

Inserts for steel machining  
产品型号



	YBC152	YBC252
CNMG090304-DF	●	○
CNMG090308-DF	●	○
CNMG120404-DF	●	○
CNMG120408-DF	●	○
CNMG120412-DF	●	○



	YBC152	YBC252
DNMG110404-DF	●	○
DNMG110408-DF	●	○
DNMG110412-DF	●	○
DNMG150404-DF	●	○
DNMG150408-DF	●	○
DNMG150604-DF	●	○
DNMG150608-DF	●	○
DNMG150612-DF	●	○



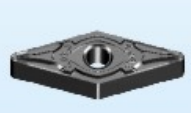
	YBC152	YBC252
WNMG060404-DF	●	○
WNMG060408-DF	●	○
WNMG060412-DF	●	○
WNMG080404-DF	●	○
WNMG080408-DF	●	○
WNMG080412-DF	●	○



	YBC152	YBC252
TNMG160404-DF	●	○
TNMG160408-DF	●	○
TNMG160412-DF	●	○
TNMG220408-DF	●	○
TNMG220412-DF	●	○



	YBC152	YBC252
SNMG120408-DF	●	○
SNMG120412-DF	●	○



	YBC152	YBC252
VNMG160404-DF	●	○
VNMG160408-DF	●	○



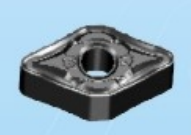
	YBC152	YBC252
CNMG090304-DM	●	●
CNMG090308-DM	●	●
CNMG090312-DM	●	●
CNMG120404-DM	●	●
CNMG120408-DM	●	●
CNMG120412-DM	○	●
CNMG120416-DM	○	●
CNMG160608-DM	○	●
CNMG160612-DM	○	●
CNMG160616-DM	○	●
CNMG190608-DM	○	●
CNMG190612-DM	○	●
CNMG190616-DM	○	●



	YBC152	YBC252
SNMG090304-DM	●	●
SNMG090308-DM	●	●
SNMG120404-DM	●	●
SNMG120408-DM	●	●
SNMG120412-DM	○	●
SNMG120416-DM	○	●
SNMG150608-DM	○	●
SNMG150612-DM	○	●
SNMG190612-DM	○	●
SNMG190616-DM	○	●



	YBC152	YBC252
TNMG110308-DM	●	●
TNMG160404-DM	●	●
TNMG160408-DM	●	●
TNMG160412-DM	○	●
TNMG220404-DM	○	●
TNMG220408-DM	○	●
TNMG220412-DM	○	●
TNMG220416-DM	○	●



	YBC152	YBC252
DNMG110404-DM	●	●
DNMG110408-DM	●	●
DNMG110412-DM	○	●
DNMG150404-DM	●	●
DNMG150408-DM	●	●
DNMG150412-DM	○	●
DNMG150604-DM	○	●
DNMG150608-DM	○	●
DNMG150612-DM	○	●
DNMG150616-DM	○	●



	YBC152	YBC252
WNMG060408-DM	●	●
WNMG060412-DM	○	●
WNMG080404-DM	●	●
WNMG080408-DM	●	●
WNMG080412-DM	○	●



	YBC152	YBC252
VNMG160408-DM	●	●
VNMG160412-DM	●	●

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2006



# Black-diamond inserts

## 黑金刚刀片

体验第二代牌号的威力  
Enjoy the power of the second generation grade

YBC152  
YBC252

The introduction of black diamond inserts into the machining of steel materials has achieved the synchronization of the demands for a faster cutting speed and a longer tool life.

## 黑金刚刀片引入钢材加工

实现刀具切削速度更快和寿命更长同步的要求



**株洲钻石切削刀具股份有限公司**  
ZHUZHOU CEMENTED CARBIDE CUTTING TOOLS CO.,LTD.

# Black-diamond inserts

The preferred choice of steel high speed machining in the general condition

## YBC152

一般工况高速切削钢材的理想选择

厚TiCN和厚Al<sub>2</sub>O<sub>3</sub>涂层, 在冲击韧性提高的同时, 耐磨性有大幅度提高, 是钢材精加工到半精加工高速切削的理想选择。切削速度可以提高25%以上; 在相同切削速度下, 刀具寿命可提高到30%以上。

YBC152 comprising of thick tcn and Al<sub>2</sub>O<sub>3</sub> coatings is suitable for finishing and semi-finishing at high speed. It upgrades abrasion resistance greatly on the premise of increasing toughness.

Compared with old grade, the cutting speed can increase more than 25% and the life will be improved more than 30% at the same cutting speed.

Universal grade of steel machining of high efficieng and security

## YBC252

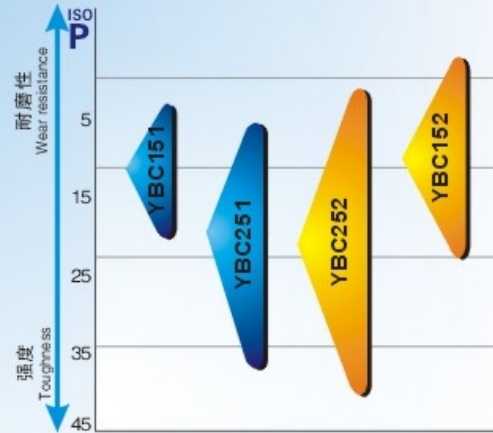
高效、稳定加工钢材的通用牌号

采用厚TiCN和厚Al<sub>2</sub>O<sub>3</sub>涂层, 有极强的抗塑性变形能力和刃口强度, 是钢材从精加工到粗加工的通用的首选牌号。在高去除率切削参数下或恶劣的工况下都有稳定表现, 并能实现更加绿色环保的干式切削。

在相同切削条件下, 可提高切削速度25%以上; 在同样切削速度下, 刀具寿命可提高30%以上。

YBC252 comprising of thick tcn and Al<sub>2</sub>O<sub>3</sub> coating has high anti-plastic yield and cutting edge strength and is preferred universal grade from steel finishing to roughing. It behaves steady in the wicked cutting condition and can realizes enviromental dry-cutting.

The cutting speed can increase more than 25% at the same cutting condition and the life will be improved more than 30% at the same cutting speed.

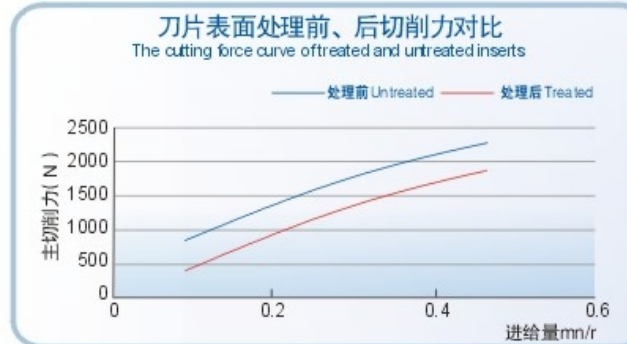
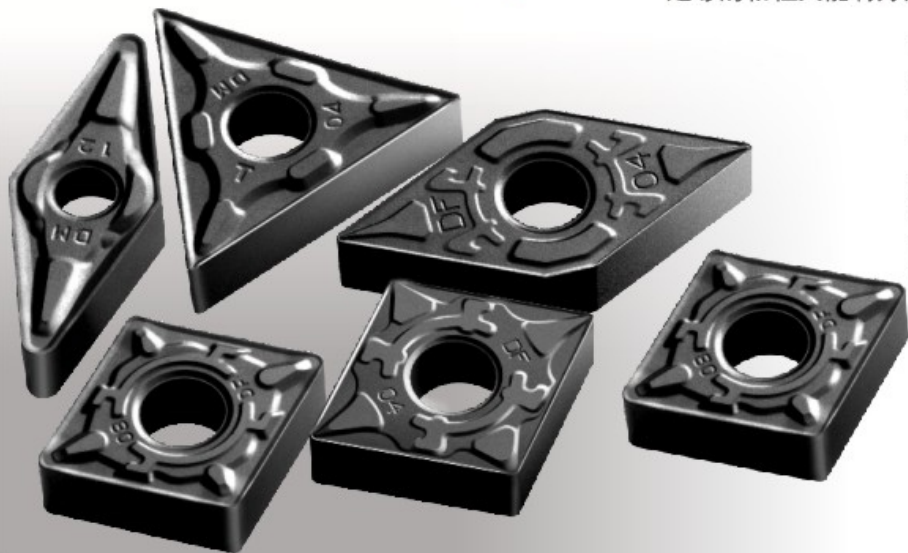


### 韧性 与 抗塑性变形的完美统一 Perfect unification of toughness and anti-plastic deformation

独特的刃口“骨架”设计, 实现了韧性与抗塑性变形的完美统一。刃口经处理后, 刃口两边为较厚的脱β层韧性区, 而中间扇形部分则含有高温性能良好的固溶体, 形成骨架支撑, 这样既保证刀片有足够的韧性又能有好的抗塑性变形能力。

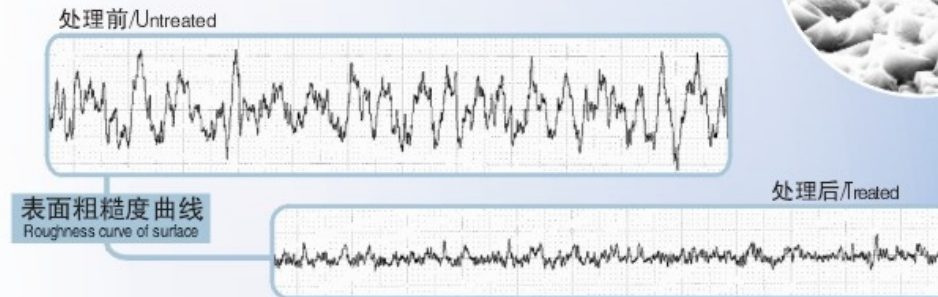
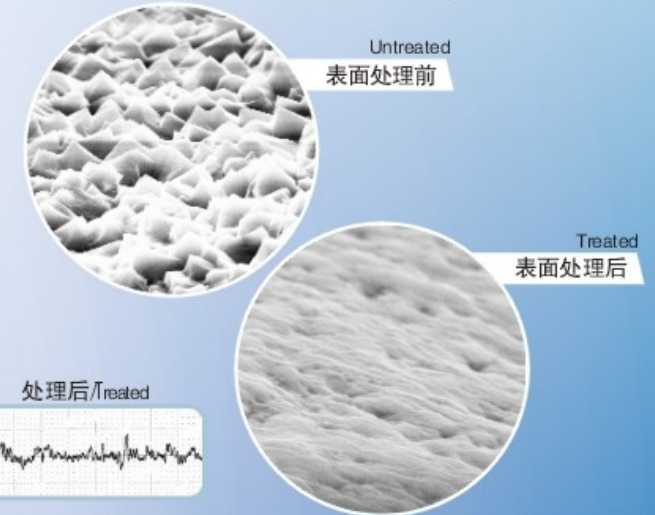
Unique cutting edge skeleton design has realized perfect unification of toughness and anti-plastic deformation.

Two sides beside cutting edge treated are ductile area of rich cobalt layer, and the middle sector area of it contains cubic carbides of well high-temperature behavior. The skeleton structure upgrades toughness and anti-plastic deformation.

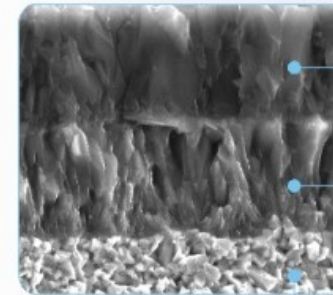


刀片采用特殊表面技术, 大幅度提高了刀片表面光洁度, 有效降低了切削力, 减少了刀具表面与被加工材料的粘结, 极大的提高了刀片使用的稳定性

Especial surface treatment of inserts improves surface finish, reduces bonding between inserts and work material, decreases cutting force effectively and promotes stability enormously



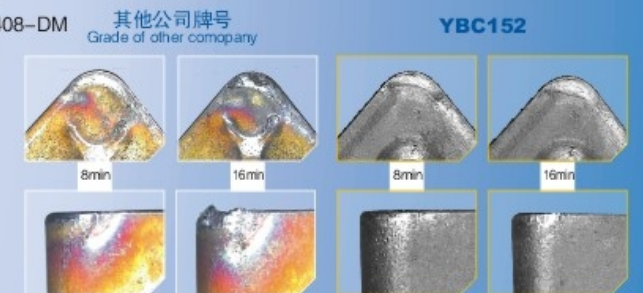
纤维状TiCN和细晶粒Al<sub>2</sub>O<sub>3</sub>涂层的完美组合显著提高了刀片的抗磨损性能和抗崩刃性能。  
The combination of fibrous TiCN and close grain Al<sub>2</sub>O<sub>3</sub> increases enormously abrasion resistance and anti-tipping.



### 刀片磨损试验对比效果 Comparison of inserts abrasion

工件材料/Workpiece material: 45 #  
刀片型号/Insert style: CNMG120408-DM  
切削参数/Cutting parameters:  
V<sub>c</sub>=400m/min  
a<sub>p</sub>=1.00mm  
f<sub>n</sub>=0.2mm/r

Al<sub>2</sub>O<sub>3</sub>  
TiCN  
硬质合金基体  
Cemented carbide



### 切削参数推荐 Cemented carbide substrate

材料 Material	硬度 Hardness HB	牌号/Grade	
		YBC152	YBC252
		进给量/Feed mm/rev	
		0.1-0.4-0.8	0.1-0.4-0.8
		切削速度/Cutting speed m/min	
碳钢 Carbon steel	C < 0.25 % 125	540-390-290	510-350-250
	C < 0.55 % 150	490-350-260	450-300-210
	C < 0.80 % 170	460-330-240	400-270-200
低合金 Low alloy steel	未淬硬/Unhardened steel 180	530-360-250	460-310-220
	轴承钢/Beaing steel 210	460-310-220	400-270-190
	调质 275	290-260-150	270-190-150
	Hardened and tempered steel 350	230-160-120	210-150-120
高合金 High alloy steel	退火/Annealed steel 200	390-260-190	300-210-150
	淬火/Hardened steel 325	190-120-90	140-100-80
铸钢 Cast steel	非合金/Unalloy 180	285-210-160	240-180-130
	低合金/Low alloy 200	250-180-140	210-140-100
	高合金/High alloy 225	200-180-100	200-130-90

### 耐用度对比曲线 The comparison curve of endurance

工件材料/Workpiece material: 调质合金钢 HRC=35  
切削参数/Cutting parameters: V<sub>c</sub>=280m/min  
a<sub>p</sub>=1.0mm  
f<sub>n</sub>=0.2mm/r

