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General product information

[View](#)

Added products



RE = 0.004", 0.078"

Expansion of 0.004" and 0.078" corner radius insert

[View](#)

TurnLine

BXA20

www.tungaloy.com

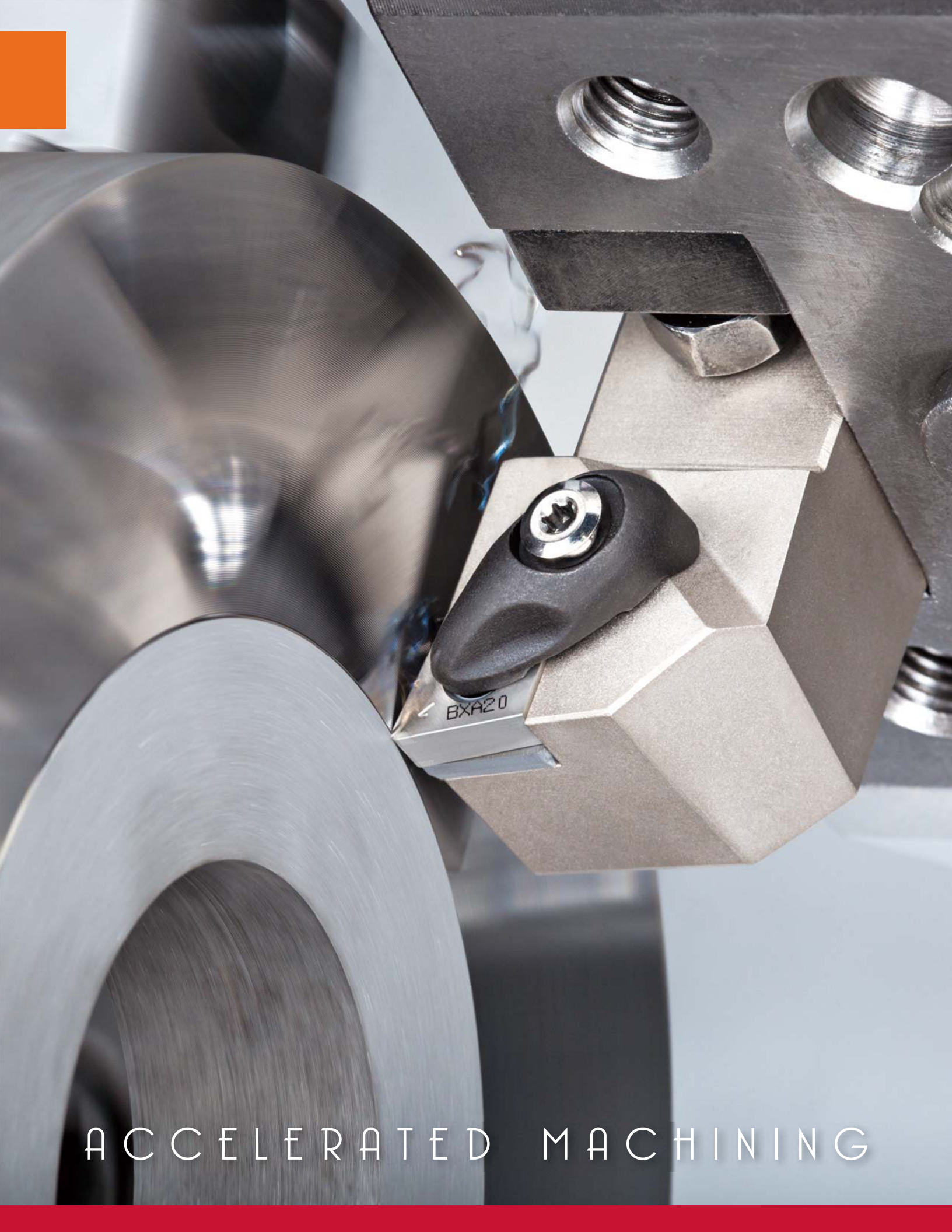
Tungaloy Report No. 511-US

BXA20

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



Member IMC Group
Tungaloy



ACCELERATED MACHINING



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

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

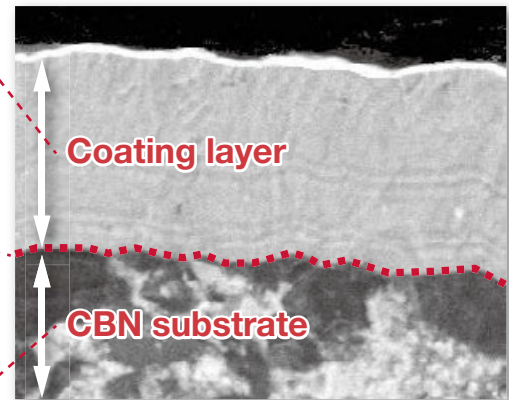
- Provides excellent wear resistance

Improved adhesion strength

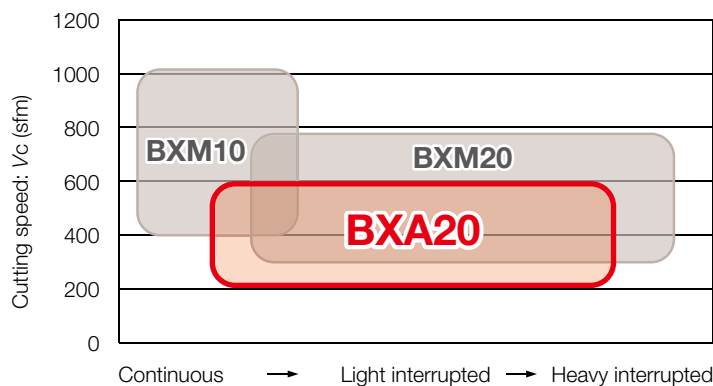
- Prevents peeling-off, providing excellent surface finish

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

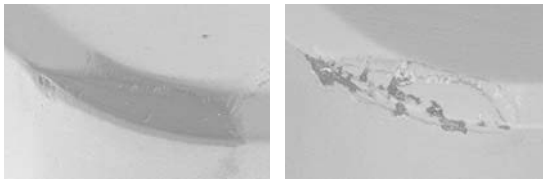
Suitable for continuous to heavy cutting at medium and high speed

BXA20

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

CUTTING PERFORMANCE

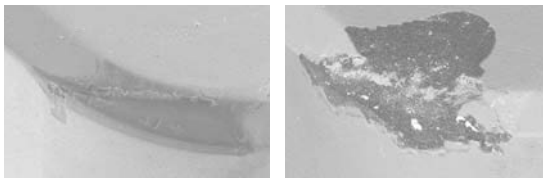
Machining length; 2300 ft



BXA20

Conventional grade

Machining length; 4600 ft



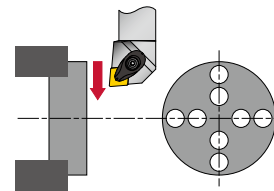
BXA20

Conventional grade

H

Insert : 2QP-CNGA432
 Workpiece material : Low carbon alloy (60HRC)
 Cutting speed : $V_c = 330$ sfm
 Feed : $f = 0.004$ ipr
 Depth of cut : $a_p = 0.008$ inch
 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 (sfm)	Depth of cut a_p (inch)	Feed f (ipr)
H	BXA20	Continuous	430 (200 - 590)	0.012 (0.002 - 0.020)	0.004 (0.002 - 0.012)
	BXA20	Interrupted	430 (200 - 590)	0.008 (0.002 - 0.012)	0.004 (0.002 - 0.008)

GRADE

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

INSERTS

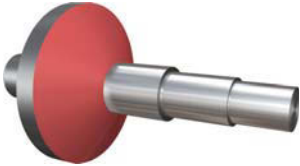

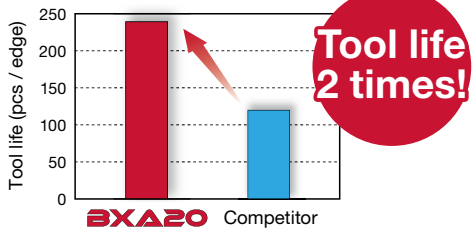
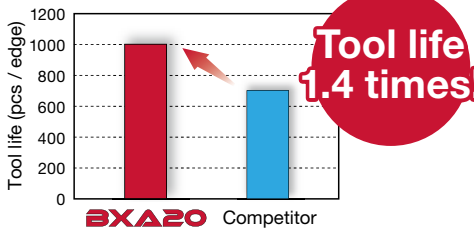


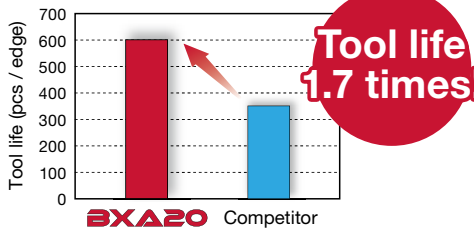
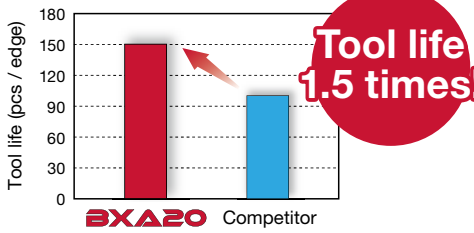
Feature	Shape	Designation	Grade	No. of corners	Dimension (inch)				
			BXA20		I. C. dia. ϕd	Thickness s	Hole dia. $\phi d1$	Corner radius r_c	CBN length a
Standard		2QP-CNGA431	●	2	0.500	0.187	0.203	0.016	0.091
		2QP-CNGA432	●	2	0.500	0.187	0.203	0.031	0.087
		2QP-CNGA433	●	2	0.500	0.187	0.203	0.047	0.094
		2QP-DNGA432	●	2	0.500	0.187	0.203	0.031	0.083
		2QP-DNGA442	●	2	0.500	0.250	0.203	0.031	0.083
		3QP-TNGA331	●	3	0.375	0.187	0.150	0.016	0.087
		3QP-TNGA332	●	3	0.375	0.187	0.150	0.031	0.075
		3QP-TNGA333	●	3	0.375	0.187	0.150	0.047	0.094
		2QP-VNGA331	●	2	0.375	0.187	0.150	0.016	0.122
		2QP-VNGA332	●	2	0.375	0.187	0.150	0.031	0.087
		3QP-WNGA432	●	3	0.500	0.187	0.150	0.031	0.087
		2QP-GNGA431	●	2	-	0.187	0.203	0.016	0.091
		2QP-GNGA432	●	2	-	0.187	0.203	0.031	0.087
		2QP-GNGA433	●	2	-	0.187	0.203	0.047	0.094
	Heavy honing		2QP-CNGA432-H	●	2	0.500	0.187	0.203	0.031
2QP-DNGA432-H			●	2	0.500	0.187	0.203	0.031	0.083
		3QP-TNGA332-H	●	3	0.375	0.187	0.150	0.031	0.075
		3QP-TNGA333-H	●	3	0.375	0.187	0.150	0.047	0.094
		2QP-VNGA331-H	●	2	0.375	0.187	0.150	0.016	0.122
	2QP-VNGA332-H	●	2	0.375	0.187	0.150	0.031	0.087	
With chipbreaker		2QP-CNGM432-HM	●	2	0.500	0.187	0.203	0.031	0.087
		2QP-CNGM433-HM	●	2	0.500	0.187	0.203	0.047	0.094
With wiper		2QP-CNGA432WL	●	2	0.500	0.187	0.203	0.031	0.087
		2QP-DNGA431WJ	●	2	0.500	0.187	0.203	0.016	0.083
		2QP-DNGA432WJ	●	2	0.500	0.187	0.203	0.031	0.083
			3QP-TNGA331WG	●	3	0.375	0.187	0.150	0.016
Standard		2QP-CCGW060204	●	2	0.250	0.094	0.110	0.016	0.091
		2QP-CCGW09T304	●	2	0.375	0.156	0.173	0.016	0.091
		2QP-CCGW09T308	●	2	0.375	0.156	0.173	0.031	0.087
		2QP-DCGW070202	●	2	0.250	0.094	0.110	0.008	0.106
		2QP-DCGW070204	●	2	0.250	0.094	0.110	0.016	0.098
		2QP-DCGW11T308	●	2	0.375	0.156	0.173	0.031	0.083
			3QP-TPGW110304	●	3	0.250	0.125	0.134	0.016
	3QP-TPGW110308		●	3	0.250	0.125	0.134	0.031	0.079
		2QP-VBGW110304	●	2	0.250	0.125	0.110	0.016	0.122
		2QP-VBGW110308	●	2	0.250	0.125	0.110	0.031	0.087
2QP-VBGW160404		●	2	0.375	0.187	0.173	0.016	0.122	
	2QP-VBGW160408	●	2	0.375	0.187	0.173	0.031	0.087	

● : 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-DNGA433	2QP-DNGA433
Grade		BXA20	BXA20
Workpiece material		5120 (59HRC)	5120 (60HRC)
		 H	 H
Cutting conditions	Cutting speed: V_c (sfm)	560	490
	Feed : f (ipr)	0.012	0.01
	Depth of cut : a_p (inch)	0.004	0.008
	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>
		<p>Tool life (pcs / edge)</p> <p>BXA20 Competitor</p>	
Workpiece type		Automotive parts (Popette)	Machine part
Insert		2QP-CCGW09T304	2QP-DNGA431
Grade		BXA20	BXA20
Workpiece material		Alloy steel (58HRC)	4320H (60HRC)
		 H	 H
Cutting conditions	Cutting speed: V_c (sfm)	430	490
	Feed : f (ipr)	0.0016	0.003
	Depth of cut : a_p (inch)	0.008	0.006
	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>
		<p>Tool life (pcs / edge)</p> <p>BXA20 Competitor</p>	

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BXA20

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Tungaloy Report No. 511S1-US

Expansion of 0.004" and 0.078" corner radius insert

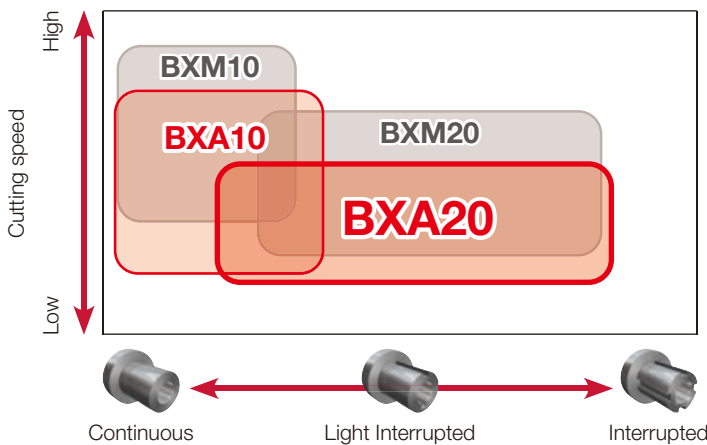




Ideal for machining small corner radii of hardened steel parts

APPLICATION AREA

The best suitable grade can be selected for your application requirements



BXA10

First choice for continuous to light interrupted cuts
For $V_c = 760$ sfm or less

BXA20

First choice for light to heavy interrupted cuts
For $V_c = 590$ sfm or less

BXM10

Complementary grade for continuous to light interrupted cuts
For extremely high cutting speeds of $V_c = 990$ sfm

BXM20

Complementary grade for light to heavy interrupted cuts
For high cutting speeds of $V_c = 660$ sfm

INSERT LINEUP

Negative type

Shape	Corner R (in)						
	0.008	0.016	0.031	0.047	0.063	0.079	0.094
C 	●	●	●	●	●	●	●
D 	●	●	●	●	●	●	●
T 	●	●	●	●	●	●	●
V 	●	●	●	●	-	-	-
G 	●	●	●	●	-	-	-


Positive type

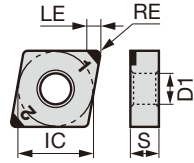
Shape	Corner R (in)			
	0.004	0.008	0.016	0.031
C 	-	●	●	●
D 	●	●	●	●
T 	-	●	●	●
V 	●	●	●	●


● : New

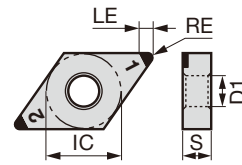
INSERT NEGATIVE TYPE


- : Continuous cutting
- ◐ : Light interrupted cutting
- ✱ : Heavy interrupted cutting

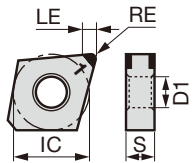
Shape	Designation		BXA10	BXA20	No. of corners	Dimension (in)					Edge prep.				Wiper	Chipbreaker	
	Inch	Metric				LE	RE	IC	S	D1	Standard	L	LFLC	H			
						Sharp edge											
	2QP-CNGA**	2QP-CNGA 430.5	2QP-CNGA120402	●	●	2	0.091	0.008	0.500	0.187	0.203	○					
		2QP-CNGA 430.5-L	2QP-CNGA120402-L	●	●	2	0.091	0.008	0.500	0.187	0.203		○				
		2QP-CNGA 430.5-LF	2QP-CNGA120402-LF	●	●	2	0.091	0.008	0.500	0.187	0.203			○			
		2QP-CNGA 430.5-LC	2QP-CNGA120402-LC	●	●	2	0.091	0.008	0.500	0.187	0.203				○		



Shape	Designation		BXA10	BXA20	No. of corners	Dimension (in)					Edge prep.				Wiper	Chipbreaker	
	Inch	Metric				LE	RE	IC	S	D1	Standard	L	LFLC	H			
						Sharp edge											
	2QP-DNGA**	2QP-DNGA 430.5	2QP-DNGA150402	●	●	2	0.106	0.079	0.500	0.187	0.203	○					
		2QP-DNGA 430.5-L	2QP-DNGA150402-L	●	●	2	0.106	0.079	0.500	0.187	0.203		○				
		2QP-DNGA 430.5-LF	2QP-DNGA150402-LF	●	●	2	0.106	0.079	0.500	0.187	0.203			○			
		2QP-DNGA 430.5-LC	2QP-DNGA150402-LC	●	●	2	0.106	0.079	0.500	0.187	0.203				○		



Shape	Designation		BXA10	BXA20	No. of corners	Dimension (in)					Edge prep.				Wiper	Chipbreaker	
	Inch	Metric				LE	RE	IC	S	D1	Standard	L	LFLC	H			
						Sharp edge											
	2QP-GNGA**	2QP-GNGA 430.5	*2QP-GNGA120402	●	●	2	0.087	0.080	0.500	0.187	0.203	○					
		*2QP-GNGA 430.5-L	*2QP-GNGA120402-L	●	●	2	0.087	0.080	0.500	0.187	0.203		○				
		*2QP-GNGA 430.5-LF	*2QP-GNGA120402-LF	●	●	2	0.087	0.080	0.500	0.187	0.203			○			
		*2QP-GNGA 430.5-LC	*2QP-GNGA120402-LC	●	●	2	0.087	0.080	0.500	0.187	0.203				○		





* Tungaloy's standard

● : New

INSERT NEGATIVE TYPE

- : Continuous cutting
- ◐ : Light interrupted cutting
- ✱ : Heavy interrupted cutting

Shape	Designation		BXA10	BXA20							Dimension (in)					Edge prep.				Wiper	Chipbreaker					
	Inch	Metric									No. of corners	LE	RE	IC	S	D1	Standard	L	LF			LC	H			
											Sharp edge															
	3QP-TNGA**	3QP-TNGA 330.5	3QP-TNGA160402	●	●																					
		3QP-TNGA 330.5-L	3QP-TNGA160402-L	●	●																					
		3QP-TNGA 330.5-LF	3QP-TNGA160402-LF	●	●																					
		3QP-TNGA 330.5-LC	3QP-TNGA160402-LC	●	●																					

Shape	Designation		BXA10	BXA20							Dimension (in)					Edge prep.				Wiper	Chipbreaker						
	Inch	Metric									No. of corners	LE	RE	IC	S	D1	Standard	L	LF			LC	H				
											Sharp edge																
	2QP-VNGA**	2QP-VNGA 330.5	2QP-VNGA160402	●	●																						
		2QP-VNGA 330.5-L	2QP-VNGA160402-L	●	●																						
		2QP-VNGA 330.5-LF	2QP-VNGA160402-LF	●	●																						
		2QP-VNGA 330.5-LC	2QP-VNGA160402-LC	●	●																						

● : New

INSERT POSITIVE TYPE

- : Continuous cutting
- ◐ : Light interrupted cutting
- ✱ : Heavy interrupted cutting

Shape	Designation		BXA10	BXA20						Dimension (in)					Edge prep.				Wiper	Chipbreaker		
	Inch	Metric								No. of corners	LE	RE	IC	S	D1	Standard	Sharp edge	L			LFLC	H
2QP-CCGW**	2QP-CCGW 21.50.5	2QP-CCGW060202	●	●																		
	2QP-CCGW 21.50.5-L	2QP-CCGW060202-L	●	●							○											
	2QP-CCGW 21.50.5-LF	2QP-CCGW060202-LF	●	●								○										
	2QP-CCGW 21.50.5-LC	2QP-CCGW060202-LC	●	●									○									
	2QP-CCGW 32.50.5	2QP-CCGW09T302	●	●							○											
	2QP-CCGW 32.50.5-L	2QP-CCGW09T302-L	●	●								○										
	2QP-CCGW 32.50.5-LF	2QP-CCGW09T302-LF	●	●									○									
	2QP-CCGW 32.50.5-LC	2QP-CCGW09T302-LC	●	●										○								
	2QP-CCGW 32.50.5-H	2QP-CCGW09T302-H	●	●											○							
2QP-CPGW**	2QP-CPGW 2.51.50.5	2QP-CPGW080202	●	●							○											
	2QP-CPGW 320.5	2QP-CPGW090302	●	●							○											

Shape	Designation		BXA10	BXA20							Dimension (in)					Edge prep.				Wiper	Chipbreaker		
	Inch	Metric									No. of corners	LE	RE	IC	S	D1	Standard	Sharp edge	L			LFLC	H
2QP-DCGW**	2QP-DCGW 21.50.5-L	2QP-DCGW070202-L	●	●																			
	2QP-DCGW 21.50.5-LF	2QP-DCGW070202-LF	●	●								○											
	2QP-DCGW 21.50.5-LC	2QP-DCGW070202-LC	●	●									○										
	2QP-DCGW 32.50.2	2QP-DCGW11T301	●	●							○												
	2QP-DCGW 32.50.5-L	2QP-DCGW11T302-L	●	●								○											
	2QP-DCGW 32.50.5-LF	2QP-DCGW11T302-LF	●	●									○										
	2QP-DCGW 32.50.5-LC	2QP-DCGW11T302-LC	●	●										○									
	2QP-DCGW32.50.5-H	2QP-DCGW11T302-H	●	●											○								

● : New

INSERT POSITIVE TYPE

- : Continuous cutting
- ◐ : Light interrupted cutting
- ✱ : Heavy interrupted cutting

Shape	Designation		BXA10	BXA20	No. of corners	Dimension (in)					Edge prep.					Wiper	Chipbreaker
	Inch	Metric				LE	RE	IC	S	D1	Standard	L	LFLC	H			
						Sharp edge											
3QP-TPGW**	3QP-TPGW 630.5	3QP-TPGW080202	●	●	3	0.091	0.008	0.187	0.094	0.091	○						
	3QP-TPGW 730.5	3QP-TPGW090202	●	●	3	0.091	0.008	0.219	0.094	0.098	○						
	3QP-TPGW 21.50	3QP-TPGW110202	●	●	3	0.091	0.008	0.250	0.094	0.110	○						
	3QP-TPGW 220.5-L	3QP-TPGW110302-L	●	●	3	0.091	0.008	0.250	0.125	0.134		○					
	3QP-TPGW 220.5-LF	3QP-TPGW110302-LF	●	●	3	0.091	0.008	0.250	0.125	0.134			○				
	3QP-TPGW 220.5-LC	3QP-TPGW110302-LC	●	●	3	0.091	0.008	0.250	0.125	0.134				○			
	3QP-TPGW 220.5-H	3QP-TPGW110302-H	●	●	3	0.091	0.008	0.250	0.125	0.134					○		
	3QP-TPGW 2.520.5	3QP-TPGW130302	●	●	3	0.091	0.008	0.313	0.125	0.134	○						
	3QP-TPGW 32.50.5	3QP-TPGW16T302	●	●	3	0.091	0.008	0.375	0.156	0.173	○						
	3QP-TPGW 330.5	3QP-TPGW160402	●	●	3	0.091	0.008	0.375	0.187	0.173	○						
3QP-TPGW 330.5-H	3QP-TPGW160402-H	●	●	3	0.091	0.008	0.375	0.187	0.173					○			

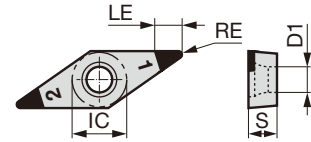
Shape	Designation		BXA10	BXA20	No. of corners	Dimension (in)					Edge prep.					Wiper	Chipbreaker
	Inch	Metric				LE	RE	IC	S	D1	Standard	L	LFLC	H			
						Sharp edge											
3QP-TCGW**	3QP-TCGW 730.5	3QP-TCGW090202	●	●	3	0.091	0.008	0.219	0.094	0.098	○						
	3QP-TCGW 21.50.5	3QP-TCGW110202	●	●	3	0.091	0.008	0.250	0.094	0.110	○						
	3QP-TCGW 32.50.5	3QP-TCGW16T302	●	●	3	0.091	0.008	0.375	0.156	0.173	○						

● : New

INSERT POSITIVE TYPE

- : Continuous cutting
- : Light interrupted cutting
- : Heavy interrupted cutting

Shape	Designation		BXA10	BXA20						Dimension (in)					Edge prep.				Wiper	Chipbreaker				
	Inch	Metric								No. of corners	LE	RE	IC	S	D1	Standard	Sharp edge	L			LFLC	H		
																							Standard	Sharp edge
2QP-VBGW**	2QP-VBGW 21.50.5	2QP-VBGW110202	●●	●●																				
	2QP-VBGW 220.2	2QP-VBGW110301	●●	●●																				
	2QP-VBGW 220.5	2QP-VBGW110302	●●	●●																				
	2QP-VBGW 220.5-L	2QP-VBGW110302-L	●●	●●								○												
	2QP-VBGW 220.5-LF	2QP-VBGW110302-LF	●●	●●									○											
	2QP-VBGW 220.5-LC	2QP-VBGW110302-LC	●●	●●										○										
	2QP-VBGW 330.5	2QP-VBGW160402	●●	●●																				
	2QP-VBGW 330.5-L	2QP-VBGW160402-L	●●	●●									○											
	2QP-VBGW 330.5-LF	2QP-VBGW160402-LF	●●	●●										○										
	2QP-VBGW 330.5-LC	2QP-VBGW160402-LC	●●	●●											○									
	2QP-VBGW 330.5-H	2QP-VBGW160402-H	●●	●●																		○		



Shape	Designation		BXA10	BXA20						Dimension (in)					Edge prep.				Wiper	Chipbreaker				
	Inch	Metric								No. of corners	LE	RE	IC	S	D1	Standard	Sharp edge	L			LFLC	H		
																							Standard	Sharp edge
2QP-VCGW**	2QP-VCGW 630.5	2QP-VCGW080202	●●	●●																				
	2QP-VCGW 330.5	2QP-VCGW160402	●●	●●																				
	2QP-VCGW 330.5-H	2QP-VCGW160402-H	●●	●●																			○	

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