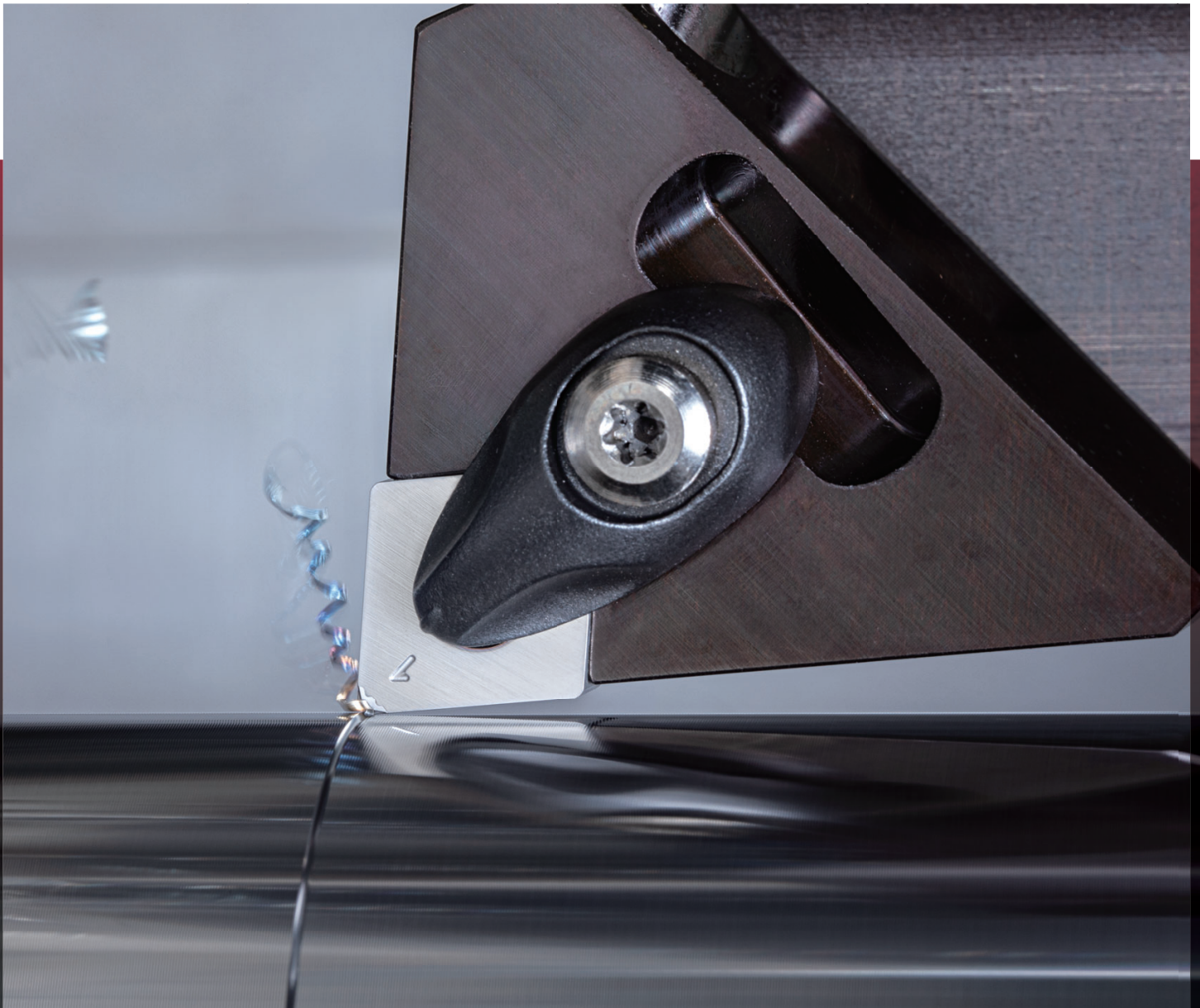


CBN insert

HARDBREAKER HP

Tungaloy Report No. 518S2-US

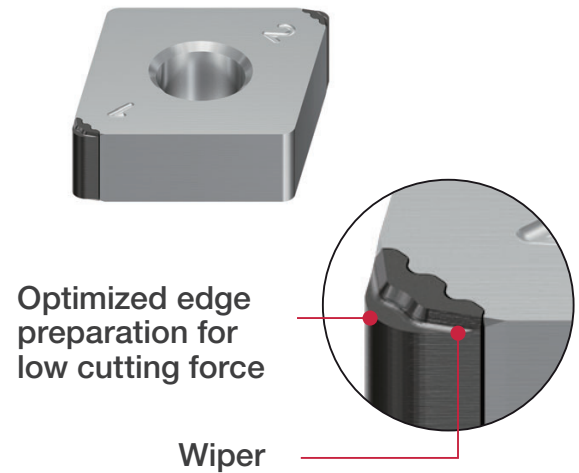
Expanding double-sided inserts with HP-style chipbreaker





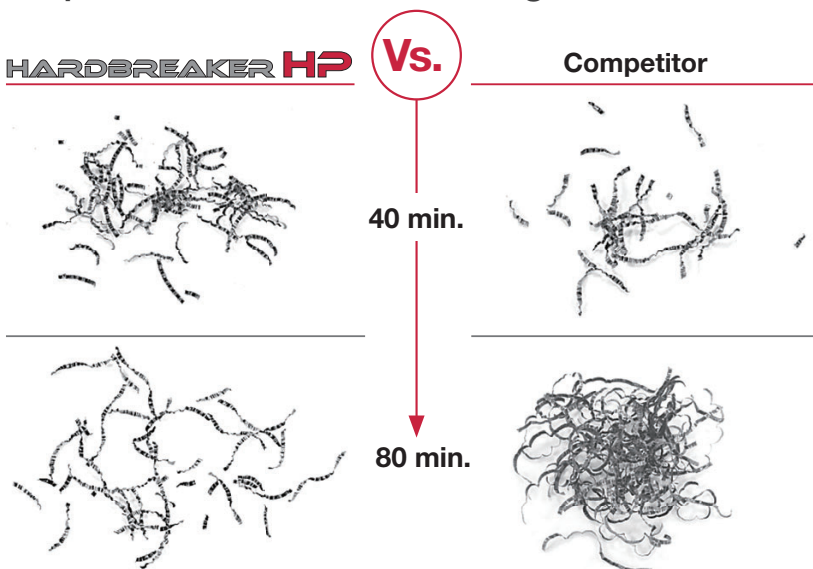
HP Chipbreaker for finishing hardened steel

- 1 By separating the chipbreaker from the cutting edge, the cutting force imposed on the cutting edge during machining is significantly reduced, thus providing long tool life.
- 2 The cutting edge preparation is designed to ensure easy cutting at low cutting forces, while maintaining close tolerances with no deviations.
- 3 The **HP** style chipbreaker, combined with built-in wipers, yields excellent surface quality and good chip control.



CUTTING PERFORMANCE

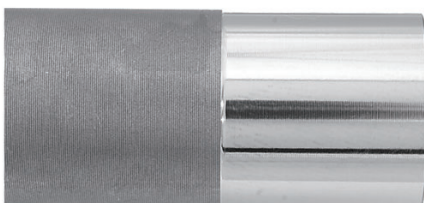
Chip control is stable for a long time



Insert	: 2QP-CNGM 432 HP
Workpiece material	: 4140 58HRC
Cutting speed	: $V_c = 591$ sfm
Feed	: $f = 0.006$ ipr
Depth of cut	: $a_p = 0.006$ "
Holder	: ACLNR164-A
Coolant	: Wet
Machining	: External continuous cutting

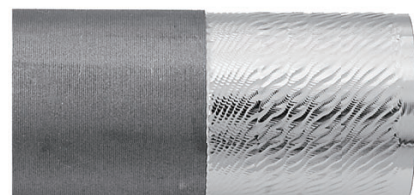
Chatter stability

HARDBREAKER HP



Due to low cutting force, chatter stability is greatly improved


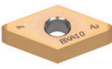

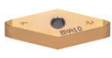
Competitor (without breaker)



INSERT NEGATIVE TYPE

● : Continuous cutting
 ● : Light interrupted cutting
 ✱ : Heavy interrupted cutting

P	Steel				
M	Stainless				
K	Cast iron				
N	Non-ferrous				
S	Superalloy				
H	Hard material	●	●	●	●

Shape	Designation		BXA10	BXA20	No. of corners	Dimension (in)					Edge prep.					Wiper	Chipbreaker			
						LE	RE	IC	S	D1	Standard	Sharp edge	L	LFLC	H					
																		Inch	Metric	
	4QS-CNGG** -HP	4QS-CNGG 431 HP	4QS-CNGG120404-HP	●	●	4	0.063	0.016	0.500	0.187	0.203									
		4QS-CNGG 432 HP	4QS-CNGG120408-HP	●	●	4	0.059	0.031	0.500	0.187	0.203									
		4QS-CNGG 432 WL HP	4QS-CNGG120408WL-HP	●	●	4	0.071	0.031	0.500	0.187	0.203									
	4QS-DNGG** -HP	4QS-DNGG 431 HP	4QS-DNGG150404-HP	●	●	4	0.079	0.016	0.500	0.187	0.203									
		4QS-DNGG 432 HP	4QS-DNGG150408-HP	●	●	4	0.063	0.031	0.500	0.187	0.203									
	6QS-TNGG** -HP	6QS-TNGG 331 HP	6QS-TNGG160404-HP	●	●	6	0.075	0.016	0.375	0.187	0.150									
		6QS-TNGG 332 HP	6QS-TNGG160408-HP	●	●	6	0.063	0.031	0.375	0.187	0.150									
		6QS-TNGG 333 HP	6QS-TNGG160412-HP	●	●	6	0.071	0.047	0.375	0.187	0.150									
	4QS-VNGG** -HP	4QS-VNGG 331 HP	4QS-VNGG160404-HP	●	●	4	0.102	0.016	0.375	0.187	0.150									
		4QS-VNGG 332 HP	4QS-VNGG160408-HP	●	●	4	0.067	0.031	0.375	0.187	0.150									

● : New
 ● : Line up

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