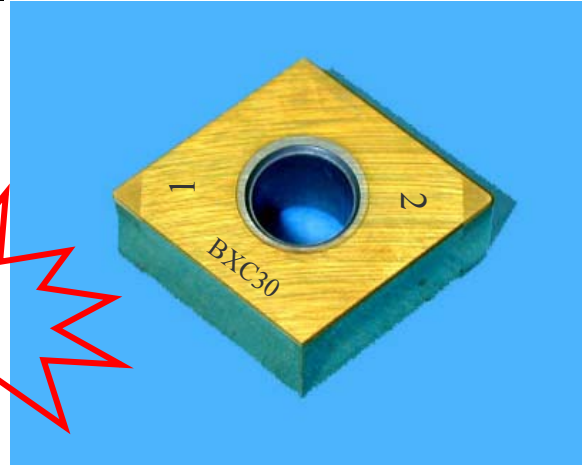


BXC30 Coated CBN Inserts for Continuous Hard Turning

**NEW
ITEM**



TURNING

Product category: H.O.T. product

Application Area: Finish continuous turning of hardened steel both through hardened and case hardened. BXC30 coated CBN is **best** used in CNC type lathes where speed and feed are more consistent and where material hardness is above 50 Rc.

Features and Benefits:

- BXC30 utilizes our premium TiN coating on a very wear resistant CBN substrate to drastically improve wear resistance and extend tool life.
- BXC30 uses our direct brazing technique for higher heat resistance and higher strength.
- BXC30 negative inserts are multi-cornered and doubled sided for excellent per tip cost.
- Tungaloy produces its own CBN material to control the quality of CBN materials.
- Tungaloy uses its own coating technology to control the quality and thickness of coating layers.



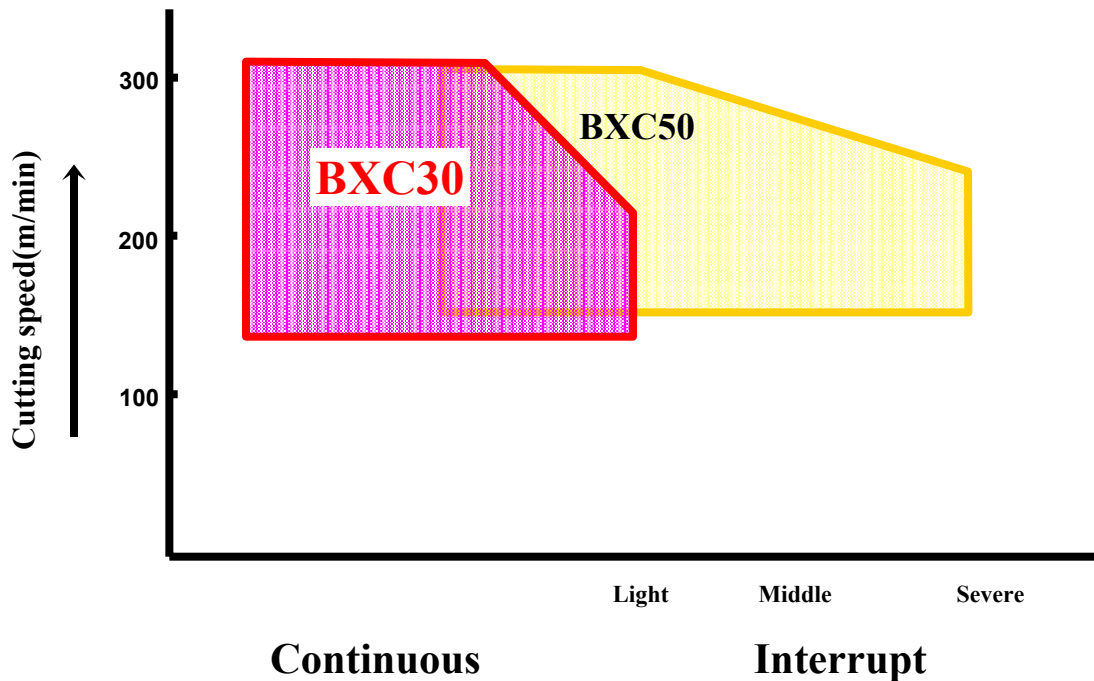
TUNGALOY AMERICA

Product Strengths:

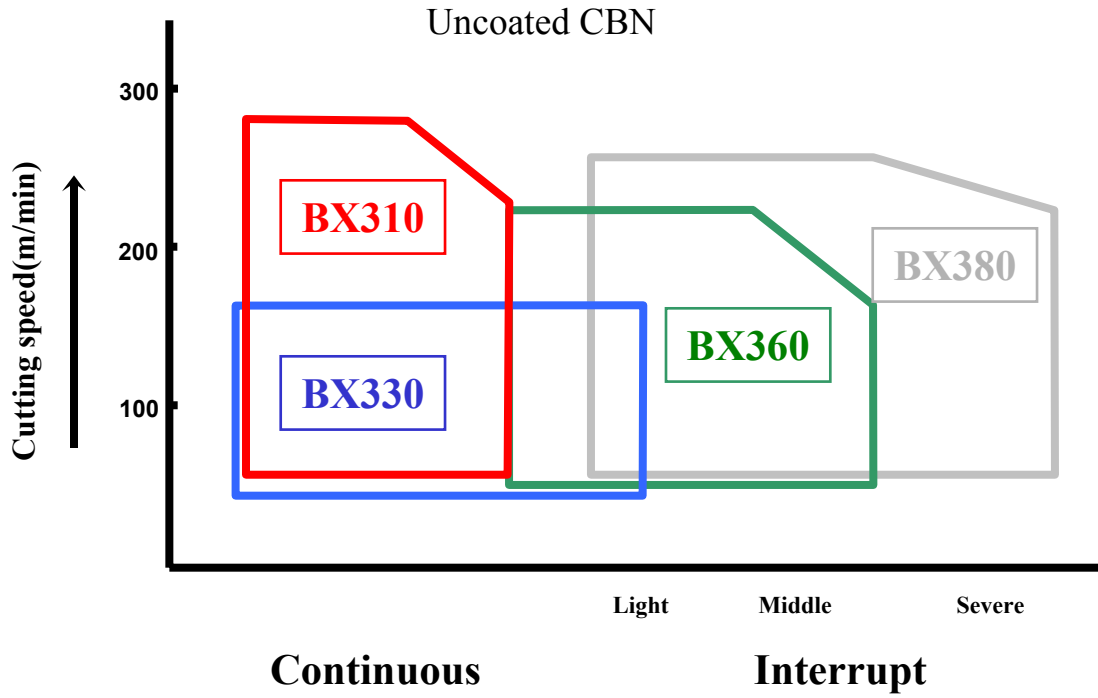
- BXC30 is manufactured in positive inserts.
- Special edge preps are available as specials in BXC30 inserts.
- BXC30 displays excellent performance in continuous hard turning.
- Tungaloy coating adhesion exhibits superior strength.
- Per edge cost is very competitive to other manufacturers' CBN as well as to our own BXC50 grade

Application Area:

Coated CBN



Application Area (continued):



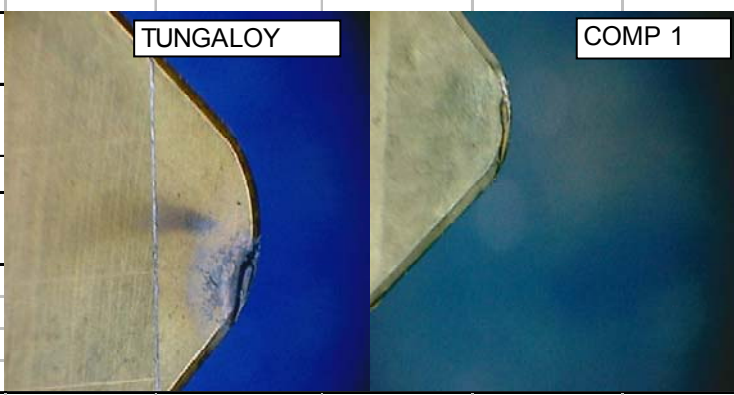


TUNGALOY TEST TOOL EVALUATION REPORT

DATE
11/9/2005

COMPANY		SALESMAN	Robert Bachman
		PART DESCRIPTION	Part #63477 Gear
TEL/FAX		WORK MATERIAL	8620
CONTACT		MATERIAL HARDNESS	58-62 Rc

TYPE OF OPERATION	Face turning
MACHINE TOOL & TYPE	CNC Lathe
RIGIDITY	Good
TYPE OF COOLANT	NA
COOLANT PRESSURE	NA
COOLANT METHOD	Dry



TOOLING REQUIRED	COMPANY / COMPETITOR	Tungaloy	COMP 1
	TYPE OF OPERATION (ID, OD, FACE)	Face	Face
	HOLDER/BODY TYPE	MCLNR	MCLNR
	INSERT GEOMETRY	4QP-CNGA433	
	INSERT CHIP BREAKER & GRADE	BXC30	

CUTTING PARAMETERS	WORKPIECE/CUTTER DIAMETER	Approx. 4-5"	Approx. 4-5"
	FEED RATE (IPR f= or IPM F=)	.0048	.004
	CUTTING SPEED (RPM OR SFM V=)	V=770	V=550
	H.P. REQUIRED (% OR ACTUAL)		
	DEPTH OF CUT (INCHES)	.010"	.010"

TOOL PERFORMANCE	CUTTING TIME/LENGTH PER PIECE	Approx. 1"	Approx. 1"
	PIECES PER EDGE	98	45-60
	TOOL LIFE (MINS/INCHES PER EDGE)	98"	45-60"
	EDGES USED PER INSERT	1	1
	PIECES PER INSERT		
	SURFACE FINISH (RMS)	24-39 RMS	21-40 RMS
	REASON FOR INDEXING	Finish	Finish

COST EVALUATION	INSERT COST		
	INSERT COST PER PIECE		
	HOURLY MACHINE DEPT. COST		
	MACHINING COST PER PIECE		
	TOTAL COST PER MACHINED EDGE		

COMMENTS: Very good test for new grade. The operator usually pulls insert when RMS reaches or exceeds 40-45. At 98 pieces the BXC30 had checked 39 for three pieces. The finish was consistently 34 RMS for 50-60 pcs. The wear on both inserts is crater wear. The higher the SFM the better results were achieved for BXC30. Coating of this insert helps to keep finishes in tolerance. Standard edge prep works well in this operation.



TUNGALOY TEST TOOL EVALUATION REPORT

DATE
11/23/2005

COMPANY		SALESMAN	Fred Acosta
TEL/FAX		PART DESCRIPTION	Gear
CONTACT		WORK MATERIAL	8620
		MATERIAL HARDNESS	58-60 Rc

TYPE OF OPERATION	Boring		194 pcs	234 pcs
MACHINE	Horizontal			
TOOL & TYPE				
RIGIDITY	Good			
TYPE OF COOLANT	NA			
COOLANT PRESSURE	NA			
COOLANT METHOD	Dry			

	COMPANY / COMPETITOR	Tungaloy	COMP 2
TOOLING REQUIRED	TYPE OF OPERATION (ID, OD, FACE)	ID	ID
	HOLDER/BODY TYPE	Cartridge type	Cartridge type
	INSERT GEOMETRY	2QP-DCMW11T308	
	INSERT CHIP BREAKER & GRADE	BXC30 (MQNC3)	
CUTTING PARAMETERS	WORKPIECE/CUTTER DIAMETER	1.850"	1.850"
	FEED RATE (IPR f= or IPM F=)	.0045 IPR	.0045 IPR
	CUTTING SPEED (RPM OR SFM V=)	V=350	V=350
	H.P. REQUIRED (% OR ACTUAL)		
	DEPTH OF CUT (INCHES)	.010"	.010"
TOOL PERFORMANCE	CUTTING TIME/LENGTH PER PIECE	2.196"	2.196"
	PIECES PER EDGE	195-230	Approx. 136
	TOOL LIFE (MINS/INCHES PER EDGE)	428.22"-505.08	298.65"
	EDGES USED PER INSERT	2	2
	PIECES PER INSERT		
	SURFACE FINISH (RMS)	<63 RMS required	<63 RMS required
	REASON FOR INDEXING	Finish	Finish
COST EVALUATION	INSERT COST		
	INSERT COST PER PIECE		
	HOURLY MACHINE DEPT. COST		
	MACHINING COST PER PIECE		
	TOTAL COST PER MACHINED EDGE		

COMMENTS: Test inserts changed from DNGA type to DCMW type due to chatter problems. BXC30 is performing well at lower speeds and customer is making another test at higher speeds. Approx. 600 SFM. Competitor performance falls short of BXC30.



TUNGALOY TEST TOOL EVALUATION REPORT

DATE
12/12/2005

COMPANY		SALESMAN	Robert Bachman
TEL/FAX		PART DESCRIPTION	Gear
CONTACT		WORK MATERIAL	8620
		MATERIAL HARDNESS	58-62 Rc

TYPE OF OPERATION	Face turning		
MACHINE TOOL & TYPE	CNC Lathe		
RIGIDITY	Good		
TYPE OF COOLANT	NA		
COOLANT PRESSURE	NA		
COOLANT METHOD	Dry		

TOOLING REQUIRED	COMPANY / COMPETITOR	Tungaloy	COMP 3	
	TYPE OF OPERATION (ID, OD, FACE)	Bore	Bore	
	HOLDER/BODY TYPE	Boring bar	Boring bar	
	INSERT GEOMETRY	4QP-CNGA433		
	INSERT CHIP BREAKER & GRADE	BXC30		

CUTTING PARAMETERS	WORKPIECE/CUTTER DIAMETER	3.701	3.701	
	FEED RATE (IPR f= or IPM F=)	.1 mm/rev	.1 mm/rev	
	CUTTING SPEED (RPM OR SFM V=)	260 m/min	260 m/min	
	H.P. REQUIRED (% OR ACTUAL)			
	DEPTH OF CUT (INCHES)	.254 mm	.254 mm	

TOOL PERFORMANCE	CUTTING TIME/LENGTH PER PIECE	4:06	4:06	
	PIECES PER EDGE	Ave. 68	53	
	TOOL LIFE (MINS/INCHES PER EDGE)	278.8 mins.	217.3 mins	
	EDGES USED PER INSERT	3	1	
	PIECES PER INSERT			
	SURFACE FINISH (RMS)	< 63	< 63	
	REASON FOR INDEXING	Finish	Finish	

COST EVALUATION	INSERT COST			
	INSERT COST PER PIECE			
	HOURLY MACHINE DEPT. COST			
	MACHINING COST PER PIECE			
	TOTAL COST PER MACHINED EDGE			

COMMENTS:	Tungaloy pieces are 57, 66 and 80 for an average of 68 pieces.