

# HA (H-SERIES) CHIP BREAKER

FOR STAINLESS STEEL, SOFT STEEL, ALUMINUM



### WIDE CUTTING EDGE, HIGH RAKE ANGLE

- Outstanding Chip Control
- Prevention of Built-up-edge
- Reduction of Cutting Resistance

### INNOVATIVE SHAPE FOR HIGH TOUGHNESS

- Improved Strength of Cutting Edge
- Guide of Chip flow in fine finishing
- Prevention of Chipping and Cracking

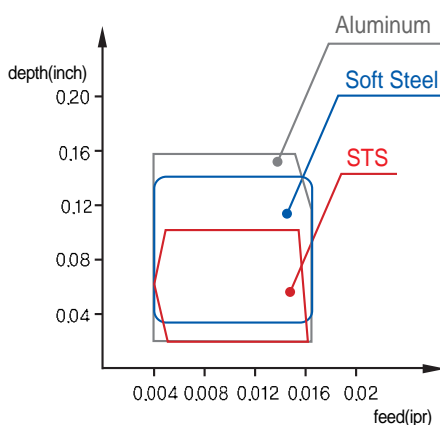
### 2 STEP CHIP BREAKER

- For Excellent Chip Curl
- For low resistance of Chip flow

### CURVE CUTTING EDGE

- Sharp Edge for Low speed cutting
- Excellent surface finish

## Chip Range as to Work-Piece

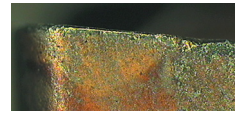
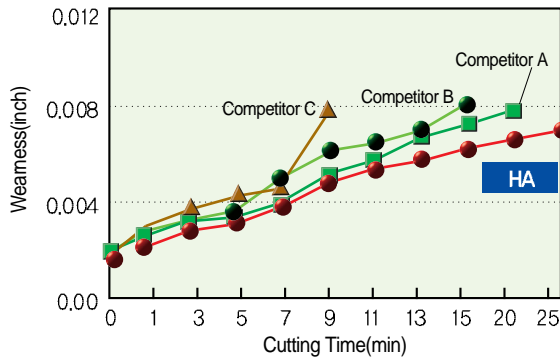


## Applicable Specification

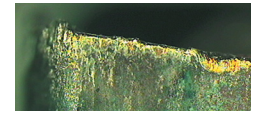
Cat. No.	CVD			PVD	Uncoated
	NC320	NC325S	NC330	PC9030	H1
CNMG431-HA	●	●		●	●
CNMG432-HA	●	●		●	●
DNMG441-HA	●			●	●
DNMG442-HA	●	●		●	●
SNMG431-HA	●			●	●
SNMG432-HA	●	●		●	●
TNMG331-HA	●			●	●
TNMG332-HA	●	●		●	●
WNMG431-HA	●			●	●
WNMG432-HA	●	●		●	●

●: Stock-management-item

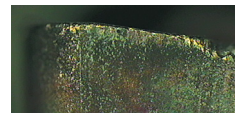
## HA Wear-resistance



KORLOY HA



Competitor A

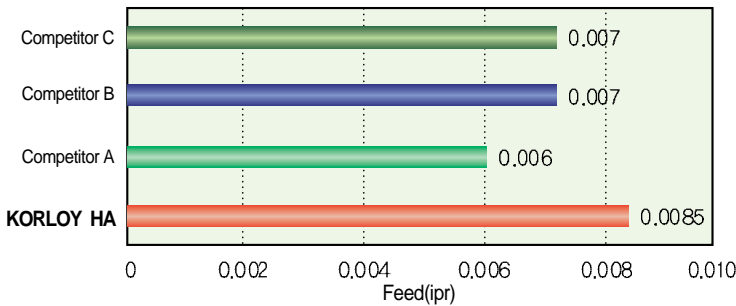


Competitor B



Competitor C

## HA Chipping-resistance



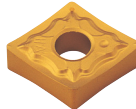
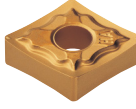
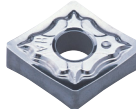
### Cutting Condition for Resistance

1. Work-Piece : AISI304
2. Cutting Condition : V=492 sfm, f=0.0059ipr, d=0.079inch
3. Spec : CNMG432

### Cutting Condition for Impact Resistance

1. Work-Piece : AISI1010
2. Cutting Condition : V=590 sfm, f= limit feed(ipr), d=0.079inch
3. Spec : CNMG432

## Recommended Cutting Condition

Work-Piece(AISI)		Hardness	C/B	Grade	Recommended Cutting Condition		
					Velocity(sfm)	Feed(ipr)	Depth(inch)
Soft Steel	1010, 1015 1025, 5015 4140	≤180HB		NC320	656~1148	0.004~0.016	0.032 ~ 0.14
				NC330	590~984	0.004~0.016	
Stainless Steels	Cr + Ni (Austenite) -200 Series -300 Series	135~185HB		NC325S	426~492	0.006~0.014	0.02 ~ 0.10
				NC330	328~394	0.004~0.014	
				PC9030	328~394	0.004~0.014	
	Cr (Ferrite, Martensite) -400 Series	135~275HB		NC325S	459~558	0.008~0.016	
				NC330	426~492	0.006~0.016	
				PC9030	426~492	0.006~0.017	
Precipitated Hardening -600 Series	230~360HB	NC325S	394~459	0.006~0.010			
		NC330	328~394	0.004~0.010			
PC9030	328~394	0.004~0.010					
AL	Aluminum Aluminum Alloy	20~125HB		H1	656~2624	0.004~0.016	0.02 ~ 0.16