

湖南锐特超硬材料工具有限公司

HUNAN REAL TECH SUPERABRASIVE&TOOL CO.,LTD.

CBN Tools For Automotive Industry Application

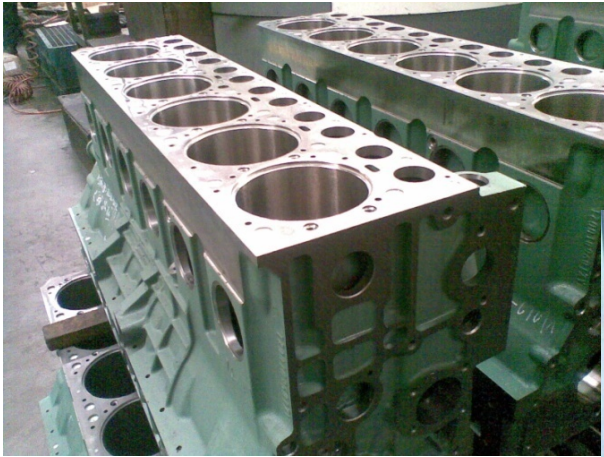
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January 2012

Hunan Real Tech Superabrasive
& Tool Co.,Ltd.

Automotive Industry



Machining Material: QT200

Hardness: HB190-220

CBN inserts: Solid CBN

SNGN 120408 S02020

$V_c=1799\text{m/min}$

$a_p=0.50\text{mm}$

$f=4298\text{mm/min}$

Duration:

80pcs/insert, $T=49\text{pcs/sec}$

Surface Roughness: $Ra1.6\mu\text{m}$



Our CBN inserts show the same performance as foreign brand inserts

Precision Milling for cylinder block

Hunan Real Tech Superabrasive
& Tool Co.,Ltd.

Automotive Gear Box



Machining Material: QT200
Material hardness: HB210
Vc= 667 m/min
ap= 1~3mm
f= 1600 mm/min
Surface Roughness: Ra1.6 μm

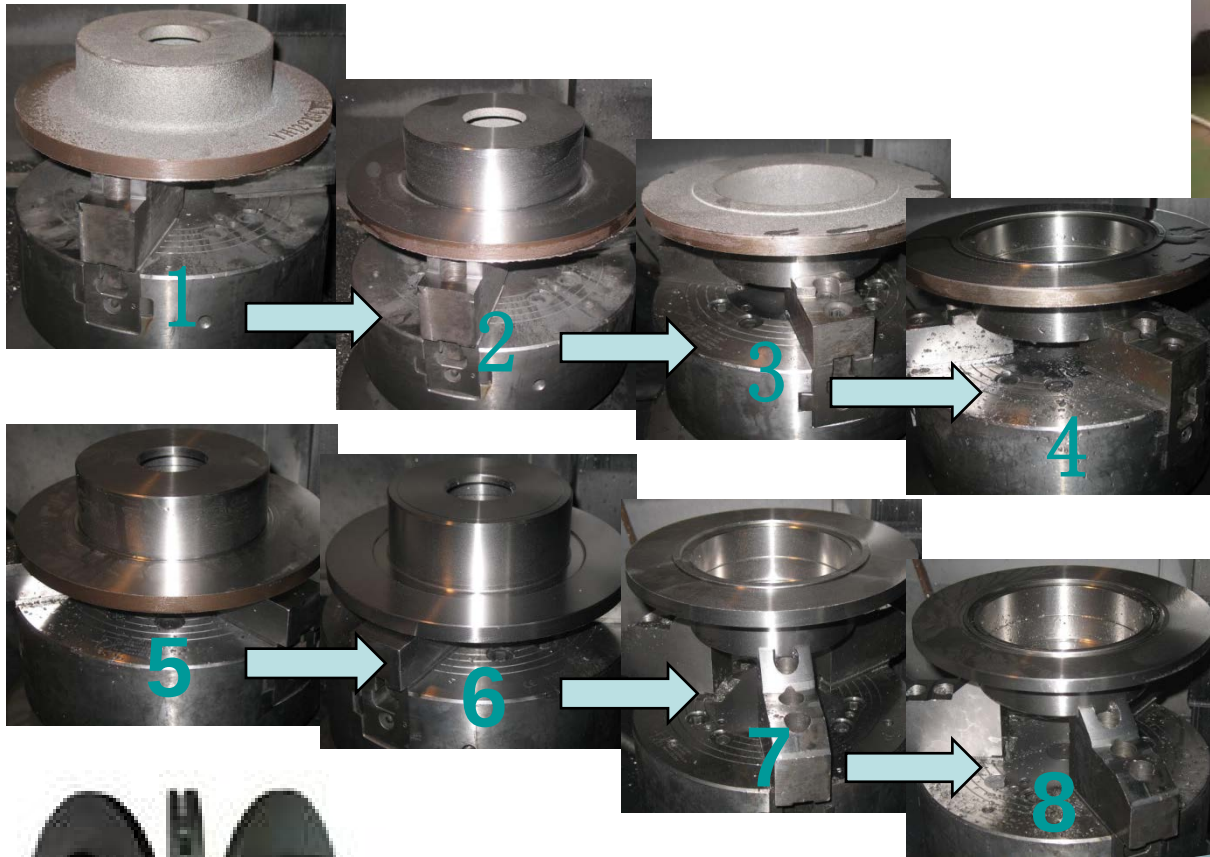


Our CBN insert milling efficiency is the 3 times compare with carbide inserts, Tool life is 8 times of the carbide inserts

Precision Milling The Gear Box

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For Brake Disk Turning



Lathe in our Lab For experiment

Machining Material:
HT200

Material Hardness:
HB190-200

CBN insert: CNMN 120712

Vc=450~620m/min

ap=1mm, f=0.5~0.8mm/r

Ra3.2μm

Tool Life: 150pcs/edge

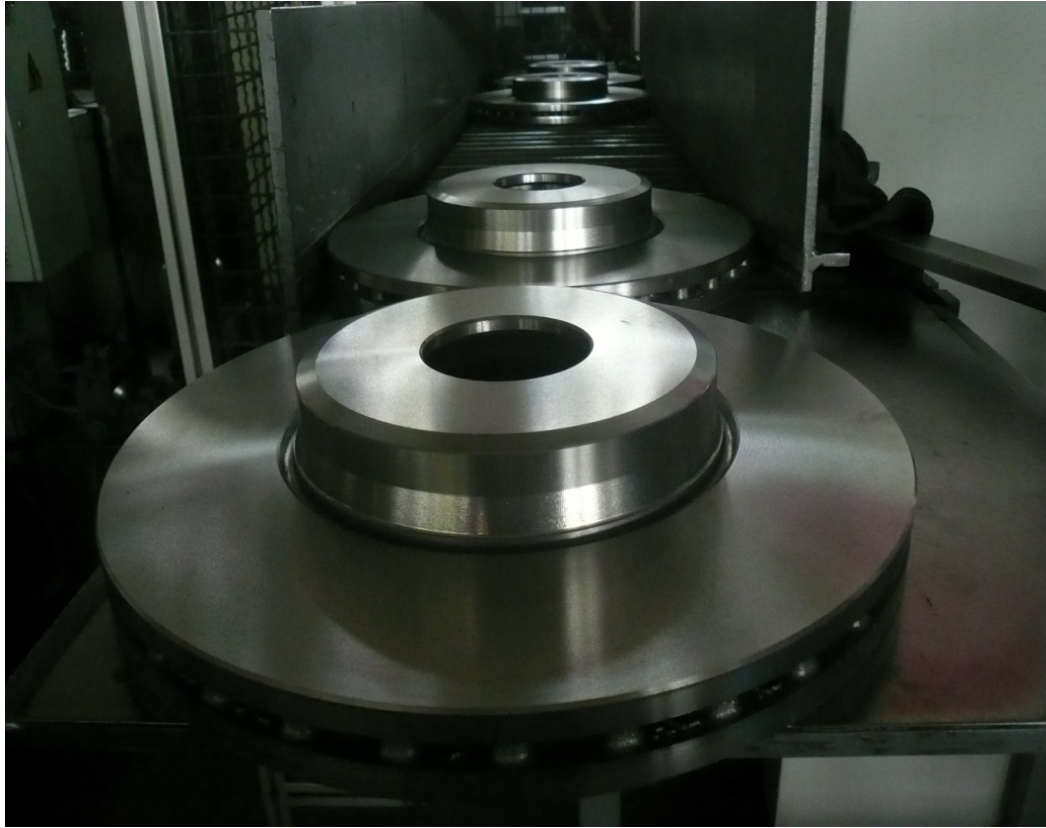
**Rough Turning
Automotive brake disk**



www.dg3d.com.cn

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Our CBN inserts life is 4 times longer than foreign brand carbide coating inserts, enhance 75% working efficiency at the same time.



Machining Material: HT200
Hardness: HB190-200
Workpiece Size: D250~D400
Insert: CNMN 120404
Vc=776m/min
ap=0.20mm
f=0.15mm/r
Ra1.6μm
Tool life:100pcs/edge

Fine turning automotive brake disk

Our CBN inserts life is 4 times compare with the foreign brand carbide coating inserts, enhance 3 times working efficiency.

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Workpiece: QT450

Hardness: HB230

Workpiece Size: D419X230

Insert: WNMN080412 S03020

Holder: CWLNR3232P12-95

$V_c=260\text{m/min}$

$a_p=2.5\text{mm}$

$f=0.5\text{mm/r}$

Tool life: 80 pcs/edge

Our CBN inserts cutting efficiency is 4 times compare with domestic brand carbide inserts while the cost is 60% lower

Turning Automotive Brake Drum

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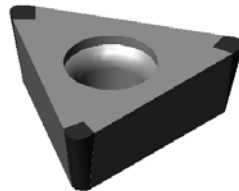
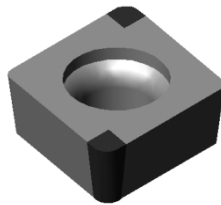
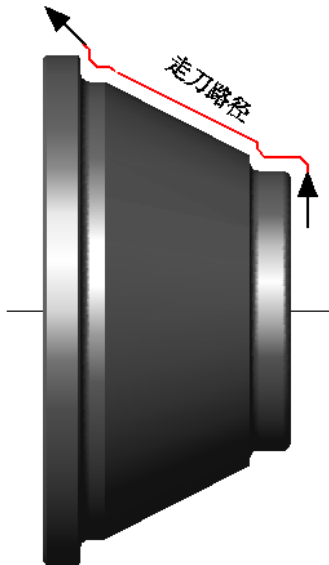
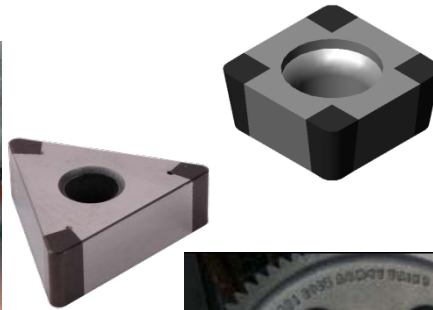
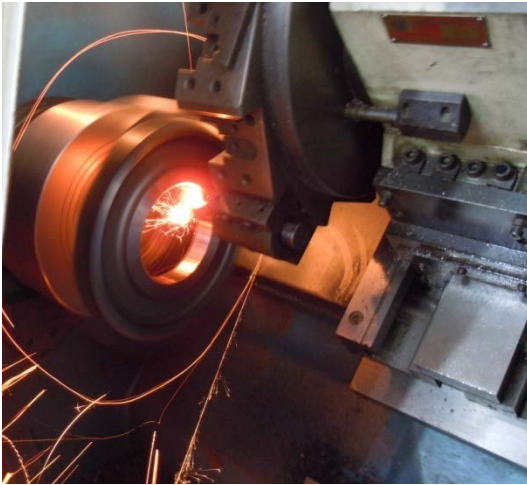
Workpiece: HT250
Hardness: HB200
Insert: CNMN120412 S03020
 $V_c = 160\text{m/min}$
 $a_p = 2.5\text{mm}$
 $f = 0.5\text{mm/r}$

Duration is 3 times
higher than imported
carbide inserts while
cost reduces 50%

Horseshoe-shaped Automotive Brake disk Turning

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Tipped/Welded CBN Inserts For Gear Turning

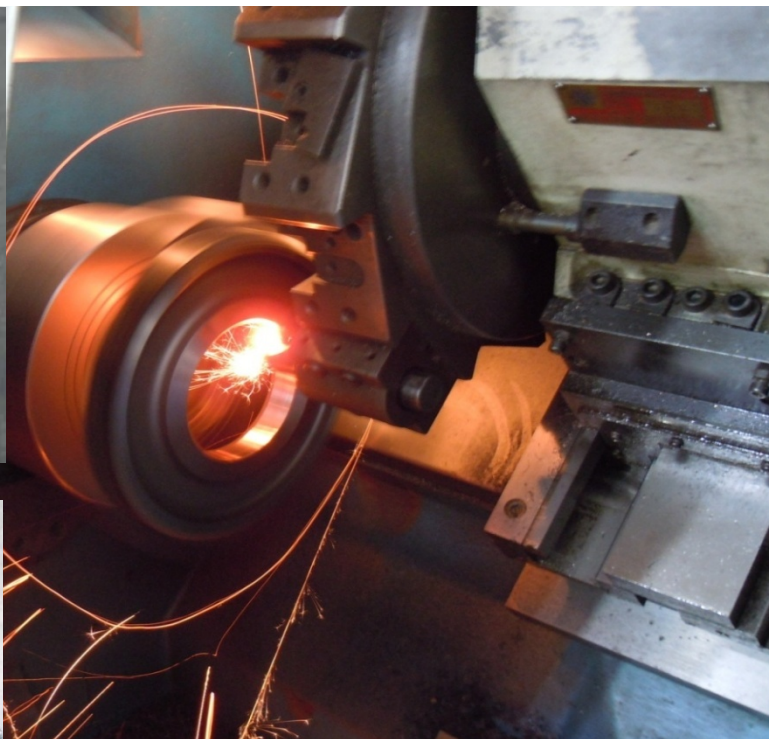


Turning Gear

- 1.The precision can reach $\pm 0.01\text{mm}$
- 2:Surface Roughness can be controlled under $Ra0.8-1.6\mu\text{m}$
- 3.It can replace the grinding process, then reduce the investment of grinding machine
- 4.One Clamping can complete the precision working for all complex turning route , then enhance cutting efficiency.
- 5.Dry cutting, energy saving and protect environment.

Note: The virtual working precision is related with the late precision.

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Workpiece: Hardened alloy steel

Hardness: HRC48

Insert: TNGA 110304

S01020-6S

$V_c=100-120\text{m/min}$; $a_p=0.06\text{mm}$,

$f=0.06\text{mm/r}$

$Ra0.8-1.6\mu\text{m}$

Our CBN insert show the same working performance as foreign brand, cost is 40% lower.

Precision Bore Honing, Turning replace grinding

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项目 刀具	转 速 r/min	切削速度 m/min	进给速度 mm/rev	切削深度 mm	切削时间 (秒)	冷却方式	参数对比	
原用刀具	1600	130.6	0.06	0.15/0.07	23"	水溶液	相同	
试验刀具	1600	130.6	0.06	0.15/0.07	23"	水溶液		
项目 刀具	品 牌	刀具规格及材质		刀尖数	加工总数	刀尖平均 加工件数	刀片单价	加工单件 成本对比
原用刀具	Foreign Brand	NP-CCGW09T304G MB825		1	650	650		
试验刀具	RealTech CBV	CCGW09T0304 S01020		2	2678	1339	4	0.094
试验总结	对纹路减少有改善，其它效果相仿，有一定性价比，可以进行推广							

Precision Turning Automotive Transmission Gear Box

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Workpiece: 17CrNiMo6
Hardness: HRC57
Insert:SNMN 12T612 S02020
Holder:CSXNR4040S12T6
Lathe: 61160
V_c=60m/min;
a_p=0.5mm,f=0.6mm/r

Our CBN inserts life/duration
is the 3-5 times compare with
imported foreign carbide
insert while the production
cost reduce 65%

Precision Turning Gear Shaft

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Cylinder Block Rough Turning



Workpiece: Alloy Cast Iron
Hardness: HRC55
Workpiece Size: D330X550
Holder: SNMN120412
 $V_c=60\text{m/min}$, $a_p=1.5\text{mm}$
 $f=0.5\text{mm/r}$

Fine Machining
 $V_c=180\text{m/min}$
 $a_p=0.5\text{mm}$, $f=0.5\text{mm/r}$
Tool life: 100pcs/edge

Our CBN inserts life/duration
is the 4 times compare with
carbide insert while reduce
production cost by 50%

Honing Turning Cylinder Block Bore

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Automotive Axle Machining

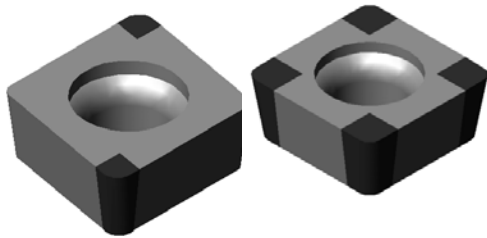


**Workpiece: HT200; Hardness: HB180
Vc=400m/min; ap=0.5-2mm; f=0.5mm/r**

**Our CBN inserts life/duration is the 3 times
compare with domestic carbide insert while
reduce production cost by 45%**

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Automotive Crankshaft Vibration Reduction Belt Pulley Machining



Workpiece: HT200, Hardness: HB220

CBN Insert: SNGA 120408 S01020

**Rough Machining Parameters: $V_c=300\text{m/min}$; $a_p=3\text{mm}$,
 $f=0.6\text{mm/r}$**

**Fine Machining Parameters : $V_c=650\text{m/min}$; $a_p=0.5\text{mm}$,
 $f=0.6\text{mm/r}$**

Duration: 500 pieces/edge

Duration is 3 times higher than
domestic famous carbide insert
while cost reduce 50%

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Air Conditioning Compressor Machining



Upper Bearing



Air Cylinder

Workpiece: HT250 HT200 Hardness: HB160-230
 $V_c=350-450\text{m/min}$; $a_p=1-2.5\text{mm}$, $f=0.6\text{mm/r}$



Duration is 4-5 times higher than
other brands

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