Operating Guidelines: CBN Inch

Material			Vc Cutting Speed SFM	DOC (ap) Depth of Cut (inch)	fz* Feed/Tooth (inch)	Grade				
						IN80A	IN80B	IN81A	IN82A	IN83A
H	hardened steel (HRC 45–68) tool steel, case hardened steel, continuous and interrupted cut (high economy without coolants)	Semi-finish	260–425	.002–.079	.004–.016	■	■		■	
		Finish	260–820	.004–.020	.001–.008			■	■	■
		Milling	655–1970	.002–.012	.001–.008	■				
	hardened steel (HRC 45–68) tool steel, case hardened steel, strong interrupted cut (recommended without coolants)	Semi-finish	230–395	.002–.079	.004–.016		■	■		
		Finish	230–490	.004–.020	.001–.008	■		■	■	
		Milling	655–1970	.002–.012	.001–.008	■				
	carbide containing above 18% cobalt	Semi-finish	65–100	.008–.039	.004–.016	■				
		Finish	65–115	.004–.020	.004–.012	■				
K	gray cast iron	Semi-finish	1640–3280	.020–.118	.012–.020	■	■			
		Finish	1970–6560	.002–.020	.002–.020	■				
		Milling	1970–6560	.020–.118	.004–.012	■	■			
	hardened cast iron Ni-hard high alloy cast iron	Semi-finish	130–330	.020–.118	.004–.020	■	■			
		Finish	130–395	.004–.098	.004–.012	■				
		Milling	330–655	.004–.098	.004–.008	■	■			
S	high temperature alloys (inconel, waspaloy, hasteloy) exotic and high nickel + cobalt basis	Finish	260–655	.002–.020	.001–.008	■				
		Milling	330–985	.004–.059	.002–.012	■				

Note: Feed and speed recommendations are starting operating parameters. They are only guidelines from which further optimization should take place. Operating parameters are influenced by many machining variables. These variables may cause for reductions in feeds and speed or dramatic increases. Additionally, DOC may need to be revised to optimize the insert's performance.

RECOMMENDED DEPTH OF CUT - CBN INSERTS WITH CHIP BREAKER

*Recommended cutting data for CBN tools with chip breaker F1, M1, or R1**

F1 for fine to medium machining
ap .002–.004"

M1 for medium machining
ap .004–.008"

R1* for roughing machining
ap .008–.016"

NOTE: The remaining cutting data remains unchanged for CBN tools without chip breakers. Please reference the table above.

*By special request only

Operating Guidelines: CBN Metric

Material			Vc Cutting Speed m/min	DOC (ap) Depth of Cut (mm)	fz* Feed/Tooth (mm)	Grade				
						IN80A	IN80B	IN81A	IN82A	IN83A
H	hardened steel (HRC 45–68) tool steel, case hardened steel, continuous and interrupted cut (high economy without coolants)	Semi-finish	80–130	0.50–2.00	0.10–0.40	■	■		■	
		Finish	80–250	0.10–0.50	0.03–0.20			■	■	■
		Milling	200–600	0.05–0.30	0.03–0.20	■				
	hardened steel (HRC 45–68) tool steel, case hardened steel, strong interrupted cut (recommended without coolants)	Semi-finish	70–120	0.50–2.00	0.10–0.40		■	■		
		Finish	70–150	0.10–0.50	0.03–0.20	■		■	■	
		Milling	200–600	0.05–0.30	0.03–0.20	■				
	carbide containing above 18% cobalt	Semi-finish	20–30	0.20–1.00	0.10–0.40	■				
		Finish	20–35	0.10–0.50	0.10–0.30	■				
K	gray cast iron	Semi-finish	500–1000	0.50–3.00	0.30–0.50	■	■			
		Finish	600–2000	0.05–0.50	0.05–0.50	■				
		Milling	600–2000	0.50–3.00	0.10–0.30	■	■			
	hardened cast iron Ni-hard high alloy cast iron	Semi-finish	40–100	0.50–3.00	0.10–0.50	■	■			
		Finish	40–120	0.10–1.00	0.10–0.30	■				
		Milling	100–200	0.10–2.50	0.10–0.20	■	■			
S	high temperature alloys (inconel, waspaloy, hasteloy) exotic and high nickel + cobalt basis	Finish	80–200	0.05–0.50	0.03–0.20	■				
		Milling	100–300	0.10–1.50	0.05–0.30	■				

Note: Feed and speed recommendations are starting operating parameters. They are only guidelines from which further optimization should take place. Operating parameters are influenced by many machining variables. These variables may cause for reductions in feeds and speed or dramatic increases. Additionally, DOC may need to be revised to optimize the insert's performance.

RECOMMENDED DEPTH OF CUT - CBN INSERTS WITH CHIP BREAKER

*Recommended cutting data for CBN tools with chip breaker F1, M1, or R1**

F1 for fine to medium machining
ap 0.04–0.10 mm

M1 for medium machining
ap 0.10–0.20 mm

R1* for roughing machining
ap 0.20–0.40 mm

NOTE: The remaining cutting data remains unchanged for CBN tools without chip breakers. Please reference the table above.

*By special request only