Member IMC Group Tungaloy

TurnLine

For more information

CBN Insert

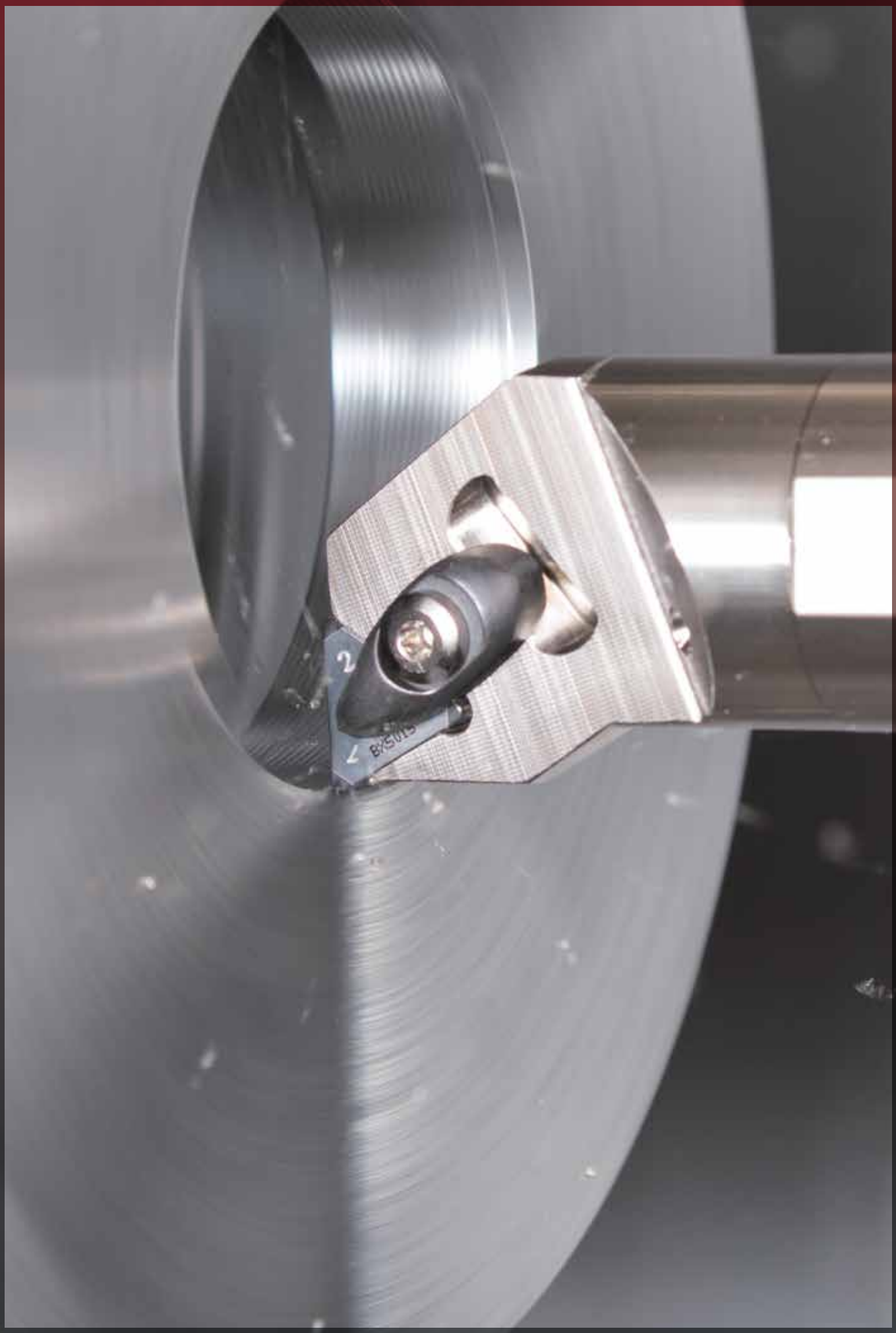
BX5015

Tungaloy Report No. 573-US

New CBN Grade for Gray Cast Iron



TUNGALOY ADDFORCE ACCELERATED LINES



TUNGALOY ADDFORCE TURN
ACCELERATED TURNING & THREADING

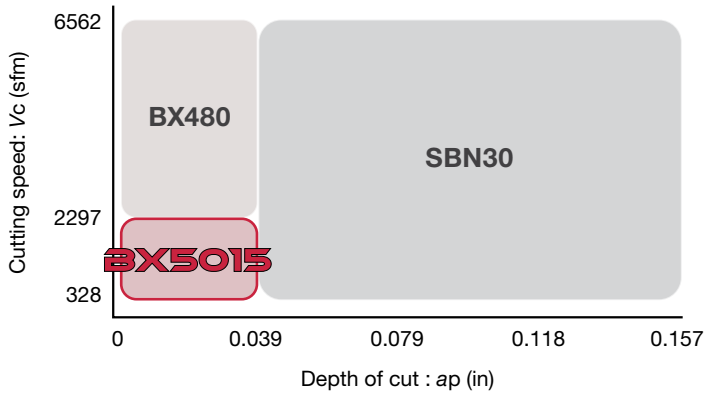
BX5015



New CBN grade developed
for low-speed machining of gray cast iron

New CBN grade developed for low-speed machining of gray cast iron

■ Application areas

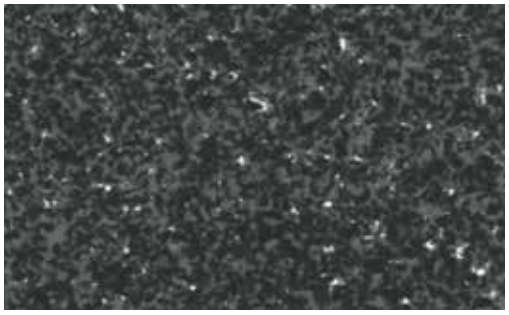


K

BX5015

Delivers excellent performance in low-speed machining of gray cast iron.

■ Grade properties

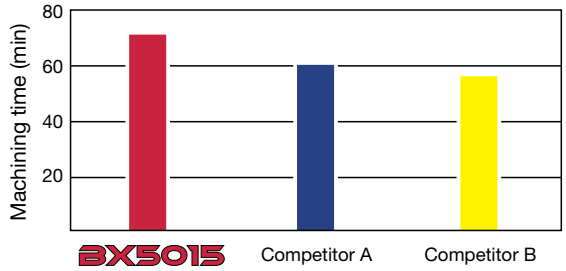


- By incorporating a binder with excellent heat and oxidation resistance, **BX5015** exhibits superior wear resistance during the low-speed machining of gray cast iron.

- The uniform distribution of sub-micron CBN grains within the binder phase provides **BX5015** with excellent fracture resistance.

■ Cutting performance

K FC200 / 200 (Pearlitic)



Insert	: CNGA 432SR
Cutting speed	: *V*c = 1640 sfm
Feed	: *f* = 0.008 ipr
Depth of cut	: *a*p = 0.008"
Machining	: Interrupted cutting
Coolant	: Wet



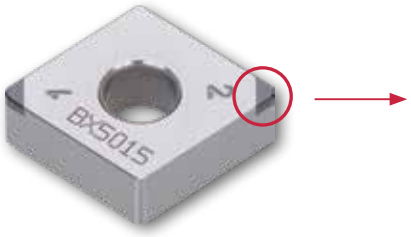
BX5015 achieves superior wear resistance in low-speed continuous machining of gray cast iron.

STANDARD CUTTING CONDITIONS

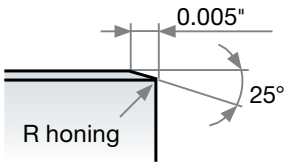
ISO	Workpiece material	Grade	Cutting speed *Vc* (sfm)	Depth of cut *ap* (in)	Feed *f* (ipr)
K	Gray cast iron FC250, etc. 250, etc.	BX5015	328 - 2297	0.002 - 0.020	0.002 - 0.012

CUTTING EDGE PREPARATION

Standard cutting edge preparation optimized for low-speed gray cast iron machining

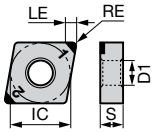


SR: S01325



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

CN



IC : 0.500"
D1 : 0.203"
S : 0.187"

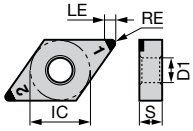
80° Rhombic with hole

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

Application	Inch Designation	Metric Designation	Dimension (in) RE	Dimension (in) LE	No. of corners	Wiper	First choice	Machining challenges: Burr	Machining challenges: Flank wear	Machining challenges: Crater wear	Machining challenges: Chipping	BX5015
Finishing	**2QP-CNGA 431SR**	**2QP-CNGA120404SR**	0.016	0.091	2		○					●
Finishing	2QP-CNGA 43**2SR**	2QP-CNGA1204**08SR**	0.031	0.087	2		○					●

● : New product

DN



IC : 0.500"
D1 : 0.203"
S : 0.187"

55° Rhombic with hole

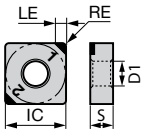
K	Cast iron	●◐
S	Superalloy	
H	Hard material	
	Sintered alloy	

Application	Inch Designation	Metric Designation	Dimension (in) RE	Dimension (in) LE	No. of corners	Wiper	First choice	Machining challenges: Burr	Machining challenges: Flank wear	Machining challenges: Crater wear	Machining challenges: Chipping	BX5015
Finishing	**2QP-DNGA 431SR**	**2QP-DNGA150404SR**	0.016	0.098	2		○					●
Finishing	2QP-DNGA 4**32SR**	2QP-DNGA1504**08SR**	0.031	0.083	2		○					●

● : New product

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

SN



IC : 0.500"
D1 : 0.203 "
S : 0.187"

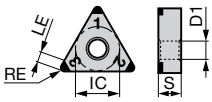
Square with hole

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

Application	Inch Designation	Metric Designation	Dimension (in) RE	Dimension (in) LE	No. of corners	Wiper	First choice	Machining challenges: Burr	Machining challenges: Flank wear	Machining challenges: Crater wear	Machining challenges: Chipping	BX5015
Finishing	**2QP-SNGA 431SR**	**2QP-SNGA120404SR**	0.016	0.094	2		○					●
	2QP-SNGA 4**32SR**	2QP-SNGA1204**08SR**	0.031	0.094	2		○					●

● : New product

TN



IC : 0.375"
D1 : 0.150"
S : 0.187"

Triangular with hole

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

Application	Inch Designation	Metric Designation	Dimension (in) RE	Dimension (in) LE	No. of corners	Wiper	First choice	Machining challenges: Burr	Machining challenges: Flank wear	Machining challenges: Crater wear	Machining challenges: Chipping	BX5015
Finishing	**3QP-TNGA 331SR**	**3QP-TNGA160404SR**	0.016	0.087	3		○					●
	3QP-TNGA 3**32SR**	3QP-TNGA1604**08SR**	0.031	0.063	3		○					●

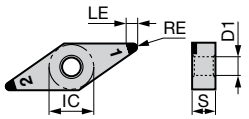
● : New product

● : Continuous cutting
ɔ : Light interrupted cutting
✣ : Heavy interrupted cutting

VN



35° Rhombic with hole



IC : 0.375"
D1 : 0.150"
S : 0.187"

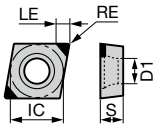
K	Cast iron	●ɔ
S	Superalloy	
H	Hard material	
	Sintered alloy	

Application	Inch Designation	Metric Designation	Dimension (in) RE	Dimension (in) LE	No. of corners	Wiper	First choice	Machining challenges: Burr	Machining challenges: Flank wear	Machining challenges: Crater wear	Machining challenges: Chipping	BX5015
Finishing	**2QP-VNGA 331SR**	**2QP-VNGA160404SR**	0.016	0.122	2		○					●
Finishing	2QP-VNGA 33**2SR**	2QP-VNGA1604**08SR**	0.031	0.087	2		○					●

● : New product

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

CC



IC : 0.250"
D1 : 0.110"
S : 0.094"



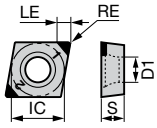
80° Rhombic with hole, Positive 7°

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

Application	Inch Designation	Metric Designation	Dimension (in) RE	Dimension (in) LE	No. of corners	Wiper	First choice	Machining challenges: Burr	Machining challenges: Flank wear	Machining challenges: Crater wear	Machining challenges: Chipping	BX5015
Finishing	2QP-CCGW 21.51SR	2QP-CCGW060204SR	0.016	0.091	2		○					●

● : New product

CC



IC : 0.375"
D1 : 0.173"
S : 0.156"



80° Rhombic with hole, Positive 7°

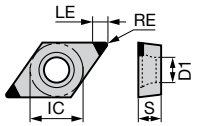
K	Cast iron	●◐
S	Superalloy	
H	Hard material	
	Sintered alloy	

Application	Inch Designation	Metric Designation	Dimension (in) RE	Dimension (in) LE	No. of corners	Wiper	First choice	Machining challenges: Burr	Machining challenges: Flank wear	Machining challenges: Crater wear	Machining challenges: Chipping	BX5015
Finishing	2QP-CCGW 32.51SR	2QP-CCGW09T304SR	0.016	0.091	2		○					●
	2QP-CCGW 32.52SR	2QP-CCGW09T308SR	0.031	0.087	2		○					●

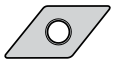
● : New product

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

DC



IC : 0.250"
D1 : 0.110"
S : 0.094"



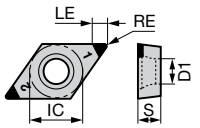
55° Rhombic with hole, Positive 7°

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

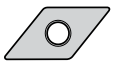
Application	Inch Designation	Metric Designation	Dimension (in) RE	Dimension (in) LE	No. of corners	Wiper	First choice	Machining challenges: Burr	Flank wear	Crater wear	Chipping	BX5015
Medium cutting	**2QP-DCGW 21.51SR**	**2QP-DCGW070204SR**	0.016	0.098	2		○					●
	2QP-DCGW 21.5**2SR**	2QP-DCGW0702**08SR**	0.031	0.083	2		○					●

● : New product

DC



IC : 0.375"
D1 : 0.173"
S : 0.156"



55° Rhombic with hole, Positive 7°

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

Application	Inch Designation	Metric Designation	Dimension (in) RE	Dimension (in) LE	No. of corners	Wiper	First choice	Machining challenges: Burr	Flank wear	Crater wear	Chipping	BX5015
Finishing	**2QP-DCGW 32.51SR**	**2QP-DCGW11T304SR**	0.016	0.098	2		○					●
	2QP-DCGW 32.5**2SR**	2QP-DCGW11T3**08SR**	0.031	0.083	2		○					●

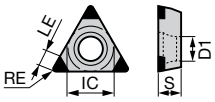
● : New product

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

TP



Triangular Positive 11° with hole



IC : 0.187"
D1 : 0.091"
S : 0.094"

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

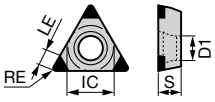
Application	Inch Designation	Metric Designation	Dimension (in) RE	Dimension (in) LE	No. of corners	Wiper	First choice	Machining challenges: Burr	Machining challenges: Flank wear	Machining challenges: Crater wear	Machining challenges: Chipping	BX5015
Finishing	3QP-TPGW 631SR	3QP-TPGW080204SR	0.016	0.098	3		○					●

● : New product

TP



Triangular Positive 11° with hole



IC : 0.219"
D1 : 0.098"
S : 0.094"

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

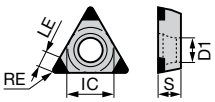
Application	Inch Designation	Metric Designation	Dimension (in) RE	Dimension (in) LE	No. of corners	Wiper	First choice	Machining challenges: Burr	Machining challenges: Flank wear	Machining challenges: Crater wear	Machining challenges: Chipping	BX5015
Finishing	3QP-TPGW 731SR	3QP-TPGW090204SR	0.016	0.087	3		○					●

● : New product

TP



Triangular Positive 11° with hole



IC : 0.250"
D1 : 0.134"
S : 0.125"

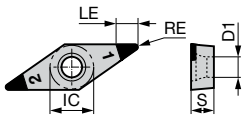
K	Cast iron	●◐
S	Superalloy	
H	Hard material	
	Sintered alloy	

Application	Inch Designation	Metric Designation	Dimension (in) RE	Dimension (in) LE	No. of corners	Wiper	First choice	Machining challenges: Burr	Machining challenges: Flank wear	Machining challenges: Crater wear	Machining challenges: Chipping	BX5015
Finishing	3QP-TPGW 221SR	3QP-TPGW110304SR	0.016	0.087	3		○					●
	3QP-TPGW 222SR	3QP-TPGW110308SR	0.031	0.075	3		○					●

● : New product

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

VB



IC : 0.375"
D1 : 0.173"
S : 0.187"

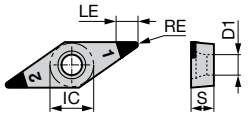
35° Rhombic Positive 5° with hole

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

Application	Inch Designation	Metric Designation	Dimension (in) RE	Dimension (in) LE	No. of corners	Wiper	First choice	Machining challenges: Burr	Machining challenges: Flank wear	Machining challenges: Crater wear	Machining challenges: Chipping	BX5015
Finishing	**2QP-VBGW 331SR**	**2QP-VBGW160404SR**	0.016	0.122	2		○					●
Finishing	2QP-VBGW 33**2SR**	2QP-VBGW1604**08SR**	0.031	0.087	2		○					●

● : New product

VC



IC : 0.375"
D1 : 0.173"
S : 0.187"

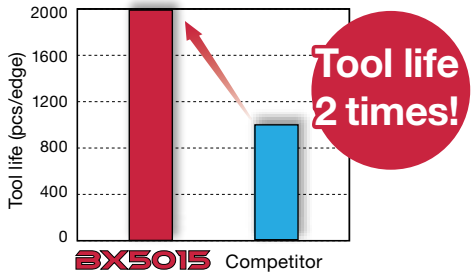
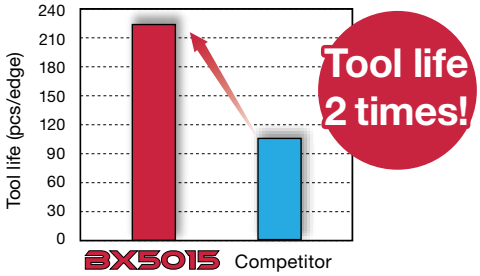
35° Rhombic Positive 7° with hole

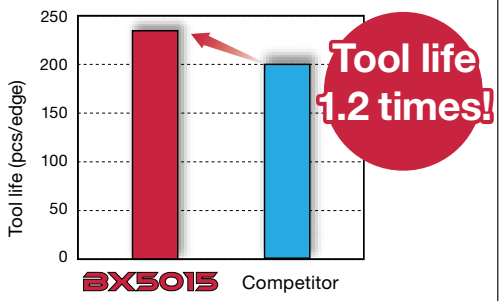
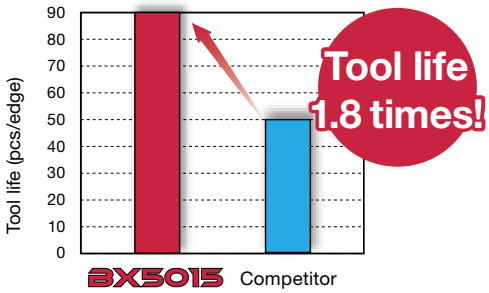
K	Cast iron	●◐
S	Superalloy	
H	Hard material	
	Sintered alloy	

Application	Inch Designation	Metric Designation	Dimension (in) RE	Dimension (in) LE	No. of corners	Wiper	First choice	Machining challenges: Burr	Machining challenges: Flank wear	Machining challenges: Crater wear	Machining challenges: Chipping	BX5015
Finishing	**2QP-VCGW 331SR**	**2QP-VCGW160404SR**	0.016	0.122	2		○					●
Finishing	2QP-VCGW 33**2SR**	2QP-VCGW1604**08SR**	0.031	0.087	2		○					●

● : New product

PRACTICAL EXAMPLES

	Workpiece type	New Oil pump housing	New Bearing housing
	Insert	2QP-CCGW 32.51SR	2QP-DNGA 431SR
	Grade	BX5015	BX5015
	Workpiece material	FC250 / 250	FC250 / 250
			
Cutting conditions	Cutting speed: *Vc* (sfm)	623	1640
	Feed : *f* (ipt)	0.008	0.008
	Depth of cut : *ap* (in)	0.001 x 2 pass	0.008
	Machining	Wet	Wet
	Results		
		Despite cutting speed limitations during I.D. machining of irregular-shaped workpieces, BX5015 provided double the tool life of competitor products through superior low-speed wear resistance.	Despite cutting speed limitations caused by the irregular shape and height of the workpiece, BX5015 delivered double the tool life of the competitor through excellent low-speed wear resistance.

	Workpiece type	New Flywheel housing	New Flywheel
	Insert	2QP-CNGA 431SR	2QP-CNGA 431SR
	Grade	BX5015	BX5015
	Workpiece material	FC250 / 250	FC250 / 250
			
Cutting conditions	Cutting speed: *Vc* (sfm)	590 - 984	656 - 787
	Feed : *f* (ipt)	0.005 - 0.012	0.008 - 0.012
	Depth of cut : *ap* (in)	0.012 - 0.118	0.004
	Machining	Wet	Wet
	Results		
		Despite cutting speeds varying from *VC* = 591-984 sfm, **BX5015** delivered 1.2 times longer tool life than competitor grades, thanks to its excellent low-speed wear resistance.	In the machining of large components where higher cutting speeds are restricted, **BX5015** demonstrated superior wear resistance, delivering 1.8 times the tool life of the competitor grade.

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Nov. 2026 (TA)