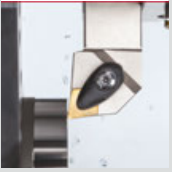


CONTENTS



General product information

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Added products



FNGA/FNGG/YNGA/YNGG

New FNGA (45°) and YNGA (25°) inserts for expanded application coverage

[View](#)

TurnLine

T-CBN SERIES

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Tungaloy Report No. 510-G

T-CBN SERIES

Useful CBN insert with unique shape,
GNGA type 70° corner angle





70° **GNGA**_{type}



80° **CNGA**_{type}

ACCELERATED MACHINING

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70° corner angle provides high performance
in finishing operation.

For **high efficiency in finishing** hardened steel, cast iron and sintered metals

New shape CBN insert for general turning

- 70° corner angle makes large clearance between insert and workpiece.
- Large clearance reduces the cutting force and wear on edge, and provides smooth chip flow to prevent scratches on machined surface by chips.



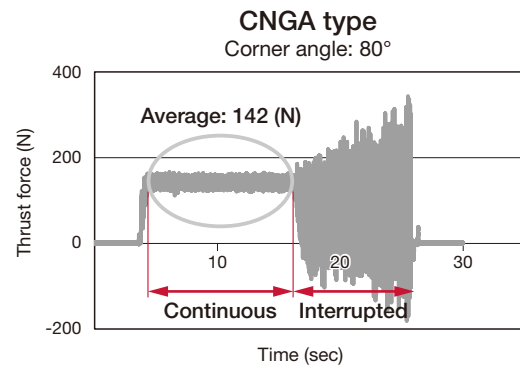
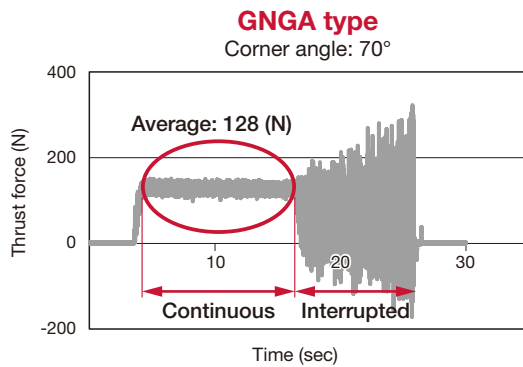
High versatility

- Standard toolholder for ISO CN**1204 insert is available.
- No need offsets compared to CN**1204 insert, due to same geometry of cutting edge position.
- Double sided insert with 2 cutting edges.
- 4 types of CBN grades are available for machining of a wide range of materials.



CUTTING PERFORMANCE

Cutting force (Thrust force)

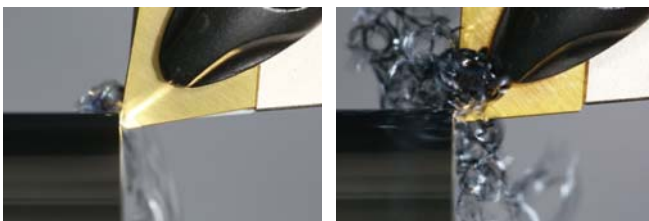


Cutting force of GNGA insert is lower than regular CNGA insert's.

H	Toolholder	: ACLNL2525M12-A
	Insert	: 2QP-GNGA120408 BXM20 2QP-CNGA120408 BXM20
	Workpiece material	: SCM420 / 18CrMo4 (59HRC)
	Cutting speed	: $V_c = 150$ m/min
	Feed	: $f = 0.15$ mm/rev
	Depth of cut	: $a_p = 0.125$ mm
	Machining	: Face turning
	Coolant	: Dry

Chip flow and control in face turning

Chip flow of continuous face turning



GNGA type
Corner angle: 70°

CNGA type
Corner angle: 80°

Chip control in interrupted face turning



GNGA type
Corner angle: 70°

CNGA type
Corner angle: 80°

Since GNGA type inserts have enough space for chip flow, chip packing doesn't occur, improving surface finish and preventing sudden chipping on cutting edge.

H	Toolholder	: ACLNL2525M12-A
	Insert	: 2QP-GNGA120408 BXM20 2QP-CNGA120408 BXM20
	Workpiece material	: SCM420 / 18CrMo4 (60HRC)
	Cutting speed	: $V_c = 150$ m/min
	Feed	: $f = 0.10$ mm/rev
	Depth of cut	: $a_p = 0.125$ mm
	Machining	: Face turning
	Coolant	: Dry

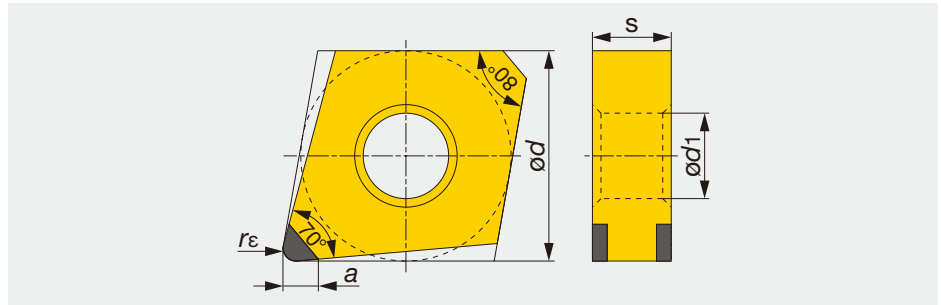
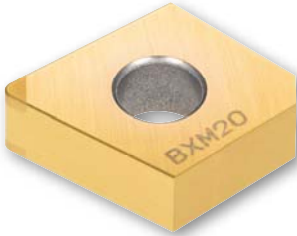
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Negative relief ang., G class,
80° rhombic CBN insert with corner angle 70°.

INSERT

2QP-GNGA



Rhombic, 70°



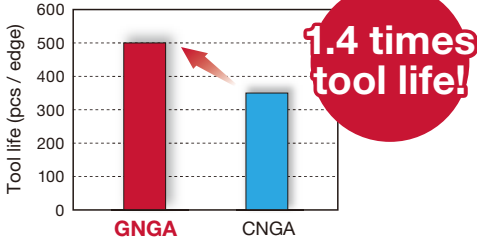
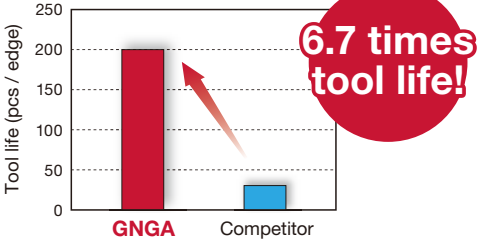
Designation	Stocked grades				I.C.dia ϕd	Thick- ness s	Hole dia $\phi d1$	Corner radius $r\epsilon$	CBN Length a
	Coated	Non-coated							
	BXM20	BX360	BX470	BX930					
2QP-GNGA120404	✓	✓			12.7	4.76	5.16	0.4	2.3
2QP-GNGA120408	✓	✓	✓	✓	12.7	4.76	5.16	0.8	2.2
2QP-GNGA120412	✓	✓	✓	✓	12.7	4.76	5.16	1.2	2.4

✓ : Stocked items

STANDARD CUTTING CONDITIONS

ISO	Workpiece materials	Grade	Cutting speed V_c (m/min)	Depth of cut a_p (mm)	Feed f (mm/rev)
K	Grey cast iron	BX930 BX470	300 - 1200	0.05 - 0.50	0.05 - 0.30
	Ductile cast iron	BX930	100 - 500	0.05 - 0.50	0.05 - 0.30
H	Hardened steel	BXM20	70 - 220	0.05 - 0.30	0.05 - 0.25
	Sintered metal	BX470	80 - 300	0.05 - 0.50	0.05 - 0.25

PRACTICAL EXAMPLES

Workpiece type		Flywheel	Collet
Toolholder		DCLNR2525M12	A25R-ACLNR12-D320
Insert		2QP-GNGA120408	2QP-GNGA120408
Grade		BX470	BXM20
Workpiece material		FC250 / 250	SNCM220 / 20NiCrMo2
		 K	 H
Cutting conditions	Cutting speed: V_c (m/min)	500	70
	Feed : f (mm/rev)	0.10	0.06
	Depth of cut : a_p (mm)	0.20	0.20
	Machining	Face turning	Internal turning
	Coolant	External supply	Dry
Results		 <p>1.4 times tool life!</p> <p>Changing the insert from CNGA to GNGA drastically reduces the flank wear behind the corner, improving the tool life 1.4 times longer.</p>	 <p>6.7 times tool life!</p> <p>Competitor's posi-insert has chipping in short number of machining. CNGA type insert doesn't work because of huge burr. GNGA type insert achieves 6.7 times longer tool life without chipping or burr.</p>

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T-CBN SERIES

Tungaloy Report No. 510S1-G

New FNGA (45°) and YNGA (25°) inserts for expanded application coverage





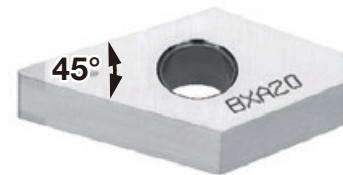
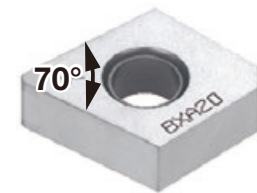
For **high efficiency in finishing** hardened steel, cast iron and sintered metals

■ New CBN inserts for general turning

GNGA insert with 70° corner angle

New FNGA insert with 45° corner angle

- Smaller corner angle provides the insert with greater clearance between the insert flank and workpiece surface, allowing better chip flow and evacuation.
- Enables greater D.O.C. in face turning applications in which the insert is pulled outward (fed away from the workpiece center).



New YNGA insert with 25° corner angle

Allows undercutting, V grooving, and other applications that are not possible with traditional V inserts.









■ High versatility

- Existing ISO turning toolholder can be used for these inserts
 - For GNGA insert: use the holder for CN**1204 insert
 - For FNGA insert: use the holder for DN**1504 insert
 - For YNGA insert: use the holder for VN**1604 insert
- No offsets needed compared to ISO inserts, due to same geometry of cutting edge position
- Double sided insert with 2 cutting edges



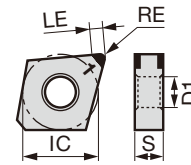
CBN Insert NEGATIVE TYPE

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

Shape	Designation	Material						Dimension (mm)					Edge prep.									
		P	M	K	N	S	H	No. of corners	LE	RE	IC	S	D1	Standard	Sharp edge	L	LF	LC	H	Wiper	Chipbreaker	
		Steel	Stainless	Cast iron	Non-ferrous	Superalloy	Hard material															BXM10
2QP-GNGA (Corner angle 70°) 	*2QP-GNGA120402		●	●										○								
	*2QP-GNGA120404		●	●	●	●								○								
	*2QP-GNGA120408		●	●	●	●	●	●	●					○								
	*2QP-GNGA120412		●	●	●	●	●	●	●					○								
2QP-GNGA**-L (Corner angle 70°) 	*2QP-GNGA120402-L			●	●										○							
	*2QP-GNGA120404-L			●	●									○								
	*2QP-GNGA120408-L			●	●									○								
	*2QP-GNGA120412-L			●	●									○								
2QP-GNGA**-LF (Corner angle 70°) 	*2QP-GNGA120402-LF			●	●											○						
	*2QP-GNGA120404-LF			●	●									○								
	*2QP-GNGA120408-LF			●	●									○								
	*2QP-GNGA120412-LF			●	●									○								
2QP-GNGA**-LC (Corner angle 70°) 	*2QP-GNGA120402-LC			●	●												○					
	*2QP-GNGA120404-LC			●	●									○								
	*2QP-GNGA120408-LC			●	●									○								
	*2QP-GNGA120412-LC			●	●									○								
2QP-GNGA**-H (Corner angle 70°) 	*2QP-GNGA120404-H			●	●															○		
	*2QP-GNGA120408-H			●	●																○	
	*2QP-GNGA120412-H			●	●																○	
2QP-GNGG**-HP (Corner angle 70°) 	*2QP-GNGG120404-HP	●	●	●																	○	
	*2QP-GNGG120408-HP	●	●	●																		○
	*2QP-GNGG120412-HP	●	●	●																		○

* Tungaloy's standard

● : Line up



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