

WAVYJOINT

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Tungaloy Report No. 515S1-G

Expansion of **BXA10, corner radius, edge prep.** and now available in cost-efficient **MiniForce-Turn**



INDUSTRY 4.0
FEED the SPEED!



Expanded lineup of WavyJoint CBN inserts

Double-sided **positive** insert with CBN tips

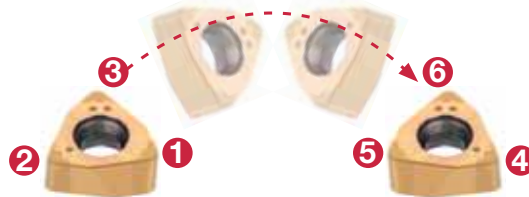
MiniForce-Turn now offers WavyJoint CBN inserts that provide additional strength and security in aggressive cutting conditions.

■ WXGQ0403... insert

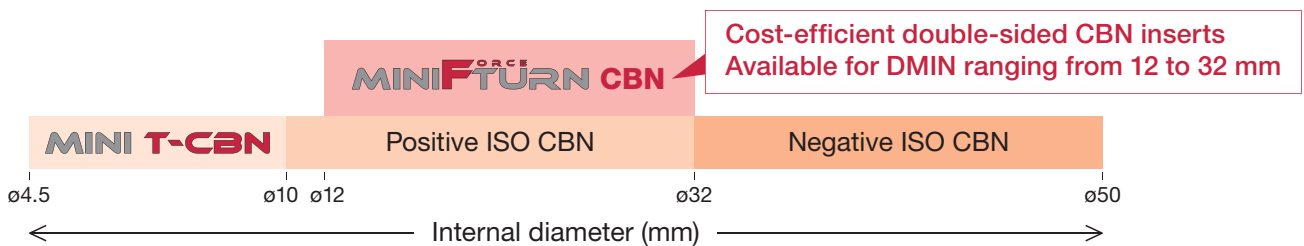
Double-sided positive inserts



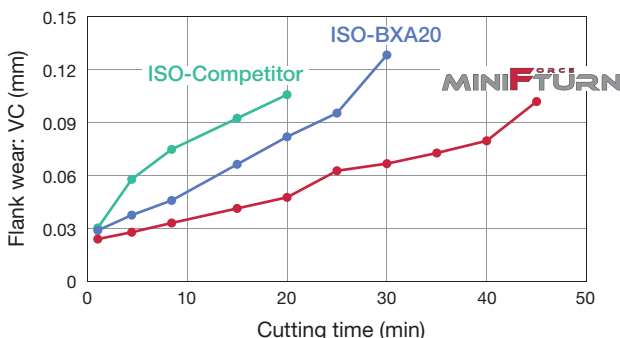
6-edged insert with dovetail design



■ Application range – ID turning of hardened steel



■ Cutting performance – for ID turning of continuous cut (4xD)



Insert : 6QS-WXGQ040304SPL BXA20 (**MiniForce-Turn**)
2QP-CCGW060204 BXA20 (ISO)
CCGW060204 type Competitor's H20 grade (ISO)

Toolholder : E10M-SWLXR04-D120 (**MiniForce-Turn**)
E10M-SCLCR06-D120 (ISO)

Workpiece material : SCM420 / 18CrMo4 (60HRC)

Cutting speed : $V_c = 150$ m/min

Feed : $f = 0.1$ mm/rev

Depth of cut : $a_p = 0.15$ mm

Coolant : Wet

Due to unique geometry design,
MiniForce-Turn insert provides double tool life
over competitor's ISO positive insert.

Double-sided **negative** inserts

Expanded lineup for BXA10 and more corner radius variations.

BXA10

Shape	Corner R				
	0.2	0.4	0.8	1.2	Wiper
C	-	●	●	●	●
D	●	●	●	●	-
S	-	●	●	●	-
T	-	●	●	●	-
V	●	●	●	●	-
W	-	●	●	●	●

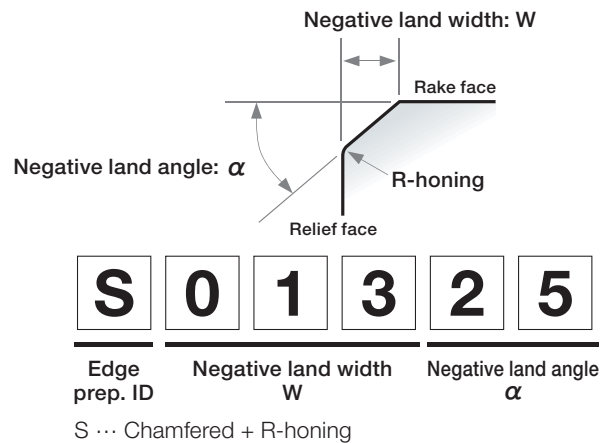
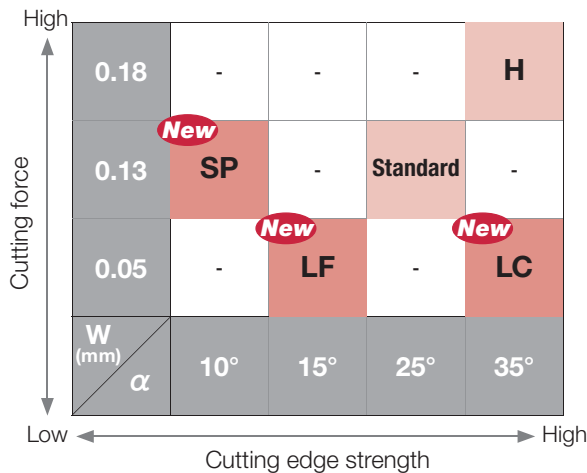
BXA20

Shape	Corner R				
	0.2	0.4	0.8	1.2	Wiper
C	-	●	●	●	●
D	●	●	●	●	-
S	-	●	●	●	-
T	-	●	●	●	-
V	●	●	●	●	-
W	-	●	●	●	●

● : New product

Edge preparations

For expanded application range.





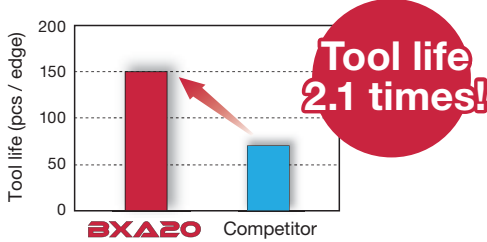
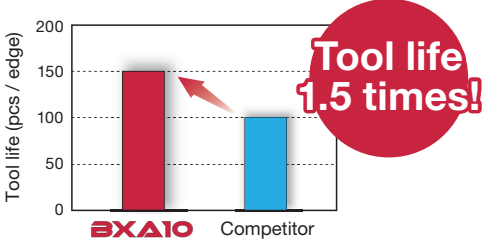
New MiniForce-Turn CBN inserts are available with SP (S01310) style edge preparation, which is designed to form a high rake angle identical to standard ISO positive insert when positioned on the toolholder for smooth cutting.

New ISO negative inserts are offered with LF (S00515) and LC (S00535) styles for wider application coverage.

STANDARD CUTTING CONDITIONS

ISO	Grade	Shape	Workpiece condition	Cutting speed Vc (m/min)	Depth of cut ap (mm)	Feed f (mm/rev)
H	BXA10	ISO Negative type	Continuous	100 - 230	0.05 - 0.8	0.03 - 0.3
			Light interrupted	100 - 230	0.05 - 0.8	0.03 - 0.2
		MINIFURN	Continuous	100 - 230	0.05 - 0.5	0.03 - 0.3
			Light interrupted	100 - 230	0.05 - 0.5	0.03 - 0.2
	BXA20	ISO Negative type	Continuous	60 - 180	0.05 - 0.8	0.03 - 0.3
			Interrupted	60 - 180	0.05 - 0.8	0.03 - 0.2
		MINIFURN	Continuous	60 - 180	0.05 - 0.5	0.03 - 0.3
			Interrupted	60 - 180	0.05 - 0.5	0.03 - 0.2

PRACTICAL EXAMPLES

Workpiece type		Machine part	Gear part
Insert		6QS-WXGQ040304SPL	6QS-WXGQ040304SPL
Grade		BXA20	BXA10
Workpiece material		SCM415 / 15CrMo4 (60HRC)	SCM420 / 18CrMo4 (60HRC)
			
Cutting conditions	Cutting speed: V_c (m/min)	90	70
	Feed : f (mm/rev)	0.06	0.03
	Depth of cut : a_p (mm)	0.075	0.1
	Coolant	Dry	Dry
Results		 <p>Tool life 2.1 times!</p> <p>Strong cutting edge design of MiniForce-Turn insert provided fracture resistance, prolonging tool life by 2.1 times over the competitor's positive insert.</p>	 <p>Tool life 1.5 times!</p> <p>MiniForce-Turn insert provided 1.5 times longer tool life over competitor's positive insert, while also eliminated chatter during machining.</p>



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