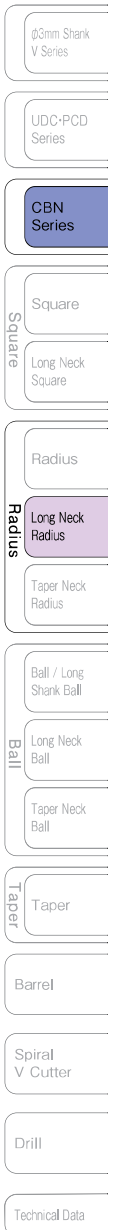
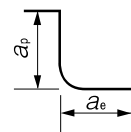


Milling Conditions for CBN-RSF

WORK MATERIAL				HARDENED STEELS ELMAX (58~62HRC)				HARDENED STEELS HAP10 (62~65HRC)			
Model Number	Outside Diameter (mm)	Corner Radius (mm)	Effective Length (mm)	Spindle Speed (min ⁻¹)	Feed Rate (mm/min)	a_p Axial Depth (mm)	a_e Radial Depth (mm)	Spindle Speed (min ⁻¹)	Feed Rate (mm/min)	a_p Axial Depth (mm)	a_e Radial Depth (mm)
1002-002003	0.2	R0.02	0.3	60,000	80 MAX	0.003	0.01	60,000	20 MAX	0.003	0.005
1002-002005			0.5	60,000	80 MAX	0.003	0.01	60,000	20 MAX	0.003	0.005
1002-005003		R0.05	0.3	60,000	80 MAX	0.003	0.01	60,000	20 MAX	0.003	0.005
1002-005005			0.5	60,000	80 MAX	0.003	0.01	60,000	20 MAX	0.003	0.005
1003-002005	0.3	R0.02	0.5	40,000	80 MAX	0.004	0.015	40,000	20 MAX	0.004	0.005
1003-002010			1	40,000	80 MAX	0.004	0.015	40,000	20 MAX	0.004	0.005
1003-005005		R0.05	0.5	40,000	80 MAX	0.004	0.015	40,000	20 MAX	0.004	0.005
1003-005010			1	40,000	80 MAX	0.004	0.015	40,000	20 MAX	0.004	0.005
1004-002005	0.4	R0.02	0.5	30,000	80 MAX	0.005	0.02	30,000	20 MAX	0.005	0.006
1004-002015			1.5	30,000	80 MAX	0.005	0.02	30,000	20 MAX	0.005	0.006
1004-005005		R0.05	0.5	30,000	100 MAX	0.005	0.02	30,000	60 MAX	0.005	0.02
1004-005015			1.5	30,000	100 MAX	0.005	0.02	30,000	60 MAX	0.005	0.02
1005-002005	0.5	R0.02	0.5	30,000	90 MAX	0.005	0.025	30,000	25 MAX	0.005	0.008
1005-002015			1.5	30,000	90 MAX	0.005	0.025	30,000	25 MAX	0.005	0.008
1005-005005		R0.05	0.5	30,000	100 MAX	0.01	0.025	30,000	60 MAX	0.01	0.025
1005-005015			1.5	30,000	100 MAX	0.01	0.025	30,000	60 MAX	0.01	0.025
1006-002010	0.6	R0.02	1	30,000	100 MAX	0.005	0.03	30,000	30 MAX	0.005	0.01
1006-002015			1.5	30,000	100 MAX	0.005	0.03	30,000	30 MAX	0.005	0.01
1006-005010		R0.05	1	30,000	110 MAX	0.01	0.03	30,000	65 MAX	0.01	0.03
1006-005015			1.5	30,000	110 MAX	0.01	0.03	30,000	65 MAX	0.01	0.03
1008-002010	0.8	R0.02	1	30,000	125 MAX	0.005	0.04	30,000	40 MAX	0.005	0.012
1008-002020			2	30,000	125 MAX	0.005	0.04	30,000	40 MAX	0.005	0.012
1008-005010		R0.05	1	30,000	140 MAX	0.01	0.04	30,000	85 MAX	0.01	0.04
1008-005020			2	30,000	140 MAX	0.01	0.04	30,000	85 MAX	0.01	0.04
1010-002010	1	R0.02	1	30,000	150 MAX	0.005	0.05	30,000	50 MAX	0.005	0.015
1010-002020			2	30,000	150 MAX	0.005	0.05	30,000	50 MAX	0.005	0.015
1010-002030			3	30,000	150 MAX	0.005	0.05	30,000	50 MAX	0.005	0.015
1010-005010		R0.05	1	30,000	165 MAX	0.01	0.05	30,000	100 MAX	0.01	0.04
1010-005020			2	30,000	165 MAX	0.01	0.05	30,000	100 MAX	0.01	0.04
1010-005030			3	30,000	165 MAX	0.01	0.05	30,000	100 MAX	0.01	0.04
1010-010010		R0.1	1	30,000	185 MAX	0.01	0.05	30,000	150 MAX	0.01	0.05
1010-010020			2	30,000	185 MAX	0.01	0.05	30,000	150 MAX	0.01	0.05
1010-010030	3	30,000	185 MAX	0.01	0.05	30,000	150 MAX	0.01	0.05		
1015-002030	1.5	R0.02	3	30,000	225 MAX	0.005	0.075	30,000	75 MAX	0.005	0.025
1015-005030		R0.05	3	30,000	250 MAX	0.01	0.075	30,000	150 MAX	0.01	0.05
1015-010030		R0.1	3	30,000	280 MAX	0.01	0.075	30,000	225 MAX	0.01	0.075
1020-002040	2	R0.02	4	30,000	300 MAX	0.005	0.1	30,000	100 MAX	0.005	0.03
1020-002060			6	30,000	300 MAX	0.005	0.1	30,000	100 MAX	0.005	0.03
1020-005040		R0.05	4	30,000	330 MAX	0.01	0.1	30,000	200 MAX	0.01	0.07
1020-005060			6	30,000	330 MAX	0.01	0.1	30,000	200 MAX	0.01	0.07
1020-010040		R0.1	4	30,000	375 MAX	0.01	0.1	30,000	300 MAX	0.01	0.1
1020-010060			6	30,000	375 MAX	0.01	0.1	30,000	300 MAX	0.01	0.1

Note:

- Decrease both spindle speed and feed rate proportionally when the milling parameters exceed the machine's maximum spindle speed.
- Recommend oil mist to avoid tool damage.



2 Flutes CBN Long Neck Radius End Mills



Size $\phi 0.1 \sim \phi 3$

CBN-LRF2000



Additional 4 models

Material Applications (★ Highly Recommended ● Recommended ○ Suggested)

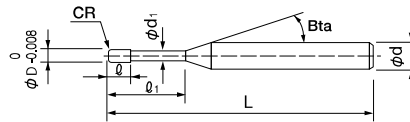
Work Material																	
Carbon Steels	Alloy Steels	Prehardened Steels	Hardened Steels					Cast Iron	Aluminum Alloys	Graphite	Copper	Plastics	Glass Filled Plastics	Titanium Alloys	Heat Resistant Alloys	Cemented Carbide	Hard Brittle (Non-Metallic) Materials
			~50HRC	~55HRC	~60HRC	~65HRC	~70HRC										
S45C S55C	SK / SCM SUS	NAK HPM	●	●	●	●	●										

Label Sample

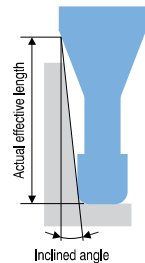


#001 $\phi D 0.997$ R+0.001/0.000

Diameter and Corner R accuracy measurements are printed on the label to support High Precision milling.



The shank taper angle shown is not an exact value and to avoid contact with the work piece, we recommend the user controls the precise value of this angle. Shank taper angle should not make contact with the work piece.



Features

Various lineup from $\phi 0.1$ to $\phi 3$



CBN-LRF2000/4000 Common features

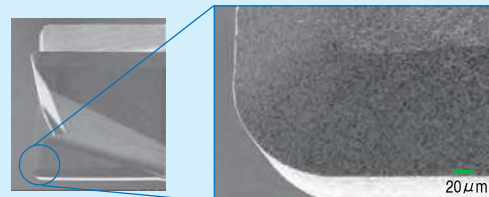
Feature 1 High rigidity cutting edge

Super negative rake angle from the cutting edge at the tip point to peripheral cutting edge. Less damage when milling hard materials.



Feature 2 Sharp cutting edge

The cutting edge is outstandingly sharp even with the super negative rake angle.



Fuel cell separator mold

2 Flutes CBN-LRF $\phi 1 \times CR0.1 \times EL1$

SKH51 (63HRC)



Size : 80 × 80 × 40 mm

After finishing of crank shape
(Milling time 10h 23min)After finishing of wave shape
(Milling time 2h 58min)

CBN-LRF 2000



Process	Tool	Spindle Speed (min ⁻¹)	Feed Rate (mm/min)	Allowance (mm)	a_p (mm)	a_e (mm)	Coolant	Cycle Time (h:m:s)
Roughing	HLRS $\phi 1 \times CR0.3 \times EL2$	10,900	710	—	0.03	0.27	Air Blow	2:43:45
Semi-finishing	HLRS $\phi 1 \times CR0.2 \times EL2$	10,900	710	0.015	0.03	0.1		3:07:09
Finishing	CBN-LRF $\phi 1 \times CR0.1 \times EL1$	30,000	525	0.005	0.01	0.1	Oil Mist	13:21:57
Total								19:12:51

CBN bottom surface finishing

2 Flutes CBN-LRF $\phi 2 \times CR0.1 \times EL1$

STAVAX (52HRC)



Size : 60 × 35 × 20 mm

Surface roughness Ra 0.03 μ mBottom
surface
milling

CBN-LRF 2000



Process	Tool	Spindle Speed (min ⁻¹)	Feed Rate (mm/min)	a_p (mm)	a_e (mm)	Cycle Time (h:m:s)
Roughing	HRRS $\phi 6 \times CR1$	6,000	4,000	0.3	2.7	0:03:00
Semi-finishing	HRRS $\phi 6 \times CR1$	15,000	7,000	0.03	0.03	0:04:00
Semi-finishing	HSB R1.5	30,000	1,200	0.05	0.05	0:13:00
Semi-finishing	HSB R1	30,000	1,000	0.01	0.01	1:20:00
Finishing	CBN-LBSF R1	30,000	1,000	0.003	0.003	4:30:00
Semi-finishing	HLRS $\phi 2 \times CR0.1 \times EL4$	20,000	2,000	0.04	0.2	0:05:00
Semi-finishing	CBN-LRF $\phi 2 \times CR0.1 \times EL4$	20,000	1,200	0.02	0.15	0:13:00
Finishing	CBN-LRF $\phi 2 \times CR0.1 \times EL4$	25,000	1,000	0.01	0.1	0:38:00
Finishing	HSB R0.1	10,000	50	0.01	—	0:07:00
Total						7:13:00

φ3mm Shank
V Series

UDC-PCD
Series

CBN
Series

Square
Long Neck
Square

Radius

Radius
Long Neck
Radius
Taper Neck
Radius

Ball / Long
Shank Ball

Ball
Long Neck
Ball
Taper Neck
Ball

Taper

Barrel

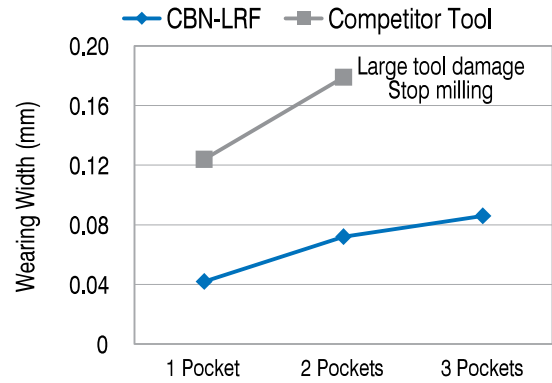
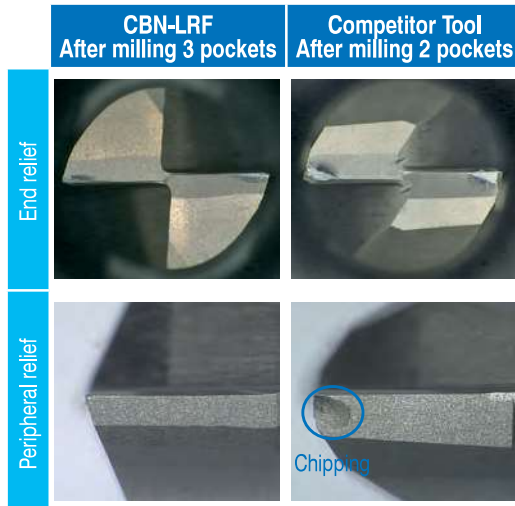
Spiral
V Cutter

Drill

Technical Data

Pocket milling
2 Flutes CBN-LRF $\phi 2 \times CR0.02 \times EL4$

HAP10 (65HRC)



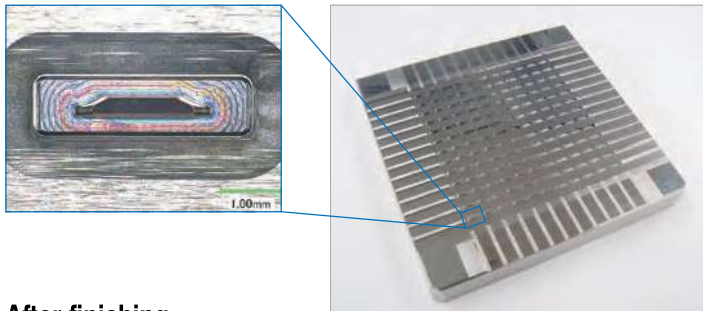
Less tool damage on 65HRC high speed steel!

Pocket Size : $15 \times 15 \times 0.3$ mm
Coolant : Oil Mist

Tool	Spindle Speed (min ⁻¹)	Feed Rate (mm/min)	a_p (mm)	a_e (mm)	Cycle Time
CBN-LRF $\phi 2 \times CR0.02 \times EL4$	16,000	530	0.005	0.4	59 min / pocket

LED mold
2 Flutes CBN-LRF $\phi 0.4 \times CR0.02 \times EL1$

ELMAX (62HRC)



Work Size : $80 \times 80 \times 10$ mm
Coolant : Oil Mist

After finishing



Less tool damage after 10 hours' milling!

Tool	Process	Spindle Speed (min ⁻¹)	Feed Rate (mm/min)	a_p (mm)	a_e (mm)	Cycle Time
CBN-LRF $\phi 0.4 \times CR0.02 \times EL1$	Finishing	38,000	600	0.01	0.01	10 h

- φ3mm Shank V Series
- UDC-PCD Series
- CBN Series**
- Square
- Long Neck Square
- Radius
- Long Neck Radius
- Taper Neck Radius
- Ball / Long Shank Ball
- Long Neck Ball
- Taper Neck Ball
- Taper
- Barrel
- Spiral V Cutter
- Drill
- Technical Data

Total 143 models

*Shank taper angle Bta is only for reference.

Unit (mm)

2 Flutes

Model Number	Outside Diameter ϕD	Corner Radius CR	Effective Length ℓ_1	Length of Cut ℓ	Neck Diameter ϕd_1	Shank Taper Angle Bta	Overall Length L	Shank Diameter ϕd	Suggested Retail Price ¥	Effective Length by Inclined Angles					
										30°	1°	1°30'	2°	3°	
CBN-LRF 2001-002002	0.1	RO.02	0.2	0.04	0.09	15°	50	4	44,500	0.20	0.20	0.20	0.20	0.21	
CBN-LRF 2001-002003			0.3				50	4	45,200	0.30	0.30	0.30	0.30	0.33	
CBN-LRF 2001-002005			0.5				50	4	46,500	0.50	0.50	0.51	0.53	0.58	
CBN-LRF 2001-003002		RO.03	0.2				50	4	42,500	0.20	0.20	0.20	0.20	0.21	
CBN-LRF 2001-003003			0.3				50	4	43,200	0.30	0.30	0.30	0.30	0.33	
CBN-LRF 2001-003005			0.5				50	4	44,500	0.50	0.50	0.51	0.53	0.58	
CBN-LRF 20015-002X2	0.15	RO.02	0.2	0.06	0.14	15°	50	4	44,500	0.20	0.20	0.20	0.20	0.21	
CBN-LRF 20015-002X3			0.3				50	4	45,200	0.30	0.30	0.30	0.30	0.33	
CBN-LRF 20015-002X5			0.5				50	4	46,500	0.50	0.50	0.51	0.53	0.58	
CBN-LRF 20015-003X2		RO.03	0.2				50	4	42,500	0.20	0.20	0.20	0.20	0.21	
CBN-LRF 20015-003X3			0.3				50	4	43,200	0.30	0.30	0.30	0.30	0.33	
CBN-LRF 20015-003X5			0.5				50	4	44,500	0.50	0.50	0.51	0.53	0.58	
CBN-LRF 2002-002005	0.2	RO.02	0.5	0.08	0.19	15°	50	4	33,900	0.50	0.50	0.51	0.53	0.58	
CBN-LRF 2002-002X75			0.75				50	4	34,400	0.75	0.76	0.79	0.82	0.89	
CBN-LRF 2002-002010			1				50	4	34,900	1.00	1.03	1.07	1.11	1.20	
CBN-LRF 2002-003005		RO.03	0.5				50	4	30,500	0.50	0.50	0.51	0.53	0.58	
CBN-LRF 2002-003X75			0.75				50	4	30,900	0.75	0.76	0.79	0.82	0.89	
CBN-LRF 2002-003010			1				50	4	31,400	1.00	1.03	1.07	1.11	1.20	
CBN-LRF 2002-005005		RO.05	0.5				50	4	30,500	0.50	0.50	0.51	0.53	0.57	
CBN-LRF 2002-005X75			0.75				50	4	30,900	0.75	0.76	0.79	0.82	0.88	
CBN-LRF 2002-005010			1				50	4	31,400	1.00	1.03	1.06	1.10	1.19	
CBN-LRF 20025-005X5			0.25				RO.05	0.5	0.1	0.24	15°	50	4	30,500	0.50
CBN-LRF 20025-X5X75	0.75	50		4	30,900	0.75		0.76				0.79	0.82	0.88	
CBN-LRF 20025-X5010	1	50		4	31,400	1.00		1.03				1.06	1.10	1.19	
CBN-LRF 2003-001010	0.3	RO.01	1	0.13	0.28	15°	50	4	33,900	1.02	1.06	1.10	1.14	1.24	
CBN-LRF 2003-002005			0.5				50	4	33,500	0.51	0.53	0.55	0.57	0.62	
CBN-LRF 2003-002X75			0.75				50	4	33,700	0.77	0.79	0.82	0.86	0.93	
CBN-LRF 2003-002010		RO.02	1				50	4	33,900	1.02	1.06	1.10	1.14	1.24	
CBN-LRF 2003-002015			1.5				50	4	34,400	1.54	1.60	1.65	1.72	1.86	
CBN-LRF 2003-002020			2				50	4	34,900	2.05	2.12	2.20	2.28	2.47	
CBN-LRF 2003-003005			0.5				50	4	30,100	0.51	0.53	0.55	0.57	0.62	
CBN-LRF 2003-003X75		RO.03	0.75				50	4	30,300	0.77	0.79	0.82	0.85	0.93	
CBN-LRF 2003-003010			1				50	4	30,500	1.02	1.06	1.10	1.14	1.24	
CBN-LRF 2003-003015			1.5				50	4	30,900	1.54	1.60	1.65	1.72	1.86	
CBN-LRF 2003-003020			2				50	4	31,300	2.05	2.12	2.20	2.28	2.47	
CBN-LRF 2003-005005			RO.05				0.5	50	4	30,100	0.51	0.52	0.54	0.56	0.61
CBN-LRF 2003-005X75							0.75	50	4	30,300	0.76	0.79	0.82	0.85	0.92
CBN-LRF 2003-005010		1					50	4	30,500	1.02	1.06	1.10	1.14	1.23	
CBN-LRF 2003-005015		1.5					50	4	30,900	1.54	1.59	1.65	1.71	1.85	
CBN-LRF 2003-005020		2					50	4	31,300	2.05	2.12	2.20	2.28	2.46	

Next Page ➡

- ①3mm Shank V Series
- UDC-PCD Series
- CBN Series**
- Square
 - Square
 - Long Neck Square
- Radius
 - Long Neck Radius
 - Taper Neck Radius
- Ball
 - Ball / Long Shank Ball
 - Long Neck Ball
 - Taper Neck Ball
- Taper
 - Taper
- Barrel
- Spiral V Cutter
- Drill
- Technical Data

2 Flutes CBN Long Neck Radius End Mills

Unit (mm)

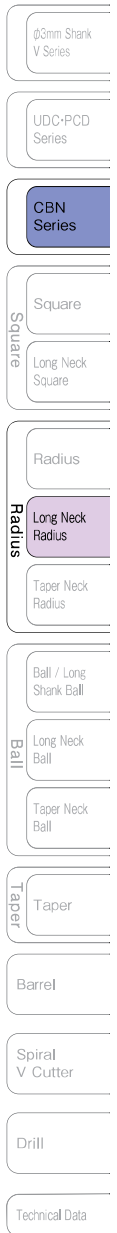
- φ3mm Shank V Series
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Model Number	Outside Diameter φD	Corner Radius CR	Effective Length ℓ ₁	Length of Cut ℓ	Neck Diameter φd ₁	Shank Taper Angle Bta	Overall Length L	Shank Diameter φd	Suggested Retail Price ¥	Effective Length by Inclined Angles									
										30°	1°	1°30'	2°	3°					
CBN-LRF 2004-002005	0.4	RO.02	0.5	0.24	0.38	15°	50	4	31,800	0.51	0.53	0.55	0.57	0.62					
CBN-LRF 2004-002010			1				50	4	32,000	1.02	1.06	1.10	1.14	1.24					
CBN-LRF 2004-002015			1.5				50	4	32,400	1.53	1.59	1.64	1.71	1.85					
CBN-LRF 2004-002020			2				50	4	32,800	2.05	2.12	2.20	2.28	2.47					
CBN-LRF 2004-003005			RO.03				0.5	50	4	28,600	0.51	0.53	0.55	0.57	0.62				
CBN-LRF 2004-003010							1	50	4	28,800	1.02	1.06	1.10	1.14	1.24				
CBN-LRF 2004-003015		1.5					50	4	28,800	1.53	1.59	1.64	1.71	1.85					
CBN-LRF 2004-005005		RO.05					0.5	50	4	28,600	0.51	0.52	0.54	0.56	0.61				
CBN-LRF 2004-005010							1	50	4	28,800	1.02	1.06	1.10	1.14	1.23				
CBN-LRF 2004-005015							1.5	50	4	28,800	1.53	1.58	1.64	1.70	1.84				
CBN-LRF 2004-005020			2				50	4	28,800	2.05	2.12	2.20	2.28	2.46					
CBN-LRF 2004-005040			4				50	4	29,800	4.11	4.26	4.41	4.58	4.95					
CBN-LRF 2004-010005			RO.1				0.5	50	4	28,600	0.50	0.52	0.54	0.56	0.60				
CBN-LRF 2004-010010		1					50	4	28,800	1.02	1.06	1.09	1.13	1.22					
CBN-LRF 2004-010015		1.5					50	4	28,800	1.53	1.58	1.64	1.70	1.83					
CBN-LRF 2005-001010		RO.01					1	0.3	0.48	15°	50	4	26,400	1.02	1.06	1.10	1.14	1.24	
CBN-LRF 2005-002005							RO.02				0.5	50	4	26,100	0.51	0.53	0.55	0.57	0.62
CBN-LRF 2005-002010											1	50	4	26,400	1.02	1.06	1.10	1.14	1.24
CBN-LRF 2005-002015	1.5		50	4	26,600	1.53					1.59	1.64	1.71	1.85					
CBN-LRF 2005-002020	2		50	4	26,800	2.05					2.12	2.20	2.28	2.47					
CBN-LRF 2005-003005	RO.03		0.5	50	4	23,500					0.51	0.53	0.55	0.57	0.62				
CBN-LRF 2005-003010		1	50	4	23,700	1.02					1.06	1.10	1.14	1.24					
CBN-LRF 2005-003015		1.5	50	4	23,900	1.53	1.59				1.64	1.71	1.85						
CBN-LRF 2005-003020		2	50	4	24,100	2.05	2.12				2.20	2.28	2.47						
CBN-LRF 2005-005005		RO.05	0.5	50	4	23,500	0.51				0.52	0.54	0.56	0.61					
CBN-LRF 2005-005010			1	50	4	23,700	1.02				1.06	1.10	1.14	1.23					
CBN-LRF 2005-005015	1.5		50	4	23,900	1.53	1.58				1.64	1.70	1.84						
CBN-LRF 2005-005020	2		50	4	24,100	2.05	2.12				2.20	2.28	2.46						
CBN-LRF 2005-010005	RO.1		0.5	50	4	23,500	0.50				0.52	0.54	0.56	0.60					
CBN-LRF 2005-010010			1	50	4	23,700	1.02				1.06	1.09	1.13	1.22					
CBN-LRF 2005-010015		1.5	50	4	23,900	1.53	1.58				1.64	1.70	1.83						
CBN-LRF 2005-010020		2	50	4	24,100	2.05	2.12				2.19	2.27	2.45						
CBN-LRF 2006-002005		0.6	RO.02	0.5	0.3	0.58	15°				50	4	26,100	0.51	0.53	0.55	0.57	0.62	
CBN-LRF 2006-002010				1				50	4	26,400	1.02	1.06	1.10	1.14	1.24				
CBN-LRF 2006-002015	1.5			50				4	26,600	1.53	1.59	1.64	1.71	1.85					
CBN-LRF 2006-005005	RO.05			0.5				50	4	23,500	0.51	0.52	0.54	0.56	0.61				
CBN-LRF 2006-005010				1				50	4	23,700	1.02	1.06	1.10	1.14	1.23				
CBN-LRF 2006-005015				1.5				50	4	23,900	1.53	1.58	1.64	1.70	1.84				
CBN-LRF 2006-005030			3	50				4	26,100	3.08	3.19	3.30	3.43	3.71					
CBN-LRF 2006-010005			RO.1	0.5				50	4	23,500	0.50	0.52	0.54	0.56	0.60				
CBN-LRF 2006-010010				1				50	4	23,700	1.02	1.06	1.09	1.13	1.22				
CBN-LRF 2006-010015	1.5			50				4	23,900	1.53	1.58	1.64	1.70	1.83					
CBN-LRF 2008-002010	0.8			RO.02				1	0.56	0.78	15°	50	4	26,600	1.02	1.06	1.10	1.14	1.24
CBN-LRF 2008-002015								1.5				50	4	26,600	1.53	1.59	1.64	1.71	1.85
CBN-LRF 2008-002020		2			50	4	26,600	2.05				2.12	2.20	2.28	2.47				
CBN-LRF 2008-002050		5	50		4	30,100	5.15	5.33				5.52	5.73	6.20					
CBN-LRF 2008-005010		RO.05	1		50	4	23,900	1.02				1.06	1.10	1.14	1.23				
CBN-LRF 2008-005015			1.5		50	4	23,900	1.53				1.58	1.64	1.70	1.84				
CBN-LRF 2008-005020			2	50	4	23,900	2.05	2.12				2.20	2.28	2.46					
CBN-LRF 2008-005050			5	50	4	27,000	5.15	5.33				5.52	5.73	6.19					
CBN-LRF 2008-010010			RO.1	1	50	4	23,900	1.02				1.06	1.09	1.13	1.22				
CBN-LRF 2008-010015				1.5	50	4	23,900	1.53				1.58	1.64	1.70	1.83				
CBN-LRF 2008-010020		2		50	4	23,900	2.05	2.12				2.19	2.27	2.45					
CBN-LRF 2008-010050		5		50	4	27,000	5.15	5.32				5.52	5.72	6.18					

Unit (mm)

Model Number	Outside Diameter ϕD	Corner Radius CR	Effective Length ℓ_1	Length of Cut ℓ	Neck Diameter ϕd_1	Shank Taper Angle Bta	Overall Length L	Shank Diameter ϕd	Suggested Retail Price ¥	Effective Length by Inclined Angles								
										30'	1°	1°30'	2°	3°				
CBN-LRF 2010-002010	1	RO.02	1	0.7	0.98	15°	50	4	24,400	1.03	1.06	1.10	1.15	1.24				
CBN-LRF 2010-002020			2				50	4	24,400	2.06	2.13	2.21	2.30	2.48				
CBN-LRF 2010-002030			3				50	4	24,400	3.09	3.20	3.32	3.45	3.73				
CBN-LRF 2010-002050			5				50	4	27,600	5.16	5.34	5.54	5.74	6.21				
CBN-LRF 2010-005010			RO.05				1	50	4	21,900	1.03	1.06	1.10	1.14	1.23			
CBN-LRF 2010-005020							2	50	4	21,900	2.06	2.13	2.21	2.29	2.48			
CBN-LRF 2010-005030		3					50	4	21,900	3.09	3.20	3.32	3.44	3.72				
CBN-LRF 2010-005050		5					50	4	24,800	5.16	5.34	5.53	5.74	6.21				
CBN-LRF 2010-010010		RO.1	1				50	4	21,900	1.02	1.06	1.09	1.13	1.22				
CBN-LRF 2010-010020			2				50	4	21,900	2.06	2.13	2.20	2.28	2.47				
CBN-LRF 2010-010030			3				50	4	21,900	3.09	3.20	3.31	3.43	3.71				
CBN-LRF 2010-010050			5				50	4	24,800	5.16	5.34	5.53	5.73	6.20				
CBN-LRF 2010-020010			RO.2				1	50	4	21,900	1.02	1.05	1.08	1.12	1.20			
CBN-LRF 2010-020020		2					50	4	21,900	2.05	2.12	2.19	2.27	2.44				
CBN-LRF 2015-002030		1.5	RO.02				3	1	1.46	15°	50	4	28,700	3.13	3.24	3.36	3.49	3.77
CBN-LRF 2015-002040							4				50	4	28,700	4.17	4.31	4.47	4.64	5.02
CBN-LRF 2015-002060	6			50	4	28,700	6.23				6.45	6.69	6.94	7.50				
CBN-LRF 2015-005030	RO.05		3	50	4	25,800	3.13				3.24	3.36	3.48	3.77				
CBN-LRF 2015-005040			4	50	4	25,800	4.16				4.31	4.47	4.63	5.01				
CBN-LRF 2015-005060			6	50	4	25,800	6.23				6.45	6.68	6.93	7.50				
CBN-LRF 2015-010030	RO.1		3	50	4	25,800	3.13				3.24	3.35	3.48	3.76				
CBN-LRF 2015-010040			4	50	4	25,800	4.16				4.31	4.46	4.63	5.00				
CBN-LRF 2015-010060			6	50	4	25,800	6.23				6.45	6.68	6.93	7.48				
CBN-LRF 2015-030045	RO.3		4.5	50	4	25,800	4.67				4.83	4.99	5.17	5.57				
CBN-LRF 2020-002040	2		RO.02	4	1.2	1.97	15°				50	4	29,600	4.15	4.29	4.45	4.62	4.99
CBN-LRF 2020-002060				6							50	4	29,600	6.21	6.43	6.67	6.92	7.48
CBN-LRF 2020-002080		8		50				4	31,300	8.28	8.57	8.88	9.22	9.97				
CBN-LRF 2020-002100		10		50				4	33,000	10.35	10.71	11.10	11.52	12.45				
CBN-LRF 2020-003030		RO.03	3	50				4	26,600	3.11	3.22	3.34	3.47	3.75				
CBN-LRF 2020-005040			4	50				4	26,600	4.15	4.29	4.45	4.61	4.99				
CBN-LRF 2020-005060		RO.05	6	50				4	26,600	6.21	6.43	6.66	6.91	7.47				
CBN-LRF 2020-005080			8	50				4	28,150	8.28	8.57	8.88	9.21	9.96				
CBN-LRF 2020-005100			10	50				4	29,700	10.35	10.71	11.10	11.51	12.45				
CBN-LRF 2020-010040			RO.1	4				50	4	26,600	4.14	4.29	4.44	4.60	4.98			
CBN-LRF 2020-010060	6	50		4	26,600	6.21	6.43	6.66	6.90	7.46								
CBN-LRF 2020-010080	8	50		4	28,150	8.28	8.57	8.87	9.20	9.95								
CBN-LRF 2020-010100	10	50		4	29,700	10.35	10.70	11.09	11.50	12.43								
CBN-LRF 2020-020040	RO.2	4		50	4	26,600	4.14	4.28	4.43	4.59	4.95							
CBN-LRF 2020-020060		6		50	4	26,600	6.21	6.42	6.65	6.89	7.44							
CBN-LRF 2020-020080		8	50	4	28,150	8.28	8.56	8.86	9.19	9.92								
CBN-LRF 2020-020100		10	50	4	29,700	10.34	10.70	11.08	11.49	12.41								
CBN-LRF 2020-050040	RO.5	4	50	4	26,600	4.13	4.26	4.40	4.55	4.88								
CBN-LRF 2020-050060		6	50	4	26,600	6.20	6.40	6.61	6.85	7.37								
CBN-LRF 2020-050080		8	50	4	28,150	8.27	8.54	8.83	9.15	9.85								
CBN-LRF 2020-050100		10	50	4	29,700	10.33	10.68	11.05	11.45	12.34								
※ CBN-LRF 2030-005060		3	RO.05	6	0.7	2.94	15°	50	6	34,410	6.27	6.49	6.72	6.98	7.54			
※ CBN-LRF 2030-010060	RO.1		6	50				6	34,410	6.27	6.49	6.72	6.97	7.53				
※ CBN-LRF 2030-020060	RO.2		6	50				6	34,410	6.27	6.48	6.71	6.95	7.51				
※ CBN-LRF 2030-050060	RO.5		6	50				6	34,410	6.26	6.46	6.68	6.91	7.44				

※ Additional model



2 Flutes CBN Long Neck Radius End Mills

Milling Conditions for CBN-LRF (2 Flutes)

WORK MATERIAL				HEAT-TREATED STEELS / HARDENED STEELS STAVAX (~52HRC)				HARDENED STEELS SKD11 (~62HRC)				HARDENED STEELS HAP10 / HAP72 (~68HRC)			
Model Number	Outside Diameter (mm)	Corner Radius (mm)	Effective Length (mm)	Spindle Speed (min ⁻¹)	Feed Rate (mm/min)	a _p Axial Depth (mm)	a _e Radial Depth (mm)	Spindle Speed (min ⁻¹)	Feed Rate (mm/min)	a _p Axial Depth (mm)	a _e Radial Depth (mm)	Spindle Speed (min ⁻¹)	Feed Rate (mm/min)	a _p Axial Depth (mm)	a _e Radial Depth (mm)
2001-002002	0.1	R0.02	0.2	30,000	90	0.002	0.01	30,000	60	0.002	0.01	30,000	30	0.002	0.005
2001-002003			0.3	30,000	90	0.002	0.01	30,000	60	0.002	0.01	30,000	30	0.002	0.005
2001-002005			0.5	30,000	90	0.002	0.01	30,000	60	0.002	0.01	30,000	30	0.002	0.005
2001-003002		R0.03	0.2	30,000	90	0.002	0.01	30,000	60	0.002	0.01	30,000	30	0.002	0.005
2001-003003			0.3	30,000	90	0.002	0.01	30,000	60	0.002	0.01	30,000	30	0.002	0.005
2001-003005			0.5	30,000	90	0.002	0.01	30,000	60	0.002	0.01	30,000	30	0.002	0.005
20015-002X2	0.15	R0.02	0.2	30,000	120	0.003	0.015	30,000	90	0.003	0.015	30,000	60	0.002	0.01
20015-002X3			0.3	30,000	120	0.003	0.015	30,000	90	0.003	0.015	30,000	60	0.002	0.01
20015-002X5			0.5	30,000	120	0.003	0.015	30,000	90	0.003	0.015	30,000	60	0.002	0.01
20015-003X2		R0.03	0.2	30,000	120	0.003	0.015	30,000	90	0.003	0.015	30,000	60	0.002	0.01
20015-003X3			0.3	30,000	120	0.003	0.015	30,000	90	0.003	0.015	30,000	60	0.002	0.01
20015-003X5			0.5	30,000	120	0.003	0.015	30,000	90	0.003	0.015	30,000	60	0.002	0.01
2002-002005	0.2	R0.02	0.5	30,000	140	0.003	0.02	30,000	120	0.003	0.02	30,000	80	0.003	0.01
2002-002X75			0.75	30,000	140	0.003	0.02	30,000	120	0.003	0.02	30,000	80	0.003	0.01
2002-002010			1	30,000	140	0.003	0.02	30,000	120	0.003	0.02	30,000	80	0.003	0.01
2002-003005		R0.03	0.5	30,000	140	0.003	0.02	30,000	120	0.003	0.02	30,000	80	0.003	0.01
2002-003X75			0.75	30,000	140	0.003	0.02	30,000	120	0.003	0.02	30,000	80	0.003	0.01
2002-003010			1	30,000	140	0.003	0.02	30,000	120	0.003	0.02	30,000	80	0.003	0.01
2002-005005	R0.05	0.5	30,000	140	0.003	0.02	30,000	120	0.003	0.02	30,000	80	0.003	0.01	
2002-005X75		0.75	30,000	140	0.003	0.02	30,000	120	0.003	0.02	30,000	80	0.003	0.01	
2002-005010		1	30,000	140	0.003	0.02	30,000	120	0.003	0.02	30,000	80	0.003	0.01	
20025-005X5	0.25	R0.05	0.5	30,000	190	0.004	0.03	30,000	170	0.004	0.03	30,000	140	0.003	0.015
20025-X5X75			0.75	30,000	190	0.004	0.03	30,000	170	0.004	0.03	30,000	140	0.003	0.015
20025-X5010			1	30,000	190	0.004	0.03	30,000	170	0.004	0.03	30,000	140	0.003	0.015
2003-001010	0.3	R0.01	1	30,000	185	0.003	0.045	30,000	160	0.003	0.045	30,000	120	0.003	0.02
2003-002005		R0.02	0.5	30,000	185	0.003	0.045	30,000	160	0.003	0.045	30,000	120	0.003	0.02
2003-002X75			0.75	30,000	185	0.003	0.045	30,000	160	0.003	0.045	30,000	120	0.003	0.02
2003-002010			1	30,000	185	0.003	0.045	30,000	160	0.003	0.045	30,000	120	0.003	0.02
2003-002015		R0.03	1.5	30,000	185	0.003	0.045	30,000	160	0.003	0.045	30,000	120	0.003	0.02
2003-002020			2	30,000	130	0.003	0.022	30,000	110	0.003	0.022	30,000	80	0.003	0.01
2003-003005			0.5	30,000	200	0.004	0.045	30,000	175	0.004	0.045	30,000	150	0.003	0.02
2003-003X75		R0.05	0.75	30,000	200	0.004	0.045	30,000	175	0.004	0.045	30,000	150	0.003	0.02
2003-003010			1	30,000	200	0.004	0.045	30,000	175	0.004	0.045	30,000	150	0.003	0.02
2003-003015			1.5	30,000	200	0.004	0.045	30,000	175	0.004	0.045	30,000	150	0.003	0.02
2003-003020		2	30,000	140	0.004	0.022	30,000	120	0.004	0.022	30,000	110	0.003	0.01	
2003-005005		R0.05	0.5	30,000	240	0.005	0.045	30,000	225	0.005	0.045	30,000	210	0.004	0.02
2003-005X75	0.75		30,000	240	0.005	0.045	30,000	225	0.005	0.045	30,000	210	0.004	0.02	
2003-005010	1		30,000	240	0.005	0.045	30,000	225	0.005	0.045	30,000	210	0.004	0.02	
2003-005015	1.5		30,000	240	0.005	0.045	30,000	225	0.005	0.045	30,000	210	0.004	0.02	
2003-005020		2	30,000	170	0.005	0.022	30,000	160	0.005	0.022	30,000	150	0.004	0.01	

- φ3mm Shark V Series
- UDC-PCD Series
- CBN Series**
- Square
- Long Neck Square
- Radius
- Long Neck Radius
- Taper Neck Radius
- Ball / Long Shark Ball
- Long Neck Ball
- Taper Neck Ball
- Taper
- Barrel
- Spiral V Cutter
- Drill
- Technical Data

Milling Conditions for CBN-LRF (2 Flutes)

WORK MATERIAL				HEAT-TREATED STEELS / HARDENED STEELS STAVAX (~52HRC)				HARDENED STEELS SKD11 (~62HRC)				HARDENED STEELS HAP10 / HAP72 (~68HRC)				
Model Number	Outside Diameter (mm)	Corner Radius (mm)	Effective Length (mm)	Spindle Speed (min ⁻¹)	Feed Rate (mm/min)	a _p Axial Depth (mm)	a _e Radial Depth (mm)	Spindle Speed (min ⁻¹)	Feed Rate (mm/min)	a _p Axial Depth (mm)	a _e Radial Depth (mm)	Spindle Speed (min ⁻¹)	Feed Rate (mm/min)	a _p Axial Depth (mm)	a _e Radial Depth (mm)	
2004-002005	0.4	R0.02	0.5	30,000	230	0.005	0.065	30,000	200	0.005	0.065	30,000	160	0.004	0.02	
2004-002010			1	30,000	230	0.005	0.065	30,000	200	0.005	0.065	30,000	160	0.004	0.02	
2004-002015			1.5	30,000	230	0.005	0.065	30,000	200	0.005	0.065	30,000	160	0.004	0.02	
2004-002020			2	30,000	230	0.005	0.065	30,000	200	0.005	0.065	30,000	160	0.004	0.02	
2004-003005		R0.03	0.5	30,000	270	0.006	0.065	30,000	230	0.006	0.065	30,000	180	0.004	0.02	
2004-003010			1	30,000	270	0.006	0.065	30,000	230	0.006	0.065	30,000	180	0.004	0.02	
2004-003015			1.5	30,000	270	0.006	0.065	30,000	230	0.006	0.065	30,000	180	0.004	0.02	
2004-005005		R0.05	0.5	30,000	340	0.01	0.065	30,000	300	0.01	0.065	30,000	220	0.005	0.02	
2004-005010			1	30,000	340	0.01	0.065	30,000	300	0.01	0.065	30,000	220	0.005	0.02	
2004-005015			1.5	30,000	340	0.01	0.065	30,000	300	0.01	0.065	30,000	220	0.005	0.02	
2004-005020			2	30,000	340	0.01	0.065	30,000	300	0.01	0.065	30,000	220	0.005	0.02	
2004-005040		4	30,000	170	0.01	0.032	30,000	150	0.01	0.032	30,000	110	0.005	0.01		
2004-010005		R0.1	0.5	30,000	520	0.01	0.065	30,000	450	0.01	0.065	30,000	320	0.005	0.02	
2004-010010			1	30,000	520	0.01	0.065	30,000	450	0.01	0.065	30,000	320	0.005	0.02	
2004-010015			1.5	30,000	520	0.01	0.065	30,000	450	0.01	0.065	30,000	320	0.005	0.02	
2005-001010		0.5	R0.01	1	30,000	280	0.003	0.09	30,000	240	0.003	0.09	30,000	200	0.003	0.03
2005-002005			R0.02	0.5	30,000	280	0.005	0.09	30,000	240	0.005	0.09	30,000	200	0.005	0.03
2005-002010				1	30,000	280	0.005	0.09	30,000	240	0.005	0.09	30,000	200	0.005	0.03
2005-002015				1.5	30,000	280	0.005	0.09	30,000	240	0.005	0.09	30,000	200	0.005	0.03
2005-002020				2	30,000	280	0.005	0.09	30,000	240	0.005	0.09	30,000	200	0.005	0.03
2005-003005	R0.03		0.5	30,000	330	0.006	0.09	30,000	280	0.006	0.09	30,000	230	0.005	0.03	
2005-003010			1	30,000	330	0.006	0.09	30,000	280	0.006	0.09	30,000	230	0.005	0.03	
2005-003015			1.5	30,000	330	0.006	0.09	30,000	280	0.006	0.09	30,000	230	0.005	0.03	
2005-003020	2		30,000	330	0.006	0.09	30,000	280	0.006	0.09	30,000	230	0.005	0.03		
2005-005005	R0.05		0.5	30,000	440	0.01	0.09	30,000	380	0.01	0.09	30,000	280	0.01	0.03	
2005-005010			1	30,000	440	0.01	0.09	30,000	380	0.01	0.09	30,000	280	0.01	0.03	
2005-005015			1.5	30,000	440	0.01	0.09	30,000	380	0.01	0.09	30,000	280	0.01	0.03	
2005-005020			2	30,000	440	0.01	0.09	30,000	380	0.01	0.09	30,000	280	0.01	0.03	
2005-010005	R0.1		0.5	30,000	700	0.02	0.09	30,000	600	0.02	0.09	30,000	410	0.01	0.03	
2005-010010			1	30,000	700	0.02	0.09	30,000	600	0.02	0.09	30,000	410	0.01	0.03	
2005-010015			1.5	30,000	700	0.02	0.09	30,000	600	0.02	0.09	30,000	410	0.01	0.03	
2005-010020			2	30,000	700	0.02	0.09	30,000	600	0.02	0.09	30,000	410	0.01	0.03	
2006-002005	0.6		R0.02	0.5	30,000	320	0.005	0.11	30,000	270	0.005	0.11	30,000	240	0.005	0.035
2006-002010				1	30,000	320	0.005	0.11	30,000	270	0.005	0.11	30,000	240	0.005	0.035
2006-002015				1.5	30,000	320	0.005	0.11	30,000	270	0.005	0.11	30,000	240	0.005	0.035
2006-005005		R0.05	0.5	30,000	500	0.01	0.11	30,000	430	0.01	0.11	30,000	340	0.01	0.035	
2006-005010			1	30,000	500	0.01	0.11	30,000	430	0.01	0.11	30,000	340	0.01	0.035	
2006-005015			1.5	30,000	500	0.01	0.11	30,000	430	0.01	0.11	30,000	340	0.01	0.035	
2006-005030		3	30,000	500	0.01	0.11	30,000	430	0.01	0.11	30,000	340	0.01	0.035		
2006-010005		R0.1	0.5	30,000	800	0.02	0.11	30,000	675	0.02	0.11	30,000	492	0.01	0.035	
2006-010010			1	30,000	800	0.02	0.11	30,000	675	0.02	0.11	30,000	492	0.01	0.035	
2006-010015			1.5	30,000	800	0.02	0.11	30,000	675	0.02	0.11	30,000	492	0.01	0.035	

φ3mm Shank
V Series

UDC-PCD
Series

CBN
Series

Square
Square
Long Neck
Square

Radius
Radius
Long Neck
Radius
Taper Neck
Radius

Ball / Long
Shank Ball
Ball
Long Neck
Ball
Taper Neck
Ball

Taper
Taper

Barrel

Spiral
V Cutter

Drill

Technical Data

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2 Flutes CBN Long Neck Radius End Mills

Milling Conditions for CBN-LRF (2 Flutes)

WORK MATERIAL				HEAT-TREATED STEELS / HARDENED STEELS STAVAX (~52HRC)				HARDENED STEELS SKD11 (~62HRC)				HARDENED STEELS HAP10 / HAP72 (~68HRC)				
Model Number	Outside Diameter (mm)	Corner Radius (mm)	Effective Length (mm)	Spindle Speed (min ⁻¹)	Feed Rate (mm/min)	a _p Axial Depth (mm)	a _e Radial Depth (mm)	Spindle Speed (min ⁻¹)	Feed Rate (mm/min)	a _p Axial Depth (mm)	a _e Radial Depth (mm)	Spindle Speed (min ⁻¹)	Feed Rate (mm/min)	a _p Axial Depth (mm)	a _e Radial Depth (mm)	
2008-002010	0.8	R0.02	1	30,000	410	0.005	0.16	30,000	350	0.005	0.16	30,000	320	0.005	0.04	
2008-002015			1.5	30,000	410	0.005	0.16	30,000	350	0.005	0.16	30,000	320	0.005	0.04	
2008-002020			2	30,000	410	0.005	0.16	30,000	350	0.005	0.16	30,000	320	0.005	0.04	
2008-002050			5	30,000	290	0.005	0.08	30,000	250	0.005	0.08	30,000	220	0.005	0.02	
2008-005010			R0.05	1	30,000	600	0.01	0.16	30,000	510	0.01	0.16	30,000	450	0.01	0.04
2008-005015		1.5		30,000	600	0.01	0.16	30,000	510	0.01	0.16	30,000	450	0.01	0.04	
2008-005020		2		30,000	600	0.01	0.16	30,000	510	0.01	0.16	30,000	450	0.01	0.04	
2008-005050		5		30,000	420	0.01	0.08	30,000	360	0.01	0.08	30,000	320	0.01	0.02	
2008-010010		R0.1		1	30,000	920	0.02	0.16	30,000	790	0.02	0.16	30,000	560	0.01	0.04
2008-010015			1.5	30,000	920	0.02	0.16	30,000	790	0.02	0.16	30,000	560	0.01	0.04	
2008-010020			2	30,000	920	0.02	0.16	30,000	790	0.02	0.16	30,000	560	0.01	0.04	
2008-010050			5	30,000	640	0.02	0.08	30,000	550	0.02	0.08	30,000	390	0.01	0.02	
2010-002010			1	R0.02	1	30,000	500	0.005	0.2	30,000	430	0.005	0.2	30,000	400	0.005
2010-002020		2			30,000	500	0.005	0.2	30,000	430	0.005	0.2	30,000	400	0.005	0.05
2010-002030		3			30,000	500	0.005	0.2	30,000	430	0.005	0.2	30,000	400	0.005	0.05
2010-002050	5	30,000			500	0.005	0.2	30,000	430	0.005	0.2	30,000	400	0.005	0.05	
2010-005010	R0.05	1			30,000	700	0.01	0.2	30,000	600	0.01	0.2	30,000	500	0.01	0.05
2010-005020		2		30,000	700	0.01	0.2	30,000	600	0.01	0.2	30,000	500	0.01	0.05	
2010-005030		3		30,000	700	0.01	0.2	30,000	600	0.01	0.2	30,000	500	0.01	0.05	
2010-005050		5		30,000	700	0.01	0.2	30,000	600	0.01	0.2	30,000	500	0.01	0.05	
2010-010010		R0.1		1	30,000	1,000	0.02	0.2	30,000	850	0.02	0.2	30,000	600	0.01	0.05
2010-010020	2			30,000	1,000	0.02	0.2	30,000	850	0.02	0.2	30,000	600	0.01	0.05	
2010-010030	3			30,000	1,000	0.02	0.2	30,000	850	0.02	0.2	30,000	600	0.01	0.05	
2010-010050	5			30,000	1,000	0.02	0.2	30,000	850	0.02	0.2	30,000	600	0.01	0.05	
2010-020010	R0.2			1	30,000	1,600	0.04	0.2	30,000	1,350	0.04	0.2	30,000	850	0.01	0.05
2010-020020		2		30,000	1,600	0.04	0.2	30,000	1,350	0.04	0.2	30,000	850	0.01	0.05	
2015-002030		R0.02		3	27,000	800	0.005	0.3	27,000	680	0.005	0.3	20,000	470	0.005	0.23
2015-002040			4	27,000	800	0.005	0.3	27,000	680	0.005	0.3	20,000	470	0.005	0.23	
2015-002060			6	27,000	800	0.005	0.3	27,000	680	0.005	0.3	20,000	470	0.005	0.23	
2015-005030	R0.05		3	27,000	1,200	0.01	0.3	27,000	1,000	0.01	0.3	20,000	520	0.01	0.23	
2015-005040			4	27,000	1,200	0.01	0.3	27,000	1,000	0.01	0.3	20,000	520	0.01	0.23	
2015-005060		6	27,000	1,200	0.01	0.3	27,000	1,000	0.01	0.3	20,000	520	0.01	0.23		
2015-010030		R0.1	3	27,000	1,500	0.02	0.3	27,000	1,300	0.02	0.3	20,000	600	0.01	0.23	
2015-010040			4	27,000	1,500	0.02	0.3	27,000	1,300	0.02	0.3	20,000	600	0.01	0.23	
2015-010060	6		27,000	1,500	0.02	0.3	27,000	1,300	0.02	0.3	20,000	600	0.01	0.23		
2015-030045	R0.3		4.5	27,000	1,800	0.06	0.3	27,000	1,500	0.06	0.3	25,000	930	0.01	0.23	

- φ3mm Shank V Series
- UDC-PCD Series
- CBN Series**
- Square
- Long Neck Square
- Radius
- Long Neck Radius
- Taper Neck Radius
- Ball / Long Shank Ball
- Long Neck Ball
- Taper Neck Ball
- Taper
- Barrel
- Spiral V Cutter
- Drill
- Technical Data

Milling Conditions for CBN-LRF (2 Flutes)

WORK MATERIAL			HEAT-TREATED STEELS / HARDENED STEELS STAVAX (~52HRC)				HARDENED STEELS SKD11 (~62HRC)				HARDENED STEELS HAP10 / HAP72 (~68HRC)				
Model Number	Outside Diameter (mm)	Corner Radius (mm)	Effective Length (mm)	Spindle Speed (min ⁻¹)	Feed Rate (mm/min)	a_p Axial Depth (mm)	a_e Radial Depth (mm)	Spindle Speed (min ⁻¹)	Feed Rate (mm/min)	a_p Axial Depth (mm)	a_e Radial Depth (mm)	Spindle Speed (min ⁻¹)	Feed Rate (mm/min)	a_p Axial Depth (mm)	a_e Radial Depth (mm)
2020-002040	2	R0.02	4	24,000	1,000	0.005	0.4	24,000	850	0.005	0.4	16,000	530	0.005	0.4
2020-002060			6	24,000	1,000	0.005	0.4	24,000	850	0.005	0.4	16,000	530	0.005	0.4
2020-002080			8	24,000	1,000	0.005	0.4	24,000	850	0.005	0.4	16,000	530	0.005	0.4
2020-002100			10	24,000	1,000	0.005	0.4	24,000	850	0.005	0.4	16,000	530	0.005	0.4
2020-003030		R0.03	3	24,000	1,000	0.006	0.4	24,000	850	0.006	0.4	16,000	550	0.005	0.4
2020-005040		R0.05	4	24,000	1,500	0.01	0.4	24,000	1,300	0.01	0.4	16,500	600	0.01	0.4
2020-005060			6	24,000	1,500	0.01	0.4	24,000	1,300	0.01	0.4	16,500	600	0.01	0.4
2020-005080			8	24,000	1,500	0.01	0.4	24,000	1,300	0.01	0.4	16,500	600	0.01	0.35
2020-005100		10	24,000	1,500	0.01	0.4	24,000	1,300	0.01	0.4	16,500	600	0.01	0.3	
2020-010040		R0.1	4	24,000	2,000	0.02	0.4	24,000	1,700	0.02	0.4	17,000	700	0.01	0.4
2020-010060			6	24,000	2,000	0.02	0.4	24,000	1,700	0.02	0.4	17,000	700	0.01	0.4
2020-010080			8	24,000	2,000	0.02	0.4	24,000	1,700	0.02	0.4	17,000	700	0.01	0.35
2020-010100		10	24,000	2,000	0.02	0.4	24,000	1,700	0.02	0.4	17,000	700	0.01	0.3	
2020-020040		R0.2	4	24,000	2,000	0.04	0.4	24,000	1,700	0.04	0.4	17,700	770	0.01	0.4
2020-020060			6	24,000	2,000	0.04	0.4	24,000	1,700	0.04	0.4	17,700	770	0.01	0.4
2020-020080			8	24,000	2,000	0.03	0.4	24,000	1,700	0.03	0.4	17,700	770	0.01	0.35
2020-020100			10	24,000	2,000	0.025	0.4	24,000	1,700	0.025	0.4	17,700	770	0.01	0.3
2020-050040		R0.5	4	24,000	2,000	0.1	0.4	24,000	1,700	0.1	0.4	20,000	1,000	0.01	0.4
2020-050060			6	24,000	2,000	0.1	0.4	24,000	1,700	0.1	0.4	20,000	1,000	0.01	0.4
2020-050080			8	24,000	2,000	0.075	0.4	24,000	1,700	0.075	0.4	20,000	1,000	0.01	0.35
2020-050100	10		24,000	2,000	0.05	0.4	24,000	1,700	0.05	0.4	20,000	1,000	0.01	0.3	
2030-005060	3	R0.05	6	20,000	1,500	0.02	0.6	20,000	1,300	0.02	0.6	13,500	600	0.015	0.6
2030-010060		R0.1	6	20,000	2,000	0.04	0.6	20,000	1,700	0.04	0.6	14,000	700	0.02	0.6
2030-020060		R0.2	6	20,000	2,000	0.06	0.6	20,000	1,700	0.06	0.6	14,500	770	0.02	0.6
2030-050060		R0.5	6	20,000	2,000	0.12	0.6	20,000	1,700	0.12	0.6	16,500	1,000	0.02	0.6

Note:

- Decrease both spindle speed and feed rate proportionally when the milling parameters exceed the machine's maximum spindle speed.
- Recommend oil mist to avoid tool damage.

