

TurnLine

BXA20

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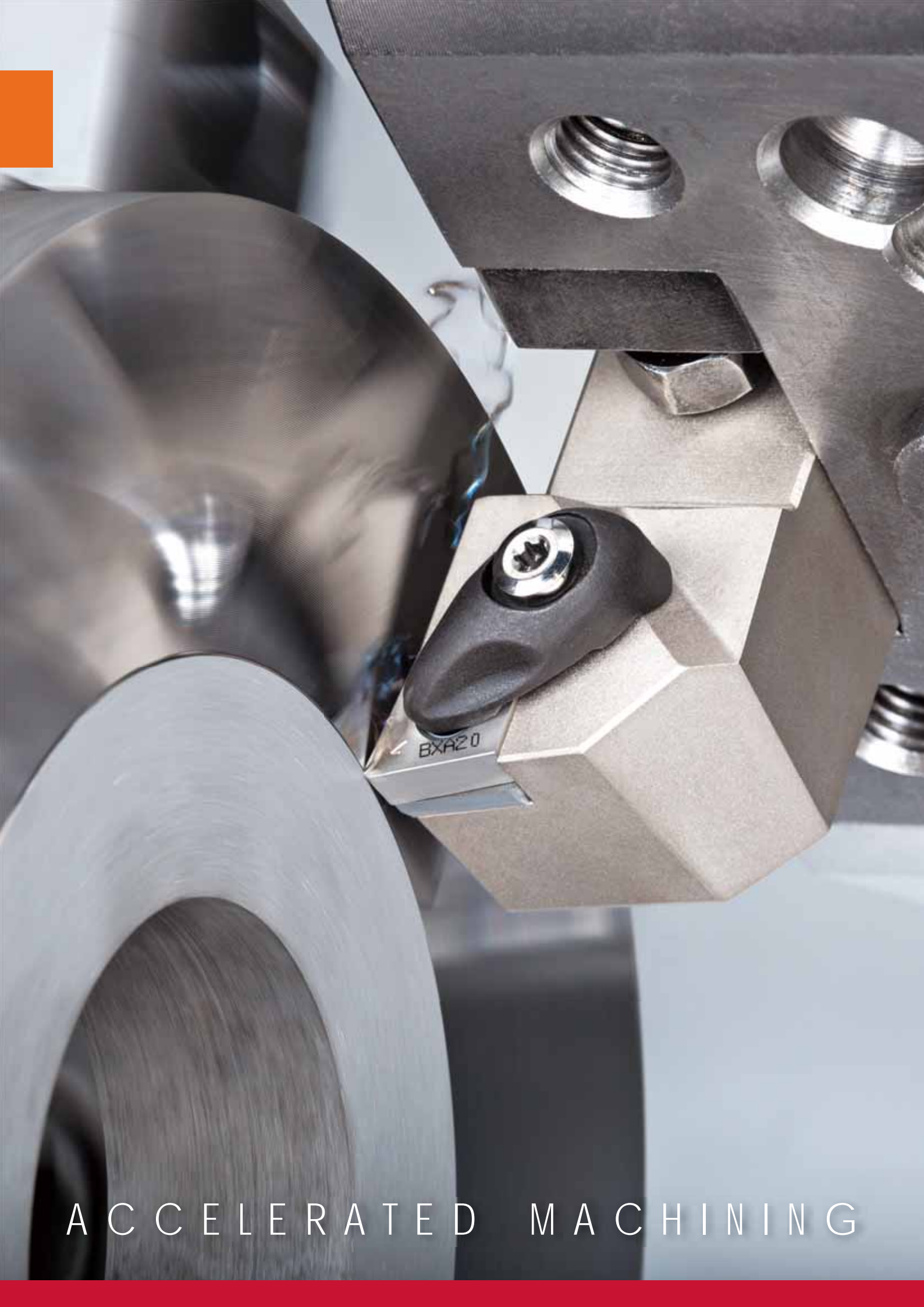
Tungaloy Report No. 511-G

BXA20

Coated CBN grade with a whole new level of cutting performance for hardened steel



Member IMC Group
Tungaloy



ACCELERATED MACHINING



TurnLine

BXA20

TUNGALOY



Remarkably long tool life in hardened steel turning
with a **new coating layer and CBN substrate**

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Incredible reliability in hardened steel turning

- Suitable for operations at low to medium cutting speed
- Covers a wide range of application areas from continuous to heavy interrupted cutting

Multi-layered coating 2 times thicker than the conventional grade

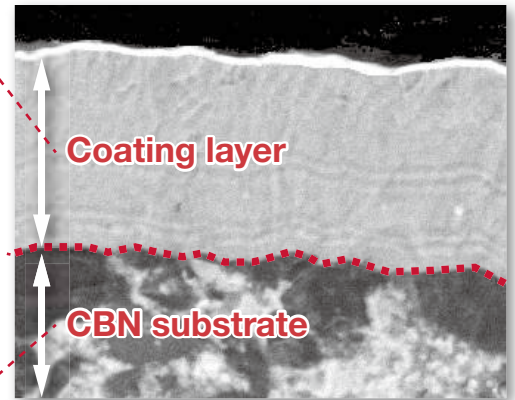
- Provides excellent wear resistance

Improved adhesion strength

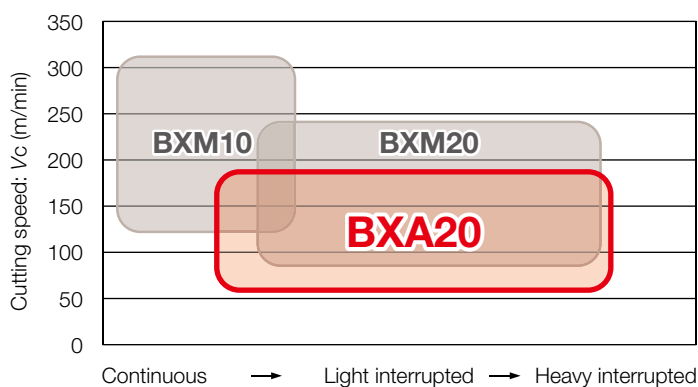
- Prevents peeling-off, providing excellent surface finish

Newly developed CBN substrate

- Optimum CBN content for high wear resistance and toughness



APPLICATION AREA



BXM10

Suitable for continuous to light interrupted cutting at high speed

BXM20

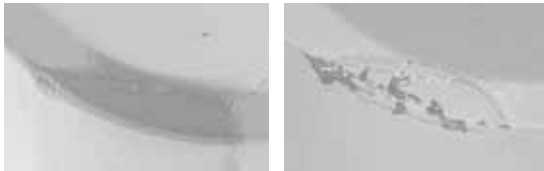
Suitable for continuous to heavy cutting at medium and high speed

BXA20

Great performance for continuous to heavy cutting at low and medium speed

CUTTING PERFORMANCE

Machining length 0.7 km



BXA20

Conventional grade

Machining length 1.4 km

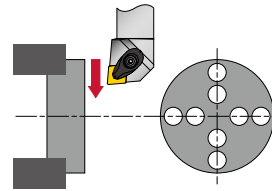


BXA20

Conventional grade

H Insert : 2QP-CNGA120408
 Workpiece material : SCM420 (60HRC)
 Cutting speed : $V_c = 100$ m/min
 Feed : $f = 0.1$ mm/rev
 Depth of cut : $a_p = 0.2$ mm
 Machining : Face turning
 (interrupted cutting)

Without peeling-off, tool life is extended even in heavy interrupted machining.





















STANDARD CUTTING CONDITIONS

ISO	Grade	Workpiece condition	Cutting speed V_c (m/min)	Depth of cut a_p (mm)	Feed f (mm/rev)
H	BXA20	Continuous	130 (60 - 180)	0.3 (0.05 - 0.50)	0.1 (0.05 - 0.30)
	BXA20	Interrupted	130 (60 - 180)	0.2 (0.05 - 0.30)	0.1 (0.05 - 0.20)

GRADE

Application	Grade Application code	Microstructure	Hardness (Hv)	T.R.S (Gpa)
H	BXA20 H10-H20		3500 - 3700	1.35 - 1.50

INSERTS



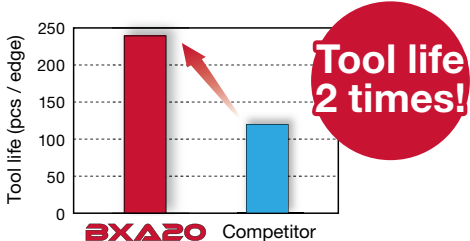
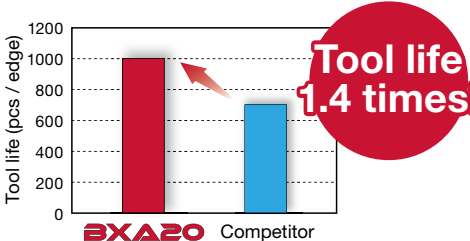


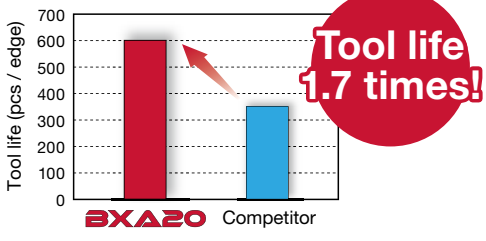
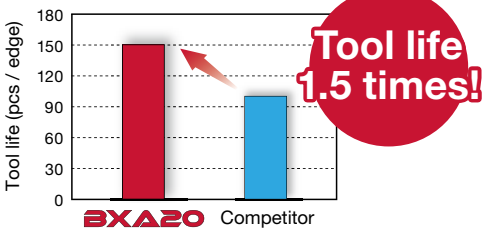
Feature	Shape	Designation	Grade	No. of corners	I. C. dia. <i>ød</i>	Thick-ness <i>s</i>	Hole dia. <i>ød1</i>	Corner radius <i>r_c</i>	CBN length <i>a</i>	
			Coated							
			BXA20							
Standard		2QP-CNGA120404	●	2	12.7	4.76	5.16	0.4	2.3	
		2QP-CNGA120408	●	2	12.7	4.76	5.16	0.8	2.2	
		2QP-CNGA120412	●	2	12.7	4.76	5.16	1.2	2.4	
		2QP-DNGA150408	●	2	12.7	4.76	5.16	0.8	2.1	
		2QP-DNGA150608	●	2	12.7	6.35	5.16	0.8	2.1	
		3QP-TNGA160404	●	3	9.525	4.76	3.81	0.4	2.2	
		3QP-TNGA160408	●	3	9.525	4.76	3.81	0.8	1.9	
		3QP-TNGA160412	●	3	9.525	4.76	3.81	1.2	2.4	
		2QP-VNGA160404	●	2	9.525	4.76	3.81	0.4	3.1	
		2QP-VNGA160408	●	2	9.525	4.76	3.81	0.8	2.2	
		3QP-WNGA080408	●	3	12.7	4.76	3.81	0.8	2.2	
		2QP-GNGA120404	●	2	-	4.76	5.16	0.4	2.3	
		2QP-GNGA120408	●	2	-	4.76	5.16	0.8	2.2	
		2QP-GNGA120412	●	2	-	4.76	5.16	1.2	2.4	
	Heavy honing		2QP-CNGA120408-H	●	2	12.7	4.76	5.16	0.8	2.2
			2QP-DNGA150408-H	●	2	12.7	4.76	5.16	0.8	2.1
			3QP-TNGA160408-H	●	3	9.525	4.76	3.81	0.8	1.9
			3QP-TNGA160412-H	●	3	9.525	4.76	3.81	1.2	2.4
		2QP-VNGA160404-H	●	2	9.525	4.76	3.81	0.4	3.1	
With chipbreaker		2QP-CNGM120408-HM	●	2	12.7	4.76	5.16	0.8	2.2	
		2QP-CNGM120412-HM	●	2	12.7	4.76	5.16	1.2	2.4	
With wiper		2QP-CNGA120408WL	●	2	12.7	4.76	5.16	0.8	2.2	
		2QP-DNGA150404WJ	●	2	12.7	4.76	5.16	0.4	2.1	
		2QP-DNGA150408WJ	●	2	12.7	4.76	5.16	0.8	2.1	
Standard		3QP-TNGA160404WG	●	3	9.525	4.76	3.81	0.4	2.2	
		2QP-CCGW060204	●	2	6.35	2.38	2.8	0.4	2.3	
		2QP-CCGW09T304	●	2	9.525	3.97	4.4	0.4	2.3	
		2QP-CCGW09T308	●	2	9.525	3.97	4.4	0.8	2.2	
		2QP-DCGW070202	●	2	6.35	2.38	2.8	0.2	2.7	
		2QP-DCGW070204	●	2	6.35	2.38	2.8	0.4	2.5	
		2QP-DCGW11T308	●	2	9.525	3.97	4.4	0.8	2.1	
		3QP-TPGW110304	●	3	6.35	3.18	3.4	0.4	2.2	
		3QP-TPGW110308	●	3	6.35	3.18	3.4	0.8	2.0	
		2QP-VBGW110304	●	2	6.35	3.18	2.8	0.4	3.1	
2QP-VBGW110308		●	2	6.35	3.18	2.8	0.8	2.2		
2QP-VBGW160404		●	2	9.525	4.76	4.4	0.4	3.1		
	2QP-VBGW160408	●	2	9.525	4.76	4.4	0.8	2.2		

● : Line-up

Specification of standard honing

	BXA20
Negative inserts	S01325
Positive inserts	S01325

PRACTICAL EXAMPLES

Workpiece type		Automotive parts (CVT)	Automotive parts (CVJ)
Insert		2QP-DNGA150412	2QP-DNGA150420
Grade		BXA20	BXA20
Workpiece material		SCr420H (59HRC)	SCr420H (60HRC)
		 H	 H
Cutting conditions	Cutting speed: V_c (m/min)	170	150
	Feed : f (mm/rev)	0.3	0.25
	Depth of cut : a_p (mm)	0.1	0.2
	Coolant	Wet	Wet
Results		 <p>Tool life 2 times!</p> <p>Tool life is doubled due to higher wear resistance.</p>	 <p>Tool life 1.4 times!</p> <p>The operation is stable with BXA20 even in interrupted machining.</p>
Workpiece type		Automotive parts (Poppet)	Machine parts
Insert		2QP-CCGW09T304	2QP-DNGA150404
Grade		BXA20	BXA20
Workpiece material		SCr415H (58HRC)	SNCM420H (60HRC)
		 H	 H
Cutting conditions	Cutting speed: V_c (m/min)	130	150
	Feed : f (mm/rev)	0.04	0.07
	Depth of cut : a_p (mm)	0.2	0.15
	Coolant	Wet	Wet
Results		 <p>Tool life 1.7 times!</p> <p>BXA20 provides stable tool life as only normal wear occurs without chipping.</p>	 <p>Tool life 1.5 times!</p> <p>Surface roughness is minimized with BXA20.</p>

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