

High Speed

+ High Quality

+ High Efficiency

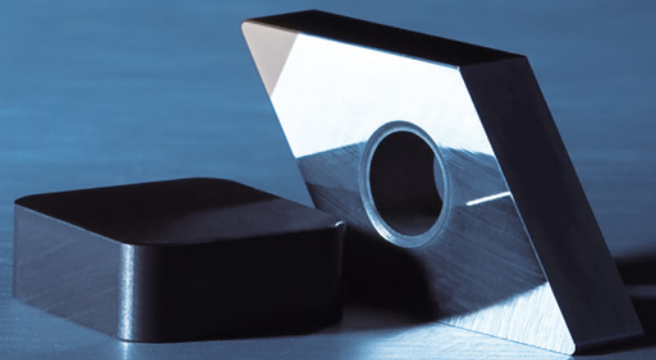
= Excellent Productivity!

CBN Inserts

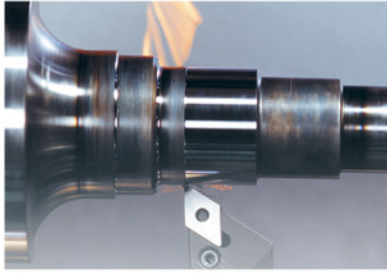
고경도 열처리강, 소결합금, 초합금 및 주철의 고속 가공을 위한 챔프다이아의 CBN 인서트를 만나 보십시오.

진공 Brazing에 의한 안정적인 접합강도와 균일한 인선처리, 엄격한 품질관리로 생산되는 챔프다이아 CBN인서트는 탁월한 절삭성과 향상된 수명으로 자동차 및 기계부품 가공시 치수 정밀도가 우수하며 뛰어난 면조도를 유지합니다.

Major application of CBN inserts are high speed machining of hardened steel, powdered metal, super-alloys and cast-irons. CBN inserts of CHAMP DIA produced through vacuum brazing technology, high precision edge preparation system and high level quality control will deliver the best performance with longer tool life as well as excellent productivity increase in various machining fields.

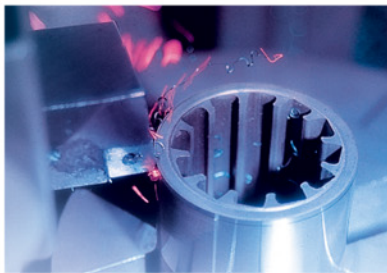


■ 인서트 재종 소개 CBN Grade Introduction



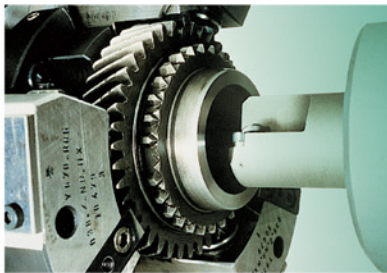
Grade HC | CBN500/ 510

- 저함량 CBN, 우수한 내화학적 마모성 보유
- 경화강 및 베어링강의 고속·연속·약한 단속 절삭
- 덕타일 주철의 연속 고속 절삭
- **Low content CBN, Excellent thermo-chemical wear resistance**
- High speed cut for hardened steel and bearing steel in continuous to light interrupted mode
- High speed cut for ductile cast iron in continuous mode



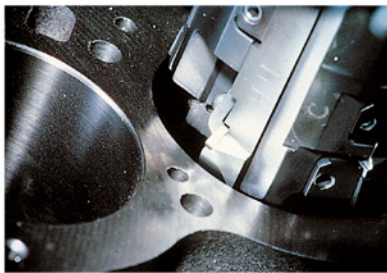
Grade HM | CBN450/ 550/ 650

- 저함량 CBN, 내열 화학적 마모성 및 적절한 인성 보유
- 경화강의 연속·강한 단속·황삭·정삭에 적합한 범용 재종
- 경화 합금강 및 공구강의 연속·약한 단속 절삭
- 덕타일 주철 및 주철의 단속 절삭
- **Low content CBN, Excellent thermo-chemical wear resistance with optimum toughness**
- General grade for hardened steels in continuous to interrupted mode
- Hardened alloy steel and tool steel in continuous to light interrupted mode
- Ductile cast iron and gray cast iron in interrupted cutting mode



Grade PM | CBN750

- 중함량 CBN, 적절한 내화학 및 기계적 마모성 보유
- 연질 소결합금의 연속·약한 단속 절삭
- 덕타일 주철의 연속·약한 단속 절삭
- **Medium content CBN, Optimum chemical and abrasion wear resistance**
- Soft powdered metal in continuous to light interrupted cutting mode
- Ductile cast iron in continuous to light interrupted cutting mode



Grade CM | CBN900/ 950


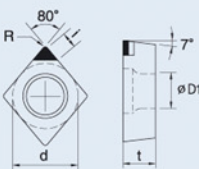
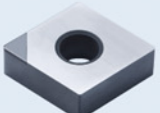
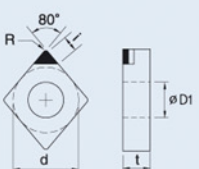

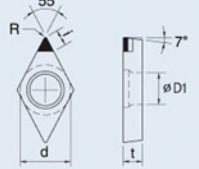
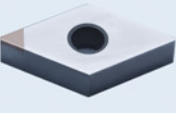
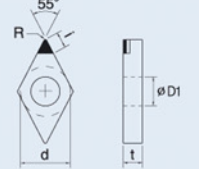
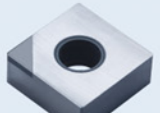
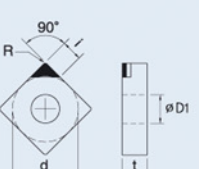
- 고탍량 CBN, 우수한 인성 및 내기계적 마모성 보유
- 주철의 선삭 및 밀링 절삭에서 우수한 성능
- 경질 소결합금의 연속·강한 단속 절삭
- 경화강 및 공구강의 단속 절삭
- 초경합금 절삭
- **High content CBN, Excellent fracture toughness and abrasion wear resistance**
- Outstanding performance in turning and milling of cast iron
- Hard powder metal in continuous to severe interruption.
- Hardened steel and tool steel in interrupted cutting mode
- Turning of tungsten carbide



Grade SM | CBN900S/ 950S

- 고탍량 Solid CBN, 우수한 내충격 강도 및 내기계적 마모성 보유
- 주철 및 고Cr 주강의 황삭·단속 절삭에서 우수한 성능
- 각 코너를 모두 사용할 수 있는 경제성
- **High content solid CBN, Outstanding fracture toughness and abrasion wear resistance**
- Best performance in roughing, severe interrupted mode of cast iron and high Cr steel
- Economical efficiency - multiple cutting corners

제품 규격 Specification

형상	제품 코드	규격 (mm)					CBN950S CBN900S	CBN950 CBN900	CBN750	CBN510 CBN500
Shape	ISO	i	d	$\phi D1$	t	R				
 	CCGW 060202 N	2.4	6.35	2.80	2.38	0.2			○	
	CCGW 060204 N	2.4	6.35	2.80	2.38	0.4			○	
	CCGW 09T304 N	2.4	9.52	4.40	3.97	0.4			●	
	CCGW 09T308 N	2.3	9.52	4.40	3.97	0.8			●	
	CCGW 120404 N	2.4	12.7	5.50	4.76	0.4			○	
	CCGW 120408 N	2.3	12.7	5.50	4.76	0.8			○	
 	CNGA 120404 N	2.4	12.7	5.16	4.76	0.4			●	
	CNGA 120404	4.2	12.7	5.16	4.76	0.4			●	
	CNGA 120408 N	2.3	12.7	5.16	4.76	0.8			●	
	CNGA 120408	4.1	12.7	5.16	4.76	0.8	●		●	
	CNGA 120412 N	2.2	12.7	5.16	4.76	1.2	●		○	
	CNGA 120412	4.0	12.7	5.16	4.76	1.2				
 	DCGW 070202 N	2.5	6.35	2.80	2.38	0.2			○	
	DCGW 070204 N	2.3	6.35	2.80	2.38	0.4			○	
	DCGW 11T302 N	2.5	9.52	4.40	3.97	0.4			○	
	DCGW 11T304 N	2.3	9.52	4.40	3.97	0.4			●	
	DCGW 11T308 N	2.0	9.52	4.40	3.97	0.8			●	
	 	DNGA 150404 N	2.3	12.7	5.16	4.76	0.4			○
DNGA 150404		4.4	12.7	5.16	4.76	0.4			○	
DNGA 150408 N		2.0	12.7	5.16	4.76	0.8			○	
DNGA 150408		4.1	12.7	5.16	4.76	0.8			○	
DNGA 150604 N		2.3	12.7	5.16	6.35	0.4			●	
DNGA 150604		4.4	12.7	5.16	6.35	0.4			●	
DNGA 150608 N		2.0	12.7	5.16	6.35	0.8			●	
DNGA 150608		4.1	12.7	5.16	6.35	0.8	●		●	
 	SNGA 120404 N	2.4	12.7	5.16	4.76	0.4			●	
	SNGA 120404	4.3	12.7	5.16	4.76	0.4			○	
	SNGA 120408 N	2.4	12.7	5.16	4.76	0.8			●	
	SNGA 120408	4.3	12.7	5.16	4.76	0.8	●		○	
	SNGA 120412 N	2.4	12.7	5.16	4.76	1.2			○	
	SNGA 120412	4.3	12.7	5.16	4.76	1.2	●		○	

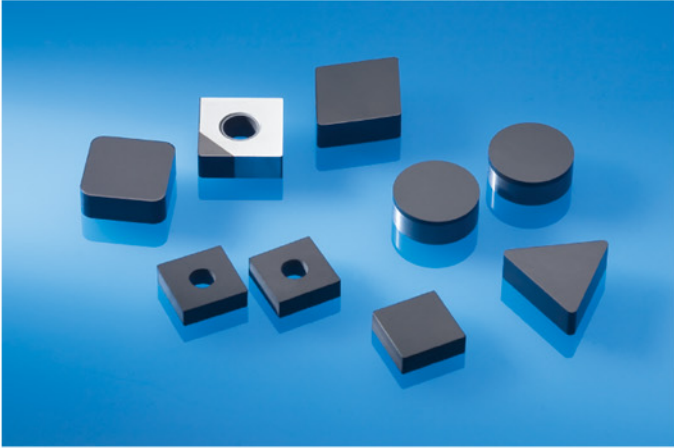
● : Stock / ○ : 표준관리(납기확인) / 무표시 No mark : Nomal type / N: One use type / N2, N3, N4... : Multi edge type

제품 규격 Specification

형상	제품 코드	규격 (mm)					CBN950S	CBN900S	CBN950	CBN900	CBN750	CBN510	CBN500
Shape	ISO	i	d	φD1	t	R							
	TCGW 110204 N	2.4	6.35	2.80	2.38	0.4						○	
	TCGW 110204	3.9	6.35	2.80	2.38	0.4							
	TCGW 110208 N	2.1	6.35	2.80	2.38	0.8						○	
	TCGW 16T304 N	2.4	9.52	4.40	3.97	0.4						○	
	TCGW 16T304	3.9	9.52	4.40	3.97	0.4							
	TCGW 16T308 N	2.1	9.52	4.40	3.97	0.8						○	
	TCGW 16T308	3.6	9.52	4.40	3.97	0.8							
	TNGA 160404 N	2.4	9.52	3.81	4.76	0.4						●	
	TNGA 160404	3.9	9.52	3.81	4.76	0.4						○	
	TNGA 160408 N	2.1	9.52	3.81	4.76	0.8						●	
	TNGA 160408	3.6	9.52	3.81	4.76	0.8						○	
	TPGN 110304 N	2.4	6.35	2.80	3.18	0.4						○	
	TPGN 110308 N	2.1	6.35	2.80	3.18	0.8						○	
	TPGN 160304 N	2.4	9.52	4.40	3.18	0.4						○	
	TPGN 160308 N	2.1	9.52	4.40	3.18	0.8						○	
	TPGW 110304 N	2.4	6.35	2.80	3.18	0.4						○	
	TPGW 110308 N	2.1	6.35	2.80	3.18	0.8						○	
	TPGW 160304 N	2.4	9.52	4.40	3.18	0.4						○	
	TPGW 160308 N	2.1	9.52	4.40	3.18	0.8						○	
	VBGW 160404 N	2.7	9.52	4.40	4.76	0.4						●	
	VBGW 160404	4.6	9.52	4.40	4.76	0.4						○	
	VBGW 160408 N	1.8	9.52	4.40	4.76	0.8						●	
	VBGW 160408	4.2	9.52	4.40	4.76	0.8						○	
	VNGA 160404 N	2.7	9.52	3.81	4.76	0.4						○	
	VNGA 160404	4.6	9.52	3.81	4.76	0.4							
	VNGA 160408 N	1.8	9.52	3.81	4.76	0.8						○	
	VNGA 160408	4.2	9.52	3.81	4.76	0.8							

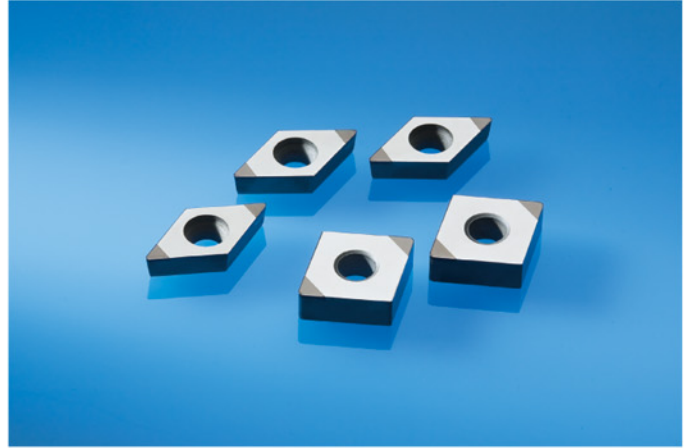
● : Stock / ○ : 표준관리(납기확인) / 무표시 No mark : Normal type / N: One use type / N2, N3, N4... : Multi edge type

특수규격 Order Made Tools



Solid CBN inserts

CNGN 1204, SNGN 1204, SNGN 1206, TNGN 1604, RNGN 0804, CNGA 1204, SNGA 1204



Multi edge inserts

CNGA 1204, DNGA 1506, SNGA 1204, TNGA 1604
One use / One edge or over 2 edge



Grooving inserts

Available groove width 1mm ~ 5mm (over 5mm - contact us)
Various shapes of valve seat machining tools for machining sintered alloy

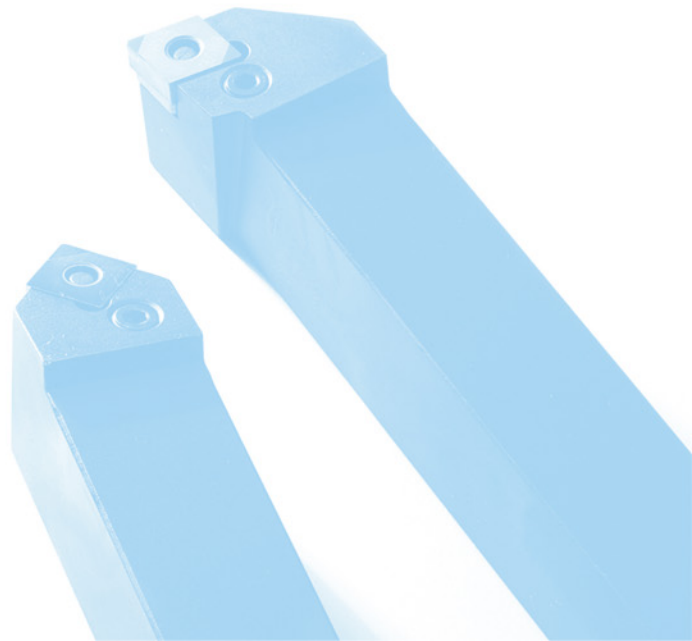


Milling inserts

General purpose milling inserts for cast iron.
SPCN 1203EDR, SDCN 42MT, SNCN 1204, etc...
Special wiper inserts
Automobile engine block top facing for excellent finish roughness



higher performance !
longer tool life !

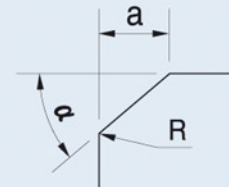


추천 절삭조건 Machining Parameter Guidelines

피삭재 Work Material	경도 Hardness	절삭 속도 V(m/min)	절삭 깊이 d (mm)	이송 f (mm/rev)	추천 재종 Recommendation
열처리강 Hardened Steel	> 55HRC	80 ~ 120	0.3 ~ 1.5	0.08 ~ 0.2	CBN500/510, CBN900
	< 55HRC	80 ~ 150	0.5 ~ 2.0	0.1 ~ 0.25	CBN500/510
회주철 Gray Cast Iron	180 ~ 230HB	500 ~ 1000	0.3 ~ 2.0	0.15 ~ 0.4	CBN750, CBN900
덕타일 주철 Ductile Cast Iron		200 ~ 700	0.3 ~ 2.0	0.1 ~ 0.4	CBN450
롤재 (칠드주철) Rolls (Chilled Cast Iron)	> 55HRC	80 ~ 120	0.3 ~ 2.0	0.1 ~ 0.3	CBN900
소결금속 Powdered Metal	< 35HRC	100 ~ 300	0.3 ~ 2.0	0.1 ~ 0.3	CBN500, CBN900
	> 35HRC	50 ~ 200	0.3 ~ 2.0	0.1 ~ 0.3	

인선처리 표준표 Edge Preparation

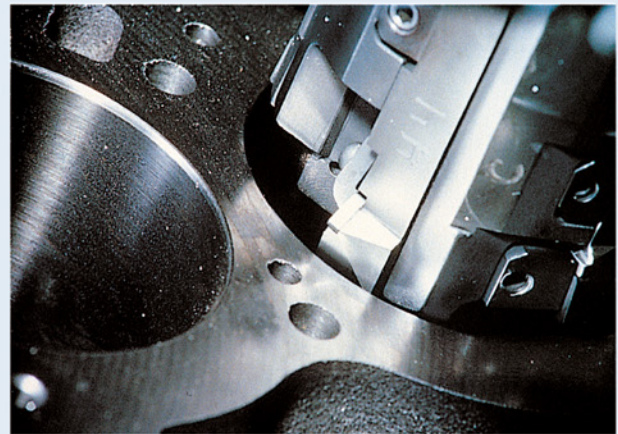
구분	랜드각 (α)	랜드폭 (a)	호닝량 (R)
강용 Steel	25°	0.1 ~ 0.2	0.01 ~ 0.02
주철용 Cast Iron	20°	0.1 ~ 0.5	< 0.01
단속 Interruption	30°	0.2	0.01 ~ 0.03



가공 사례 Application Cases



금형 Ball endmilling, 30~35 HRc.
25~30배의 공구 수명 증가 및 후가공 시간의 대폭 단축
Milling of die molds, 30~35 HRc
25~30 times longer tool life, significant reduction of hand finishing



주철재 Cylinder bore의 고속 가공, 750~1200 m/min
긴 공구 수명 및 생산성 향상, 정밀한 치수 공차 및 원통도 제공
High speed machining of gray cast iron cylinder bores 750-1200m/min
Longer tool life, increased productivity, better dimensional control and superior cylindricity



Side Shaft (HRc 58~62, 25Cr Mo4)의 외경 및 단면가공
절삭속도 138~145m/min로 타사대비 30% 수명 향상
O.D. face turning of side shaft / HRc 58-62, 25CrMo4
Turning speed 138-145m/min, 30% tool life increase over competitor