	20	70	4
2RCR 040 010 120	4 X R1	4	12	55	6
2RCR 040 010 160	4 X R1	4	16	55	6
2RCR 040 010 200	4 X R1	4	20	60	6
2RCR 040 010 250	4 X R1	4	25	65	6
2RCR 040 010 300	4 X R1	4	30	70	6
2RCR 040 010 350	4 X R1	4	35	75	6
2RCR 040 010 400	4 X R1	4	40	80	6
2RCR 040 010 450	4 X R1	4	45	90	6
2RCR 040 010 500	4 X R1	4	50	100	6
2RCR 050 002 150	5 X R0.2	6	15	60	6
2RCR 050 002 250	5 X R0.2	6	25	70	6
2RCR 050 002 300	5 X R0.2	6	30	70	6
2RCR 050 002 400	5 X R0.2	6	40	80	6
2RCR 050 002 500	5 X R0.2	6	50	100	6
2RCR 050 005 150	5 X R0.5	6	15	60	6
2RCR 050 005 250	5 X R0.5	6	25	70	6
2RCR 050 005 300	5 X R0.5	6	30	70	6
2RCR 050 005 400	5 X R0.5	6	40	80	6
2RCR 050 005 500	5 X R0.5	6	50	100	6
2RCR 050 010 150	5 X R1	6	15	60	6
2RCR 050 010 250	5 X R1	6	25	70	6
2RCR 050 010 300	5 X R1	6	30	70	6
2RCR 050 010 400	5 X R1	6	40	80	6
2RCR 050 010 500	5 X R1	6	50	100	6
2RCR 060 001 200	6 X R0.1	7	20	60	6
2RCR 060 001 400	6 X R0.1	7	40	90	6
2RCR 060 002 200	6 X R0.2	7	20	60	6
2RCR 060 002 400	6 X R0.2	7	40	90	6
2RCR 060 003 200	6 X R0.3	7	20	60	6
2RCR 060 003 400	6 X R0.3	7	40	90	6
2RCR 060 005 200	6 X R0.5	7	20	60	6
2RCR 060 005 400	6 X R0.5	7	40	90	6
2RCR 060 010 200	6 X R1	7	20	60	6
2RCR 060 010 400	6 X R1	7	40	90	6
2RCR 060 015 200	6 X R1.5	7	20	60	6
2RCR 060 015 400	6 X R1.5	7	40	90	6

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	L1	L2	L	d
2RCR 080 002 220	8 X R0.2	9	22	65	8
2RCR 080 002 400	8 X R0.2	9	40	100	8
2RCR 080 003 220	8 X R0.3	9	22	65	8
2RCR 080 003 400	8 X R0.3	9	40	100	8
2RCR 080 005 220	8 X R0.5	9	22	65	8
2RCR 080 005 400	8 X R0.5	9	40	100	8
2RCR 080 010 220	8 X R1	9	22	65	8
2RCR 080 010 400	8 X R1	9	40	100	8
2RCR 080 015 220	8 X R1.5	9	22	65	8
2RCR 080 015 400	8 X R1.5	9	40	100	8
2RCR 100 002 240	10 X R0.2	11	24	70	10
2RCR 100 002 450	10 X R0.2	11	45	100	10
2RCR 100 003 240	10 X R0.3	11	24	70	10
2RCR 100 003 450	10 X R0.3	11	45	100	10
2RCR 100 005 240	10 X R0.5	11	24	70	10
2RCR 100 005 450	10 X R0.5	11	45	100	10
2RCR 100 010 240	10 X R1	11	24	70	10
2RCR 100 010 450	10 X R1	11	45	100	10
2RCR 100 015 240	10 X R1.5	11	24	70	10
2RCR 100 015 450	10 X R1.5	11	45	100	10
2RCR 100 020 240	10 X R2	11	24	70	10
2RCR 100 020 450	10 X R2	11	45	100	10
2RCR 120 002 260	12 X R0.2	13	26	80	12
2RCR 120 002 500	12 X R0.2	13	50	110	12
2RCR 120 003 260	12 X R0.3	13	26	80	12
2RCR 120 003 500	12 X R0.3	13	50	110	12
2RCR 120 005 260	12 X R0.5	13	26	80	12
2RCR 120 005 500	12 X R0.5	13	50	110	12
2RCR 120 010 260	12 X R1	13	26	80	12
2RCR 120 010 500	12 X R1	13	50	110	12
2RCR 120 015 260	12 X R1.5	13	26	80	12
2RCR 120 015 500	12 X R1.5	13	50	110	12
2RCR 120 020 260	12 X R2	13	26	80	12
2RCR 120 020 500	12 X R2	13	50	110	12
2RCR 120 030 260	12 X R3	13	26	80	12
2RCR 120 030 500	12 X R3	13	50	110	12
2RCR 160 005 110	16 X R0.5	20	35	110	16
2RCR 160 005 160	16 X R0.5	20	35	160	16
2RCR 160 010 110	16 X R1	20	35	110	16
2RCR 160 010 160	16 X R1	20	35	160	16

Material		Copper				Prehardened Steels / Hardened Steels NAK / SKD				Hardened Steels SKD / SKT				Hardened Steels SKD / SKT			
Hardness						30HRC ~ 45HRC				45HRC ~ 55HRC				55HRC ~ 65HRC			
Outside Diameter	Effective Length	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
0.2mm	1mm	47,000	170	0.230	0.017	47,000	170	0.005	0.017	30,000	130	0.003	0.017	13,000	21	0.001	0.013
	1.5	47,000	150	0.014	0.009	47,000	150	0.004	0.009	23,000	90	0.003	0.009	10,200	17	0.001	0.006
0.3mm	1	51,000	420	0.026	0.017	51,000	430	0.006	0.017	30,000	300	0.004	0.013	18,700	30	0.003	0.013
	3	44,000	180	0.026	0.013	44,200	190	0.005	0.013	21,000	70	0.003	0.009	12,700	17	0.002	0.009
0.4mm	1	41,000	520	0.041	0.054	43,200	430	0.011	0.061	34,500	320	0.009	0.061	20,500	34	0.003	0.061
	3	29,000	390	0.023	0.046	23,000	330	0.007	0.023	23,000	240	0.006	0.023	13,700	26	0.003	0.023
0.5mm	1	42,000	1,160	0.069	0.099	42,000	970	0.029	0.104	34,000	730	0.026	0.104	21,000	80	0.011	0.104
	3	27,000	650	0.048	0.077	27,000	540	0.020	0.096	22,100	400	0.017	0.096	13,700	44	0.007	0.096
	5	22,400	480	0.023	0.038	22,400	400	0.009	0.009	18,000	300	0.009	0.009	11,300	33	0.003	0.009
0.6mm	2	24,300	520	0.097	0.138	24,300	430	0.009	0.186	20,000	330	0.009	0.186	12,900	37	0.003	0.186
	6	14,300	250	0.031	0.038	14,300	210	0.003	0.009	11,800	160	0.003	0.009	7,600	18	0.001	0.009
0.8mm	4	15,000	460	0.112	0.168	14,800	380	0.012	0.099	12,800	300	0.013	0.099	8,600	35	0.006	0.099
	8	11,000	260	0.026	0.085	11,000	230	0.004	0.077	9,300	160	0.003	0.077	6,500	17	0.002	0.077
1mm	4	12,000	830	0.171	0.344	12,000	700	0.026	0.230	10,200	570	0.030	0.230	7,200	68	0.014	0.230
	10	7,500	330	0.041	0.268	7,500	270	0.009	0.107	6,500	230	0.011	0.107	4,600	27	0.005	0.107
	16	6,000	200	0.015	0.191	6,000	160	0.003	0.023	5,200	140	0.004	0.023	3,700	16	0.002	0.023
1.2mm	6	8,000	600	0.158	0.398	8,000	500	0.015	0.077	7,100	420	0.017	0.077	5,300	51	0.009	0.077
	12	5,800	380	0.046	0.344	5,800	320	0.006	0.061	5,200	260	0.007	0.061	3,800	32	0.003	0.061
1.5mm	4	11,200	1,100	0.255	0.574	11,200	930	0.038	0.383	10,200	800	0.051	0.383	7,800	105	0.028	0.383
	10	7,200	760	0.128	0.482	7,200	640	0.027	0.245	6,600	550	0.036	0.245	5,100	72	0.020	0.245
	20	5,100	410	0.036	0.306	5,100	350	0.004	0.092	4,700	300	0.005	0.092	3,600	39	0.003	0.092
2mm	6	10,900	1,030	0.273	0.727	10,900	870	0.037	0.689	10,200	790	0.051	0.689	8,200	113	0.031	0.689
	12	8,000	830	0.158	0.612	8,000	700	0.026	0.383	7,200	630	0.037	0.383	5,900	91	0.022	0.383
	20	6,000	650	0.079	0.566	6,000	550	0.014	0.168	5,600	490	0.020	0.168	4,500	71	0.012	0.168
	30	5,100	570	0.043	0.383	5,100	470	0.004	0.115	4,700	430	0.004	0.115	3,700	60	0.002	0.115
2.5mm	10	9,000	1,030	0.288	0.727	9,000	870	0.044	0.459	8,500	820	0.064	0.459	7,100	131	0.041	0.459
	30	5,400	460	0.059	0.536	5,400	380	0.009	0.153	5,100	360	0.014	0.153	4,200	57	0.009	0.153
3mm	12	9,000	1,360	0.332	0.723	9,000	980	0.089	0.536	8,500	760	0.089	0.570	7,600	170	0.064	0.570
	20	7,100	890	0.221	0.663	7,100	750	0.062	0.493	6,700	580	0.062	0.493	6,000	128	0.037	0.493
	30	6,000	740	0.119	0.587	6,000	610	0.043	0.323	5,500	470	0.043	0.323	5,100	100	0.025	0.306
4mm	12	7,600	1,100	0.349	1.326	7,600	920	0.071	0.978	6,400	800	0.102	0.978	5,400	183	0.072	0.978
	20	5,900	1,000	0.326	1.152	5,900	850	0.046	0.765	5,000	730	0.068	0.765	4,200	168	0.049	0.765
	30	5,000	780	0.170	1.052	5,000	650	0.024	0.583	4,100	570	0.036	0.583	3,500	130	0.026	0.616
	45	4,100	380	0.084	0.972	4,100	320	0.006	0.284	3,500	280	0.009	0.284	3,000	65	0.006	0.284
5mm	15	6,700	1,780	0.606	1.980	6,700	1,480	0.092	1.170	4,800	990	0.130	1.170	4,000	297	0.096	1.170
	30	4,600	850	0.297	1.530	4,600	710	0.046	0.900	3,300	470	0.065	0.900	2,800	143	0.048	0.900
6mm	20	5,200	1,200	0.522	1.908	5,200	1,060	0.414	1.179	3,100	900	0.162	1.179	2,700	342	0.126	1.179
	40	4,000	1,000	0.491	1.782	4,000	790	0.356	1.134	2,300	660	0.142	1.134	2,000	265	0.107	1.134
8mm	22	4,800	1,100	0.459	2.210	4,800	940	0.364	1.320	2,800	790	0.143	1.320	2,400	301	0.111	1.320
	40	3,600	840	0.432	1.980	3,600	700	0.314	1.150	2,100	580	0.125	1.150	1,700	233	0.094	1.150
10mm	24	4,000	900	0.390	2.510	3,900	800	0.310	1.430	2,400	670	0.121	1.430	2,000	256	0.094	1.430
	45	3,000	710	0.368	2.120	3,000	590	0.267	1.160	1,700	490	0.106	1.160	1,500	198	0.080	1.160
12mm	26	3,300	760	0.328	2.620	3,300	670	0.260	1.760	2,000	560	0.102	1.760	1,700	215	0.079	1.760
	50	2,500	600	0.309	2.100	2,500	500	0.224	1.220	1,500	420	0.089	1.220	1,200	166	0.067	1.220
16mm	35	2,600	610	0.262	2.540	2,600	530	0.208	1.880	1,500	450	0.081	1.880	1,400	172	0.063	1.880

Milling
amount
of side
milling

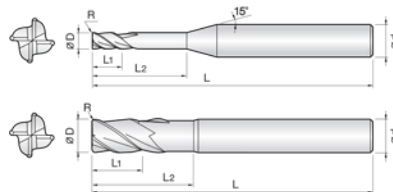
• Ap : Axial Depth
• Ae : Radial Depth



4 Flutes Rib Corner Radius End Mills

Endmills for pre-hardened and hardened steel (HRC50-)

- High precise edge tolerance.
- Designed for minimizing edge chipping by corner R shape.
- Various corner R and flute length for wide range application.



Size	D Tolerance
$D \leq \varnothing 6$	+0 ~ -0.01mm
$D > \varnothing 6$	+0 ~ -0.015mm

/Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	L1	L2	L	d
4RCR 010 0005 040	1X R0.05	1	4	45	4
4RCR 010 0005 060	1X R0.05	1	6	45	4
4RCR 010 0005 080	1X R0.05	1	8	45	4
4RCR 010 0005 100	1X R0.05	1	10	50	4
4RCR 010 0005 120	1X R0.05	1	12	50	4
4RCR 010 0005 160	1X R0.05	1	16	50	4
4RCR 010 0005 200	1X R0.05	1	20	50	4
4RCR 010 001 040	1X R0.1	1	4	45	4
4RCR 010 001 060	1X R0.1	1	6	45	4
4RCR 010 001 080	1X R0.1	1	8	45	4
4RCR 010 001 100	1X R0.1	1	10	50	4
4RCR 010 001 120	1X R0.1	1	12	50	4
4RCR 010 001 160	1X R0.1	1	16	50	4
4RCR 010 001 200	1X R0.1	1	20	50	4
4RCR 010 002 040	1X R0.2	1	4	45	4
4RCR 010 002 060	1X R0.2	1	6	45	4
4RCR 010 002 080	1X R0.2	1	8	45	4
4RCR 010 002 100	1X R0.2	1	10	50	4
4RCR 010 002 120	1X R0.2	1	12	50	4
4RCR 010 002 160	1X R0.2	1	16	50	4
4RCR 010 002 200	1X R0.2	1	20	50	4
4RCR 010 003 040	1X R0.3	1	4	45	4
4RCR 010 003 060	1X R0.3	1	6	45	4
4RCR 010 003 080	1X R0.3	1	8	45	4
4RCR 010 003 100	1X R0.3	1	10	50	4
4RCR 010 003 120	1X R0.3	1	12	50	4
4RCR 010 003 160	1X R0.3	1	16	50	4
4RCR 010 003 200	1X R0.3	1	20	50	4
4RCR 012 001 040	1.2X R0.1	1.2	4	45	4
4RCR 012 001 060	1.2X R0.1	1.2	6	45	4
4RCR 012 001 080	1.2X R0.1	1.2	8	45	4
4RCR 012 001 100	1.2X R0.1	1.2	10	50	4
4RCR 012 001 120	1.2X R0.1	1.2	12	50	4
4RCR 012 001 160	1.2X R0.1	1.2	16	50	4
4RCR 012 001 200	1.2X R0.1	1.2	20	50	4
4RCR 012 002 040	1.2X R0.2	1.2	4	45	4
4RCR 012 002 060	1.2X R0.2	1.2	6	45	4

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	L1	L2	L	d
4RCR 012 002 080	1.2X R0.2	1.2	8	45	4
4RCR 012 002 100	1.2X R0.2	1.2	10	50	4
4RCR 012 002 120	1.2X R0.2	1.2	12	50	4
4RCR 012 002 160	1.2X R0.2	1.2	16	50	4
4RCR 012 002 200	1.2X R0.2	1.2	20	50	4
4RCR 012 003 040	1.2X R0.3	1.2	4	45	4
4RCR 012 003 060	1.2X R0.3	1.2	6	45	4
4RCR 012 003 080	1.2X R0.3	1.2	8	45	4
4RCR 012 003 100	1.2X R0.3	1.2	10	50	4
4RCR 012 003 120	1.2X R0.3	1.2	12	50	4
4RCR 012 003 160	1.2X R0.3	1.2	16	50	4
4RCR 012 003 200	1.2X R0.3	1.2	20	50	4
4RCR 015 001 060	1.5X R0.1	1.5	6	45	4
4RCR 015 001 080	1.5X R0.1	1.5	8	45	4
4RCR 015 001 100	1.5X R0.1	1.5	10	50	4
4RCR 015 001 120	1.5X R0.1	1.5	12	50	4
4RCR 015 001 160	1.5X R0.1	1.5	16	50	4
4RCR 015 001 200	1.5X R0.1	1.5	20	50	4
4RCR 015 001 220	1.5X R0.1	1.5	22	60	4
4RCR 015 001 250	1.5X R0.1	1.5	25	60	4
4RCR 015 002 060	1.5X R0.2	1.5	6	45	4
4RCR 015 002 080	1.5X R0.2	1.5	8	45	4
4RCR 015 002 100	1.5X R0.2	1.5	10	50	4
4RCR 015 002 120	1.5X R0.2	1.5	12	50	4
4RCR 015 002 160	1.5X R0.2	1.5	16	50	4
4RCR 015 002 200	1.5X R0.2	1.5	20	50	4
4RCR 015 002 220	1.5X R0.2	1.5	22	60	4
4RCR 015 002 250	1.5X R0.2	1.5	25	60	4
4RCR 015 003 060	1.5X R0.3	1.5	6	45	4
4RCR 015 003 080	1.5X R0.3	1.5	8	45	4
4RCR 015 003 100	1.5X R0.3	1.5	10	50	4
4RCR 015 003 120	1.5X R0.3	1.5	12	50	4
4RCR 015 003 160	1.5X R0.3	1.5	16	50	4
4RCR 015 003 200	1.5X R0.3	1.5	20	50	4
4RCR 015 003 220	1.5X R0.3	1.5	22	60	4
4RCR 015 003 250	1.5X R0.3	1.5	25	60	4
4RCR 015 005 060	1.5X R0.5	1.5	6	45	4



Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	L1	L2	L	d
4RCR 015 005 080	1.5 X R0.5	1.5	8	45	4
4RCR 015 005 100	1.5 X R0.5	1.5	10	50	4
4RCR 015 005 120	1.5 X R0.5	1.5	12	50	4
4RCR 015 005 160	1.5 X R0.5	1.5	16	50	4
4RCR 015 005 200	1.5 X R0.5	1.5	20	50	4
4RCR 015 005 220	1.5 X R0.5	1.5	22	60	4
4RCR 015 005 250	1.5 X R0.5	1.5	25	60	4
4RCR 020 001 060	2 X R0.1	2	6	45	4
4RCR 020 001 080	2 X R0.1	2	8	45	4
4RCR 020 001 100	2 X R0.1	2	10	50	4
4RCR 020 001 120	2 X R0.1	2	12	50	4
4RCR 020 001 160	2 X R0.1	2	16	50	4
4RCR 020 001 200	2 X R0.1	2	20	50	4
4RCR 020 001 250	2 X R0.1	2	25	60	4
4RCR 020 001 300	2 X R0.1	2	30	70	4
4RCR 020 001 350	2 X R0.1	2	35	70	4
4RCR 020 002 060	2 X R0.2	2	6	45	4
4RCR 020 002 080	2 X R0.2	2	8	45	4
4RCR 020 002 100	2 X R0.2	2	10	50	4
4RCR 020 002 120	2 X R0.2	2	12	50	4
4RCR 020 002 160	2 X R0.2	2	16	50	4
4RCR 020 002 200	2 X R0.2	2	20	50	4
4RCR 020 002 250	2 X R0.2	2	25	60	4
4RCR 020 002 300	2 X R0.2	2	30	70	4
4RCR 020 002 350	2 X R0.2	2	35	70	4
4RCR 020 003 060	2 X R0.3	2	6	45	4
4RCR 020 003 080	2 X R0.3	2	8	45	4
4RCR 020 003 100	2 X R0.3	2	10	50	4
4RCR 020 003 120	2 X R0.3	2	12	50	4
4RCR 020 003 160	2 X R0.3	2	16	50	4
4RCR 020 003 200	2 X R0.3	2	20	50	4
4RCR 020 003 250	2 X R0.3	2	25	60	4
4RCR 020 003 300	2 X R0.3	2	30	70	4
4RCR 020 003 350	2 X R0.3	2	35	70	4
4RCR 020 005 060	2 X R0.5	2	6	45	4
4RCR 020 005 080	2 X R0.5	2	8	45	4
4RCR 020 005 100	2 X R0.5	2	10	50	4
4RCR 020 005 120	2 X R0.5	2	12	50	4
4RCR 020 005 160	2 X R0.5	2	16	50	4
4RCR 020 005 200	2 X R0.5	2	20	50	4
4RCR 020 005 250	2 X R0.5	2	25	60	4
4RCR 020 005 300	2 X R0.5	2	30	70	4
4RCR 020 005 350	2 X R0.5	2	35	70	4
4RCR 025 001 100	2.5 X R0.1	2.5	10	50	4
4RCR 025 001 160	2.5 X R0.1	2.5	16	50	4
4RCR 025 001 200	2.5 X R0.1	2.5	20	50	4
4RCR 025 001 250	2.5 X R0.1	2.5	25	60	4
4RCR 025 001 300	2.5 X R0.1	2.5	30	70	4
4RCR 025 002 100	2.5 X R0.2	2.5	10	50	4
4RCR 025 002 160	2.5 X R0.2	2.5	16	50	4

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	L1	L2	L	d
4RCR 025 002 200	2.5 X R0.2	2.5	20	50	4
4RCR 025 002 250	2.5 X R0.2	2.5	25	60	4
4RCR 025 002 300	2.5 X R0.2	2.5	30	70	4
4RCR 025 003 100	2.5 X R0.3	2.5	10	50	4
4RCR 025 003 160	2.5 X R0.3	2.5	16	50	4
4RCR 025 003 200	2.5 X R0.3	2.5	20	50	4
4RCR 025 003 250	2.5 X R0.3	2.5	25	60	4
4RCR 025 003 300	2.5 X R0.3	2.5	30	70	4
4RCR 025 005 100	2.5 X R0.5	2.5	10	50	4
4RCR 025 005 160	2.5 X R0.5	2.5	16	50	4
4RCR 025 005 200	2.5 X R0.5	2.5	20	50	4
4RCR 025 005 250	2.5 X R0.5	2.5	25	60	4
4RCR 025 005 300	2.5 X R0.5	2.5	30	70	4
4RCR 030 001 100	3 X R0.1	3	10	50	6
4RCR 030 001 160	3 X R0.1	3	16	55	6
4RCR 030 001 200	3 X R0.1	3	20	60	6
4RCR 030 001 250	3 X R0.1	3	25	65	6
4RCR 030 001 300	3 X R0.1	3	30	70	6
4RCR 030 001 350	3 X R0.1	3	35	75	6
4RCR 030 001 400	3 X R0.1	3	40	80	6
4RCR 030 001 500	3 X R0.1	3	50	100	6
4RCR 030 002 100	3 X R0.2	3	10	50	6
4RCR 030 002 160	3 X R0.2	3	16	55	6
4RCR 030 002 200	3 X R0.2	3	20	60	6
4RCR 030 002 250	3 X R0.2	3	25	65	6
4RCR 030 002 300	3 X R0.2	3	30	70	6
4RCR 030 002 350	3 X R0.2	3	35	75	6
4RCR 030 002 400	3 X R0.2	3	40	80	6
4RCR 030 002 500	3 X R0.2	3	50	100	6
4RCR 030 003 100	3 X R0.3	3	10	50	6
4RCR 030 003 160	3 X R0.3	3	16	55	6
4RCR 030 003 200	3 X R0.3	3	20	60	6
4RCR 030 003 250	3 X R0.3	3	25	65	6
4RCR 030 003 300	3 X R0.3	3	30	70	6
4RCR 030 003 350	3 X R0.3	3	35	75	6
4RCR 030 003 400	3 X R0.3	3	40	80	6
4RCR 030 003 500	3 X R0.3	3	50	100	6
4RCR 030 005 100	3 X R0.5	3	10	50	6
4RCR 030 005 160	3 X R0.5	3	16	55	6
4RCR 030 005 200	3 X R0.5	3	20	60	6
4RCR 030 005 250	3 X R0.5	3	25	65	6
4RCR 030 005 300	3 X R0.5	3	30	70	6
4RCR 030 005 350	3 X R0.5	3	35	75	6
4RCR 030 005 400	3 X R0.5	3	40	80	6
4RCR 030 005 500	3 X R0.5	3	50	100	6
4RCR 030 010 100	3 X R1	3	10	50	6
4RCR 030 010 160	3 X R1	3	16	55	6
4RCR 030 010 200	3 X R1	3	20	60	6
4RCR 030 010 250	3 X R1	3	25	65	6
4RCR 030 010 300	3 X R1	3	30	70	6

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	L1	L2	L	d
4RCR 030 010 350	3XR1	3	35	75	6
4RCR 030 010 400	3XR1	3	40	80	6
4RCR 030 010 500	3XR1	3	50	100	6
4RCR 040 001 050	4XR0.1	4	12	50	4
4RCR 040 001 070	4XR0.1	4	20	70	4
4RCR 040 001 130	4XR0.1	4	13	55	6
4RCR 040 001 160	4XR0.1	4	16	55	6
4RCR 040 001 200	4XR0.1	4	20	60	6
4RCR 040 001 250	4XR0.1	4	25	65	6
4RCR 040 001 300	4XR0.1	4	30	70	6
4RCR 040 001 350	4XR0.1	4	35	75	6
4RCR 040 001 400	4XR0.1	4	40	80	6
4RCR 040 001 450	4XR0.1	4	45	90	6
4RCR 040 001 500	4XR0.1	4	50	100	6
4RCR 040 002 050	4XR0.2	4	12	50	4
4RCR 040 002 070	4XR0.2	4	20	70	4
4RCR 040 002 130	4XR0.2	4	13	55	6
4RCR 040 002 160	4XR0.2	4	16	55	6
4RCR 040 002 200	4XR0.2	4	20	60	6
4RCR 040 002 250	4XR0.2	4	25	65	6
4RCR 040 002 300	4XR0.2	4	30	70	6
4RCR 040 002 350	4XR0.2	4	35	75	6
4RCR 040 002 400	4XR0.2	4	40	80	6
4RCR 040 002 450	4XR0.2	4	45	90	6
4RCR 040 002 500	4XR0.2	4	50	100	6
4RCR 040 003 050	4XR0.3	4	12	50	4
4RCR 040 003 070	4XR0.3	4	20	70	4
4RCR 040 003 130	4XR0.3	4	13	55	6
4RCR 040 003 160	4XR0.3	4	16	55	6
4RCR 040 003 200	4XR0.3	4	20	60	6
4RCR 040 003 250	4XR0.3	4	25	65	6
4RCR 040 003 300	4XR0.3	4	30	70	6
4RCR 040 003 350	4XR0.3	4	35	75	6
4RCR 040 003 400	4XR0.3	4	40	80	6
4RCR 040 003 450	4XR0.3	4	45	90	6
4RCR 040 003 500	4XR0.3	4	50	100	6
4RCR 040 005 050	4XR0.5	4	12	50	4
4RCR 040 005 070	4XR0.5	4	20	70	4
4RCR 040 005 130	4XR0.5	4	13	55	6
4RCR 040 005 160	4XR0.5	4	16	55	6
4RCR 040 005 200	4XR0.5	4	20	60	6
4RCR 040 005 250	4XR0.5	4	25	65	6
4RCR 040 005 300	4XR0.5	4	30	70	6
4RCR 040 005 350	4XR0.5	4	35	75	6
4RCR 040 005 400	4XR0.5	4	40	80	6
4RCR 040 005 450	4XR0.5	4	45	90	6
4RCR 040 005 500	4XR0.5	4	50	100	6
4RCR 040 010 050	4XR1	4	12	50	4
4RCR 040 010 070	4XR1	4	20	70	4
4RCR 040 010 130	4XR1	4	13	55	6

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	L1	L2	L	d
4RCR 040 010 160	4XR1	4	16	55	6
4RCR 040 010 200	4XR1	4	20	60	6
4RCR 040 010 250	4XR1	4	25	65	6
4RCR 040 010 300	4XR1	4	30	70	6
4RCR 040 010 350	4XR1	4	35	75	6
4RCR 040 010 400	4XR1	4	40	80	6
4RCR 040 010 450	4XR1	4	45	90	6
4RCR 040 010 500	4XR1	4	50	100	6
4RCR 050 001 160	5XR0.1	5	16	60	6
4RCR 050 001 300	5XR0.1	5	30	70	6
4RCR 050 001 400	5XR0.1	5	40	80	6
4RCR 050 001 500	5XR0.1	5	50	100	6
4RCR 050 002 160	5XR0.2	5	16	60	6
4RCR 050 002 300	5XR0.2	5	30	70	6
4RCR 050 002 400	5XR0.2	5	40	80	6
4RCR 050 002 500	5XR0.2	5	50	100	6
4RCR 050 003 160	5XR0.3	5	16	60	6
4RCR 050 003 300	5XR0.3	5	30	70	6
4RCR 050 003 400	5XR0.3	5	40	80	6
4RCR 050 003 500	5XR0.3	5	50	100	6
4RCR 050 005 160	5XR0.5	5	16	60	6
4RCR 050 005 300	5XR0.5	5	30	70	6
4RCR 050 005 400	5XR0.5	5	40	80	6
4RCR 050 005 500	5XR0.5	5	50	100	6
4RCR 050 010 160	5XR1	5	16	60	6
4RCR 050 010 300	5XR1	5	30	70	6
4RCR 050 010 400	5XR1	5	40	80	6
4RCR 050 010 500	5XR1	5	50	100	6
4RCR 060 001 200	6XR0.1	7	20	60	6
4RCR 060 001 400	6XR0.1	7	40	80	6
4RCR 060 001 500	6XR0.1	7	50	100	6
4RCR 060 002 200	6XR0.2	7	20	60	6
4RCR 060 002 400	6XR0.2	7	40	80	6
4RCR 060 002 500	6XR0.2	7	50	100	6
4RCR 060 003 200	6XR0.3	7	20	60	6
4RCR 060 003 400	6XR0.3	7	40	80	6
4RCR 060 003 500	6XR0.3	7	50	100	6
4RCR 060 005 200	6XR0.5	7	20	60	6
4RCR 060 005 400	6XR0.5	7	40	80	6
4RCR 060 005 500	6XR0.5	7	50	100	6
4RCR 060 010 200	6XR1	7	20	60	6
4RCR 060 010 400	6XR1	7	40	80	6
4RCR 060 010 500	6XR1	7	50	100	6
4RCR 060 015 200	6XR1.5	7	20	60	6
4RCR 060 015 400	6XR1.5	7	40	80	6
4RCR 060 015 500	6XR1.5	7	50	100	6
4RCR 080 002 220	8XR0.2	9	22	65	8
4RCR 080 003 220	8XR0.3	9	22	65	8
4RCR 080 005 220	8XR0.5	9	22	65	8
4RCR 080 005 400	8XR0.5	9	40	100	8



01~06

08~012

/Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	L1	L2	L	d
4RCR 080 010 220	8 X R1	9	22	65	8
4RCR 080 010 400	8 X R1	9	40	100	8
4RCR 080 015 220	8 X R1.5	9	22	65	8
4RCR 080 015 400	8 X R1.5	9	40	100	8
4RCR 080 020 220	8 X R2	9	22	65	8
4RCR 100 002 240	10 X R0.2	11	24	70	10
4RCR 100 003 240	10 X R0.3	11	24	70	10
4RCR 100 005 240	10 X R0.5	11	24	70	10
4RCR 100 005 400	10 X R0.5	11	40	100	10
4RCR 100 010 240	10 X R1	11	24	70	10
4RCR 100 010 400	10 X R1	11	40	100	10
4RCR 100 015 240	10 X R1.5	11	24	70	10

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	L1	L2	L	d
4RCR 100 015 400	10 X R1.5	11	40	100	10
4RCR 100 020 240	10 X R2	11	24	70	10
4RCR 100 025 240	10 X R2.5	11	24	70	10
4RCR 120 003 260	12 X R0.3	13	26	80	12
4RCR 120 005 260	12 X R0.5	13	26	80	12
4RCR 120 005 400	12 X R0.5	13	40	110	12
4RCR 120 010 260	12 X R1	13	26	80	12
4RCR 120 010 400	12 X R1	13	40	110	12
4RCR 120 015 260	12 X R1.5	13	26	80	12
4RCR 120 015 400	12 X R1.5	13	40	110	12
4RCR 120 020 260	12 X R2	13	26	80	12
4RCR 120 030 260	12 X R3	13	26	80	12

4RCR Corner

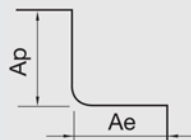
4RCR

• RPM : rev./min • Feed : mm/min

Material		Prehardened Steels / Hardened Steels NAK / SKD				Hardened Steels SKD / SKT				Hardened Steels SKD / SKT			
Hardness		30HRC ~ 45HRC				45HRC ~ 55HRC				55HRC ~ 65HRC			
Outside Diameter	Effective Length	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
1mm	4	11,700	1,100	0.033	0.230	10,200	910	0.026	0.207	7,200	540	0.013	0.207
	10	7,500	430	0.009	0.107	6,500	430	0.008	0.085	4,600	300	0.005	0.043
1.2mm	4	11,200	1,200	0.027	0.383	10,200	930	0.020	0.255	7,800	700	0.017	0.170
	10	7,700	680	0.014	0.153	6,200	510	0.008	0.128	5,400	680	0.005	0.043
1.5mm	6	9,900	1,100	0.035	0.413	9,000	1,000	0.032	0.378	6,900	400	0.021	0.172
	12	7,200	710	0.025	0.275	6,600	660	0.022	0.252	5,000	250	0.009	0.138
2mm	6	11,000	1,100	0.054	0.551	10,200	1,020	0.051	0.620	8,200	590	0.024	0.275
	12	7,800	880	0.039	0.344	7,200	820	0.037	0.344	5,900	360	0.015	0.153
2.5mm	10	9,200	1,200	0.057	0.459	8,500	1,000	0.057	0.459	7,100	430	0.041	0.275
	20	6,600	1,000	0.041	0.230	6,400	570	0.026	0.191	5,400	250	0.019	0.077
3mm	10	9,600	1,800	0.082	0.595	8,900	1,800	0.051	0.595	7,600	620	0.038	0.476
	20	7,100	1,300	0.049	0.493	6,700	1,300	0.031	0.493	5,400	470	0.019	0.271
4mm	13	7,900	1,370	0.091	1.000	6,600	1,330	0.071	1.000	5,600	740	0.043	0.700
	20	6,200	1,200	0.060	0.800	5,200	1,120	0.047	0.800	4,500	630	0.022	0.560
6mm	30	5,500	960	0.037	0.648	4,600	920	0.029	0.648	3,900	600	0.011	0.388
	20	4,900	1,470	0.153	2.004	2,900	850	0.153	1.114	2,550	650	0.060	1.114
8mm	40	2,500	680	0.085	1.148	1,400	400	0.085	0.638	1,200	300	0.034	0.468
	22	4,000	1,600	0.184	2.540	2,400	680	0.184	1.320	2,000	650	0.087	1.320
10mm	24	3,200	1,750	0.210	2.730	1,900	540	0.220	1.430	1,600	460	0.094	1.450
	26	2,500	1,800	0.230	2.700	1,500	430	0.240	1.490	1,300	450	0.110	1.500

Milling amount of side milling

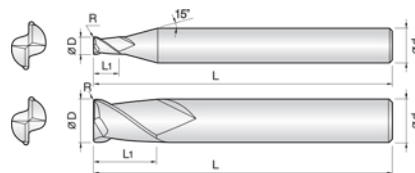
- Ap : Axial Depth
- Ae : Radial Depth



2 Flutes Corner Radius End Mills

Endmills for pre-hardened and hardened steel (HRC50-)

- High precise edge tolerance.
- Designed for minimizing edge chipping by corner R shape.
- Various corner R and overall length for wide range application.



Size	D Tolerance
D ≤ Ø6	+0~ -0.01mm
D > Ø6	+0~ -0.015mm

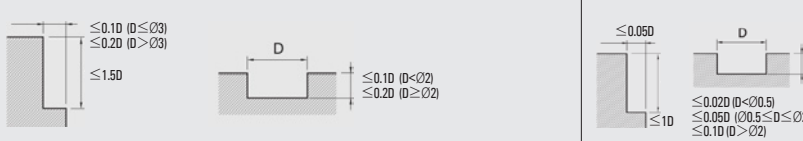
/Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D×R	L1	L	d
2CNR 004 0005 S04	0.4 X R0.05	0.8	45	4
2CNR 004 001 S04	0.4 X R0.1	0.8	45	4
2CNR 005 0005 S04	0.5 X R0.05	1	45	4
2CNR 005 001 S04	0.5 X R0.1	1	45	4
2CNR 006 0005 S04	0.6 X R0.05	1.2	45	4
2CNR 006 001 S04	0.6 X R0.1	1.2	45	4
2CNR 006 002 S04	0.6 X R0.2	1.2	45	4
2CNR 007 0005 S04	0.7 X R0.05	1.4	45	4
2CNR 007 001 S04	0.7 X R0.1	1.4	45	4
2CNR 007 002 S04	0.7 X R0.2	1.4	45	4
2CNR 008 0005 S04	0.8 X R0.05	1.6	45	4
2CNR 008 001 S04	0.8 X R0.1	1.6	45	4
2CNR 008 002 S04	0.8 X R0.2	1.6	45	4
2CNR 009 0005 S04	0.9 X R0.05	1.8	45	4
2CNR 009 001 S04	0.9 X R0.1	1.8	45	4
2CNR 010 001 S04	1 X R0.1	2.5	45	4
2CNR 010 002 S04	1 X R0.2	2.5	45	4
2CNR 010 003 S04	1 X R0.3	2.5	45	4
2CNR 012 001 S04	1.2 X R0.1	3.2	45	4
2CNR 012 002 S04	1.2 X R0.2	3.2	45	4
2CNR 012 003 S04	1.2 X R0.3	3.2	45	4
2CNR 015 001 S04	1.5 X R0.1	4	45	4
2CNR 015 002 S04	1.5 X R0.2	4	45	4
2CNR 015 003 S04	1.5 X R0.3	4	45	4
2CNR 015 005 S04	1.5 X R0.5	4	45	4
2CNR 020 001 S04	2 X R0.1	6	45	4
2CNR 020 002 S04	2 X R0.2	6	45	4
2CNR 020 003 S04	2 X R0.3	6	45	4
2CNR 020 005 S04	2 X R0.5	6	45	4
2CNR 025 001 S04	2.5 X R0.1	6	50	4
2CNR 025 002 S04	2.5 X R0.2	6	50	4
2CNR 025 003 S04	2.5 X R0.3	6	50	4

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D×R	L1	L	d
2CNR 025 005 S04	2.5 X R0.5	6	50	4
2CNR 030 001 S06	3 X R0.1	8	60	6
2CNR 030 002 S06	3 X R0.2	8	60	6
2CNR 030 003 S06	3 X R0.3	8	60	6
2CNR 030 005 S06	3 X R0.5	8	60	6
2CNR 030 010 S06	3 X R1	8	60	6
2CNR 040 001 060	4 X R0.1	9	60	4
2CNR 040 001 080	4 X R0.1	9	80	4
2CNR 040 001 S06	4 X R0.1	10	70	6
2CNR 040 002 060	4 X R0.2	9	60	4
2CNR 040 002 080	4 X R0.2	9	80	4
2CNR 040 002 S06	4 X R0.2	10	70	6
2CNR 040 003 060	4 X R0.3	9	60	4
2CNR 040 003 080	4 X R0.3	9	80	4
2CNR 040 003 S06	4 X R0.3	10	70	6
2CNR 040 005 060	4 X R0.5	9	60	4
2CNR 040 005 080	4 X R0.5	9	80	4
2CNR 040 005 S06	4 X R0.5	10	70	6
2CNR 040 010 060	4 X R1	9	60	4
2CNR 040 010 080	4 X R1	9	80	4
2CNR 040 010 S06	4 X R1	10	70	6
2CNR 050 001 S06	5 X R0.1	13	75	6
2CNR 050 002 S06	5 X R0.2	13	75	6
2CNR 050 003 S06	5 X R0.3	13	75	6
2CNR 050 005 S06	5 X R0.5	13	75	6
2CNR 050 010 S06	5 X R1	13	75	6
2CNR 060 001 060	6 X R0.1	11	60	6
2CNR 060 001 090	6 X R0.1	13	90	6
2CNR 060 002 060	6 X R0.2	11	60	6
2CNR 060 002 090	6 X R0.2	13	90	6
2CNR 060 003 060	6 X R0.3	11	60	6
2CNR 060 003 090	6 X R0.3	13	90	6

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D×R	L1	L	d
2CNR 060 005 060	6XR0.5	11	60	6
2CNR 060 005 090	6XR0.5	13	90	6
2CNR 060 010 060	6XR1	11	60	6
2CNR 060 010 090	6XR1	13	90	6
2CNR 060 015 060	6XR1.5	11	60	6
2CNR 060 015 090	6XR1.5	13	90	6
2CNR 060 020 060	6XR2	11	60	6
2CNR 060 020 090	6XR2	13	90	6
2CNR 060 025 090	6XR2.5	13	90	6
2CNR 080 001 070	8XR0.1	16	70	8
2CNR 080 001 100	8XR0.1	19	100	8
2CNR 080 002 070	8XR0.2	16	70	8
2CNR 080 002 100	8XR0.2	19	100	8
2CNR 080 003 070	8XR0.3	16	70	8
2CNR 080 003 100	8XR0.3	19	100	8
2CNR 080 005 070	8XR0.5	16	70	8
2CNR 080 005 100	8XR0.5	19	100	8
2CNR 080 005 120	8XR0.5	19	120	8
2CNR 080 010 070	8XR1	16	70	8
2CNR 080 010 100	8XR1	19	100	8
2CNR 080 010 120	8XR1	19	120	8
2CNR 080 015 070	8XR1.5	16	70	8
2CNR 080 015 100	8XR1.5	19	100	8
2CNR 080 020 070	8XR2	16	70	8
2CNR 080 020 100	8XR2	19	100	8
2CNR 080 025 100	8XR2.5	19	100	8
2CNR 080 030 100	8XR3	19	100	8
2CNR 080 035 100	8XR3.5	19	100	8
2CNR 100 001 075	10XR0.1	19	75	10
2CNR 100 001 100	10XR0.1	22	100	10
2CNR 100 002 075	10XR0.2	19	75	10
2CNR 100 002 100	10XR0.2	22	100	10
2CNR 100 003 075	10XR0.3	19	75	10
2CNR 100 003 100	10XR0.3	22	100	10
2CNR 100 005 075	10XR0.5	19	75	10
2CNR 100 005 100	10XR0.5	22	100	10
2CNR 100 005 130	10XR0.5	22	130	10
2CNR 100 010 075	10XR1	19	75	10
2CNR 100 010 100	10XR1	22	100	10
2CNR 100 010 130	10XR1	22	130	10
2CNR 100 015 075	10XR1.5	19	75	10
2CNR 100 015 100	10XR1.5	22	100	10
2CNR 100 015 130	10XR1.5	22	130	10
2CNR 100 020 075	10XR2	19	75	10

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D×R	L1	L	d
2CNR 100 020 100	10XR2	22	100	10
2CNR 100 025 100	10XR2.5	22	100	10
2CNR 100 030 100	10XR3	22	100	10
2CNR 100 040 100	10XR4	22	100	10
2CNR 120 001 080	12XR0.1	22	80	12
2CNR 120 001 110	12XR0.1	26	110	12
2CNR 120 002 080	12XR0.2	22	80	12
2CNR 120 002 110	12XR0.2	26	110	12
2CNR 120 003 080	12XR0.3	22	80	12
2CNR 120 003 110	12XR0.3	26	110	12
2CNR 120 005 080	12XR0.5	22	80	12
2CNR 120 005 110	12XR0.5	26	110	12
2CNR 120 005 130	12XR0.5	26	130	12
2CNR 120 010 080	12XR1	22	80	12
2CNR 120 010 110	12XR1	26	110	12
2CNR 120 010 130	12XR1	26	130	12
2CNR 120 015 080	12XR1.5	22	80	12
2CNR 120 015 110	12XR1.5	26	110	12
2CNR 120 015 130	12XR1.5	26	130	12
2CNR 120 020 080	12XR2	22	80	12
2CNR 120 020 110	12XR2	26	110	12
2CNR 120 020 130	12XR2	26	130	12
2CNR 120 025 110	12XR2.5	26	110	12
2CNR 120 030 110	12XR3	26	110	12
2CNR 120 040 110	12XR4	26	110	12
2CNR 120 050 110	12XR5	26	110	12

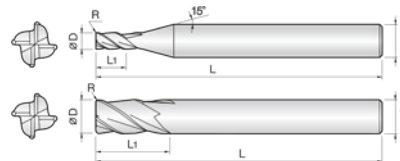
Material	Carbon Steels S50 / SCM		Alloy Steels / Tools Steels / Prehardened Steels SKD61 / NAK		Stainless Steels SUS304 / SUS316		Hardened Steels SKD61	
Hardness	~ 30HRC		30 ~ 45HRC				45 ~ 55HRC	
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
0.4mm	36,000	230	36,000	180	36,000	140	31,500	110
0.5mm	36,000	180	36,000	180	36,000	140	31,500	110
0.6mm	34,200	340	29,700	240	27,000	200	22,500	110
0.7mm	32,400	380	25,200	270	23,400	220	19,800	110
0.8mm	30,600	430	22,500	310	20,700	230	17,100	110
0.9mm	28,800	490	19,800	330	18,000	250	15,300	110
1mm	27,000	540	18,000	360	16,200	270	13,500	110
1.5mm	18,000	540	12,600	360	10,800	270	9,000	110
2mm	13,500	540	9,000	360	8,200	270	7,200	110
2.5mm	10,800	540	7,400	360	6,600	270	5,500	110
3mm	9,000	540	6,300	360	5,400	270	4,500	110
4mm	6,800	540	4,700	360	4,100	270	3,600	110
5mm	5,400	540	3,800	360	3,200	270	2,900	110
6mm	4,500	540	3,200	360	2,700	270	2,400	110
8mm	3,600	470	2,500	320	2,200	230	1,800	100
10mm	2,900	410	2,000	270	1,700	210	1,400	90
12mm	2,400	370	1,700	240	1,400	190	1,200	90
Depth of Cut								

■ In case of slotting, decrease feed rate more than 80% the table. 70% of speed and 60% of feed on the table, when to slotting SUS.

4 Flutes Corner Radius End Mills

Endmills for pre-hardened and hardened steel (HRC50-)

- High precise edge tolerance.
- Designed for minimizing edge chipping by corner R shape.
- Various corner R and overall length for wide range application.



Size	D Tolerance
$D \leq \varnothing 6$	$+0 \sim -0.01\text{mm}$
$D > \varnothing 6$	$+0 \sim -0.015\text{mm}$

/Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D×R	L1	L	d
4CNR 010 0005 S04	1 X R0.05	2.5	45	4
4CNR 010 001 S04	1 X R0.1	2.5	45	4
4CNR 010 002 S04	1 X R0.2	2.5	45	4
4CNR 010 003 S04	1 X R0.3	2.5	45	4
4CNR 015 0005 S04	1.5 X R0.05	4	45	4
4CNR 015 001 S04	1.5 X R0.1	4	45	4
4CNR 015 002 S04	1.5 X R0.2	4	45	4
4CNR 015 003 S04	1.5 X R0.3	4	45	4
4CNR 015 005 S04	1.5 X R0.5	4	45	4
4CNR 020 0005 S04	2 X R0.05	6	45	4
4CNR 020 001 S04	2 X R0.1	6	45	4
4CNR 020 002 S04	2 X R0.2	6	45	4
4CNR 020 003 S04	2 X R0.3	6	45	4
4CNR 020 005 S04	2 X R0.5	6	45	4
4CNR 025 001 S04	2.5 X R0.1	6	50	4
4CNR 025 002 S04	2.5 X R0.2	6	50	4
4CNR 025 003 S04	2.5 X R0.3	6	50	4
4CNR 025 005 S04	2.5 X R0.5	6	50	4
4CNR 030 001 S06	3 X R0.1	8	60	6
4CNR 030 002 S06	3 X R0.2	8	60	6
4CNR 030 003 S06	3 X R0.3	8	60	6
4CNR 030 005 S06	3 X R0.5	8	60	6
4CNR 030 010 S06	3 X R1	8	60	6
4CNR 040 001 060	4 X R0.1	9	60	4
4CNR 040 001 080	4 X R0.1	9	80	4
4CNR 040 001 S06	4 X R0.1	10	70	6
4CNR 040 002 060	4 X R0.2	9	60	4
4CNR 040 002 080	4 X R0.2	9	80	4
4CNR 040 002 S06	4 X R0.2	10	70	6
4CNR 040 003 060	4 X R0.3	9	60	4
4CNR 040 003 080	4 X R0.3	9	80	4
4CNR 040 003 S06	4 X R0.3	10	70	6
4CNR 040 005 060	4 X R0.5	9	60	4
4CNR 040 005 080	4 X R0.5	9	80	4
4CNR 040 005 S06	4 X R0.5	10	70	6
4CNR 040 010 060	4 X R1	9	60	4
4CNR 040 010 080	4 X R1	9	80	4
4CNR 040 010 S06	4 X R1	10	70	6
4CNR 050 001 S06	5 X R0.1	13	75	6
4CNR 050 002 S06	5 X R0.2	13	75	6

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D×R	L1	L	d
4CNR 050 003 S06	5 X R0.3	13	75	6
4CNR 050 005 S06	5 X R0.5	13	75	6
4CNR 050 010 S06	5 X R1	13	75	6
4CNR 060 001 060	6 X R0.1	11	60	6
4CNR 060 001 080	6 X R0.1	13	80	6
4CNR 060 002 060	6 X R0.2	11	60	6
4CNR 060 002 080	6 X R0.2	13	80	6
4CNR 060 003 060	6 X R0.3	11	60	6
4CNR 060 003 080	6 X R0.3	13	80	6
4CNR 060 005 060	6 X R0.5	11	60	6
4CNR 060 005 080	6 X R0.5	13	80	6
4CNR 060 010 060	6 X R1	11	60	6
4CNR 060 010 080	6 X R1	13	80	6
4CNR 060 015 060	6 X R1.5	11	60	6
4CNR 060 015 080	6 X R1.5	13	80	6
4CNR 060 020 060	6 X R2	11	60	6
4CNR 060 020 080	6 X R2	13	80	6
4CNR 080 001 070	8 X R0.1	16	70	8
4CNR 080 001 090	8 X R0.1	19	90	8
4CNR 080 002 070	8 X R0.2	16	70	8
4CNR 080 002 090	8 X R0.2	19	90	8
4CNR 080 003 070	8 X R0.3	16	70	8
4CNR 080 003 090	8 X R0.3	19	90	8
4CNR 080 005 070	8 X R0.5	16	70	8
4CNR 080 005 090	8 X R0.5	19	90	8
4CNR 080 005 110	8 X R0.5	19	110	8
4CNR 080 010 070	8 X R1	16	70	8
4CNR 080 010 090	8 X R1	19	90	8
4CNR 080 010 110	8 X R1	19	110	8
4CNR 080 015 070	8 X R1.5	16	70	8
4CNR 080 015 090	8 X R1.5	19	90	8
4CNR 080 015 110	8 X R1.5	19	110	8
4CNR 080 020 070	8 X R2	16	70	8
4CNR 080 020 090	8 X R2	19	90	8
4CNR 080 020 110	8 X R2	19	110	8
4CNR 080 025 090	8 X R2.5	19	90	8
4CNR 100 001 075	10 X R0.1	19	75	10
4CNR 100 001 100	10 X R0.1	22	100	10
4CNR 100 002 075	10 X R0.2	19	75	10
4CNR 100 002 100	10 X R0.2	22	100	10

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D×R	L1	L	d
4CNR 100 003 075	10XR0.3	19	75	10
4CNR 100 003 100	10XR0.3	22	100	10
4CNR 100 005 075	10XR0.5	19	75	10
4CNR 100 005 100	10XR0.5	22	100	10
4CNR 100 005 120	10XR0.5	22	120	10
4CNR 100 010 075	10XR1	19	75	10
4CNR 100 010 100	10XR1	22	100	10
4CNR 100 010 120	10XR1	22	120	10
4CNR 100 015 075	10XR1.5	19	75	10
4CNR 100 015 100	10XR1.5	22	100	10
4CNR 100 015 120	10XR1.5	22	120	10
4CNR 100 020 075	10XR2	19	75	10
4CNR 100 020 100	10XR2	22	100	10
4CNR 100 020 120	10XR2	22	120	10
4CNR 100 025 075	10XR2.5	19	75	10
4CNR 100 025 100	10XR2.5	22	100	10
4CNR 100 025 120	10XR2.5	22	120	10
4CNR 100 030 100	10XR3	22	100	10
4CNR 120 002 080	12XR0.2	22	80	12
4CNR 120 002 110	12XR0.2	26	110	12
4CNR 120 003 080	12XR0.3	22	80	12
4CNR 120 003 110	12XR0.3	26	110	12
4CNR 120 005 080	12XR0.5	22	80	12
4CNR 120 005 110	12XR0.5	26	110	12

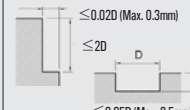
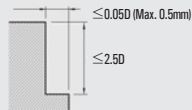
Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D×R	L1	L	d
4CNR 120 005 130	12XR0.5	26	130	12
4CNR 120 010 080	12XR1	22	80	12
4CNR 120 010 110	12XR1	26	110	12
4CNR 120 010 130	12XR1	26	130	12
4CNR 120 015 080	12XR1.5	22	80	12
4CNR 120 015 110	12XR1.5	26	110	12
4CNR 120 015 130	12XR1.5	26	130	12
4CNR 120 020 080	12XR2	22	80	12
4CNR 120 020 110	12XR2	26	110	12
4CNR 120 020 130	12XR2	26	130	12
4CNR 120 025 080	12XR2.5	22	80	12
4CNR 120 025 110	12XR2.5	26	110	12
4CNR 120 025 130	12XR2.5	26	130	12
4CNR 120 030 080	12XR3	22	80	12
4CNR 120 030 110	12XR3	26	110	12
4CNR 120 030 130	12XR3	26	130	12
4CNR 120 035 110	12XR3.5	26	110	12
4CNR 120 040 110	12XR4	26	110	12
4CNR 160 005 110	16XR0.5	32	110	16
4CNR 160 005 160	16XR0.5	32	160	16
4CNR 160 010 110	16XR1	32	110	16
4CNR 160 010 160	16XR1	32	160	16

4CNR

• RPM : rev./min • Feed : mm/min

Material	Carbon Steels S50 / SCM		Alloy Steels / Tools Steels Prehardened Steels SKD61/NAK		Stainless Steels SUS304 / SUS316		Hardened Steels SKD61		Hardened Steels SKD11	
Hardness	~ 30HRC		30 ~ 45HRC				45 ~ 55HRC		55 ~ 60HRC	
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1mm	5,100	70	4,500	60	3,600	40	3,000	25	2,200	10
2mm	4,200	80	3,600	70	2,900	50	2,200	35	1,800	15
3mm	3,600	90	2,900	80	2,200	60	1,800	40	1,500	25
4mm	2,900	120	2,300	90	1,800	70	1,400	50	1,200	30
5mm	2,500	150	2,000	120	1,500	90	1,300	60	1,000	30
6mm	2,100	170	1,700	150	1,300	110	1,100	70	900	40
8mm	1,600	190	1,300	150	1,000	130	900	70	680	40
10mm	1,400	190	1,100	150	800	110	700	70	550	40
12mm	1,100	150	900	120	700	90	570	60	450	30
16mm	900	120	700	90	500	70	420	43	340	26

Depth of Cut



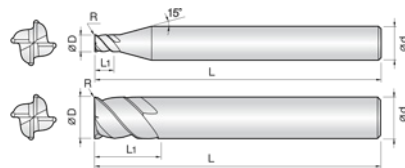
■ In case of slotting, decrease feed rate more than 50% the table. 60% of speed and 40% of feed on the table, when to slotting SUS.



4 Flutes 45° Helix Corner Radius Long End Mills

Endmills for pre-hardened and hardened steel (HRC50~)

- Designed for minimizing edge chipping by corner R shape.
- 45° degree helix design for high speed, feed condition.

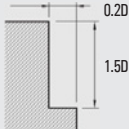
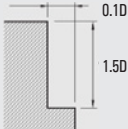
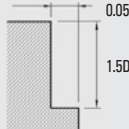


Size	D Tolerance
$D \leq 6$	+0~ -0.01mm
$D > 6$	+0~ -0.015mm

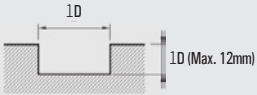
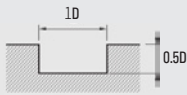
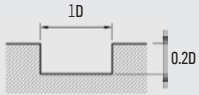
/Unit : mm

[illegible]

Side Milling

Material	Carbon Steels / Alloy Steels SS400 / S50C / SCM / FC250		Alloy Steels / Tools Steels / Prehardened Steels SKD61 / NAK		Stainless Steels/ Titanium Alloy Steels SUS304 / SUS316 / Ti-6AL-4V		Hardened Steels SKD61		Superhit resistance / Inconel	
Hardness	~ 30HRC		30 ~ 45HRC				45 ~ 55HRC			
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3mm	9,400	700	6,300	430	6,300	400	4,000	210	3,400	150
4mm	6,800	770	7,800	460	4,800	440	3,000	230	2,700	200
6mm	5,400	850	3,800	510	3,800	500	2,500	250	2,200	200
8mm	3,700	930	2,400	560	2,400	510	1,500	280	1,400	190
10mm	3,000	850	2,000	540	2,000	480	1,200	270	1,100	170
12mm	2,500	850	1,600	540	1,600	450	1,000	270	930	150
Depth of Cut										

Slotting

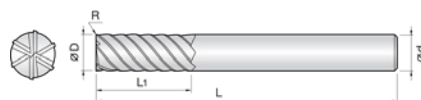
Material	Carbon Steels / Alloy Steels SS400 / S50C / SCM / FC250		Alloy Steels / Tools Steels / Prehardened Steels SKD61 / NAK		Stainless Steels/ Titanium Alloy Steels SUS304 / SUS316 / Ti-6AL-4V		Hardened Steels SKD61		Superhit resistance / Inconel	
Hardness	~ 30HRC		30 ~ 45HRC				45 ~ 55HRC			
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3mm	7,700	510	4,500	250	4,500	130	2,700	110	1,600	60
4mm	6,100	610	3,400	300	3,400	150	2,000	120	1,200	80
6mm	4,300	680	2,300	340	2,300	170	1,400	140	800	80
8mm	3,100	680	1,700	340	1,700	170	1,000	150	610	80
10mm	2,600	610	1,400	300	1,400	150	810	140	490	70
12mm	2,100	610	1,100	300	1,100	150	680	140	410	60
Depth of Cut										



6 Flutes 45° Helix Corner Radius Long End Mills

Endmills for pre-hardened and hardened steel (HRC50~)

- 45° degree helix design for high speed, feed condition.
- Improved wear resistance with longer edge and excellent work surface finish in various machining applications.

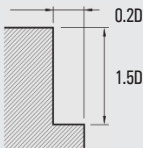
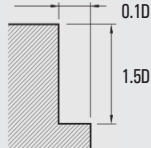
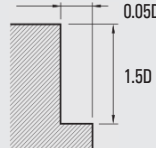


Size	D Tolerance
D ≥ Ø6	+0~-0.02mm

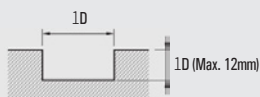
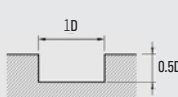
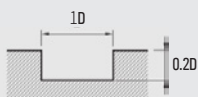
/Unit : mm

[illegible]

Side Milling

Material	Carbon Steels / Alloy Steels / SS400 / S50C / SCM / FC250		Alloy Steels / Tools Steels / Prehardened Steels SKD61 / NAK		Stainless Steels/ Titanium Alloy Steels SUS304 / SUS316 / Ti-6AL-4V		Hardened Steels SKD61		Superhit resistance / Inconel	
Hardness	~ 30HRC		30 ~ 45HRC				45 ~ 55HRC			
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6mm	4,700	880	3,000	510	3,000	480	1,900	265	1,700	185
8mm	3,500	880	2,200	530	2,200	480	1,400	265	1,300	180
10mm	2,800	800	1,800	450	1,100	260	1,100	260	1,000	160
12mm	2,300	800	1,500	510	1,500	420	1,000	260	900	140
16mm	1,800	640	1,100	400	1,100	360	700	200	650	100
Depth of Cut										

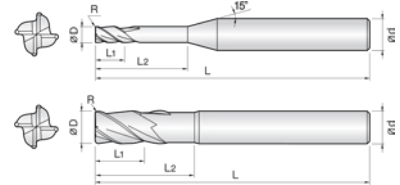
Slotting

Material	Carbon Steels / Alloy Steels SS400 / S50C / SCM / FC250		Alloy Steels / Tools Steels / Prehardened Steels SKD61 / NAK		Stainless Steels/ Titanium Alloy Steels SUS304 / SUS316 / Ti-6AL-4V		Hardened Steels SKD61		Superhit resistance / Inconel	
Hardness	~ 30HRC		30 ~ 45HRC				45 ~ 55HRC			
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6mm	4,000	640	2,200	320	2,200	160	1,300	130	800	75
8mm	3,000	640	1,600	320	1,600	160	1,000	140	600	70
10mm	2,400	580	1,300	290	1,300	140	800	130	500	65
12mm	2,000	580	1,000	290	1,000	140	650	130	400	60
16mm	1,600	480	800	220	800	120	500	100	300	40
Depth of Cut										

4 Flutes High Speed Corner Radius Cutter

Cutter for pre-hardened and hardened steel (HRC50-)

- Designed for low speed with high feed condition
- Suitable for heavy duty and roughing application.
- Minimize fracturing at high feed by high TRS ultra fine WC grade.



Size	D Tolerance
$D \leq \varnothing 6$	+0~ -0.01mm
$D > \varnothing 6$	+0~ -0.015mm

/Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	L1	L2	L	d
4SCU 010 002 025	1 X R0.2	1	2.5	50	4
4SCU 015 005 040	1.5 X R0.5	1.5	4	50	4
4SCU 020 005 060	2 X R0.5	2	6	50	6
4SCU 030 005 080	3 X R0.5	3	8	50	6
4SCU 040 005 120	4 X R0.5	4	12	60	6
4SCU 040 005 160	4 X R0.5	4	16	60	6
4SCU 040 010 120	4 X R1	4	12	60	6
4SCU 040 010 160	4 X R1	4	16	60	6
4SCU 050 005 150	5 X R0.5	5	15	60	6
4SCU 050 010 150	5 X R1	5	15	60	6
4SCU 060 003 150	6 X R0.3	6	15	60	6
4SCU 060 005 150	6 X R0.5	6	15	60	6
4SCU 060 010 150	6 X R1	6	15	60	6
4SCU 060 015 150	6 X R1.5	6	15	60	6
4SCU 080 003 160	8 X R0.3	8	16	60	8
4SCU 080 005 160	8 X R0.5	8	16	60	8
4SCU 080 005 200	8 X R0.5	8	20	80	8
4SCU 080 005 300	8 X R0.5	8	30	110	8
4SCU 080 010 160	8 X R1	8	16	60	8
4SCU 080 010 200	8 X R1	8	20	80	8
4SCU 080 010 300	8 X R1	8	30	110	8
4SCU 080 020 160	8 X R2	8	16	60	8
4SCU 080 020 200	8 X R2	8	20	80	8
4SCU 080 020 300	8 X R2	8	30	110	8
4SCU 100 003 200	10 X R0.3	10	20	70	10

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	L1	L2	L	d
4SCU 100 005 200	10 X R0.5	10	20	70	10
4SCU 100 005 250	10 X R0.5	10	25	90	10
4SCU 100 005 300	10 X R0.5	10	30	120	10
4SCU 100 010 200	10 X R1	10	20	70	10
4SCU 100 010 250	10 X R1	10	25	90	10
4SCU 100 010 300	10 X R1	10	30	120	10
4SCU 100 020 200	10 X R2	10	20	70	10
4SCU 100 020 250	10 X R2	10	25	90	10
4SCU 100 020 300	10 X R2	10	30	120	10
4SCU 120 005 250	12 X R0.5	12	25	80	12
4SCU 120 005 300	12 X R0.5	12	30	100	12
4SCU 120 005 350	12 X R0.5	12	35	130	12
4SCU 120 010 250	12 X R1	12	25	80	12
4SCU 120 010 300	12 X R1	12	30	100	12
4SCU 120 010 350	12 X R1	12	35	130	12
4SCU 120 020 250	12 X R2	12	25	80	12
4SCU 120 020 300	12 X R2	12	30	100	12
4SCU 120 020 350	12 X R2	12	35	130	12
4SCU 120 030 250	12 X R3	12	25	80	12
4SCU 160 010 300	16 X R1	16	30	110	16
4SCU 160 010 400	16 X R1	16	40	160	16
4SCU 160 020 300	16 X R2	16	30	110	16
4SCU 160 020 400	16 X R2	16	40	160	16

6 Flutes High Speed Corner Radius Cutter

Cutter for pre-hardened and hardened steel (HRC50-)

- Designed for low speed with high feed condition.
- Suitable for heavy duty and roughing application.
- Minimize fracturing at high feed by high TRS ultra fine WC grade.



Size	D Tolerance
D ≤ Ø6	+0~ -0.01mm
D > Ø6	+0~ -0.015mm

/Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D×R	L1	L	d
6SCU 060 005 060	6 X R0.5	12	60	6
6SCU 060 005 080	6 X R0.5	12	80	6
6SCU 060 010 060	6 X R1	12	60	6
6SCU 060 010 080	6 X R1	12	80	6
6SCU 080 005 060	8 X R0.5	16	60	8
6SCU 080 005 090	8 X R0.5	16	90	8
6SCU 080 010 060	8 X R1	16	60	8
6SCU 080 010 090	8 X R1	16	90	8
6SCU 080 020 060	8 X R2	16	60	8
6SCU 080 020 090	8 X R2	16	90	8
6SCU 100 005 070	10 X R0.5	20	70	10
6SCU 100 005 100	10 X R0.5	20	100	10
6SCU 100 010 070	10 X R1	20	70	10
6SCU 100 010 100	10 X R1	20	100	10
6SCU 100 020 070	10 X R2	20	70	10
6SCU 100 020 100	10 X R2	20	100	10
6SCU 120 005 080	12 X R0.5	25	80	12
6SCU 120 005 110	12 X R0.5	25	110	12
6SCU 120 010 080	12 X R1	25	80	12

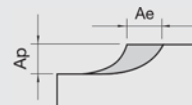
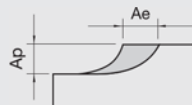
Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D×R	L1	L	d
6SCU 120 010 110	12 X R1	25	110	12
6SCU 120 020 080	12 X R2	25	80	12
6SCU 120 020 110	12 X R2	25	110	12
6SCU 160 005 160	16 X R0.5	35	160	16
6SCU 160 005 200	16 X R0.5	35	200	16
6SCU 160 010 160	16 X R1	35	160	16
6SCU 160 010 200	16 X R1	35	200	16
6SCU 160 015 160	16 X R1.5	35	160	16
6SCU 160 015 200	16 X R1.5	35	200	16
6SCU 160 020 160	16 X R2	35	160	16
6SCU 160 020 200	16 X R2	35	200	16
6SCU 200 005 150	20 X R0.5	40	150	20
6SCU 200 005 200	20 X R0.5	40	200	20
6SCU 200 010 150	20 X R1	40	150	20
6SCU 200 010 200	20 X R1	40	200	20
6SCU 200 015 150	20 X R1.5	40	150	20
6SCU 200 015 200	20 X R1.5	40	200	20
6SCU 200 020 150	20 X R2	40	150	20
6SCU 200 020 200	20 X R2	40	200	20

4SCU / 6SCU

• RPM : rev/min • Feed : mm/min

Material	Carbon Steels / Alloy Steels S50C / SCM				Alloy Steels / Tools Steels / Prehardened Steels SKD61 / SKD11 / NAK				Hardened Steels SKD61 / STAVAX				Hardened Steels SKD11 / SKH			
	~ 30HRC				30 ~ 45HRC				45 ~ 55HRC				55 ~ 60HRC			
Hardness	RPM	FEED	Ae(mm)	Ap(mm)	RPM	FEED	Ae(mm)	Ap(mm)	RPM	FEED	Ae(mm)	Ap(mm)	RPM	FEED	Ae(mm)	Ap(mm)
Outside Diameter																
1mm	37,000	9,000	0.400	0.040	33,000	7,200	0.400	0.025	27,000	6,500	0.400	0.020	22,000	2,600	0.400	0.015
2mm	33,000	10,000	0.800	0.080	27,000	8,400	0.800	0.050	24,000	7,500	0.800	0.040	16,000	3,000	0.800	0.030
3mm	22,000	11,000	1.200	0.120	18,000	9,000	1.200	0.080	16,000	8,500	1.200	0.060	11,000	3,300	1.200	0.050
4mm	17,000	12,000	1.500	0.150	14,000	9,500	1.500	0.120	12,000	8,800	1.500	0.080	8,000	3,500	1.500	0.070
5mm	13,000	13,000	2.000	0.200	11,000	10,000	2.000	0.150	9,600	9,500	2.000	0.100	6,400	3,800	2.000	0.080
6mm	11,000	13,000	2.500	0.250	9,000	11,000	2.000	0.150	8,000	9,600	2.500	0.100	5,300	3,800	2.500	0.100
8mm	8,200	13,000	3.000	0.300	7,000	11,000	3.000	0.200	6,000	9,600	3.000	0.150	4,000	3,800	3.000	0.130
10mm	6,500	13,000	4.500	0.300	5,500	11,000	4.500	0.200	4,800	9,500	4.500	0.150	3,200	3,800	4.500	0.130
12mm	5,500	12,000	5.500	0.300	5,000	10,000	5.500	0.200	4,100	9,000	4.500	0.250	2,700	3,500	4.500	0.200
16mm	4,100	10,000	7.500	0.450	3,400	8,800	7.500	0.300	3,000	7,800	7.500	0.250	2,000	3,200	7.500	0.200

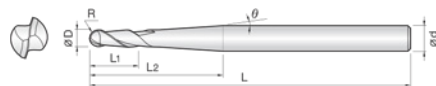
Depth of Cut



2 Flutes High Speed Taper Neck Ball End Mills

Endmills for pre-hardened and hardened steel(HRC50-62)

- Minimize chattering and fracturing by taper designed flute.
- High precise edge tolerance.



Size	D Tolerance
$D \leq \varnothing 6$	+0~ -0.01mm
$D > \varnothing 6$	+0~ -0.015mm

/Unit : mm

Order Number	Diameter	Angle	Length of cut	Effective Length	Overall Length	Shank Dia
	RXD	θ	L1	L2	L	d
2TBE 002 003 015	0.1R X 0.2	0°30	0.2	1.5	40	4
2TBE 002 003 020	0.1R X 0.2	0°30	0.2	2	40	4
2TBE 002 010 015	0.1R X 0.2	1°	0.2	1.5	40	4
2TBE 002 010 020	0.1R X 0.2	1°	0.2	2	40	4
2TBE 002 010 025	0.1R X 0.2	1°	0.2	2.5	40	4
2TBE 002 013 015	0.1R X 0.2	1°30	0.2	1.5	40	4
2TBE 002 013 020	0.1R X 0.2	1°30	0.2	2	40	4
2TBE 002 013 025	0.1R X 0.2	1°30	0.2	2.5	40	4
2TBE 002 020 015	0.1R X 0.2	2°	0.2	1.5	40	4
2TBE 002 020 020	0.1R X 0.2	2°	0.2	2	40	4
2TBE 002 020 025	0.1R X 0.2	2°	0.2	2.5	40	4
2TBE 002 030 015	0.1R X 0.2	3°	0.2	1.5	40	4
2TBE 002 030 020	0.1R X 0.2	3°	0.2	2	40	4
2TBE 002 030 025	0.1R X 0.2	3°	0.2	2.5	40	4
2TBE 002 050 020	0.1R X 0.2	5°	0.2	2	40	4
2TBE 003 003 030	0.15R X 0.3	0°30	0.3	3	40	4
2TBE 003 010 020	0.15R X 0.3	1°	0.3	2	40	4
2TBE 003 010 030	0.15R X 0.3	1°	0.3	3	40	4
2TBE 003 010 040	0.15R X 0.3	1°	0.3	4	40	4
2TBE 003 010 050	0.15R X 0.3	1°	0.3	5	40	4
2TBE 003 013 020	0.15R X 0.3	1°30	0.3	2	40	4
2TBE 003 013 030	0.15R X 0.3	1°30	0.3	3	40	4
2TBE 003 013 040	0.15R X 0.3	1°30	0.3	4	40	4
2TBE 003 013 050	0.15R X 0.3	1°30	0.3	5	40	4
2TBE 003 020 020	0.15R X 0.3	2°	0.3	2	40	4
2TBE 003 020 030	0.15R X 0.3	2°	0.3	3	40	4
2TBE 003 020 040	0.15R X 0.3	2°	0.3	4	40	4
2TBE 003 020 050	0.15R X 0.3	2°	0.3	5	40	4
2TBE 003 030 020	0.15R X 0.3	3°	0.3	2	40	4
2TBE 003 030 030	0.15R X 0.3	3°	0.3	3	40	4
2TBE 003 030 040	0.15R X 0.3	3°	0.3	4	40	4
2TBE 003 030 050	0.15R X 0.3	3°	0.3	5	40	4
2TBE 003 050 050	0.15R X 0.3	5°	0.3	5	40	4
2TBE 004 003 020	0.2R X 0.4	0°30	0.4	2	40	4
2TBE 004 003 030	0.2R X 0.4	0°30	0.4	3	40	4
2TBE 004 003 040	0.2R X 0.4	0°30	0.4	4	40	4

Order Number	Diameter	Angle	Length of cut	Effective Length	Overall Length	Shank Dia
	RXD	θ	L1	L2	L	d
2TBE 004 003 050	0.2R X 0.4	0°30	0.4	5	40	4
2TBE 004 003 060	0.2R X 0.4	0°30	0.4	6	40	4
2TBE 004 010 020	0.2R X 0.4	1°	0.4	2	40	4
2TBE 004 010 030	0.2R X 0.4	1°	0.4	3	40	4
2TBE 004 010 040	0.2R X 0.4	1°	0.4	4	40	4
2TBE 004 010 050	0.2R X 0.4	1°	0.4	5	40	4
2TBE 004 010 060	0.2R X 0.4	1°	0.4	6	40	4
2TBE 004 013 020	0.2R X 0.4	1°30	0.4	2	40	4
2TBE 004 013 030	0.2R X 0.4	1°30	0.4	3	40	4
2TBE 004 013 040	0.2R X 0.4	1°30	0.4	4	40	4
2TBE 004 013 050	0.2R X 0.4	1°30	0.4	5	40	4
2TBE 004 013 060	0.2R X 0.4	1°30	0.4	6	40	4
2TBE 004 020 020	0.2R X 0.4	2°	0.4	2	40	4
2TBE 004 020 030	0.2R X 0.4	2°	0.4	3	40	4
2TBE 004 020 040	0.2R X 0.4	2°	0.4	4	40	4
2TBE 004 020 050	0.2R X 0.4	2°	0.4	5	40	4
2TBE 004 020 060	0.2R X 0.4	2°	0.4	6	40	4
2TBE 005 003 040	0.25R X 0.5	0°30	0.5	4	45	4
2TBE 005 003 060	0.25R X 0.5	0°30	0.5	6	45	4
2TBE 005 010 040	0.25R X 0.5	1°	0.5	4	45	4
2TBE 005 010 060	0.25R X 0.5	1°	0.5	6	45	4
2TBE 005 010 080	0.25R X 0.5	1°	0.5	8	45	4
2TBE 005 010 100	0.25R X 0.5	1°	0.5	10	45	4
2TBE 005 013 040	0.25R X 0.5	1°30	0.5	4	45	4
2TBE 005 013 060	0.25R X 0.5	1°30	0.5	6	45	4
2TBE 005 013 080	0.25R X 0.5	1°30	0.5	8	45	4
2TBE 005 013 100	0.25R X 0.5	1°30	0.5	10	45	4
2TBE 005 020 040	0.25R X 0.5	2°	0.5	4	45	4
2TBE 005 020 060	0.25R X 0.5	2°	0.5	6	45	4
2TBE 005 020 080	0.25R X 0.5	2°	0.5	8	45	4
2TBE 005 020 100	0.25R X 0.5	2°	0.5	10	45	4
2TBE 005 030 080	0.25R X 0.5	3°	0.5	8	45	4
2TBE 005 030 120	0.25R X 0.5	3°	0.5	12	50	4
2TBE 006 003 040	0.3R X 0.6	0°30	0.6	4	45	4
2TBE 006 003 060	0.3R X 0.6	0°30	0.6	6	45	4
2TBE 006 003 080	0.3R X 0.6	0°30	0.6	8	45	4

2TBE Taper

Order Number	Diameter	Angle	Length of cut	Effective Length	Overall Length	Shank Dia
	RXD	θ	L1	L2	L	d
2TBE 006 010 040	0.3R X 0.6	1°	0.6	4	45	4
2TBE 006 010 060	0.3R X 0.6	1°	0.6	6	45	4
2TBE 006 010 080	0.3R X 0.6	1°	0.6	8	45	4
2TBE 006 010 100	0.3R X 0.6	1°	0.6	10	45	4
2TBE 006 010 120	0.3R X 0.6	1°	0.6	12	50	4
2TBE 006 010 150	0.3R X 0.6	1°	0.6	15	50	4
2TBE 006 013 040	0.3R X 0.6	1°30	0.6	4	45	4
2TBE 006 013 060	0.3R X 0.6	1°30	0.6	6	45	4
2TBE 006 013 080	0.3R X 0.6	1°30	0.6	8	45	4
2TBE 006 013 100	0.3R X 0.6	1°30	0.6	10	45	4
2TBE 006 013 120	0.3R X 0.6	1°30	0.6	12	50	4
2TBE 006 020 060	0.3R X 0.6	2°	0.6	6	45	4
2TBE 006 020 080	0.3R X 0.6	2°	0.6	8	45	4
2TBE 006 020 100	0.3R X 0.6	2°	0.6	10	45	4
2TBE 006 030 130	0.3R X 0.6	3°	0.6	13	50	4
2TBE 008 003 040	0.4R X 0.8	0°30	0.8	4	45	4
2TBE 008 003 060	0.4R X 0.8	0°30	0.8	6	45	4
2TBE 008 003 080	0.4R X 0.8	0°30	0.8	8	45	4
2TBE 008 003 100	0.4R X 0.8	0°30	0.8	10	45	4
2TBE 008 003 120	0.4R X 0.8	0°30	0.8	12	50	4
2TBE 008 010 040	0.4R X 0.8	1°	0.8	4	45	4
2TBE 008 010 060	0.4R X 0.8	1°	0.8	6	45	4
2TBE 008 010 080	0.4R X 0.8	1°	0.8	8	45	4
2TBE 008 010 100	0.4R X 0.8	1°	0.8	10	45	4
2TBE 008 010 120	0.4R X 0.8	1°	0.8	12	50	4
2TBE 008 010 160	0.4R X 0.8	1°	0.8	16	50	4
2TBE 008 013 040	0.4R X 0.8	1°30	0.8	4	45	4
2TBE 008 013 060	0.4R X 0.8	1°30	0.8	6	45	4
2TBE 008 013 080	0.4R X 0.8	1°30	0.8	8	45	4
2TBE 008 013 100	0.4R X 0.8	1°30	0.8	10	45	4
2TBE 008 013 120	0.4R X 0.8	1°30	0.8	12	50	4
2TBE 008 013 160	0.4R X 0.8	1°30	0.8	16	50	4
2TBE 008 020 080	0.4R X 0.8	2°	0.8	8	50	4
2TBE 008 020 100	0.4R X 0.8	2°	0.8	10	50	4
2TBE 008 020 120	0.4R X 0.8	2°	0.8	12	50	4
2TBE 008 020 160	0.4R X 0.8	2°	0.8	16	50	4
2TBE 008 030 080	0.4R X 0.8	3°	0.8	8	50	4
2TBE 008 030 120	0.4R X 0.8	3°	0.8	12	50	4
2TBE 008 030 160	0.4R X 0.8	3°	0.8	16	50	4
2TBE 010 003 060	0.5R X 1	0°30	1	6	50	4
2TBE 010 003 080	0.5R X 1	0°30	1	8	50	4
2TBE 010 003 100	0.5R X 1	0°30	1	10	50	4
2TBE 010 003 150	0.5R X 1	0°30	1	15	50	4
2TBE 010 003 200	0.5R X 1	0°30	1	20	60	4
2TBE 010 003 250	0.5R X 1	0°30	1	25	60	4
2TBE 010 003 300	0.5R X 1	0°30	1	30	70	4

Order Number	Diameter	Angle	Length of cut	Effective Length	Overall Length	Shank Dia
	RXD	θ	L1	L2	L	d
2TBE 010 010 060	0.5R X 1	1°	1	6	50	4
2TBE 010 010 080	0.5R X 1	1°	1	8	50	4
2TBE 010 010 100	0.5R X 1	1°	1	10	50	4
2TBE 010 010 150	0.5R X 1	1°	1	15	50	4
2TBE 010 010 200	0.5R X 1	1°	1	20	50	4
2TBE 010 010 250	0.5R X 1	1°	1	25	60	4
2TBE 010 010 300	0.5R X 1	1°	1	30	70	4
2TBE 010 010 350	0.5R X 1	1°	1	35	75	4
2TBE 010 013 060	0.5R X 1	1°30	1	6	50	4
2TBE 010 013 080	0.5R X 1	1°30	1	8	50	4
2TBE 010 013 100	0.5R X 1	1°30	1	10	50	4
2TBE 010 013 150	0.5R X 1	1°30	1	15	50	4
2TBE 010 013 200	0.5R X 1	1°30	1	20	50	4
2TBE 010 013 250	0.5R X 1	1°30	1	25	60	4
2TBE 010 013 300	0.5R X 1	1°30	1	30	70	4
2TBE 010 020 150	0.5R X 1	2°	1	15	50	4
2TBE 010 020 200	0.5R X 1	2°	1	20	50	4
2TBE 010 020 250	0.5R X 1	2°	1	25	60	4
2TBE 010 020 300	0.5R X 1	2°	1	30	70	4
2TBE 010 030 200	0.5R X 1	3°	1	20	50	4
2TBE 010 030 300	0.5R X 1	3°	1	30	70	6
2TBE 010 030 400	0.5R X 1	3°	1	40	80	6
2TBE 010 050 230	0.5R X 1	5°	1	23	60	6
2TBE 012 003 080	0.6R X 1.2	0°30	1.2	8	50	4
2TBE 012 003 120	0.6R X 1.2	0°30	1.2	12	50	4
2TBE 012 003 180	0.6R X 1.2	0°30	1.2	18	50	4
2TBE 012 003 240	0.6R X 1.2	0°30	1.2	24	60	4
2TBE 012 010 080	0.6R X 1.2	1°	1.2	8	50	4
2TBE 012 010 120	0.6R X 1.2	1°	1.2	12	50	4
2TBE 012 010 180	0.6R X 1.2	1°	1.2	18	50	4
2TBE 012 010 240	0.6R X 1.2	1°	1.2	24	60	4
2TBE 012 013 080	0.6R X 1.2	1°30	1.2	8	50	4
2TBE 012 013 120	0.6R X 1.2	1°30	1.2	12	50	4
2TBE 012 013 180	0.6R X 1.2	1°30	1.2	18	50	4
2TBE 012 013 240	0.6R X 1.2	1°30	1.2	24	60	4
2TBE 012 020 080	0.6R X 1.2	2°	1.2	8	50	4
2TBE 012 020 120	0.6R X 1.2	2°	1.2	12	50	4
2TBE 012 020 180	0.6R X 1.2	2°	1.2	18	50	4
2TBE 012 020 240	0.6R X 1.2	2°	1.2	24	60	4
2TBE 015 003 080	0.75R X 1.5	0°30	1.5	8	50	4
2TBE 015 003 100	0.75R X 1.5	0°30	1.5	10	50	4
2TBE 015 003 120	0.75R X 1.5	0°30	1.5	12	50	4
2TBE 015 003 150	0.75R X 1.5	0°30	1.5	15	50	4
2TBE 015 003 200	0.75R X 1.5	0°30	1.5	20	60	4
2TBE 015 003 300	0.75R X 1.5	0°30	1.5	30	70	4
2TBE 015 010 080	0.75R X 1.5	1°	1.5	8	50	4

Order Number	Diameter	Angle	Length of cut		Effective Length	Overall Length	Shank Dia
	RXD	θ	L1	L2	L	L	d
2TBE 015 010 100	0.75R X 1.5	1°	1.5	10	50	4	
2TBE 015 010 120	0.75R X 1.5	1°	1.5	12	50	4	
2TBE 015 010 150	0.75R X 1.5	1°	1.5	15	50	4	
2TBE 015 010 200	0.75R X 1.5	1°	1.5	20	60	4	
2TBE 015 010 250	0.75R X 1.5	1°	1.5	25	60	4	
2TBE 015 010 300	0.75R X 1.5	1°	1.5	30	70	4	
2TBE 015 013 080	0.75R X 1.5	1°30'	1.5	8	50	4	
2TBE 015 013 100	0.75R X 1.5	1°30'	1.5	10	50	4	
2TBE 015 013 120	0.75R X 1.5	1°30'	1.5	12	50	4	
2TBE 015 013 150	0.75R X 1.5	1°30'	1.5	15	50	4	
2TBE 015 013 200	0.75R X 1.5	1°30'	1.5	20	60	4	
2TBE 015 013 250	0.75R X 1.5	1°30'	1.5	25	60	4	
2TBE 015 013 300	0.75R X 1.5	1°30'	1.5	30	70	4	
2TBE 015 020 100	0.75R X 1.5	2°	1.5	10	50	4	
2TBE 015 020 150	0.75R X 1.5	2°	1.5	15	50	4	
2TBE 015 020 200	0.75R X 1.5	2°	1.5	20	60	4	
2TBE 015 020 300	0.75R X 1.5	2°	1.5	30	70	4	
2TBE 015 030 420	0.75R X 1.5	3°	1.5	42	80	6	
2TBE 015 050 250	0.75R X 1.5	5°	1.5	25	70	6	
2TBE 020 003 080	1RX 2	0°30'	2	8	50	4	
2TBE 020 003 120	1RX 2	0°30'	2	12	50	4	
2TBE 020 003 160	1RX 2	0°30'	2	16	50	4	
2TBE 020 003 200	1RX 2	0°30'	2	20	60	4	
2TBE 020 003 300	1RX 2	0°30'	2	30	70	4	
2TBE 020 003 400	1RX 2	0°30'	2	40	80	4	
2TBE 020 010 080	1RX 2	1°	2	8	50	4	
2TBE 020 010 120	1RX 2	1°	2	12	50	4	
2TBE 020 010 160	1RX 2	1°	2	16	50	4	
2TBE 020 010 200	1RX 2	1°	2	20	60	4	
2TBE 020 010 250	1RX 2	1°	2	25	60	4	
2TBE 020 010 300	1RX 2	1°	2	30	70	4	
2TBE 020 010 350	1RX 2	1°	2	35	75	4	
2TBE 020 010 400	1RX 2	1°	2	40	80	4	
2TBE 020 010 500	1RX 2	1°	2	50	90	4	
2TBE 020 013 080	1RX 2	1°30'	2	8	50	4	
2TBE 020 013 120	1RX 2	1°30'	2	12	50	4	
2TBE 020 013 160	1RX 2	1°30'	2	16	50	4	
2TBE 020 013 200	1RX 2	1°30'	2	20	60	4	
2TBE 020 013 250	1RX 2	1°30'	2	25	60	4	
2TBE 020 013 300	1RX 2	1°30'	2	30	70	4	
2TBE 020 013 350	1RX 2	1°30'	2	35	75	6	
2TBE 020 013 400	1RX 2	1°30'	2	40	80	6	
2TBE 020 013 500	1RX 2	1°30'	2	50	90	6	
2TBE 020 020 300	1RX 2	2°	2	30	70	6	
2TBE 020 020 400	1RX 2	2°	2	40	80	6	
2TBE 020 020 500	1RX 2	2°	2	50	90	6	

Order Number	Diameter	Angle	Length of cut		Effective Length	Overall Length	Shank Dia
	RXD	θ	L1	L2	L	L	d
2TBE 020 030 300	1RX 2	3°	2	30	70	6	
2TBE 020 030 400	1RX 2	3°	2	40	80	6	
2TBE 020 050 250	1RX 2	5°	2	25	60	6	
2TBE 020 050 380	1RX 2	5°	2	38	80	8	
2TBE 030 003 160	1.5RX 3	0°30'	3	16	60	6	
2TBE 030 003 200	1.5RX 3	0°30'	3	20	65	6	
2TBE 030 003 300	1.5RX 3	0°30'	3	30	70	6	
2TBE 030 003 400	1.5RX 3	0°30'	3	40	80	6	
2TBE 030 003 500	1.5RX 3	0°30'	3	50	90	6	
2TBE 030 010 160	1.5RX 3	1°	3	16	60	6	
2TBE 030 010 200	1.5RX 3	1°	3	20	65	6	
2TBE 030 010 300	1.5RX 3	1°	3	30	70	6	
2TBE 030 010 400	1.5RX 3	1°	3	40	80	6	
2TBE 030 010 500	1.5RX 3	1°	3	50	90	6	
2TBE 030 013 160	1.5RX 3	1°30'	3	16	60	6	
2TBE 030 013 200	1.5RX 3	1°30'	3	20	65	6	
2TBE 030 013 300	1.5RX 3	1°30'	3	30	70	6	
2TBE 030 013 400	1.5RX 3	1°30'	3	40	80	6	
2TBE 030 013 500	1.5RX 3	1°30'	3	50	90	6	
2TBE 030 020 160	1.5RX 3	2°	3	16	60	6	
2TBE 030 020 200	1.5RX 3	2°	3	20	65	6	
2TBE 030 020 300	1.5RX 3	2°	3	30	70	6	
2TBE 030 020 480	1.5RX 3	2°	3	48	90	6	
2TBE 030 030 300	1.5RX 3	3°	3	30	70	6	
2TBE 030 030 500	1.5RX 3	3°	3	50	90	8	
2TBE 030 050 330	1.5RX 3	5°	3	33	90	8	
2TBE 040 003 600	2RX 4	0°30'	4	60	100	6	
2TBE 040 010 500	2RX 4	1°	4	50	90	6	
2TBE 040 010 600	2RX 4	1°	4	60	100	6	
2TBE 040 013 450	2RX 4	1°30'	4	45	90	6	
2TBE 040 013 600	2RX 4	1°30'	4	60	110	8	
2TBE 040 030 250	2RX 4	3°	4	25	70	6	
2TBE 040 050 290	2RX 4	5°	4	29	90	8	
2TBE 050 013 400	2.5RX 5	1°30'	5	40	90	8	
2TBE 050 013 600	2.5RX 5	1°30'	5	60	110	8	
2TBE 050 030 400	2.5RX 5	3°	5	40	90	8	
2TBE 060 013 490	3RX 6	1°30'	9	49	110	8	
2TBE 060 020 600	3RX 6	2°	9	60	110	10	
2TBE 060 030 290	3RX 6	3°	9	29	90	8	
2TBE 060 050 320	3RX 6	5°	9	32	110	10	
2TBE 080 013 520	4RX 8	1°30'	12	52	110	10	
2TBE 080 030 330	4RX 8	3°	12	33	100	10	
2TBE 100 013 540	5RX 10	1°30'	18	54	130	12	
2TBE 100 030 370	5RX 10	3°	18	37	110	12	
2TBE 120 013 850	6RX 12	1°30'	22	85	160	16	
2TBE 120 030 630	6RX 12	3°	22	63	130	16	

Material		Copper / Carbon Steels Cu / S45C / S50C			Prehardened Steels / Hardened Steels NAK / SKD			Hardened Steels SKD / SKT			Hardened Steels SKD / SKT		
Hardness		30HRC~45HRC			30HRC~45HRC			45HRC~55HRC			55HRC ~ 65HRC		
Radius	Effective Length	RPM	FEED	Ap Axial Depth	RPM	FEED	Ap Axial Depth	RPM	FEED	Ap Axial Depth	RPM	FEED	Ap Axial Depth
R0.1	1.5	40,000	600	0.007	27,000	410	0.005	26,000	310	0.005	26,000	240	0.004
	2	31,000	350	0.005	21,500	240	0.004	20,000	190	0.003	20,000	170	0.003
R0.15	2	33,000	610	0.008	22,200	380	0.006	20,500	320	0.005	20,500	280	0.004
	3	31,000	470	0.003	21,000	310	0.002	19,000	230	0.002	19,000	180	0.001
R0.2	3	40,000	1,100	0.015	27,000	750	0.012	25,000	640	0.010	25,000	450	0.008
	6	24,000	500	0.004	17,000	310	0.003	16,000	280	0.003	16,000	240	0.002
R0.25	4	33,000	1,130	0.018	27,000	820	0.014	23,500	600	0.012	23,500	580	0.010
	8	20,500	580	0.006	17,000	410	0.005	15,000	350	0.004	15,000	310	0.003
R0.3	4	41,000	2,040	0.030	30,000	1,350	0.021	22,500	750	0.020	22,500	670	0.015
	8	25,500	950	0.015	21,000	700	0.012	16,000	490	0.010	16,000	390	0.008
	12	2,500	850	0.008	21,500	680	0.006	14,000	380	0.005	13,000	320	0.004
R0.4	4	41,000	2,200	0.035	28,000	1,400	0.027	23,000	820	0.025	23,000	680	0.015
	8	25,500	1,300	0.020	18,000	900	0.015	15,000	600	0.015	15,000	550	0.010
	12	25,500	1,000	0.015	15,500	500	0.012	12,000	440	0.010	12,000	400	0.007
R0.5	8	25,000	2,000	0.045	17,000	1,300	0.035	17,000	1,000	0.030	16,000	820	0.025
	15	17,000	1,050	0.022	12,000	730	0.018	11,000	650	0.016	11,000	500	0.012
	25	15,000	900	0.013	10,000	650	0.010	9,000	540	0.008	9,000	440	0.008
	35	9,000	580	0.008	6,000	380	0.006	6,000	360	0.005	6,000	260	0.004
R0.75	10	18,000	2,100	0.060	12,000	1,400	0.040	12,000	1,100	0.035	12,000	850	0.030
	20	13,000	1,200	0.030	9,000	900	0.020	9,000	700	0.015	9,000	600	0.013
	30	9,000	850	0.015	7,000	620	0.012	7,000	520	0.010	7,000	480	0.010
R1	12	15,000	2,350	0.080	11,000	1,700	0.065	10,500	1,360	0.056	10,500	1,070	0.046
	20	10,000	1,400	0.060	8,000	1,000	0.050	9,000	1,000	0.045	9,000	880	0.035
	30	9,000	1,200	0.045	7,000	800	0.035	7,000	780	0.030	7,000	640	0.025
	40	9,000	1,200	0.035	6,700	780	0.030	6,000	700	0.025	6,000	580	0.020
R1.5	20	10,000	2,200	0.090	8,000	1,300	0.070	7,000	1,200	0.060	7,000	1,100	0.050
	30	9,000	1,800	0.075	7,000	1,050	0.060	6,000	1,000	0.050	6,000	880	0.042
	40	7,500	1,400	0.060	5,000	880	0.050	5,100	800	0.040	5,100	700	0.035
	50	7,500	1,300	0.040	5,000	800	0.030	5,100	750	0.025	5,100	650	0.023
R2	40	6,000	1,200	0.081	3,500	600	0.065	3,200	530	0.050	3,200	500	0.043
	60	4,000	730	0.060	3,000	450	0.045	2,800	400	0.040	2,800	350	0.031
R3	29	9,000	2,100	0.140	7,000	1,050	0.100	6,000	950	0.080	6,000	850	0.058
	49	4,500	1,400	0.070	3,900	700	0.060	3,400	650	0.050	3,400	550	0.040
R4	33	8,900	2,200	0.180	7,000	1,100	0.140	6,000	1,000	0.100	6,000	800	0.082
	52	4,300	1,300	0.090	3,200	650	0.080	2,900	550	0.065	2,900	450	0.040
R5	37	5,500	1,700	0.185	3,500	850	0.160	3,400	700	0.120	3,400	600	0.080
	54	4,000	950	0.089	3,000	480	0.065	2,800	400	0.050	2,800	320	0.032
R6	63	3,800	700	0.120	2,800	350	0.082	2,500	310	0.060	2,500	220	0.045
	85	2,800	320	0.060	1,900	160	0.030	1,500	150	0.015	1,500	100	0.010

Milling Amount	Roughing	Ae ≤ 0.1D		Ae ≤ 0.1D		Ae ≤ 0.08D		Ae ≤ 0.06D	
	Finishing	Ae = Vf/n							

Depth of Cut

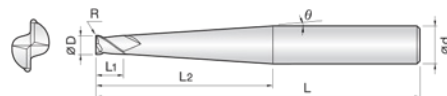
- Ap : Axial Depth
- Ae : Radial Depth
- D : Outside Diameter
- n : Speed
- Vf : Feed



2 Flutes High Speed Taper Neck Corner Radius End Mills

Endmills for pre-hardened and hardened steel (HRC50-62)

- Minimize chattering and fracturing by taper designed flute.
- Designed for minimizing edge chipping by corner R shape.
- High precise edge tolerance.



Size	D Tolerance
D ≤ Ø6	+0~-0.01mm
D > Ø6	+0~-0.015mm

/Unit : mm

Order Number	Diameter	Angle	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	θ	L1	L2	L	d
2TCR 010 001 0601	1 X R0.1	1°	1	6	50	4
2TCR 010 001 1001	1 X R0.1	1°	1	10	50	4
2TCR 010 001 1501	1 X R0.1	1°	1	15	50	4
2TCR 010 001 2001	1 X R0.1	1°	1	20	60	4
2TCR 010 001 2501	1 X R0.1	1°	1	25	60	4
2TCR 010 001 3001	1 X R0.1	1°	1	30	70	4
2TCR 010 001 3501	1 X R0.1	1°	1	35	75	4
2TCR 010 002 0601	1 X R0.2	1°	1	6	50	4
2TCR 010 002 1001	1 X R0.2	1°	1	10	50	4
2TCR 010 002 1501	1 X R0.2	1°	1	15	50	4
2TCR 010 002 2001	1 X R0.2	1°	1	20	60	4
2TCR 010 002 2501	1 X R0.2	1°	1	25	60	4
2TCR 010 002 3001	1 X R0.2	1°	1	30	70	4
2TCR 010 002 3501	1 X R0.2	1°	1	35	75	4
2TCR 010 003 0601	1 X R0.3	1°	1	6	50	4
2TCR 010 003 1001	1 X R0.3	1°	1	10	50	4
2TCR 010 003 1501	1 X R0.3	1°	1	15	50	4
2TCR 010 003 2001	1 X R0.3	1°	1	20	60	4
2TCR 010 003 2501	1 X R0.3	1°	1	25	60	4
2TCR 010 003 3001	1 X R0.3	1°	1	30	70	4
2TCR 010 003 3501	1 X R0.3	1°	1	35	75	4
2TCR 015 002 1001	1.5 X R0.2	1°	1.5	10	50	4
2TCR 015 002 1501	1.5 X R0.2	1°	1.5	15	50	4
2TCR 015 002 2001	1.5 X R0.2	1°	1.5	20	60	4
2TCR 015 002 2501	1.5 X R0.2	1°	1.5	25	60	4
2TCR 015 002 3001	1.5 X R0.2	1°	1.5	30	70	4
2TCR 015 002 3501	1.5 X R0.2	1°	1.5	35	75	4
2TCR 015 003 1001	1.5 X R0.3	1°	1.5	10	50	4
2TCR 015 003 1501	1.5 X R0.3	1°	1.5	15	50	4
2TCR 015 003 2001	1.5 X R0.3	1°	1.5	20	60	4
2TCR 015 003 2501	1.5 X R0.3	1°	1.5	25	60	4
2TCR 015 003 3001	1.5 X R0.3	1°	1.5	30	70	4
2TCR 015 003 3501	1.5 X R0.3	1°	1.5	35	75	4
2TCR 015 005 1001	1.5 X R0.5	1°	1.5	10	50	4
2TCR 015 005 1501	1.5 X R0.5	1°	1.5	15	50	4
2TCR 015 005 2001	1.5 X R0.5	1°	1.5	20	60	4
2TCR 015 005 2501	1.5 X R0.5	1°	1.5	25	60	4
2TCR 015 005 3001	1.5 X R0.5	1°	1.5	30	70	4
2TCR 015 005 3501	1.5 X R0.5	1°	1.5	35	75	4
2TCR 020 002 1201	2 X R0.2	1°	2	12	50	4

Order Number	Diameter	Angle	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	θ	L1	L2	L	d
2TCR 020 002 1601	2 X R0.2	1°	2	16	50	4
2TCR 020 002 2001	2 X R0.2	1°	2	20	60	4
2TCR 020 002 2501	2 X R0.2	1°	2	25	60	4
2TCR 020 002 3001	2 X R0.2	1°	2	30	70	4
2TCR 020 002 3501	2 X R0.2	1°	2	35	75	4
2TCR 020 002 4001	2 X R0.2	1°	2	40	80	4
2TCR 020 002 5001	2 X R0.2	1°	2	50	90	4
2TCR 020 003 1201	2 X R0.3	1°	2	12	50	4
2TCR 020 003 1601	2 X R0.3	1°	2	16	50	4
2TCR 020 003 2001	2 X R0.3	1°	2	20	60	4
2TCR 020 003 2501	2 X R0.3	1°	2	25	60	4
2TCR 020 003 3001	2 X R0.3	1°	2	30	70	4
2TCR 020 003 3501	2 X R0.3	1°	2	35	75	4
2TCR 020 003 4001	2 X R0.3	1°	2	40	80	4
2TCR 020 003 5001	2 X R0.3	1°	2	50	90	4
2TCR 020 005 1201	2 X R0.5	1°	2	12	50	4
2TCR 020 005 1601	2 X R0.5	1°	2	16	50	4
2TCR 020 005 2001	2 X R0.5	1°	2	20	60	4
2TCR 020 005 2501	2 X R0.5	1°	2	25	60	4
2TCR 020 005 3001	2 X R0.5	1°	2	30	70	4
2TCR 020 005 3501	2 X R0.5	1°	2	35	75	4
2TCR 020 005 4001	2 X R0.5	1°	2	40	80	4
2TCR 020 005 5001	2 X R0.5	1°	2	50	90	4
2TCR 030 002 2001	3 X R0.2	1°	3	20	60	6
2TCR 030 002 3001	3 X R0.2	1°	3	30	70	6
2TCR 030 002 4001	3 X R0.2	1°	3	40	80	6
2TCR 030 002 5001	3 X R0.2	1°	3	50	90	6
2TCR 030 002 6001	3 X R0.2	1°	3	60	100	6
2TCR 030 003 2001	3 X R0.3	1°	3	20	60	6
2TCR 030 003 3001	3 X R0.3	1°	3	30	70	6
2TCR 030 003 4001	3 X R0.3	1°	3	40	80	6
2TCR 030 003 5001	3 X R0.3	1°	3	50	90	6
2TCR 030 003 6001	3 X R0.3	1°	3	60	100	6
2TCR 030 005 2001	3 X R0.5	1°	3	20	60	6
2TCR 030 005 3001	3 X R0.5	1°	3	30	70	6
2TCR 030 005 4001	3 X R0.5	1°	3	40	80	6
2TCR 030 005 5001	3 X R0.5	1°	3	50	90	6
2TCR 030 005 6001	3 X R0.5	1°	3	60	100	6
2TCR 030 010 2001	3 X R1	1°	3	20	60	6
2TCR 030 010 3001	3 X R1	1°	3	30	70	6

2TCR Taper



01 ~ 04

/Unit : mm

Order Number	Diameter	Angle	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	θ	L1	L2	L	d
2TCR 030 010 4001	3 X R1	1°	3	40	80	6
2TCR 030 010 5001	3 X R1	1°	3	50	90	6
2TCR 030 010 6001	3 X R1	1°	3	60	100	6
2TCR 040 002 2001	4 X R0.2	1°	4	20	60	6
2TCR 040 002 3001	4 X R0.2	1°	4	30	70	6
2TCR 040 002 4001	4 X R0.2	1°	4	40	80	6
2TCR 040 002 5001	4 X R0.2	1°	4	50	90	6
2TCR 040 002 6001	4 X R0.2	1°	4	60	100	6
2TCR 040 003 2001	4 X R0.3	1°	4	20	60	6
2TCR 040 003 3001	4 X R0.3	1°	4	30	70	6
2TCR 040 003 4001	4 X R0.3	1°	4	40	80	6
2TCR 040 003 5001	4 X R0.3	1°	4	50	90	6

Order Number	Diameter	Angle	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	θ	L1	L2	L	d
2TCR 040 003 6001	4 X R0.3	1°	4	60	100	6
2TCR 040 005 2001	4 X R0.5	1°	4	20	60	6
2TCR 040 005 3001	4 X R0.5	1°	4	30	70	6
2TCR 040 005 4001	4 X R0.5	1°	4	40	80	6
2TCR 040 005 5001	4 X R0.5	1°	4	50	90	6
2TCR 040 005 6001	4 X R0.5	1°	4	60	100	6
2TCR 040 010 2001	4 X R1	1°	4	20	60	6
2TCR 040 010 3001	4 X R1	1°	4	30	70	6
2TCR 040 010 4001	4 X R1	1°	4	40	80	6
2TCR 040 010 5001	4 X R1	1°	4	50	90	6
2TCR 040 010 6001	4 X R1	1°	4	60	100	6

2TCR/4TCR

■ Apply 20% up values of below condition for 4TCR

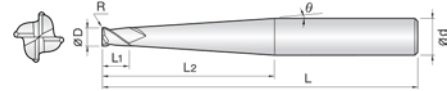
• RPM : rev./min • Feed : mm/min

Material				Carbon Steels / Prehardened Steels S50C / NAK55 / NAK80 / HPM-1				Hardened Steels SKD11 / SKD61 / STAVAX / HPM-38				Copper / Aluminum			
Hardness				~ 43HRC				~ 55HRC							
Outside Diameter	Radius	Taper Angle	Effective Length	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
1mm	R0.1 R0.2 R0.3	1°	6	22,000	1,300	0.08	0.35	17,000	900	0.06	0.35	22,000	1,500	0.24	0.50
			10	18,000	1,000	0.05	0.35	14,000	700	0.05	0.35	18,000	1,200	0.15	0.50
			15	18,000	850	0.03	0.20	14,000	600	0.03	0.13	18,000	1,000	0.09	0.50
			20	14,000	700	0.03	0.10	11,000	500	0.03	0.06	14,000	850	0.08	0.30
			25	14,000	600	0.02	0.05	11,000	400	0.02	0.03	14,000	700	0.06	0.15
			30	10,000	480	0.02	0.03	8,000	300	0.02	0.02	10,000	600	0.05	0.09
			35	10,000	350	0.01	0.02	8,000	250	0.01	0.01	10,000	400	0.03	0.06
1.5mm	R0.2 R0.3 R0.5	1°	10	16,000	1,300	0.10	0.55	12,800	900	0.10	0.55	16,000	1,500	0.30	0.60
			15	14,000	1,000	0.07	0.55	12,800	700	0.07	0.55	14,000	1,200	0.20	0.60
			20	14,000	800	0.05	0.30	11,200	550	0.05	0.20	14,000	900	0.16	0.50
			25	14,000	600	0.03	0.10	11,200	400	0.03	0.06	14,000	700	0.10	0.30
			30	12,000	450	0.03	0.05	9,600	300	0.03	0.03	12,000	550	0.09	0.15
2mm	R0.2 R0.3 R0.5	1°	15	14,000	1,200	0.10	0.70	11,200	850	0.07	0.70	14,000	1,400	0.30	0.70
			20	12,000	1,200	0.07	0.70	9,600	850	0.07	0.70	12,000	1,400	0.20	0.70
			25	12,000	1,000	0.05	0.50	9,600	700	0.04	0.50	12,000	1,200	0.15	0.70
			30	10,000	750	0.04	0.30	8,000	500	0.03	0.30	10,000	900	0.13	0.70
			40	8,000	400	0.03	0.20	6,400	300	0.02	0.20	8,000	500	0.10	0.50
			50	6,000	350	0.02	0.10	4,800	250	0.01	0.10	6,000	400	0.05	0.30
			60	6,000	350	0.02	0.10	4,800	250	0.01	0.10	6,000	400	0.05	0.30
3mm	R0.2 R0.3 R0.5 R1	1°	15	11,000	1,600	0.15	1.05	8,800	1100	0.10	1.05	11,000	1,900	0.60	1.10
			20	11,000	1,600	0.13	1.05	8,800	1100	0.10	1.05	11,000	1,900	0.45	1.10
			30	9,000	1,200	0.10	1.05	7,200	850	0.07	1.05	9,000	1,400	0.30	1.10
			40	9,000	1,000	0.07	0.60	7,200	700	0.05	0.60	9,000	1,200	0.21	0.90
			50	8,000	640	0.05	0.35	6,400	450	0.04	0.35	8,000	750	0.15	0.80
			60	8,000	480	0.03	0.20	6,400	300	0.02	0.20	8,000	550	0.10	0.70
			70	10,000	1,800	0.18	2.00	7,500	1200	0.20	2.00	10,000	2,000	0.90	2.00
4mm	R0.2 R0.3 R0.5 R1	1°	30	8,000	1,400	0.15	2.00	6,500	1000	0.14	2.00	8,000	1,600	0.60	2.00
			40	8,000	1,200	0.12	1.20	5,800	850	0.10	1.20	8,000	1,400	0.40	1.60
			50	7,000	800	0.10	0.70	4,800	600	0.08	0.70	7,000	1,000	0.30	1.20
			60	7,000	600	0.08	0.40	4,800	400	0.04	0.40	7,000	800	0.20	0.80
			70	7,000	600	0.08	0.40	4,800	400	0.04	0.40	7,000	800	0.20	0.80

4 Flutes High Speed Taper Neck Corner Radius End Mills

Endmills for pre-hardened and hardened steel (HRC50-65)

- Minimize chattering and fracturing by taper designed flute.
- Designed for minimizing edge chipping by corner R shape.
- High precise edge tolerance.



Size	D Tolerance
D ≤ Ø6	+0 ~ -0.01mm
D > Ø6	+0 ~ -0.015mm

/Unit : mm

Order Number	Diameter	Angle	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	θ	L1	L2	L	d
4TCR 010 001 0601	1 X R0.1	1°	1	6	50	4
4TCR 010 001 1001	1 X R0.1	1°	1	10	50	4
4TCR 010 001 1501	1 X R0.1	1°	1	15	50	4
4TCR 010 001 2001	1 X R0.1	1°	1	20	60	4
4TCR 010 001 2501	1 X R0.1	1°	1	25	60	4
4TCR 010 001 3001	1 X R0.1	1°	1	30	70	4
4TCR 010 001 3501	1 X R0.1	1°	1	35	75	4
4TCR 010 002 0601	1 X R0.2	1°	1	6	50	4
4TCR 010 002 1001	1 X R0.2	1°	1	10	50	4
4TCR 010 002 1501	1 X R0.2	1°	1	15	50	4
4TCR 010 002 2001	1 X R0.2	1°	1	20	60	4
4TCR 010 002 2501	1 X R0.2	1°	1	25	60	4
4TCR 010 002 3001	1 X R0.2	1°	1	30	70	4
4TCR 010 002 3501	1 X R0.2	1°	1	35	75	4
4TCR 015 002 1001	1.5 X R0.2	1°	1.5	10	50	4
4TCR 015 002 1501	1.5 X R0.2	1°	1.5	15	50	4
4TCR 015 002 2001	1.5 X R0.2	1°	1.5	20	60	4
4TCR 015 002 2501	1.5 X R0.2	1°	1.5	25	60	4
4TCR 015 002 3001	1.5 X R0.2	1°	1.5	30	70	4
4TCR 015 002 3501	1.5 X R0.2	1°	1.5	35	75	4
4TCR 015 005 1001	1.5 X R0.5	1°	1.5	10	50	4
4TCR 015 005 1501	1.5 X R0.5	1°	1.5	15	50	4
4TCR 015 005 2001	1.5 X R0.5	1°	1.5	20	60	4
4TCR 015 005 2501	1.5 X R0.5	1°	1.5	25	60	4
4TCR 015 005 3001	1.5 X R0.5	1°	1.5	30	70	4
4TCR 015 005 3501	1.5 X R0.5	1°	1.5	35	75	4
4TCR 020 002 1201	2 X R0.2	1°	2	12	50	4
4TCR 020 002 1601	2 X R0.2	1°	2	16	50	4
4TCR 020 002 2001	2 X R0.2	1°	2	20	60	4
4TCR 020 002 2501	2 X R0.2	1°	2	25	60	4
4TCR 020 002 3001	2 X R0.2	1°	2	30	70	4
4TCR 020 002 3501	2 X R0.2	1°	2	35	75	4
4TCR 020 002 4001	2 X R0.2	1°	2	40	80	4

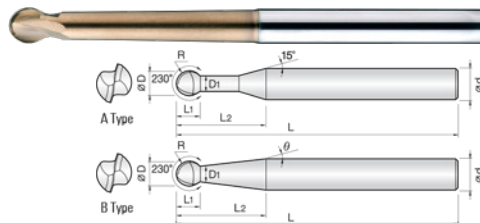
Order Number	Diameter	Angle	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	θ	L1	L2	L	d
4TCR 020 002 5001	2 X R0.2	1°	2	50	90	4
4TCR 020 005 1201	2 X R0.5	1°	2	12	50	4
4TCR 020 005 1601	2 X R0.5	1°	2	16	50	4
4TCR 020 005 2001	2 X R0.5	1°	2	20	60	4
4TCR 020 005 2501	2 X R0.5	1°	2	25	60	4
4TCR 020 005 3001	2 X R0.5	1°	2	30	70	4
4TCR 020 005 3501	2 X R0.5	1°	2	35	75	4
4TCR 020 005 4001	2 X R0.5	1°	2	40	80	4
4TCR 020 005 5001	2 X R0.5	1°	2	50	90	4
4TCR 030 002 2001	3 X R0.2	1°	3	20	60	6
4TCR 030 002 3001	3 X R0.2	1°	3	30	70	6
4TCR 030 002 4001	3 X R0.2	1°	3	40	80	6
4TCR 030 002 5001	3 X R0.2	1°	3	50	90	6
4TCR 030 002 6001	3 X R0.2	1°	3	60	100	6
4TCR 030 005 2001	3 X R0.5	1°	3	20	60	6
4TCR 030 005 3001	3 X R0.5	1°	3	30	70	6
4TCR 030 005 4001	3 X R0.5	1°	3	40	80	6
4TCR 030 005 5001	3 X R0.5	1°	3	50	90	6
4TCR 030 005 6001	3 X R0.5	1°	3	60	100	6
4TCR 040 002 2001	4 X R0.2	1°	4	20	60	6
4TCR 040 002 3001	4 X R0.2	1°	4	30	70	6
4TCR 040 002 4001	4 X R0.2	1°	4	40	80	6
4TCR 040 002 5001	4 X R0.2	1°	4	50	90	6
4TCR 040 002 6001	4 X R0.2	1°	4	60	100	6
4TCR 040 005 2001	4 X R0.5	1°	4	20	60	6
4TCR 040 005 3001	4 X R0.5	1°	4	30	70	6
4TCR 040 005 4001	4 X R0.5	1°	4	40	80	6
4TCR 040 005 5001	4 X R0.5	1°	4	50	90	6
4TCR 040 005 6001	4 X R0.5	1°	4	60	100	6



2 Flutes Spherical End Mills for 3D Cut 230°

Endmills for pre-hardened and hardened steel (HRC50-62)

- 230° degree ball shape for wide range 3D machining.
- Minimize chattering and fracturing by taper and straight designed flute.



Size	D Tolerance
$D \leq \varnothing 5$	+0 ~ -0.01mm
$D > \varnothing 5$	+0 ~ -0.015mm

/Unit : mm

Order Number	Diameter	Neck Diameter	Length of cut		Effective Length	Angle	Overall Length	Type	Shank Dia
	R×D	D1	L1	L2		θ	L		d
2DPH 010 040 S06	0.5R X 1	0.91	0.7	4		0°	60	A	6
2DPH 010 060 S06	0.5R X 1	0.91	0.7	6		0°	60	A	6
2DPH 010 013 200	0.5R X 1	0.91	0.7	20		1°30'	80	B	6
2DPH 015 060 S06	0.75R X 1.5	1.36	1	6		0°	60	A	6
2DPH 015 080 S06	0.75R X 1.5	1.36	1	8		0°	60	A	6
2DPH 015 013 200	0.75R X 1.5	1.36	1	20		1°30'	80	B	6
2DPH 020 060 S06	1R X 2	1.8	1.4	6		0°	60	A	6
2DPH 020 100 S06	1R X 2	1.8	1.4	10		0°	60	A	6
2DPH 020 013 200	1R X 2	1.8	1.4	20		1°30'	80	B	6
2DPH 030 100 S06	1.5R X 3	2.7	2.1	10		0°	70	A	6
2DPH 030 150 S06	1.5R X 3	2.7	2.1	15		0°	70	A	6
2DPH 030 013 300	1.5R X 3	2.7	2.1	30		1°30'	80	B	6
2DPH 040 120 S06	2R X 4	3.6	2.8	12		0°	70	A	6
2DPH 040 200 S06	2R X 4	3.6	2.8	20		0°	70	A	6
2DPH 040 030 250	2R X 4	3.6	2.8	25		3°	80	B	6
2DPH 050 010 400	2.5R X 5	4.5	3.5	40		1°	90	B	6
2DPH 060 150 S06	3R X 6	5.4	4.2	15		0°	90	A	6
2DPH 060 300 S06	3R X 6	5.4	4.2	30		0°	90	A	6
2DPH 060 010 210	3R X 6	5.4	4.2	21		1°	100	B	6
2DPH 080 010 280	4R X 8	7.2	5.7	28		1°	100	B	8
2DPH 100 010 350	5R X 10	9	7.1	35		1°	110	B	10
2DPH 120 010 420	6R X 12	10.8	8.5	42		1°	120	B	12

2DPH/4DPH/4DPM

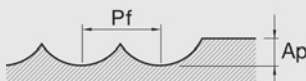
■ Apply 20% up values of below condition for 4DPH/4DPM

● RPM : rev./min ● Feed : mm/min

Material	Alloy Steels / Tool Steels SCM / SKT / SKS / SKD		Hardened Steels / Prehardened Steels SKT / SKD / NAK55 / HPM11		Stainless Steels / Hardened Steels SUS304 / SKD		Hardened Steels		Hardened Steels	
Hardness	~ 30HRC		30 ~ 38HRC		38 ~ 45HRC		45 ~ 55HRC		55 ~ 60HRC	
Radius	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R0.5	25,600	680	25,600	680	25,600	680	25,600	680	25,600	610
R0.75	22,000	850	22,000	850	22,000	850	22,000	850	22,000	750
R1	19,200	1,080	19,200	1,080	19,200	1,080	19,200	1,080	17,600	960
R2	12,400	1,440	11,200	1,240	10,800	1,160	10,000	1,080	8,800	920
R3	8,400	1,480	7,600	1,360	7,200	1,280	6,800	1,200	5,900	1,040
R4	6,400	1,120	5,700	1,000	5,500	960	5,100	880	4,400	790
R5	5,100	880	4,600	800	4,400	784	4,000	720	3,600	640
R6	4,800	840	3,800	670	3,640	640	3,400	600	3,000	540

Depth of Cut

Ap	Pf
0.05D	0.1D



Ap	Pf
0.02D	0.1D



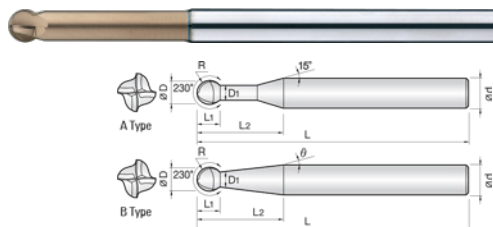
0.5R~2.5R

38 ~ 68

4 Flutes Spherical End Mills for 3D Cut 230°

Endmills for pre-hardened and hardened steel (HRC50~65)

- 230° degree ball shape for wide range 3D machining.
- Minimize chattering and fracturing by taper and straight designed flute.



Size	D Tolerance
$D \leq \varnothing 5$	+0~ -0.01mm
$D > \varnothing 5$	+0~ -0.015mm

/Unit : mm

[illegible]



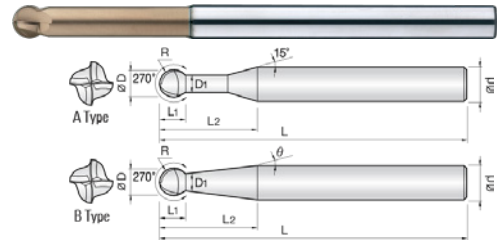
0.5R ~ 2.5R

3R ~ 6R

4 Flutes Spherical End Mills for 3D Cut 270°

Endmills for pre-hardened and hardened steel (HRC50-62)

- 270° degree ball shape for wide range 3D machining.
- Minimize chattering and fracturing by taper and straight designed flute.



Size	D Tolerance
$D \leq \varnothing 5$	+0 ~ -0.01mm
$D > \varnothing 5$	+0 ~ -0.015mm

/Unit : mm

Order Number	Diameter	Neck Diameter	Length of cut	Effective Length	Angle	Overall Length	Type	Shank Dia
	R×D	D1	L1	L2	θ	L		d
4DPM 010 040 S06	0.5R X 1	0.7	0.8	4	0°	60	A	6
4DPM 010 060 S06	0.5R X 1	0.7	0.8	6	0°	60	A	6
4DPM 010 013 200	0.5R X 1	0.7	0.8	20	1°30	80	B	6
4DPM 015 060 S06	0.75R X 1.5	1	1.2	6	0°	60	A	6
4DPM 015 080 S06	0.75R X 1.5	1	1.2	8	0°	60	A	6
4DPM 015 013 200	0.75R X 1.5	1	1.2	20	1°30	80	B	6
4DPM 020 060 S06	1R X 2	1.4	1.7	6	0°	60	A	6
4DPM 020 100 S06	1R X 2	1.4	1.7	10	0°	60	A	6
4DPM 020 013 200	1R X 2	1.4	1.7	20	1°30	80	B	6
4DPM 030 100 S06	1.5R X 3	2.1	2.5	10	0°	70	A	6
4DPM 030 150 S06	1.5R X 3	2.1	2.5	15	0°	70	A	6
4DPM 030 013 300	1.5R X 3	2.1	2.5	30	1°30	80	B	6
4DPM 040 120 S06	2R X 4	2.8	3.4	12	0°	70	A	6
4DPM 040 200 S06	2R X 4	2.8	3.4	20	0°	70	A	6
4DPM 040 030 250	2R X 4	2.8	3.4	25	3°	80	B	6
4DPM 050 010 400	2.5R X 5	3.5	4.2	40	1°	90	B	6
4DPM 060 150 S06	3R X 6	4.2	5.1	15	0°	90	A	6
4DPM 060 300 S06	3R X 6	4.2	5.1	30	0°	90	A	6
4DPM 060 010 210	3R X 6	4.2	5.1	21	1°	100	B	6
4DPM 080 010 280	4R X 8	5.6	6.8	28	1°	100	B	8
4DPM 100 010 350	5R X 10	7	8.5	35	1°	110	B	10
4DPM 120 010 420	6R X 12	8.5	10	42	1°	120	B	12

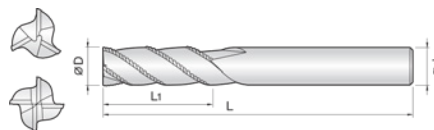


Ø4 ~ Ø9 Ø10 ~ Ø20

3&4 Flutes Roughing End Mills

Roughing Endmills for tool steel, alloy steel.

- Reduce machining time by excellent chip control.
- Maximize work efficiency by high speed machining.



Size	D Tolerance
$D \leq \varnothing 9$	-0.01 ~ -0.03mm
$D > \varnothing 9$	-0.01 ~ -0.04mm

/Unit : mm

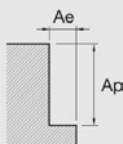
Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
3SRM 040 100 S06	4	10	50	6
3SRM 050 130 S06	5	13	50	6
3SRM 060 100 050	6	10	50	6
3SRM 060 150 055	6	15	55	6
3SRM 060 200 060	6	20	60	6
3SRM 070 180 S08	7	18	65	8
3SRM 080 120 060	8	12	60	8
3SRM 080 190 065	8	19	65	8
3SRM 080 250 070	8	25	70	8
4SRM 090 220 S10	9	22	70	10
4SRM 100 150 070	10	15	70	10
4SRM 100 220 070	10	22	70	10
4SRM 100 300 080	10	30	80	10
4SRM 110 270 S12	11	27	80	12
4SRM 120 200 075	12	20	75	12
4SRM 120 260 080	12	26	80	12
4SRM 120 350 090	12	35	90	12
4SRM 160 320 090	16	32	90	16
4SRM 160 400 100	16	40	100	16
4SRM 200 380 110	20	38	110	20
4SRM 200 500 110	20	50	110	20

Side Cutting

Material	Mild Steels/ Carbon Steels SS400 / S55C		Alloy Steels/ Tool Steels SCM / SKT / SKD		Tool Steels/ Prehardened Steels SKD / SKT / NAK55 / HPM1		Tool Steels/ Stainless Steels SUS304 / SKD	
Hardness	~750N/mm2		~ 30HRC		30 ~ 38HRC		38 ~ 45HRC	
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6mm	4,200	510	3,600	290	2,800	220	2,100	170
8mm	3,200	510	2,700	330	2,100	250	1,600	190
10mm	2,600	510	2,200	345	1,600	260	1,300	210
12mm	2,100	510	1,800	360	1,400	270	1,100	215
16mm	1,600	510	1,400	385	1,000	290	800	220
20mm	1,300	480	1,100	375	800	280	640	210

Depth of Cut

Ap	Ae
1.5D	0.4D



Ap	Ae
1.5D	0.3D

Slotting

Material	Mild Steels/ Carbon Steels SS400 / S55C		Alloy Steels/ Tool Steels SCM / SKT / SKD		Tool Steels/ Prehardened Steels SKD / SKT / NAK55 / HPM1		Tool Steels/ Stainless Steels SUS304 / SKD	
Hardness	~750N/mm2		~ 30HRC		30 ~ 38HRC		38 ~ 45HRC	
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
6mm	3,600	430	3,000	240	2,300	185	1,920	150
8mm	2,700	430	2,200	270	1,800	210	1,440	180
10mm	2,200	430	1,800	290	1,400	220	1,160	185
12mm	1,800	430	1,500	300	1,200	230	960	190
16mm	1,400	430	1,100	310	900	250	720	200
20mm	1,100	410	900	310	700	240	560	185

Depth of Cut

Ap: 0.75D
ApMax=12mm

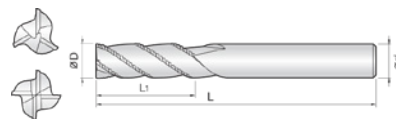


Ap: 0.5D

3&4 Flutes 45° Helix Fine Pitch Roughing End Mills

Roughing Endmills for hard to cut materials, alloy steel, SUS, Inconel and structural steel.

- Long tool life with low cutting force by 45° degree helix design.
- Fine pitch shape design for high speed roughing application.

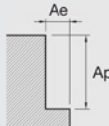


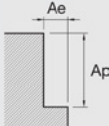
Size	D Tolerance
D ≤ Ø9	-0.01 ~ -0.03mm
D > Ø9	-0.01 ~ -0.04mm

Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
3HRM 040 100 S06	4	10	50	6
3HRM 050 130 S06	5	13	50	6
3HRM 060 100 050	6	10	50	6
3HRM 060 160 055	6	16	55	6
3HRM 060 200 060	6	20	60	6
3HRM 070 180 S08	7	18	65	8
3HRM 080 120 060	8	12	60	8
3HRM 080 190 065	8	19	65	8
3HRM 080 250 070	8	25	70	8
4HRM 090 220 S10	9	22	70	10
4HRM 100 150 070	10	15	70	10
4HRM 100 220 070	10	22	70	10
4HRM 100 300 080	10	30	80	10
4HRM 110 270 S12	11	27	80	12
4HRM 120 200 075	12	20	75	12
4HRM 120 250 080	12	25	80	12
4HRM 120 350 090	12	35	90	12
4HRM 160 320 090	16	32	90	16
4HRM 160 400 110	16	40	110	16
4HRM 200 380 110	20	38	110	20
4HRM 200 500 120	20	50	120	20

Side Cutting

Side Cutting																
Material	Mild Steels/ Carbon Steels SS400 / S55C		Alloy Steels/ Tool Steels SCM / SKT / SKD		Tool Steels/ Prehardened Steels SKD / SKT / NAK55 / HPM1		Tool Steels/ Stainless Steels SUS304 / SKD									
Hardness	~750N/mm2		~ 30HRC		30 ~ 38HRC		38 ~ 45HRC									
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED								
4mm	5,800	600	4,800	300	4,100	200	3,200	150								
5mm	5,800	600	4,800	310	3,700	230	2,800	170								
6mm	4,800	600	4,200	330	3,200	250	2,400	200								
8mm	3,700	600	3,100	380	2,400	290	1,800	220								
10mm	3,000	600	2,500	400	1,800	300	1,500	250								
12mm	2,400	600	2,100	410	1,600	310	1,300	250								
16mm	1,850	600	1,600	440	1,200	330	1,000	250								
20mm	1,500	550	1,300	430	900	320	750	240								
Depth of Cut	<table><tr><td>Ap</td><td>Ae</td></tr><tr><td>1.5D</td><td>0.4D</td></tr></table>						Ap	Ae	1.5D	0.4D	<table><tr><td>Ap</td><td>Ae</td></tr><tr><td>1.5D</td><td>0.3D</td></tr></table>		Ap	Ae	1.5D	0.3D
							Ap	Ae								
							1.5D	0.4D								
Ap	Ae															
1.5D	0.3D															



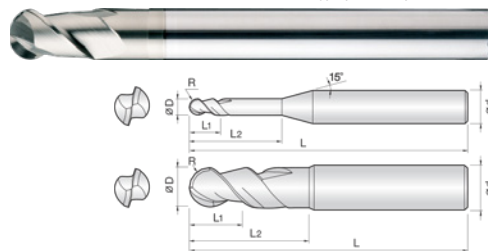
Slotting								
Material	Mild Steels/Carbon Steels SS400/S55C		Alloy Steels/Tool Steels SCM/SKT/SKD		Tool Steels/Prehardened Steels SKD/SKT/NAK55/HPM1		Tool Steels/Stainless Steels SUS304/SKD	
Hardness	~750N/mm2		~ 30HRC		30 ~ 38HRC		38 ~ 45HRC	
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
4mm	4,600	500	4,400	230	3,200	160	2,800	130
5mm	4,600	500	4,000	250	2,900	180	2,500	150
6mm	4,100	500	3,500	280	2,700	210	2,200	170
8mm	3,100	500	2,500	310	2,100	240	1,700	210
10mm	2,500	500	2,100	330	1,600	250	1,300	210
12mm	2,100	500	1,700	350	1,400	270	1,100	220
16mm	1,600	500	1,300	360	1,000	290	800	230
20mm	1,300	480	1,000	360	800	270	650	210
Depth of Cut	Ap: 0.75D ApMax = 12mm 						Ap: 0.5D	



2 Flutes 45° Helix Rib Ball End Mills for Copper

Endmills for copper, copper alloy, nonferrous and non-metallic materials.

- Improve wear resistance as well as avoid edge stress in various applications.
- High speed, feed applicable by 45° degree helix and deep chip pocket design.



Size	D Tolerance
$D \leq \varnothing 6$	+0~ -0.01mm
$D > \varnothing 6$	+0~ -0.015mm

Unit : mm

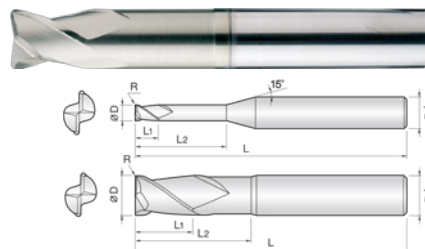
Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
2HOB 010 030 S04	0.5R X 1	1.5	3	50	4
2HOB 010 050 S04	0.5R X 1	1.5	5	50	4
2HOB 010 080 S04	0.5R X 1	1.5	8	50	4
2HOB 010 100 S04	0.5R X 1	1.5	10	50	4
2HOB 010 120 S04	0.5R X 1	1.5	12	50	4
2HOB 010 160 S04	0.5R X 1	1.5	16	50	4
2HOB 010 200 S04	0.5R X 1	1.5	20	50	4
2HOB 015 050 S04	0.75R X 1.5	2	5	50	4
2HOB 015 080 S04	0.75R X 1.5	2	8	50	4
2HOB 015 100 S04	0.75R X 1.5	2	10	50	4
2HOB 015 120 S04	0.75R X 1.5	2	12	50	4
2HOB 015 160 S04	0.75R X 1.5	2	16	50	4
2HOB 015 200 S04	0.75R X 1.5	2	20	50	4
2HOB 020 050 S06	1R X 2	3	5	50	6
2HOB 020 080 S06	1R X 2	3	8	50	6
2HOB 020 100 S06	1R X 2	3	10	50	6
2HOB 020 120 S06	1R X 2	3	12	60	6
2HOB 020 160 S06	1R X 2	3	16	60	6
2HOB 020 200 S06	1R X 2	3	20	60	6
2HOB 020 250 S06	1R X 2	3	25	65	6
2HOB 025 060 S06	1.25R X 2.5	4	6	50	6
2HOB 025 100 S06	1.25R X 2.5	4	10	50	6
2HOB 025 120 S06	1.25R X 2.5	4	12	60	6
2HOB 025 160 S06	1.25R X 2.5	4	16	60	6
2HOB 025 200 S06	1.25R X 2.5	4	20	60	6
2HOB 030 080 S06	1.5R X 3	4.5	8	60	6
2HOB 030 120 S06	1.5R X 3	4.5	12	60	6

[illegible]

2 Flutes Rib Corner Radius End Mills for Copper

Endmills for copper, copper alloy, nonferrous and non-metallic materials.

- Improve wear resistance as well as avoid edge stress in various applications.
- Smooth chip outflow by deep chip pocket.



Size	D Tolerance
D ≤ Ø6	+0~-0.01mm
D > Ø6	+0~-0.015mm

Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	L1	L2	L	d
20CR 010 001 040	1X R0.1	1.5	4	50	4
20CR 010 001 060	1X R0.1	1.5	6	50	4
20CR 010 001 080	1X R0.1	1.5	8	50	4
20CR 010 001 100	1X R0.1	1.5	10	50	4
20CR 010 001 120	1X R0.1	1.5	12	50	4
20CR 010 001 160	1X R0.1	1.5	16	50	4
20CR 010 001 200	1X R0.1	1.5	20	50	4
20CR 015 001 060	1.5X R0.1	2	6	50	4
20CR 015 001 100	1.5X R0.1	2	10	50	4
20CR 015 001 120	1.5X R0.1	2	12	50	4
20CR 015 001 160	1.5X R0.1	2	16	50	4
20CR 015 001 200	1.5X R0.1	2	20	50	4
20CR 015 001 250	1.5X R0.1	2	25	60	4
20CR 015 002 060	1.5X R0.2	2	6	50	4
20CR 015 002 100	1.5X R0.2	2	10	50	4
20CR 015 002 120	1.5X R0.2	2	12	50	4
20CR 015 002 160	1.5X R0.2	2	16	50	4
20CR 015 002 200	1.5X R0.2	2	20	50	4
20CR 015 002 250	1.5X R0.2	2	25	60	4
20CR 020 002 060	2X R0.2	3	6	50	4
20CR 020 002 100	2X R0.2	3	10	50	4
20CR 020 002 120	2X R0.2	3	12	50	4
20CR 020 002 160	2X R0.2	3	16	50	4
20CR 020 002 200	2X R0.2	3	20	50	4
20CR 020 002 250	2X R0.2	3	25	60	4
20CR 020 005 060	2X R0.5	3	6	50	4
20CR 020 005 100	2X R0.5	3	10	50	4
20CR 020 005 120	2X R0.5	3	12	50	4
20CR 020 005 140	2X R0.5	3	14	50	4
20CR 020 005 160	2X R0.5	3	16	50	4
20CR 020 005 200	2X R0.5	3	20	50	4
20CR 020 005 250	2X R0.5	3	25	60	4
20CR 025 002 060	2.5X R0.2	3.5	6	50	4
20CR 025 002 100	2.5X R0.2	3.5	10	50	4
20CR 025 002 120	2.5X R0.2	3.5	12	50	4
20CR 025 002 160	2.5X R0.2	3.5	16	50	4
20CR 025 002 200	2.5X R0.2	3.5	20	50	4
20CR 025 002 250	2.5X R0.2	3.5	25	60	4
20CR 025 005 060	2.5X R0.5	3.5	6	50	4
20CR 025 005 100	2.5X R0.5	3.5	10	50	4
20CR 025 005 120	2.5X R0.5	3.5	12	50	4
20CR 025 005 160	2.5X R0.5	3.5	16	50	4

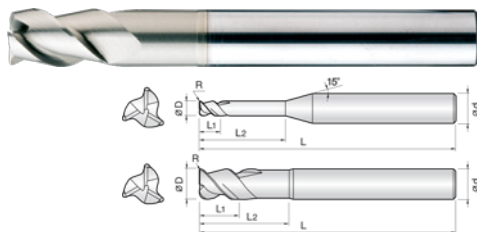
Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	L1	L2	L	d
20CR 025 005 200	2.5X R0.5	3.5	20	50	4
20CR 025 005 250	2.5X R0.5	3.5	25	60	4
20CR 030 002 100	3X R0.2	4	10	55	6
20CR 030 002 120	3X R0.2	4	12	55	6
20CR 030 002 160	3X R0.2	4	16	55	6
20CR 030 002 200	3X R0.2	4	20	55	6
20CR 030 002 250	3X R0.2	4	25	65	6
20CR 030 002 300	3X R0.2	4	30	70	6
20CR 030 002 350	3X R0.2	4	35	75	6
20CR 030 002 400	3X R0.2	4	40	80	6
20CR 030 005 100	3X R0.5	4	10	55	6
20CR 030 005 120	3X R0.5	4	12	55	6
20CR 030 005 160	3X R0.5	4	16	55	6
20CR 030 005 200	3X R0.5	4	20	55	6
20CR 030 005 250	3X R0.5	4	25	65	6
20CR 030 005 300	3X R0.5	4	30	70	6
20CR 030 005 350	3X R0.5	4	35	75	6
20CR 030 005 400	3X R0.5	4	40	80	6
20CR 040 002 120	4X R0.2	5	12	55	6
20CR 040 002 160	4X R0.2	5	16	55	6
20CR 040 002 200	4X R0.2	5	20	55	6
20CR 040 002 300	4X R0.2	5	30	70	6
20CR 040 002 400	4X R0.2	5	40	80	6
20CR 040 005 120	4X R0.5	5	12	55	6
20CR 040 005 160	4X R0.5	5	16	55	6
20CR 040 005 200	4X R0.5	5	20	55	6
20CR 040 005 300	4X R0.5	5	30	70	6
20CR 040 005 400	4X R0.5	5	40	80	6
20CR 060 002 200	6X R0.2	7	20	60	6
20CR 060 005 200	6X R0.5	7	20	60	6
20CR 060 010 200	6X R1	7	20	60	6
20CR 060 015 200	6X R1.5	7	20	60	6
20CR 080 005 250	8X R0.5	9	25	65	8
20CR 080 010 250	8X R1	9	25	65	8
20CR 080 015 250	8X R1.5	9	25	65	8
20CR 100 005 320	10X R0.5	11	32	70	10
20CR 100 010 320	10X R1	11	32	70	10
20CR 100 015 320	10X R1.5	11	32	70	10
20CR 120 005 380	12X R0.5	12	38	80	12
20CR 120 010 380	12X R1	12	38	80	12
20CR 120 015 380	12X R1.5	12	38	80	12



3 Flutes 45° Helix Rib Corner Radius End Mills for Copper

Endmills for copper, copper alloy, nonferrous and non-metallic materials.

- Improve wear resistance as well as avoid edge stress in various applications.
- High speed, feed applicable by 3 flute 45° degree helix and deep chip pocket design.



Size	D Tolerance
$D \leq \varnothing 6$	+0~-0.01mm
$D > \varnothing 6$	+0~-0.015mm

Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	DxR	L1	L2	L	d
3HOR 010 001 030	1 X R0.1	1.5	3	45	4
3HOR 010 001 060	1 X R0.1	1.5	6	45	4
3HOR 010 001 100	1 X R0.1	1.5	10	45	4
3HOR 010 002 030	1 X R0.2	1.5	3	45	4
3HOR 010 002 060	1 X R0.2	1.5	6	45	4
3HOR 010 002 100	1 X R0.2	1.5	10	45	4
3HOR 015 001 050	1.5 X R0.1	2	5	45	4
3HOR 015 001 080	1.5 X R0.1	2	8	45	4
3HOR 015 001 120	1.5 X R0.1	2	12	45	4
3HOR 015 002 050	1.5 X R0.2	2	5	45	4
3HOR 015 002 080	1.5 X R0.2	2	8	45	4
3HOR 015 002 120	1.5 X R0.2	2	12	45	4
3HOR 020 001 060	2 X R0.1	3	6	45	4
3HOR 020 001 100	2 X R0.1	3	10	45	4
3HOR 020 001 140	2 X R0.1	3	14	45	4
3HOR 020 002 060	2 X R0.2	3	6	45	4
3HOR 020 002 100	2 X R0.2	3	10	45	4
3HOR 020 002 140	2 X R0.2	3	14	45	4
3HOR 025 001 080	2.5 X R0.1	3.5	8	45	4
3HOR 025 001 120	2.5 X R0.1	3.5	12	45	4
3HOR 025 001 160	2.5 X R0.1	3.5	16	45	4
3HOR 025 002 080	2.5 X R0.2	3.5	8	45	4
3HOR 025 002 120	2.5 X R0.2	3.5	12	45	4
3HOR 025 002 160	2.5 X R0.2	3.5	16	45	4
3HOR 025 005 080	2.5 X R0.5	3.5	8	45	4
3HOR 025 005 120	2.5 X R0.5	3.5	12	45	4
3HOR 025 005 160	2.5 X R0.5	3.5	16	45	4
3HOR 030 002 100	3 X R0.2	4	10	50	4
3HOR 030 002 160	3 X R0.2	4	16	50	4
3HOR 030 002 200	3 X R0.2	4	20	50	4
3HOR 030 003 100	3 X R0.3	4	10	50	4
3HOR 030 003 160	3 X R0.3	4	16	50	4
3HOR 030 003 200	3 X R0.3	4	20	50	4
3HOR 030 005 100	3 X R0.5	4	10	50	4
3HOR 030 005 160	3 X R0.5	4	16	50	4

[illegible]

2HOB

• RPM : rev./min • Feed : mm/min

Material	Aluminum Alloys		Copper Alloys	
Radius	RPM	FEED	RPM	FEED
R0.5	43,200	1,300	43,200	900
R0.75	31,500	1,200	31,500	1,000
R1	21,600	1,000	21,600	1,100
R1.5	14,400	840	14,400	1,100
R2	11,000	840	10,800	1,100
R2.5	8,700	840	8,700	1,100
R3	7,200	840	7,200	1,100
R4	5,400	810	5,400	1,100
R5	4,300	810	4,300	1,000
R6	3,600	810	3,600	950
R8	2,700	810	2,700	900

Depth of Cut	$0.1 \times R$ (~45HRc) $\sim 0.08 \times R$ (~55HRc)	$\sim 0.15 \times R$ $R < 0.1$ $\sim 0.2 \times R$ $0.1 \leq R \leq 0.5$ $\sim 0.3 \times R$ $R > 0.5$	$\sim 0.16 \times R$ $R \leq 0.3$ (~45HRc) $\sim 0.25 \times R$ $R \leq 3$ (~45HRc) $\sim 0.17 \times R$ $R \geq 4$ (~45HRc) $\sim 0.05 \times R$ (~55HRc)
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20CR/3HOR

■ Apply 10% down values of below condition for 20CR

• RPM : rev./min • Feed : mm/min

Material	Side Milling											
	Aluminum Alloy Expanding Material A7075		Aluminum Alloy Casting < Si1 3%		Aluminum Alloy Steels / Copper AZ91 / AZ80A / C1100							
	Regular Milling	High Speed Milling	Regular Milling	High Speed Milling	Regular Milling	High Speed Milling	Regular Milling	High Speed Milling	Regular Milling	High Speed Milling	Regular Milling	High Speed Milling
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1mm	24,000	680	40,000	1,100	24,000	690	27,000	580	12,700	200	19,200	220
2mm	20,600	800	37,000	1,400	20,600	800	24,000	800	9,600	230	15,200	340
3mm	16,800	900	32,000	1,700	16,800	900	19,200	1,000	6,400	260	13,600	500
4mm	12,400	1,000	25,600	2,000	12,400	1,000	15,400	1,200	4,800	290	11,400	640
6mm	8,400	1,100	21,200	2,800	8,300	1,120	12,700	1,700	3,200	320	8,500	770
8mm	6,400	1,200	16,000	3,000	6,400	1,200	9,600	1,800	2,400	370	6,400	900
10mm	5,100	1,360	12,800	3,400	5,100	1,360	7,700	2,000	1,900	380	5,100	920
12mm	4,200	1,400	10,600	3,500	4,200	1,400	6,400	2,100	1,600	400	4,200	1,000

Depth of Cut	• Ap : 1D • Ae : 0.2D	• Ap : 1D • Ae : 0.1D	• Ap : 1D • Ae : 0.2D	• Ap : 1D • Ae : 0.1D	• Ap : 1D • Ae : 0.2D	• Ap : 1D • Ae : 0.1D
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■ Apply 10% down values of below condition for 20CR

• RPM : rev./min • Feed : mm/min

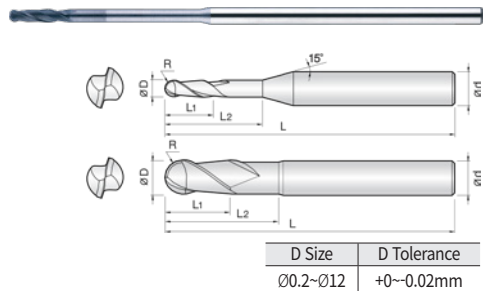
Material	Slotting									
	Aluminum Alloy Expanding Material A7075		Aluminum Alloy Casting < Si1 3%		Aluminum Alloy Steels / Copper AZ91 / AZ80A / C1100					
	Regular Milling	High Speed Milling	Regular Milling	High Speed Milling	Regular Milling	High Speed Milling	Regular Milling	High Speed Milling	Regular Milling	High Speed Milling
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1mm	24,000	520	40,000	660	24,000	520	27,000	480	12,700	130
2mm	20,600	590	37,000	940	20,600	590	24,000	600	9,600	200
3mm	16,800	620	32,000	1,200	16,800	620	19,200	700	6,400	260
4mm	12,400	650	25,600	1,400	12,400	650	15,400	800	4,800	300
6mm	8,400	760	21,200	1,900	8,300	760	12,700	1,160	3,200	320
8mm	6,400	800	16,000	2,000	6,400	800	9,600	1,200	2,400	370
10mm	5,100	920	12,800	2,200	5,100	920	7,700	1,360	1,900	380
12mm	4,200	960	10,600	2,400	4,200	960	6,400	1,440	1,600	410

Depth of Cut	• Ap : 0.5D	• Ap : 0.25D	• Ap : 0.5D	• Ap : 0.25D	• Ap : 0.5D
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2 Flutes Diamond Coated Ball End Mills for Graphite

Endmills for Graphite, reinforced plastic, carbon fiber, Non-ferrous and non-metallic materials.

- Wide range products prepared for various work shape and excellent performance.



Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
2DBL 002 010 S04	0.1RX0.2	1		45	4
2DBL 003 012 S04	0.15RX0.3	1.2		45	4
2DBL 003 020 S04	0.15RX0.3	1.2	2	45	4
2DBL 004 015 S04	0.2RX0.4	1.5		45	4
2DBL 004 020 S04	0.2RX0.4	1.5	2	45	4
2DBL 004 030 S04	0.2RX0.4	1.5	3	45	4
2DBL 004 040 S04	0.2RX0.4	1.5	4	45	4
2DBL 004 050 S04	0.2RX0.4	1.5	5	45	4
2DBL 004 080 S04	0.2RX0.4	1.5	8	45	4
2DBL 004 100 S04	0.2RX0.4	1.5	10	45	4
2DBL 005 020 S04	0.25RX0.5	2		45	4
2DBL 005 030 S04	0.25RX0.5	2	3	45	4
2DBL 005 040 S04	0.25RX0.5	2	4	45	4
2DBL 005 050 S04	0.25RX0.5	2	5	45	4
2DBL 005 060 S04	0.25RX0.5	2	6	45	4
2DBL 005 080 S04	0.25RX0.5	2	8	45	4
2DBL 005 100 S04	0.25RX0.5	2	10	45	4
2DBL 005 120 S04	0.25RX0.5	2	12	45	4
2DBL 006 020 S04	0.3RX0.6	2		45	4
2DBL 006 030 S04	0.3RX0.6	2	3	45	4
2DBL 006 040 S04	0.3RX0.6	2	4	45	4
2DBL 006 050 S04	0.3RX0.6	2	5	45	4
2DBL 006 060 S04	0.3RX0.6	2	6	45	4
2DBL 006 080 S04	0.3RX0.6	2	8	45	4
2DBL 006 100 S04	0.3RX0.6	2	10	45	4
2DBL 006 120 S04	0.3RX0.6	2	12	45	4
2DBL 006 150 S04	0.3RX0.6	2	15	45	4

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
2DBL 006 200 S04	0.3RX0.6	2	20	45	4
2DBL 008 030 S04	0.4RX0.8	3		45	4
2DBL 008 040 S04	0.4RX0.8	3	4	45	4
2DBL 008 050 S04	0.4RX0.8	3	5	45	4
2DBL 008 060 S04	0.4RX0.8	3	6	45	4
2DBL 008 080 S04	0.4RX0.8	3	8	45	4
2DBL 008 100 S04	0.4RX0.8	3	10	45	4
2DBL 008 150 S04	0.4RX0.8	3	15	45	4
2DBL 008 200 S04	0.4RX0.8	3	20	45	4
2DBL 010 030 S04	0.5RX1	3		60	4
2DBL 010 040 S04	0.5RX1	3	4	60	4
2DBL 010 050 S04	0.5RX1	3	5	60	4
2DBL 010 060 S04	0.5RX1	3	6	60	4
2DBL 010 080 S04	0.5RX1	3	8	60	4
2DBL 010 100 S04	0.5RX1	3	10	60	4
2DBL 010 120 S04	0.5RX1	3	12	60	4
2DBL 010 150 S04	0.5RX1	3	15	60	4
2DBL 010 200 S04	0.5RX1	3	20	60	4
2DBL 010 250 S04	0.5RX1	3	25	80	4
2DBL 010 300 S04	0.5RX1	3	30	80	4
2DBL 010 350 S04	0.5RX1	3	35	80	4
2DBL 010 400 S04	0.5RX1	3	40	80	4
2DBL 010 450 S04	0.5RX1	3	45	80	4
2DBL 010 500 S04	0.5RX1	3	50	80	4
2DBL 015 050 S04	0.75RX1.5	4.5		60	4
2DBL 015 080 S04	0.75RX1.5	4.5	8	80	4
2DBL 015 100 S04	0.75RX1.5	4.5	10	80	4

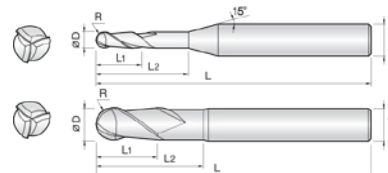
Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
2DBL 015 120 S04	0.75RX1.5	4.5	12	80	4
2DBL 015 150 S04	0.75RX1.5	4.5	15	80	4
2DBL 015 180 S04	0.75RX1.5	4.5	18	80	4
2DBL 015 200 S04	0.75RX1.5	4.5	20	80	4
2DBL 015 250 S04	0.75RX1.5	4.5	25	80	4
2DBL 015 300 S04	0.75RX1.5	4.5	30	80	4
2DBL 015 350 S04	0.75RX1.5	4.5	35	80	4
2DBL 015 400 S04	0.75RX1.5	4.5	40	80	4
2DBL 020 060 S04	1RX2	6		60	4
2DBL 020 100 S04	1RX2	6	10	80	4
2DBL 020 150 S04	1RX2	6	15	80	4
2DBL 020 200 S04	1RX2	6	20	80	4
2DBL 020 250 S04	1RX2	6	25	80	4
2DBL 020 300 S04	1RX2	6	30	80	4
2DBL 020 350 S04	1RX2	6	35	80	4
2DBL 020 400 S04	1RX2	6	40	100	4
2DBL 020 450 S04	1RX2	6	45	100	4
2DBL 020 500 S04	1RX2	6	50	100	4
2DBL 020 600 S04	1RX2	6	60	100	4
2DBL 020 700 S04	1RX2	6	70	100	4
2DBL 030 080 S04	1.5RX3	8		60	4
2DBL 030 150 100	1.5RX3	8	15	100	3
2DBL 030 150 S04	1.5RX3	8	15	100	4
2DBL 030 200 S04	1.5RX3	8	20	100	4
2DBL 030 250 S04	1.5RX3	8	25	100	4
2DBL 030 300 S04	1.5RX3	8	30	100	4
2DBL 030 350 S04	1.5RX3	8	35	100	4
2DBL 030 400 S04	1.5RX3	8	40	100	4
2DBL 030 500 S04	1.5RX3	8	50	100	4
2DBL 030 600 S04	1.5RX3	8	60	100	4
2DBL 030 700 S04	1.5RX3	8	70	100	4
2DBL 040 040 060	2RX4	4		60	4
2DBL 040 160 060	2RX4	16		60	4
2DBL 040 160 080	2RX4	16		80	4

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
2DBL 040 160 100	2RX4	16		100	4
2DBL 040 160 130	2RX4	16		130	4
2DBL 040 160 150	2RX4	16		150	4
2DBL 040 300 080	2RX4	16	30	80	4
2DBL 040 400 100	2RX4	16	40	100	4
2DBL 040 400 130	2RX4	16	40	130	4
2DBL 040 500 150	2RX4	16	50	150	4
2DBL 050 160 110	2.5RX5	16		110	5
2DBL 050 200 S06	2.5RX5	16	20	110	6
2DBL 050 400 110	2.5RX5	16	40	110	5
2DBL 050 400 S06	2.5RX5	16	40	110	6
2DBL 050 600 S06	2.5RX5	16	60	110	6
2DBL 060 250 080	3RX6	16	25	80	6
2DBL 060 250 110	3RX6	16	25	110	6
2DBL 060 300 150	3RX6	16	30	150	6
2DBL 060 400 110	3RX6	16	40	110	6
2DBL 060 500 150	3RX6	16	50	150	6
2DBL 080 300 080	4RX8	20	30	80	8
2DBL 080 300 110	4RX8	20	30	110	8
2DBL 080 400 110	4RX8	20	40	110	8
2DBL 080 400 200	4RX8	20	40	200	8
2DBL 080 500 150	4RX8	20	50	150	8
2DBL 100 400 080	5RX10	22	40	80	10
2DBL 100 400 110	5RX10	22	40	110	10
2DBL 100 500 110	5RX10	22	50	110	10
2DBL 100 500 200	5RX10	22	50	200	10
2DBL 100 600 160	5RX10	22	60	160	10
2DBL 120 500 110	6RX12	25	50	110	12
2DBL 120 500 160	6RX12	25	50	160	12
2DBL 120 600 200	6RX12	25	60	200	12

3 Flutes Diamond Coated Ball End Mills for Graphite

Endmills for Graphite, reinforced plastic, carbon fiber, Non-ferrous and non-metallic materials.

- Wide range products prepared for various work shape and excellent performance.



D Size	D Tolerance
Ø0.2-Ø12	+0~-0.02mm

Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
3DBL 010 030 S04	0.5RX1	3		60	4
3DBL 010 050 S04	0.5RX1	3	5	60	4
3DBL 010 100 S04	0.5RX1	3	10	60	4
3DBL 010 150 S04	0.5RX1	3	15	60	4
3DBL 010 200 S04	0.5RX1	3	20	60	4
3DBL 010 250 S04	0.5RX1	3	25	80	4
3DBL 010 300 S04	0.5RX1	3	30	80	4
3DBL 010 350 S04	0.5RX1	3	35	80	4
3DBL 010 400 S04	0.5RX1	3	40	80	4
3DBL 010 450 S04	0.5RX1	3	45	80	4
3DBL 010 500 S04	0.5RX1	3	50	80	4
3DBL 015 050 S04	0.75RX1.5	4.5		60	4
3DBL 015 100 S04	0.75RX1.5	4.5	10	80	4
3DBL 015 150 S04	0.75RX1.5	4.5	15	80	4
3DBL 015 200 S04	0.75RX1.5	4.5	20	80	4
3DBL 015 250 S04	0.75RX1.5	4.5	25	80	4
3DBL 015 300 S04	0.75RX1.5	4.5	30	80	4
3DBL 015 350 S04	0.75RX1.5	4.5	35	80	4
3DBL 015 400 S04	0.75RX1.5	4.5	40	80	4
3DBL 015 450 S04	0.75RX1.5	4.5	45	80	4
3DBL 015 500 S04	0.75RX1.5	4.5	50	80	4
3DBL 020 060 S04	1RX2	6		60	4
3DBL 020 100 S04	1RX2	6	10	80	4
3DBL 020 150 S04	1RX2	6	15	80	4
3DBL 020 200 S04	1RX2	6	20	80	4
3DBL 020 250 S04	1RX2	6	25	80	4
3DBL 020 300 S04	1RX2	6	30	80	4
3DBL 020 350 S04	1RX2	6	35	80	4
3DBL 020 400 S04	1RX2	6	40	100	4
3DBL 020 500 S04	1RX2	6	50	100	4
3DBL 020 600 S04	1RX2	6	60	100	4
3DBL 020 700 S04	1RX2	6	70	100	4
3DBL 030 080 S04	1.5RX3	8		60	4
3DBL 030 150 100	1.5RX3	8	15	100	3

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
3DBL 030 150 S04	1.5RX3	8	15	100	4
3DBL 030 200 S04	1.5RX3	8	20	100	4
3DBL 030 300 S04	1.5RX3	8	30	100	4
3DBL 030 400 S04	1.5RX3	8	40	100	4
3DBL 030 500 S04	1.5RX3	8	50	100	4
3DBL 040 160 080	2RX4	16		80	4
3DBL 040 160 100	2RX4	16		100	4
3DBL 040 160 130	2RX4	16		130	4
3DBL 040 300 080	2RX4	16	30	80	4
3DBL 040 400 100	2RX4	16	40	100	4
3DBL 040 400 130	2RX4	16	40	130	4
3DBL 050 160 110	2.5RX5	16		110	5
3DBL 050 400 110	2.5RX5	16	40	110	5
3DBL 060 250 110	3RX6	16	25	110	6
3DBL 060 300 150	3RX6	16	30	150	6
3DBL 060 400 110	3RX6	16	40	110	6
3DBL 060 500 150	3RX6	16	50	150	6
3DBL 060 500 180	3RX6	16	50	180	6
3DBL 080 400 110	4RX8	20	40	110	8
3DBL 080 500 150	4RX8	20	50	150	8
3DBL 100 400 110	5RX10	22	40	110	10
3DBL 100 600 160	5RX10	22	60	160	10
3DBL 120 500 110	6RX12	25	50	110	12
3DBL 120 500 160	6RX12	25	50	160	12
3DBL 120 600 200	6RX12	25	60	200	12

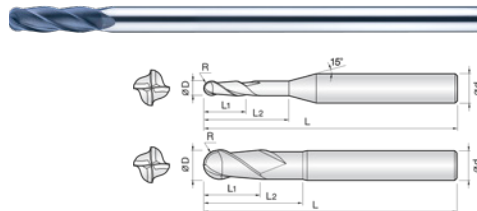


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4 Flutes Diamond Coated Ball End Mills for Graphite

Endmills for Graphite, reinforced plastic, carbon fiber, Non-ferrous and non-metallic materials.

- Wide range products prepared for various work shape and excellent performance.



D Size	D Tolerance
Ø1~Ø12	+0~-0.02mm

Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
4DBL 010 030 S04	0.5R X 1	3	-	60	4
4DBL 010 050 S04	0.5R X 1	3	5	60	4
4DBL 010 100 S04	0.5R X 1	3	10	60	4
4DBL 010 150 S04	0.5R X 1	3	15	60	4
4DBL 010 200 S04	0.5R X 1	3	20	60	4
4DBL 010 250 S04	0.5R X 1	3	25	60	4
4DBL 015 045 S04	0.75R X 1.5	4.5	-	60	4
4DBL 015 100 S04	0.75R X 1.5	4.5	10	60	4
4DBL 015 150 S04	0.75R X 1.5	4.5	15	60	4
4DBL 015 200 S04	0.75R X 1.5	4.5	20	60	4
4DBL 015 250 S04	0.75R X 1.5	4.5	25	60	4
4DBL 020 060 S04	1R X 2	6	-	60	4
4DBL 020 100 S04	1R X 2	6	10	80	4
4DBL 020 200 S04	1R X 2	6	20	80	4
4DBL 020 300 S04	1R X 2	6	30	80	4
4DBL 020 400 S04	1R X 2	6	40	80	4
4DBL 030 080 S04	1.5R X 3	8	-	60	4
4DBL 030 150 S04	1.5R X 3	8	15	100	4
4DBL 030 200 S04	1.5R X 3	8	20	100	4
4DBL 030 300 S04	1.5R X 3	8	30	100	4
4DBL 030 400 S04	1.5R X 3	8	40	100	4
4DBL 030 500 S04	1.5R X 3	8	50	100	4
4DBL 040 160 060	2R X 4	16	-	60	4
4DBL 040 160 080	2R X 4	16	-	80	4
4DBL 040 160 100	2R X 4	16	-	100	4
4DBL 040 160 130	2R X 4	16	-	130	4
4DBL 060 250 080	3R X 6	16	25	80	6
4DBL 060 250 110	3R X 6	16	25	110	6
4DBL 060 300 150	3R X 6	16	30	150	6
4DBL 080 300 080	4R X 8	20	30	80	8
4DBL 080 300 110	4R X 8	20	30	110	8
4DBL 080 350 150	4R X 8	20	35	150	8
4DBL 080 400 200	4R X 8	20	40	200	8
4DBL 100 350 080	5R X 10	22	35	80	10
4DBL 100 350 110	5R X 10	22	35	110	10
4DBL 100 400 160	5R X 10	22	40	160	10
4DBL 100 500 200	5R X 10	22	50	200	10
4DBL 120 500 110	6R X 12	25	50	110	12
4DBL 120 500 160	6R X 12	25	50	160	12
4DBL 120 600 200	6R X 12	25	60	200	12

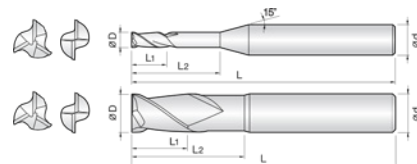
K GRAPHITE 2DLM&3DLM



2&3 Flutes Diamond Coated End Mills for Graphite

Endmills for Graphite, reinforced plastic, carbon fiber, Non-ferrous and non-metallic materials.

- Wide range products prepared for various work shape and excellent performance.



D Size	D Tolerance
Ø0.2~Ø12	+0~-0.02mm

Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D	L1	L2	L	d
2DLM 002 004 S04	0.2	0.4	-	45	4
2DLM 003 006 S04	0.3	0.6	-	45	4
2DLM 004 008 S04	0.4	0.8	-	45	4
2DLM 005 010 S04	0.5	1	-	45	4
2DLM 006 012 S04	0.6	1.2	-	45	4
2DLM 007 015 S04	0.7	1.5	-	45	4
2DLM 008 020 S04	0.8	2	-	45	4
2DLM 009 025 S04	0.9	2.5	-	45	4
2DLM 010 030 S04	1	3	-	60	4
2DLM 010 032 S04	1	3.2	-	45	4
2DLM 010 050 S04	1	3	5	60	4
2DLM 010 100 S04	1	3	10	60	4
2DLM 010 150 S04	1	3	15	60	4
2DLM 010 200 S04	1	3	20	60	4
2DLM 010 250 S04	1	3	25	60	4
2DLM 015 060 S04	1.5	6	-	60	4
2DLM 015 100 S04	1.5	6	10	60	4
2DLM 015 150 S04	1.5	6	15	60	4
2DLM 015 200 S04	1.5	6	20	60	4
2DLM 015 250 S04	1.5	6	25	60	4
2DLM 020 060 S04	2	6	-	45	4
2DLM 020 080 S04	2	8	-	80	4
2DLM 020 120 S04	2	8	12	80	4
2DLM 020 150 S04	2	8	15	80	4
2DLM 020 200 S04	2	8	20	80	4
2DLM 020 250 S04	2	8	25	80	4
2DLM 020 300 S04	2	8	30	80	4
2DLM 020 400 S04	2	8	40	80	4
2DLM 030 090 S06	3	9	-	50	6
2DLM 030 120 S04	3	12	-	80	4
2DLM 030 200 S04	3	12	20	80	4
2DLM 030 250 S04	3	12	25	80	4
2DLM 030 300 S04	3	12	30	80	4
2DLM 030 400 S04	3	12	40	80	4
2DLM 040 120 S06	4	12	-	50	6
2DLM 040 160 080	4	16	-	80	4

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D	L1	L2	L	d
2DLM 050 150 S06	5	15	-	60	6
2DLM 050 200 S06	5	20	-	110	6
2DLM 060 180 S06	6	18	-	60	6
2DLM 060 250 110	6	25	-	110	6
2DLM 060 250 150	6	25	-	150	6
2DLM 080 240 S08	8	24	-	70	8
2DLM 080 400 150	8	25	40	150	8
2DLM 100 250 S10	10	25	-	80	10
2DLM 100 500 160	10	25	50	160	10
2DLM 120 250 S12	12	25	-	80	12
2DLM 120 600 160	12	25	60	160	12
3DLM 010 030 S04	1	3	-	45	4
3DLM 015 060 S04	1.5	6	-	60	4
3DLM 020 060 S04	2	6	-	45	4
3DLM 020 100 S04	2	10	-	60	4
3DLM 030 090 S06	3	9	-	50	6
3DLM 030 150 S03	3	15	-	60	3
3DLM 030 150 S04	3	15	-	60	4
3DLM 040 120 S06	4	12	-	50	6
3DLM 040 200 080	4	20	-	80	4
3DLM 060 180 060	6	18	-	60	6
3DLM 060 250 110	6	25	-	110	6
3DLM 060 250 150	6	25	-	150	6
3DLM 080 240 070	8	24	-	70	8
3DLM 080 350 110	8	35	-	110	8
3DLM 080 350 150	8	35	-	150	8
3DLM 100 250 080	10	25	-	80	10
3DLM 100 400 110	10	40	-	110	10
3DLM 100 500 160	10	50	-	160	10
3DLM 120 250 080	12	25	-	80	12
3DLM 120 450 110	12	45	-	110	12
3DLM 120 550 160	12	55	-	160	12



02~016

4F

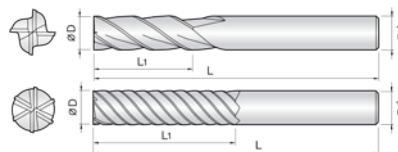
6F

Shield Edge

4&6 Flutes Diamond Coated End Mills for Graphite

Endmills for Graphite, reinforced plastic, carbon fiber, Non-ferrous and non-metallic materials.

- Wide range products prepared for various work shape and excellent performance.



D Size	D Tolerance
Ø2~Ø16	+0~-0.02mm

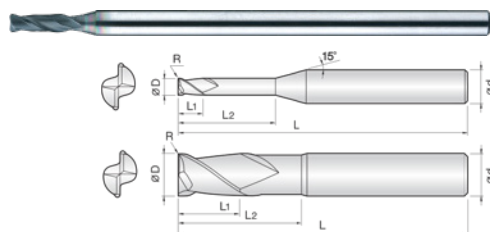
Unit : mm

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2 Flutes Diamond Coated Corner Radius End Mills for Graphite

Endmills for Graphite, reinforced plastic, carbon fiber, Non-ferrous and non-metallic materials.

- Wide range products prepared for various work shape and excellent performance.



D Size	D Tolerance
Ø0.2~Ø6	+0~-0.02mm

Unit : mm

Order Number	刃径 Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	L1	L2	L	d
2DLR 002 0002 015	0.2X R0.02	0.5	1.5	60	4
2DLR 003 0002 015	0.3X R0.02	0.6	1.5	60	4
2DLR 003 0002 030	0.3X R0.02	0.6	3	60	4
2DLR 003 0002 045	0.3X R0.02	0.6	4.5	60	4
2DLR 003 0002 060	0.3X R0.02	0.6	6	60	4
2DLR 004 0002 020	0.4X R0.02	0.8	2	60	4
2DLR 004 0002 040	0.4X R0.02	0.8	4	60	4
2DLR 004 0002 060	0.4X R0.02	0.8	6	60	4
2DLR 004 0002 080	0.4X R0.02	0.8	8	60	4
2DLR 005 0005 010	0.5X R0.05	1	-	60	4
2DLR 005 0005 025	0.5X R0.05	1	2.5	60	4
2DLR 005 0005 035	0.5X R0.05	1	3.5	60	4
2DLR 005 0005 050	0.5X R0.05	1	5	60	4
2DLR 005 0005 075	0.5X R0.05	1	7.5	60	4
2DLR 005 0005 100	0.5X R0.05	1	10	60	4
2DLR 006 0005 012	0.6X R0.05	1.2	-	60	4
2DLR 006 0005 030	0.6X R0.05	1.2	3	60	4
2DLR 006 0005 060	0.6X R0.05	1.2	6	60	4
2DLR 006 0005 090	0.6X R0.05	1.2	9	60	4
2DLR 006 0005 120	0.6X R0.05	1.2	12	60	4
2DLR 008 0005 016	0.8X R0.05	1.6	-	60	4
2DLR 008 0005 040	0.8X R0.05	1.6	4	60	4
2DLR 008 0005 080	0.8X R0.05	1.6	8	60	4
2DLR 008 0005 100	0.8X R0.05	1.6	10	60	4
2DLR 008 0005 160	0.8X R0.05	1.6	16	60	4
2DLR 010 0005 020	1X R0.05	2	-	60	4
2DLR 010 0005 050	1X R0.05	2	5	60	4
2DLR 010 0005 100	1X R0.05	2	10	60	4
2DLR 010 0005 150	1X R0.05	2	15	60	4
2DLR 010 0005 200	1X R0.05	2	20	60	4
2DLR 010 001 020	1X R0.1	2	-	60	4
2DLR 010 001 050	1X R0.1	2	5	60	4
2DLR 010 001 100	1X R0.1	2	10	60	4
2DLR 010 001 150	1X R0.1	2	15	60	4
2DLR 010 001 200	1X R0.1	2	20	60	4
2DLR 010 002 020	1X R0.2	2	-	60	4

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
		L1	L2	L	d
2DLR 010 002 050	1X R0.2	2	5	60	4
2DLR 010 002 100	1X R0.2	2	10	60	4
2DLR 010 002 150	1X R0.2	2	15	60	4
2DLR 010 002 200	1X R0.2	2	20	60	4
2DLR 015 0005 030	1.5X R0.05	3	-	60	4
2DLR 015 0005 050	1.5X R0.05	3	5	60	4
2DLR 015 0005 100	1.5X R0.05	3	10	60	4
2DLR 015 0005 150	1.5X R0.05	3	15	60	4
2DLR 015 0005 200	1.5X R0.05	3	20	60	4
2DLR 015 001 030	1.5X R0.1	3	-	60	4
2DLR 015 001 050	1.5X R0.1	3	5	60	4
2DLR 015 001 100	1.5X R0.1	3	10	60	4
2DLR 015 001 150	1.5X R0.1	3	15	60	4
2DLR 015 001 200	1.5X R0.1	3	20	60	4
2DLR 015 0015 030	1.5X R0.15	3	-	60	4
2DLR 015 0015 050	1.5X R0.15	3	5	60	4
2DLR 015 0015 100	1.5X R0.15	3	10	60	4
2DLR 015 0015 150	1.5X R0.15	3	15	60	4
2DLR 015 0015 200	1.5X R0.15	3	20	60	4
2DLR 015 002 030	1.5X R0.2	3	-	60	4
2DLR 015 002 050	1.5X R0.2	3	5	60	4
2DLR 015 002 100	1.5X R0.2	3	10	60	4
2DLR 015 002 150	1.5X R0.2	3	15	60	4
2DLR 015 002 200	1.5X R0.2	3	20	60	4
2DLR 015 003 030	1.5X R0.3	3	-	60	4
2DLR 015 003 050	1.5X R0.3	3	5	60	4
2DLR 015 003 100	1.5X R0.3	3	10	60	4
2DLR 015 003 150	1.5X R0.3	3	15	60	4
2DLR 015 003 200	1.5X R0.3	3	20	60	4
2DLR 020 0005 035	2X R0.05	3.5	-	60	4
2DLR 020 0005 060	2X R0.05	3.5	6	60	4
2DLR 020 0005 120	2X R0.05	3.5	12	60	4
2DLR 020 0005 180	2X R0.05	3.5	18	60	4
2DLR 020 0005 250	2X R0.05	3.5	25	60	4
2DLR 020 0005 300	2X R0.05	3.5	30	60	4
2DLR 020 002 035	2X R0.2	3.5	-	60	4

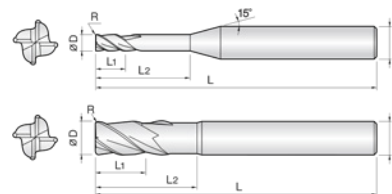
Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	L1	L2	L	d
2DLR 020 002 060	2X R0.2	3.5	6	60	4
2DLR 020 002 120	2X R0.2	3.5	12	60	4
2DLR 020 002 180	2X R0.2	3.5	18	60	4
2DLR 020 002 250	2X R0.2	3.5	25	60	4
2DLR 020 002 300	2X R0.2	3.5	30	60	4
2DLR 020 003 035	2X R0.3	3.5	-	60	4
2DLR 020 003 060	2X R0.3	3.5	6	60	4
2DLR 020 003 120	2X R0.3	3.5	12	60	4
2DLR 020 003 180	2X R0.3	3.5	18	60	4
2DLR 020 003 250	2X R0.3	3.5	25	60	4
2DLR 020 003 300	2X R0.3	3.5	30	60	4
2DLR 020 005 035	2X R0.5	3.5	-	60	4
2DLR 020 005 060	2X R0.5	3.5	6	60	4
2DLR 020 005 120	2X R0.5	3.5	12	60	4
2DLR 020 005 180	2X R0.5	3.5	18	60	4
2DLR 020 005 250	2X R0.5	3.5	25	60	4
2DLR 020 005 300	2X R0.5	3.5	30	60	4
2DLR 030 0005 040	3X R0.05	4	-	80	4
2DLR 030 0005 100	3X R0.05	4	10	80	4
2DLR 030 0005 200	3X R0.05	4	20	80	4
2DLR 030 0005 300	3X R0.05	4	30	80	4
2DLR 030 0005 400	3X R0.05	4	40	80	4
2DLR 030 002 040	3X R0.2	4	-	80	4
2DLR 030 002 100	3X R0.2	4	10	80	4
2DLR 030 002 200	3X R0.2	4	20	80	4
2DLR 030 002 300	3X R0.2	4	30	80	4
2DLR 030 002 400	3X R0.2	4	40	80	4
2DLR 030 003 040	3X R0.3	4	-	80	4
2DLR 030 003 100	3X R0.3	4	10	80	4
2DLR 030 003 200	3X R0.3	4	20	80	4
2DLR 030 003 300	3X R0.3	4	30	80	4
2DLR 030 003 400	3X R0.3	4	40	80	4
2DLR 030 005 040	3X R0.5	4	-	80	4
2DLR 030 005 100	3X R0.5	4	10	80	4
2DLR 030 005 200	3X R0.5	4	20	80	4
2DLR 030 005 300	3X R0.5	4	30	80	4
2DLR 030 005 400	3X R0.5	4	40	80	4
2DLR 030 010 040	3X R1	4	-	80	4
2DLR 030 010 100	3X R1	4	10	80	4
2DLR 030 010 200	3X R1	4	20	80	4
2DLR 030 010 300	3X R1	4	30	80	4
2DLR 030 010 400	3X R1	4	40	80	4
2DLR 040 0005 050	4X R0.05	5	-	80	4
2DLR 040 0005 150	4X R0.05	5	15	80	4
2DLR 040 0005 250	4X R0.05	5	25	80	4
2DLR 040 0005 400	4X R0.05	5	40	80	4

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	L1	L2	L	d
2DLR 040 002 050	4 X R0.2	5	-	80	4
2DLR 040 002 150	4 X R0.2	5	15	80	4
2DLR 040 002 250	4 X R0.2	5	25	80	4
2DLR 040 002 400	4 X R0.2	5	40	80	4
2DLR 040 005 050	4 X R0.5	5	-	80	4
2DLR 040 005 150	4 X R0.5	5	15	80	4
2DLR 040 005 250	4 X R0.5	5	25	80	4
2DLR 040 005 400	4 X R0.5	5	40	80	4
2DLR 040 010 050	4 X R1	5	-	80	4
2DLR 040 010 150	4 X R1	5	15	80	4
2DLR 040 010 250	4 X R1	5	25	80	4
2DLR 040 010 400	4 X R1	5	40	80	4
2DLR 050 0005 060	5 X R0.05	6	-	110	6
2DLR 050 0005 150	5 X R0.05	6	15	110	6
2DLR 050 0005 300	5 X R0.05	6	30	110	6
2DLR 050 0005 500	5 X R0.05	6	50	110	6
2DLR 050 002 060	5 X R0.2	6	-	110	6
2DLR 050 002 150	5 X R0.2	6	15	110	6
2DLR 050 002 300	5 X R0.2	6	30	110	6
2DLR 050 002 500	5 X R0.2	6	50	110	6
2DLR 050 005 060	5 X R0.5	6	-	110	6
2DLR 050 005 150	5 X R0.5	6	15	110	6
2DLR 050 005 300	5 X R0.5	6	30	110	6
2DLR 050 005 500	5 X R0.5	6	50	110	6
2DLR 060 0005 070	6 X R0.05	7	-	110	6
2DLR 060 0005 200	6 X R0.05	7	20	110	6
2DLR 060 0005 300	6 X R0.05	7	30	110	6
2DLR 060 0005 500	6 X R0.05	7	50	110	6
2DLR 060 002 070	6 X R0.2	7	-	110	6
2DLR 060 002 200	6 X R0.2	7	20	110	6
2DLR 060 002 300	6 X R0.2	7	30	110	6
2DLR 060 002 500	6 X R0.2	7	50	110	6
2DLR 060 005 070	6 X R0.5	7	-	110	6
2DLR 060 005 200	6 X R0.5	7	20	110	6
2DLR 060 005 300	6 X R0.5	7	30	110	6
2DLR 060 005 500	6 X R0.5	7	50	110	6
2DLR 060 010 070	6 X R1	7	-	110	6
2DLR 060 010 200	6 X R1	7	20	110	6
2DLR 060 010 300	6 X R1	7	30	110	6
2DLR 060 010 500	6 X R1	7	50	110	6

4 Flutes Diamond Coated Corner Radius End Mills for Graphite

Endmills for Graphite, reinforced plastic, carbon fiber, Non-ferrous and non-metallic materials.

- Wide range products prepared for various work shape and excellent performance.



D Size	D Tolerance
Ø2~Ø16	+0~-0.02mm

Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	L1	L2	L	d
4DLR 020 0005 035	2X R0.05	3.5	-	60	4
4DLR 020 0005 060	2X R0.05	3.5	6	60	4
4DLR 020 0005 120	2X R0.05	3.5	12	60	4
4DLR 020 0005 180	2X R0.05	3.5	18	60	4
4DLR 020 0005 250	2X R0.05	3.5	25	60	4
4DLR 020 0005 300	2X R0.05	3.5	30	60	4
4DLR 020 002 035	2X R0.2	3.5	-	60	4
4DLR 020 002 060	2X R0.2	3.5	6	60	4
4DLR 020 002 120	2X R0.2	3.5	12	60	4
4DLR 020 002 180	2X R0.2	3.5	18	60	4
4DLR 020 002 250	2X R0.2	3.5	25	60	4
4DLR 020 002 300	2X R0.2	3.5	30	60	4
4DLR 020 003 035	2X R0.3	3.5	-	60	4
4DLR 020 003 060	2X R0.3	3.5	6	60	4
4DLR 020 003 120	2X R0.3	3.5	12	60	4
4DLR 020 003 180	2X R0.3	3.5	18	60	4
4DLR 020 003 250	2X R0.3	3.5	25	60	4
4DLR 020 003 300	2X R0.3	3.5	30	60	4
4DLR 020 005 035	2X R0.5	3.5	-	60	4
4DLR 020 005 060	2X R0.5	3.5	6	60	4
4DLR 020 005 120	2X R0.5	3.5	12	60	4
4DLR 020 005 180	2X R0.5	3.5	18	60	4
4DLR 020 005 250	2X R0.5	3.5	25	60	4
4DLR 020 005 300	2X R0.5	3.5	30	60	4
4DLR 030 0005 040	3X R0.05	4	-	80	4
4DLR 030 0005 100	3X R0.05	4	10	80	4
4DLR 030 0005 200	3X R0.05	4	20	80	4
4DLR 030 0005 300	3X R0.05	4	30	80	4
4DLR 030 002 040	3X R0.2	4	-	80	4
4DLR 030 002 100	3X R0.2	4	10	80	4
4DLR 030 002 200	3X R0.2	4	20	80	4
4DLR 030 002 300	3X R0.2	4	30	80	4
4DLR 030 003 040	3X R0.3	4	-	80	4
4DLR 030 003 100	3X R0.3	4	10	80	4

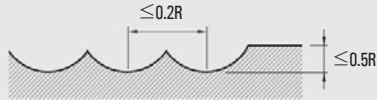
Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	L1	L2	L	d
4DLR 030 003 200	3X R0.3	4	20	80	4
4DLR 030 003 300	3X R0.3	4	30	80	4
4DLR 030 003 400	3X R0.3	4	40	80	4
4DLR 030 005 040	3X R0.5	4	-	80	4
4DLR 030 005 100	3X R0.5	4	10	80	4
4DLR 030 005 200	3X R0.5	4	20	80	4
4DLR 030 005 300	3X R0.5	4	30	80	4
4DLR 030 005 400	3X R0.5	4	40	80	4
4DLR 030 010 040	3X R1	4	-	80	4
4DLR 030 010 100	3X R1	4	10	80	4
4DLR 030 010 200	3X R1	4	20	80	4
4DLR 030 010 300	3X R1	4	30	80	4
4DLR 030 010 400	3X R1	4	40	80	4
4DLR 040 003 100	4X R0.3	6	20	100	4
4DLR 040 005 100	4X R0.5	6	20	100	4
4DLR 040 010 100	4X R1	6	20	100	4
4DLR 060 003 110	6X R0.3	9	25	110	6
4DLR 060 005 110	6X R0.5	9	25	110	6
4DLR 060 005 150	6X R0.5	9	30	150	6
4DLR 060 010 110	6X R1	9	25	110	6
4DLR 060 010 150	6X R1	9	30	150	6
4DLR 080 003 110	8X R0.3	12	30	110	8
4DLR 080 005 110	8X R0.5	12	30	110	8
4DLR 080 005 150	8X R0.5	12	40	150	8
4DLR 080 010 110	8X R1	12	30	110	8
4DLR 080 010 150	8X R1	12	40	150	8
4DLR 100 005 110	10X R0.5	15	35	110	10
4DLR 100 005 160	10X R0.5	15	45	160	10
4DLR 100 010 110	10X R1	15	35	110	10
4DLR 100 010 160	10X R1	15	45	160	10
4DLR 120 005 110	12X R0.5	18	40	110	12
4DLR 120 005 160	12X R0.5	18	45	160	12
4DLR 120 010 110	12X R1	18	40	110	12
4DLR 120 010 160	12X R1	18	45	160	12

2DBL/3DBL/4DBL

• RPM : rev/min • Feed : mm/min

Material	2DBL/3DBL		4DBL	
	Graphite		Graphite	
Radius	RPM	FEED	RPM	FEED
R0.2	40,000	1,200	-	-
R0.3	40,000	1,600	-	-
R0.4	40,000	1,800	-	-
R0.5	40,000	2,000	-	-
R1	40,000	2,200	-	-
R1.5	30,000	2,400	-	-
R2	24,000	2,600	24,000	3,600
R2.5	19,000	2,600	19,000	3,600
R3	16,000	2,600	16,000	3,600
R4	12,000	2,800	12,000	3,800
R5	10,000	3,000	10,000	4,000
R6	8,000	3,000	8,000	4,000

Depth of Cut



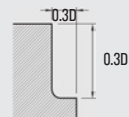
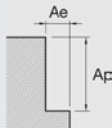
2DLM/3DLM/4DLM/6DLM/2DLR/4DLR

• RPM : rev/min • Feed : mm/min

Material	2DLM/3DLM		4DLM		6DLM		2DLR		4DLR	
	Graphite		Graphite		Graphite		Graphite		Graphite	
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
0.2mm	40,000	50	-	-	-	-	40,000	100	-	-
0.4mm	40,000	100	-	-	-	-	40,000	200	-	-
0.5mm	40,000	200	-	-	-	-	40,000	300	-	-
0.6mm	40,000	250	-	-	-	-	40,000	400	-	-
0.8mm	40,000	300	-	-	-	-	40,000	500	-	-
1mm	40,000	400	-	-	-	-	40,000	900	-	-
2mm	30,000	470	30,000	800	-	-	36,000	900	-	-
3mm	21,000	640	21,000	1,200	-	-	32,000	1,300	-	-
4mm	16,000	540	16,000	1,200	-	-	26,000	1,500	40,000	3,500
5mm	12,500	560	-	-	-	-	24,000	1,100	-	-
6mm	10,500	590	10,500	1,200	-	-	21,000	1,100	40,000	5,600
8mm	8,000	610	8,000	1,250	-	-	-	-	32,000	5,600
10mm	6,400	640	-	-	13,000	6,000	-	-	26,000	5,700
12mm	5,300	630	-	-	11,200	5,600	-	-	21,000	5,500
16mm	-	-	-	-	7,000	4,000	-	-	15,800	5,500

Depth of Cut

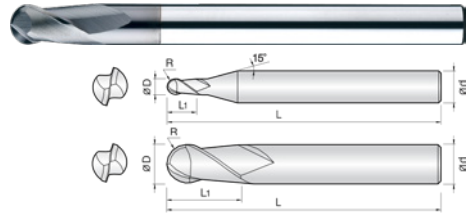
D	Ap	Ae
$D_c \leq \varnothing 0.2R$	1.50	0.050
$\varnothing 2.5 < D_c$	1.50	0.10



2 Flutes G-TAC Coated Ball End Mills for Non-Ferrous Metal

Endmills for Aluminum, Aluminum alloy, copper, copper alloy, CFRP, glass/carbon fiber, nonferrous and non-metallic materials.

- High precise edge tolerance.



Size	D Tolerance
D ≤ Ø6	+0~ -0.01mm
D > Ø6	+0~ -0.015mm

Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	R×D	L1	L	d
2LCB 002 004 S04	0.1R X 0.2	0.4	45	4
2LCB 003 006 S04	0.15R X 0.3	0.6	45	4
2LCB 004 008 S04	0.2R X 0.4	0.8	45	4
2LCB 005 010 S04	0.25R X 0.5	1	45	4
2LCB 006 012 S04	0.3R X 0.6	1.2	45	4
2LCB 008 020 S04	0.4R X 0.8	2	50	4
2LCB 010 025 S04	0.5R X 1	2.5	50	4
2LCB 012 030 S04	0.6R X 1.2	3	50	4
2LCB 015 040 S04	0.75R X 1.5	4	50	4

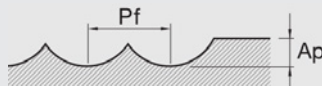
Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	R×D	L1	L	d
2LCB 020 050 S04	1R X 2	5	50	4
2LCB 025 060 S04	1.25R X 2.5	6	50	4
2LCB 030 080 S06	1.5R X 3	8	60	6
2LCB 040 080 S06	2R X 4	8	70	6
2LCB 050 100 S06	2.5R X 5	10	80	6
2LCB 060 120 090	3R X 6	12	90	6
2LCB 080 140 100	4R X 8	14	100	8
2LCB 100 180 100	5R X 10	18	100	10
2LCB 120 220 110	6R X 12	22	110	12

2LCB

• RPM : rev./min • Feed : mm/min

Material	Aluminum Alloy Expanding Material A7075				Aluminum Alloys Casting / Die Casting Si1 3%				Magnesium Alloy / Copper Alloy / CFRP AZ91 / AZ80A / C1100		Copper Alloy C1100	
	Regular Milling		High Speed Milling		Regular Milling		High Speed Milling		Regular Milling		High Speed Milling	
Radius	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R0.1	28,800	180	40,000	240	28,800	180	36,100	230	28,800	180	31,600	200
R0.3	28,800	350	40,000	490	28,800	350	36,100	480	28,800	350	31,600	420
R0.5	23,400	720	31,500	950	23,400	720	25,200	900	23,400	720	20,700	800
R0.8	23,400	760	35,900	1,120	23,400	760	25,200	1,000	22,500	720	20,700	800
R1	22,500	950	31,500	1,260	22,500	950	25,200	1,100	17,100	720	20,700	800
R1.5	15,300	950	20,700	1,260	15,300	950	16,700	1,100	11,300	720	13,500	800
R2	11,300	950	15,800	1,260	11,300	950	12,600	1,100	8,600	720	10,400	800
R3	9,000	950	13,200	1,260	9,000	950	12,600	1,100	5,900	720	8,900	800
R4	6,400	1,150	11,600	1,260	6,400	1,150	9,800	1,000	4,800	880	6,400	950
R5	5,200	1,050	9,400	1,120	5,200	1,050	7,800	860	3,900	760	5,300	880
R6	4,100	1,000	6,700	950	4,100	1,000	5,400	520	3,000	740	4,600	840
	Ap	Pf	Ap	Pf	Ap	Pf	Ap	Pf	Ap	Pf	Ap	Pf
	0.1D	0.2D	0.05D	0.1D	0.1D	0.2D	0.05D	0.1D	0.1D	0.2D	0.02D	0.05D

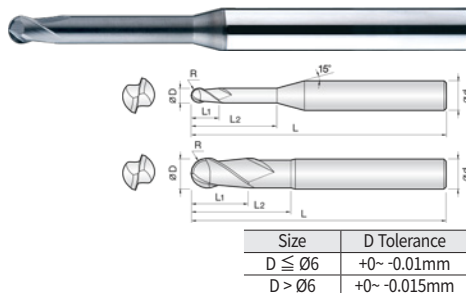
Depth of Cut



2 Flutes G-TAC Coated Rib Ball End Mills for Non-Ferrous Metal

Endmills for Aluminum, Aluminum alloy, copper, copper alloy, CFRP, glass/carbon fiber, nonferrous and non-metallic materials.

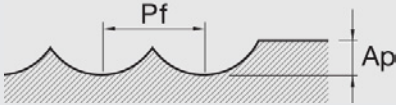
- High precise edge tolerance.



Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
2LRB 001 003 S04	0.05R X 0.1	0.3	-	45	4
2LRB 002 005 S04	0.1R X 0.2	0.5	-	45	4
2LRB 002 010 S04	0.1R X 0.2	0.2	1	45	4
2LRB 002 015 S04	0.1R X 0.2	0.2	1.5	45	4
2LRB 002 020 S04	0.1R X 0.2	0.2	2	45	4
2LRB 003 010 S04	0.15R X 0.3	0.3	1	45	4
2LRB 003 015 S04	0.15R X 0.3	0.3	1.5	45	4
2LRB 003 020 S04	0.15R X 0.3	0.3	2	45	4
2LRB 004 010 S04	0.2R X 0.4	0.4	1	45	4
2LRB 004 020 S04	0.2R X 0.4	0.4	2	45	4
2LRB 004 030 S04	0.2R X 0.4	0.4	3	45	4
2LRB 004 040 S04	0.2R X 0.4	0.4	4	45	4
2LRB 004 050 S04	0.2R X 0.4	0.4	5	45	4
2LRB 005 020 S04	0.25R X 0.5	0.5	2	45	4
2LRB 005 040 S04	0.25R X 0.5	0.5	4	45	4
2LRB 005 060 S04	0.25R X 0.5	0.5	6	45	4
2LRB 005 080 S04	0.25R X 0.5	0.5	8	45	4
2LRB 005 100 S04	0.25R X 0.5	0.5	10	45	4
2LRB 006 020 S04	0.3R X 0.6	0.6	2	45	4
2LRB 006 040 S04	0.3R X 0.6	0.6	4	45	4
2LRB 006 060 S04	0.3R X 0.6	0.6	6	45	4
2LRB 006 080 S04	0.3R X 0.6	0.6	8	45	4
2LRB 006 100 S04	0.3R X 0.6	0.6	10	45	4
2LRB 008 020 S04	0.4R X 0.8	0.8	2	45	4
2LRB 008 040 S04	0.4R X 0.8	0.8	4	45	4
2LRB 008 060 S04	0.4R X 0.8	0.8	6	45	4
2LRB 008 080 S04	0.4R X 0.8	0.8	8	45	4
2LRB 008 100 S04	0.4R X 0.8	0.8	10	45	4
2LRB 008 120 S04	0.4R X 0.8	0.8	12	45	4
2LRB 010 040 S04	0.5R X 1	1	4	45	4
2LRB 010 060 S04	0.5R X 1	1	6	45	4
2LRB 010 080 S04	0.5R X 1	1	8	45	4
2LRB 010 100 S04	0.5R X 1	1	10	45	4
2LRB 010 120 S04	0.5R X 1	1	12	45	4

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
2LRB 010 160 S04	0.5R X 1	1	16	50	4
2LRB 015 060 S04	0.75R X 1.5	1.5	6	45	4
2LRB 015 080 S04	0.75R X 1.5	1.5	8	45	4
2LRB 015 100 S04	0.75R X 1.5	1.5	10	45	4
2LRB 015 120 S04	0.75R X 1.5	1.5	12	45	4
2LRB 015 160 S04	0.75R X 1.5	1.5	16	50	4
2LRB 015 200 S04	0.75R X 1.5	1.5	20	50	4
2LRB 020 060 S04	1R X 2	3	6	45	4
2LRB 020 080 S04	1R X 2	3	8	45	4
2LRB 020 100 S04	1R X 2	3	10	45	4
2LRB 020 120 S04	1R X 2	3	12	45	4
2LRB 020 160 S04	1R X 2	3	16	50	4
2LRB 020 200 S04	1R X 2	3	20	50	4
2LRB 020 250 S04	1R X 2	3	25	60	4
2LRB 020 300 S04	1R X 2	3	30	70	4
2LRB 030 120 S06	1.5R X 3	4	12	50	6
2LRB 030 160 S06	1.5R X 3	4	16	60	6
2LRB 030 200 S06	1.5R X 3	4	20	60	6
2LRB 030 250 S06	1.5R X 3	4	25	65	6
2LRB 030 300 S06	1.5R X 3	4	30	70	6
2LRB 030 400 S06	1.5R X 3	4	40	80	6
2LRB 040 120 S06	2R X 4	5	12	50	6
2LRB 040 160 S06	2R X 4	5	16	60	6
2LRB 040 200 S06	2R X 4	5	20	60	6
2LRB 040 250 S06	2R X 4	5	25	65	6
2LRB 040 300 S06	2R X 4	5	30	70	6
2LRB 050 200 S06	2.5R X 5	6	20	60	6
2LRB 050 400 S06	2.5R X 5	6	40	80	6
2LRB 060 200 S06	3R X 6	8	20	60	6
2LRB 060 300 S06	3R X 6	8	30	90	6
2LRB 080 200 S08	4R X 8	10	20	70	8
2LRB 100 250 S10	5R X 10	12	25	80	10
2LRB 120 250 S12	6R X 12	14	25	80	12

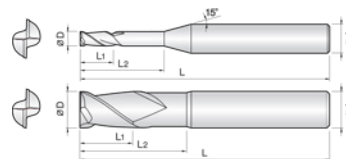
Material	Aluminum Alloy Expanding Material A7075				Aluminum Alloys Casting / Die Casting Si1 3%				Magnesium Alloy / Copper Alloy / CFRPAZ91 / AZ80A / C1100	Copper Alloy C1100		
	Regular Milling		High Speed Milling		Regular Milling		High Speed Milling		Regular Milling		High Speed Milling	
Radius	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R0.1	32,000	220	45,000	290	32,000	220	45,000	290	32,000	220	45,000	290
R0.3	32,000	480	45,000	660	32,000	480	45,000	660	32,000	480	45,000	660
R0.5	28,800	760	45,000	1,100	28,800	760	45,000	1,100	28,800	760	45,000	1,100
R0.8	28,800	850	45,000	1,400	28,800	850	45,000	1,400	25,200	850	35,900	1,300
R1	28,600	1,400	45,000	2,000	28,600	1,400	43,000	1,900	21,500	1,000	35,900	1,600
R1.5	19,100	1,400	45,000	3,000	19,100	1,400	28,600	1,900	14,300	1,000	23,900	1,600
R2	14,300	1,400	35,900	3,200	14,300	1,400	21,400	1,900	10,700	1,000	17,900	1,600
R3	9,500	1,400	23,900	3,200	9,500	1,400	14,300	1,900	7,200	1,000	12,000	1,600
R4	7,200	1,800	17,600	4,100	7,200	1,800	10,700	2,400	5,400	1,300	8,900	2,000
R5	5,700	1,600	14,000	3,600	5,700	1,600	8,600	2,200	4,300	1,200	7,200	1,800
R6	4,800	1,500	11,700	3,400	4,800	1,500	7,200	2,000	3,600	1,100	5,900	1,700
	Ap	Pf	Ap	Pf	Ap	Pf	Ap	Pf	Ap	Pf	Ap	Pf
	0.1D	0.2D	0.05D	0.1D	0.1D	0.2D	0.05D	0.1D	0.1D	0.2D	0.02D	0.05D
Depth of Cut												



2 Flutes G-TAC Coated Rib End Mills for Non-Ferrous Metal

Endmills for Aluminum, Aluminum alloy, copper, copper alloy, CFRP, glass/carbon fiber, nonferrous and non-metallic materials.

- Reinforced edge design for preventing edge chipping.
- High precise edge tolerance.



Size	D Tolerance
$D \leq \varnothing 5$	+0 -0.01mm
$D > \varnothing 5$	+0 -0.02mm

Unit : mm

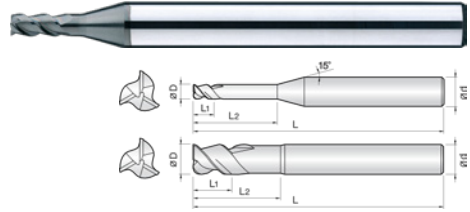
Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D	L1	L2	L	d
2LRE 001 003 S04	0.1	0.3	-	45	4
2LRE 001 005 S04	0.1	0.5	-	45	4
2LRE 002 005 S04	0.2	0.5	-	45	4
2LRE 002 010 S04	0.2	0.3	1	45	4
2LRE 002 015 S04	0.2	0.3	1.5	45	4
2LRE 002 020 S04	0.2	0.3	2	45	4
2LRE 003 010 S04	0.3	0.5	1	45	4
2LRE 003 015 S04	0.3	0.5	1.5	45	4
2LRE 003 020 S04	0.3	0.5	2	45	4
2LRE 004 010 S04	0.4	0.6	1	45	4
2LRE 004 020 S04	0.4	0.6	2	45	4
2LRE 004 030 S04	0.4	0.6	3	45	4
2LRE 004 040 S04	0.4	0.6	4	45	4
2LRE 004 050 S04	0.4	0.6	5	45	4
2LRE 005 020 S04	0.5	0.7	2	45	4
2LRE 005 040 S04	0.5	0.7	4	45	4
2LRE 005 060 S04	0.5	0.7	6	45	4
2LRE 005 080 S04	0.5	0.7	8	45	4
2LRE 005 100 S04	0.5	0.7	10	45	4
2LRE 006 020 S04	0.6	0.9	2	45	4
2LRE 006 040 S04	0.6	0.9	4	45	4
2LRE 006 060 S04	0.6	0.9	6	45	4
2LRE 006 080 S04	0.6	0.9	8	45	4
2LRE 006 100 S04	0.6	0.9	10	45	4
2LRE 008 020 S04	0.8	1.2	2	45	4
2LRE 008 040 S04	0.8	1.2	4	45	4
2LRE 008 060 S04	0.8	1.2	6	45	4
2LRE 008 080 S04	0.8	1.2	8	45	4
2LRE 008 100 S04	0.8	1.2	10	45	4
2LRE 008 120 S04	0.8	1.2	12	45	4
2LRE 010 040 S04	1	1.5	4	45	4
2LRE 010 060 S04	1	1.5	6	45	4
2LRE 010 080 S04	1	1.5	8	45	4
2LRE 010 100 S04	1	1.5	10	45	4
2LRE 010 120 S04	1	1.5	12	45	4
2LRE 010 160 S04	1	1.5	16	50	4

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D	L1	L2	L	d
2LRE 015 060 S04	1.5	2.3	6	45	4
2LRE 015 080 S04	1.5	2.3	8	45	4
2LRE 015 100 S04	1.5	2.3	10	45	4
2LRE 015 120 S04	1.5	2.3	12	45	4
2LRE 015 160 S04	1.5	2.3	16	50	4
2LRE 015 200 S04	1.5	2.3	20	50	4
2LRE 020 060 S04	2	3	6	45	4
2LRE 020 080 S04	2	3	8	45	4
2LRE 020 100 S04	2	3	10	45	4
2LRE 020 120 S04	2	3	12	45	4
2LRE 020 160 S04	2	3	16	50	4
2LRE 020 200 S04	2	3	20	50	4
2LRE 030 120 S06	3	4.5	12	50	6
2LRE 030 160 S06	3	4.5	16	60	6
2LRE 030 200 S06	3	4.5	20	60	6
2LRE 030 250 S06	3	4.5	25	65	6
2LRE 030 300 S06	3	4.5	30	70	6
2LRE 030 400 S06	3	4.5	40	80	6
2LRE 040 120 S06	4	6	12	50	6
2LRE 040 160 S06	4	6	16	60	6
2LRE 040 200 S06	4	6	20	60	6
2LRE 040 250 S06	4	6	25	65	6
2LRE 040 300 S06	4	6	30	70	6
2LRE 040 400 S06	4	6	40	80	6
2LRE 050 200 S06	5	6	20	60	6
2LRE 050 400 S06	5	6	40	80	6
2LRE 060 200 S06	6	8	20	60	6
2LRE 060 300 S06	6	8	30	90	6
2LRE 080 200 S08	8	12	20	70	8
2LRE 100 250 S10	10	15	25	80	10
2LRE 120 300 S12	12	18	30	80	12

3 Flutes 45° Helix G-TAC Coated Rib End Mills for Non-Ferrous Metal

Endmills for Aluminum, Aluminum alloy, copper, copper alloy, CFRP, glass/carbon fiber, nonferrous and non-metallic materials.

- High speed, feed applicable by 3 flute 45° degree helix and deep chip pocket design.



Size	D Tolerance
D ≤ Ø5	+0~-0.01mm
D > Ø5	+0~-0.02mm

Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D	L1	L2	L	d
3LHE 010 030 S04	1	2	3	50	4
3LHE 015 045 S04	1.5	3	4.5	50	4
3LHE 020 060 S04	2	4	6	50	4
3LHE 025 075 S04	2.5	5	7.5	50	4
3LHE 030 090 S06	3	6	9	60	6
3LHE 040 120 S06	4	9	12	60	6

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D	L1	L2	L	d
3LHE 050 150 S06	5	10	15	70	6
3LHE 060 180 S06	6	12	18	70	6
3LHE 080 240 S08	8	16	24	80	8
3LHE 100 300 S10	10	20	30	90	10
3LHE 120 360 S12	12	24	36	100	12

2LRE/3LHE

■ Apply 20% up values of below condition for 3LHE

• RPM : rev/min • Feed : mm/min

Material	Aluminum Alloy Expanding Material A7075				Aluminum Alloys Casting / Die Casting Si1 3%				Magnesium Alloy / Copper Alloy / CFRP AZ91 / AZ80A / C1100		Copper Alloy C1100	
	Regular Milling		High Speed Milling		Regular Milling		High Speed Milling		Regular Milling		High Speed Milling	
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
0.5mm	28,800	160	45,000	500	28,800	160	45,000	450	28,800	140	45,000	410
0.6mm	28,800	180	45,000	590	28,800	180	45,000	540	28,800	160	45,000	500
0.8mm	28,800	200	45,000	770	28,800	200	45,000	720	26,100	180	45,000	590
1mm	28,800	200	45,000	900	28,800	200	45,000	960	20,700	200	37,800	630
1.2mm	28,800	210	45,000	1,100	28,800	210	45,000	1,000	17,100	200	32,400	630
1.5mm	28,800	250	45,000	1,400	28,800	250	45,000	1,100	14,000	200	26,600	630
2mm	28,800	400	45,000	1,800	28,800	380	45,000	1,100	13,000	200	25,200	680
2.5mm	22,500	540	43,200	1,900	22,500	540	27,900	1,100	8,600	230	18,000	680
3mm	18,900	630	36,000	1,900	18,900	630	23,400	1,100	7,200	230	15,300	680
4mm	14,000	650	29,700	2,000	14,000	650	18,000	1,200	5,400	250	12,600	720
5mm	11,300	680	27,900	2,500	11,300	680	17,280	1,500	4,300	270	11,300	860
6mm	9,500	750	23,400	2,500	9,500	750	14,310	1,500	3,600	280	9,500	900
8mm	7,200	800	17,550	2,600	7,200	800	10,800	1,600	2,600	270	7,100	900
10mm	5,700	900	13,950	2,900	5,700	900	8,640	1,700	2,100	330	5,700	1,000
12mm	4,800	950	11,700	2,900	4,800	950	7,200	1,700	1,800	350	4,800	1,000
	Ap	Ae	Ap	Ae	Ap	Ae	Ap	Ae	Ap	Ae	Ap	Ae
	1.5D	0.1D	0.3D	1D	0.1D	0.15D	1.5D	0.1D	0.15D	1.5D	0.1D	0.05D
			0.5D									

Depth of Cut





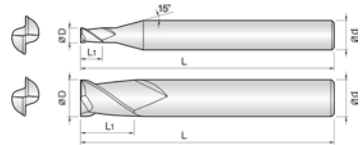
Ø0.4~Ø5 Ø6~Ø12

Sharp Edge

2 Flutes G-TAC Coated End Mills for Non-Ferrous Metal

Endmills for Aluminum, Aluminum alloy, copper, copper alloy, CFRP, glass/carbon fiber, nonferrous and non-metallic materials.

- Reinforced edge design for preventing edge chipping.
- High precise edge tolerance.



Size	D Tolerance
$D \leq \varnothing 5$	+0~-0.01mm
$D > \varnothing 5$	+0~-0.02mm

Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
2LCE 004 008 S04	0.4	0.8	45	4
2LCE 005 010 S04	0.5	1	45	4
2LCE 006 012 S04	0.6	1.2	45	4
2LCE 007 014 S04	0.7	1.4	45	4
2LCE 008 016 S04	0.8	1.6	45	4
2LCE 010 025 S04	1	2.5	45	4
2LCE 010 040 S04	1	4	45	4
2LCE 012 040 S04	1.2	4	45	4
2LCE 015 040 S04	1.5	4	45	4
2LCE 020 060 S04	2	6	45	4
2LCE 020 080 S04	2	8	45	4

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
2LCE 025 080 S04	2.5	8	50	4
2LCE 030 100 S06	3	10	50	6
2LCE 030 120 S06	3	12	50	6
2LCE 035 100 S06	3.5	10	50	6
2LCE 040 120 S06	4	12	60	6
2LCE 050 150 S06	5	15	60	6
2LCE 060 150 S06	6	15	60	6
2LCE 060 240 S06	6	24	60	6
2LCE 080 200 S08	8	20	65	8
2LCE 100 250 S10	10	25	70	10
2LCE 120 300 S12	12	30	80	12

2LCE Square

2LCE

• RPM : rev./min • Feed : mm/min

Material	Aluminum Alloy Expanding Material A7075				Aluminum Alloys Casting / Die Casting Si1 3%				Magnesium Alloy / Copper Alloy / CFRP AZ91 / AZ80A / C1100				Copper Alloy C1100			
	Regular Milling		High Speed Milling		Regular Milling		High Speed Milling		Regular Milling		High Speed Milling		Regular Milling		High Speed Milling	
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
0.1mm	32,000	35	45,000	120	32,000	35	45,000	120	32,000	35	45,000	100	32,000	60	45,000	210
0.3mm	32,000	60	45,000	300	32,000	60	45,000	300	32,000	60	45,000	210	32,000	60	45,000	210
0.5mm	28,800	90	45,000	500	28,800	90	45,000	500	28,800	90	45,000	390	28,800	90	45,000	390
0.8mm	28,800	120	45,000	700	28,800	130	45,000	700	23,000	110	45,000	500	23,000	110	45,000	500
1mm	28,800	170	45,000	900	28,800	170	45,000	900	20,700	125	37,800	630	20,700	125	37,800	630
1.5mm	28,800	230	40,500	1,100	28,800	230	40,500	1,100	14,000	130	26,700	630	14,000	130	26,700	630
2mm	23,000	270	30,600	1,100	23,000	270	30,600	1,100	10,400	135	21,600	675	10,400	135	21,600	675
3mm	15,300	460	20,700	1,100	15,300	460	20,700	1,100	7,200	200	15,300	675	7,200	200	15,300	675
4mm	11,300	470	15,300	1,100	11,300	470	15,300	1,100	5,400	210	11,700	675	5,400	210	11,700	675
5mm	9,000	490	12,200	1,100	9,000	490	12,200	1,100	4,300	225	9,000	675	4,300	225	9,000	675
6mm	7,700	540	10,000	1,100	7,700	540	10,000	1,100	3,600	225	7,200	675	3,600	225	7,200	675
8mm	6,000	600	8,200	1,200	6,000	600	8,200	1,200	2,600	300	5,900	720	2,600	300	5,900	720
10mm	4,500	650	6,000	1,400	4,500	650	6,000	1,400	2,100	300	4,300	800	2,100	300	4,300	800
12mm	3,100	690	4,500	1,500	3,100	690	4,500	1,500	1,600	320	3,200	850	1,600	320	3,200	850
	Ap	Ae	Ap	Ae	Ap	Ae	Ap	Ae	Ap	Ae	Ap	Ae	Ap	Ae	Ap	Ae
	1.2D	0.1D	0.3D	1D	0.1D	0.15D	1.2D	0.1D	0.3D	1D	0.1D	0.15D	1D	0.1D	0.3D	1D

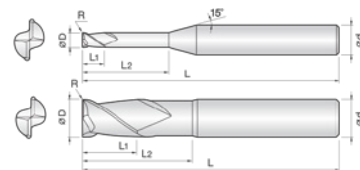
Depth of Cut



2 Flutes G-TAC Coated Coner Radius End Mills for Non-Ferrous Metal

Endmills for Aluminum, Aluminum alloy, copper, copper alloy, CFRP, glass/carbon fiber, nonferrous and non-metallic materials.

- Reinforced edge design for preventing edge chipping.
- High precise edge tolerance.



Size	D Tolerance
D ≤ Ø6	+0~ -0.01mm
D > Ø6	+0~ -0.015mm

Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	DxR	L1	L2	L	d
2LCR 010 001 040	1XR0.1	1.5	4	45	4
2LCR 010 001 060	1XR0.1	1.5	6	45	4
2LCR 010 001 080	1XR0.1	1.5	8	45	4
2LCR 010 001 100	1XR0.1	1.5	10	45	4
2LCR 010 002 040	1XR0.2	1.5	4	45	4
2LCR 010 002 060	1XR0.2	1.5	6	45	4
2LCR 010 002 080	1XR0.2	1.5	8	45	4
2LCR 010 002 100	1XR0.2	1.5	10	45	4
2LCR 015 001 060	1.5XR0.1	2.3	6	45	4
2LCR 015 001 080	1.5XR0.1	2.3	8	45	4
2LCR 015 001 100	1.5XR0.1	2.3	10	45	4
2LCR 015 001 120	1.5XR0.1	2.3	12	50	4
2LCR 015 002 060	1.5XR0.2	2.3	6	45	4
2LCR 015 002 080	1.5XR0.2	2.3	8	45	4
2LCR 015 002 100	1.5XR0.2	2.3	10	45	4
2LCR 015 002 120	1.5XR0.2	2.3	12	50	4
2LCR 020 002 080	2XR0.2	3	8	45	4
2LCR 020 002 100	2XR0.2	3	10	45	4
2LCR 020 002 120	2XR0.2	3	12	50	4
2LCR 020 002 160	2XR0.2	3	16	50	4
2LCR 020 005 080	2XR0.5	3	8	45	4
2LCR 020 005 100	2XR0.5	3	10	45	4
2LCR 020 005 120	2XR0.5	3	12	50	4
2LCR 020 005 160	2XR0.5	3	16	50	4
2LCR 030 002 100	3XR0.2	4.5	10	50	6
2LCR 030 002 120	3XR0.2	4.5	12	50	6
2LCR 030 002 160	3XR0.2	4.5	16	60	6
2LCR 030 002 200	3XR0.2	4.5	20	60	6
2LCR 030 002 250	3XR0.2	4.5	25	65	6
2LCR 030 002 300	3XR0.2	4.5	30	70	6
2LCR 030 003 100	3XR0.3	4.5	10	50	6
2LCR 030 003 120	3XR0.3	4.5	12	50	6
2LCR 030 003 160	3XR0.3	4.5	16	60	6
2LCR 030 003 200	3XR0.3	4.5	20	60	6
2LCR 030 003 250	3XR0.3	4.5	25	65	6

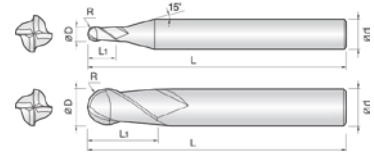
Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	DxR	L1	L2	L	d
2LCR 030 003 300	3XR0.3	4.5	30	70	6
2LCR 030 005 100	3XR0.5	4.5	10	50	6
2LCR 030 005 120	3XR0.5	4.5	12	50	6
2LCR 030 005 160	3XR0.5	4.5	16	60	6
2LCR 030 005 200	3XR0.5	4.5	20	60	6
2LCR 030 005 250	3XR0.5	4.5	25	65	6
2LCR 030 005 300	3XR0.5	4.5	30	70	6
2LCR 040 002 120	4XR0.2	6	12	50	6
2LCR 040 002 160	4XR0.2	6	16	60	6
2LCR 040 002 200	4XR0.2	6	20	60	6
2LCR 040 005 120	4XR0.5	6	12	50	6
2LCR 040 005 160	4XR0.5	6	16	60	6
2LCR 040 005 200	4XR0.5	6	20	60	6
2LCR 040 005 250	4XR0.5	6	25	65	6
2LCR 040 005 300	4XR0.5	6	30	70	6
2LCR 040 010 120	4XR1	6	12	50	6
2LCR 040 010 160	4XR1	6	16	60	6
2LCR 040 010 200	4XR1	6	20	60	6
2LCR 040 010 250	4XR1	6	25	65	6
2LCR 040 010 300	4XR1	6	30	70	6
2LCR 060 003 200	6XR0.3	9	20	60	6
2LCR 060 005 200	6XR0.5	9	20	60	6
2LCR 060 010 200	6XR1	9	20	60	6
2LCR 080 003 250	8XR0.3	12	25	65	8
2LCR 080 005 250	8XR0.5	12	25	65	8
2LCR 080 010 250	8XR1	12	25	65	8
2LCR 100 005 300	10XR0.5	15	30	70	10
2LCR 100 010 300	10XR1	15	30	70	10
2LCR 120 005 320	12XR0.5	18	32	80	12
2LCR 120 010 320	12XR1	18	32	80	12

Material	Aluminum Alloy Expanding Material A7075				Aluminum Alloys Casting / Die Casting Si1 3%				Magnesium Alloy / Copper Alloy / CFRP AZ91 / AZ80A / C1100		Copper Alloy C1100	
	Regular Milling		High Speed Milling		Regular Milling		High Speed Milling		Regular Milling		High Speed Milling	
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1mm	37,500	220	50,000	1,170	37,400	220	50,000	1,170	27,000	160	49,000	820
1.5mm	37,500	300	50,000	1,430	37,400	300	50,000	1,430	18,000	170	34,700	820
2mm	30,000	350	40,000	1,430	30,000	350	40,000	1,430	13,500	180	28,000	880
3mm	20,000	600	27,000	1,430	20,000	600	27,000	1,430	9,400	260	20,000	880
4mm	15,000	610	20,000	1,430	14,700	610	20,000	1,430	7,000	270	15,200	880
6mm	10,000	700	13,000	1,430	10,000	700	13,000	1,430	4,700	290	9,400	880
8mm	7,800	780	11,000	1,560	7,800	780	10,700	1,560	3,400	390	7,700	940
10mm	5,900	850	7,800	1,820	5,900	850	7,800	1,820	2,700	390	5,600	1,000
12mm	4,000	900	5,900	1,950	4,000	900	5,900	1,950	2,100	410	4,200	1,100
	Ap	Ae	Ap	Ap	Ae	Ap	Ap	Ae	Ap	Ap	Ae	Ap
	1.2D	0.1D	0.3D	1D	0.1D	0.15D	1.2D	0.1D	0.3D	1D	0.1D	0.15D
Depth of Cut												

4 Flutes 45° Helix Ball End Mills for SUS

Endmills for alloy steel, SUS, Ti/Ni base alloy, Inconel and hard to cut materials.

- Excellent work surface finish by 4 flute and deep chip pocket.
- Minimize fracturing at high feed by high TRS ultra fine WC grade.



Size	D Tolerance
D ≤ Ø5	+0 ~ -0.01mm
D > Ø5	+0 ~ -0.02mm

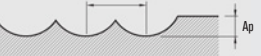
Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	R×D	L1	L	d
4HSB 030 080 S06	1.5R X 3	8	60	6
4HSB 040 080 S06	2R X 4	8	70	6
4HSB 050 100 S06	2.5R X 5	10	80	6
4HSB 060 120 S06	3R X 6	12	90	6
4HSB 080 140 S08	4R X 8	14	100	8
4HSB 100 180 S10	5R X 10	18	100	10
4HSB 120 220 S12	6R X 12	22	110	12
4HSB 160 300 S16	8R X 16	30	130	16

4HSB Ball

4HSB

• RPM : rev/min • Feed : mm/min

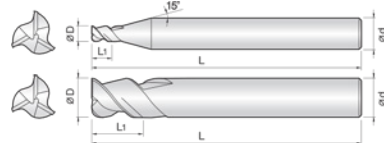
Material	Alloy steels / Tool Steels / Prehardened Steels SKD11 / SKD61 / NAK					Prehardened Steels SUS304 / SUS316 / Ti-6Al-4V					Inconel718				
Radius	α≤15°		α>15°		Ap Axial Depth	α≤15°		α>15°		Ap Axial Depth	α≤15°		α>15°		Ap Axial Depth
	RPM	FEED	RPM	FEED		RPM	FEED	RPM	FEED		RPM	FEED	RPM	FEED	
R3	16,000	4,800	10,600	2,100	0.50	12,000	3,200	8,000	1,400	0.50	3,200	500	2,100	210	0.25
R4	12,000	4,300	8,000	1,900	0.80	9,000	3,200	6,000	1,400	0.80	2,400	430	1,600	190	0.40
R5	9,600	4,100	6,400	1,800	1.00	7,200	3,000	4,800	1,300	1.00	2,000	420	1,300	180	0.50
R6	8,000	4,000	5,300	1,800	1.20	6,000	3,000	4,000	1,300	1.20	700	350	1,100	150	0.60
R8	6,000	3,200	4,000	1,400	1.60	4,500	2,500	3,000	1,100	1.60	1,200	300	800	130	0.80
Depth of Cut															



3 Flutes 45° Helix End Mills for SUS

Endmills for alloy steel, SUS, Ti/Ni base alloy, Inconel and hard to cut materials.

- Excellent work surface finish by 3 flute and deep chip pocket.
- 45° degree helix design for high speed, feed condition.



Size	D Tolerance
D ≤ Ø5	+0 ~ -0.01mm
D > Ø5	+0 ~ -0.02mm

Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
3HSM 008 020 S04	0.8	2	45	4
3HSM 010 025 S04	1	2.5	45	4
3HSM 010 025 S06	1	2.5	45	6
3HSM 012 030 S04	1.2	3	45	4
3HSM 012 030 S06	1.2	3	45	6
3HSM 015 040 S04	1.5	4	45	4
3HSM 015 040 S06	1.5	4	45	6
3HSM 020 050 S04	2	5	45	4
3HSM 020 050 S06	2	5	45	6
3HSM 030 080 S04	3	8	45	4

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
3HSM 030 080 S06	3	8	45	6
3HSM 040 100 S04	4	10	50	4
3HSM 040 100 S06	4	10	50	6
3HSM 050 120 S06	5	12	50	6
3HSM 060 120 S06	6	12	50	6
3HSM 080 190 S08	8	19	60	8
3HSM 100 220 S10	10	22	70	10
3HSM 120 260 S12	12	26	80	12
3HSM 160 360 S16	16	36	100	16

3HSM/4NSM

■ Apply 10% up values of below condition for 4NSM

• RPM : rev./min • Feed : mm/min

Material	Carbon Steels / Alloy Steels SS400 / S50C / SCM		Stainless Steels/ Titanium Alloy Steels SUS304 / SUS316 / Ti-6AL-4V		Hardened Steels SKD61		Superhit resistance / Inconel	
Hardness	~ 45HRC				45 ~ 55HRC			
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
0.8mm (3F)	7,200	80	6,400	60	3,900	30	2,000	10
1mm (3F)	6,400	100	5,600	70	3,500	30	1,700	15
2mm (3F)	5,600	110	4,800	80	2,900	34	1,400	20
3mm (3F)	4,800	200	4,000	90	2,200	45	1,400	25
4mm (3F)	4,000	200	3,300	140	1,800	70	1,200	35
5mm (3F)	3,200	230	2,700	170	1,500	90	1,000	45
6mm (3F)	2,900	250	2,400	180	1,400	90	900	45
8mm (3F)	2,200	270	1,800	190	1,000	100	720	40
10mm (3F)	1,700	260	1,400	190	900	110	600	40
12mm (3F)	1,400	230	1,200	150	700	90	500	35
16mm (3F)	1,000	160	900	120	550	60	360	30
20mm (4F)	900	170	700	130	400	70	300	25

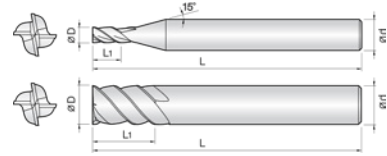
Depth of Cut								

■ In case of slotting, 80 ~ 100% of speed and 60 ~ 80% of feed on the table.

4 Flutes Non Symmetry End Mills for SUS

Endmills for alloy steel, SUS, Ti/Ni base alloy, Inconel and hard to cut materials.

- Minimize chattering by unequal flute spacing design.
- Excellent work surface finish by 4 flute and deep chip pocket.
- Minimize fracturing at high feed by high TRS ultra fine WC grade.



Size	D Tolerance
D ≤ Ø5	+0 ~ -0.01mm
D > Ø5	-0.01 ~ -0.03mm

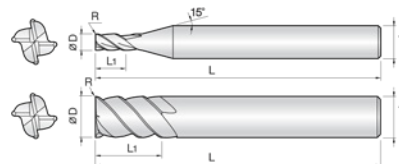
Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
4NSM 010 015 S04	1	1.5	50	4
4NSM 010 025 S04	1	2.5	50	4
4NSM 015 025 S04	1.5	2.5	50	4
4NSM 015 040 S04	1.5	4	50	4
4NSM 020 030 S04	2	3	50	4
4NSM 020 060 S04	2	6	50	4
4NSM 025 035 S04	2.5	3.5	50	4
4NSM 025 080 S04	2.5	8	50	4
4NSM 030 045 S06	3	4.5	60	6
4NSM 030 100 S06	3	10	60	6
4NSM 030 120 S06	3	12	60	6
4NSM 040 060 S06	4	6	60	6
4NSM 040 120 S06	4	12	60	6
4NSM 050 075 S06	5	7.5	60	6
4NSM 050 150 S06	5	15	60	6
4NSM 060 090 S06	6	9	60	6
4NSM 060 150 S06	6	15	60	6
4NSM 060 180 S06	6	18	60	6
4NSM 070 110 S08	7	11	70	8
4NSM 070 180 S08	7	18	70	8
4NSM 070 210 S08	7	21	70	8
4NSM 080 120 S08	8	12	70	8
4NSM 080 200 S08	8	20	70	8
4NSM 080 240 S08	8	24	70	8
4NSM 090 140 S10	9	14	80	10
4NSM 090 220 S10	9	22	80	10
4NSM 090 270 S10	9	27	80	10
4NSM 100 150 S10	10	15	80	10
4NSM 100 250 S10	10	25	80	10
4NSM 100 300 S10	10	30	80	10
4NSM 110 170 S12	11	17	90	12
4NSM 110 220 S12	11	22	90	12
4NSM 110 330 S12	11	33	90	12
4NSM 120 180 S12	12	18	90	12
4NSM 120 300 S12	12	30	90	12
4NSM 120 360 S12	12	36	90	12
4NSM 160 240 S16	16	24	100	16
4NSM 160 350 S16	16	35	100	16
4NSM 200 300 S20	20	30	100	20
4NSM 200 400 S20	20	40	100	20

4 Flutes Non Symmetry Corner Radius End Mills for SUS

Endmills for alloy steel, SUS, Ti/Ni base alloy, Inconel and hard to cut materials.

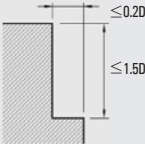
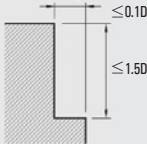
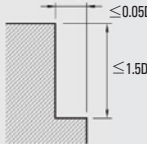
- Minimize chattering by unequal flute spacing design.
- Preventing bottom edge chipping by corner R.
- Minimize fracturing at high feed by high TRS ultra fine WC grade.

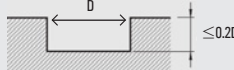


Size	D Tolerance
$D \leq \varnothing 5.5$	$+0 \sim -0.01\text{mm}$
$D > \varnothing 5.5$	$+0 \sim -0.02\text{mm}$

Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	DxR	L1	L	d
4NSR 030 002 S06	3 X R0.2	10	60	6
4NSR 030 005 S06	3 X R0.5	10	60	6
4NSR 035 002 S06	3.5 X R0.2	10	60	6
4NSR 040 002 S06	4 X R0.2	12	60	6
4NSR 040 005 S06	4 X R0.5	12	60	6
4NSR 045 002 S06	4.5 X R0.2	14	60	6
4NSR 050 002 S06	5 X R0.2	15	60	6
4NSR 050 005 S06	5 X R0.5	15	60	6
4NSR 055 002 S06	5.5 X R0.2	15	60	6
4NSR 060 003 S06	6 X R0.3	15	60	6
4NSR 060 005 S06	6 X R0.5	15	60	6
4NSR 060 010 S06	6 X R1	15	60	6
4NSR 065 003 S08	6.5 X R0.3	18	60	8
4NSR 070 003 S08	7 X R0.3	20	80	8
4NSR 080 003 S08	8 X R0.3	20	80	8
4NSR 080 005 S08	8 X R0.5	20	80	8
4NSR 080 010 S08	8 X R1	20	80	8
4NSR 085 003 S10	8.5 X R0.3	22	80	10
4NSR 090 003 S10	9 X R0.3	25	80	10
4NSR 100 003 S10	10 X R0.3	25	80	10
4NSR 100 005 S10	10 X R0.5	25	80	10
4NSR 100 010 S10	10 X R1	25	80	10
4NSR 100 015 S10	10 X R1.5	25	80	10
4NSR 100 020 S10	10 X R2	25	80	10
4NSR 120 005 S12	12 X R0.5	30	100	12
4NSR 120 010 S12	12 X R1	30	100	12
4NSR 120 015 S12	12 X R1.5	30	100	12
4NSR 120 020 S12	12 X R2	30	100	12
4NSR 120 025 S12	12 X R2.5	30	100	12
4NSR 120 030 S12	12 X R3	30	100	12
4NSR 160 005 S16	16 X R0.5	42	110	16
4NSR 160 010 S16	16 X R1	42	110	16
4NSR 200 005 S20	20 X R0.5	48	110	20
4NSR 200 010 S20	20 X R1	48	110	20

Side Cutting						
Material	Alloy Steels / Tools steel SKD61 / SK / NAK		SUS304 / SUS316 / Ti6A		Hardened Steels Inconel 718	
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED
2mm	21,000	1,100	14,000	560	4,800	130
3mm	15,000	1,250	10,600	850	4,200	200
4mm	11,000	1,400	8,000	960	3,200	220
5mm	9,600	1,900	6,400	1,000	2,500	250
6mm	8,000	2,200	5,300	1,000	2,100	250
7mm	6,800	1,900	4,500	1,000	1,800	260
8mm	6,000	1,600	4,000	960	1,600	260
9mm	5,300	1,480	3,500	840	1,400	220
10mm	4,800	1,440	3,200	770	1,300	210
11mm	4,400	1,350	2,900	760	1,200	190
12mm	4,000	1,250	2,700	760	1,100	180
16mm	3,000	1,140	2,000	560	800	130
20mm	2,400	860	1,600	510	600	100
Depth of Cut						

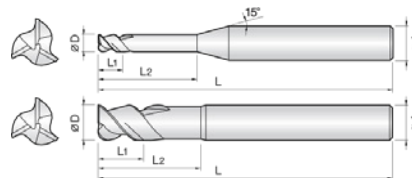
Slotting						
Material	Alloy Steels / Tools steel SKD61 / SK / NAK		SUS304 / SUS316 / Ti6A		Hardened Steels Inconel 718	
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED
2mm	10,000	400	9,600	310	3,200	80
3mm	6,900	410	7,400	380	2,700	110
4mm	5,600	490	5,600	400	2,000	120
5mm	4,500	630	4,500	410	1,600	130
6mm	3,700	740	3,700	440	1,300	160
7mm	3,200	700	3,200	410	1,100	140
8mm	2,800	670	2,800	390	1,000	130
9mm	2,500	600	2,500	350	900	130
10mm	2,200	530	2,200	350	800	130
11mm	2,000	530	2,000	320	720	120
12mm	1,900	530	1,900	300	660	110
16mm	1,400	390	1,400	280	500	80
20mm	1,100	350	1,100	260	400	60
Depth of Cut						



3 Flutes 45° Helix Rib End Mills for Aluminum

Endmills for Aluminum, AL alloy, non-ferrous and non-metallic materials.

- Applied ultra fine WC grade(0.2 μ m) for excellent surface finish.
- Applied short flute length for various applications.
- Minimize built up edge by double edge and deep pocket design.



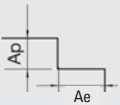
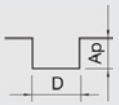
Size	D Tolerance
D ≤ Ø12	+0 ~ -0.01mm

Unit : mm

Order Number	Diameter	Length of cut		Overall Length	Shank Dia
	D	L1	L2	L	d
3AHM 010 020 S06	1	2	-	60	6
3AHM 010 040 S06	1	2	4	60	6
3AHM 010 060 S06	1	2	6	60	6
3AHM 010 080 S06	1	2	8	60	6
3AHM 010 100 S06	1	2	10	60	6
3AHM 015 030 S06	1.5	3	-	60	6
3AHM 015 060 S06	1.5	3	6	60	6
3AHM 015 100 S06	1.5	3	10	60	6
3AHM 015 120 S06	1.5	3	12	60	6
3AHM 020 040 S06	2	4	-	60	6
3AHM 020 080 S06	2	4	8	60	6
3AHM 020 120 S06	2	4	12	60	6
3AHM 020 160 S06	2	4	16	60	6
3AHM 025 050 S06	2.5	5	-	60	6
3AHM 025 100 S06	2.5	5	10	60	6
3AHM 025 150 S06	2.5	5	15	60	6
3AHM 025 200 S06	2.5	5	20	60	6
3AHM 030 060 S06	3	6	-	60	6
3AHM 030 100 S06	3	6	10	60	6
3AHM 030 150 S06	3	6	15	60	6
3AHM 030 200 S06	3	6	20	70	6
3AHM 030 250 S06	3	6	25	70	6
3AHM 030 300 S06	3	6	30	80	6
3AHM 040 080 S06	4	8	-	70	6
3AHM 040 100 S06	4	8	10	70	6
3AHM 040 150 S06	4	8	15	70	6
3AHM 040 200 S06	4	8	20	70	6
3AHM 040 250 S06	4	8	25	70	6
3AHM 040 300 S06	4	8	30	80	6
3AHM 050 100 S06	5	10	-	80	6
3AHM 050 200 S06	5	10	20	80	6
3AHM 050 300 S06	5	10	30	80	6
3AHM 060 200 S06	6	12	20	80	6
3AHM 060 400 S06	6	12	40	80	6
3AHM 080 400 S08	8	16	40	100	8
3AHM 100 500 S10	10	20	50	110	10
3AHM 120 500 S12	12	24	50	110	12

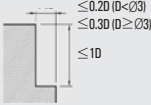
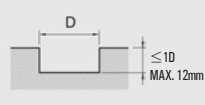
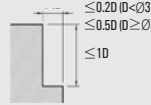
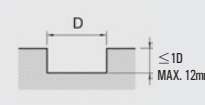
3AHE/3AHM

• RPM : rev./min • Feed : mm/min

Material	Aluminum Alloys etc.							
	3AHE				3AHM			
Outside Diameter	RPM	FEED			RPM	FEED		
		Vertical	Soltting	Side Milling		Vertical	Soltting	Side Milling
1mm	25,500	130	770	930	30,000	150	900	1,100
2mm	25,500	190	1,530	1,800	30,000	225	1,800	2,150
3mm	18,400	190	1,700	2,000	21,600	225	2,000	2,400
4mm	14,000	255	1,700	2,000	16,200	300	2,000	2,400
5mm	11,000	255	1,700	2,000	13,000	300	2,000	2,400
6mm	9,200	255	1,700	2,000	10,800	300	2,000	2,400
8mm	7,000	255	1,700	2,000	8,100	300	2,000	2,400
10mm	5,500	210	1,700	2,000	6,480	250	2,000	2,400
12mm	4,400	170	1,700	2,000	5,400	200	2,000	2,400
16mm	3,200	130	1,530	1,900	-	-	-	-
20mm	2,000	85	1,360	1,700	-	-	-	-
Milling Amount (mm)		Ap=0.75D	Ap=0.75D	Ap=0.75D/ Ae=0.3D		Ap=0.75D	Ap=0.75D	Ap=0.75D/ Ae=0.3D
Depth of Cut								

2AHE

• RPM : rev./min • Feed : mm/min

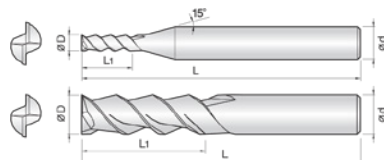
Material	Aluminum Alloys / A7075 etc.				Aluminum Alloys / AC4B etc.			
Speed	300m/min		240m/min		240m/min		200m/min	
Outside Diameter	Side Milling		Solting		Side Milling		Solting	
	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1mm	34,000	500	34,000	400	34,000	400	34,000	300
2mm	34,000	950	32,300	720	32,300	720	27,200	470
3mm	27,200	1,200	21,300	800	21,300	800	18,000	510
4mm	20,400	1,300	16,000	850	16,000	850	14,000	550
5mm	16,200	1,400	13,000	850	13,000	850	11,000	600
6mm	13,600	1,600	11,000	940	11,000	940	9,400	640
8mm	10,200	1,600	8,000	1,000	8,000	1,000	6,800	680
10mm	8,100	1,600	6,500	1,000	6,500	1,000	5,400	680
12mm	6,800	1,600	5,400	1,000	5,400	1,000	4,500	680
16mm	5,100	1,600	4,100	1,000	4,100	1,000	3,400	610
20mm	4,100	1,300	3,200	850	3,200	850	2,700	560
Depth of Cut								



2 Flutes 45° Helix End Mills for Aluminum

Endmills for Aluminum, AL alloy, non-ferrous and non-metallic materials.

- Applied ultra fine WC grade(0.2 μ m) for excellent surface finish.
- Various flute length design for covering wide range application.
- Minimize built up edge by double edge and deep pocket design.



Size	D Tolerance
D ≤ Ø20	+0 ~ -0.01mm

Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
2AHE 010 025 S06	1	2.5	40	6
2AHE 010 035 S06	1	3.5	40	6
2AHE 010 050 S06	1	5	45	6
2AHE 015 040 S06	1.5	4	40	6
2AHE 015 060 S06	1.5	6	40	6
2AHE 015 080 S06	1.5	8	45	6
2AHE 020 050 S06	2	5	45	6
2AHE 020 070 S06	2	7	45	6
2AHE 020 100 S06	2	10	50	6
2AHE 020 120 S06	2	12	50	6
2AHE 025 080 S06	2.5	8	45	6
2AHE 025 120 S06	2.5	12	50	6
2AHE 030 080 S06	3	8	45	6
2AHE 030 100 S06	3	10	45	6
2AHE 030 120 S06	3	12	50	6
2AHE 030 150 S06	3	15	50	6
2AHE 030 200 S06	3	20	60	6
2AHE 035 100 S06	3.5	10	45	6
2AHE 035 150 S06	3.5	15	50	6
2AHE 040 120 S06	4	12	50	6
2AHE 040 150 S06	4	15	55	6
2AHE 040 180 S06	4	18	55	6
2AHE 040 250 S06	4	25	65	6
2AHE 045 120 S06	4.5	12	50	6
2AHE 045 180 S06	4.5	18	55	6
2AHE 050 150 S06	5	15	50	6
2AHE 050 200 S06	5	20	60	6
2AHE 050 250 S06	5	25	65	6
2AHE 055 150 S06	5.5	15	50	6
2AHE 060 150 S06	6	15	50	6
2AHE 060 200 S06	6	20	60	6
2AHE 060 250 S06	6	25	65	6

[illegible]



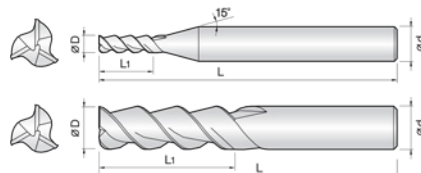
01~020

Shield Edge

3 Flutes 45° Helix End Mills for Aluminum

Endmills for Aluminum, AL alloy, non-ferrous and non-metallic materials.

- Applied ultra fine WC grade(0.2 μ m) for excellent surface finish.
- Various flute length design for covering wide range application.
- Minimize built up edge by double edge and deep pocket design.



Size	D Tolerance
$D \leq \varnothing 20$	$+0 \sim -0.01\text{mm}$

Unit : mm

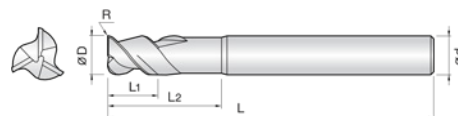
Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
3AHE 010 015 S06	1	1.5	40	6
3AHE 010 030 S06	1	3	40	6
3AHE 010 050 S06	1	5	45	6
3AHE 015 025 S06	1.5	2.5	40	6
3AHE 015 040 S06	1.5	4	40	6
3AHE 015 060 S06	1.5	6	45	6
3AHE 015 080 S06	1.5	8	45	6
3AHE 020 030 S06	2	3	45	6
3AHE 020 050 S06	2	5	45	6
3AHE 020 070 S06	2	7	45	6
3AHE 020 100 S06	2	10	50	6
3AHE 020 120 S06	2	12	50	6
3AHE 025 040 S06	2.5	4	45	6
3AHE 025 080 S06	2.5	8	45	6
3AHE 025 120 S06	2.5	12	50	6
3AHE 030 045 S06	3	4.5	45	6
3AHE 030 080 S06	3	8	45	6
3AHE 030 120 S06	3	12	50	6
3AHE 030 150 S06	3	15	50	6
3AHE 030 200 S06	3	20	55	6
3AHE 030 250 S06	3	25	60	6
3AHE 030 300 S06	3	30	65	6
3AHE 035 055 S06	3.5	5.5	45	6
3AHE 035 100 S06	3.5	10	45	6
3AHE 035 150 S06	3.5	15	50	6
3AHE 040 060 S06	4	6	45	6
3AHE 040 110 S06	4	11	45	6
3AHE 040 160 S06	4	16	50	6
3AHE 040 200 S06	4	20	55	6
3AHE 040 250 S06	4	25	60	6
3AHE 040 300 S06	4	30	65	6
3AHE 045 120 S06	4.5	12	50	6
3AHE 045 180 S06	4.5	18	55	6
3AHE 050 075 S06	5	7.5	50	6
3AHE 050 130 S06	5	13	50	6
3AHE 050 200 S06	5	20	55	6
3AHE 050 250 S06	5	25	60	6
3AHE 050 300 S06	5	30	65	6
3AHE 055 150 S06	5.5	15	50	6
3AHE 060 090 050	6	9	50	6
3AHE 060 150 050	6	15	50	6
3AHE 060 200 055	6	20	55	6

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
3AHE 060 250 060	6	25	60	6
3AHE 060 300 070	6	30	70	6
3AHE 080 120 060	8	12	60	8
3AHE 080 200 060	8	20	60	8
3AHE 080 250 065	8	25	65	8
3AHE 080 300 070	8	30	70	8
3AHE 080 350 075	8	35	75	8
3AHE 080 400 080	8	40	80	8
3AHE 080 450 090	8	45	90	8
3AHE 080 500 090	8	50	90	8
3AHE 080 550 100	8	55	100	8
3AHE 100 150 070	10	15	70	10
3AHE 100 250 070	10	25	70	10
3AHE 100 300 075	10	30	75	10
3AHE 100 350 080	10	35	80	10
3AHE 100 400 090	10	40	90	10
3AHE 100 450 090	10	45	90	10
3AHE 100 500 100	10	50	100	10
3AHE 100 550 100	10	55	100	10
3AHE 100 600 110	10	60	110	10
3AHE 100 650 110	10	65	110	10
3AHE 120 180 075	12	18	75	12
3AHE 120 260 075	12	26	75	12
3AHE 120 350 080	12	35	80	12
3AHE 120 400 090	12	40	90	12
3AHE 120 450 090	12	45	90	12
3AHE 120 500 100	12	50	100	12
3AHE 120 550 100	12	55	100	12
3AHE 120 650 110	12	65	110	12
3AHE 140 300 080	14	30	80	14
3AHE 140 450 110	14	45	110	14
3AHE 160 300 090	16	30	90	16
3AHE 160 500 110	16	50	110	16
3AHE 160 650 120	16	65	120	16
3AHE 160 800 130	16	80	130	16
3AHE 200 500 100	20	50	100	20
3AHE 200 750 130	20	75	130	20
3AHE 200 1000 160	20	100	160	20
3AHE 200 1300 200	20	130	200	20

3 Flutes 45° Helix Coner Radius End Mills for Aluminum

Endmills for Aluminum, AL alloy, non-ferrous and non-metallic materials.

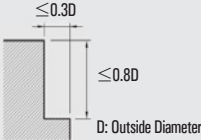
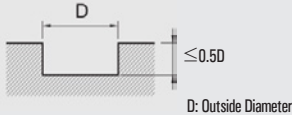
- Applied ultra fine WC grade(0.2 μ m) for excellent surface finish.
- Minimize built up edge by double edge and deep pocket design.
- High speed, feed applicable by 3 flute 45°degree helix and short flute design.



Size	D Tolerance
D ≤ Ø6	+0~-0.01mm
D > Ø6	+0~-0.015mm

Unit : mm

Order Number		Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
非涂层 Non coated	涂层 Coated	D×R	L1	L2	L	d
3AHR 060 005 050	3AHRD 060 005 050	6 X R0.5	15	-	50	6
3AHR 060 005 070	3AHRD 060 005 070	6 X R0.5	7	20	70	6
3AHR 060 010 050	3AHRD 060 010 050	6 X R1	15	-	50	6
3AHR 060 010 070	3AHRD 060 010 070	6 X R1	7	20	70	6
3AHR 080 005 060	3AHRD 080 005 060	8 X R0.5	20	-	60	8
3AHR 080 005 080	3AHRD 080 005 080	8 X R0.5	9	25	80	8
3AHR 080 010 060	3AHRD 080 010 060	8 X R1	20	-	60	8
3AHR 080 010 080	3AHRD 080 010 080	8 X R1	9	25	80	8
3AHR 080 020 060	3AHRD 080 020 060	8 X R2	20	-	60	8
3AHR 080 020 080	3AHRD 080 020 080	8 X R2	9	25	80	8
3AHR 080 025 080	3AHRD 080 025 080	8 X R2.5	9	25	80	8
3AHR 100 010 070	3AHRD 100 010 070	10 X R1	25	-	70	10
3AHR 100 010 100	3AHRD 100 010 100	10 X R1	11	30	100	10
3AHR 100 015 070	3AHRD 100 015 070	10 X R1.5	25	-	70	10
3AHR 100 015 100	3AHRD 100 015 100	10 X R1.5	11	30	100	10
3AHR 100 020 070	3AHRD 100 020 070	10 X R2	25	-	70	10
3AHR 100 020 100	3AHRD 100 020 100	10 X R2	11	30	100	10
3AHR 100 025 100	3AHRD 100 025 100	10 X R2.5	11	30	100	10
3AHR 120 010 075	3AHRD 120 010 075	12 X R1	30	-	75	12
3AHR 120 010 110	3AHRD 120 010 110	12 X R1	13	36	110	12
3AHR 120 015 110	3AHRD 120 015 110	12 X R1.5	13	36	110	12
3AHR 120 020 075	3AHRD 120 020 075	12 X R2	30	-	75	12
3AHR 120 020 110	3AHRD 120 020 110	12 X R2	13	36	110	12
3AHR 120 025 110	3AHRD 120 025 110	12 X R2.5	13	36	110	12
3AHR 120 030 075	3AHRD 120 030 075	12 X R3	30	-	75	12
3AHR 120 030 110	3AHRD 120 030 110	12 X R3	13	36	110	12
3AHR 120 040 075	3AHRD 120 040 075	12 X R4	30	-	75	12
3AHR 120 040 110	3AHRD 120 040 110	12 X R4	13	36	110	12
3AHR 160 010 090	3AHRD 160 010 090	16 X R1	35	-	90	16
3AHR 160 010 130	3AHRD 160 010 130	16 X R1	17	50	130	16
3AHR 160 020 090	3AHRD 160 020 090	16 X R2	35	-	90	16
3AHR 160 020 130	3AHRD 160 020 130	16 X R2	17	50	130	16
3AHR 160 025 130	3AHRD 160 025 130	16 X R2.5	17	50	130	16
3AHR 160 030 090	3AHRD 160 030 090	16 X R3	35	-	90	16
3AHR 160 030 130	3AHRD 160 030 130	16 X R3	17	50	130	16
3AHR 160 040 090	3AHRD 160 040 090	16 X R4	35	-	90	16
3AHR 160 040 130	3AHRD 160 040 130	16 X R4	17	50	130	16
3AHR 160 050 090	3AHRD 160 050 090	16 X R5	35	-	90	16
3AHR 200 020 150	3AHRD 200 020 150	20 X R2	21	60	150	20
3AHR 200 025 150	3AHRD 200 025 150	20 X R2.5	21	60	150	20
3AHR 200 030 150	3AHRD 200 030 150	20 X R3	21	60	150	20
3AHR 200 040 150	3AHRD 200 040 150	20 X R4	21	60	150	20

Material	Side Cutting		Slotting	
	Aluminum Alloys / A7075 etc.		Aluminum Alloys / A7075 etc.	
Outside Diameter	RPM	FEED	RPM	FEED
6mm	20,000	8,400	20,000	6,600
8mm	18,000	7,500	18,000	5,400
10mm	15,000	6,000	15,000	4,000
12mm	13,000	5,400	13,000	3,200
16mm	10,000	5,400	10,000	3,200
20mm	8,000	5,000	8,000	3,000
Depth of Cut				

K ALUMINUM

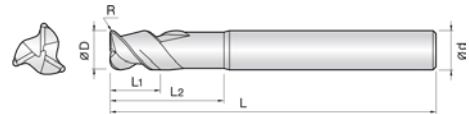
3ARR



3 Flutes Semi-Finishing & Roughing Corner Radius End Mills for Aluminum

High speed semi finishing and roughing endmills for Aluminum, AL alloy, non-ferrous and non-metallic materials.

- Minimize built up edge by chip breaker and deep pocket design.
- Good surface integrity differently from competitor's AL roughing endmills.
- Minimize fracturing at high feed by high TRS ultra fine WC grade.



Size	D Tolerance
$D \leq \varnothing 20$	+0 ~ -0.03mm

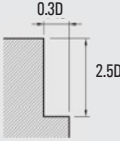
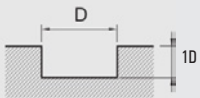
Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D×R	L1	L2	L	d
3ARR 060 005 S06	6 X R0.5	9	15	65	6
3ARR 060 010 S06	6 X R1	9	15	65	6
3ARR 080 005 S08	8 X R0.5	12	20	70	8
3ARR 080 010 S08	8 X R1	12	20	70	8
3ARR 100 010 S10	10 X R1	15	25	75	10
3ARR 100 020 S10	10 X R2	15	25	75	10
3ARR 120 010 S12	12 X R1	20	30	80	12
3ARR 120 020 S12	12 X R2	20	30	80	12
3ARR 120 030 S12	12 X R3	20	30	80	12
3ARR 160 010 S16	16 X R1	25	35	110	16
3ARR 160 020 S16	16 X R2	25	35	110	16
3ARR 160 030 S16	16 X R3	25	35	110	16
3ARR 200 020 S20	20 X R2	30	50	110	20
3ARR 200 030 S20	20 X R3	30	50	110	20

3ARM/3ARR

• RPM : rev./min • Feed : mm/min

Material	Copper		Aluminum	
Speed	80m/min		80 ~ 150m/min	
Outside Diameter	RPM	FEED	RPM	FEED
6mm	4,200	320	8,000	1,200
8mm	3,200	320	6,000	1,200
10mm	2,600	320	4,800	1,200
12mm	2,100	320	4,000	1,200
16mm	1,600	320	3,000	1,200
20mm	1,300	320	2,400	1,200

Depth of Cut	 
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K ALUMINUM

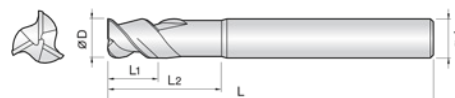
3ARM



3 Flutes Semi-Finishing & Roughing End Mills for Aluminum

High speed semi finishing and roughing endmills for Aluminum, AL alloy, non-ferrous and non-metallic materials.

- Minimize built up edge by chip braker and deep pocket design.
- Good surface integrity differently from competitor's AL roughing endmills.
- Minimize fracturing at high feed by high TRS ultra fine WC grade.



Size	D Tolerance
D ≤ Ø20	+0~ -0.03mm

Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D	L1	L2	L	d
3ARM 060 150 S06	6	10	15	50	6
3ARM 060 200 S06	6	15	20	70	6
3ARM 080 200 S08	8	15	20	60	8
3ARM 080 250 S08	8	20	25	80	8
3ARM 100 250 S10	10	18	25	70	10
3ARM 100 300 S10	10	23	30	90	10
3ARM 120 300 S12	12	20	30	80	12
3ARM 120 400 S12	12	30	40	100	12
3ARM 160 350 S16	16	25	35	110	16
3ARM 160 500 S16	16	35	50	120	16
3ARM 200 500 S20	20	35	50	110	20
3ARM 200 600 S20	20	45	60	120	20

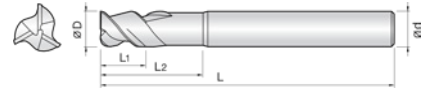
K ALUMINUM

3ARH

3 Flutes 45° Helix Roughing End Mills for Aluminum

High speed semi finishing and roughing endmills for Aluminum, AL alloy, non-ferrous and non-metallic materials.

- Minimize built up edge by chip breaker and deep pocket design.
- High speed roughing applicable by 45°helix fine pitch flute.
- Minimize fracturing at high feed by high TRS ultra fine WC grade.



Size	D Tolerance
$D \leq \varnothing 6$	+0~-0.02mm
$D > \varnothing 6$	-0.02~-0.05mm

Unit : mm

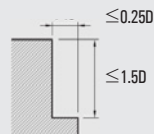
Order Number		Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
非涂层 Non coated	涂层 Coated	D	L1	L2	L	d
3ARH 040 150 S06	3ARHD 040 150 S06	4	10	15	60	6
3ARH 050 200 S06	3ARHD 050 200 S06	5	15	20	60	6
3ARH 060 210 S06	3ARHD 060 210 S06	6	16	21	65	6
3ARH 080 270 S08	3ARHD 080 270 S08	8	21	27	70	8
3ARH 100 310 S10	3ARHD 100 310 S10	10	26	31	75	10
3ARH 120 380 S12	3ARHD 120 380 S12	12	30	38	80	12
3ARH 160 450 S16	3ARHD 160 450 S16	16	36	45	100	16
3ARH 200 550 S20	3ARHD 200 550 S20	20	41	55	110	20

3ARH

• RPM : rev/min • Feed : mm/min

Material	Side Cutting			
	Aluminum Alloys / A7075 etc.		Aluminum Alloys / AC4B etc.	
Outside Diameter	RPM	FEED	RPM	FEED
4mm	30,000	4,200	16,000	1,800
5mm	27,000	4,900	14,400	2,000
6mm	24,300	5,500	11,700	2,100
8mm	18,000	5,400	9,000	2,200
10mm	14,400	5,200	7,200	2,100
12mm	11,700	4,800	5,900	1,900
16mm	9,000	4,600	4,500	1,800
20mm	7,200	4,300	3,600	1,700

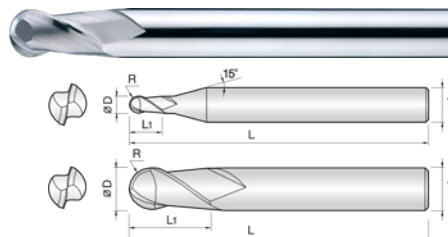
Depth of Cut



2 Flutes Ball End Mills

Endmills for Mild steel, Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.

- Improve tool performance by even run-out and tolerance control.
- Very nice work surface finish.



Size	D Tolerance
D ≤ Ø6	+0~ -0.01mm
D > Ø6	+0~ -0.015mm

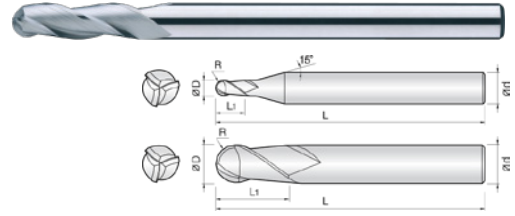
Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	R×D	L1	L	d
2NBE 001 002 S03	0.05R X 0.1	0.2	38	3
2NBE 0015 003 S03	0.075R X 0.15	0.3	38	3
2NBE 002 004 S03	0.1R X 0.2	0.4	38	3
2NBE 003 006 S03	0.15R X 0.3	0.6	38	3
2NBE 004 008 S03	0.2R X 0.4	0.8	38	3
2NBE 005 010 S03	0.25R X 0.5	1	38	3
2NBE 006 012 S03	0.3R X 0.6	1.2	38	3
2NBE 007 014 S03	0.35R X 0.7	1.4	38	3
2NBE 008 016 S03	0.4R X 0.8	1.6	38	3
2NBE 009 018 S03	0.45R X 0.9	1.8	38	3
2NBE 010 025 S03	0.5R X 1	2.5	50	3
2NBE 010 025 S06	0.5R X 1	2.5	50	6
2NBE 010 025 100	0.5R X 1	2.5	100	6
2NBE 011 025 S03	0.55R X 1.1	2.5	50	3
2NBE 012 030 S03	0.6R X 1.2	3	50	3
2NBE 015 040 S03	0.75R X 1.5	4	50	3
2NBE 015 040 100	0.75R X 1.5	4	100	6
2NBE 020 050 S03	1R X 2	5	50	3
2NBE 020 050 S06	1R X 2	5	50	6
2NBE 020 050 100	1R X 2	5	100	6
2NBE 025 060 S03	1.25R X 2.5	6	50	3
2NBE 025 060 100	1.25R X 2.5	6	100	6
2NBE 030 080 S03	1.5R X 3	8	60	3
2NBE 030 080 S06	1.5R X 3	8	60	6
2NBE 030 080 100	1.5R X 3	8	100	6
2NBE 035 080 S06	1.75R X 3.5	8	65	6
2NBE 040 080 S06	2R X 4	8	70	6
2NBE 040 080 120	2R X 4	8	120	6
2NBE 050 120 S06	2.5R X 5	12	75	6
2NBE 060 120 080	3R X 6	12	80	6
2NBE 060 120 100	3R X 6	12	100	6
2NBE 080 140 090	4R X 8	14	90	8
2NBE 080 140 110	4R X 8	14	110	8
2NBE 100 180 100	5R X 10	18	100	10
2NBE 100 180 120	5R X 10	18	120	10
2NBE 120 220 110	6R X 12	22	110	12
2NBE 120 220 130	6R X 12	22	130	12

3 Flutes Ball End Mills

Endmills for Mild steel, Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.

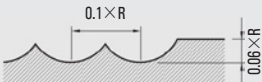
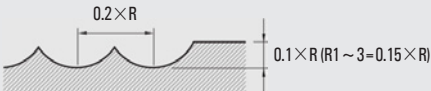
- Minimize chattering by short flute design.
- Very nice work surface finish.



Size	D Tolerance
D ≤ Ø6	+0~-0.01mm
D > Ø6	+0~-0.015mm

Unit : mm

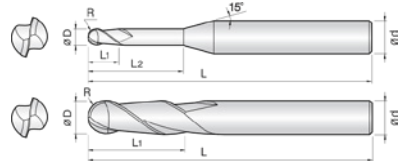
Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	R×D	L1	L	d
3NBE 003 008 S04	0.15R X 0.3	0.8	40	4
3NBE 003 012 S04	0.15R X 0.3	1.2	40	4
3NBE 004 010 S04	0.2R X 0.4	1	40	4
3NBE 004 015 S04	0.2R X 0.4	1.5	40	4
3NBE 005 013 S04	0.25R X 0.5	1.3	45	4
3NBE 005 020 S04	0.25R X 0.5	2	45	4
3NBE 006 015 S04	0.3R X 0.6	1.5	45	4
3NBE 006 024 S04	0.3R X 0.6	2.4	45	4
3NBE 007 018 S04	0.35R X 0.7	1.8	45	4
3NBE 007 028 S04	0.35R X 0.7	2.8	45	4
3NBE 008 020 S04	0.4R X 0.8	2	45	4
3NBE 008 032 S04	0.4R X 0.8	3.2	45	4
3NBE 009 025 S04	0.45R X 0.9	2.5	50	4
3NBE 009 036 S04	0.45R X 0.9	3.6	50	4
3NBE 010 025 S04	0.5R X 1	2.5	50	4
3NBE 010 040 S04	0.5R X 1	4	50	4
3NBE 010 060 S04	0.5R X 1	6	60	4
3NBE 012 030 S04	0.6R X 1.2	3	50	4
3NBE 012 050 S04	0.6R X 1.2	5	50	4
3NBE 012 070 S04	0.6R X 1.2	7	60	4
3NBE 015 040 S04	0.75R X 1.5	4	50	4
3NBE 015 060 S04	0.75R X 1.5	6	50	4
3NBE 015 090 S04	0.75R X 1.5	9	60	4
3NBE 020 050 S04	1R X 2	5	50	4
3NBE 020 080 S04	1R X 2	8	50	4
3NBE 020 100 S04	1R X 2	10	60	4
3NBE 025 060 S04	1.25R X 2.5	6	50	4
3NBE 025 100 S04	1.25R X 2.5	10	60	4
3NBE 025 150 S04	1.25R X 2.5	15	70	4
3NBE 030 080 S04	1.5R X 3	8	50	4
3NBE 030 120 S04	1.5R X 3	12	60	4
3NBE 030 150 S04	1.5R X 3	15	80	4
3NBE 040 100 S04	2R X 4	10	60	4
3NBE 040 150 S04	2R X 4	15	80	4
3NBE 060 200 S06	3R X 6	20	80	6
3NBE 060 300 S06	3R X 6	30	110	6

Material	Carbon/ Alloy steels/ Prehardened Steels S50C / SCM / SKD / SUS / HPM / NAK		Carbon Steels S50C		Alloy steels SCM / SKD / SUS		Prehardened Steels HPM / NAK	
	R < 1				R > 1			
Speed	50m/min		80m/min		70m/min		60m/min	
Radius	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R0.2	36,000	630	-	-	-	-	-	-
R0.3	24,300	675	-	-	-	-	-	-
R0.4	11,800	780	-	-	-	-	-	-
R0.5	12,000	780	-	-	-	-	-	-
R0.6	10,200	780	-	-	-	-	-	-
R0.75	9,000	780	-	-	-	-	-	-
R1	-	-	11,400	630	10,000	520	8,700	400
R1.5	-	-	7,700	630	6,700	520	5,800	400
R2	-	-	5,800	630	5,000	520	4,300	400
R3	-	-	3,800	630	3,300	520	2,900	400
R4	-	-	2,900	630	2,500	520	2,200	400
R5	-	-	2,300	630	2,000	520	1,700	400
R6	-	-	1,900	630	1,700	520	1,400	400
Depth of Cut								

2 Flutes Micro Long Ball End Mills

Endmills for Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.

- Improve tool performance by even run-out and tolerance control.
- Long flute helps chip control in deep groove machining.



Size	D Tolerance
D ≤ Ø6	+0~-0.01mm
D > Ø6	+0~-0.015mm

Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
2NLB 002 010 S03	0.1R X 0.2	0.4	1	40	3
2NLB 002 015 S03	0.1R X 0.2	0.4	1.5	40	3
2NLB 002 020 S03	0.1R X 0.2	0.4	2	40	3
2NLB 003 010 S03	0.15R X 0.3	1	-	45	3
2NLB 003 015 S03	0.15R X 0.3	1	1.5	45	3
2NLB 003 018 S03	0.15R X 0.3	1.8	-	45	3
2NLB 003 020 S03	0.15R X 0.3	1	2	45	3
2NLB 003 025 S03	0.15R X 0.3	1	2.5	45	3
2NLB 003 030 S03	0.15R X 0.3	1	3	45	3
2NLB 003 040 S03	0.15R X 0.3	1	4	45	3
2NLB 004 012 S03	0.2R X 0.4	1.2	-	45	3
2NLB 004 020 S03	0.2R X 0.4	2	-	45	3
2NLB 004 030 S03	0.2R X 0.4	1.2	3	45	3
2NLB 004 040 S03	0.2R X 0.4	1.2	4	45	3
2NLB 004 050 S03	0.2R X 0.4	1.2	5	45	3
2NLB 005 015 S03	0.25R X 0.5	1.5	-	50	3
2NLB 005 020 S03	0.25R X 0.5	2	-	50	3
2NLB 005 030 S03	0.25R X 0.5	1.5	3	50	3
2NLB 005 040 S03	0.25R X 0.5	1.5	4	50	3
2NLB 005 050 S03	0.25R X 0.5	1.5	5	50	3
2NLB 005 060 S03	0.25R X 0.5	1.5	6	50	3
2NLB 005 080 S03	0.25R X 0.5	1.5	8	50	3
2NLB 005 100 S03	0.25R X 0.5	1.5	10	50	3
2NLB 006 030 S03	0.3R X 0.6	3	-	50	3
2NLB 006 060 S03	0.3R X 0.6	3	6	50	3
2NLB 006 080 S03	0.3R X 0.6	3	8	50	3
2NLB 006 100 S03	0.3R X 0.6	3	10	50	3
2NLB 007 030 S03	0.35R X 0.7	3	-	50	3
2NLB 007 070 S03	0.35R X 0.7	3	7	50	3
2NLB 007 100 S03	0.35R X 0.7	3	10	50	3
2NLB 007 120 S03	0.35R X 0.7	3	12	50	3
2NLB 008 040 S03	0.4R X 0.8	4	-	50	3
2NLB 008 080 S03	0.4R X 0.8	4	8	50	3
2NLB 008 100 S03	0.4R X 0.8	4	10	50	3
2NLB 008 120 S03	0.4R X 0.8	4	12	50	3
2NLB 009 040 S03	0.45R X 0.9	4	-	50	3

Order Number	刃径 Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
2NLB 009 060 S03	0.45R X 0.9	4	6	50	3
2NLB 009 080 S03	0.45R X 0.9	4	8	50	3
2NLB 009 100 S03	0.45R X 0.9	4	10	50	3
2NLB 010 050 S03	0.5R X 1	5	-	80	3
2NLB 010 050 S04	0.5R X 1	5	-	80	4
2NLB 010 100 S03	0.5R X 1	5	10	80	3
2NLB 010 100 S04	0.5R X 1	5	10	80	4
2NLB 010 150 S03	0.5R X 1	5	15	80	3
2NLB 010 150 S04	0.5R X 1	5	15	80	4
2NLB 010 200 S03	0.5R X 1	5	20	80	3
2NLB 010 200 S04	0.5R X 1	5	20	80	4
2NLB 010 250 S03	0.5R X 1	5	25	80	3
2NLB 010 250 S04	0.5R X 1	5	25	80	4
2NLB 010 300 S03	0.5R X 1	5	30	80	3
2NLB 010 300 S04	0.5R X 1	5	30	80	4
2NLB 010 350 S04	0.5R X 1	5	35	100	4
2NLB 010 400 S04	0.5R X 1	5	40	100	4
2NLB 015 100 S03	0.75R X 1.5	10	-	80	3
2NLB 015 100 S04	0.75R X 1.5	10	-	80	4
2NLB 015 150 S03	0.75R X 1.5	10	15	80	3
2NLB 015 150 S04	0.75R X 1.5	10	15	80	4
2NLB 015 200 S03	0.75R X 1.5	10	20	80	3
2NLB 015 200 S04	0.75R X 1.5	10	20	80	4
2NLB 015 250 S03	0.75R X 1.5	10	25	80	3
2NLB 015 250 S04	0.75R X 1.5	10	25	80	4
2NLB 015 300 S03	0.75R X 1.5	10	30	80	3
2NLB 015 300 S04	0.75R X 1.5	10	30	80	4
2NLB 015 350 S04	0.75R X 1.5	10	35	100	4
2NLB 015 400 S04	0.75R X 1.5	10	40	100	4
2NLB 020 100 S03	1R X 2	10	-	80	3
2NLB 020 100 S04	1R X 2	10	-	80	4
2NLB 020 150 S03	1R X 2	10	15	80	3
2NLB 020 150 S04	1R X 2	10	15	80	4
2NLB 020 200 S03	1R X 2	10	20	80	3
2NLB 020 200 S04	1R X 2	10	20	80	4
2NLB 020 250 S03	1R X 2	10	25	80	3

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
2NLB 020 250 S04	1R X 2	10	25	80	4
2NLB 020 300 S03	1R X 2	10	30	80	3
2NLB 020 300 S04	1R X 2	10	30	80	4
2NLB 020 350 S03	1R X 2	10	35	80	3
2NLB 020 350 S04	1R X 2	10	35	100	4
2NLB 020 400 S03	1R X 2	10	40	80	3
2NLB 020 400 S04	1R X 2	10	40	100	4
2NLB 025 100 S03	1.25R X 2.5	10	-	80	3
2NLB 025 150 S03	1.25R X 2.5	15	-	80	3
2NLB 025 200 S03	1.25R X 2.5	15	20	80	3
2NLB 030 100 060	1.5R X 3	10	-	60	3
2NLB 030 200 080	1.5R X 3	20	-	80	3
2NLB 030 200 100	1.5R X 3	20	-	100	3
2NLB 030 200 120	1.5R X 3	20	-	120	3
2NLB 030 150 S06	1.5R X 3	15	-	100	6
2NLB 030 200 S06	1.5R X 3	15	20	100	6
2NLB 030 250 S06	1.5R X 3	15	25	100	6
2NLB 030 300 S06	1.5R X 3	15	30	100	6
2NLB 030 400 S06	1.5R X 3	15	40	100	6
2NLB 040 200 080	2R X 4	20	-	80	4
2NLB 040 200 100	2R X 4	20	-	100	4

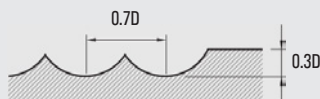
Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	R×D	L1	L2	L	d
2NLB 040 200 130	2R X 4	20	-	130	4
2NLB 040 200 S06	2R X 4	20	-	100	6
2NLB 040 250 S06	2R X 4	20	25	100	6
2NLB 040 300 S06	2R X 4	20	30	100	6
2NLB 040 400 S06	2R X 4	20	40	120	6
2NLB 040 500 S06	2R X 4	20	50	120	6
2NLB 050 300 100	2.5R X 5	30	-	100	5
2NLB 050 300 120	2.5R X 5	30	-	120	5
2NLB 060 300 080	3R X 6	30	-	80	6
2NLB 060 400 100	3R X 6	40	-	100	6
2NLB 060 400 120	3R X 6	40	-	120	6
2NLB 060 400 150	3R X 6	40	-	150	6
2NLB 080 450 120	4R X 8	45	-	120	8
2NLB 080 450 150	4R X 8	45	-	150	8
2NLB 100 500 120	5R X 10	50	-	120	10
2NLB 100 500 150	5R X 10	50	-	150	10
2NLB 120 550 130	6R X 12	55	-	130	12
2NLB 120 550 150	6R X 12	55	-	150	12
2NLB 160 700 160	8R X 16	70	-	160	16

2NLB

• RPM : rev./min • Feed : mm/min

Material	ABS / Acrylic	
Outside Diameter	RPM	FEED
R0.1	37,000	50
R0.2	37,000	100
R0.3	37,000	140
R0.4	37,000	190
R0.5	32,000	210
R1	16,000	210
R1.5	11,000	210
R2	8,200	210
R2.5	6,000	250
R3	5,500	250
R4	4,100	280
R5	3,200	280
R6	2,700	330
R8	2,200	330

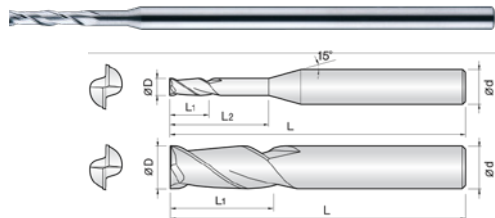
Depth of Cut



2 Flutes Micro Long End Mills

Endmills for Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.

- Improve tool performance by even run-out and tolerance control.
- Long flute helps chip control in deep groove machining.
- Reinforced edge design for preventing edge chipping.



Size	D Tolerance
D ≤ Ø5	+0 -0.01mm
D > Ø5	+0 -0.02mm

Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D	L1	L2	L	d
2NLE 002 010 S03	0.2	0.4	1	40	3
2NLE 002 015 S03	0.2	0.4	1.5	40	3
2NLE 002 020 S03	0.2	0.4	2	40	3
2NLE 003 010 S03	0.3	1	-	45	3
2NLE 003 015 S03	0.3	1	1.5	45	3
2NLE 003 018 S03	0.3	1.8	-	45	3
2NLE 003 020 S03	0.3	1	2	45	3
2NLE 003 025 S03	0.3	1	2.5	45	3
2NLE 003 030 S03	0.3	1	3	45	3
2NLE 003 040 S03	0.3	1	4	45	3
2NLE 004 012 S03	0.4	1.2	-	45	3
2NLE 004 020 S03	0.4	2	-	45	3
2NLE 004 030 S03	0.4	1.2	3	45	3
2NLE 004 040 S03	0.4	1.2	4	45	3
2NLE 004 050 S03	0.4	1.2	5	45	3
2NLE 005 015 S03	0.5	1.5	-	50	3
2NLE 005 020 S03	0.5	2	-	50	3
2NLE 005 030 S03	0.5	1.5	3	50	3
2NLE 005 040 S03	0.5	1.5	4	50	3
2NLE 005 050 S03	0.5	1.5	5	50	3
2NLE 005 060 S03	0.5	1.5	6	50	3
2NLE 005 080 S03	0.5	1.5	8	50	3
2NLE 005 100 S03	0.5	1.5	10	50	3
2NLE 006 030 S03	0.6	3	-	50	3
2NLE 006 060 S03	0.6	3	6	50	3
2NLE 006 080 S03	0.6	3	8	50	3
2NLE 006 100 S03	0.6	3	10	50	3
2NLE 007 030 S03	0.7	3	-	50	3
2NLE 007 070 S03	0.7	3	7	50	3
2NLE 007 100 S03	0.7	3	10	50	3
2NLE 007 120 S03	0.7	3	12	50	3
2NLE 008 040 S03	0.8	4	-	50	3
2NLE 008 080 S03	0.8	4	8	50	3
2NLE 008 100 S03	0.8	4	10	50	3
2NLE 008 120 S03	0.8	4	12	50	3
2NLE 009 040 S03	0.9	4	-	50	3
2NLE 009 060 S03	0.9	4	6	50	3
2NLE 009 080 S03	0.9	4	8	50	3
2NLE 009 100 S03	0.9	4	10	50	3

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D	L1	L2	L	d
2NLE 010 050 S03	1	5	-	80	3
2NLE 010 050 S04	1	5	-	80	4
2NLE 010 100 S03	1	5	10	80	3
2NLE 010 100 S04	1	5	10	80	4
2NLE 010 150 S03	1	5	15	80	3
2NLE 010 150 S04	1	5	15	80	4
2NLE 010 200 S03	1	5	20	80	3
2NLE 010 200 S04	1	5	20	80	4
2NLE 010 250 S03	1	5	25	80	3
2NLE 010 250 S04	1	5	25	80	4
2NLE 010 300 S03	1	5	30	80	3
2NLE 010 300 S04	1	5	30	80	4
2NLE 010 350 S04	1	5	35	100	4
2NLE 010 400 S04	1	5	40	100	4
2NLE 015 100 S03	1.5	10	-	80	3
2NLE 015 100 S04	1.5	10	-	80	4
2NLE 015 150 S03	1.5	10	15	80	3
2NLE 015 150 S04	1.5	10	15	80	4
2NLE 015 200 S03	1.5	10	20	80	3
2NLE 015 200 S04	1.5	10	20	80	4
2NLE 015 250 S03	1.5	10	25	80	3
2NLE 015 250 S04	1.5	10	25	80	4
2NLE 015 300 S03	1.5	10	30	80	3
2NLE 015 300 S04	1.5	10	30	80	4
2NLE 015 350 S04	1.5	10	35	100	4
2NLE 015 400 S04	1.5	10	40	100	4
2NLE 020 100 S03	2	10	-	80	3
2NLE 020 100 S04	2	10	-	80	4
2NLE 020 150 S03	2	10	15	80	3
2NLE 020 150 S04	2	10	15	80	4
2NLE 020 200 S03	2	10	20	80	3
2NLE 020 200 S04	2	10	20	80	4
2NLE 020 250 S03	2	10	25	80	3
2NLE 020 250 S04	2	10	25	80	4
2NLE 020 300 S03	2	10	30	80	3
2NLE 020 300 S04	2	10	30	80	4
2NLE 020 350 S03	2	10	35	80	3
2NLE 020 350 S04	2	10	35	100	4
2NLE 020 400 S03	2	10	40	80	3



Ø0.2 ~ 05

Ø6 ~ Ø18

Sharp Edge

Unit : mm

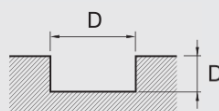
Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D	L1	L2	L	d
2NLE 020 400 S04	2	10	40	100	4
2NLE 025 100 S03	2.5	10	-	80	3
2NLE 025 150 S03	2.5	15	-	80	3
2NLE 025 200 S03	2.5	15	20	80	3
2NLE 030 100 060	3	10	-	60	3
2NLE 030 200 080	3	20	-	80	3
2NLE 030 200 100	3	20	-	100	3
2NLE 030 200 120	3	20	-	120	3
2NLE 030 150 S06	3	15	-	100	6
2NLE 030 200 S06	3	15	20	100	6
2NLE 030 250 S06	3	15	25	100	6
2NLE 030 300 S06	3	15	30	100	6
2NLE 040 200 080	4	20	-	80	4
2NLE 040 200 100	4	20	-	100	4
2NLE 040 200 130	4	20	-	130	4
2NLE 040 200 S06	4	20	-	100	6
2NLE 040 250 S06	4	20	25	100	6
2NLE 040 300 S06	4	20	30	100	6
2NLE 040 400 S06	4	20	40	120	6
2NLE 050 200 S06	5	20	-	100	6
2NLE 050 300 100	5	30	-	100	5
2NLE 050 300 120	5	30	-	120	5

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D	L1	L2	L	d
2NLE 060 250 080	6	25	-	80	6
2NLE 060 300 080	6	30	-	80	6
2NLE 060 400 100	6	40	-	100	6
2NLE 060 400 120	6	40	-	120	6
2NLE 060 400 150	6	40	-	150	6
2NLE 080 300 080	8	30	-	80	8
2NLE 080 350 090	8	35	-	90	8
2NLE 080 400 100	8	40	-	100	8
2NLE 080 450 120	8	45	-	120	8
2NLE 080 450 150	8	45	-	150	8
2NLE 100 300 080	10	30	-	80	10
2NLE 100 350 090	10	35	-	90	10
2NLE 100 400 100	10	40	-	100	10
2NLE 100 500 120	10	50	-	120	10
2NLE 100 500 150	10	50	-	150	10
2NLE 120 300 090	12	30	-	90	12
2NLE 120 400 100	12	40	-	100	12
2NLE 120 500 110	12	50	-	110	12
2NLE 120 550 130	12	55	-	130	12
2NLE 120 550 150	12	55	-	150	12
2NLE 160 700 160	16	70	-	160	16

2NLE

• RPM : rev./min • Feed : mm/min

Material	ABS/ Acrylic	
Outside Diameter	RPM	FEED
0.2mm	50,000	100
0.4mm	50,000	200
0.5mm	50,000	240
0.6mm	40,000	240
0.8mm	30,000	240
1mm	24,000	240
2mm	12,000	240
3mm	8,000	240
4mm	6,000	240
5mm	4,800	240
6mm	4,000	260
8mm	3,000	260
10mm	3,000	260
12mm	2,000	260
16mm	1,400	260



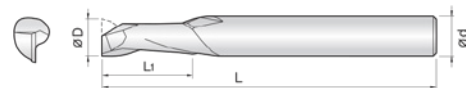


Ø0.2 ~ Ø5 Ø6 ~ Ø12

1 Flute End Mills

Endmills for Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.

- Excellent chip removing by a helix flute design.
- Optimum for cut-off and wall machining.



Size	D Tolerance
$D \leq \varnothing 5$	+0~ -0.02mm
$D > \varnothing 5$	+0~ -0.03mm

Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
1NEM 002 005 S04	0.2	0.5	40	4
1NEM 003 009 S04	0.3	0.9	40	4
1NEM 004 012 S04	0.4	1.2	40	4
1NEM 005 015 S04	0.5	1.5	40	4
1NEM 006 018 S04	0.6	1.8	40	4
1NEM 007 021 S04	0.7	2.1	40	4
1NEM 008 024 S04	0.8	2.4	40	4
1NEM 009 027 S04	0.9	2.7	40	4
1NEM 010 030 S06	1	3	45	6
1NEM 010 045 S06	1	4.5	45	6
1NEM 010 060 S06	1	6	50	6
1NEM 012 030 S06	1.2	3	45	6
1NEM 012 050 S06	1.2	5	45	6
1NEM 012 060 S06	1.2	6	50	6
1NEM 015 040 S06	1.5	4	45	6
1NEM 015 060 S06	1.5	6	50	6
1NEM 015 080 S06	1.5	8	50	6
1NEM 020 060 S06	2	6	50	6
1NEM 020 080 S06	2	8	50	6
1NEM 020 100 S06	2	10	50	6
1NEM 030 080 S06	3	8	50	6
1NEM 030 120 S06	3	12	50	6
1NEM 030 150 S06	3	15	50	6
1NEM 040 100 S06	4	10	50	6
1NEM 040 150 S06	4	15	50	6
1NEM 040 200 S06	4	20	60	6
1NEM 050 130 S06	5	13	60	6
1NEM 050 200 S06	5	20	60	6
1NEM 050 250 S06	5	25	60	6
1NEM 060 150 S06	6	15	60	6
1NEM 060 200 S06	6	20	60	6
1NEM 060 250 S06	6	25	60	6
1NEM 080 190 S08	8	19	70	8
1NEM 080 250 S08	8	25	75	8
1NEM 100 220 S10	10	22	75	10
1NEM 100 300 S10	10	30	80	10
1NEM 120 260 S12	12	26	75	12
1NEM 120 350 S12	12	35	90	12



Ø1 ~ Ø5

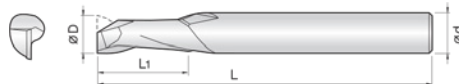
Ø6 ~ Ø8

Sharp Edge

1 Flute Reverse Edge End Mills

Endmills for Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.

- Downward chip direction by reverse helix design helps chip control.
- No burr in work materials.
- Optimum for unstable work clamping.



Size	D Tolerance
D ≤ Ø5	+0~ -0.02mm
D > Ø5	+0~ -0.03mm

Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
1NRM 010 030 S06	1	3	50	6
1NRM 010 060 S06	1	6	60	6
1NRM 020 060 S06	2	6	60	6
1NRM 020 080 S06	2	8	60	6
1NRM 030 080 S06	3	8	60	6
1NRM 030 120 S06	3	12	65	6
1NRM 040 120 S06	4	12	65	6
1NRM 040 160 S06	4	16	70	6
1NRM 050 220 S06	5	22	75	6
1NRM 060 270 S06	6	27	75	6
1NRM 080 320 S08	8	32	90	8

1NEM/1NRM

• RPM : rev./min • Feed : mm/min

Material	Acrylic		Alloy Steels	
Outside Diameter	RPM	FEED	RPM	FEED
1mm	32,000	2,000	23,000	1,300
2mm	32,000	2,200	23,000	1,500
3mm	25,000	2,400	18,000	1,700
4mm	20,000	2,400	15,000	1,800
5mm	15,000	2,200	12,000	1,800
6mm	13,500	2,300	10,000	1,800
8mm	10,000	2,400	7,800	1,900
10mm	8,000	2,400	6,000	2,000
12mm	7,000	2,200	5,000	1,900

Depth of Cut

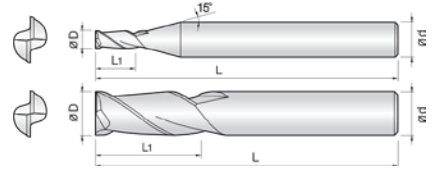




2 Flutes End Mills

Endmills for Mild steel, Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.

- Reinforced edge design for preventing edge chipping.
- Improve tool performance by even run-out and tolerance control.



Size	D Tolerance
D < Ø1	+0~ -0.01mm
D ≤ Ø5	+0~ -0.015mm
D > Ø5	+0~ -0.02mm

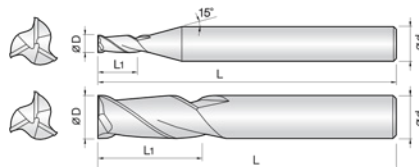
Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
2NEM 001 002 S03	0.1	0.2	40	3
2NEM 0015 003 S03	0.15	0.3	40	3
2NEM 002 004 S03	0.2	0.4	40	3
2NEM 003 006 S03	0.3	0.6	40	3
2NEM 004 008 S03	0.4	0.8	40	3
2NEM 005 010 S03	0.5	1	40	3
2NEM 006 012 S03	0.6	1.2	40	3
2NEM 007 014 S03	0.7	1.4	40	3
2NEM 008 016 S03	0.8	1.6	40	3
2NEM 009 018 S03	0.9	1.8	40	3
2NEM 010 025 S03	1	2.5	40	3
2NEM 010 025 S06	1	2.5	40	6
2NEM 011 025 S03	1.1	2.5	40	3
2NEM 012 035 S03	1.2	3.5	40	3
2NEM 013 040 S03	1.3	4	40	3
2NEM 014 040 S03	1.4	4	40	3
2NEM 015 040 S03	1.5	4	40	3
2NEM 015 040 S06	1.5	4	40	6
2NEM 016 040 S03	1.6	4	40	3
2NEM 017 050 S03	1.7	5	40	3
2NEM 018 055 S03	1.8	5.5	40	3
2NEM 019 060 S03	1.9	6	40	3
2NEM 020 060 S03	2	6	40	3
2NEM 020 060 S06	2	6	40	6
2NEM 025 080 S03	2.5	8	40	3
2NEM 030 080 S03	3	8	45	3
2NEM 030 080 S06	3	8	45	6
2NEM 035 100 S06	3.5	10	45	6
2NEM 040 110 S06	4	11	45	6
2NEM 045 110 S06	4.5	11	45	6
2NEM 050 130 S06	5	13	50	6
2NEM 060 130 S06	6	13	50	6
2NEM 070 160 S08	7	16	60	8
2NEM 080 190 S08	8	19	60	8
2NEM 090 190 S10	9	19	70	10
2NEM 100 220 S10	10	22	70	10
2NEM 120 260 S12	12	26	75	12

3 Flutes End Mills

Endmills for Mild steel, Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.

- Reinforced edge design for preventing edge chipping.
- Minimize chattering by short flute design.



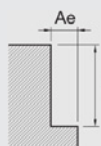
Size	D Tolerance
$D \leq \varnothing 0.9$	$+0 \sim -0.01\text{mm}$
$D > \varnothing 0.9$	$+0 \sim -0.015\text{mm}$

Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
3NEM 003 008 S04	0.3	0.8	40	4
3NEM 003 012 S04	0.3	1.2	40	4
3NEM 004 010 S04	0.4	1	40	4
3NEM 004 015 S04	0.4	1.5	40	4
3NEM 005 013 S04	0.5	1.3	40	4
3NEM 005 020 S04	0.5	2	45	4
3NEM 006 015 S04	0.6	1.5	40	4
3NEM 006 024 S04	0.6	2.4	45	4
3NEM 007 018 S04	0.7	1.8	40	4
3NEM 007 028 S04	0.7	2.8	45	4
3NEM 008 020 S04	0.8	2	40	4
3NEM 008 032 S04	0.8	3.2	45	4
3NEM 009 025 S04	0.9	2.5	40	4
3NEM 009 036 S04	0.9	3.6	45	4
3NEM 010 025 S04	1	2.5	40	4
3NEM 010 040 S04	1	4	45	4
3NEM 010 060 S04	1	6	50	4
3NEM 012 030 S04	1.2	3	40	4
3NEM 012 050 S04	1.2	5	40	4
3NEM 012 070 S04	1.2	7	50	4
3NEM 015 040 S04	1.5	4	40	4
3NEM 015 060 S04	1.5	6	40	4
3NEM 015 090 S04	1.5	9	60	4
3NEM 020 050 S04	2	5	40	4
3NEM 020 080 S04	2	8	50	4
3NEM 020 100 S04	2	10	60	4
3NEM 025 060 S04	2.5	6	45	4
3NEM 025 100 S04	2.5	10	50	4
3NEM 025 150 S04	2.5	15	60	4
3NEM 030 080 S04	3	8	50	4
3NEM 030 120 S04	3	12	60	4
3NEM 030 150 S04	3	15	80	4
3NEM 040 100 S04	4	10	50	4
3NEM 040 150 S04	4	15	80	4
3NEM 060 200 S06	6	20	80	6
3NEM 060 300 S06	6	30	110	6

Material	Carbon Steels S50C			Alloy steels SCM / SKD / SUS			Prehardened Steels HPM / NAK			Aluminum			Copper		
Speed	40~50m/min			35~45m/min			23~35m/min			100~200m/min			60~80m/min		
Outside Diameter	RPM	FEED		RPM	FEED		RPM	FEED		RPM	FEED		RPM	FEED	
		Side Milling	Soltting		Side Milling	Soltting		Side Milling	Soltting		Side Milling	Soltting		Side Milling	Soltting
1mm	12,900	125	60	11,400	90	30	8,600	70	35	43,000	510	180	20,100	240	90
1.5mm	8,600	125	60	7,700	90	30	5,800	70	35	29,000	580	200	13,400	270	90
2mm	6,500	125	60	5,800	110	35	4,300	80	40	22,000	650	225	10,000	300	110
2.5mm	5,100	150	80	4,600	110	34	3,400	85	45	17,200	680	240	8,000	325	110
3mm	4,300	170	85	3,800	120	40	2,900	90	45	14,300	720	240	6,700	330	120
4mm	3,200	200	100	2,900	120	40	2,200	90	45	10,700	750	240	5,000	350	120
5mm	2,600	210	110	2,300	135	45	1,700	115	60	8,600	775	250	4,000	370	120
6mm	2,200	220	110	1,900	150	50	1,400	125	65	7,200	790	260	3,300	370	120
8mm	1,600	200	100	1,400	145	45	1,100	115	60	5,400	700	230	2,500	320	110
10mm	1,300	180	90	1,200	145	45	900	115	60	4,300	650	220	2,000	300	100
12mm	1,100	170	85	1,000	135	45	700	110	55	3,600	610	200	1,700	290	100

Depth of Cut



A_e
 $\varnothing 1 \sim 2.9 = 0.07D$
 $\varnothing 3 \sim 6 = 0.15D$



A_p
 $\varnothing 1 \sim 1.2 = 0.15D$
 $\varnothing 1.5 \sim 3.5 = 0.5D$
 $\varnothing 4 \sim 6 = 0.75D$



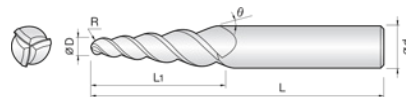
0.5R – 1R

1.5R – 3R

3 Flutes Taper Ball End Mills for Impellers

Pre-hardened steel, Cast iron, Non-metallic materials

- Suitable for special components with 3 axes and 5 axes sector such as impellers, blisks, tire profiles, turbine blades.
- Available for simultaneous machining of roughing and finishing with only one tool.



Size	D Tolerance
D ≤ Ø6	+0~-0.02mm

Unit : mm

Order Number	Diameter	Angle	Length of cut	Overall Length	ShankDia
	R×D	θ	L1	L	d
3ITBD 010 010 120	R0.5 X 1	1°	12	50	6
3ITBD 010 010 200	R0.5 X 1	1°	20	60	6
3ITBD 010 020 150	R0.5 X 1	2°	15	55	6
3ITBD 010 020 200	R0.5 X 1	2°	20	60	6
3ITBD 010 030 150	R0.5 X 1	3°	15	55	6
3ITBD 010 030 200	R0.5 X 1	3°	20	60	6
3ITBD 010 040 200	R0.5 X 1	4°	20	60	6
3ITBD 010 050 200	R0.5 X 1	5°	20	60	6
3ITBD 010 060 200	R0.5 X 1	6°	20	60	6
3ITBD 010 070 200	R0.5 X 1	7°	20	60	6
3ITBD 010 080 180	R0.5 X 1	8°	18	60	6
3ITBD 020 010 120	R1 X 2	1°	12	50	6
3ITBD 020 010 200	R1 X 2	1°	20	60	6
3ITBD 020 020 150	R1 X 2	2°	15	55	6
3ITBD 020 020 200	R1 X 2	2°	20	60	6
3ITBD 020 030 150	R1 X 2	3°	15	55	6
3ITBD 020 030 200	R1 X 2	3°	20	60	6
3ITBD 020 030 300	R1 X 2	3°	30	70	6
3ITBD 020 040 200	R1 X 2	4°	20	60	6
3ITBD 020 050 200	R1 X 2	5°	20	60	6
3ITBD 020 050 300	R1 X 2	5°	30	75	8
3ITBD 020 060 190	R1 X 2	6°	19	60	6
3ITBD 020 060 290	R1 X 2	6°	29	75	8
3ITBD 020 070 160	R1 X 2	7°	16	60	6
3ITBD 020 070 250	R1 X 2	7°	25	70	8
3ITBD 020 080 150	R1 X 2	8°	15	60	6
3ITBD 020 080 220	R1 X 2	8°	22	70	8
3ITBD 030 010 200	R1.5 X 3	1°	20	60	6
3ITBD 030 010 320	R1.5 X 3	1°	32	75	6
3ITBD 030 020 200	R1.5 X 3	2°	20	60	6
3ITBD 030 030 200	R1.5 X 3	3°	20	60	6
3ITBD 030 030 300	R1.5 X 3	3°	30	70	8
3ITBD 030 030 390	R1.5 X 3	3°	39	80	6
3ITBD 030 040 200	R1.5 X 3	4°	20	65	6
3ITBD 030 050 180	R1.5 X 3	5°	18	60	6
3ITBD 030 050 300	R1.5 X 3	5°	30	75	8
3ITBD 030 060 150	R1.5 X 3	6°	15	60	6



0.5R ~ 1R 1.5R ~ 3R

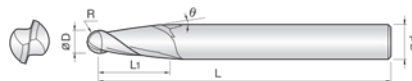
Unit : mm

[illegible]

2 Flutes Taper Ball End Mills

Endmills for pre-hardened and hardened steel (HRC50-)

- High precise edge tolerance.
- Very nice work surface finish.

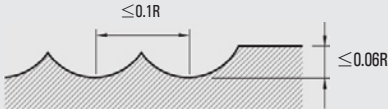


Size	D Tolerance
$D \leq \varnothing 6$	+0 ~ -0.01mm

Unit : mm

Order Number	Diameter	Angle	Length of cut	Overall Length	Shank Dia
	R×D	θ	L1	L	d
2TBM 004 020 030	0.2R×0.4	2°	3	40	4
2TBM 004 030 030	0.2R×0.4	3°	3	40	4
2TBM 004 040 030	0.2R×0.4	4°	3	40	4
2TBM 004 050 030	0.2R×0.4	5°	3	40	4
2TBM 004 070 030	0.2R×0.4	7°	3	40	4
2TBM 004 100 030	0.2R×0.4	10°	3	40	4
2TBM 005 020 030	0.25R×0.5	2°	3	40	4
2TBM 005 030 030	0.25R×0.5	3°	3	40	4
2TBM 005 040 035	0.25R×0.5	4°	3.5	40	4
2TBM 005 050 035	0.25R×0.5	5°	3.5	40	4
2TBM 005 070 035	0.25R×0.5	7°	3.5	40	4
2TBM 005 100 035	0.25R×0.5	10°	3.5	40	4
2TBM 006 020 030	0.3R×0.6	2°	3	40	4
2TBM 006 030 030	0.3R×0.6	3°	3	40	4
2TBM 006 040 035	0.3R×0.6	4°	3.5	40	4
2TBM 006 050 035	0.3R×0.6	5°	3.5	40	4
2TBM 006 070 035	0.3R×0.6	7°	3.5	40	4
2TBM 006 100 035	0.3R×0.6	10°	3.5	40	4
2TBM 008 020 030	0.4R×0.8	2°	3	40	4
2TBM 008 030 030	0.4R×0.8	3°	3	40	4
2TBM 008 040 040	0.4R×0.8	4°	4	40	4
2TBM 008 050 040	0.4R×0.8	5°	4	40	4
2TBM 008 070 040	0.4R×0.8	7°	4	40	4
2TBM 008 100 040	0.4R×0.8	10°	4	40	4
2TBM 010 003 030	0.5R×1	0°30	3	40	4
2TBM 010 010 030	0.5R×1	1°	3	40	4
2TBM 010 013 040	0.5R×1	1°30	4	40	4

Order Number	Diameter	Angle	Length of cut	Overall Length	Shank Dia
	R×D	θ	L1	L	d
2TBM 010 020 040	0.5R×1	2°	4	40	4
2TBM 010 030 040	0.5R×1	3°	4	40	4
2TBM 010 040 060	0.5R×1	4°	6	45	4
2TBM 010 050 060	0.5R×1	5°	6	45	4
2TBM 010 070 060	0.5R×1	7°	6	45	4
2TBM 010 100 060	0.5R×1	10°	6	45	4
2TBM 015 003 060	0.75R×1.5	0°30	6	45	4
2TBM 015 010 060	0.75R×1.5	1°	6	45	4
2TBM 015 013 060	0.75R×1.5	1°30	6	45	4
2TBM 015 020 060	0.75R×1.5	2°	6	45	4
2TBM 015 030 060	0.75R×1.5	3°	6	45	4
2TBM 015 040 060	0.75R×1.5	4°	6	45	4
2TBM 015 050 060	0.75R×1.5	5°	6	45	4
2TBM 015 070 060	0.75R×1.5	7°	6	45	4
2TBM 020 003 080	1R×2	0°30	8	45	4
2TBM 020 010 080	1R×2	1°	8	45	4
2TBM 020 013 080	1R×2	1°30	8	45	4
2TBM 020 020 080	1R×2	2°	8	45	4
2TBM 020 030 080	1R×2	3°	8	45	4
2TBM 020 040 080	1R×2	4°	8	45	4
2TBM 020 050 080	1R×2	5°	8	45	4
2TBM 020 070 080	1R×2	7°	8	45	4

Material	Alloy Steels/ Tool Steels/ / Prehardened Steels SKD61 / NAK				Hardened Steels SKD61			
Hardness	~ 45HRC				45 ~ 55HRC			
Radius	$\alpha \leq 15^\circ$		$\alpha > 15^\circ$		$\alpha \leq 15^\circ$		$\alpha > 15^\circ$	
	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
R0.2	32,000	480	32,000	360	32,000	400	32,000	300
R0.25	32,000	640	32,000	480	32,000	550	32,000	400
R0.3	32,000	800	32,000	600	32,000	680	32,000	500
R0.4	32,000	1,200	32,000	880	32,000	1,040	28,000	680
R0.5	32,000	1,600	28,000	1,100	28,000	1,200	24,000	720
R0.75	32,000	1,800	24,000	1,100	24,000	1,200	20,000	720
R1	28,000	2,000	20,000	1,200	20,000	1,200	16,000	720
Depth of Cut								

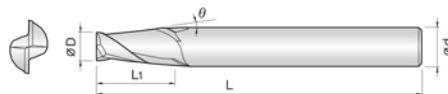
Material	Mild Steels / Carbon Steels SS400 / S55C		Alloy Steels / Tool Steels SCM / SKT / SKS / SKD		Hardened Steels/ Prehardened Steels SKT / SKD / NAK55 / HPM1		Hardened Steels/ Stainless Steels SUS304 / SKD		Hardened Steels	
Hardness	~750HN/mm2		~ 30HRC		30 ~ 38HRC		38 ~ 45HRC		45 ~ 55HRC	
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1mm	14,000	140	14,000	117	11,700	80	10,800	80	9,500	35
1.5mm	9,500	140	9,500	117	8,000	80	7,400	80	6,300	35
2mm	7,200	140	7,200	117	6,000	80	5,600	80	4,700	35
2.5mm	5,600	130	5,600	113	4,800	80	4,500	80	3,800	35
3mm	4,700	130	4,700	113	4,000	80	3,700	80	3,200	35
4mm	3,500	130	3,500	113	3,000	80	2,800	75	2,300	35
5mm	2,800	130	2,800	113	2,400	80	2,200	75	1,900	35
6mm	2,300	130	2,300	113	2,000	80	1,800	75	1,600	35
8mm	1,800	130	1,800	113	1,500	80	1,400	75	1,200	35
10mm	1,400	130	1,400	108	1,200	80	1,100	75	950	35
Depth of Cut	<									



2 Flutes Taper End Mills

Endmills for pre-hardened and hardened steel (HRC50-)

- High precise edge tolerance.
- Very nice work surface finish.



Size	D Tolerance
$D \leq \varnothing 4$	$+0 \sim -0.01\text{mm}$
$D > \varnothing 4$	$+0 \sim -0.015\text{mm}$

Unit : mm

Order Number	Diameter	Angle	Length of cut	Overall Length	Shank Dia
	D	θ	L1	L	d
2TEM 003 003 012	0.3	0°30	1.2	40	4
2TEM 003 010 012	0.3	1°	1.2	40	4
2TEM 003 013 012	0.3	1°30	1.2	40	4
2TEM 003 020 012	0.3	2°	1.2	40	4
2TEM 003 030 012	0.3	3°	1.2	40	4
2TEM 003 050 012	0.3	5°	1.2	40	4
2TEM 003 070 015	0.3	7°	1.5	40	4
2TEM 003 100 015	0.3	10°	1.5	40	4
2TEM 004 003 016	0.4	0°30	1.6	40	4
2TEM 004 010 016	0.4	1°	1.6	40	4
2TEM 004 013 016	0.4	1°30	1.6	40	4
2TEM 004 020 016	0.4	2°	1.6	40	4
2TEM 004 030 016	0.4	3°	1.6	40	4
2TEM 004 050 016	0.4	5°	1.6	40	4
2TEM 004 070 020	0.4	7°	2	40	4
2TEM 004 100 020	0.4	10°	2	40	4
2TEM 005 003 020	0.5	0°30	2	40	4
2TEM 005 010 020	0.5	1°	2	40	4
2TEM 005 013 020	0.5	1°30	2	40	4
2TEM 005 020 020	0.5	2°	2	40	4
2TEM 005 030 020	0.5	3°	2	40	4
2TEM 005 050 020	0.5	5°	2	40	4
2TEM 005 070 025	0.5	7°	2.5	40	4
2TEM 005 100 025	0.5	10°	2.5	40	4
2TEM 006 003 020	0.6	0°30	2	40	4
2TEM 006 010 020	0.6	1°	2	40	4
2TEM 006 013 020	0.6	1°30	2	40	4

Order Number	Diameter	Angle	Length of cut	Overall Length	Shank Dia
	D	θ	L1	L	d
2TEM 006 020 020	0.6	2°	2	40	4
2TEM 006 030 020	0.6	3°	2	40	4
2TEM 006 050 020	0.6	5°	2	40	4
2TEM 006 070 025	0.6	7°	2.5	40	4
2TEM 006 100 025	0.6	10°	2.5	40	4
2TEM 007 010 025	0.7	1°	2.5	40	4
2TEM 007 013 025	0.7	1°30	2.5	40	4
2TEM 007 020 025	0.7	2°	2.5	40	4
2TEM 007 030 025	0.7	3°	2.5	40	4
2TEM 007 050 025	0.7	5°	2.5	40	4
2TEM 007 070 030	0.7	7°	3	40	4
2TEM 007 100 030	0.7	10°	3	40	4
2TEM 008 003 030	0.8	0°30	3	40	4
2TEM 008 010 030	0.8	1°	3	40	4
2TEM 008 013 030	0.8	1°30	3	40	4
2TEM 008 020 030	0.8	2°	3	40	4
2TEM 008 030 030	0.8	3°	3	40	4
2TEM 008 050 030	0.8	5°	3	40	4
2TEM 008 070 030	0.8	7°	3	40	4
2TEM 008 100 030	0.8	10°	3	40	4
2TEM 010 003 040	1	0°30	4	45	4
2TEM 010 010 040	1	1°	4	45	4
2TEM 010 013 040	1	1°30	4	45	4
2TEM 010 020 040	1	2°	4	45	4
2TEM 010 030 040	1	3°	4	45	4
2TEM 010 050 040	1	5°	4	45	4
2TEM 010 070 040	1	7°	4	45	4

Order Number	Diameter	Angle	Length of cut	Overall Length	Shank Dia
	D	θ	L1	L	d
2TEM 010 100 040	1	10°	4	45	4
2TEM 015 003 050	1.5	0°30	5	45	4
2TEM 015 010 050	1.5	1°	5	45	4
2TEM 015 013 060	1.5	1°30	6	45	4
2TEM 015 020 070	1.5	2°	7	45	4
2TEM 015 030 080	1.5	3°	8	45	4
2TEM 015 050 100	1.5	5°	10	50	4
2TEM 015 070 100	1.5	7°	10	50	4
2TEM 015 100 100	1.5	10°	10	50	6
2TEM 020 003 060	2	0°30	6	45	4
2TEM 020 010 060	2	1°	6	45	4
2TEM 020 013 060	2	1°30	6	45	4
2TEM 020 020 080	2	2°	8	45	4
2TEM 020 030 100	2	3°	10	50	4
2TEM 020 050 100	2	5°	10	50	4
2TEM 020 070 100	2	7°	10	50	6
2TEM 020 100 110	2	10°	11	50	6
2TEM 025 003 080	2.5	0°30	8	45	6
2TEM 025 010 100	2.5	1°	10	50	6
2TEM 025 013 100	2.5	1°30	10	50	6
2TEM 025 020 120	2.5	2°	12	50	6
2TEM 025 030 120	2.5	3°	12	50	6
2TEM 025 050 120	2.5	5°	12	50	6
2TEM 025 070 120	2.5	7°	12	50	6
2TEM 025 100 100	2.5	10°	10	50	6
2TEM 030 003 120	3	0°30	12	50	6
2TEM 030 010 120	3	1°	12	50	6
2TEM 030 013 120	3	1°30	12	50	6
2TEM 030 020 120	3	2°	12	50	6
2TEM 030 030 120	3	3°	12	50	6
2TEM 030 050 120	3	5°	12	50	6
2TEM 030 070 120	3	7°	12	50	6
2TEM 030 100 080	3	10°	8	50	6
2TEM 040 003 150	4	0°30	15	60	6
2TEM 040 010 150	4	1°	15	60	6

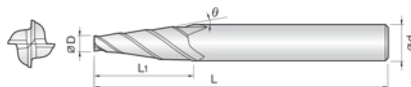
[illegible]



4 Flutes Taper End Mills

Endmills for pre-hardened and hardened steel (HRC50-)

- High precise edge tolerance.
- Very nice work surface finish.



Size	D Tolerance
$D \leq \varnothing 6$	$+0 \sim -0.01\text{mm}$
$D > \varnothing 6$	$+0 \sim -0.015\text{mm}$

Unit : mm

Order Number	Diameter	Angle	Length of cut	Overall Length	Shank Dia
	D	θ	L1	L	d
4TEM 030 003 110	3	0°30	11	50	6
4TEM 030 010 110	3	1°	11	50	6
4TEM 030 013 110	3	1°30	11	50	6
4TEM 030 020 150	3	2°	15	60	6
4TEM 030 023 150	3	2°30	15	60	6
4TEM 030 030 150	3	3°	15	60	6
4TEM 030 050 150	3	5°	15	60	6
4TEM 030 070 120	3	7°	12	60	6
4TEM 040 003 150	4	0°30	15	60	6
4TEM 040 010 150	4	1°	15	60	6
4TEM 040 013 150	4	1°30	15	60	6
4TEM 040 020 180	4	2°	18	60	6
4TEM 040 023 180	4	2°30	18	60	6
4TEM 040 030 180	4	3°	18	60	6
4TEM 040 050 230	4	5°	23	65	8
4TEM 040 070 250	4	7°	25	75	10
4TEM 050 003 180	5	0°30	18	60	6
4TEM 050 010 180	5	1°	18	60	6
4TEM 050 013 180	5	1°30	18	60	6
4TEM 050 020 150	5	2°	15	60	6
4TEM 050 023 200	5	2°30	20	65	8
4TEM 050 030 210	5	3°	21	65	8
4TEM 050 050 280	5	5°	28	80	10

Order Number	Diameter	Angle	Length of cut	Overall Length	Shank Dia
	D	θ	L1	L	d
4TEM 050 070 280	5	7°	28	80	12
4TEM 060 003 200	6	0°30	20	65	8
4TEM 060 010 200	6	1°	20	65	8
4TEM 060 013 200	6	1°30	20	65	8
4TEM 060 020 200	6	2°	20	65	8
4TEM 060 023 200	6	2°30	20	65	8
4TEM 060 030 260	6	3°	26	75	10
4TEM 060 050 230	6	5°	23	75	10
4TEM 060 070 240	6	7°	24	80	12
4TEM 080 003 250	8	0°30	25	75	10
4TEM 080 010 250	8	1°	25	75	10
4TEM 080 013 250	8	1°30	25	75	10
4TEM 080 020 250	8	2°	25	75	10
4TEM 080 023 230	8	2°30	23	75	10
4TEM 080 030 300	8	3°	30	80	12
4TEM 080 050 230	8	5°	23	85	12
4TEM 100 003 300	10	0°30	30	80	12
4TEM 100 010 300	10	1°	30	80	12
4TEM 100 013 300	10	1°30	30	80	12
4TEM 100 020 280	10	2°	28	80	12
4TEM 100 030 400	10	3°	40	100	16
4TEM 100 050 340	10	5°	34	100	16

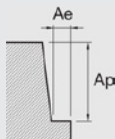
4TEM

• RPM : rev./min • Feed : mm/min

Material	Mild Steels / Carbon Steels SS400 / S55C		Alloy Steels / Tool Steels SCM / SKT / SKS / SKD		Hardened Steels / Prehardened Steels SKT / SKD / NAK55 / HPM1		Hardened Steels / Stainless Steels SUS304 / SKD		Hardened Steels	
Hardness	~750HN/mm2		~30HRC		30 ~ 38HRC		38 ~ 45HRC		45 ~ 55HRC	
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3mm	4,800	200	4,000	200	4,800	160	3,700	120	3,150	120
4mm	3,600	220	3,000	220	3,000	180	2,800	135	2,340	145
5mm	2,800	250	2,400	250	2,400	200	2,200	145	1,890	145
6mm	2,400	250	2,000	340	2,000	200	1,800	160	1,575	160
8mm	1,800	240	1,500	240	1,500	200	1,400	170	1,170	170
10mm	1,400	240	1,200	240	1,200	200	1,100	160	945	160

Depth of Cut

Ap	Ae
2.5D	0.02D





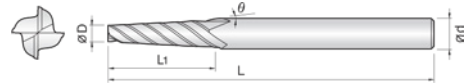
00.5 ~ 02.5

Shield Edge

4 Flutes Rib Taper End Mills

Endmills for pre-hardened and hardened steel (HRC50-)

- Optimum for deep grooving by 2bottom edge with 4flutes.
- High precise edge tolerance.
- Very nice work surface finish.



Size	D Tolerance
$D \leq \varnothing 6$	$+0 \sim -0.01\text{mm}$

Unit : mm

Order Number	Diameter	Angle	Length of cut	Overall Length	Shank Dia
	D	θ	L1	L	d
4TRE 005 030 040	0.5	0°30	4	45	4
4TRE 005 030 060	0.5	0°30	6	45	4
4TRE 005 045 040	0.5	0°45	4	45	4
4TRE 005 045 060	0.5	0°45	6	45	4
4TRE 005 100 040	0.5	1°	4	45	4
4TRE 005 100 060	0.5	1°	6	45	4
4TRE 006 030 040	0.6	0°30	4	45	4
4TRE 006 030 060	0.6	0°30	6	45	4
4TRE 006 045 040	0.6	0°45	4	45	4
4TRE 006 045 060	0.6	0°45	6	45	4
4TRE 006 100 040	0.6	1°	4	45	4
4TRE 006 100 060	0.6	1°	6	45	4
4TRE 007 030 060	0.7	0°30	6	45	4
4TRE 007 030 080	0.7	0°30	8	45	4
4TRE 007 045 060	0.7	0°45	6	45	4
4TRE 007 045 080	0.7	0°45	8	45	4
4TRE 007 100 060	0.7	1°	6	45	4
4TRE 007 100 080	0.7	1°	8	45	4
4TRE 008 030 060	0.8	0°30	6	45	4
4TRE 008 030 080	0.8	0°30	8	45	4
4TRE 008 030 100	0.8	0°30	10	45	4
4TRE 008 045 060	0.8	0°45	6	45	4
4TRE 008 045 080	0.8	0°45	8	45	4
4TRE 008 045 100	0.8	0°45	10	45	4
4TRE 008 100 060	0.8	1°	6	45	4
4TRE 008 100 080	0.8	1°	8	45	4
4TRE 008 100 100	0.8	1°	10	45	4
4TRE 009 030 060	0.9	0°30	6	45	4
4TRE 009 030 080	0.9	0°30	8	45	4
4TRE 009 030 100	0.9	0°30	10	45	4
4TRE 009 045 060	0.9	0°45	6	45	4
4TRE 009 045 080	0.9	0°45	8	45	4
4TRE 009 045 100	0.9	0°45	10	45	4

Order Number	Diameter	Angle	Length of cut	Overall Length	Shank Dia
	D	θ	L1	L	d
4TRE 009 100 060	0.9	1°	6	45	4
4TRE 009 100 080	0.9	1°	8	45	4
4TRE 009 100 100	0.9	1°	10	45	4
4TRE 010 030 080	1	0°30	8	45	4
4TRE 010 030 100	1	0°30	10	45	4
4TRE 010 030 120	1	0°30	12	45	4
4TRE 010 045 080	1	0°45	8	45	4
4TRE 010 045 100	1	0°45	10	45	4
4TRE 010 045 120	1	0°45	12	45	4
4TRE 010 100 080	1	1°	8	45	4
4TRE 010 100 100	1	1°	10	45	4
4TRE 010 100 120	1	1°	12	45	4
4TRE 012 030 080	1.2	0°30	8	45	4
4TRE 012 030 100	1.2	0°30	10	45	4
4TRE 012 030 120	1.2	0°30	12	45	4
4TRE 012 030 160	1.2	0°30	16	50	4
4TRE 012 045 080	1.2	0°45	8	45	4
4TRE 012 045 100	1.2	0°45	10	45	4
4TRE 012 045 120	1.2	0°45	12	45	4
4TRE 012 045 160	1.2	0°45	16	50	4
4TRE 012 100 080	1.2	1°	8	45	4
4TRE 012 100 100	1.2	1°	10	45	4
4TRE 012 100 120	1.2	1°	12	45	4
4TRE 012 100 160	1.2	1°	16	50	4
4TRE 015 030 060	1.5	0°30	6	45	4
4TRE 015 030 100	1.5	0°30	10	45	4
4TRE 015 030 160	1.5	0°30	16	50	4
4TRE 015 030 200	1.5	0°30	20	60	4
4TRE 015 100 060	1.5	1°	6	45	4
4TRE 015 100 100	1.5	1°	10	45	4
4TRE 015 100 160	1.5	1°	16	50	4
4TRE 015 100 200	1.5	1°	20	60	4
4TRE 015 100 250	1.5	1°	25	60	4

Order Number	Diameter	Angle	Length of cut	Overall Length	Shank Dia
	D	θ	L1	L	d
4TRE 015 130 060	1.5	1°30	6	45	4
4TRE 015 130 100	1.5	1°30	10	45	4
4TRE 015 130 160	1.5	1°30	16	50	4
4TRE 015 130 200	1.5	1°30	20	60	4
4TRE 015 130 250	1.5	1°30	25	60	4
4TRE 020 030 100	2	0°30	10	45	4
4TRE 020 030 160	2	0°30	16	50	4
4TRE 020 030 200	2	0°30	20	60	4
4TRE 020 030 250	2	0°30	25	60	4
4TRE 020 100 100	2	1°	10	45	4
4TRE 020 100 160	2	1°	16	50	4
4TRE 020 100 200	2	1°	20	60	4
4TRE 020 100 250	2	1°	25	60	4
4TRE 020 130 100	2	1°30	10	45	4
4TRE 020 130 160	2	1°30	16	50	4
4TRE 020 130 200	2	1°30	20	60	4
4TRE 020 130 250	2	1°30	25	60	4
4TRE 025 030 100	2.5	0°30	10	45	4

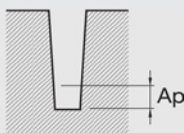
Order Number	Diameter	Angle	Length of cut	Overall Length	Shank Dia
	D	θ	L1	L	d
4TRE 025 030 160	2.5	0°30	16	50	4
4TRE 025 030 200	2.5	0°30	20	60	4
4TRE 025 030 250	2.5	0°30	25	60	4
4TRE 025 100 100	2.5	1°	10	45	4
4TRE 025 100 160	2.5	1°	16	50	4
4TRE 025 100 200	2.5	1°	20	60	4
4TRE 025 100 250	2.5	1°	25	60	4
4TRE 025 130 100	2.5	1°30	10	45	4
4TRE 025 130 160	2.5	1°30	16	50	4
4TRE 025 130 200	2.5	1°30	20	60	4
4TRE 025 130 250	2.5	1°30	25	60	4

4TRE

• RPM : rev./min • Feed : mm/min

Material	Mild Steels / Carbon Steels SS400 / S55C			Alloy Steels / Tool Steels SCM / SKT / SKS / SKD			Prehardened Steels / Hardened Steels SKT / SKD / NAK55 / HPM1			Hardened Steels / Stainless Steels SUS304 / SKD			Hardened Steels SUS304 / SKD		
Hardness	~750HN/mm2			~30HRC			30HRC ~ 38HRC			38HRC ~ 45HRC			45HRC ~ 55HRC		
Outside Diameter	RPM	FEED	Ap	RPM	FEED	Ap	RPM	FEED	Ap	RPM	FEED	Ap	RPM	FEED	Ap
0.5mm	25,200	500	0.01 ~ 0.020	25,200	450	0.01 ~ 0.020	25,200	380	0.01 ~ 0.020	25,200	350	0.01 ~ 0.020	15,200	200	0.005 ~ 0.01
0.6mm	25,200	600	0.012 ~ 0.025	25,200	545	0.012 ~ 0.025	23,600	420	0.012 ~ 0.025	21,200	355	0.012 ~ 0.025	12,400	210	0.006 ~ 0.012
0.7mm	23,200	750	0.014 ~ 0.030	21,600	545	0.014 ~ 0.030	20,000	420	0.014 ~ 0.030	18,000	355	0.014 ~ 0.030	10,800	210	0.007 ~ 0.014
0.8mm	20,000	750	0.016 ~ 0.035	18,800	545	0.016 ~ 0.035	17,600	420	0.016 ~ 0.035	15,600	355	0.016 ~ 0.035	9,200	210	0.008 ~ 0.016
0.9mm	18,000	750	0.018 ~ 0.040	16,800	545	0.018 ~ 0.040	15,600	420	0.018 ~ 0.040	14,000	355	0.018 ~ 0.040	8,400	210	0.009 ~ 0.018
1mm	16,000	745	0.02 ~ 0.045	15,200	545	0.02 ~ 0.045	14,000	420	0.02 ~ 0.045	12,400	355	0.02 ~ 0.045	7,600	210	0.01 ~ 0.02
1.2mm	13,200	745	0.024 ~ 0.055	12,400	545	0.024 ~ 0.055	11,600	420	0.024 ~ 0.055	10,400	355	0.024 ~ 0.055	6,400	210	0.012 ~ 0.024
1.5mm	10,800	745	0.03 ~ 0.07	10,000	545	0.03 ~ 0.07	9,200	420	0.03 ~ 0.07	8,400	355	0.03 ~ 0.07	5,100	210	0.015 ~ 0.03
2mm	8,000	745	0.04 ~ 0.1	7,600	545	0.04 ~ 0.1	7,100	420	0.04 ~ 0.1	6,400	355	0.04 ~ 0.1	3,800	210	0.02 ~ 0.04
2.5mm	6,500	745	0.05 ~ 0.12	6,100	545	0.05 ~ 0.12	5,700	420	0.05 ~ 0.12	5,100	355	0.05 ~ 0.12	3,000	210	0.025 ~ 0.05

Depth of Cut



2 Fluets Corner Rounding Cutter

Hardened steel(-HRC52), pre-hardened steel, tool steel and cast iron

- High precise edge tolerance.
- Very nice work surface finish.



Size	D Tolerance
Φ0.5 ~ 0.9	+0 ~ -0.01mm
Φ1.4 ~ 5.9	+0 ~ -0.02mm

Unit : mm

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D x R	L1	L2	L	d
2DRC 005 001 S04	0.5XR0.1	0.8	2.5	45	4
2DRC 005 0015 S04	0.5XR0.15	0.9	2.5	45	4
2DRC 005 002 S04	0.5XR0.2	1	2.5	45	4
2DRC 005 0025 S04	0.5XR0.25	1.1	2.5	45	4
2DRC 005 003 S04	0.5XR0.3	1.2	2.5	45	4
2DRC 005 0035 S04	0.5XR0.35	1.3	2.5	45	4
2DRC 005 004 S04	0.5XR0.4	1.4	2.5	45	4
2DRC 005 0045 S04	0.5XR0.45	1.5	2.5	45	4
2DRC 005 005 S04	0.5XR0.5	1.6	2.5	45	4
2DRC 009 005 S04	0.9XR0.5	2	3	45	4
2DRC 049 005 S06	4.9XR0.5	6	-	50	6
2DRC 005 0055 S04	0.5XR0.55	1.7	3	45	4
2DRC 005 006 S04	0.5XR0.6	1.8	3	45	4
2DRC 005 0065 S04	0.5XR0.65	1.9	3	45	4
2DRC 005 007 S04	0.5XR0.7	2	3	45	4
2DRC 009 0075 S04	0.9XR0.75	2.5	4	45	4
2DRC 009 008 S04	0.9XR0.8	2.6	4	45	4
2DRC 009 0085 S04	0.9XR0.85	2.7	4	45	4
2DRC 009 009 S04	0.9XR0.9	2.8	4	45	4

Order Number	Diameter	Length of cut	Effective Length	Overall Length	Shank Dia
	D x R	L1	L2	L	d
2DRC 009 0095 S04	0.9XR0.95	2.9	4	45	4
2DRC 009 010 S06	0.9XR1	3	5	50	6
2DRC 039 010 S06	3.9XR1	6	-	50	6
2DRC 059 010 S08	5.9XR1	8	-	60	8
2DRC 009 0125 S06	0.9XR1.25	3.5	5	50	6
2DRC 034 0125 S06	3.4XR1.25	6	-	50	6
2DRC 014 015 S06	1.4XR1.5	4.5	8	50	6
2DRC 049 015 S08	4.9XR1.5	8	-	60	8
2DRC 014 020 S06	1.4XR2	5.5	10	50	6
2DRC 039 020 S08	3.9XR2	8	-	60	8
2DRC 019 025 S08	1.9XR2.5	7	13	60	8
2DRC 019 030 S08	1.9XR3	8	-	60	8
2DRC 019 035 S10	1.9XR3.5	9	13	70	10
2DRC 019 040 S10	1.9XR4	10	-	70	10
2DRC 019 045 S12	1.9XR4.5	11	13	80	12
2DRC 019 050 S12	1.9XR5	12	-	80	12
2DRC 039 060 S16	3.9XR6	16	-	85	16
2DRC 059 070 S20	5.9XR7	20	-	85	20
2DRC 039 080 S20	3.9XR8	20	-	85	20

2DRC

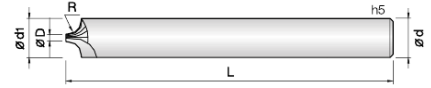
• RPM : rev./min • Feed : mm/min

Material	Carbon Steels S54C ~ S55C		Alloy Steels / Tool Steels SKD / SUS / SCM		Hardened Steels(35 ~ 45Hrc) NAK / HPM	
	RPM	FEED	RPM	FEED	RPM	FEED
Outside Diameter						
1.9mm	3,200	60	2,300	50	2,500	40
2.9mm	2,500	60	1,800	50	1,800	40
3.9mm	1,850	60	1,400	50	1,400	40
4.9mm	1,600	60	1,100	50	1,200	40
5.9mm	1,400	60	900	50	1,000	40

4 Fluets Corner Rounding Cutter

Hardened steel(-HRC52), pre-hardened steel, tool steel and cast iron

- High precise edge tolerance.
- Very nice work surface finish.



Size	D Tolerance
Φ1.4~5.9	+0~-0.02mm

Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D x R	L1	L	d
4DRC 029 005 S04	2.9XR0.5	4	50	4
4DRC 024 0075 S04	2.4XR0.75	4	50	4
4DRC 019 010 S04	1.9XR1	4	50	4
4DRC 049 005 S06	4.9XR0.5	6	50	6
4DRC 044 0075 S06	4.4XR0.75	6	50	6
4DRC 039 010 S06	3.9XR1	6	50	6
4DRC 059 010 S08	5.9XR1	8	60	8
4DRC 044 015 S08	4.4XR1.5	8	60	8
4DRC 039 020 S08	3.9XR2	8	60	8
4DRC 059 020 S10	5.9XR2	10	70	10
4DRC 049 025 S10	4.9XR2.5	10	70	10
4DRC 039 030 S10	3.9XR3	10	70	10
4DRC 059 030 S12	5.9XR3	12	75	12
4DRC 039 040 S12	3.9XR4	12	75	12
4DRC 059 050 S16	5.9XR5	16	80	16
4DRC 039 060 S16	3.9XR6	16	80	16

4DRC

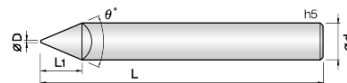
• RPM : rev./min • Feed : mm/min

Material	Carbon Steels S54C ~ S55C		Alloy Steels / Tool Steels SKD / SUS / SCM		Hardened Steels(35 ~ 45Hrc) NAK / HPM	
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED
1.9mm	5,940	1,260	4,950	1,050	3,960	840
2.9mm	5,280	1,130	4,400	940	3,520	750
3.9mm	4,700	1,010	3,910	840	3,100	670
4.9mm	4,200	910	3,400	750	2,800	600
5.9mm	3,700	820	3,000	670	2,400	540

1 Flute Straight Flute Taper End Mills

Endmills for various work materials, hardened steel, pre-hardened steel, tool steel and cast iron. (HRC50)

- Optimum for NC engraving by straight type one edge.
- Maximize engraving efficiency by various edge diameter.



Size	D Tolerance
Ø0	+0.05 ~ -0mm
Ø0.1~0.2	+0 ~ -0.02mm

Unit : mm

Order Number	Diameter	Angle	Length of Cut	Overall Length	Shank Dia
	D	θ	L1	L	d
1DTE 000 200 S04	0	20°	5	40	4
1DTE 000 300 S04	0	30°	5	40	4
1DTE 000 200 S06	0	20°	5	50	6
1DTE 000 300 S06	0	30°	5	50	6
1DTE 001 200 S04	0.1	20°	5	40	4
1DTE 001 300 S04	0.1	30°	5	40	4
1DTE 001 200 S06	0.1	20°	5	50	6
1DTE 001 300 S06	0.1	30°	5	50	6
1DTE 0015 200 S04	0.15	20°	5	40	4

Order Number	Diameter	Angle	Length of Cut	Overall Length	Shank Dia
	D	θ	L1	L	d
1DTE 0015 300 S04	0.15	30°	5	40	4
1DTE 0015 200 S06	0.15	20°	5	50	6
1DTE 0015 300 S06	0.15	30°	5	50	6
1DTE 002 200 S04	0.2	20°	5	40	4
1DTE 002 300 S04	0.2	30°	5	40	4
1DTE 002 200 S06	0.2	20°	5	50	6
1DTE 002 300 S06	0.2	30°	5	50	6

1DTE/2ATE

• RPM : rev/min • Feed : mm/min

Material	Mild Steels / Carbon Steels S54C ~ S55C		Alloy Steels SKD / SUS / SCM		Prehardened Steels NAK / HPM	
	RPM	FEED	RPM	FEED	RPM	FEED
Outside Diameter						
2mm	3,400 ~ 7,000	70 ~ 100	2,600 ~ 5,200	50 ~ 90	2,000 ~ 4,000	40 ~ 60
3mm	2,700 ~ 5,300	60 ~ 85	2,100 ~ 4,200	45 ~ 70	1,600 ~ 3,200	35 ~ 50
4mm	2,000 ~ 4,000	50 ~ 70	1,600 ~ 3,200	40 ~ 55	1,200 ~ 2,400	30 ~ 40
5mm	1,700 ~ 3,400	45 ~ 60	1,400 ~ 2,600	35 ~ 50	1,000 ~ 2,000	26 ~ 35
6mm	1,300 ~ 2,700	40 ~ 50	1,100 ~ 2,100	30 ~ 40	800 ~ 1,600	22 ~ 30
7mm	1,150 ~ 2,400	35 ~ 45	950 ~ 1,900	28 ~ 37	700 ~ 1,400	21 ~ 28
8mm	1,000 ~ 2,000	30 ~ 40	800 ~ 1,600	26 ~ 34	600 ~ 1,200	20 ~ 25
9mm	900 ~ 1,800	30 ~ 40	700 ~ 1,450	24 ~ 32	550 ~ 1,100	18 ~ 23
10mm	800 ~ 1,600	30 ~ 37	600 ~ 1,300	23 ~ 29	500 ~ 1,000	17 ~ 22
11mm	750 ~ 1,450	30 ~ 37	550 ~ 1,200	22 ~ 28	450 ~ 900	16 ~ 21
12mm	700 ~ 1,300	28 ~ 35	500 ~ 1,100	21 ~ 27	400 ~ 800	16 ~ 20
Depth of Cut	Ad : ~ 0.05D					



0°

2 Flutes Straight Flute Taper End Mills

Endmills for various work materials, hardened steel, pre-hardened steel, tool steel and cast iron.(-HRC50)

- Optimum for NC engraving, chamfering and centering with straight 2flutes.
- Resin, plastic machining applicable with coated or non coated endmill.



Size	D Tolerance
Φ0	+0.05~-0mm

Unit : mm

Order Number		Diameter	Angle	Length of cut	Overall Length	Shank Dia
非涂层 Non coated	涂层 Coated	D	θ	L1	L	d
2ATE 000 300 S03	2DTE 000 300 S03	0	30°	5.5	60	3
2ATE 000 600 S03	2DTE 000 600 S03	0	60°	2.5	60	3
2ATE 000 900 S03	2DTE 000 900 S03	0	90°	1.5	60	3
2ATE 000 300 S04	2DTE 000 300 S04	0	30°	7.4	60	4
2ATE 000 600 S04	2DTE 000 600 S04	0	60°	3.4	60	4
2ATE 000 900 S04	2DTE 000 900 S04	0	90°	2	60	4
2ATE 000 300 S06	2DTE 000 300 S06	0	30°	11.1	60	6
2ATE 000 600 S06	2DTE 000 600 S06	0	60°	5.1	60	6
2ATE 000 900 S06	2DTE 000 900 S06	0	90°	3	60	6
2ATE 000 600 S08	2DTE 000 600 S08	0	60°	6.9	65	8
2ATE 000 900 S08	2DTE 000 900 S08	0	90°	4	65	8
2ATE 000 600 S10	2DTE 000 600 S10	0	60°	8.6	70	10
2ATE 000 900 S10	2DTE 000 900 S10	0	90°	5	70	10
2ATE 000 600 S12	2DTE 000 600 S12	0	60°	10.3	75	12
2ATE 000 900 S12	2DTE 000 900 S12	0	90°	6	75	12

2AEN

• RPM : rev/min • Feed : mm/min

Material	Mild Steels / Carbon Steels SS400/S55C		Alloy Steels /Tools Steels SKD / SUS / SCM		Aluminum Alloys	
	RPM	FEED	RPM	FEED	RPM	FEED
Outside Diameter						
2mm	1,400	100	800	50	4,800	280
3mm	1,400	100	800	50	4,800	280
4mm	1,280	100	690	50	4,200	280
5mm	1,300	100	640	50	3,300	280
6mm	1,150	100	600	50	2,900	280
8mm	1,000	100	530	50	2,600	280
10mm	850	90	490	40	2,400	260
12mm	720	90	410	40	1,900	260
14mm	610	90	340	40	1,700	240
16mm	550	90	310	40	1,500	230
Depth of Cut	Ad : 0.5D~1.0D					

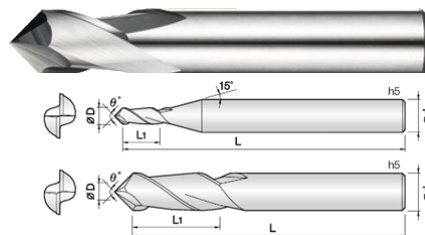


2 Flutes Centering End Mills

Non coating: Acryl, ABS, Aluminum, non-ferrous and non-metallic materials

Coating: Pre-hardened steel, Cast iron, Non-metallic materials

- Multi function endmill for corner chamfering, side wall and centering.
- Endmills for various work materials, hardened steel(HRC50), pre-hardened steel, tool steel and cast iron.



Size	D Tolerance
Φ3~5	+0~ -0.01mm
Φ6~12	-0.01~ -0.025mm
Φ14~16	-0.015~ -0.03mm

Unit : mm

Order Number		Diameter	Angle	Length of cut	Overall Length	Shank Dia
非涂层 Non coated	涂层 Coated	D	θ	L1	L	d
2AEN 003 600 S03	2DEN 003 600 S03	0.3	60°	0.6	45	3
2AEN 003 900 S03	2DEN 003 900 S03	0.3	90°	0.6	45	3
2AEN 005 600 S03	2DEN 005 600 S03	0.5	60°	1	50	3
2AEN 005 900 S03	2DEN 005 900 S03	0.5	90°	1	50	3
2AEN 008 600 S03	2DEN 008 600 S03	0.8	60°	1.6	50	3
2AEN 008 900 S03	2DEN 008 900 S03	0.8	90°	1.6	50	3
2AEN 010 600 S03	2DEN 010 600 S03	1	60°	2	50	3
2AEN 010 900 S03	2DEN 010 900 S03	1	90°	2	50	3
2AEN 020 600 S03	2DEN 020 600 S03	2	60°	4	50	3
2AEN 020 900 S03	2DEN 020 900 S03	2	90°	4	50	3
2AEN 030 600 S03	2DEN 030 600 S03	3	60°	6	50	3
2AEN 030 900 S03	2DEN 030 900 S03	3	90°	6	50	3
2AEN 030 600 S06	2DEN 030 600 S06	3	60°	6	50	6
2AEN 030 900 S06	2DEN 030 900 S06	3	90°	6	50	6
2AEN 040 600 S06	2DEN 040 600 S06	4	60°	8	50	6
2AEN 040 900 S06	2DEN 040 900 S06	4	90°	8	50	6
2AEN 050 600 S06	2DEN 050 600 S06	5	60°	10	50	6
2AEN 050 900 S06	2DEN 050 900 S06	5	90°	10	50	6
2AEN 060 600 S06	2DEN 060 600 S06	6	60°	12	60	6
2AEN 060 900 S06	2DEN 060 900 S06	6	90°	12	60	6
2AEN 080 600 S08	2DEN 080 600 S08	8	60°	16	70	8
2AEN 080 900 S08	2DEN 080 900 S08	8	90°	16	70	8
2AEN 100 600 S10	2DEN 100 600 S10	10	60°	18	70	10
2AEN 100 900 S10	2DEN 100 900 S10	10	90°	18	70	10
2AEN 120 600 S12	2DEN 120 600 S12	12	60°	20	75	12
2AEN 120 900 S12	2DEN 120 900 S12	12	90°	20	75	12
2AEN 140 600 S14	2DEN 140 600 S14	14	60°	26	80	14
2AEN 140 900 S14	2DEN 140 900 S14	14	90°	26	80	14
2AEN 160 600 S16	2DEN 160 600 S16	16	60°	32	100	16
2AEN 160 900 S16	2DEN 160 900 S16	16	90°	32	100	16

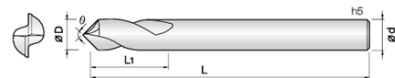


2Flutes NC spotting drill

Endmills for various work materials, hardened steel, pre-hardened steel, tool steel and cast iron.

• Optimum for centering with helix 2flutes.

• Resin, plastic machining applicable with coated or non coated endmill.



Size	D Tolerance
Φ2~5	+0~ -0.01mm
Φ6~12	-0.01~ -0.025mm
Φ16	-0.015~ -0.03mm

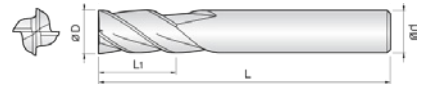
Unit : mm

Order Number		Diameter	Angle	Length of cut	Overall Length	Shank Dia
非涂层 Non coated	涂层 Coated	D	θ	L1	L	d
2NPO 010 090 050	2DPO 010 090 050	1	90°	3	50	3
2NPO 010 120 050	2DPO 010 120 050	1	120°	3	50	3
2NPO 020 090 050	2DPO 020 090 050	2	90°	6	50	3
2NPO 020 120 050	2DPO 020 120 050	2	120°	6	50	3
2NPO 030 090 050	2DPO 030 090 050	3	90°	10	50	3
2NPO 030 120 050	2DPO 030 120 050	3	120°	10	50	3
2NPO 030 090 100	2DPO 030 090 100	3	90°	10	100	3
2NPO 030 120 100	2DPO 030 120 100	3	120°	10	100	3
2NPO 040 090 050	2DPO 040 090 050	4	90°	12	50	4
2NPO 040 120 050	2DPO 040 120 050	4	120°	12	50	4
2NPO 040 090 100	2DPO 040 090 100	4	90°	12	100	4
2NPO 040 120 100	2DPO 040 120 100	4	120°	12	100	4
2NPO 060 090 070	2DPO 060 090 070	6	90°	15	70	6
2NPO 060 120 070	2DPO 060 120 070	6	120°	15	70	6
2NPO 060 090 110	2DPO 060 090 110	6	90°	15	110	6
2NPO 060 120 110	2DPO 060 120 110	6	120°	15	110	6
2NPO 080 090 080	2DPO 080 090 080	8	90°	25	80	8
2NPO 080 120 080	2DPO 080 120 080	8	120°	25	80	8
2NPO 100 090 090	2DPO 100 090 090	10	90°	25	90	10
2NPO 100 120 090	2DPO 100 120 090	10	120°	25	90	10
2NPO 100 090 150	2DPO 100 090 150	10	90°	25	150	10
2NPO 100 120 150	2DPO 100 120 150	10	120°	25	150	10
2NPO 120 090 090	2DPO 120 090 090	12	90°	30	90	12
2NPO 120 120 090	2DPO 120 120 090	12	120°	30	90	12
2NPO 120 090 150	2DPO 120 090 150	12	90°	30	150	12
2NPO 120 120 150	2DPO 120 120 150	12	120°	30	150	12
2NPO 160 090 110	2DPO 160 090 110	16	90°	35	110	16
2NPO 160 120 110	2DPO 160 120 110	16	120°	35	110	16

Roughing and Finishing End Mill (4 Flutes)

Structure which facilitates at the same time process of roughing and finishing/4 Flutes (2flute for Roughing, 2flute for Finishing)

- Possible to process roughing and finishing at the same time/ Reduce time for setup (Improve Productivity)
- Designed to suppress vibration during semi-roughing/ Reduce noise



Unit : mm

Order Number	Diameter	Length of Cut	Overall Length	Shank Dia
	R X D	L1	L	d
4FNR 060 003 130	0.3R X 6	13	60	6
4FNR 060 003 180	0.3R X 6	18	60	6
4FNR 080 005 065	0.5R X 8	19	65	8
4FNR 080 005 070	0.5R X 8	25	70	8
4FNR 100 005 070	0.5R X 10	22	70	10
4FNR 100 005 080	0.5R X 10	30	80	10
4FNR 120 010 080	1R X 12	26	80	12
4FNR 120 010 090	1R X 12	35	90	12
4FNR 140 010 080	1R X 14	32	80	14
4FNR 140 010 100	1R X 14	40	100	14
4FNR 160 010 090	1R X 16	32	90	16
4FNR 160 010 100	1R X 16	43	100	16
4FNR 200 010 100	1R X 20	38	100	20
4FNR 200 010 110	1R X 20	50	110	20

4FNR, 4FCE

ISO	Work Material		N/mm ²	HB	min~Vmax
P	Carbon steel, cast steel, free-cutting steel	< 0.25%C	420	125	260 ~ 280
		≥ 0.25%C	650	190	200 ~ 230
		< 0.55%	850	250	160 ~ 190
		≥ 0.55%C	750	220	160 ~ 180
			1000	300	140 ~ 160
	Low alloy steel, cast steel Alloy component less than 5%		600	200	160 ~ 190
			930	275	120 ~ 140
			1000	300	130 ~ 150
			1200	350	140 ~ 160
	High alloy steel		680	200	130 ~ 160
Cast steel, steel		1100	325	70 ~ 90	
M	Stainless Steels, cast steel		680	200	110 ~ 200
			820	240	60 ~ 180
			600	180	80 ~ 120
K	Dutile Cast Iron			180	80 ~ 260
				260	130 ~ 240
	Cray Cast Iron			160	150 ~ 280
				250	90 ~ 280
	Malleable Cast Iron			130	150 ~ 280
				230	140 ~ 240
N	Copper alloy > 1% Pb			110	400 ~ 430
				90	400 ~ 430
				100	270 ~ 300

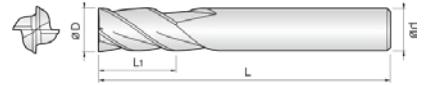
Side Milling		
Diameter	Fz(min)	Fz(max)
6	0.05	0.132
8	0.06	0.176
10	0.06	0.196
12	0.07	0.216
14	0.08	0.24
16	0.1	0.26
20	0.1	0.36

Slotting		
Diameter	Fz(min)	Fz(max)
6	0.05	0.12
8	0.06	0.16
10	0.06	0.18
12	0.07	0.2
14	0.08	0.22
16	0.1	0.24
20	0.3	0.3

Roughing and Finishing End Mill (4 Flutes)

Structure which facilitates at the same time process of roughing and finishing/ 4 Flutes (2flute for Roughing, 2flute for Finishing)

- Possible to process roughing and finishing at the same time/ Reduce time for setup (Improve Productivity)
- Designed to suppress vibration during semi-roughing/ Reduce noise



Unit : mm

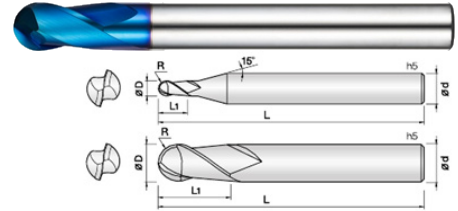
Order Number	Diameter	Length of Cut	Overall Length	Shank Dia
	D	L1	L	d
4FCE 060 130 060	6	13	60	6
4FCE 060 180 060	6	18	60	6
4FCE 080 190 065	8	19	65	8
4FCE 080 250 070	8	25	70	8
4FCE 100 220 070	10	22	70	10
4FCE 100 300 080	10	30	80	10
4FCE 120 260 080	12	26	80	12
4FCE 120 350 090	12	35	90	12
4FCE 140 320 080	14	32	80	14
4FCE 140 400 100	14	40	100	14
4FCE 160 320 090	16	32	90	16
4FCE 160 430 100	16	43	100	16
4FCE 200 380 100	20	38	100	20
4FCE 200 500 100	20	50	100	20

2Flutes Ball End Mills for Heavy cuts

Endmills for various work materials(-HRC52), pre-hardened steel, carbon steel, mold steel.

• Good wear resistance by high quality Si-based PVD coating.

• Suitable shape is designed for tooling in wide areas.



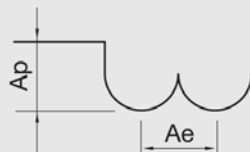
Size	D Tolerance
Φ0.2~5	+0~ -0.01mm
Φ6~12	-0.005~ -0.015mm
Φ16	-0.01~ -0.02mm

Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	RxD	L1	L	d
2ECB 002 004 S04	0.1R X 0.2	0.4	40	4
2ECB 003 006 S04	0.15R X 0.3	0.6	40	4
2ECB 004 008 S04	0.2R X 0.4	0.8	40	4
2ECB 005 010 S04	0.25R X 0.5	1	45	4
2ECB 006 012 S04	0.3R X 0.6	1.2	45	4
2ECB 007 014 S04	0.35R X 0.7	1.4	45	4
2ECB 008 016 S04	0.4R X 0.8	1.6	45	4
2ECB 009 018 S04	0.45R X 0.9	1.8	45	4
2ECB 010 025 S04	0.5R X 1	2.5	50	4
2ECB 010 025 S06	0.5R X 1	2.5	50	6
2ECB 012 030 S04	0.6R X 1.2	3	50	4
2ECB 015 040 S04	0.75R X 1.5	4	50	4
2ECB 015 040 S06	0.75R X 1.5	4	50	6
2ECB 020 050 S04	1R X 2	5	50	4
2ECB 020 050 S06	1R X 2	5	50	6
2ECB 025 050 S04	1.25R X 2.5	5	50	4
2ECB 025 050 S06	1.25R X 2.5	5	50	6
2ECB 030 060 S04	1.5R X 3	6	50	4
2ECB 030 060 S06	1.5R X 3	6	50	6
2ECB 030 060 060	1.5R X 3	6	60	6
2ECB 040 080 S04	2R X 4	8	50	4
2ECB 040 080 080	2R X 4	8	80	4
2ECB 040 080 S06	2R X 4	8	50	6
2ECB 040 080 070	2R X 4	8	70	6
2ECB 050 100 S06	2.5R X 5	10	50	6
2ECB 050 120 S06	2.5R X 5	12	80	6
2ECB 060 100 050	3R X 6	10	50	6
2ECB 060 100 060	3R X 6	10	60	6
2ECB 060 120 080	3R X 6	12	80	6
2ECB 060 120 100	3R X 6	12	100	6
2ECB 080 120 060	4R X 8	12	60	8
2ECB 080 140 080	4R X 8	14	80	8
2ECB 080 140 100	4R X 8	14	100	8
2ECB 100 150 075	5R X 10	15	75	10
2ECB 100 180 100	5R X 10	18	100	10
2ECB 120 180 080	6R X 12	18	80	12
2ECB 120 220 110	6R X 12	22	110	12
2ECB 160 300 110	8R X 16	30	110	16

Material		Copper				Prehardened Steels / Hardened Steels NAK / SKD				Hardened Steels SKD / SKT			
Hardness						30~45HRC				45 ~ 55HRC			
Radius	Effective Length	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
R0.05	0.2	44,000	315	Less than 0.010	0.050	44,000	315	Less than 0.005	0.040	33,000	210	Less than 0.004	0.040
R0.075	0.15	55,000	399	0.010	0.030	49,500	525	0.005	0.050	44,000	368	0.004	0.043
	0.2	59,400	452	0.012	0.008	59,400	662	0.020	0.060	48,730	525	0.016	0.048
	0.4	59,400	452	0.005	0.008	59,400	431	0.020	0.049	48,730	336	0.016	0.038
	0.3	59,400	756	0.020	0.013	59,400	788	0.030	0.090	48,730	630	0.024	0.072
	0.6	59,400	756	0.010	0.013	59,400	735	0.030	0.065	48,730	599	0.020	0.058
	0.4	59,400	914	0.028	0.016	59,400	1,050	0.040	0.120	48,730	840	0.032	0.096
R0.2	0.8	59,400	914	0.014	0.016	59,400	882	0.040	0.100	48,730	683	0.032	0.075
R0.25	0.5	61,600	1,313	0.035	0.022	58,300	1,313	0.050	0.150	47,850	1,050	0.040	0.120
R0.3	0.6	63,800	1,586	0.042	0.026	57,200	1,449	0.060	0.180	46,915	1,155	0.048	0.144
R0.35	0.7	60,500	1,775	0.049	0.031	55,000	1,512	0.070	0.210	45,183	1,208	0.056	0.168
	0.8	57,200	1,964	0.056	0.036	52,800	1,575	0.080	0.240	43,450	1,260	0.064	0.192
	2	57,200	1,964	0.300	0.036	49,500	1,129	0.080	0.150	38,500	851	0.064	0.100
	1	45,100	1,743	0.063	0.040	49,500	1,638	0.100	0.300	40,590	1,313	0.080	0.240
	2.5	45,100	1,743	0.022	0.040	44,000	1,050	0.100	0.200	34,650	840	0.080	0.160
R0.6	3	37,400	1,827	0.650	0.400	44,110	1,628	0.100	0.280	36,080	1,313	0.800	0.266
	1.5	29,700	1,922	0.087	0.068	38,500	1,680	0.150	0.450	31,570	1,344	0.120	0.360
	4	29,700	1,922	0.052	0.068	37,950	1,050	0.145	0.325	28,600	840	0.120	0.260
	2	22,000	1,869	0.112	0.089	33,000	1,943	0.200	0.600	27,060	1,554	0.160	0.480
	5	22,000	1,869	0.070	0.091	29,700	1,523	0.200	0.485	25,080	1,155	0.160	0.388
R1.25	6	17,600	1,932	0.067	0.115	28,050	1,680	0.250	0.542	23,100	1,344	0.200	0.430
	3	14,300	2,331	0.197	0.171	28,050	2,646	0.300	0.957	23,100	2,153	0.240	0.766
	8	14,300	2,331	0.100	0.171	28,050	2,468	0.300	0.765	23,100	19,740	0.240	0.612
R1.75	8	12,650	2,258	0.183	0.190	25,300	2,520	0.350	1.073	21,065	10,899	0.280	0.856
R2	4	11,000	2,184	0.266	0.208	23,100	2,573	0.400	1.380	19,030	2,058	0.320	1.100
	8	11,000	2,184	0.134	0.208	23,100	2,468	0.400	1.020	19,030	1,974	0.320	0.816
	5	9,130	2,090	0.215	0.240	19,800	2,688	0.500	1.660	16,280	2,153	0.400	1.330
R2.5	8	9,130	2,090	0.200	0.240	19,800	2,573	0.500	1.500	16,280	2,058	0.400	1.200
	10	9,130	2,090	0.190	0.240	19,800	2,520	0.500	1.300	16,280	1,995	0.400	1.020
	6	7,590	2,037	0.290	0.281	17,600	2,835	0.600	2.340	14,300	2,268	0.480	1.870
R3	10	7,590	2,037	0.250	0.281	17,600	2,625	0.600	1.800	14,300	2,100	0.480	1.440
	12	7,590	2,037	0.230	0.281	17,600	2,520	0.600	1.530	14,300	2,016	0.480	1.225
R3.5	14	6,941	1,544	0.315	0.228	15,950	2,468	0.700	2.315	12,788	1,974	0.560	1.853
	8	6,292	1,050	0.400	0.175	13,750	2,415	0.800	3.100	11,275	1,932	0.640	2.480
	14	6,292	1,050	0.400	0.175	13,750	2,100	0.800	2.050	11,275	1,680	0.640	1.640
R4.5	16	5,649	893	0.450	0.165	12,100	2,205	0.900	2.900	10,395	1,775	0.720	2.320
	10	5,005	735	0.500	0.154	11,550	2,310	1.000	3.750	9,515	1,869	0.800	3.000
R5	15	5,005	735	0.500	0.154	11,550	1,995	1.000	3.000	9,515	1,596	0.800	2.400
	18	5,005	735	0.500	0.154	11,550	1,785	1.000	2.550	9,515	1,428	0.800	2.040
R5.5	20	4,576	683	0.550	0.157	11,000	1,785	1.100	3.075	8,817	1,428	0.880	2.460
	18	4,147	630	0.600	0.159	9,900	1,785	1.200	3.600	8,118	1,428	0.960	2.880
	22	4,147	630	0.600	0.159	9,900	1,943	1.200	4.420	8,118	1,554	0.960	3.540
R6.5	24	4,101	686	0.549	0.156	9,900	1,916	1.098	3.938	7,912	1,617	0.878	3.152
R7	24	4,055	741	0.498	0.153	7,700	1,890	0.996	3.456	7,708	1,680	0.797	2.765
R8	30	3,284	630	0.413	0.147	7,700	1,785	0.827	3.318	6,243	1,428	0.661	2.654
R10	38	2,672	378	0.276	0.133	7,700	1,680	0.551	3.015	5,079	857	0.441	2.412

Depth of Cut



- Ap : Axial Depth
- Ae : Radial Depth
- D : Outside Diameter
- n : Speed
- Vf : Feed



Φ0.2-Φ6 Φ6-Φ12 Φ16

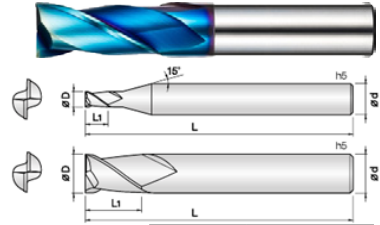
Shield Edge

2Flutes Standard End Mills for Heavy cuts

Endmills for various work materials(-HRC52), pre-hardened steel, carbon steel, mold steel.

• Good wear resistance by high quality Si-based PVD coating.

• Suitable shape is designed for tooling in wide areas.



Size	D Tolerance
Φ0.2~5	+0~-0.01mm
Φ6~12	-0.01~-0.025mm
Φ16	-0.015~-0.03mm

Unit : mm

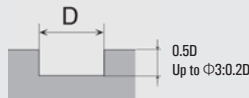
Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
2ECE 002 004 S04	0.2	0.4	40	4
2ECE 003 006 S04	0.3	0.6	40	4
2ECE 004 008 S04	0.4	0.8	40	4
2ECE 005 010 S04	0.5	1	40	4
2ECE 006 012 S04	0.6	1.2	40	4
2ECE 007 014 S04	0.7	1.4	40	4
2ECE 008 016 S04	0.8	1.6	40	4
2ECE 009 018 S04	0.9	1.8	40	4
2ECE 010 025 S04	1	2.5	45	4
2ECE 010 030 S04	1	3	50	4
2ECE 012 030 S04	1.2	3	45	4
2ECE 015 040 S04	1.5	4	45	4
2ECE 020 060 S04	2	6	45	4
2ECE 025 080 S04	2.5	8	45	4

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
2ECE 030 080 S04	3	8	50	4
2ECE 030 080 S06	3	8	50	6
2ECE 040 110 S04	4	11	50	4
2ECE 040 110 S06	4	11	50	6
2ECE 050 130 S06	5	13	50	6
2ECE 060 130 050	6	13	50	6
2ECE 060 160 055	6	16	55	6
2ECE 080 200 060	8	20	60	8
2ECE 080 240 070	8	24	70	8
2ECE 100 220 070	10	22	70	10
2ECE 100 250 075	10	25	75	10
2ECE 120 260 075	12	26	75	12
2ECE 120 300 080	12	30	80	12
2ECE 160 400 090	16	40	90	16

• RPM : rev./min • Feed : mm/min

Material	Carbon Steels / Alloy Steels SCM / SNCM / S45C		Prehardened Steels NAK / CENA / KP4		Stainless Steels SUS		Hardened Steels SKD / SKT / STAVAX	
Hardness	~ 35 HRC		35 ~ 45 HRC				45 ~ 55HRC	
Strength	~1,100N/mm2		1,100~1,500N/mm2				1500~2000N/mm2	
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1mm	14,322	179	9,900	105	8,910	74	7,722	32
1.5mm	13,530	189	9,768	116	8,096	84	6,534	32
2mm	12,716	200	8,316	126	6,930	95	5,544	37
2.5mm	11,330	210	7,282	137	6,028	116	4,752	37
3mm	9,812	221	6,116	147	5,082	126	3,696	42
4mm	8,316	315	5,082	189	4,268	158	3,234	42
5mm	6,930	336	4,158	200	3,476	168	2,552	53
6mm	6,116	368	3,696	231	3,124	189	2,200	58
8mm	4,620	399	2,772	210	2,310	189	1,848	79
10mm	3,586	347	2,200	168	1,848	168	1,496	63
12mm	3,014	294	1,848	137	1,496	137	1,276	58
16mm	2,420	231	1,496	116	1,166	116	990	42
20mm	1,848	179	1,166	84	924	84	748	32

Depth of Cut

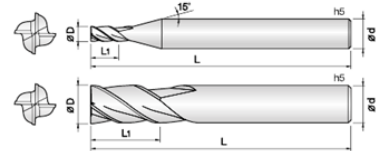


4Flutes Standard End Mills for Heavy cuts

Endmills for various work materials(-HRC52), pre-hardened steel, carbon steel, mold steel.

• Good wear resistance by high quality Si-based PVD coating.

• Suitable shape is designed for tooling in wide areas.



Size	D Tolerance
Φ1~5	+0~ -0.01mm
Φ6~12	-0.01~ -0.025mm
Φ16	-0.015~ -0.03mm

Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
4ECE 010 025 S04	1	2.5	45	4
4ECE 015 040 S04	1.5	4	45	4
4ECE 020 060 S04	2	6	45	4
4ECE 025 080 S04	2.5	8	45	4
4ECE 030 080 S04	3	8	50	4
4ECE 030 080 S06	3	8	50	6
4ECE 040 110 S04	4	11	50	4
4ECE 040 110 S06	4	11	50	6
4ECE 050 130 S06	5	13	50	6

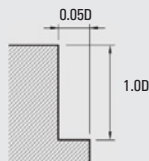
Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
4ECE 060 130 050	6	13	50	6
4ECE 060 160 055	6	16	55	6
4ECE 080 200 060	8	20	60	8
4ECE 080 240 070	8	24	70	8
4ECE 100 220 070	10	22	70	10
4ECE 100 250 075	10	25	75	10
4ECE 120 260 075	12	26	75	12
4ECE 120 300 080	12	30	80	12
4ECE 160 400 090	16	40	90	16

4ECE

• RPM : rev/min • Feed : mm/min

Material	Carbon Steels / Alloy Steels SCM / SNCM / S45C		Prehardened Steels NAK / CENA / KP4		Stainless Steels SUS		Hardened Steels SKD / SKT / STAVAX	
Hardness	~ 35 HRC		35 ~ 45 HRC				45 ~ 55HRC	
Strength	~1100N/mm2		1100~1500N/mm2				1500~2000N/mm2	
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2mm	12,716	294	8,316	179	6,930	147	5,544	53
3mm	9,812	336	6,116	210	5,082	179	3,696	63
4mm	8,316	599	5,082	368	4,268	294	3,234	63
5mm	6,930	630	4,158	378	3,476	315	2,552	74
6mm	6,116	693	3,696	431	3,124	347	2,200	84
8mm	4,620	746	2,772	399	2,310	368	1,848	116
10mm	3,586	641	2,200	315	1,848	315	1,496	95
12mm	3,014	546	1,848	263	1,496	252	1,276	84
14mm	2,662	536	1,606	236	1,331	231	1056	74
16mm	2,420	431	1,496	210	1,210	210	990	63
18mm	2002	368	1331	189	1045	184	902	53
20mm	1,848	336	1,166	168	924	158	748	42

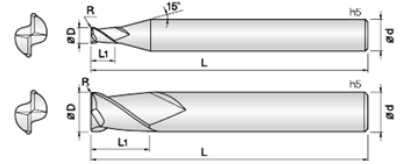
Depth of Cut



2Flutes Corner Radius End Mills for Heavy cuts

Endmills for various work materials(-HRC52), pre-hardened steel, carbon steel, mold steel.

- Good wear resistance by high quality Si-based PVD coating.
- Designed for minimizing edge chipping by corner R shape.



Size	D Tolerance
Φ1~5	+0~ -0.01mm
Φ6~12	-0.01~ -0.025mm

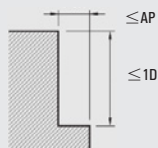
Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	RxD	L1	L	d
2ECR 010 001 S04	R0.1 X 1	3	50	4
2ECR 010 003 S04	R0.3 X 1	3	50	4
2ECR 015 001 S04	R0.1 X 1.5	4	50	4
2ECR 015 002 S04	R0.2 X 1.5	4	50	4
2ECR 015 003 S04	R0.3 X 1.5	4	50	4
2ECR 015 005 S04	R0.5 X 1.5	4	50	4
2ECR 020 001 S04	R0.1 X 2	6	50	4
2ECR 020 002 S04	R0.2 X 2	6	50	4
2ECR 020 003 S04	R0.3 X 2	6	50	4
2ECR 020 005 S04	R0.5 X 2	6	50	4
2ECR 025 001 S04	R0.1 X 2.5	6	50	4
2ECR 025 002 S04	R0.2 X 2.5	6	50	4
2ECR 025 003 S04	R0.3 X 2.5	6	50	4
2ECR 025 005 S04	R0.5 X 2.5	6	50	4
2ECR 030 001 S06	R0.1 X 3	8	60	6
2ECR 030 002 S06	R0.2 X 3	8	60	6
2ECR 030 003 S06	R0.3 X 3	8	60	6
2ECR 030 005 S06	R0.5 X 3	8	60	6
2ECR 030 010 S06	R1 X 3	8	60	6
2ECR 040 001 S04	R0.1 X 4	10	50	4
2ECR 040 001 S06	R0.1 X 4	10	70	6
2ECR 040 002 S04	R0.2 X 4	10	50	4
2ECR 040 002 S06	R0.2 X 4	10	70	6
2ECR 040 003 S04	R0.3 X 4	10	50	4
2ECR 040 003 S06	R0.3 X 4	10	70	6
2ECR 040 005 S04	R0.5 X 4	10	50	4
2ECR 040 005 S06	R0.5 X 4	10	70	6

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	RxD	L1	L	d
2ECR 040 010 S04	R1 X 4	10	50	4
2ECR 040 010 S06	R1 X 4	10	70	6
2ECR 050 001 S06	R0.1 X 5	13	75	6
2ECR 050 002 S06	R0.2 X 5	13	75	6
2ECR 050 003 S06	R0.3 X 5	13	75	6
2ECR 050 005 S06	R0.5 X 5	13	75	6
2ECR 050 010 S06	R1 X 5	13	75	6
2ECR 060 002 080	R0.2 X 6	13	80	6
2ECR 060 003 080	R0.3 X 6	13	80	6
2ECR 060 005 080	R0.5 X 6	13	80	6
2ECR 060 010 080	R1 X 6	13	80	6
2ECR 080 003 090	R0.3 X 8	19	90	8
2ECR 080 005 090	R0.5 X 8	19	90	8
2ECR 080 010 090	R1 X 8	19	90	8
2ECR 100 003 100	R0.3 X 10	22	100	10
2ECR 100 005 100	R0.5 X 10	22	100	10
2ECR 100 010 100	R1 X 10	22	100	10
2ECR 120 003 110	R0.3 X 12	26	110	12
2ECR 120 005 110	R0.5 X 12	26	110	12
2ECR 120 010 110	R1 X 12	26	110	12
2ECR 120 020 110	R2 X 12	26	110	12

Material	General Steels			SKD61		
Hardness	~45 HRC			45~55 HRC		
Outside Diameter	RPM	FEED	Ap	RPM	FEED	Ap
0.1mm	44,000	42	0.001	44,000	42	0.001
0.2mm	44,000	105	0.002	44,000	105	0.002
0.3mm	44,000	210	0.005	44,000	210	0.005
0.4mm	44,000	630	0.010	44,000	630	0.010
0.5mm	44,000	1,050	0.015	44,000	1,008	0.015
0.6mm	44,000	1,260	0.020	44,000	1,260	0.020
0.7mm	44,000	1,470	0.020	44,000	1,470	0.020
0.8mm	44,000	1,680	0.030	44,000	1,680	0.030
0.9mm	44,000	1,890	0.040	44,000	1,680	0.040
1mm	44,000	2,100	0.060	35,200	1,680	0.060
1.5mm	44,000	3,150	0.120	35,200	1,995	0.080
2mm	33,000	3,150	0.180	26,400	1,995	0.100
2.5mm	26,400	2,730	0.250	20,900	1,680	0.130
3mm	22,000	2,415	0.300	17,600	1,470	0.150
4mm	16,500	2,100	0.400	13,200	1,260	0.200
5mm	13,200	1,680	0.500	9,900	945	0.250
6mm	11,000	1,470	0.600	7,700	735	0.300
8mm	8,800	1,050	0.800	6,160	578	0.400
10mm	7,040	945	1.000	4,950	525	0.500
12mm	5,940	861	1.000	4,180	473	0.500
16mm	2,640	399	3.000	1,320	105	0.800
20mm	2,090	336	4.000	1,100	84	1.000

Depth of Cut





0.1~0.5R

1R

2R

Ø1~0.05

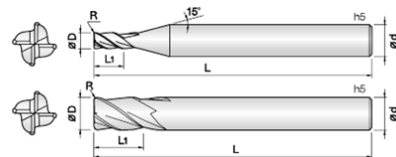
Ø0.02~0.015

30°

4Flutes Corner Radius End Mills for Heavy cuts

Endmills for various work materials(-HRC52), pre-hardened steel, carbon steel, mold steel.

- Good wear resistance by high quality Si-based PVD coating.
- Designed for minimizing edge chipping by corner R shape.



Size	D Tolerance
Φ1~5	+0~-0.01mm
Φ6~12	-0.005~-0.015mm

Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	RxD	L1	L	d
4ECR 010 001 S04	R0.1 X 1	3	50	4
4ECR 010 002 S04	R0.2 X 1	3	50	4
4ECR 010 003 S04	R0.3 X 1	3	50	4
4ECR 015 001 S04	R0.1 X 1.5	4	50	4
4ECR 015 002 S04	R0.2 X 1.5	4	50	4
4ECR 015 003 S04	R0.3 X 1.5	4	50	4
4ECR 015 005 S04	R0.5 X 1.5	4	50	4
4ECR 020 001 S04	R0.1 X 2	6	50	4
4ECR 020 002 S04	R0.2 X 2	6	50	4
4ECR 020 003 S04	R0.3 X 2	6	50	4
4ECR 020 005 S04	R0.5 X 2	6	50	4
4ECR 025 001 S04	R0.1 X 2.5	6	50	4
4ECR 025 002 S04	R0.2 X 2.5	6	50	4
4ECR 025 003 S04	R0.3 X 2.5	6	50	4
4ECR 025 005 S04	R0.5 X 2.5	6	50	4
4ECR 030 001 S04	R0.1 X 3	8	50	4
4ECR 030 001 S06	R0.1 X 3	8	50	6
4ECR 030 001 Ø60	R0.1 X 3	8	60	6
4ECR 030 002 S04	R0.2 X 3	8	50	4
4ECR 030 002 S06	R0.2 X 3	8	50	6
4ECR 030 002 Ø60	R0.2 X 3	8	60	6
4ECR 030 003 S04	R0.3 X 3	8	50	4
4ECR 030 003 S06	R0.3 X 3	8	50	6
4ECR 030 003 Ø60	R0.3 X 3	8	60	6
4ECR 030 005 S04	R0.5 X 3	8	50	4
4ECR 030 005 S06	R0.5 X 3	8	50	6
4ECR 030 005 Ø60	R0.5 X 3	8	60	6
4ECR 030 010 S04	R1 X 3	8	50	4
4ECR 030 010 S06	R1 X 3	8	50	6
4ECR 030 010 Ø60	R1 X 3	8	60	6
4ECR 040 001 S04	R0.1 X 4	10	50	4
4ECR 040 001 S06	R0.1 X 4	10	50	6
4ECR 040 001 Ø70	R0.1 X 4	10	70	6

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	RxD	L1	L	d
4ECR 040 002 S04	R0.2 X 4	10	50	4
4ECR 040 002 S06	R0.2 X 4	10	50	6
4ECR 040 002 Ø70	R0.2 X 4	10	70	6
4ECR 040 003 S04	R0.3 X 4	10	50	4
4ECR 040 003 S06	R0.3 X 4	10	50	6
4ECR 040 003 Ø70	R0.3 X 4	10	70	6
4ECR 040 005 S04	R0.5 X 4	10	50	4
4ECR 040 005 S06	R0.5 X 4	10	50	6
4ECR 040 005 Ø70	R0.5 X 4	10	70	6
4ECR 040 010 S04	R1 X 4	10	50	4
4ECR 040 010 S06	R1 X 4	10	50	6
4ECR 040 010 Ø70	R1 X 4	10	70	6
4ECR 050 001 S06	R0.1 X 5	10	50	6
4ECR 050 001 Ø75	R0.1 X 5	13	75	6
4ECR 050 002 S06	R0.2 X 5	10	50	6
4ECR 050 002 Ø75	R0.2 X 5	13	75	6
4ECR 050 003 S06	R0.3 X 5	10	50	6
4ECR 050 003 Ø75	R0.3 X 5	13	75	6
4ECR 050 005 S06	R0.5 X 5	10	50	6
4ECR 050 005 Ø75	R0.5 X 5	13	75	6
4ECR 050 010 S06	R1 X 5	10	50	6
4ECR 050 010 Ø75	R1 X 5	13	75	6
4ECR 060 001 Ø50	R0.1 X 6	10	50	6
4ECR 060 001 Ø80	R0.1 X 6	13	80	6
4ECR 060 002 Ø50	R0.2 X 6	10	50	6
4ECR 060 002 Ø80	R0.2 X 6	13	80	6
4ECR 060 003 Ø50	R0.3 X 6	10	50	6
4ECR 060 003 Ø80	R0.3 X 6	13	80	6
4ECR 060 005 Ø50	R0.5 X 6	10	50	6
4ECR 060 005 Ø80	R0.5 X 6	13	80	6
4ECR 060 010 Ø50	R1 X 6	10	50	6
4ECR 060 010 Ø80	R1 X 6	13	80	6
4ECR 080 002 Ø60	R0.2 X 8	16	60	8



0.1-0.5R

1R

2R

Φ1-Φ5

Φ6-Φ12

Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	RxD	L1	L	d
4ECR 080 002 090	R0.2 X 8	19	90	8
4ECR 080 003 060	R0.3 X 8	16	60	8
4ECR 080 003 090	R0.3 X 8	19	90	8
4ECR 080 005 060	R0.5 X 8	16	60	8
4ECR 080 005 090	R0.5 X 8	19	90	8
4ECR 080 010 060	R1 X 8	16	60	8
4ECR 080 010 090	R1 X 8	19	90	8
4ECR 080 020 060	R2 X 8	16	60	8
4ECR 080 020 090	R2 X 8	19	90	8
4ECR 100 002 075	R0.2 X 10	18	75	10
4ECR 100 002 100	R0.2 X 10	22	100	10
4ECR 100 003 075	R0.3 X 10	18	75	10
4ECR 100 003 100	R0.3 X 10	22	100	10
4ECR 100 005 075	R0.5 X 10	18	75	10
4ECR 100 005 100	R0.5 X 10	22	100	10

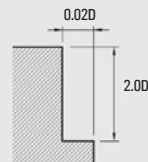
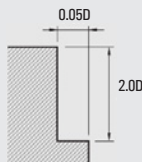
Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	RxD	L1	L	d
4ECR 100 010 075	R1 X 10	18	75	10
4ECR 100 010 100	R1 X 10	22	100	10
4ECR 100 020 075	R2 X 10	18	75	10
4ECR 100 020 100	R2 X 10	22	100	10
4ECR 120 002 075	R0.2 X 12	22	75	12
4ECR 120 002 110	R0.2 X 12	26	110	12
4ECR 120 003 075	R0.3 X 12	22	75	12
4ECR 120 003 110	R0.3 X 12	26	110	12
4ECR 120 005 075	R0.5 X 12	22	75	12
4ECR 120 005 110	R0.5 X 12	26	110	12
4ECR 120 010 075	R1 X 12	22	75	12
4ECR 120 010 110	R1 X 12	26	110	12
4ECR 120 020 075	R2 X 12	22	75	12
4ECR 120 020 110	R2 X 12	26	110	12

4ECR

• RPM : rev./min • Feed : mm/min

Material	Carbon Steels / Alloy Steels SCM / SNCM / S45		Prehardened Steels NAK / CENA / KP4		Hardened Steels SKD / SKT / STAVAX	
Hardness	~ 35HRc		35 ~ 45HRc		45 ~ 55HRc	
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED
1mm	30,360	315	19,800	231	12,100	126
1.5mm	24,200	326	14,850	242	9,350	126
2mm	19,800	336	12,716	252	7,920	137
2.5mm	16,500	347	10,450	263	6,710	137
3mm	14,564	357	9,416	273	5,808	137
4mm	11,792	441	7,502	315	4,730	147
5mm	10,076	452	6,380	378	4,180	179
6mm	8,690	452	5,544	378	3,608	179
8mm	6,600	483	4,180	378	2,772	179
10mm	5,544	483	3,608	378	2,222	179
12mm	4,532	378	3,058	336	1,848	147
16mm	3,410	294	2,310	242	1,408	121

Depth of Cut

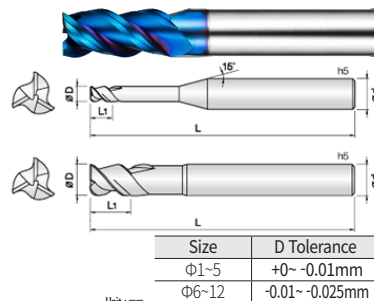




3 Flutes End Mills for Heavy cuts

Endmills for various work materials(-HRC52), pre-hardened steel, carbon steel, mold steel, SUS, Ti/Ni-base alloy, Inconel.

- Good wear resistance by high quality Si-based PVD coating.
- Excellent work surface finish by 3 flute and deep chip pocket.



Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
3ESE 010 025 S04	1	2.5	45	4
3ESE 012 030 S04	1.2	3	45	4
3ESE 015 040 S04	1.5	4	45	4
3ESE 020 060 S04	2	6	45	4
3ESE 030 080 S06	3	8	45	6
3ESE 040 110 S06	4	11	50	6

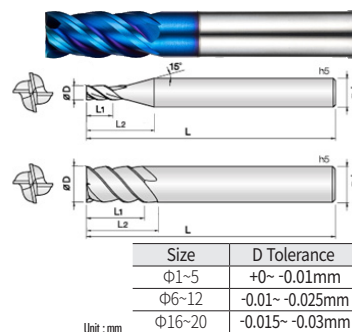
Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
3ESE 050 130 S06	5	13	50	6
3ESE 060 130 S06	6	13	55	6
3ESE 080 190 S08	8	19	60	8
3ESE 100 220 S10	10	22	70	10
3ESE 120 260 S12	12	26	80	12



4 Flutes End Mills for Heavy cuts

Endmills for various work materials(-HRC52), pre-hardened steel, carbon steel, mold steel, SUS, Ti/Ni-base alloy, Inconel.

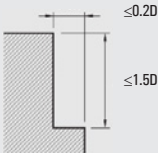
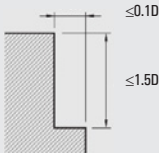
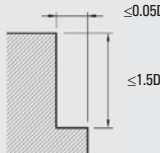
- Good wear resistance by high quality Si-based PVD coating.
- Minimize chattering by unequal flute spacing design.



Order Number	Diameter	Length of Cut	Effective Length	Overall Length	Shank Dia
	D	L1	L2	L	d
4ESE 010 025 S04	1	2.5		45	4
4ESE 010 040 S04	1	2.5	4	45	4
4ESE 012 030 S04	1.2	3		45	4
4ESE 012 050 S04	1.2	3	5	45	4
4ESE 015 040 S04	1.5	4		45	4
4ESE 015 060 S04	1.5	4	6	45	4
4ESE 020 060 S04	2	6		45	4
4ESE 020 100 S04	2	6	10	45	4
4ESE 025 070 S04	2.5	7		45	4
4ESE 025 100 S04	2.5	7	10	45	4
4ESE 030 080 S06	3	8		50	6
4ESE 030 100 S06	3	10		50	6
4ESE 030 120 S06	3	8	12	50	6
4ESE 040 100 S06	4	10		50	6
4ESE 040 120 S06	4	12		50	6
4ESE 040 160 S06	4	10	16	50	6
4ESE 050 120 S06	5	12		55	6

Order Number	Diameter	Length of Cut	Effective Length	Overall Length	Shank Dia
	D	L1	L2	L	d
4ESE 050 160 S06	5	16		55	6
4ESE 050 200 S06	5	12	20	55	6
4ESE 060 130 S06	6	13		55	6
4ESE 060 180 S06	6	18		55	6
4ESE 060 210 S05	6	13	21	55	6
4ESE 080 200 S08	8	20		60	8
4ESE 080 250 S08	8	25		70	8
4ESE 080 270 S07	8	20	27	70	8
4ESE 100 220 S10	10	22		70	10
4ESE 100 300 S10	10	30		75	10
4ESE 100 320 S07	10	22	32	75	10
4ESE 120 260 S12	12	26		75	12
4ESE 120 300 S12	12	30		80	12
4ESE 120 380 S08	12	26	38	80	12
4ESE 160 450 S16	16	35	45	90	16
4ESE 200 520 S20	20	40	52	100	20

Side Cutting

Material	Alloy Steels / Tools steel SKD61 / SK / NAK		SUS304 / SUS316 / Ti6A		Hardened Steels Inconel 718	
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED
2mm	21,000	1,100	14,000	560	4,800	130
3mm	15,000	1,250	10,600	850	4,200	200
4mm	11,000	1,400	8,000	960	3,200	220
5mm	9,600	1,900	6,400	1,000	2,500	250
6mm	8,000	2,200	5,300	1,000	2,100	250
7mm	6,800	1,900	4,500	1,000	1,800	260
8mm	6,000	1,600	4,000	960	1,600	260
9mm	5,300	1,480	3,500	840	1,400	220
10mm	4,800	1,440	3,200	770	1,300	210
11mm	4,400	1,350	2,900	760	1,200	190
12mm	4,000	1,250	2,700	760	1,100	180
16mm	3,000	1,140	2,000	560	800	130
20mm	2,400	860	1,600	510	600	100
Depth of Cut						

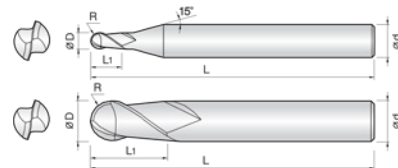
Slotting

Material	Alloy Steels / Tools steel SKD61 / SK / NAK		SUS304 / SUS316 / Ti6A		Hardened Steels Inconel 718	
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED
2mm	10,000	400	9,600	310	3,200	80
3mm	6,900	410	7,400	380	2,700	110
4mm	5,600	490	5,600	400	2,000	120
5mm	4,500	630	4,500	410	1,600	130
6mm	3,700	740	3,700	440	1,300	160
7mm	3,200	700	3,200	410	1,100	140
8mm	2,800	670	2,800	390	1,000	130
9mm	2,500	600	2,500	350	900	130
10mm	2,200	530	2,200	350	800	130
11mm	2,000	530	2,000	320	720	120
12mm	1,900	530	1,900	300	660	110
16mm	1,400	390	1,400	280	500	80
20mm	1,100	350	1,100	260	400	60
Depth of Cut						

2 Flutes Standard Length Ball End Mills for Generality

Endmills for various work materials(-HRC52), pre-hardened steel, carbon steel, mold steel.

- High precise edge tolerance.
- Minimize fracturing by high TRS ultra fine WC garde.



Size	D Tolerance
D ≤ Ø6	+0~-0.01mm
D > Ø6	+0~-0.015mm

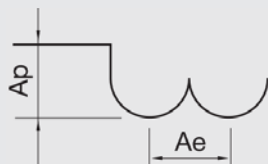
Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	R×D	L1	L	d
2HGB 001 002 S04	0.05RX0.1	0.2	40	4
2HGB 002 004 S04	0.1RX0.2	0.4	40	4
2HGB 003 006 S04	0.15RX0.3	0.6	40	4
2HGB 004 008 S04	0.2RX0.4	0.8	40	4
2HGB 005 010 S04	0.25RX0.5	1	45	4
2HGB 006 012 S04	0.3RX0.6	1.2	45	4
2HGB 007 015 S04	0.35RX0.7	1.5	45	4
2HGB 008 020 S04	0.4RX0.8	2	45	4
2HGB 009 020 S04	0.45RX0.9	2	45	4
2HGB 010 025 S04	0.5RX1	2.5	50	4
2HGB 010 025 S06	0.5RX1	2.5	50	6
2HGB 010 025 070	0.5RX1	2.5	70	6
2HGB 010 025 100	0.5RX1	2.5	100	6
2HGB 012 030 S04	0.6RX1.2	3	50	4
2HGB 015 040 S04	0.75RX1.5	4	50	4
2HGB 015 040 S06	0.75RX1.5	4	50	6
2HGB 015 040 070	0.75RX1.5	4	70	6
2HGB 015 040 100	0.75RX1.5	4	100	6
2HGB 020 050 S04	1RX2	5	50	4
2HGB 020 050 S06	1RX2	5	50	6
2HGB 020 050 075	1RX2	5	75	6
2HGB 020 050 100	1RX2	5	100	6
2HGB 025 060 S04	1.25RX2.5	6	50	4
2HGB 025 060 S06	1.25RX2.5	6	60	6
2HGB 025 060 075	1.25RX2.5	6	75	6
2HGB 025 060 100	1.25RX2.5	6	100	6
2HGB 030 080 S03	1.5RX3	8	60	3
2HGB 030 080 S04	1.5RX3	8	50	4
2HGB 030 080 S06	1.5RX3	8	60	6
2HGB 030 080 080	1.5RX3	8	80	6
2HGB 030 080 100	1.5RX3	8	100	6
2HGB 035 080 S06	1.75RX3.5	8	60	6
2HGB 040 080 060	2RX4	8	60	4
2HGB 040 080 080	2RX4	8	80	4
2HGB 040 080 S06	2RX4	8	70	6

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	R×D	L1	L	d
2HGB 040 080 090	2RX4	8	90	6
2HGB 040 080 120	2RX4	8	120	6
2HGB 045 080 S06	2.25RX4.5	8	70	6
2HGB 050 080 S05	2.5RX5	8	80	5
2HGB 050 100 S06	2.5RX5	10	75	6
2HGB 055 100 S06	2.75RX5.5	10	75	6
2HGB 060 100 060	3RX6	10	60	6
2HGB 060 120 080	3RX6	12	80	6
2HGB 060 120 100	3RX6	12	100	6
2HGB 060 120 120	3RX6	12	120	6
2HGB 070 140 S08	3.5RX7	14	80	8
2HGB 080 120 060	4RX8	12	60	8
2HGB 080 140 090	4RX8	14	90	8
2HGB 080 140 110	4RX8	14	110	8
2HGB 080 140 150	4RX8	14	150	8
2HGB 090 160 S10	4.5RX9	16	100	10
2HGB 100 150 070	5RX10	15	70	10
2HGB 100 180 100	5RX10	18	100	10
2HGB 100 180 120	5RX10	18	120	10
2HGB 100 180 150	5RX10	18	150	10
2HGB 100 180 180	5RX10	18	180	10
2HGB 110 200 S12	5.5RX11	20	110	12
2HGB 120 180 070	6RX12	18	70	12
2HGB 120 220 110	6RX12	22	110	12
2HGB 120 220 130	6RX12	22	130	12
2HGB 120 220 150	6RX12	22	150	12
2HGB 120 220 200	6RX12	22	200	12
2HGB 130 240 S14	6.5RX13	24	110	14
2HGB 140 240 S14	7RX14	24	110	14
2HGB 160 300 130	8RX16	30	130	16
2HGB 160 300 160	8RX16	30	160	16
2HGB 160 300 200	8RX16	30	200	16
2HGB 200 380 160	10RX20	38	160	20
2HGB 200 380 200	10RX20	38	200	20

Material		Copper				Prehardened Steels / Hardened Steels NAK / SKD				Hardened Steels SKD / SKT			
Hardness						30~45Hrc				45~55Hrc			
Radius	Effective Length	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
R0.05	0.2	40,000	300	Less than 0.010	0.050	40,000	300	Less than 0.005	0.040	30,000	200	Less than 0.004	0.040
R0.075	0.15	50,000	380	0.010	0.030	45,000	500	0.005	0.050	40,000	350	0.004	0.043
	0.2	54,000	430	0.012	0.008	54,000	630	0.020	0.060	44,300	500	0.016	0.048
	0.4	54,000	430	0.005	0.008	54,000	410	0.020	0.049	44,300	320	0.016	0.038
	0.3	54,000	720	0.020	0.013	54,000	750	0.030	0.090	44,300	600	0.024	0.072
	0.6	54,000	720	0.010	0.013	54,000	700	0.030	0.065	44,300	570	0.020	0.058
R0.2	0.4	54,000	870	0.028	0.016	54,000	1,000	0.040	0.120	44,300	800	0.032	0.096
	0.8	54,000	870	0.014	0.016	54,000	840	0.040	0.100	44,300	650	0.032	0.075
R0.25	0.5	56,000	1,250	0.035	0.022	53,000	1,250	0.050	0.150	43,500	1,000	0.040	0.120
R0.3	0.6	58,000	1,510	0.042	0.026	52,000	1,380	0.060	0.180	42,650	1,100	0.048	0.144
R0.35	0.7	55,000	1,690	0.049	0.031	50,000	1,440	0.070	0.210	41,075	1,150	0.056	0.168
	0.8	52,000	1,870	0.056	0.036	48,000	1,500	0.080	0.240	39,500	1,200	0.064	0.192
	2	52,000	1,870	0.300	0.036	45,000	1,075	0.080	0.150	35,000	810	0.064	0.100
	1	41,000	1,660	0.063	0.040	45,000	1,560	0.100	0.300	36,900	1,250	0.080	0.240
	2.5	41,000	1,660	0.022	0.040	40,000	1,000	0.100	0.200	31,500	800	0.080	0.160
R0.6	3	34,000	1,740	0.650	0.400	40,100	1,550	0.100	0.280	32,800	1,250	0.800	0.266
	1.5	27,000	1,830	0.087	0.068	35,000	1,600	0.150	0.450	28,700	1,280	0.120	0.360
	4	27,000	1,830	0.052	0.068	34,500	1,000	0.145	0.325	26,000	800	0.120	0.260
	2	20,000	1,780	0.112	0.089	30,000	1,850	0.200	0.600	24,600	1,480	0.160	0.480
	5	20,000	1,780	0.070	0.091	27,000	1,450	0.200	0.485	22,800	1,100	0.160	0.388
R1.25	6	16,000	1,840	0.067	0.115	25,500	1,600	0.250	0.542	21,000	1,280	0.200	0.430
	3	13,000	2,220	0.197	0.171	25,500	2,520	0.300	0.957	21,000	2,050	0.240	0.766
R1.75	8	13,000	2,220	0.100	0.171	25,500	2,350	0.300	0.765	21,000	18,800	0.240	0.612
	8	11,500	2,150	0.183	0.190	23,000	2,400	0.350	1.073	19,150	10,380	0.280	0.856
R2	4	10,000	2,080	0.266	0.208	21,000	2,450	0.400	1.380	17,300	1,960	0.320	1.100
	8	10,000	2,080	0.134	0.208	21,000	2,350	0.400	1.020	17,300	1,880	0.320	0.816
R2.5	5	8,300	1,990	0.215	0.240	18,000	2,560	0.500	1.660	14,800	2,050	0.400	1.330
	8	8,300	1,990	0.200	0.240	18,000	2,450	0.500	1.500	14,800	1,960	0.400	1.200
R3	10	8,300	1,990	0.190	0.240	18,000	2,400	0.500	1.300	14,800	1,900	0.400	1.020
	6	6,900	1,940	0.290	0.281	16,000	2,700	0.600	2.340	13,000	2,160	0.480	1.870
R3.5	10	6,900	1,940	0.250	0.281	16,000	2,500	0.600	1.800	13,000	2,000	0.480	1.440
	12	6,900	1,940	0.230	0.281	16,000	2,400	0.600	1.530	13,000	1,920	0.480	1.225
R4.5	14	6,310	1,470	0.315	0.228	14,500	2,350	0.700	2.315	11,625	1,880	0.560	1.853
	8	5,720	1,000	0.400	0.175	12,500	2,300	0.800	3.100	10,250	1,840	0.640	2.480
R5	14	5,720	1,000	0.400	0.175	12,500	2,000	0.800	2.050	10,250	1,600	0.640	1.640
	16	5,135	850	0.450	0.165	11,000	2,100	0.900	2.900	9,450	1,690	0.720	2.320
R5.5	10	4,550	700	0.500	0.154	10,500	2,200	1.000	3.750	8,650	1,780	0.800	3.000
	15	4,550	700	0.500	0.154	10,500	1,900	1.000	3.000	8,650	1,520	0.800	2.400
R6.5	18	4,550	700	0.500	0.154	10,500	1,700	1.000	2.550	8,650	1,360	0.800	2.040
	20	4,160	650	0.550	0.157	10,000	1,700	1.100	3.075	8,015	1,360	0.880	2.460
R7	18	3,770	600	0.600	0.159	9,000	1,700	1.200	3.600	7,380	1,360	0.960	2.880
	22	3,770	600	0.600	0.159	9,000	1,850	1.200	4.420	7,380	1,480	0.960	3.540
R7.5	24	3,728	653	0.549	0.156	9,000	1,825	1.098	3.938	7,193	1,540	0.878	3.152
R8	24	3,686	706	0.498	0.153	7,000	1,800	0.996	3.456	7,007	1,600	0.797	2.765
R8	30	2,985	600	0.413	0.147	7,000	1,700	0.827	3.318	5,675	1,360	0.661	2.654
R10	38	2,429	360	0.276	0.133	7,000	1,600	0.551	3.015	4,617	816	0.441	2.412

Depth of Cut



•Ap : Axial Depth
•Ae : Radial Depth
•Vf : Feed



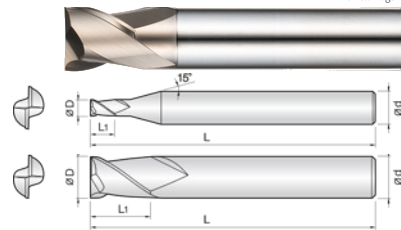
Ø0.1 ~ Ø0.9 Ø1 ~ Ø5 Ø6 ~ Ø12

Shield Edge

2 Flutes Standard Length End Mills for Generality

Endmills for various work materials(-HRC52), pre-hardened steel, carbon steel, mold steel.

- High precise edge tolerance.
- Minimize fracturing by high TRS ultra fine WC grade.



Size	D Tolerance
D < Ø1	+0~-0.005mm
D ≤ Ø5	+0~-0.01mm
D > Ø5	+0~-0.02mm

Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
2HGE 001 002 S04	0.1	0.2	38	4
2HGE 002 004 S04	0.2	0.4	38	4
2HGE 003 006 S04	0.3	0.6	38	4
2HGE 004 008 S04	0.4	0.8	38	4
2HGE 005 010 S04	0.5	1	38	4
2HGE 006 012 S04	0.6	1.2	38	4
2HGE 007 014 S04	0.7	1.4	38	4
2HGE 008 016 S04	0.8	1.6	38	4
2HGE 009 020 S04	0.9	2	38	4
2HGE 010 010 S04	1	1	40	4
2HGE 010 025 S04	1	2.5	40	4
2HGE 010 025 S06	1	2.5	40	6
2HGE 010 025 Ø60	1	2.5	60	6
2HGE 010 040 S06	1	4	50	6
2HGE 011 027 S04	1.1	2.7	40	4
2HGE 012 012 S04	1.2	1.2	40	4
2HGE 012 030 S04	1.2	3	40	4
2HGE 012 030 S06	1.2	3	40	6
2HGE 012 030 Ø60	1.2	3	60	6
2HGE 012 060 S06	1.2	6	50	6
2HGE 013 032 S04	1.3	3.2	40	4
2HGE 014 035 S04	1.4	3.5	40	4
2HGE 015 015 S04	1.5	1.5	40	4
2HGE 015 040 S04	1.5	4	40	4
2HGE 015 040 S06	1.5	4	40	6
2HGE 015 040 Ø60	1.5	4	60	6
2HGE 016 040 S04	1.6	4	40	4
2HGE 017 042 S04	1.7	4.2	40	4
2HGE 018 045 S04	1.8	4.5	40	4
2HGE 019 050 S04	1.9	5	40	4
2HGE 020 020 S04	2	2	40	4
2HGE 020 060 S04	2	6	40	4
2HGE 020 060 S06	2	6	40	6
2HGE 020 060 Ø60	2	6	60	6
2HGE 021 060 S04	2.1	6	40	4
2HGE 022 060 S04	2.2	6	40	4
2HGE 023 060 S04	2.3	6	40	4
2HGE 024 080 S04	2.4	8	45	4
2HGE 025 080 S04	2.5	8	45	4
2HGE 025 080 S06	2.5	8	45	6
2HGE 025 080 Ø70	2.5	8	70	6
2HGE 026 080 S04	2.6	8	45	4
2HGE 027 080 S04	2.7	8	45	4
2HGE 028 080 S04	2.8	8	45	4

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
2HGE 029 080 S04	2.9	8	45	4
2HGE 030 030 S04	3	3	40	4
2HGE 030 080 S04	3	8	45	4
2HGE 030 080 S06	3	8	45	6
2HGE 030 080 Ø70	3	8	70	6
2HGE 035 100 S06	3.5	10	45	6
2HGE 040 040 S04	4	4	40	4
2HGE 040 100 S04	4	10	45	4
2HGE 040 110 S06	4	11	45	6
2HGE 040 110 Ø70	4	11	70	6
2HGE 045 110 S06	4.5	11	45	6
2HGE 050 130 S06	5	13	50	6
2HGE 050 130 Ø80	5	13	80	6
2HGE 055 130 S06	5.5	13	50	6
2HGE 060 060 S06	6	6	45	6
2HGE 060 130 S06	6	13	50	6
2HGE 060 130 Ø80	6	13	80	6
2HGE 060 150 S06	6	15	60	6
2HGE 065 160 S08	6.5	16	60	8
2HGE 070 160 S08	7	16	60	8
2HGE 075 160 S08	7.5	16	60	8
2HGE 080 080 S08	8	8	50	8
2HGE 080 190 S08	8	19	60	8
2HGE 080 200 S08	8	20	70	8
2HGE 085 190 S10	8.5	19	70	10
2HGE 090 190 S10	9	19	70	10
2HGE 095 190 S10	9.5	19	70	10
2HGE 100 100 S10	10	10	60	10
2HGE 100 220 S10	10	22	70	10
2HGE 100 250 S10	10	25	75	10
2HGE 105 220 S12	10.5	22	75	12
2HGE 110 220 S12	11	22	75	12
2HGE 115 220 S12	11.5	22	75	12
2HGE 120 120 S12	12	12	65	12
2HGE 120 260 S12	12	26	75	12
2HGE 120 300 S12	12	30	80	12
2HGE 140 260 S14	14	26	80	14
2HGE 140 260 S16	14	26	85	16
2HGE 160 350 S16	16	35	100	16
2HGE 160 400 S16	16	40	100	16
2HGE 180 350 S18	18	35	100	18
2HGE 200 400 S20	20	40	100	20
2HGE 200 500 S20	20	50	110	20



01~02

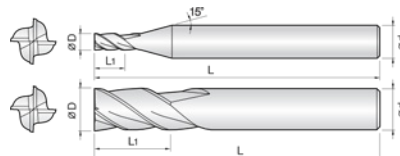
06~012

Shield Edge

4 Flutes Standard Length End Mills for Generality

Endmills for various work materials(~HRC52), pre-hardened steel, carbon steel, mold steel.

- High precise edge tolerance.
- Minimize fracturing by high TRS ultra fine WC grade.

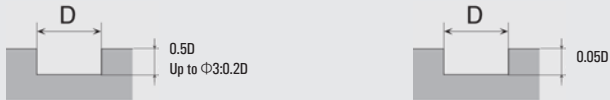


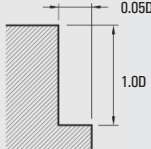
Size	D Tolerance
$D \leq \varnothing 5$	+0~ -0.01mm
$D > \varnothing 5$	+0~ -0.02mm

Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
4HGE 008 020 S04	0.8	2	40	4
4HGE 010 010 S04	1	1	40	4
4HGE 010 025 S04	1	2.5	40	4
4HGE 010 025 S06	1	2.5	40	6
4HGE 010 025 060	1	2.5	60	6
4HGE 010 025 080	1	2.5	80	6
4HGE 010 040 S06	1	4	50	6
4HGE 012 012 S04	1.2	1.2	40	4
4HGE 012 030 S04	1.2	3	40	4
4HGE 012 030 S06	1.2	3	40	6
4HGE 012 030 060	1.2	3	60	6
4HGE 012 060 S06	1.2	6	50	6
4HGE 015 015 S04	1.5	1.5	40	4
4HGE 015 040 S04	1.5	4	40	4
4HGE 015 040 S06	1.5	4	40	6
4HGE 015 040 060	1.5	4	60	6
4HGE 015 040 080	1.5	4	80	6
4HGE 020 020 S04	2	2	40	4
4HGE 020 060 S04	2	6	40	4
4HGE 020 060 S06	2	6	40	6
4HGE 020 060 060	2	6	60	6
4HGE 020 060 100	2	6	100	6
4HGE 025 080 S04	2.5	8	45	4
4HGE 025 080 S06	2.5	8	45	6
4HGE 025 080 070	2.5	8	70	6
4HGE 025 080 100	2.5	8	100	6
4HGE 030 080 S03	3	8	45	3
4HGE 030 080 S04	3	8	45	4
4HGE 030 080 S06	3	8	45	6
4HGE 030 080 070	3	8	70	6
4HGE 030 080 100	3	8	100	6
4HGE 035 100 S06	3.5	10	45	6
4HGE 040 040 S04	4	4	40	4
4HGE 040 110 S04	4	11	45	4
4HGE 040 110 S06	4	11	45	6
4HGE 040 110 070	4	11	70	6
4HGE 040 110 100	4	11	100	6
4HGE 045 110 S06	4.5	11	45	6
4HGE 050 130 S06	5	13	50	6

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
4HGE 050 130 080	5	13	80	6
4HGE 050 130 100	5	13	100	6
4HGE 055 130 S06	5.5	13	50	6
4HGE 060 060 S06	6	6	45	6
4HGE 060 130 S06	6	13	50	6
4HGE 060 130 080	6	13	80	6
4HGE 060 130 100	6	13	100	6
4HGE 060 150 S06	6	15	60	6
4HGE 065 160 S08	6.5	16	60	8
4HGE 070 160 S08	7	16	60	8
4HGE 075 160 S08	7.5	16	60	8
4HGE 080 080 S08	8	8	50	8
4HGE 080 190 S08	8	19	60	8
4HGE 080 200 S08	8	20	70	8
4HGE 085 190 S10	8.5	19	70	10
4HGE 090 190 S10	9	19	70	10
4HGE 095 190 S10	9.5	19	70	10
4HGE 100 100 S10	10	10	60	10
4HGE 100 220 S10	10	22	70	10
4HGE 100 250 S10	10	25	75	10
4HGE 105 220 S12	10.5	22	75	12
4HGE 110 220 S12	11	22	75	12
4HGE 115 220 S12	11.5	22	75	12
4HGE 120 120 S12	12	12	65	12
4HGE 120 260 S12	12	26	75	12
4HGE 120 300 S12	12	30	80	12
4HGE 140 260 S14	14	26	80	14
4HGE 140 260 S16	14	26	85	16
4HGE 160 350 S16	16	35	100	16
4HGE 160 400 S16	16	40	100	16
4HGE 180 350 S18	18	35	100	18
4HGE 200 400 S20	20	40	100	20
4HGE 200 450 S20	20	45	100	20

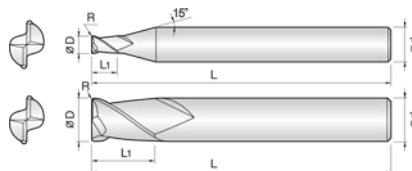
Material	Carbon Steels / Alloy Steels SCM / SNCM / S45C		Prehardened Steels NAK / CENA / KP4		Stainless Steels SUS		Hardened Steels SKD / SKT / STAVAX	
Hardness	~ 35 HRC		35 ~ 45 HRC				45 ~ 55HRC	
Strength	~1,100N/mm2		1,100~1,500N/mm2				1500~2000N/mm2	
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
1mm	13,020	170	9,000	100	8,100	70	7,020	30
1.5mm	12,300	180	8,880	110	7,360	80	5,940	30
2mm	11,560	190	7,560	120	6,300	90	5,040	35
2.5mm	10,300	200	6,620	130	5,480	110	4,320	35
3mm	8,920	210	5,560	140	4,620	120	3,360	40
4mm	7,560	300	4,620	180	3,880	150	2,940	40
5mm	6,300	320	3,780	190	3,160	160	2,320	50
6mm	5,560	350	3,360	220	2,840	180	2,000	55
8mm	4,200	380	2,520	200	2,100	180	1,680	75
10mm	3,260	330	2,000	160	1,680	160	1,360	60
12mm	2,740	280	1,680	130	1,360	130	1,160	55
16mm	2,200	220	1,360	110	1,060	110	900	40
20mm	1,680	170	1,060	80	840	80	680	30
Depth of Cut								

Material	Carbon Steels / Alloy Steels SCM / SNCM / S45C		Prehardened Steels NAK / CENA / KP4		Stainless Steels SUS		Hardened Steels SKD / SKT / STAVAX	
Hardness	~ 35 HRC		35 ~ 45 HRC				45 ~ 55HRC	
Strength	~1100N/mm2		1100~1500N/mm2				1500~2000N/mm2	
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
2mm	11,560	280	7,560	170	6,300	140	5,040	50
3mm	8,920	320	5,560	200	4,620	170	3,360	60
4mm	7,560	570	4,620	350	3,880	280	2,940	60
5mm	6,300	600	3,780	360	3,160	300	2,320	70
6mm	5,560	660	3,360	410	2,840	330	2,000	80
8mm	4,200	710	2,520	380	2,100	350	1,680	110
10mm	3,260	610	2,000	300	1,680	300	1,360	90
12mm	2,740	520	1,680	250	1,360	240	1,160	80
14mm	2,420	510	1,460	225	1,210	220	960	70
16mm	2,200	410	1,360	200	1,100	200	900	60
18mm	1820	350	1210	180	950	175	820	50
20mm	1,680	320	1,060	160	840	150	680	40
Depth of Cut								

2 Flutes Corner Radius End Mills for Generality

Endmills for various work materials(-HRC52), pre-hardened steel, carbon steel, mold steel.

- Designed for minimizing edge chipping by corner R shape.
- High precise edge tolerance.
- Minimize fracturing by high TRS ultra fine WC garde.



Size	D Tolerance
D ≤ Ø6	+0~ -0.01mm
D > Ø6	+0~ -0.015mm

Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	DxR	L1	L	d
2NGR 004 0005 S04	0.4XR0.05	0.8	45	4
2NGR 004 001 S04	0.4XR0.1	0.8	45	4
2NGR 005 0005 S04	0.5XR0.05	1	45	4
2NGR 005 001 S04	0.5XR0.1	1	45	4
2NGR 006 0005 S04	0.6XR0.05	1.2	45	4
2NGR 006 001 S04	0.6XR0.1	1.2	45	4
2NGR 006 002 S04	0.6XR0.2	1.2	45	4
2NGR 007 0005 S04	0.7XR0.05	1.4	45	4
2NGR 007 001 S04	0.7XR0.1	1.4	45	4
2NGR 007 002 S04	0.7XR0.2	1.4	45	4
2NGR 008 0005 S04	0.8XR0.05	1.6	45	4
2NGR 008 001 S04	0.8XR0.1	1.6	45	4
2NGR 008 002 S04	0.8XR0.2	1.6	45	4
2NGR 009 0005 S04	0.9XR0.05	1.8	45	4
2NGR 009 001 S04	0.9XR0.1	1.8	45	4
2NGR 010 001 S04	1XR0.1	2.5	45	4
2NGR 010 002 S04	1XR0.2	2.5	45	4
2NGR 010 003 S04	1XR0.3	2.5	45	4
2NGR 012 001 S04	1.2XR0.1	3.2	45	4
2NGR 012 002 S04	1.2XR0.2	3.2	45	4
2NGR 012 003 S04	1.2XR0.3	3.2	45	4
2NGR 015 001 S04	1.5XR0.1	4	45	4
2NGR 015 002 S04	1.5XR0.2	4	45	4
2NGR 015 003 S04	1.5XR0.3	4	45	4
2NGR 015 005 S04	1.5XR0.5	4	45	4
2NGR 020 001 S04	2XR0.1	6	45	4
2NGR 020 002 S04	2XR0.2	6	45	4
2NGR 020 003 S04	2XR0.3	6	45	4
2NGR 020 005 S04	2XR0.5	6	45	4
2NGR 025 001 S04	2.5XR0.1	6	50	4
2NGR 025 002 S04	2.5XR0.2	6	50	4
2NGR 025 003 S04	2.5XR0.3	6	50	4
2NGR 025 005 S04	2.5XR0.5	6	50	4
2NGR 030 001 S06	3XR0.1	8	60	6
2NGR 030 002 S06	3XR0.2	8	60	6
2NGR 030 003 S06	3XR0.3	8	60	6
2NGR 030 005 S06	3XR0.5	8	60	6
2NGR 030 010 S06	3XR1	8	60	6
2NGR 040 001 060	4XR0.1	9	60	4
2NGR 040 001 080	4XR0.1	9	80	4
2NGR 040 001 S06	4XR0.1	10	70	6
2NGR 040 002 060	4XR0.2	9	60	4
2NGR 040 002 080	4XR0.2	9	80	4

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	DxR	L1	L	d
2NGR 040 002 S06	4XR0.2	10	70	6
2NGR 040 003 060	4XR0.3	9	60	4
2NGR 040 003 080	4XR0.3	9	80	4
2NGR 040 003 S06	4XR0.3	10	70	6
2NGR 040 005 060	4XR0.5	9	60	4
2NGR 040 005 080	4XR0.5	9	80	4
2NGR 040 005 S06	4XR0.5	10	70	6
2NGR 040 010 060	4XR1	9	60	4
2NGR 040 010 080	4XR1	9	80	4
2NGR 040 010 S06	4XR1	10	70	6
2NGR 050 001 S06	5XR0.1	13	75	6
2NGR 050 002 S06	5XR0.2	13	75	6
2NGR 050 003 S06	5XR0.3	13	75	6
2NGR 050 005 S06	5XR0.5	13	75	6
2NGR 050 010 S06	5XR1	13	75	6
2NGR 060 001 060	6XR0.1	11	60	6
2NGR 060 001 090	6XR0.1	13	90	6
2NGR 060 002 060	6XR0.2	11	60	6
2NGR 060 002 090	6XR0.2	13	90	6
2NGR 060 003 060	6XR0.3	11	60	6
2NGR 060 003 090	6XR0.3	13	90	6
2NGR 060 005 060	6XR0.5	11	60	6
2NGR 060 005 090	6XR0.5	13	90	6
2NGR 060 010 060	6XR1	11	60	6
2NGR 060 010 090	6XR1	13	90	6
2NGR 060 015 060	6XR1.5	11	60	6
2NGR 060 015 090	6XR1.5	13	90	6
2NGR 060 020 060	6XR2	11	60	6
2NGR 060 020 090	6XR2	13	90	6
2NGR 060 025 090	6XR2.5	13	90	6
2NGR 080 001 070	8XR0.1	16	70	8
2NGR 080 001 100	8XR0.1	19	100	8
2NGR 080 002 070	8XR0.2	16	70	8
2NGR 080 002 100	8XR0.2	19	100	8
2NGR 080 003 070	8XR0.3	16	70	8
2NGR 080 003 100	8XR0.3	19	100	8
2NGR 080 005 070	8XR0.5	16	70	8
2NGR 080 005 100	8XR0.5	19	100	8
2NGR 080 005 120	8XR0.5	19	120	8
2NGR 080 010 070	8XR1	16	70	8
2NGR 080 010 100	8XR1	19	100	8
2NGR 080 010 120	8XR1	19	120	8
2NGR 080 015 070	8XR1.5	16	70	8

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	DxR	L1	L	d
2NGR 080 015 100	8XR1.5	19	100	8
2NGR 080 020 070	8XR2	16	70	8
2NGR 080 020 100	8XR2	19	100	8
2NGR 080 025 100	8XR2.5	19	100	8
2NGR 080 030 100	8XR3	19	100	8
2NGR 080 035 100	8XR3.5	19	100	8
2NGR 100 001 075	10XR0.1	19	75	10
2NGR 100 001 100	10XR0.1	22	100	10
2NGR 100 002 075	10XR0.2	19	75	10
2NGR 100 002 100	10XR0.2	22	100	10
2NGR 100 003 075	10XR0.3	19	75	10
2NGR 100 003 100	10XR0.3	22	100	10
2NGR 100 005 075	10XR0.5	19	75	10
2NGR 100 005 100	10XR0.5	22	100	10
2NGR 100 005 130	10XR0.5	22	130	10
2NGR 100 010 075	10XR1	19	75	10
2NGR 100 010 100	10XR1	22	100	10
2NGR 100 010 130	10XR1	22	130	10
2NGR 100 015 075	10XR1.5	19	75	10
2NGR 100 015 100	10XR1.5	22	100	10
2NGR 100 015 130	10XR1.5	22	130	10
2NGR 100 020 075	10XR2	19	75	10
2NGR 100 020 100	10XR2	22	100	10
2NGR 100 025 100	10XR2.5	22	100	10

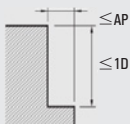
Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	DxR	L1	L	d
2NGR 100 030 100	10XR3	22	100	10
2NGR 100 040 100	10XR4	22	100	10
2NGR 120 001 080	12XR0.1	22	80	12
2NGR 120 001 110	12XR0.1	26	110	12
2NGR 120 002 080	12XR0.2	22	80	12
2NGR 120 002 110	12XR0.2	26	110	12
2NGR 120 003 080	12XR0.3	22	80	12
2NGR 120 003 110	12XR0.3	26	110	12
2NGR 120 005 080	12XR0.5	22	80	12
2NGR 120 005 110	12XR0.5	26	110	12
2NGR 120 005 130	12XR0.5	26	130	12
2NGR 120 010 080	12XR1	22	80	12
2NGR 120 010 110	12XR1	26	110	12
2NGR 120 010 130	12XR1	26	130	12
2NGR 120 015 080	12XR1.5	22	80	12
2NGR 120 015 110	12XR1.5	26	110	12
2NGR 120 015 130	12XR1.5	26	130	12
2NGR 120 020 080	12XR2	22	80	12
2NGR 120 020 110	12XR2	26	110	12
2NGR 120 020 130	12XR2	26	130	12
2NGR 120 025 110	12XR2.5	26	110	12
2NGR 120 030 110	12XR3	26	110	12
2NGR 120 040 110	12XR4	26	110	12
2NGR 120 050 110	12XR5	26	110	12

2NGR

• RPM : rev./min • Feed : mm/min

Material	General Steels			SKD61		
	~45 HRC			45~55 HRc		
Hardness	RPM	FEED	Ap	RPM	FEED	Ap
Outside Diameter						
0.1mm	40,000	40	0.001	40,000	40	0.001
0.2mm	40,000	100	0.002	40,000	100	0.002
0.3mm	40,000	200	0.005	40,000	200	0.005
0.4mm	40,000	600	0.010	40,000	600	0.010
0.5mm	40,000	1,000	0.015	40,000	960	0.015
0.6mm	40,000	1,200	0.020	40,000	1,200	0.020
0.7mm	40,000	1,400	0.020	40,000	1,400	0.020
0.8mm	40,000	1,600	0.030	40,000	1,600	0.030
0.9mm	40,000	1,800	0.040	40,000	1,600	0.040
1mm	40,000	2,000	0.060	32,000	1,600	0.060
1.5mm	40,000	3,000	0.120	32,000	1,900	0.080
2mm	30,000	3,000	0.180	24,000	1,900	0.100
2.5mm	24,000	2,600	0.250	19,000	1,600	0.130
3mm	20,000	2,300	0.300	16,000	1,400	0.150
4mm	15,000	2,000	0.400	12,000	1,200	0.200
5mm	12,000	1,600	0.500	9,000	900	0.250
6mm	10,000	1,400	0.600	7,000	700	0.300
8mm	8,000	1,000	0.800	5,600	550	0.400
10mm	6,400	900	1.000	4,500	500	0.500
12mm	5,400	820	1.000	3,800	450	0.500
16mm	2,400	380	3.000	1,200	100	0.800
20mm	1,900	320	4.000	1,000	80	1.000

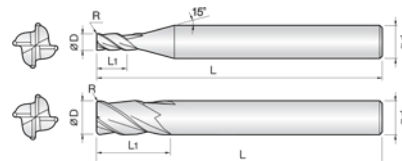
Depth of Cut



4 Flutes Corner Radius End Mills for Generality

Endmills for various work materials(-HRC52), pre-hardened steel, carbon steel, mold steel.

- Designed for minimizing edge chipping by corner R shape.
- High precise edge tolerance.
- Minimize fracturing by high TRS ultra fine WC grade.



Size	D Tolerance
D ≤ Ø6	+0 ~ -0.01mm
D > Ø6	+0 ~ -0.015mm

Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D×R	L1	L	d
4NGR 010 0005 S04	1XR0.05	2.5	45	4
4NGR 010 001 S04	1XR0.1	2.5	45	4
4NGR 010 002 S04	1XR0.2	2.5	45	4
4NGR 010 003 S04	1XR0.3	2.5	45	4
4NGR 015 0005 S04	1.5XR0.05	4	45	4
4NGR 015 001 S04	1.5XR0.1	4	45	4
4NGR 015 002 S04	1.5XR0.2	4	45	4
4NGR 015 003 S04	1.5XR0.3	4	45	4
4NGR 015 005 S04	1.5XR0.5	4	45	4
4NGR 020 0005 S04	2XR0.05	6	45	4
4NGR 020 001 S04	2XR0.1	6	45	4
4NGR 020 002 S04	2XR0.2	6	45	4
4NGR 020 003 S04	2XR0.3	6	45	4
4NGR 020 005 S04	2XR0.5	6	45	4
4NGR 025 001 S04	2.5XR0.1	6	50	4
4NGR 025 002 S04	2.5XR0.2	6	50	4
4NGR 025 003 S04	2.5XR0.3	6	50	4
4NGR 025 005 S04	2.5XR0.5	6	50	4
4NGR 030 001 S06	3XR0.1	8	60	6
4NGR 030 002 S06	3XR0.2	8	60	6
4NGR 030 003 S06	3XR0.3	8	60	6
4NGR 030 005 S06	3XR0.5	8	60	6
4NGR 030 010 S06	3XR1	8	60	6
4NGR 040 001 060	4XR0.1	9	60	4
4NGR 040 001 080	4XR0.1	9	80	4
4NGR 040 001 S06	4XR0.1	10	70	6
4NGR 040 002 060	4XR0.2	9	60	4
4NGR 040 002 080	4XR0.2	9	80	4
4NGR 040 002 S06	4XR0.2	10	70	6
4NGR 040 003 060	4XR0.3	9	60	4
4NGR 040 003 080	4XR0.3	9	80	4
4NGR 040 003 S06	4XR0.3	10	70	6
4NGR 040 005 060	4XR0.5	9	60	4
4NGR 040 005 080	4XR0.5	9	80	4
4NGR 040 005 S06	4XR0.5	10	70	6
4NGR 040 010 060	4XR1	9	60	4
4NGR 040 010 080	4XR1	9	80	4
4NGR 040 010 S06	4XR1	10	70	6

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D×R	L1	L	d
4NGR 050 001 S06	5XR0.1	13	75	6
4NGR 050 002 S06	5XR0.2	13	75	6
4NGR 050 003 S06	5XR0.3	13	75	6
4NGR 050 005 S06	5XR0.5	13	75	6
4NGR 050 010 S06	5XR1	13	75	6
4NGR 060 001 060	6XR0.1	11	60	6
4NGR 060 001 080	6XR0.1	13	80	6
4NGR 060 002 060	6XR0.2	11	60	6
4NGR 060 002 080	6XR0.2	13	80	6
4NGR 060 003 060	6XR0.3	11	60	6
4NGR 060 003 080	6XR0.3	13	80	6
4NGR 060 005 060	6XR0.5	11	60	6
4NGR 060 005 080	6XR0.5	13	80	6
4NGR 060 010 060	6XR1	11	60	6
4NGR 060 010 080	6XR1	13	80	6
4NGR 060 015 060	6XR1.5	11	60	6
4NGR 060 015 080	6XR1.5	13	80	6
4NGR 060 020 060	6XR2	11	60	6
4NGR 060 020 080	6XR2	13	80	6
4NGR 080 001 070	8XR0.1	16	70	8
4NGR 080 001 090	8XR0.1	19	90	8
4NGR 080 002 070	8XR0.2	16	70	8
4NGR 080 002 090	8XR0.2	19	90	8
4NGR 080 003 070	8XR0.3	16	70	8
4NGR 080 003 090	8XR0.3	19	90	8
4NGR 080 005 070	8XR0.5	16	70	8
4NGR 080 005 090	8XR0.5	19	90	8
4NGR 080 005 110	8XR0.5	19	110	8
4NGR 080 010 070	8XR1	16	70	8
4NGR 080 010 090	8XR1	19	90	8
4NGR 080 010 110	8XR1	19	110	8
4NGR 080 015 070	8XR1.5	16	70	8
4NGR 080 015 090	8XR1.5	19	90	8
4NGR 080 015 110	8XR1.5	19	110	8
4NGR 080 020 070	8XR2	16	70	8
4NGR 080 020 090	8XR2	19	90	8
4NGR 080 020 110	8XR2	19	110	8
4NGR 080 025 090	8XR2.5	19	90	8



01 ~ 06

08 ~ 012

Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D×R	L1	L	d
4NGR 100 001 075	10XR0.1	19	75	10
4NGR 100 001 100	10XR0.1	22	100	10
4NGR 100 002 075	10XR0.2	19	75	10
4NGR 100 002 100	10XR0.2	22	100	10
4NGR 100 003 075	10XR0.3	19	75	10
4NGR 100 003 100	10XR0.3	22	100	10
4NGR 100 005 075	10XR0.5	19	75	10
4NGR 100 005 100	10XR0.5	22	100	10
4NGR 100 005 120	10XR0.5	22	120	10
4NGR 100 010 075	10XR1	19	75	10
4NGR 100 010 100	10XR1	22	100	10
4NGR 100 010 120	10XR1	22	120	10
4NGR 100 015 075	10XR1.5	19	75	10
4NGR 100 015 100	10XR1.5	22	100	10
4NGR 100 015 120	10XR1.5	22	120	10
4NGR 100 020 075	10XR2	19	75	10
4NGR 100 020 100	10XR2	22	100	10
4NGR 100 020 120	10XR2	22	120	10
4NGR 100 025 075	10XR2.5	19	75	10
4NGR 100 025 100	10XR2.5	22	100	10
4NGR 100 025 120	10XR2.5	22	120	10
4NGR 100 030 100	10XR3	22	100	10
4NGR 120 002 080	12XR0.2	22	80	12
4NGR 120 002 110	12XR0.2	26	110	12
4NGR 120 003 080	12XR0.3	22	80	12

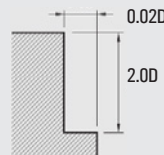
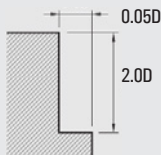
Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D×R	L1	L	d
4NGR 120 003 110	12XR0.3	26	110	12
4NGR 120 005 080	12XR0.5	22	80	12
4NGR 120 005 110	12XR0.5	26	110	12
4NGR 120 005 130	12XR0.5	26	130	12
4NGR 120 010 080	12XR1	22	80	12
4NGR 120 010 110	12XR1	26	110	12
4NGR 120 010 130	12XR1	26	130	12
4NGR 120 015 080	12XR1.5	22	80	12
4NGR 120 015 110	12XR1.5	26	110	12
4NGR 120 015 130	12XR1.5	26	130	12
4NGR 120 020 080	12XR2	22	80	12
4NGR 120 020 110	12XR2	26	110	12
4NGR 120 020 130	12XR2	26	130	12
4NGR 120 025 080	12XR2.5	22	80	12
4NGR 120 025 110	12XR2.5	26	110	12
4NGR 120 025 130	12XR2.5	26	130	12
4NGR 120 030 080	12XR3	22	80	12
4NGR 120 030 110	12XR3	26	110	12
4NGR 120 030 130	12XR3	26	130	12
4NGR 120 035 110	12XR3.5	26	110	12
4NGR 120 040 110	12XR4	26	110	12
4NGR 160 005 110	16XR0.5	35	110	16
4NGR 160 005 160	16XR0.5	35	160	16
4NGR 160 010 110	16XR1	35	110	16
4NGR 160 010 160	16XR1	35	160	16

4NGR

• RPM : rev./min • Feed : mm/min

Material	Carbon Steels / Alloy Steels SCM / SNCM / S45		Prehardened Steels NAK / CENA / KP4		Hardened Steels SKD / SKT / STAVAX	
Hardness	~ 35HRC		35 ~ 45HRC		45 ~ 55HRC	
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED
1mm	27,600	300	18,000	220	11,000	120
1.5mm	22,000	310	13,500	230	8,500	120
2mm	18,000	320	11,560	240	7,200	130
2.5mm	15,000	330	9,500	250	6,100	130
3mm	13,240	340	8,560	260	5,280	130
4mm	10,720	420	6,820	300	4,300	140
5mm	9,160	430	5,800	360	3,800	170
6mm	7,900	430	5,040	360	3,280	170
8mm	6,000	460	3,800	360	2,520	170
10mm	5,040	460	3,280	360	2,020	170
12mm	4,120	360	2,780	320	1,680	140
16mm	3,100	280	2,100	230	1,280	115

Depth of Cut

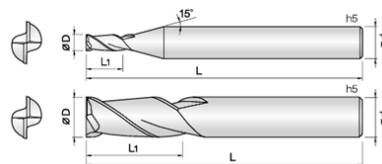




2 Flutes Long Length End Mills for Generality

Endmills for various work materials (~HRC52), pre-hardened steel, carbon steel, mold steel.

- Optimum for various work materials by AlCrN coating.
- Minimize edge chipping by improving corner strength.



Size	D Tolerance
Φ1~5	+0~-0.01mm
Φ6~12	-0.01~-0.025mm
Φ14~25	-0.015~-0.03mm

Unit : mm

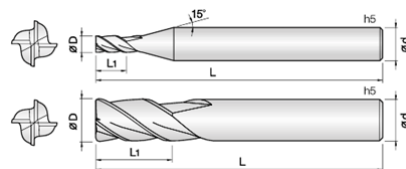
Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
2LGM 010 030 S06	1	3	60	6
2LGM 010 050 S06	1	5	60	6
2LGM 010 070 S06	1	7	60	6
2LGM 010 100 S06	1	10	60	6
2LGM 010 150 S06	1	15	60	6
2LGM 015 060 S06	1.5	6	60	6
2LGM 015 075 S06	1.5	7.5	60	6
2LGM 015 100 S06	1.5	10	60	6
2LGM 015 150 S06	1.5	15	60	6
2LGM 015 200 S06	1.5	20	60	6
2LGM 020 060 S06	2	6	60	6
2LGM 020 100 S06	2	10	60	6
2LGM 020 150 S06	2	15	60	6
2LGM 020 200 S06	2	20	60	6
2LGM 030 120 S06	3	12	70	6
2LGM 030 150 S06	3	15	70	6
2LGM 030 200 S06	3	20	70	6
2LGM 030 250 S06	3	25	70	6
2LGM 030 300 S06	3	30	70	6
2LGM 040 150 S06	4	15	70	6
2LGM 040 200 S06	4	20	70	6
2LGM 040 300 S06	4	30	75	6
2LGM 050 200 S06	5	20	70	6
2LGM 050 250 S06	5	25	75	6
2LGM 050 300 S06	5	30	80	6
2LGM 060 200 S06	6	20	75	6
2LGM 060 200 100	6	20	100	6
2LGM 060 250 S06	6	25	75	6
2LGM 060 300 S06	6	30	80	6
2LGM 080 250 S08	8	25	75	8
2LGM 080 250 100	8	25	100	8
2LGM 080 300 S08	8	30	80	8
2LGM 080 350 S08	8	35	80	8

[illegible]

4 Flutes Long Length End Mills for Generality

Endmills for various work materials(~HRC52), pre-hardened steel, carbon steel, mold steel.

- Optimum for various work materials by AlCrN coating.
- Minimize edge chipping by improving corner strength.



Size	D Tolerance
$\phi 1 \sim 5$	$+0 \sim -0.01\text{mm}$
$\phi 6 \sim 12$	$-0.01 \sim -0.025\text{mm}$
$\phi 14 \sim 25$	$-0.015 \sim -0.03\text{mm}$

Unit : mm

Order Number	Diameter	Length of cut	Overall Length	Shank Dia
	D	L1	L	d
4LGM 010 030 S06	1	3	60	6
4LGM 010 050 S06	1	5	60	6
4LGM 015 060 S06	1.5	6	60	6
4LGM 015 080 S06	1.5	8	60	6
4LGM 020 080 S06	2	8	60	6
4LGM 020 100 S06	2	10	60	6
4LGM 030 100 S06	3	10	70	6
4LGM 030 150 S06	3	15	70	6
4LGM 030 200 S06	3	20	70	6
4LGM 030 250 S06	3	25	70	6
4LGM 040 120 S06	4	12	70	6
4LGM 040 150 S04	4	15	70	4
4LGM 040 150 S06	4	15	70	6
4LGM 040 200 S04	4	20	70	4
4LGM 040 200 S06	4	20	70	6
4LGM 040 250 S06	4	25	70	6
4LGM 040 300 S06	4	30	75	6
4LGM 050 200 S06	5	20	70	6
4LGM 050 250 S06	5	25	75	6
4LGM 050 300 S06	5	30	80	6
4LGM 060 200 S06	6	20	75	6
4LGM 060 200 100	6	20	100	6
4LGM 060 250 S06	6	25	75	6
4LGM 060 300 S06	6	30	80	6
4LGM 060 350 S06	6	35	80	6
4LGM 080 250 S08	8	25	75	8
4LGM 080 250 100	8	25	100	8
4LGM 080 300 S08	8	30	80	8
4LGM 080 350 S08	8	35	90	8
4LGM 080 400 S08	8	40	90	8
4LGM 080 450 S08	8	45	100	8
4LGM 100 300 S10	10	30	80	10
4LGM 100 300 110	10	30	110	10

[illegible]

2LGM

• RPM : rev/min • Feed : mm/min

Material	Carbon Steels S50 / SCM		Alloy Steels / Prehardened Steels SKD61 / NAK		Hardened Steels SKD61	
Hardness	~ 30HRC		30 ~ 45HRC		45 ~ 55HRC	
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED
1mm	8,570	45	6,570	40	4,200	15
1.5mm	7,800	50	6,000	45	3,700	20
2mm	6,300	60	5,040	50	3,150	25
3mm	4,410	70	3,570	60	2,200	30
4mm	3,570	85	2,840	70	1,790	35
5mm	3,050	105	2,420	85	1,580	40
6mm	2,630	125	2,100	105	1,370	50
8mm	2,000	135	1,580	105	1,050	50
10mm	1,680	135	1,370	105	840	50
12mm	1,370	105	1,160	95	700	40
16mm	1,160	95	890	75	560	35
20mm	840	70	680	50	420	25
25mm	600	55	510	35	300	15

Depth of Cut				

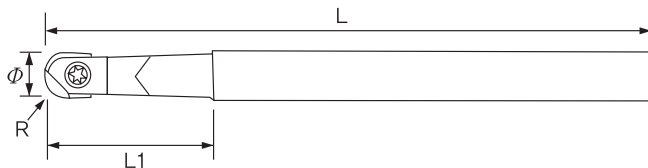
4LGM

• RPM : rev/min • Feed : mm/min

Material	Carbon Steels S50 / SCM		Alloy Steels / Prehardened Steels SKD61 / NAK		Hardened Steels SKD61	
Hardness	~ 30HRC		30 ~ 45HRC		45 ~ 55HRC	
Outside Diameter	RPM	FEED	RPM	FEED	RPM	FEED
1mm	8,200	85	6,100	65	4,300	30
1.5mm	7,100	95	5,500	75	3,500	40
2mm	6,300	100	5,040	80	3,150	45
3mm	4,410	115	3,570	100	2,200	55
4mm	3,570	140	2,840	115	1,790	60
5mm	3,050	180	2,420	140	1,580	70
6mm	2,630	215	2,100	180	1,370	90
8mm	2,000	230	1,580	180	1,050	90
10mm	1,680	230	1,370	180	840	90
12mm	1,370	180	1,160	160	700	70
16mm	1,160	160	890	125	560	60
20mm	840	115	680	90	420	45
25mm	650	80	790	65	310	30

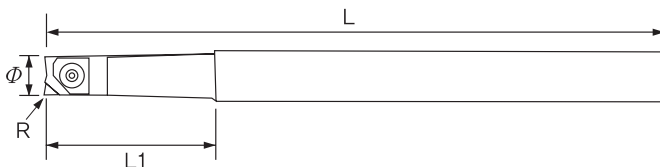
Depth of Cut				

MIDAS ABPF HOLDER



CARBIDE HOLDER

Dimension							
CODE NO.	Φ	R	L	L1	Insert	Screw	Wrench
C-ABPF 10×150	10	5	150	20	SP1W100 / SP1Q100 SP1W110	581-142	104-T10
C-ABPF 12×150	12	6	150	30	SP1W120 / SP1Q120 SP1W130 / SP1Q130	581-143	105-T20
C-ABPF 16×200	16	8	200	70	SP1W160 / SP1Q160 SP1W170 / SP1Q170	581-144	105-T20
C-ABPF 20×220	20	10	220	80	SP1W200 / SP1Q200 SP1W210 / SP1Q210	581-145	101-T25S
C-ABPF 25×250	25	12.5	250	80	SP1W250 / SP1Q250 SP1W260 / SP1Q260	581-146	105-T30A
C-ABPF 30×300	30	15	300	100	SP1W300 / SP1Q300	581-147	105-T30A



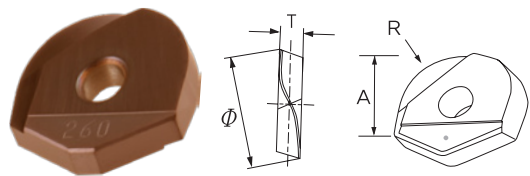
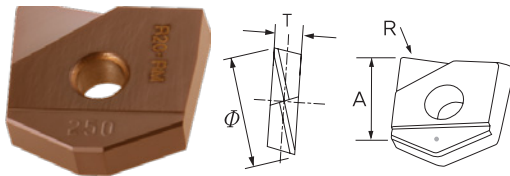
STEEL HOLDER

Dimension							
CODE NO.	Φ	R	L	L1	Insert	Screw	Wrench
ABPF 16×220	16	8	220	70	SP1W160 / SP1Q160 SP1W170 / SP1Q170	581-144	105-T20
ABPF 20×220	20	10	220	80	SP1W200 / SP1Q200 SP1W210 / SP1Q210	581-145	101-T25S
ABPF 25×250	25	12.5	250	80	SP1W250 / SP1Q250 SP1W260 / SP1Q260	581-146	105-T30A
ABPF 30×250	30	15	250	100	SP1W300 / SP1Q300	581-147	105-T30A

How to install insert

The marking part of insert is located on the top and installed in holder.

MIDAS INSERT



SP1Q				
CODE NO.	R	A	Φ	T
SP1Q100×0.5R	0.5	11.6	10.0	2.7
SP1Q100×1.0R	1.5			
SP1Q120×0.5R	0.5	14.3	12.0	3.2
SP1Q120×1.0R	1.0			
SP1Q120×2.0R	2.0			
SP1Q130×0.3R	0.3	12.7	13.0	3.2
SP1Q130×0.5R	0.5			
SP1Q130×1.0R	1.0			
SP1Q160×0.5R	0.5	16.6	16.0	4.2
SP1Q160×1.0R	1.0			
SP1Q160×2.0R	2.0			
SP1Q170×0.5R	0.5	15.9	17.0	4.2
SP1Q170×1.0R	1.0			
SP1Q170×2.0R	2.0			
SP1Q200×0.5R	0.5	19.9	20.0	5.2
SP1Q200×1.0R	1.0			
SP1Q200×2.0R	2.0			
SP1Q210×0.5R	0.5	20.3	21.0	5.2
SP1Q210×1.0R	1.0			
SP1Q210×2.0R	2.0			
SP1Q250×0.5R	0.5	22.3	25.0	6.2
SP1Q250×1.0R	1.0			
SP1Q250×2.0R	2.0			
SP1Q260×0.5R	0.5	22.9	26.0	6.2
SP1Q260×1.0R	1.0			
SP1Q260×2.0R	2.0			
SP1Q300×0.5R	0.5	27.2	30.0	7.2
SP1Q300×1.0R	1.0			
SP1Q300×2.0R	2.0			

SP1W				
CODE NO.	R	A	Φ	T
SP1W100×5.0R	5.0	12.0	10.0	2.7
SP1W110×5.5R	5.5	12.0	11.0	
SP1W120×6.0R	6.0	14.6	12.0	3.2
SP1W130×6.5R	6.5	14.6	13.0	
SP1W160×8R	8.0	16.6	16.0	4.2
SP1W170×8.5R	8.5	17.0	17.0	
SP1W200×10R	10.0	20.3	20.0	5.2
SP1W210×10.5R	10.5	21.0	21.0	
SP1W250×12.5R	12.5	24.1	25.0	6.2
SP1W260×13R	13.0	24.5	26.0	
SP1W300×15R	15.0	29.2	30.0	7.2

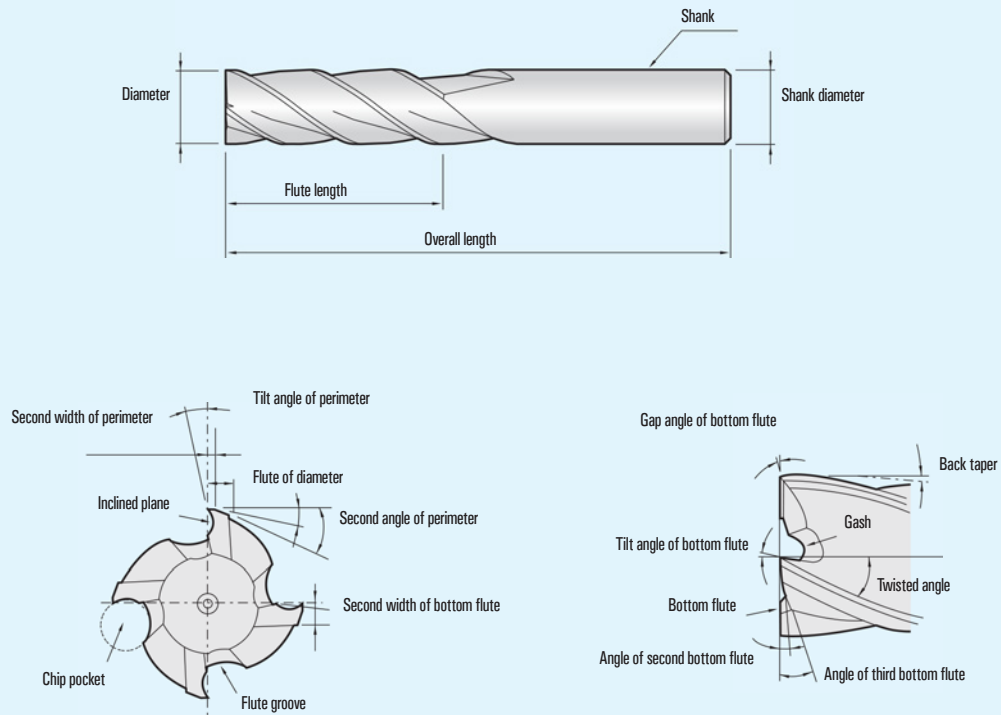
Features

1. Tolerance (± 0.01 below)
2. Use one holder
3. Compatible with other products
4. 30% cost reduction compared with Japanese same type inserts
 - Utility Model No. 0355943

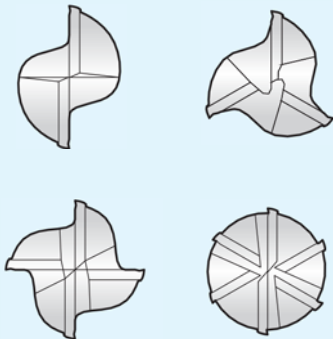
Machining Parameter Guidelines



The main part details of End mills

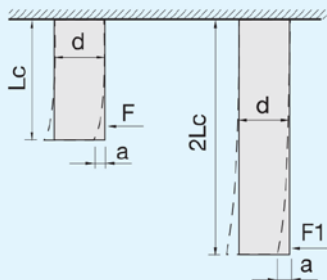


The discharge of chips and rigidity of tools by the number(N) of flutes.



The number of flutes is essential part to control the performance of end mills. Generally, if there are few flutes, it is easy to discharge of chips but relatively section areas get smaller so that it makes the rigidity of tools fall down and enable tools to sway on cutting. On the other hand, if there are many flutes, the section areas get larger and the rigidity gets higher but the chip capacity goes down owing to lessened the chip pocket and it is easily blocked up by chips.

The rigidity of tools by the length(L) of the flute

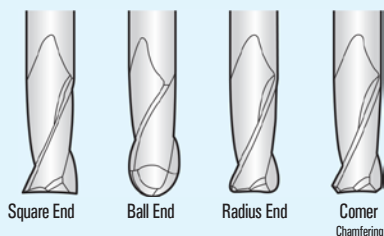


The shorter length of tools, the higher the rigidity and performance of cutting.

The length of the flute become twice, the rigidity of end mills falls to 1/8.

Because end mills are the tools to move horizontal, it is important for the rigidity of tools to be in inverse proportion to the length of tools. Using a longer flute that need be is not good. You can choose suitable flutes for your cutting conditions now that COGO TOOLS, we have a variety of items.

The shape of the bottom flute



Main shapes of the bottom flute are Square End / Ball End / Radius End and COGO TOOLS deal with various types of items.

We've provided a lot of items for diverse uses as well as main items of the bottom flute.

Ideal cutting conditions

$$R.P.M(N) = \frac{1,000 \times Vc}{\pi \times D}$$

N : R.P.M

Vc : Speed of cutting
(m/min)

D : Diameter of the endmill
(mm)

$$\text{Feed rate}(F) = Ft \times Z \times N$$

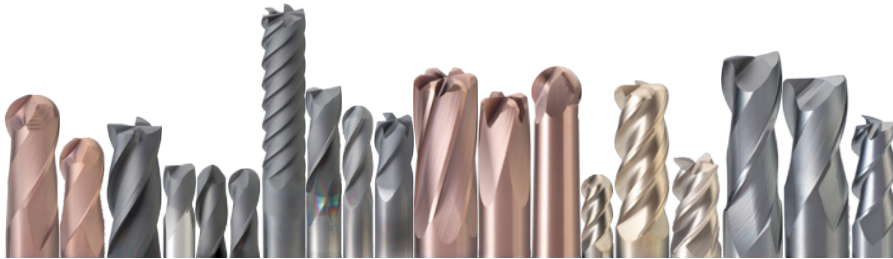
F : Feed rate
(m/min)

Ft : Quantity of feeding per a flute
(m/min)

Z : The number of endmill

N : R.P.M

151
Items
8745
Tools



COGO TOOL, having pushed on the field of carbide cutting tools, is the special brand to make carbide end mills. COGO TOOL' High Speed End Mills series are lined up about 8,745 tools from CBN to general end mills, which make outstanding new items through continuous research & development and investment. To manufacture the best tools, our passions are continued constantly.

MEMO



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ISO 9001:2008



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Distribuidor



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