NEW PRODUCT NEWS

mgt
MEGA TECH METALWORK

Tungaloy Report No. 518-G

HARDBREAKER SERIES

CBN insert

The HardBreaker series
now offers new HP chipbreaker in 0.2 mm nose radius

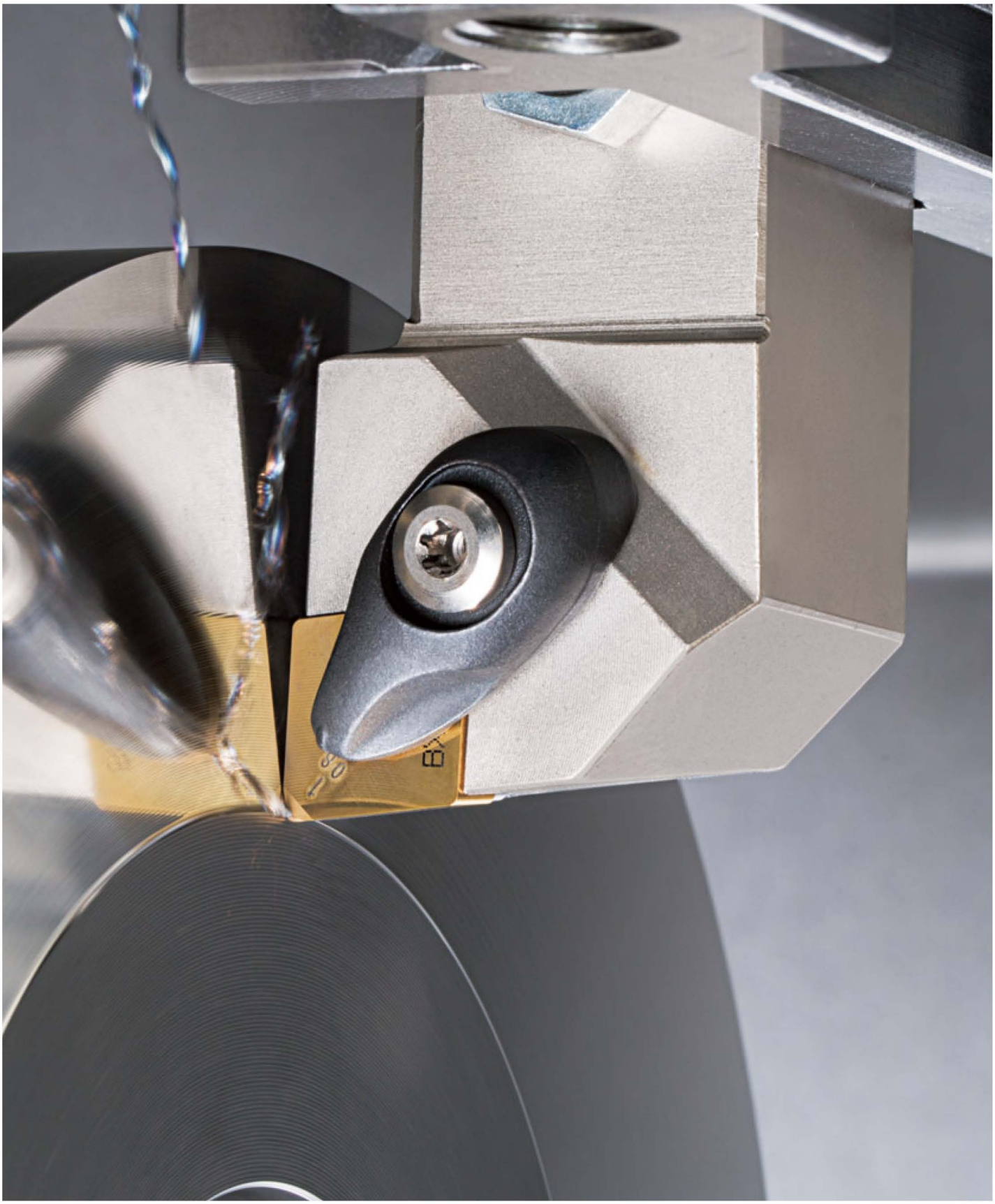
Member IMC Group Tungaloy INDUSTRY 4.0

TUNGALOY ADDFORCE ACCELERATED LINES

NEW PRODUCT NEWS

Tungaloy Report No. 518-G

mgt
MEGA TECH METALWORK



Member IMC Group Tungaloy INDUSTRY 4.0

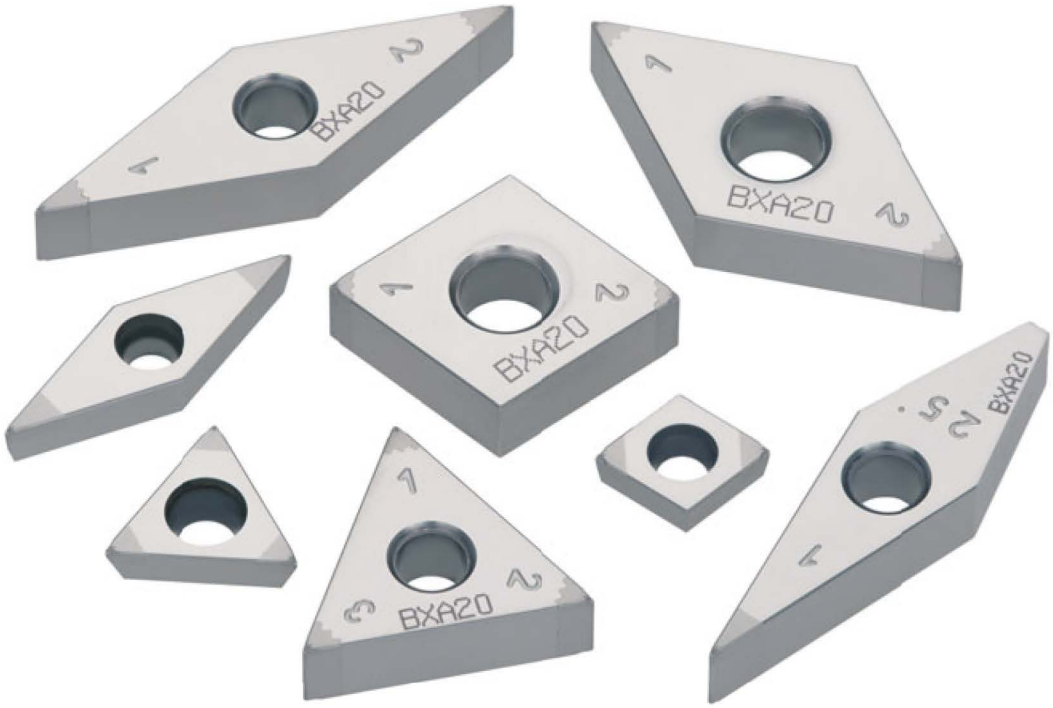
TUNGALOY ADDFORCE ACCELERATED LINES

NEW PRODUCT NEWS

Tungaloy Report No. 518-G

MEGA TECH METALWORK

TUNGALOY ADDFORCE TURN
ACCELERATED TURNING & THREADING



New HP chipbreaker designed for **0.2 mm nose radius**

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TUNGALOY ADDFORCE ACCELERATED LINES

NEW PRODUCT NEWS

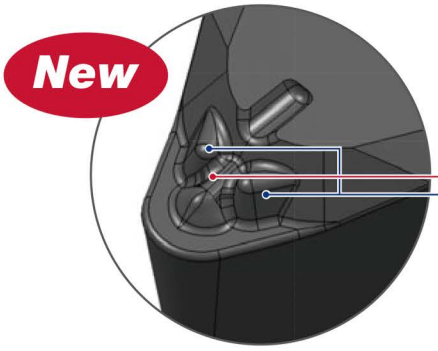
Tungaloy Report No. 518-G

mgt MEGA TECH METALWORK

HARDBREAKER SERIES

New HP chipbreaker designed for 0.2 mm nose radius

Featuring two distinctive chip redirectors, the chipbreaker geometry is designed for a small nose radius to provide effective chip control.



Chip Redirector 1

Positioned close to the cutting edge, Chip Redirector 1 ensures smooth chip control during finish machining.

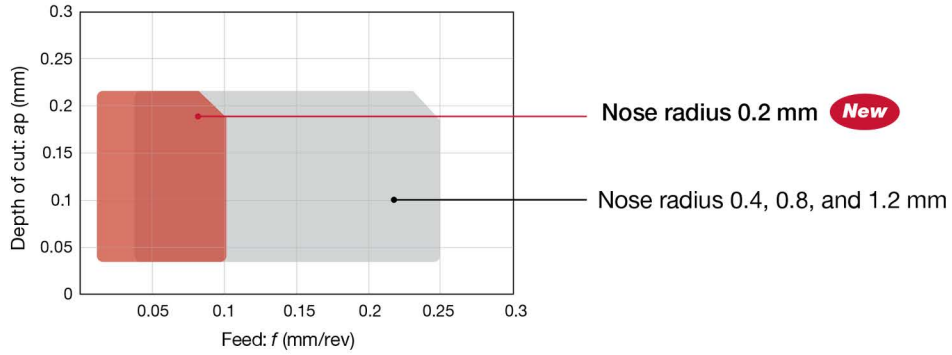
Chip Redirector 2

Directs chips that pass over Chip Redirector 1 away from the cutting area, especially in cases such as:

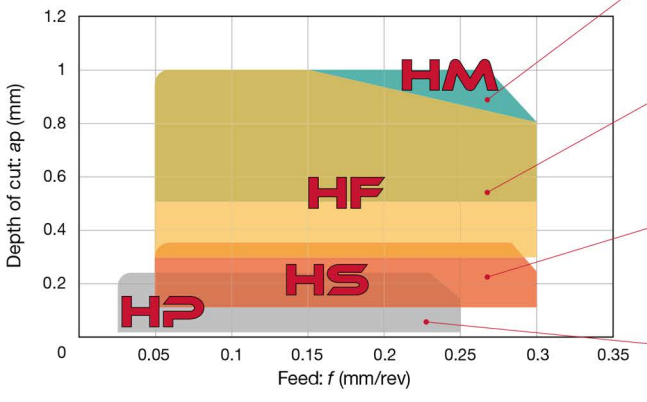
Machining at increased feeds and speeds

Wear occurring on Chip Redirector 1

■ Recommended cutting parameters



CBN inserts with chipbreaker ideal for carburized layer removal and finishing hardened steel



For removal of carburized layer
Breaker shape with excellent chipping resistance in deep cuts

For removal of carburized layer
- Reliable chip restraint over a wide cutting area
- Breaker shape for low cutting resistance and crater wear

For high feed finishing
- Breaker shape for excellent chip control
- Edge prep to prevent catastrophic failure

For precision finishing
Breaker shape suitable for precision finishing

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TUNGALOY ADDFORCE ACCELERATED LINES

NEW PRODUCT NEWS

Tungaloy Report No. 518-G

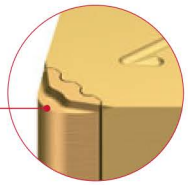
MEGA TECH METALWORK

HP chipbreaker

Designed for finish machining of hardened parts with close tolerances

- Optimized chipbreaker geometry significantly reduces cutting force imposed on the cutting edge, ensuring long tool life.
- The edge preparation is designed to generate low cutting force, providing chatter-free machining and close tolerances.
- The built-in wiper yields excellent surface quality and good chip control.

Optimized edge preparation for low cutting force

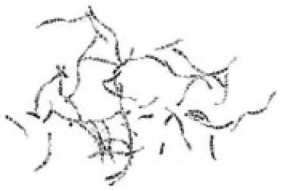


CUTTING PERFORMANCE

HP chipbreaker provides better chip control over the competitors

HP chipbreaker

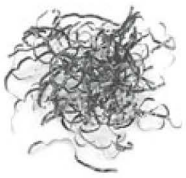
40 min.



80 min.

Vs.

Competitor's CBN with chipbreaker

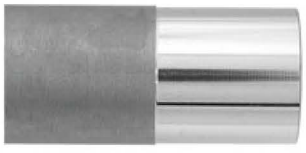


Insert	: 2QP-CNGM120408-**HP**
Workpiece material	: SCM420 / 18CrMo4 (58HRC)
Cutting speed	: *Vc* = 180 m/min
Feed	: *f* = 0.15 mm/rev
Depth of cut	: *ap* = 0.15 mm
Holder	: ACLNR2525M12-A
Coolant	: Wet
Machining	: External continuous cutting

Chatter stability

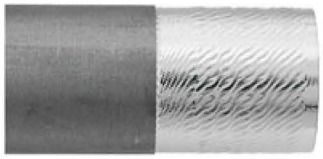
→ Prevents chattering and provides the finest machined surface

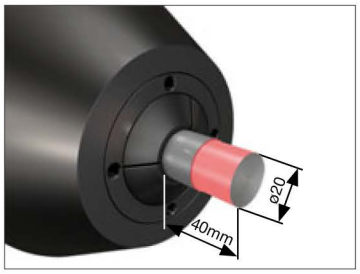
HP chipbreaker



Due to low cutting force, chatter stability is greatly improved.

Competitor (without breaker)





Insert	: 2QP-CNGM120408-**HP**
Workpiece material	: SCM420 / 18CrMo4 (58HRC)
Cutting speed	: *Vc* = 150 m/min
Feed	: *f* = 0.15 mm/rev
Depth of cut	: *ap* = 0.15 mm
Machining	: External continuous cutting

NEW PRODUCT NEWS

Tungaloy Report No. 518-G

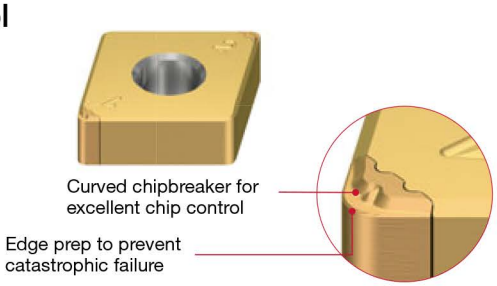
MEGA TECH METALWORK

HARDBREAKER SERIES

HS chipbreaker

Optimized chipbreaker design for excellent chip control during hard turning at aggressive conditions

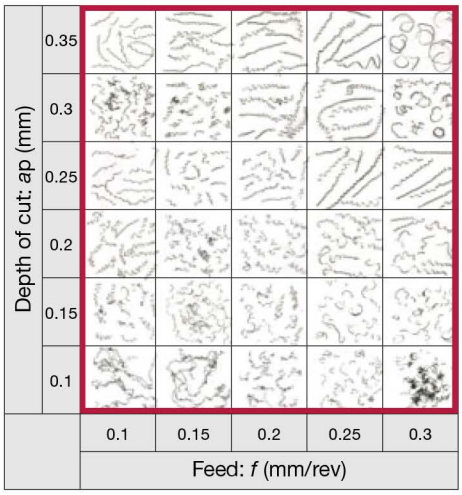
- Designed for high feed machining.
- Provides excellent chip control for a wide range of D.O.C. and feed rates.
- Edge preparation is designed to prevent catastrophic failure.



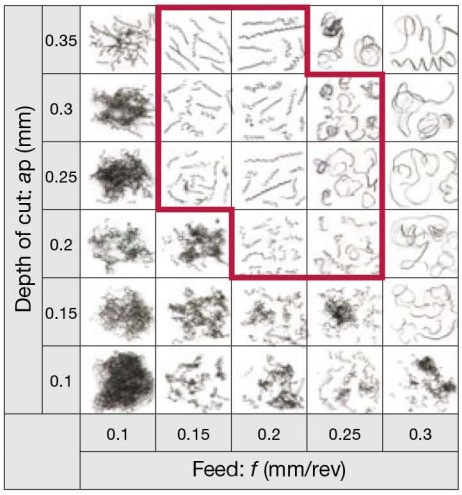
CUTTING PERFORMANCE

HS provides all-round chip breaking capability even at increased feed rates vs. competitors

HS chipbreaker



Competitor's CBN with chipbreaker



Insert	: 2QP-CNGM120408-HS
Workpiece material	: SCM420 (58HRC)
Cutting speed	: *Vc* = 150 m/min
Holder	: ACLNL2525M12-A
Coolant	: Wet
Machining	: External continuous cutting

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TUNGALOY ADDFORCE ACCELERATED LINES

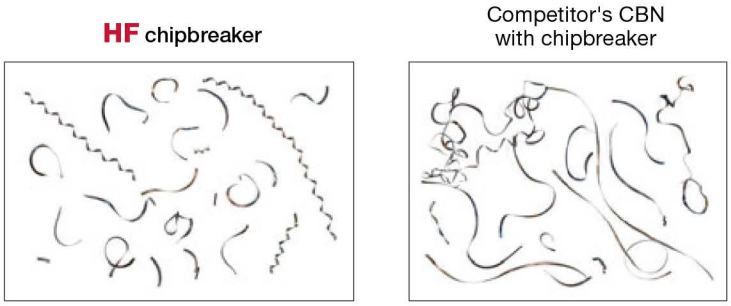
HF and HM chipbreakers

- Suited for hard turning applications requiring great D.O.C. such as carburized layer removal.
- Effective chip breaking is possible for a wide range of hard materials.
- **BXA20** and **BXM20** CBN grade inserts are available for aggressive cutting depths.

CUTTING PERFORMANCE (EXAMPLES OF ACTUAL PROCESSING)

■ Chip control

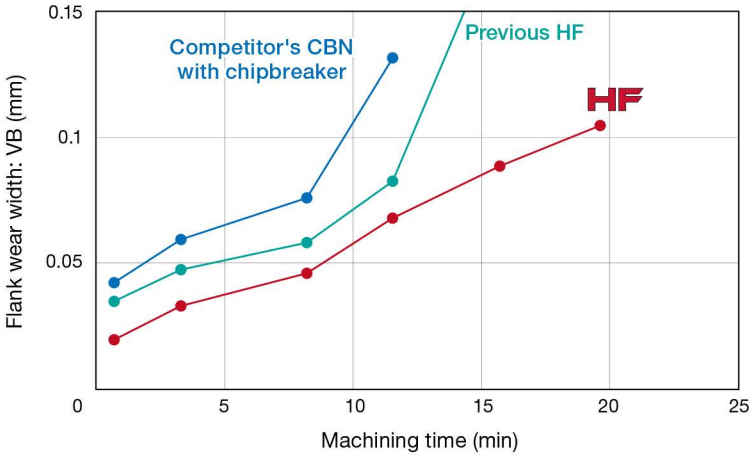
Comparisons of chip formations after machining 80 pcs of automotive shafts



Insert	: 2QP-CNGM120408-HF
Workpiece material	: SCM415 (60HRC)
Cutting speed	: *Vc* = 180 m/min
Feed	: *f* = 0.2 mm/rev
Depth of cut	: *ap* = 0.5 mm x 3 passes
Holder	: ACLNL25252M12-A
Machining	: External continuous cutting
Coolant	: Wet

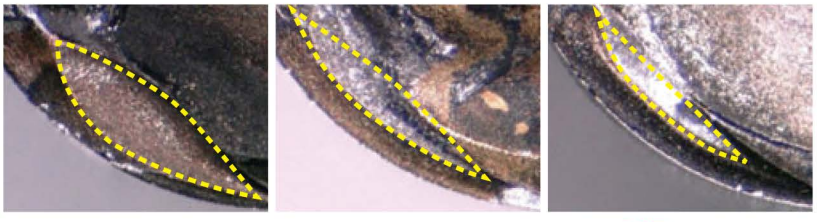
■ Crater wear resistance

Comparison of automotive clutch machining lifetime



Insert	: 2QP-CNGM120408-HF
Workpiece material	: SCM415 (60HRC)
Cutting speed	: *Vc* = 150 m/min
Feed	: *f* = 0.15 mm/rev
Depth of cut	: *ap* = 0.5 mm x 5 passes
Holder	: ACLNL25252M12-A
Machining	: External continuous cutting
Coolant	: Wet

Comparisons of crater wear sizes (After 8 min)

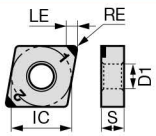


Competitor's chipbreaker | Previous HF chipbreaker | New HF chipbreaker

CBN Insert NEGATIVE TYPE

● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

CN with chipbreaker



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

80°Rhombic with hole

		BXA10	BXA20	BXM10	BXM20
K	Cast iron				
S	Superalloy				
H	Hard material	●	●◐	●	●◐
	Sintered alloy				

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flank wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BXM10	BXM20
Precision finishing	4QS-CNGG120402-HP	0.2	1.6	4		○						●		
	2QP-CNGM120404-HP	0.4	2.3	2		○					●	●	●	
	4QS-CNGG120404-HP		1.6	4		○					●	●		
	2QP-CNGM120404-HS		2.3	2		○					●	●		
	4QS-CNGG120404-HS		1.6	4		○					●	●		
	2QP-CNGM120404MW-HP		3.2	2	○	○					●	●		
	2QP-CNGM120404MW-HS		3.2	2	○	○					●	●		
	4QS-CNGG120404MW-HP		2.9	4	○	○					●	●		
	4QS-CNGG120404MW-HS		2.9	4	○	○					●	●		
	2QP-CNGM120408-HP	0.8	2.2	2		○					●	●	●	
	4QS-CNGG120408-HP		1.5	4		○					●	●		
	2QP-CNGM120408FW-HP		2.2	2	○	○					●	●	●	
	4QS-CNGG120408FW-HP		1.8	4	○	○					●	●		
	2QP-CNGM120408-HS		2.2	2		○					●	●		
	4QS-CNGG120408-HS		1.8	4		○					●	●		
	2QP-CNGM120408FW-HS		2.2	2	○	○					●	●		
	2QP-CNGM120408MW-HP		3.1	2	○	○					●	●		
	2QP-CNGM120408MW-HS		3.1	2	○	○					●	●		
	4QS-CNGG120408MW-HP		2.8	4	○	○					●	●		
	4QS-CNGG120408MW-HS		2.8	4	○	○					●	●		
	2QP-CNGM120412-HP	1.2	2.4	2		○					●	●	●	
	2QP-CNGM120412-HS		2.4	2		○					●	●		
	4QS-CNGG120412-HS		2.2	4		○					●	●		
	2QP-CNGM120412FW-HS		2.4	2	○	○					●	●		
	2QP-CNGM120412MW-HP		3.4	2	○	○					●	●		
	2QP-CNGM120412MW-HS		3.4	2	○	○					●	●		
	4QS-CNGG120412MW-HP		3.9	4	○	○					●	●		
	4QS-CNGG120412MW-HS		3.9	4	○	○					●	●		
Medium cutting	2QP-CNGM120408-HF	0.8	2.2	2		○						●		●
	4QS-CNGG120408-HF		1.8	4		○						●		
	2QP-CNGM120408-HM		2.2	2		○						●		●
	4QS-CNGG120408-HM		1.5	4		○						●		
	2QP-CNGM120412-HF	1.2	2.4	2		○						●		●
	4QS-CNGG120412-HF		2.2	4		○						●		
	2QP-CNGM120412-HM		2.4	2		○						●		●
	4QS-CNGG120412-HM		1.7	4		○						●		

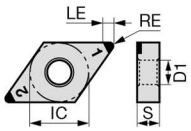
● : New product
● : Line up

MEGA TECH METALWORK

CBN Insert NEGATIVE TYPE

● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

DN with chipbreaker



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

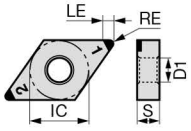
55° Rhombic with hole

		BXA10	BXA20	BXM10	BXM20
K	Cast iron				
S	Superalloy				
H	Hard material	●	◐	●	◐
	Sintered alloy				

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flank wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BXM10	BXM20
Precision finishing	4QS-DNGG150402-HP	0.2	2.1	4		○						●		
	2QP-DNGM150404-HP	0.4	2.5	2		○					●	●	●	
	4QS-DNGG150404-HP		2	4		○					●	●		
	2QP-DNGM150404-HS		2.5	2		○					●	●		
	4QS-DNGG150404-HS		2	4		○					●	●		
	2QP-DNGM150408-HP	0.8	2.1	2		○					●	●	●	
	4QS-DNGG150408-HP		1.6	4		○					●	●		
	2QP-DNGM150408-HS		2.1	2		○					●	●		
	4QS-DNGG150408-HS		1.6	4		○					●	●		
	2QP-DNGM150412-HP	1.2	2	2		○					●	●		
	2QP-DNGM150412-HS		2	2		○					●	●		
	4QS-DNGG150412-HS		1.6	4		○					●	●		
Medium cutting	2QP-DNGM150408-HF	0.8	2.1	2		○						●		●
	4QS-DNGG150408-HF		2	4		○						●		
	2QP-DNGM150408-HM		2.1	2		○								●
	4QS-DNGG150408-HM		1.6	4		○						●		
	2QP-DNGM150412-HF	1.2	2	2		○						●		●
	4QS-DNGG150412-HF		2.6	4		○						●		
	2QP-DNGM150412-HM		2	2		○								●

● : New product
● : Line up

DN with chipbreaker



IC : 12.7 mm
D1 : 5.16 mm
S : 6.35 mm

55° Rhombic with hole

		BXA10	BXA20	BXM10
K	Cast iron			
S	Superalloy			
H	Hard material	●	◐	●
	Sintered alloy			

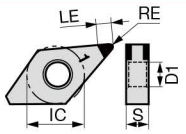
Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flank wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BXM10
Precision finishing	2QP-DNGM150608-HP	0.8	2.1	2		○					●	●	●
	2QP-DNGM150608-HS		2.1	2		○					●	●	

● : Line up

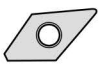
CBN Insert NEGATIVE TYPE

● : Continuous cutting
c : Light interrupted cutting
✠ : Heavy interrupted cutting

FN with chipbreaker



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm



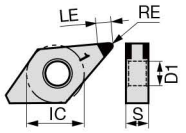
45° Rhombic with hole

K	Cast iron	
S	Superalloy	
H	Hard material	●c
	Sintered alloy	

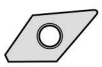
Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flank wear	Problem: Crater wear	Problem: Chipping	BXA20
Precision finishing	2QP-FNGG150404-HP	0.4	2.6	2		○					●
	2QP-FNGG150408-HP	0.8	3	2		○					●
	2QP-FNGG150412-HP	1.2	3.3	2		○					●

● : Line up

FN with chipbreaker



IC : 12.7 mm
D1 : 5.16 mm
S : 6.35 mm



45° Rhombic with hole

K	Cast iron	
S	Superalloy	
H	Hard material	●c
	Sintered alloy	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flank wear	Problem: Crater wear	Problem: Chipping	BXA20
Precision finishing	2QP-FNGG150604-HP	0.4	2.6	2		○					●
	2QP-FNGG150608-HP	0.8	3	2		○					●
	2QP-FNGG150612-HP	1.2	3.3	2		○					●

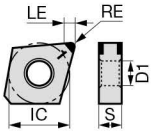
● : Line up

MEGA TECH METALWORK

CBN Insert NEGATIVE TYPE

● : Continuous cutting
ⓒ : Light interrupted cutting
✠ : Heavy interrupted cutting

GN with chipbreaker



IC : 12.7 mm
D1 : 5.16 mm
S : 4.76 mm

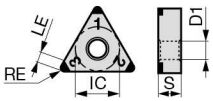
70° Rhombic with hole

K	Cast iron
S	Superalloy
H	Hard material
	Sintered alloy

Application	Designation	Dimension (mm) RE	LE	No. of corners	Wiper	Standard	Problem: Burr	Flank wear	Crater wear	Chipping	BXA10	BXA20	BXM10
Precision finishing	2QP-GNGG120404-HP	0.4	2.1	2		○					●	●	●
	2QP-GNGG120404-HS		2.1	2		○					●	●	
	2QP-GNGG120408-HP	0.8	2.1	2		○					●	●	●
	2QP-GNGG120408-HS		2.1	2		○					●	●	
	2QP-GNGG120412-HP	1.2	2.2	2		○					●	●	●
	2QP-GNGG120412-HS		2.2	2		○					●	●	

● : Line up

TN with chipbreaker



IC : 9.525 mm
D1 : 3.81 mm
S : 4.76 mm

Triangular with hole

K	Cast iron
S	Superalloy
H	Hard material
	Sintered alloy

Application	Designation	Dimension (mm) RE	LE	No. of corners	Wiper	Standard	Problem: Burr	Flank wear	Crater wear	Chipping	BXA10	BXA20	BXM10	BXM20
Precision finishing	6QS-TNGG160402-HP	0.2	2.1	6		○						●		
	3QP-TNGM160404-HP	0.4	2.2	3		○					●	●	●	
	6QS-TNGG160404-HP		1.9	6		○					●	●		
	3QP-TNGM160404-HS		2.2	3		○					●	●		
	6QS-TNGG160404-HS		1.9	6		○					●	●		
	3QP-TNGM160408-HP	0.8	1.9	3		○					●	●	●	
	6QS-TNGG160408-HP		1.6	6		○					●	●		
	3QP-TNGM160408-HS		1.9	3		○					●	●		
	6QS-TNGG160408-HS		1.6	6		○					●	●		
	3QP-TNGM160412-HP	1.2	2.4	3		○					●	●		
	6QS-TNGG160412-HP		1.8	6		○					●	●		
	3QP-TNGM160412-HS		2.4	3		○					●	●		
	6QS-TNGG160412-HS		1.8	6		○					●	●		
Medium cutting	3QP-TNGM160408-HF	0.8	1.9	3		○						●		●
	6QS-TNGG160408-HF		2.1	4		○						●		
	3QP-TNGM160408-HM		1.9	3		○								●
	6QS-TNGG160408-HM		1.6	6		○						●		
	3QP-TNGM160412-HF	1.2	2.4	3		○						●		●
	6QS-TNGG160412-HF		2.5	4		○						●		
	3QP-TNGM160412-HM		2.4	3		○								●

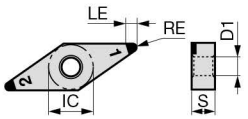
● : New product
● : Line up

CBN Insert NEGATIVE TYPE

● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

VN with chipbreaker

35° Rhombic with hole



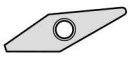
IC : 9.525 mm
D1 : 3.81 mm
S : 4.76 mm

K	Cast iron
S	Superalloy
H	Hard material
	Sintered alloy

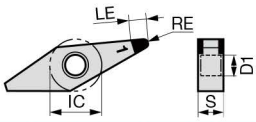
Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flank wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BXM10	BXM20
Precision finishing	4QS-VNGG160402-HP	0.2	3	4		○						●		
	2QP-VNGM160404-HP	0.4	3.1	2		○					●	●		
	4QS-VNGG160404-HP		2.6	4		○					●	●		
	2QP-VNGM160404-HS		3.1	2		○					●	●		
	4QS-VNGG160404-HS		2.6	4		○					●	●		
	2QP-VNGM160408-HP	0.8	2.2	2		○					●	●	●	
	4QS-VNGG160408-HP		1.7	4		○					●	●		
	2QP-VNGM160408-HS		2.2	2		○					●	●		
	4QS-VNGG160408-HS		1.7	4		○					●	●		
Medium cutting	2QP-VNGM160408-HF	0.8	2.2	2		○								●
	2QP-VNGM160408-HM		2.2	2		○								●
	4QS-VNGG160408-HM		1.7	4		○						●		

● : New product
● : Line up

YN with chipbreaker



25° Rhombic with hole



IC : 9.525 mm
D1 : 3.81 mm
S : 4.76 mm

K	Cast iron
S	Superalloy
H	Hard material
	Sintered alloy

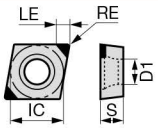
Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flank wear	Problem: Crater wear	Problem: Chipping	BXA20
Precision finishing	2QP-YNGG160402-HP	0.2	3.5	2		○					●
	2QP-YNGG160404-HP	0.4	3.1	2		○					●
	2QP-YNGG160408-HP	0.8	3	2		○					●

● : New product
● : Line up

CBN Insert POSITIVE TYPE

● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

CC with chipbreaker



IC : 6.35 mm
D1 : 2.8 mm
S : 2.38 mm

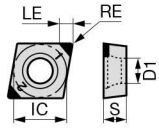
80°Rhombic with hole, Positive 7°

K	Cast iron	
S	Superalloy	
H	Hard material	● ◐ ●
	Sintered alloy	

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flank wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BXM10
Precision finishing	2QP-CCGT060202-HP	0.2	2.3	2		○						●	
	2QP-CCGT060204-HP	0.4	2.3	2		○					●	●	●
	2QP-CCGT060204-HS		2.2	2		○					●	●	

● : New product
● : Line up

CC with chipbreaker



IC : 9.525 mm
D1 : 4.4 mm
S : 3.97 mm

80°Rhombic with hole, Positive 7°

K	Cast iron	
S	Superalloy	
H	Hard material	● ◐ ●
	Sintered alloy	

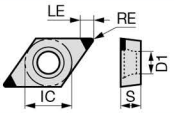
Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flank wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BXM10
Precision finishing	2QP-CCGT09T302-HP	0.2	2.3	2		○						●	
	2QP-CCGT09T304-HP	0.4	2.3	2		○					●	●	●
	2QP-CCGT09T304-HS		2.2	2		○					●	●	
	2QP-CCGT09T304FW-HP		2.3	2	○	○					●		●
	2QP-CCGT09T304FW-HS		2.2	2	○	○					●	●	
	2QP-CCGT09T304MW-HP		3	2	○	○					●	●	
	2QP-CCGT09T308-HP	0.8	2.2	2		○					●	●	●
	2QP-CCGT09T308-HS		2.2	2		○					●	●	
	2QP-CCGT09T308FW-HP		2.2	2	○	○					●		●
	2QP-CCGT09T308FW-HS		2.1	2	○	○					●	●	
	2QP-CCGT09T308MW-HP		2.9	2	○	○					●	●	

● : New product
● : Line up

CBN Insert POSITIVE TYPE

● : Continuous cutting
◐ : Light interrupted cutting
✽ : Heavy interrupted cutting

DC with chipbreaker



IC : 6.35 mm
D1 : 2.8 mm
S : 2.38 mm

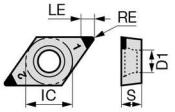
55° Rhombic with hole, Positive 7°

K	Cast iron
S	Superalloy
H	Hard material
	Sintered alloy

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flank wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BXM10
Precision finishing	2QP-DCGT070202-HP	0.2	2.6	2		○						●	
	2QP-DCGT070204-HP	0.4	2.5	2		○					●	●	●
	2QP-DCGT070204-HS		2.5	2		○					●	●	

● : New product
● : Line up

DC with chipbreaker



IC : 9.525 mm
D1 : 4.4 mm
S : 3.97 mm

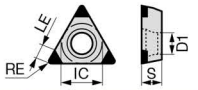
55° Rhombic with hole, Positive 7°

K	Cast iron
S	Superalloy
H	Hard material
	Sintered alloy

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flank wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BXM10
Precision finishing	2QP-DCGT11T302-HP	0.2	2.6	2		○						●	
	2QP-DCGT11T304-HP	0.4	2.5	2		○					●	●	●
	2QP-DCGT11T304-HS		2.5	2		○					●	●	
	2QP-DCGT11T308-HP	0.8	2.1	2		○					●	●	●
	2QP-DCGT11T308-HS		2.1	2		○					●	●	

● : New product
● : Line up

TP with chipbreaker



IC : 6.35 mm
D1 : 3.4 mm
S : 3.18 mm

Triangular Positive 11° with hole

K	Cast iron
S	Superalloy
H	Hard material
	Sintered alloy

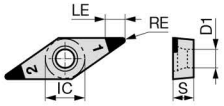
Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flank wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BXM10
Precision finishing	3QP-TPGT110302-HP	0.2	2.3	3		○						●	
	3QP-TPGT110304-HP	0.4	2.2	3		○					●	●	●
	3QP-TPGT110304-HS		2.1	3		○					●	●	
	3QP-TPGT110308-HP	0.8	1.9	3		○					●	●	●
	3QP-TPGT110308-HS		1.8	3		○					●	●	

● : New product
● : Line up

CBN Insert POSITIVE TYPE

● : Continuous cutting
◐ : Light interrupted cutting
✠ : Heavy interrupted cutting

VB with chipbreaker



IC : 6.35 mm
D1 : 2.8 mm
S : 3.18 mm

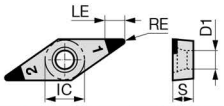
35° Rhombic Positive 5° with hole

K	Cast iron
S	Superalloy
H	Hard material
	Sintered alloy

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flank wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BXM10
Precision finishing	2QP-VBGT110302-HP	0.2	3.5	2		○						●	
	2QP-VBGT110304-HP	0.4	3	2		○					●	●	●
	2QP-VBGT110304-HS		3	2		○					●	●	
	2QP-VBGT110308-HP	0.8	2.2	2		○					●	●	●
	2QP-VBGT110308-HS		2.2	2		○					●	●	

● : New product
● : Line up

VB with chipbreaker



IC : 9.525 mm
D1 : 4.4 mm
S : 4.76 mm

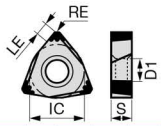
35° Rhombic Positive 5° with hole

K	Cast iron
S	Superalloy
H	Hard material
	Sintered alloy

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flank wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20	BXM10
Precision finishing	2QP-VBGT160402-HP	0.2	3.5	2		○						●	
	2QP-VBGT160404-HP	0.4	3	2		○					●	●	●
	2QP-VBGT160404-HS		3	2		○					●	●	
	2QP-VBGT160408-HP	0.8	2.2	2		○					●	●	●
	2QP-VBGT160408-HS		2.2	2		○					●	●	

● : New product
● : Line up

WX with chipbreaker



IC : 6.35 mm
D1 : 2.7 mm
S : 3.18 mm

80° Trigon with hole

K	Cast iron
S	Superalloy
H	Hard material
	Sintered alloy

Application	Designation	Dimension (mm) RE	Dimension (mm) LE	No. of corners	Wiper	Standard	Problem: Burr	Problem: Flank wear	Problem: Crater wear	Problem: Chipping	BXA10	BXA20
Precision finishing	6QS-WXGU040304R-HP	0.4	1.8	6		○					●	●
	6QS-WXGU040304L-HP		1.8	6		○					●	●
	6QS-WXGU040308R-HP	0.8	1.7	6		○					●	●
	6QS-WXGU040308L-HP		1.7	6		○					●	●

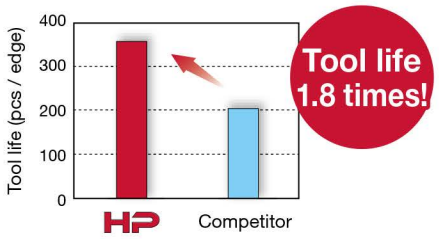
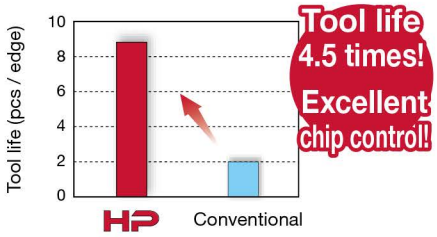
● : Line up

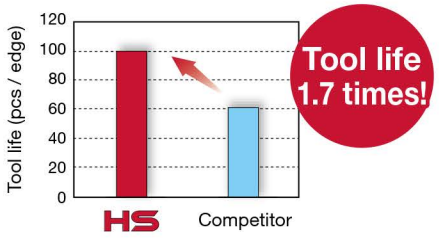
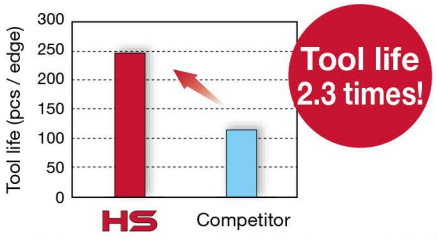
HARDBREAKER SERIES

STANDARD CUTTING CONDITIONS

ISO	Chipbreaker	Grade	Work condition	Cutting speed *Vc* (m/min)	Depth of cut *ap* (mm)	Feed *f* (mm/rev)
H	HP	BXA10	Continuous	120 - 350	0.03 - 0.22	0.03 - 0.25
	HP	BXM10	Continuous	120 - 350	0.03 - 0.22	0.03 - 0.25
	HP	BXA20	Light interrupted	70 - 180	0.03 - 0.22	0.03 - 0.25
	HS	BXA10	Continuous	120 - 350	0.1 - 0.35	0.05 - 0.3
	HS	BXA20	Light interrupted	70 - 180	0.1 - 0.35	0.05 - 0.3
	HF	BXA20	Removing of carburized layer	70 - 180	0.3 - 1	0.05 - 0.3
	HF	BXM20	Removing of carburized layer	70 - 180	0.3 - 0.8	0.05 - 0.3
	HM	BXA20	Removing of carburized layer	70 - 180	0.5 - 1	0.05 - 0.3
	HM	BXM20	Removing of carburized layer	70 - 180	0.5 - 1	0.05 - 0.3

PRACTICAL EXAMPLES

Workpiece type		Bevel gear	New Sleeve (for industrial machinery)
Insert		2QP-CNGM120408-**HP**	6QS-TNGG160402-**HP**
Grade		**BXA20**	**BXA20**
Workpiece material		SCM420 / 18CrMo4 (58HRC)	SKH40 / HS6-5-3-8
		 H	 H
Cutting conditions	Cutting speed: *Vc* (m/min)	160	40
	Feed : *f* (mm/rev)	0.1	0.03
	Depth of cut : *ap* (mm)	0.15	0.05
	Coolant	Wet	Dry
Results		 The competitor's CBN insert had a short tool life because of chip re-cutting. **HP** chipbreaker insert eliminated chip birdnesting, while also providing long tool life and excellent surface finish quality.	 BXA20 insert with **HP** chipbreaker allowed excellent chip control and provided 4.5x tool life increase over the competitor's uncoated CBN insert.

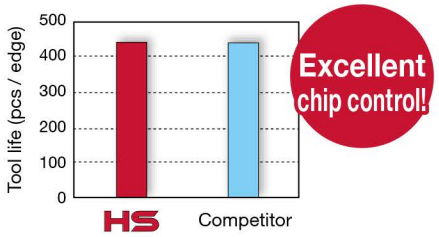
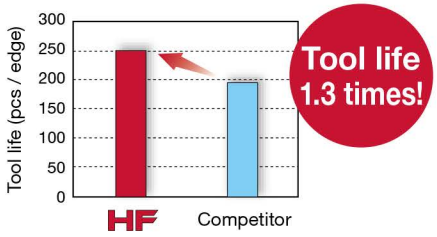
Workpiece type		Road roller (heavy equipment)	Input shaft
Insert		3QP-TNGM160408-**HS**	2QP-CNGM120408-**HS**
Grade		**BXA20**	**BXA10**
Workpiece material		S45C / C45 (58HRC)	SCM420 / 18CrMo4 (58 - 60HRC)
		 H	 H
Cutting conditions	Cutting speed: *Vc* (m/min)	180	113 - 238
	Feed : *f* (mm/rev)	0.15	0.17
	Depth of cut : *ap* (mm)	0.25	0.25
	Coolant	Wet	Wet
Results		 **HS** chipbreaker provided good chip control and eliminated chip re-cutting, improving surface quality.	 1 out of 10 parts that were machined with the competitor's CBN chipbreaker resulted in chip birdnesting. **BXA10** grade insert with **HS** chipbreaker eliminated chip birdnesting and, thanks to its good wear resistance, provided 2.3 times tool life increase.

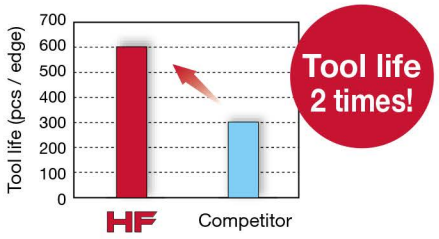
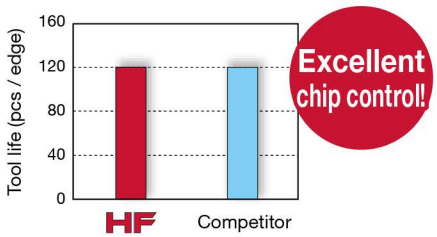
NEW PRODUCT NEWS

Tungaloy Report No. 518-G

MEGA TECH METALWORK

HARDBREAKER SERIES

Workpiece type		Automotive part	Automotive part
Insert		2QP-CCGT060204-**HS**	2QP-CNGM120408-**HF**
Grade		**BXA20**	**BXA20**
Workpiece material		SCM420 / 18CrMo4 (58HRC)	SCr420 / 20Cr4 (40 - 55HRC)
		 H	 H
Cutting conditions	Cutting speed: *Vc* (m/min)	130	130
	Feed : *f* (mm/rev)	0.25	0.24
	Depth of cut : *ap* (mm)	0.2	0.5 x 2 passes
	Coolant	Wet	Wet
Results		 Out of 100 parts, 1 - 2 that were machined with the competitor's CBN chipbreaker insert resulted in chip birdnesting. **BXA20** with **HS** chipbreaker eliminated chip birdnesting.	 **HF** chipbreaker reduced crater wear, while providing 1.3 times tool life increase.

Workpiece type		Automotive part (shaft)	Automotive parts (shaft)
Insert		4QS-CNGG120408-**HF**	2QP-CNGM120408-**HF**
Grade		**BXA20**	**BXA20**
Workpiece material		SCr420 / 20Cr4 (40 - 55HRC)	SCM420 / 18CrMo4 (40 - 54HRC)
		 H	 H
Cutting conditions	Cutting speed: *Vc* (m/min)	140	160 - 180
	Feed : *f* (mm/rev)	0.22	0.2
	Depth of cut : *ap* (mm)	0.3 x 3 passes	0.4 - 0.5 x 3 passes
	Coolant	Wet	Wet
Results		 The competitor's insert could not control chips from the beginning and ended up with short tool life. **HF** chipbreaker provided reliable chip forming and double tool life.	 Birdnesting occurred when using the competitor's CBN with chipbreaker. **HF** chipbreaker has eliminated birdnesting.

Member IMC Group Tungaloy INDUSTRY 4.0

TUNGALOY ADDFORCE ACCELERATED LINES

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