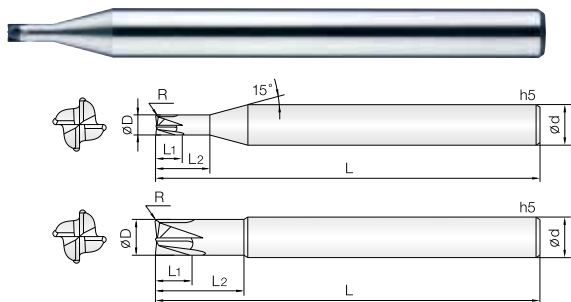


# 4SCCBN

CBN, 4 Flutes High Speed Straight Rib Corner Radius End Mills

## 4날 CBN 고속가공용 직선날 리브 코너 레디우스 엔드밀



- 고경도강(HRc50~72)의 고정밀(±5μm) 정삭 가공용 엔드밀
- 고품질의 PCBN 소재를 적용하여 장시간가공이 가능합니다.
- 날부 스트레이트 타입 형상으로 치핑을 더욱 최소화 하였습니다.
- 날부인선의 조도가 뛰어나 경면가공에 적합합니다.
- 오일미스트 사용을 권장하며, RPM 2만~5만 범위의 고속가공을 추천합니다
- C.B.N (Cubic Boron Nitride)

### • PCBN Endmills for precise finishing (±5μm) of hardened steels (HRc50~72)

- Long tool life by high content PCBN.
- Straight type Design for Minimizing edge chipping.
- Excellent surface finish.
- Recommend high speed (20,000~50,000RPM) with oil-mist.
- C.B.N (Cubic Boron Nitride)



D Size	D Tolerance
Ø 0.8 - 6	+0 - -0.01mm

단위 : mm

Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고	Order Number	날경 Diameter D×R	날장 Length of cut L1	유효장 Effective Length L2	전장 Overall Length L	샙크 Shank Dia d	비고
New 4SCCBN 008 001 006	0.8 X R0.1	0.6	-	48	4		New 4SCCBN 020 003 009	2 X R0.3	0.9	-	50	4	
4SCCBN 008 001 025	0.8 X R0.1	0.6	2.5	48	4		4SCCBN 020 003 030	2 X R0.3	0.9	3	50	4	
New 4SCCBN 008 002 006	0.8 X R0.2	0.6	-	48	4		4SCCBN 020 003 040	2 X R0.3	0.9	4	50	4	
4SCCBN 008 002 025	0.8 X R0.2	0.6	2.5	48	4		4SCCBN 020 003 060	2 X R0.3	0.9	6	50	4	
New 4SCCBN 010 0002 007	1 X R0.02	0.7	-	48	4		New 4SCCBN 020 005 009	2 X R0.5	0.9	-	50	4	
4SCCBN 010 0002 025	1 X R0.02	0.7	2.5	48	4		4SCCBN 020 005 030	2 X R0.5	0.9	3	50	4	
4SCCBN 010 0002 040	1 X R0.02	0.7	4	48	4		4SCCBN 020 005 040	2 X R0.5	0.9	4	50	4	
New 4SCCBN 010 0005 007	1 X R0.05	0.7	-	48	4		4SCCBN 020 005 060	2 X R0.5	0.9	6	50	4	
4SCCBN 010 0005 025	1 X R0.05	0.7	2.5	48	4		New 4SCCBN 025 001 012	2.5 X R0.1	1.2	-	66	6	
4SCCBN 010 0005 040	1 X R0.05	0.7	4	48	4		4SCCBN 025 001 060	2.5 X R0.1	1.2	6	66	6	
New 4SCCBN 010 001 007	1 X R0.1	0.7	-	48	4		New 4SCCBN 025 002 012	2.5 X R0.2	1.2	-	66	6	
4SCCBN 010 001 025	1 X R0.1	0.7	2.5	48	4		4SCCBN 025 002 060	2.5 X R0.2	1.2	6	66	6	
4SCCBN 010 001 040	1 X R0.1	0.7	4	48	4		New 4SCCBN 025 003 012	2.5 X R0.3	1.2	-	66	6	
New 4SCCBN 010 002 007	1 X R0.2	0.7	-	48	4		4SCCBN 025 003 060	2.5 X R0.3	1.2	6	66	6	
4SCCBN 010 002 025	1 X R0.2	0.7	2.5	48	4		New 4SCCBN 030 001 012	3 X R0.1	1.2	-	66	6	
4SCCBN 010 002 040	1 X R0.2	0.7	4	48	4		4SCCBN 030 001 060	3 X R0.1	1.2	6	66	6	
New 4SCCBN 010 003 007	1 X R0.3	0.7	-	48	4		4SCCBN 030 001 100	3 X R0.1	1.2	10	66	6	
4SCCBN 010 003 025	1 X R0.3	0.7	2.5	48	4		New 4SCCBN 030 002 012	3 X R0.2	1.2	-	66	6	
4SCCBN 010 003 040	1 X R0.3	0.7	4	48	4		4SCCBN 030 002 060	3 X R0.2	1.2	6	66	6	
New 4SCCBN 015 0002 008	1.5 X R0.02	0.8	-	48	4		4SCCBN 030 002 100	3 X R0.2	1.2	10	66	6	
4SCCBN 015 0002 030	1.5 X R0.02	0.8	3	48	4		New 4SCCBN 030 003 012	3 X R0.3	1.2	-	66	6	
4SCCBN 015 0002 040	1.5 X R0.02	0.8	4	48	4		4SCCBN 030 003 060	3 X R0.3	1.2	6	66	6	
New 4SCCBN 015 0005 008	1.5 X R0.05	0.8	-	48	4		4SCCBN 030 003 100	3 X R0.3	1.2	10	66	6	
4SCCBN 015 0005 030	1.5 X R0.05	0.8	3	48	4		New 4SCCBN 030 005 012	3 X R0.5	1.2	-	66	6	
4SCCBN 015 0005 040	1.5 X R0.05	0.8	4	48	4		4SCCBN 030 005 060	3 X R0.5	1.2	6	66	6	
New 4SCCBN 015 001 008	1.5 X R0.1	0.8	-	48	4		4SCCBN 030 005 100	3 X R0.5	1.2	10	66	6	
4SCCBN 015 001 030	1.5 X R0.1	0.8	3	48	4		4SCCBN 030 005 160	3 X R0.5	1.2	16	66	6	
4SCCBN 015 001 040	1.5 X R0.1	0.8	4	48	4		New 4SCCBN 030 010 012	3 X R1	1.2	-	66	6	
New 4SCCBN 015 002 008	1.5 X R0.2	0.8	-	48	4		4SCCBN 030 010 060	3 X R1	1.2	6	66	6	
4SCCBN 015 002 030	1.5 X R0.2	0.8	3	48	4		4SCCBN 030 010 100	3 X R1	1.2	10	66	6	
4SCCBN 015 002 040	1.5 X R0.2	0.8	4	48	4		4SCCBN 030 010 160	3 X R1	1.2	16	66	6	
New 4SCCBN 015 003 008	1.5 X R0.3	0.8	-	48	4		New 4SCCBN 040 001 015	4 X R0.1	1.5	-	66	6	
4SCCBN 015 003 030	1.5 X R0.3	0.8	3	48	4		4SCCBN 040 001 060	4 X R0.1	1.5	6	66	6	
4SCCBN 015 003 040	1.5 X R0.3	0.8	4	48	4		4SCCBN 040 001 100	4 X R0.1	1.5	10	66	6	
New 4SCCBN 020 0002 009	2 X R0.02	0.9	-	50	4		4SCCBN 040 001 160	4 X R0.1	1.5	16	66	6	
4SCCBN 020 0002 030	2 X R0.02	0.9	3	50	4		New 4SCCBN 040 002 015	4 X R0.2	1.5	-	66	6	
4SCCBN 020 0002 040	2 X R0.02	0.9	4	50	4		4SCCBN 040 002 060	4 X R0.2	1.5	6	66	6	
4SCCBN 020 0002 060	2 X R0.02	0.9	6	50	4		4SCCBN 040 002 100	4 X R0.2	1.5	10	66	6	
New 4SCCBN 020 0005 009	2 X R0.05	0.9	-	50	4		4SCCBN 040 002 160	4 X R0.2	1.5	16	66	6	
4SCCBN 020 0005 030	2 X R0.05	0.9	3	50	4		New 4SCCBN 040 003 015	4 X R0.3	1.5	-	66	6	
4SCCBN 020 0005 040	2 X R0.05	0.9	4	50	4		4SCCBN 040 003 060	4 X R0.3	1.5	6	66	6	
4SCCBN 020 0005 060	2 X R0.05	0.9	6	50	4		4SCCBN 040 003 100	4 X R0.3	1.5	10	66	6	
New 4SCCBN 020 001 009	2 X R0.1	0.9	-	50	4		4SCCBN 040 003 160	4 X R0.3	1.5	16	66	6	
4SCCBN 020 001 030	2 X R0.1	0.9	3	50	4		New 4SCCBN 040 005 015	4 X R0.5	1.5	-	66	6	
4SCCBN 020 001 040	2 X R0.1	0.9	4	50	4		4SCCBN 040 005 060	4 X R0.5	1.5	6	66	6	
4SCCBN 020 001 060	2 X R0.1	0.9	6	50	4		4SCCBN 040 005 100	4 X R0.5	1.5	10	66	6	
New 4SCCBN 020 002 009	2 X R0.2	0.9	-	50	4		4SCCBN 040 005 160	4 X R0.5	1.5	16	66	6	
4SCCBN 020 002 030	2 X R0.2	0.9	3	50	4		New 4SCCBN 040 010 015	4 X R1	1.5	-	66	6	
4SCCBN 020 002 040	2 X R0.2	0.9	4	50	4		4SCCBN 040 010 060	4 X R1	1.5	6	66	6	
4SCCBN 020 002 060	2 X R0.2	0.9	6	50	4		4SCCBN 040 010 100	4 X R1	1.5	10	66	6	



피삭재 Material		합금강/프리하드강 Alloy Steels / Pre-hardened Steels NAK80 / KP4M				고경도강 Hardened Steels STAVAX / SKD11				열처리 / 고경도강 Heat-treated steels / Hardened Steels YXR7 / SKH51			
경도 Hardness		40 ~ 45HRc				45 ~ 55HRc				55 ~ 62HRc			
외경 Outside Diameter	유효장 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
∅ 0.4	0.3	50,000	890	0.010	0.010	50,000	520	0.005	0.006	50,000	450	0.005	0.005
"	1	50,000	730	0.010	0.010	50,000	500	0.005	0.005	50,000	430	0.005	0.005
"	2	50,000	390	0.005	0.005	50,000	250	0.003	0.003	50,000	220	0.002	0.003
∅ 0.5	0.4	50,000	990	0.010	0.020	50,000	850	0.005	0.010	50,000	770	0.005	0.010
"	1	50,000	900	0.010	0.015	50,000	590	0.005	0.010	50,000	550	0.005	0.010
"	3	50,000	630	0.010	0.015	50,000	560	0.005	0.010	50,000	530	0.005	0.010
∅ 0.8	0.6	50,000	1,610	0.020	0.020	50,000	1,320	0.015	0.015	50,000	1,140	0.010	0.010
"	2	50,000	1,520	0.020	0.020	50,000	1,230	0.010	0.010	50,000	1,120	0.010	0.010
"	4	40,000	910	0.015	0.020	40,000	740	0.010	0.010	40,000	650	0.010	0.010
"	6	30,000	460	0.015	0.015	30,000	410	0.010	0.010	30,000	290	0.005	0.005
∅ 1	0.7	50,000	1,820	0.020	0.030	50,000	1,380	0.020	0.020	50,000	1,290	0.010	0.020
"	2	40,000	1,470	0.015	0.020	40,000	1,010	0.015	0.015	40,000	910	0.010	0.010
"	4	30,000	1,080	0.015	0.015	30,000	660	0.010	0.015	30,000	630	0.010	0.010
"	8	24,000	680	0.010	0.010	24,000	460	0.005	0.010	24,000	360	0.005	0.005
∅ 1.5	0.8	40,000	1,790	0.030	0.040	40,000	1,150	0.020	0.030	40,000	1,190	0.020	0.020
"	2	30,000	1,470	0.030	0.030	30,000	1,160	0.020	0.030	30,000	930	0.020	0.020
"	4	30,000	1,190	0.030	0.030	30,000	950	0.015	0.020	30,000	810	0.010	0.015
"	8	24,000	550	0.015	0.015	24,000	430	0.010	0.015	24,000	370	0.010	0.010
∅ 2	2	40,000	1,610	0.040	0.040	40,000	1,340	0.030	0.030	40,000	1,150	0.020	0.030
"	4	30,000	1,400	0.030	0.030	30,000	1,120	0.025	0.025	30,000	960	0.020	0.020
"	8	30,000	1,190	0.030	0.030	30,000	950	0.020	0.030	30,000	810	0.010	0.010
∅ 2.5	1.2	40,000	2,317	0.050	0.050	40,000	1,850	0.040	0.040	40,000	1,580	0.030	0.040
"	4	40,000	1,620	0.030	0.040	40,000	1,300	0.030	0.030	40,000	1,210	0.020	0.030
"	10	24,000	850	0.020	0.030	24,000	680	0.010	0.030	24,000	280	0.010	0.020
∅ 3	6	40,000	1,470	0.030	0.030	40,000	1,180	0.020	0.030	40,000	1,010	0.020	0.030
"	10	21,000	1,190	0.020	0.030	21,000	950	0.020	0.020	21,000	810	0.010	0.020
"	16	16,000	770	0.020	0.030	16,000	620	0.010	0.020	16,000	530	0.010	0.010
∅ 4	6	40,000	1,510	0.030	0.040	40,000	1,180	0.030	0.030	40,000	1,100	0.020	0.030
"	10	21,000	1,140	0.020	0.030	21,000	900	0.020	0.020	21,000	780	0.010	0.020
"	16	16,000	740	0.010	0.020	16,000	590	0.010	0.020	16,000	500	0.010	0.010
∅ 6		16,000~ 50,000	740~ 3,000	0.050	0.060	13,000~ 50,000	590~ 2,000	0.050	0.060	11,000~ 50,000	390~ 1,500	0.050	0.060

**절입량**  
Depth of Cut

• Ap : Axial Depth  
• Ae : Radial Depth

- HRC68 이상 고경도강 가공 시 같은 직경의 같은 비율로 20% DOWN 시켜주십시오.
- 유효장이 긴 경우에는 회전수와 이송속도를 최대30% 이하로 줄이십시오.
- 4날 사용시 Feed 20% 증가, 절입량을 5% 감소하여 사용 하십시오.
- 측면 절삭시 코너R 부분과 각도 내용을 참고하여 절삭 하시기 바랍니다.
- 곡면 절삭시 날경의 코너R 보다 낮은 이동 PITCH를 설정 하십시오.
- 곡면 절삭시 안정적인 속도 내에서 피드를 최대 30%까지 UP 해주십시오.
- 상기 절삭조건은 참고 수치이므로 실 가공시에는 가공형상, 가공 목적, 적용 기계 등에 따라 조건을 조정 하십시오.
- 절삭조건이 없는 유효장은 비슷한 유효장에 비례하여 사용 하십시오.
- 길이가 긴 엔드밀의 경우 떨림, 이상음이 발생할 경우에는 상기표의 회전속도와 이송속도를 같은 비율로 내려서 사용해 주십시오.
- In case machining Hardened steel HRC upper 68, reduce 20% of cutting parameter on the table.
- In case of long effective length, reduce the RPM and feed by 30% or less.
- For using 4 flutes, reduce the feed by 20% and the depth of cut by 5%.
- For side milling, refer to the corner R section and the angle.
- For curved milling, set up a pitch below than corner radius of the tool diameter.
- For curved milling, raise the feed upto 30% at a stable speed.
- Use this table for your reference. Adjust the parameters depending on your machining geometry, machining purpose and CNC.
- If there is no effective length of your endmill on the table, use a similar type of effective length and apply the same proportion.
- In case of long length endmill shaking or abnormal sound, lower the rotation speed and feed speed of the table above by the same ratio.