

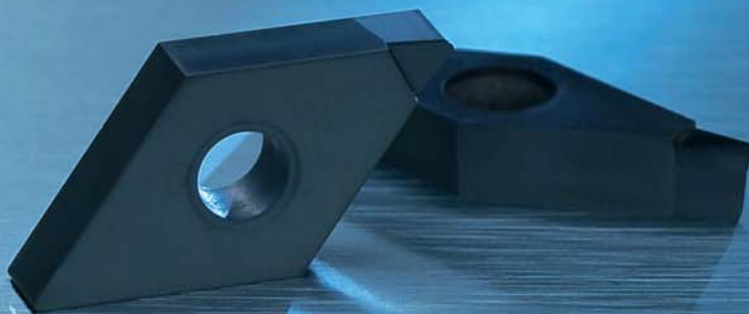
뛰어난 면조도와 탁월한 생산성!

Outstanding surface finishes and excellent productivity!

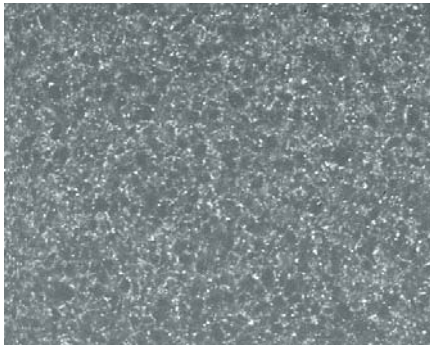
PCD Inserts

챔프다이아의 PCD 인서트는 최고의 내마모성 및 최적의 Finish 처리가 가능한 PCD 소재를 사용하여 진공Brazing 후 정밀가공으로 생산되며, 알루미늄·합금·동합금 등의 비철금속과 유리섬유·FRP 등 비금속의 가공에 최적의 성능을 발휘합니다. 20여년의 다이아몬드 정밀연삭 Know-how와 엄격한 품질관리 시스템(ISO 9001)은 최고의 표면조도를 위해 인선부의 미세 차핑 및 어떠한 결함도 허용하지 않습니다.

PCD inserts of CHAMP DIA use PCD blanks which has high abrasion resistance and surface finish, are produced via vacuum brazing technology and highly precise grinding system, are providing the best performance in machining of none ferrous materials, such as aluminum and copper alloys and none metallic materials such as fiberglass, FRP etc. Over the 20 years experiences and know-how in diamond tool fabrication and high level quality control system never allow even very small chippings on tool edge.



인서트 재종 소개 PCD Grade Introduction



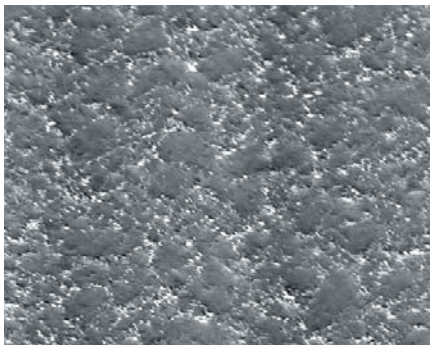
PCD-SF

- 뛰어난 표면 조도가 요구되는 가공 분야
- 알루미늄 합금 / 동합금 / 귀금속 / 목재 복합체 / 플라스틱류
- DIA 평균입도 1 μ m 이하
- **Excellent surface finishes for**
- Aluminum / Copper / Precious Metals / Wood Composites / Plastics
- DIA Average particle size <1 μ m



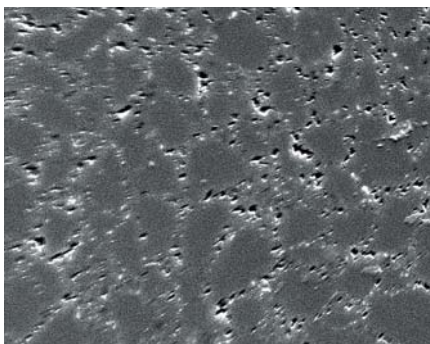
PCD-F

- 우수한 표면조도 및 내마모성이 요구되는 가공 분야
- 알루미늄 합금(14%이하 Si) / 동합금 / 흑연, 흑연 복합체
- 합성 목재 / 반소결 세라믹, 초경합금
- DIA 평균입도 5 μ m / 알루미늄, 동합금 소재의 가공에 일반적으로 적용
- **High abrasion resistance and fine surface finishes for**
- Aluminum Alloys (<14% Si) / Copper Alloys / Graphite and Graphite Composites
- Wood Composites / Green Ceramics and Carbides
- DIA Average particle size 5 μ m / General purpose machining for Aluminum and Copper Alloys



PCD-C

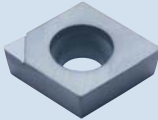
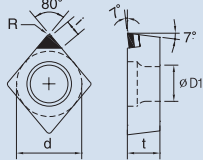
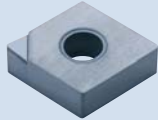
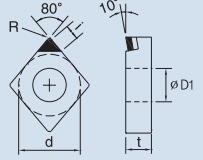
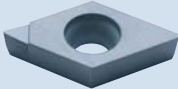
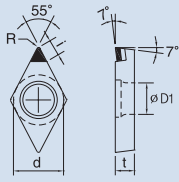
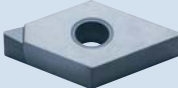
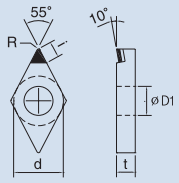
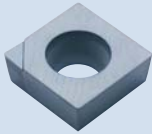
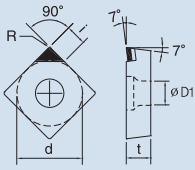
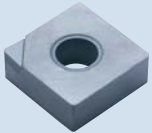
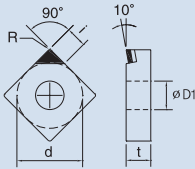
- 범용 재종
- 알루미늄 합금(14%이상 Si) / 금속 복합체 / 기타 내마모 재료
- 소결 세라믹 초경 합금 / 이종 금속 접합재(알루미늄, 주철)
- DIA 평균입도 30 μ m
- **General purpose machining for**
- Aluminum Alloys (>14% Si) / Metal Matrix Composites / Wear Parts
- Sintered Ceramics and Carbides / Bi-Metals (Aluminum, Cast Iron)
- DIA Average particle size 30 μ m



PCD-M


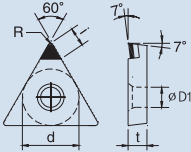

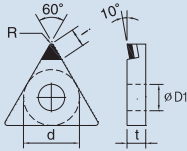

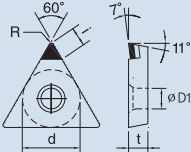
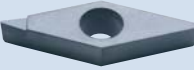
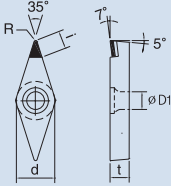
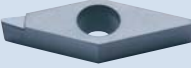
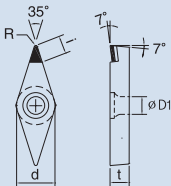
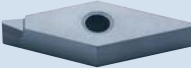
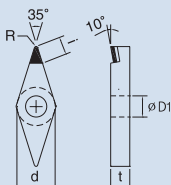
- 우수한 내충격 강도 및 내마모성이 요구되는 황 철삭, 단속 가공
- 금속 복합체(Duralcan**) / 알루미늄 합금(14%이상 Si)
- 유리섬유 / 유리섬유 강화보드 / 강화 목재
- DIA 평균입도 30 μ m / 4 μ m 2상 결합
- **High abrasion and impact resistance for**
- MMC (Duralcan**) / Aluminum Alloys (>14% Si)
- Fiberglass / Fiberboard / Wood Laminates
- DIA Average particle size 30 μ m + 4 μ m Bi-modal

제품 규격 Specification

형상	제품코드	규격 (mm)					PCD-SF	PCD-F	PCD-M	PCD-C
Shape	ISO	i	d	∅D1	t	R				
 	CCGT060202	3.1	6.35	2.80	2.38	0.2	○			
	CCGT060204	3.1	6.35	2.80	2.38	0.4	●			
	CCGT09T302	4.1	9.52	4.40	3.97	0.2	○			
	CCGT09T304	4.0	9.52	4.40	3.97	0.4	●			
	CCGT09T308	3.9	9.52	4.40	3.97	0.8	○			
	CCGT120404	4.0	12.7	5.50	4.76	0.4	○			
CCGT120408	3.9	12.7	5.50	4.76	0.8	○				
 	CNGA120404	4.0	12.7	5.16	4.76	0.4	●			
	CNGA120408	3.9	12.7	5.16	4.76	0.8	●			
	CNGA120412	3.8	12.7	5.16	4.76	1.2	○			
 	DCGT070202	3.4	6.35	2.80	2.38	0.2	○			
	DCGT070204	3.3	6.35	2.80	2.38	0.4	●			
	DCGT11T302	3.9	9.52	4.40	3.97	0.2	○			
	DCGT11T304	3.7	9.52	4.40	3.97	0.4	●			
DCGT11T308	3.5	9.52	4.40	3.97	0.8	○				
 	DNGA150404	3.9	12.7	5.16	4.76	0.4	○			
	DNGA150408	3.6	12.7	5.16	4.76	0.8	○			
	DNGA150604	3.9	12.7	5.16	6.35	0.4	●			
	DNGA150608	3.6	12.7	5.16	6.35	0.8	●			
 	SCGT09T304	3.5	9.52	4.40	3.97	0.4	○			
	SCGT09T308	3.5	9.52	4.40	3.97	0.8	○			
	SCGT120404	4.0	12.7	5.50	4.76	0.4	○			
	SCGT120408	4.0	12.7	5.50	4.76	0.8	○			
 	SNGA 090304	3.5	9.52	4.40	3.18	0.4	○			
	SNGA 090308	3.5	9.52	4.40	3.18	0.8	○			
	SNGA 120404	4.0	12.7	5.50	4.76	0.4	○			
	SNGA 120408	4.0	12.7	5.50	4.76	0.8	○			

● : Stock / ○ : 표준관리 (납기확인)

제품 규격 Specification

형 상	제품 코드	규 격(mm)					PCD-SF	PCD-F	PCD-M	PCD-C
Shape	ISO	i	d	∅D1	t	R				
 	TCGT 110204	3.8	6.35	2.80	2.38	0.4	○			
	TCGT 110208	3.5	6.35	2.80	2.38	0.8				
	TCGT 16T304	3.8	9.52	4.40	3.97	0.4	○			
	TCGT 16T308	3.5	9.52	4.40	3.97	0.8				
 	TNGA 160404	4.3	9.52	3.81	4.76	0.4	●			
	TNGA 160408	4.0	9.52	3.81	4.76	0.8	○			
 	TPGT 110308	3.8	6.35	2.80	3.18	0.4	○			
	TPGT 110304	3.5	6.35	2.80	3.18	0.8				
	TPGT 16T304	3.8	9.52	4.40	3.97	0.4	○			
	TPGT 16T308	3.5	9.52	4.40	3.97	0.8				
 	VBGT 110302	4.8	6.35	2.80	3.18	0.2	○			
	VBGT 110304	3.9	6.35	2.80	3.18	0.4	○			
	VBGT 160402	5.2	9.52	4.40	4.76	0.2	○			
	VBGT 160404	4.8	9.52	4.40	4.76	0.4	●			
	VBGT 160408	3.9	9.52	4.40	4.76	0.8	○			
 	VCGT 160404	4.8	9.52	4.40	4.76	0.4	●			
	VCGT 160408	3.9	9.52	4.40	4.76	0.8	○			
 	VNGA 160404	4.8	9.52	3.81	4.76	0.4	●			
	VNGA 160408	3.9	9.52	3.81	4.76	0.8	○			

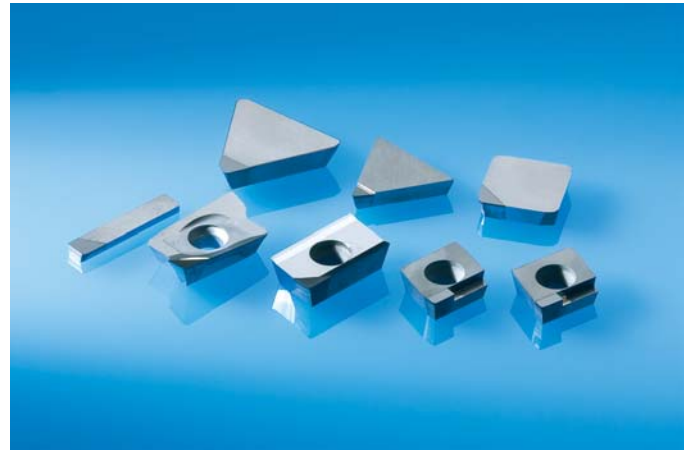
● : Stock / ○ : 표준관리 (납기확인)

■ 특수규격 Order Made Tools



Grooving inserts

Radius inserts for copy turning (ex. Alluminum wheel)
Available groove width 1mm to 5mm



Milling inserts

SPCN, SECN, SFCN, TPCN, TFCN, APKT, APXT / Special blade type



Small diameter boring bite
Optical lens mold core machining bite
OPC drum bite



higher performance !

longer tool life !

추천 절삭조건 Machining Parameter Guidelines

피삭재 Work Material	절삭 속도 V(m/min)	이송 f 터닝(mm/rev), 밀링(mm/tooth)	절삭깊이 d (mm)	추천 재종 Recommendation
알루미늄 합금 (14% 이하) Aluminum Alloys (<14% Si)	600 ~ 3000	0.1 ~ 0.6	~ 3.0	PCD-F
알루미늄 합금 (15% 이상) Aluminum Alloys (>15% Si)	300 ~ 700	0.1 ~ 0.4	~ 3.0	PCD-M
동(구리)합금 / 황동 / 청동 Copper Alloys / Brass / Bronze	~ 1000	0.05 ~ 0.2	~ 3.0	PCD-SF
티탄합금 Titanium Alloys	50 ~ 100	0.05 ~ 0.1	~ 2.0	PCD-M
유리섬유 / 강화플라스틱류 Fiberglass / Reinforced Plastic	100 ~ 1000	0.05 ~ 0.3	~ 2.0	PCD-C
목재 Wood	~ 4000	0.1 ~ 0.4	-	PCD-C
초경합금 Tungsten Carbide	10 ~ 30	~ 0.2	~ 0.5	PCD-F / PCD-M

가공 사례 Application Cases



알루미늄 피스톤의 외경 선삭

O.D. turning of aluminum pistons

- Work material : 390Al (GD-AI Si 17)
- Tool : PCD-M / CCGW 120316
- Machining speed : 730m/min
- Result : 8,000 pistons per cutting edge



알루미늄 피스톤의 홈선삭

Grooving of aluminum pistons

- Work material : 390Al (GD-AI Si 17)
- Tool : PCD-F / Three grooving Inserts/set
- Machining speed : 370m/min
- Result : 10,000 pistons per tool setup



알루미늄 실린더 헤드면의 밀링

Surface milling of aluminum cylinder-head face

- Work material : GK-AI Si9Cu3
- Tool : PCD-M / Milling head 250mm ϕ , 18 inserts tip
- Machining speed : 3,500m/min
- Spindle speed : 4,460 rev/min
- Result : 40,000 heads per tool setup



유리섬유 강화 플라스틱 복합체의 홈/자리파기
초경 엔드밀 대비 10배의 공구 수명

Slot milling / edge contouring glass fiber reinforced plastic composite

- Work material : Glass fiber reinforced plastic composite (40 vol% fiber filled)
- Tool : PCD-F / 6 ϕ and 8 ϕ Endmill, 2 cutting edges
- Machining speed : 850m/min
- Spindle speed : 45,000rpm
- Result : 800 parts per cutting edge
10 times longer tool life than tungsten carbide endmill