

# N-BITE

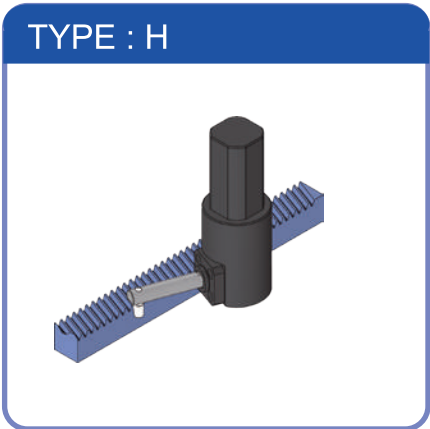
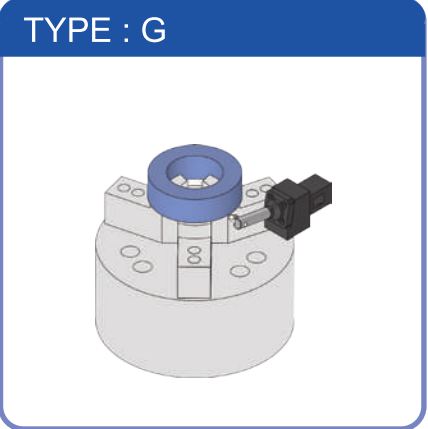
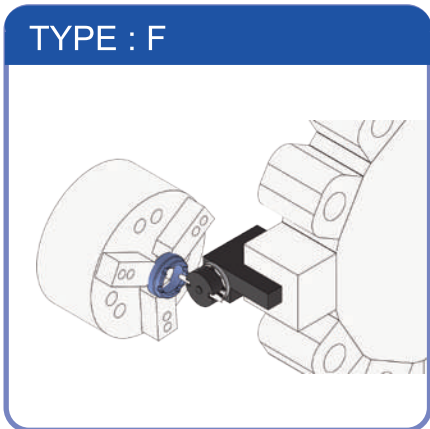
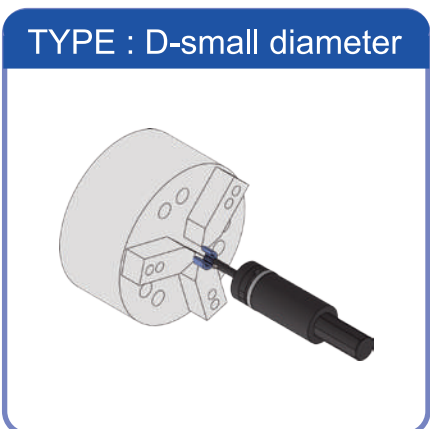
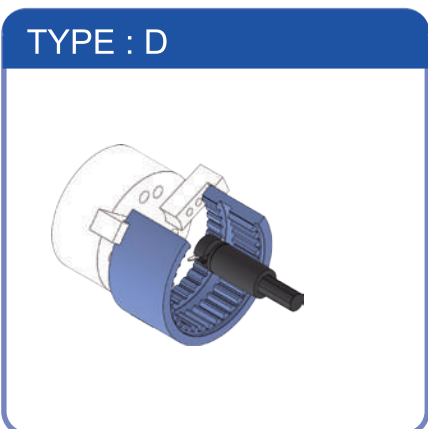
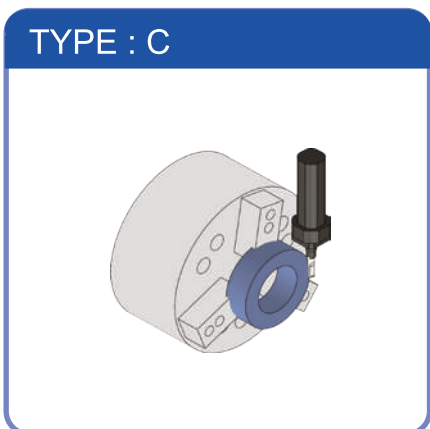
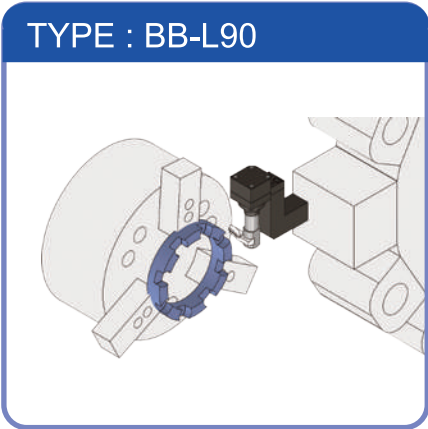
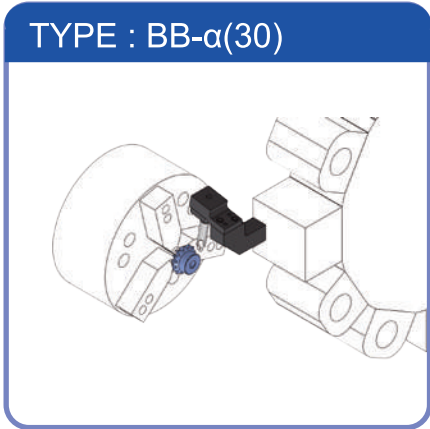
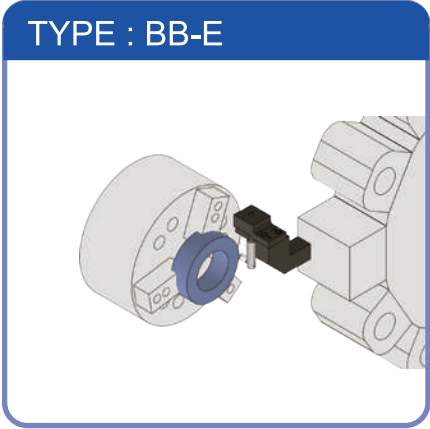
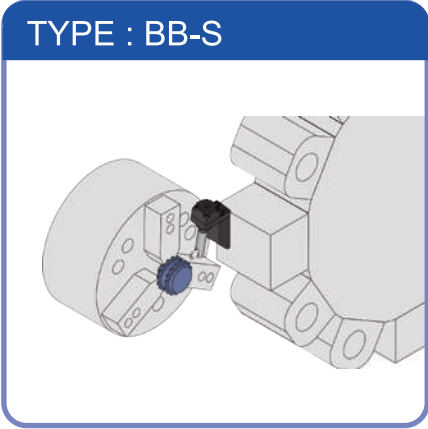
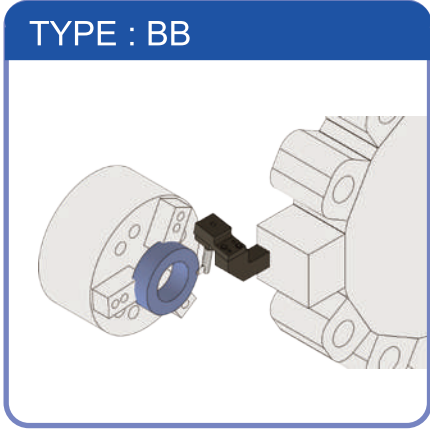
Chamfering tool  
for Both end surface of  
outer, inner, grooving  
and outside diameter



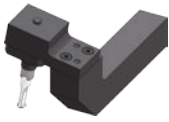











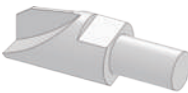


- ◆ Perfect chamfering tool equipped with CNC Lathe, Multitasking machine
- ◆ Usage is as same as standard cutting tool to rotate workpiece
- ◆ Target workpieces are Both End surface and Outside (Gear, Hub, Notch configuration, Bevel gear, Spline, Grooving, Retainer, Rack, etc) Available to various shapes
- ◆ All Scraper Inserts are Tailor made shape to suitable for workpiece
- ◆ Smooth surface without any secondary burr
- ◆ Process time including air cutting time is just only 10sec.(O.D.  $\Phi$ 100mm)
- ◆ Phase focusing is not required by Scraper Insert Moving Mechanism
- ◆ No adjustment and ready to use at retooling only exchange Scraper Insert















**MADE IN JAPAN**










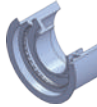





# Scraping process by Type







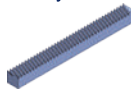


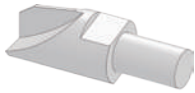


# N-BITE List

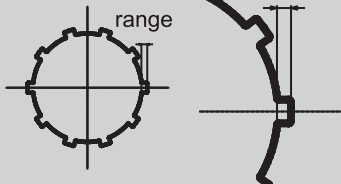
	TYPE:B	TYPE:BB	TYPE:BB-S	TYPE:BB-S90	TYPE:BB-L
Shape					
Shank size	16x16 / 20x20 / 25x25		20x20 / 25x25		25x25
Main target	Outer diameter Both end surface Grooving      				
Scraping width※1 Scraper cutting edge effective length	~3mm	~8mm		~35mm	
Hand R L			○ ○		
Characteristics	<Insert shape> two-edged Insert	<Insert shape> Exclusive Hand-R and L	Use for Grooving, Relief, Double strand (More than 2mm grooving width)	Interference avoidance between Turnet head and cover	<Insert shape> Exclusive Hand-R and L
Scraper Insert shape					

	TYPE:BB-α (α is angle)	TYPE:BB-T	TYPE:BB-E	TYPE:BB-E90	TYPE:BB-L90
Shape					
Shank size	16x16 / 20x20 / 25x25				25x25
Main target	Bevel shape End surface 	Hub only 	Outer diameter End surface 	Outside diameter notch configurator  	
Scraping width※1 Scraper cutting edge effective length	~8mm	~4mm	~5mm	~5mm	~35mm
Hand R L			○ ○		
characteristics	Tool holder by Angle	<Insert shape> Combined Scraper Insert with Outer and Inner diameter	Chuck interference avoidance	for Gang tool type Lathe	<Insert shape> Exclusive Hand-R and L
Scraper insert shape					

TYPE:C	TYPE:CC	TYPE:C-10	TYPE:D	TYPE:E	TYPE:D-H/E-H Holder integrated structure
					
Φ20/Φ25/Φ32		16x16	Φ32/Φ40/Φ50		BT/HSK/CAPTO
Outer diameter End surface 			Inner diameter Both end surface Groove 		
~3mm	~8mm	~4mm	~12mm		
	— —		— —(※2)		
<Insert shape> two-edged Insert	<Insert shape> Exclusive Hand R and L	for Gang tool type Lathe	Draw machining Tool holder Classified by application (※3)	End surface machining Tool holder Classified by application (※3)	Short length
					

TYPE:F	TYPE:G	TYPE:G-L	TYPE:H
			
25x25	by Hobbing machine makers		Φ32/Φ40/Φ50
Inner profiling 	Gear 		Rack Only 
~5mm	~8mm	~35mm	~8mm
	○ ○		
<Insert shape> Exclusive Hand R and L	for Hobbing machine only		Compatible machine Special purpose machine Machining center
			

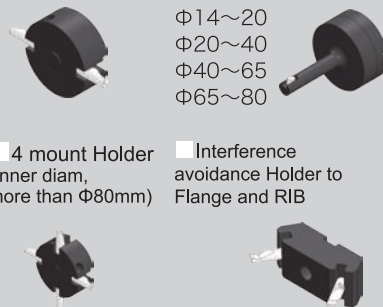
※1  
Scraping range means the part of length of processing at target workpiece



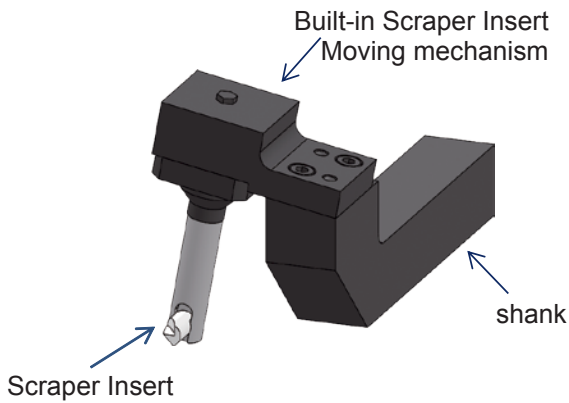
※2  
Required exclusive holder for each side (CW and CCW) under 65mm inner diameter

※3

- Standard Holder (inner diam. More than Φ80)
- Holder by each inner diam. size
  - Φ14~20
  - Φ20~40
  - Φ40~65
  - Φ65~80
- 4 mount Holder (inner diam. more than Φ80mm)
- Interference avoidance Holder to Flange and RIB

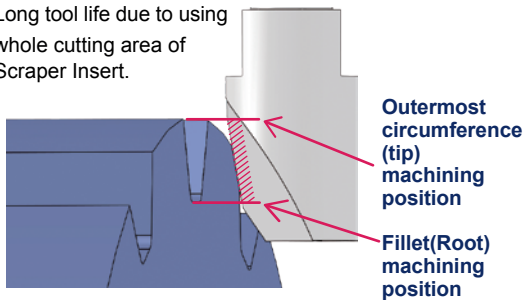


# What's N-BITE



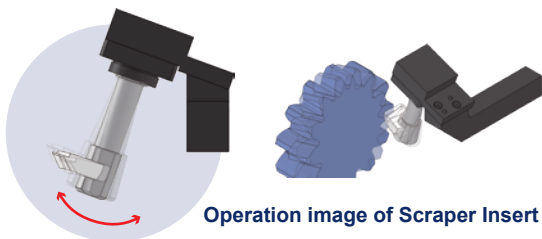
## Characteristic of Scraper Insert

- Scraper Insert manufacture corresponding to shape of target workpiece.
- Long tool life due to using whole cutting area of Scraper Insert.



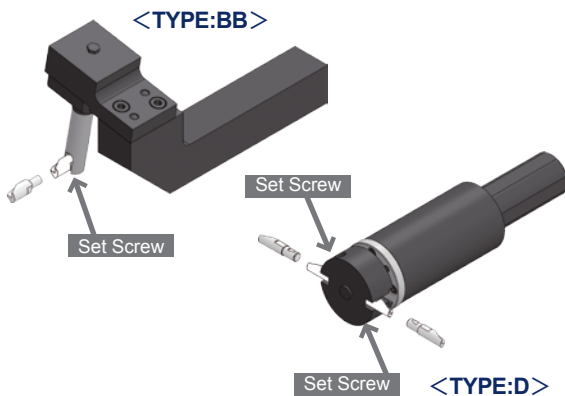
## Built-in Scraper Insert Moving Mechanism

Scraper Insert Moving Mechanism is built in the N-BITE. Due to this structure, Scraper Insert follow the rotation of the target workpiece automatically, it could be done deburring and chamfering simultaneously. Ready to use without any compressed air or tool headstock.



## Easy exchanging Scraper Insert

Exchange Scraper Insert with only one wrench. No additional operation such as adjustment or program modification after changes.



## No phase focusing

No required phase focusing according to Scraper Insert follow the rotation of the target workpiece automatically, it could be reduced cycle time or set-up time.

## Easy NC program

Move the machining command position of Scraper Insert to the fillet(Root) while rotating the target workpiece, and rotate it one or more times at the end point. It is completed when the same process is done with changed direction.

## No secondary burr

Scraper Insert and workpiece are touched with only one each rotation at low speed, the secondary burr does not occur. That are reduced tool wear and improve tool life.

## Short processing time

Target workpiece rotate at 5-15m/min. Only 10 seconds processing time including air-cutting time at size  $\Phi 100\text{mm}$ , peripheral velocity 9.5m/min (30rpm). Notice) Please remove big size burr with turning machine or something in advance.

## No required dedicated equipment

Possible to save initial cost drastically due to aggregating manufacturing processes such as addition chamfering process into turning machine process.

## Possible Dry and Wet process

Tool heating is hardly occurred, either is possible. Dry or wet are both performable due to no tool heating up. Only in case of dry process, air blow required to the scraper to remove chips.

## Free training option

N-BITE is different shape and usage from usual cutting tools, we can provide free training in our site. Also can dispatch our engineer to your site for training with additional charge.

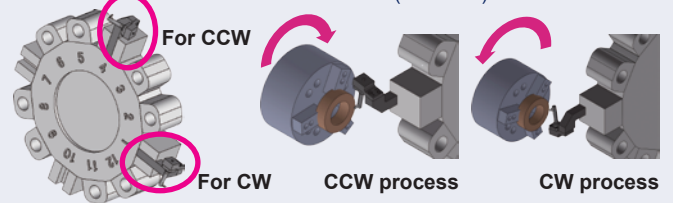
## Dedicated design of Scraper Insert

To chamfer definitely, design dedicated scraper insert to the target workpiece.

## Short delivery time (\*1)

Shipping out Scraper Insert within 10 business days. Same shipping schedule even the special shape.

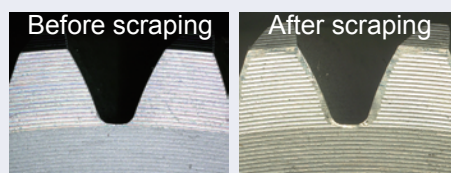
## Turret type CNC Lathe mount and use (Left side headstock CNC Lathe, (TYPE-BB))



## Video of proces

You can see actual processed vides. QR code

## Scraping sample(Gear)



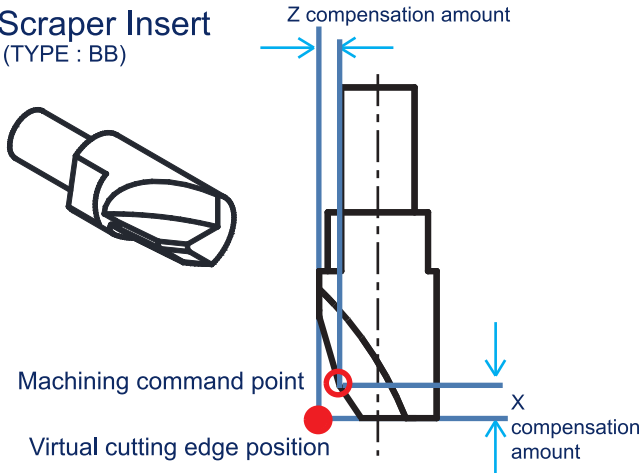
- Chamfering width is even, end surface side 0.5mm, tooth side 0.3mm
- Possible chamfer fillet(root)

\* 1. Please contact in case 11pcs or more

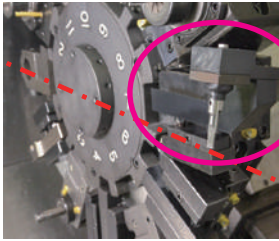


## Tool compensation

### Scraper Insert (TYPE : BB)



## For Safety



■ Attach N-BITE correctly to the equipment.

■ Set the cutting edge of the Scraper Insert to center at Turret (Figure 1).

■ Confirm no interference to the covers at Turret rotation area (Figure 2).

■ Confirm no interference of chuck and it's surrounding at process position.

■ Confirm no dust or rabbish on shank or set screw on exchanging Scraper Insert.

Figure 1

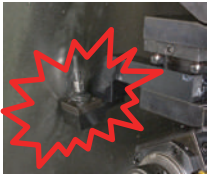


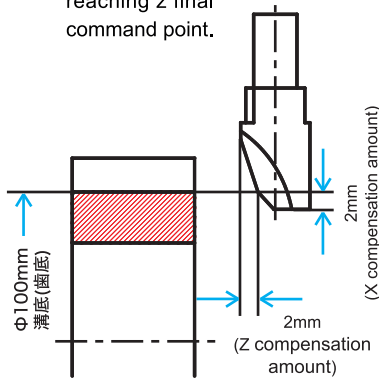
Figure 2

## Program sample (Type:BB)

```

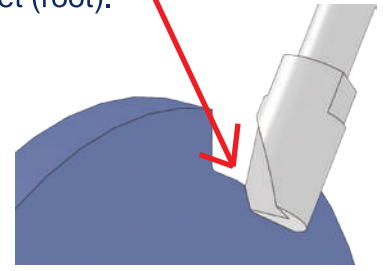
G00 X500 Z700
G50 S1000
G97 S60 M41 M04
G00 X96.000 Z2 T0707
Z0
G01 Z-2.3 F3
G04 F1.3
G00 Z2
M05
G00 X500 Z700
M01
G97 S60 M03
G00 X96.000 Z2 T0606
Z0
G01 Z-2.3 F3
G04 F1.3
G00 Z2
M05
G00 X500 Z700
M02
    
```

■S60 : Recommend cutting speed is 5 ~ 15m/min.Recommend scraping from bigger burr side.  
 ■X96.000 : (Root diameter) - (X compensation amount x 2)  
 ■Z-2.3 : (Z compensation amount) + 0.3  
 ■F1.3 : Set one or more rotation after reaching z final command point.



## Alignment

Set the machining command point to the fillet (root).



<Notice> Not available automatic Nose R compenction. Scraper move to z-axis direction by Scraper Insert Moving Mechanism.

## Scraping positioning · compensation

- Use measured value of fillet(root) diameter.
- Confirm tool compensation correctly.
- Push Scraper Insert approx. -0.2mm to -0.5mm from Machining command point.

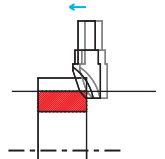


Figure 3

<Point>

- The cutting edge of Scraper Insert moves by Scraper Insert Moving Mechanism.

For this reason, It could not process only to just move the machining command point to the fillet (root) (Figure 3).

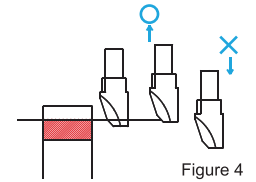


Figure 4

- Compensate towards X plus direction if remaining burrs has occurred at fillet(root). (Figure 4)
- Almost same chamfering range where tool touching position.
- Please contact us to change chamfering range as possible.

## Others

- Please adjust the feed speed to final command position depending on the condition.
- Please do zero cutting in advance when big size burr exists.
- Please set dwell time one or more rotation.
- Please process from big burr side (tipically reverse rotation side).

## Scraping condition

		Spur gear	Helical gear	Internal gear	Internal gear
Module	M	1.25	2.4	1.5	4
Number of teeth	Z	51	30	56	76
Rotataion speed	mm-1	60	55	40	15
Cutting speed	m/min	12	13.5	11	14
Cutting feed speed	mm/rev	1.5	0.5	1.0	0.5

Recommended cutting speed

KREUZ CO.,LTD.

102-7 Jindoike, Noda-cho, Kariya, Alchi, 444-0803 JAPAN

TEL: +81-566-22-5263 FAX: +81-566-25-3339

[www.kreuz.jp/](http://www.kreuz.jp/)



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