Size φ0.3～φ1

CBN-LR

cBN | 0° | R | ±0.003 R CR0.02 | ±0.005 R CR0.05 | Shank Dia 0/-0.005

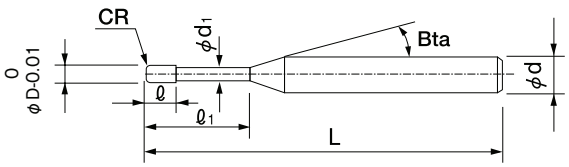
Material Applications（☆ Highly Recommended ◎ Recommended ○ Suggested）

Work Material														
Carbon Steels S45C S55C	Alloy Steels SK / SCM SUS	Prehardened Steels NAK HPM	Hardened Steels ～55HRC	Hardened Steels ～60HRC	Hardened Steels ～70HRC	Cast Iron	Aluminum Alloys	Graphite	Copper	Plastics	Glass Filled Plastics	Titanium Alloys	Heat Resistant Alloys	Cemented Carbide	Hard Brittle (Non-Metallic) Materials
		○	◎	◎	◎ ～68HRC										

Features

cBN material offers better surface finish and longer tool life on ultra hard materials in comparison to solid carbide tools.

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



#004 φD0.997 R0.000/−0.001

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

Total 24 models

Unit（mm）

Model Number	Outside Diameter φD	Corner Radius CR	Effective Length ℓ1	Length of Cut ℓ	Neck Diameter φd1	Shank Taper Angle Bta	Overall Length L	Shank Diameter φd	Price ¥
CBN-LR 2003-002-005	0.3	R0.02	0.5	0.13	0.27	11°	45	4	38,100
CBN-LR 2003-002-010			1						38,500
CBN-LR 2003-005-005		R0.05	0.5						38,100
CBN-LR 2003-005-010			1						38,500
CBN-LR 2004-002-010	0.4	R0.02	1	0.24	0.37				34,300
CBN-LR 2004-002-015			1.5						34,600
CBN-LR 2004-005-010		R0.05	1						34,300
CBN-LR 2004-005-015			1.5						34,600
CBN-LR 2005-002-010	0.5	R0.02	1	0.3	0.47				34,300
CBN-LR 2005-002-015			1.5						34,600
CBN-LR 2005-005-010		R0.05	1						34,300
CBN-LR 2005-005-015			1.5						34,600
CBN-LR 2006-002-010	0.6	R0.02	1		0.57				34,300
CBN-LR 2006-002-015			1.5						34,600
CBN-LR 2006-005-010		R0.05	1						34,300
CBN-LR 2006-005-015			1.5						34,600
CBN-LR 2008-002-010	0.8	R0.02	1	0.56	0.77				32,300
CBN-LR 2008-002-020			2						32,500
CBN-LR 2008-005-010		R0.05	1						32,300
CBN-LR 2008-005-020			2						32,500
CBN-LR 2010-002-010	1	R0.02	1	0.7	0.96				31,400
CBN-LR 2010-002-020			2						31,700
CBN-LR 2010-005-010		R0.05	1						31,400
CBN-LR 2010-005-020			2						31,700

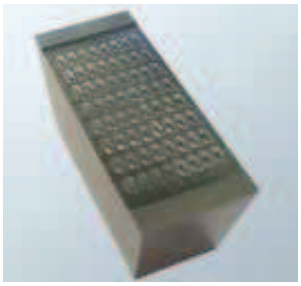
Milling Conditions for CBN-LR

Work Material	PREHARDENED STEELS/HARDENED STEELS NAK80 / STAVAX / ELMAX(~62HRC)				HARDENED STEELS YXR7(~68HRC)			
Outside Diameter	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)
0.3	50,000	400	0.003	0.05	50,000	200	0.003	0.03
0.4	50,000	450	0.007	0.12	40,000	240	0.007	0.08
0.5	40,000	500	0.012	0.2	32,000	300	0.012	0.15
0.6	40,000	600	0.012	0.24	26,600	310	0.012	0.2
0.8	37,500	720	0.012	0.32	20,000	330	0.012	0.3
1	30,000	900	0.012	0.4	16,000	350	0.012	0.4

Milling Example for CBN-LR

ELMAX(60HRC) LED Mold Milling

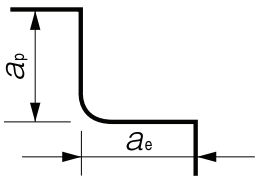
Tool	Milling Process	Spindle Speed (min^{-1})	Feed Rate (mm/min)	a_p Axial Depth (mm)	a_e Radial Depth (mm)	Coolant	Cycle Time
2005-005-015	Finishing	45,000	500	0.006	0	Oil Mist	1h24m40s
2010-002-020	Finishing	45,000	500	0.001	0	Oil Mist	1h10m56s



HPM31(61HRC) Slotting

Tool	Milling Process	Spindle Speed (min^{-1})	Feed Rate (mm/min)	a_p Axial Depth (mm)	a_e Radial Depth (mm)	Coolant	Cycle Time
2005-005-010	Finishing	30,000	440	0.015	0.005	Oil Mist	2h7m

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.



a_p : Axial Depth (mm)
a_e : Radial Depth (mm)