

# Grade and Chipbreaker Selection (1)

**P**  
Steel

## 1 Fine Finishing

Ex. **GU Type** ← Chipbreaker  
**AC2000** ← Grade

### Steel

#### Low Carbon Steel

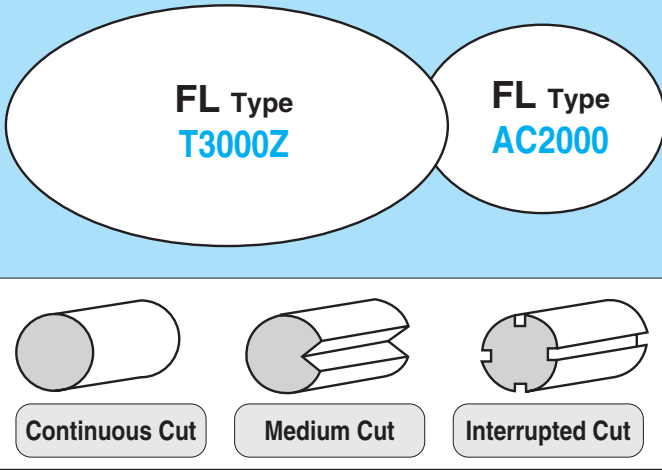
- SS400
- S10C
- SCM415
- SCr420
- SPHC
- etc.

#### Medium Carbon Steel

- S45C
- S55C
- SCM440
- etc.

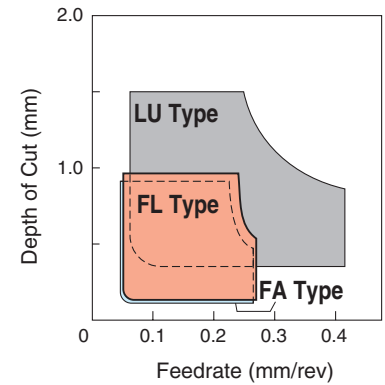
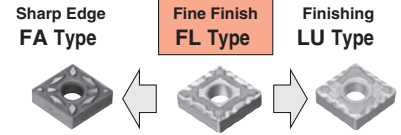
#### High Carbon Steel

- SNCM439
- etc.

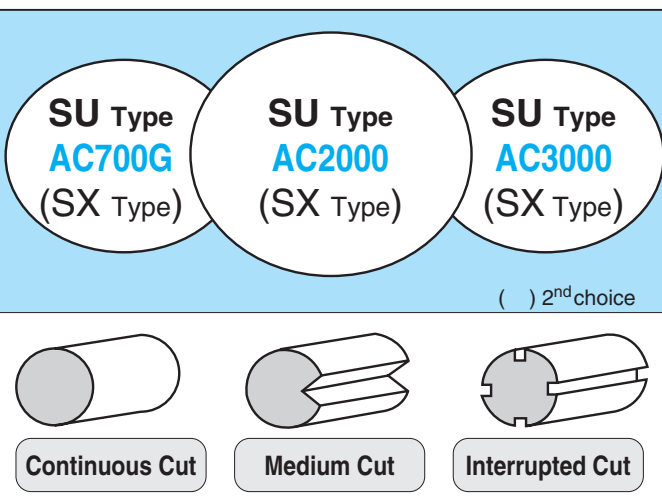


Work	HB	Cond Grade	Cutting Speed (m/min)		Feedrate (mm/rev)	D.O.C. (mm)
			T3000Z	AC2000		
Low Carbon Steel	180		190 ~ 300	210 ~ 330	0.05 ~ 0.25	0.2 ~ 1.0
Med. Carbon Steel	250		150 ~ 240	170 ~ 270		
High Carbon Steel	300		130 ~ 200	140 ~ 220		

### ● Chipbreaker Selection

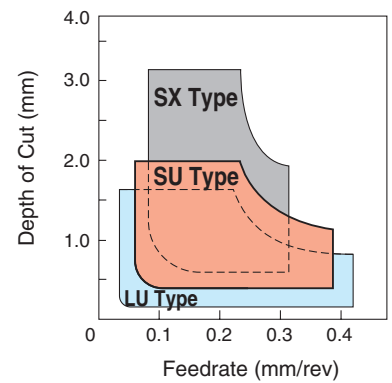
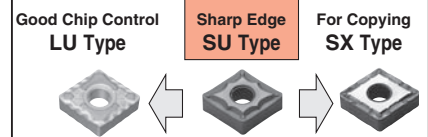


## 2 Finishing



Work	HB	Cond Grade	Cutting Speed (m/min)			Feedrate (mm/rev)	D.O.C. (mm)
			AC700G	AC2000	AC3000		
Low Carbon Steel	180		260 ~ 420	200 ~ 310	170 ~ 270	0.1 ~ 0.3	0.5 ~ 2.0
Med. Carbon Steel	250		210 ~ 340	160 ~ 250	140 ~ 220		
High Carbon Steel	300		170 ~ 280	130 ~ 210	110 ~ 190		

### ● Chipbreaker Selection



Inserts

C

D

R

S

T

V

W

Solid CBN Ceramic

## P Steel

### Steel

#### Low Carbon Steel

- SS400
- S10C
- SCM415
- SCr420
- SPHC
- etc.

#### Medium Carbon Steel

- S45C
- S55C
- SCM440
- etc.

#### High Carbon Steel

- SNCM439
- etc.

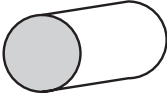
### 3 Medium Cut

**GU Type**  
**AC700G**  
(UX Type)

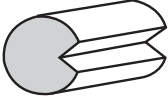
**GU Type**  
**AC2000**  
(UX Type)

**GU Type**  
**AC3000**  
(UX Type)

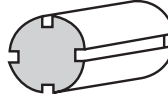
( ) 2<sup>nd</sup> choice



Continuous Cut

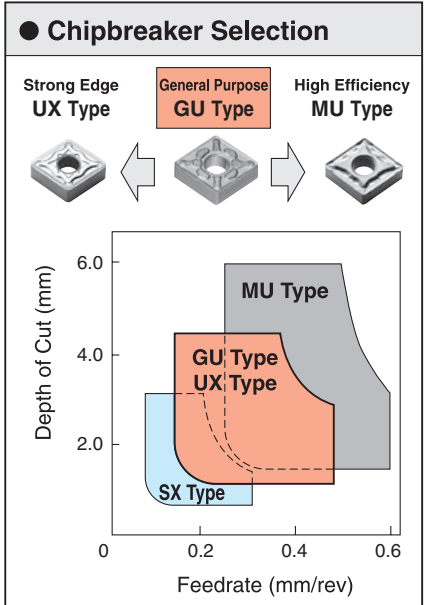


Medium Cut



Interrupted Cut

Work	HB	Cond Grade	Cutting Speed (m/min)			Feedrate (mm/rev)	D.O.C. (mm)
			AC700G	AC2000	AC3000		
Low Carbon Steel	180		250 ~ 390	180 ~ 280	160 ~ 250	0.2 ~ 0.5	1.0 ~ 4.0
Med. Carbon Steel	250		200 ~ 310	150 ~ 230	130 ~ 200		
High Carbon Steel	300		170 ~ 260	120 ~ 190	100 ~ 170		

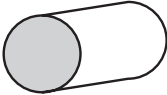


### 4 Roughing

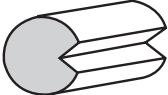
**MU Type**  
**AC700G**

**MU Type**  
**AC2000**

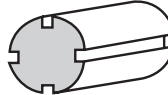
**MU Type**  
**AC3000**



Continuous Cut

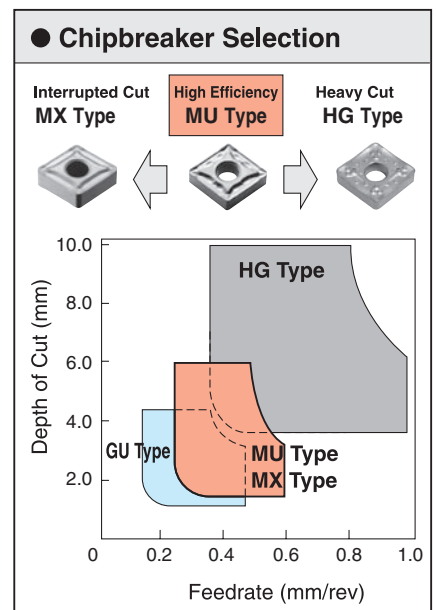


Medium Cut



Interrupted Cut

Work	HB	Cond Grade	Cutting Speed (m/min)			Feedrate (mm/rev)	D.O.C. (mm)
			AC700G	AC2000	AC3000		
Low Carbon Steel	180		210 ~ 340	160 ~ 250	140 ~ 220	0.3 ~ 0.6	2.0 ~ 6.0
Med. Carbon Steel	250		170 ~ 280	130 ~ 200	110 ~ 160		
High Carbon Steel	300		140 ~ 230	110 ~ 170	90 ~ 150		



Inserts

C

D

R

S

T

V

W

Solid CBN  
Ceramic

# Grade and Chipbreaker Selection (2)

**M**  
Stainless Steel

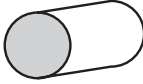
## 1 Finishing

### Stainless Steel

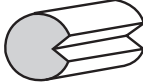
- SUS304
- SUS316
- etc.

**SU Type**  
**AC610M**

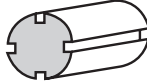
**SU Type**  
**AC630M**



Continuous Cut



Medium Cut



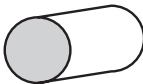
Interrupted Cut

Cutting Speed (m/min)		Feedrate (mm/rev)	D.O.C. (mm)
AC610M	AC630M		
160 ~ 260	140 ~ 220	0.1 ~ 0.2	0.2 ~ 1.0

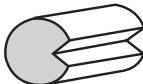
## 2 Medium Cut

**EX Type**  
**AC630M**

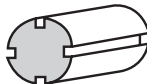
**GU Type**  
**AC3000**



Continuous Cut



Medium Cut



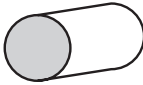
Interrupted Cut

Cutting Speed (m/min)		Feedrate (mm/rev)	D.O.C. (mm)
AC630M	AC3000		
120 ~ 190	130 ~ 200	0.1 ~ 0.3	0.5 ~ 2.0

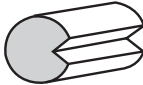
## 3 Roughing

**MU Type**  
**AC630M**

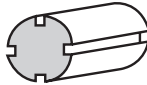
**MU Type**  
**AC3000**



Continuous Cut

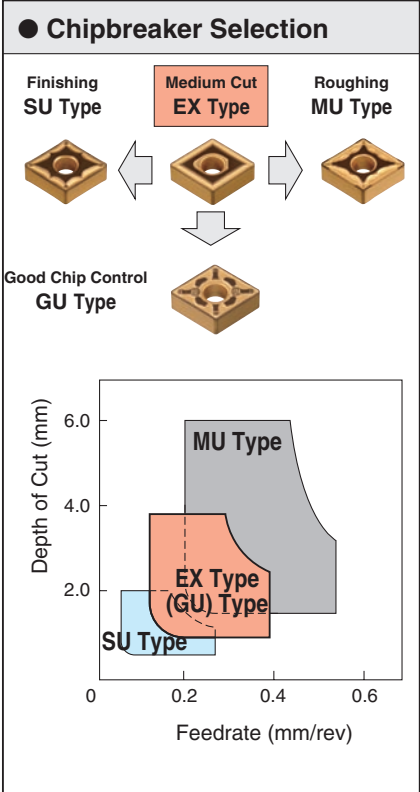


Medium Cut



Interrupted Cut

Cutting Speed (m/min)		Feedrate (mm/rev)	D.O.C. (mm)
AC630M	AC3000		
110 ~ 180	120 ~ 190	0.2 ~ 0.4	1.5 ~ 4.0



Inserts

C

D

R

S

T

V

W

Solid CBN  
Ceramic



## Cast Iron

- FC250
- FCD450
- etc.

### 1 High Speed Finishing ( ) 2nd Choice

FC	<b>BN700</b> (BNS800)
FCD	<b>BN500</b>

Continuous Cut

Medium Cut

Interrupted Cut

Work	Cond HB	Cutting Speed (m/min)	Feedrate (mm/rev)	D.O.C. (mm)		
				BN700	BN500	BNS800
FC	200	200 ~ 2000	0.1 ~ 0.5	~ 1.0	—	~ 4.0
FCD	250	100 ~ 350	0.1 ~ 0.4	—	~ 0.5	—

### 2 Finishing~Medium Cut ( ) 2nd Choice

<b>UZ Type</b> <b>AC410K</b> (EH10Z,T110A)	<b>UX Type</b> <b>AC410K</b>	<b>UX Type</b> <b>AC700G</b>
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Continuous Cut

Medium Cut

Interrupted Cut

Work	Cond HB	Cond Grade	Cutting Speed (m/min)		Feedrate (mm/rev)	D.O.C. (mm)
			AC410K	AC700G		
FC	200	200	230 ~ 360	180 ~ 300	0.1 ~ 0.3	0.5 ~ 3.0
FCD	250	250	200 ~ 310	160 ~ 260		

### 3 Roughing

<b>UZ Type</b> <b>AC410K</b>	<b>UX Type</b> <b>AC700G</b>	<b>NO Breaker</b> <b>AC700G</b>
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Continuous Cut

Medium Cut

Interrupted Cut

Work	Cond HB	Cond Grade	Cutting Speed (m/min)		Feedrate (mm/rev)	D.O.C. (mm)
			AC410K	AC700G		
FC	200	200	190 ~ 290	150 ~ 240	0.3 ~ 0.6	2.0 ~ 6.0
FCD	250	250	160 ~ 250	130 ~ 210		

#### ● Chipbreaker Selection

Sharp Edge

UZ Type

UX Type

No breaker

Strong Edge

# Grade and Chipbreaker Selection (3)

Inserts



## Non-Ferrous Metal

Aluminum Alloy (below Si13%)

- A6061
- ADC12
- etc.

C

Aluminum Alloy (Si13% and above)

- A390
- etc.

D

R

Brass

S

T

V

W

Solid CBN Ceramic



## Exotic Alloy

Ni-based Alloy

- Inconel718
- Waspaloy
- etc.

Titanium Alloy

- Ti-6Al-4V
- etc.

**SumiDia**  
**DA2200**

**AG Type**  
**H1**

High Speed Finishing

Finishing

Roughing

Process	Cond Grade	Cutting Speed (m/min)		Feedrate (mm/rev)	D.O.C. (mm)
		DA2200	H1		
High Speed Finishing	Al. Alloy (below Si13%)	~2000		0.05 ~ 0.2	0.1 ~ 3.0
	Al. Alloy (Si 13% and above)	~1000		0.05 ~ 0.2	0.1 ~ 3.0
Finishing			400 ~ 1000	0.1 ~ 0.3	0.3 ~ 1.5
Roughing			150 ~ 500	0.1 ~ 0.5	1 ~ 5

### ● Chipbreaker Selection

High Speed  
DA2200

↔

General  
AG Type

**SumiBoron**  
**BN700**

**EX Type**  
**EH510Z**

**EX Type**  
**EH520Z**

High Speed Finishing

Finishing

Roughing

Process	Cond Grade	Cutting Speed (m/min)			Feedrate (mm/rev)	D.O.C. (mm)
		BN700	EH510Z	EH520Z		
High Speed Finishing		120 ~ 170			0.05 ~ 0.2	0.1 ~ 1.0
Finishing			30 ~ 70	20 ~ 50	0.1 ~ 0.25	0.3 ~ 1.5
Roughing			30 ~ 70	20 ~ 50	0.1 ~ 0.3	1 ~ 5

### ● Chipbreaker Selection

Finishing  
SU Type

Light-Medium Cut  
EX Type

Roughing  
MU Type



## Hardened Steel

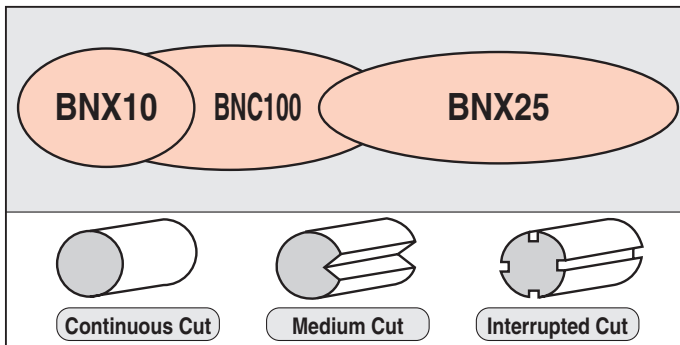
### General~Medium Alloy Steel

- S55C
- SCM420
- SCr440
- etc.

### High Alloy Steel

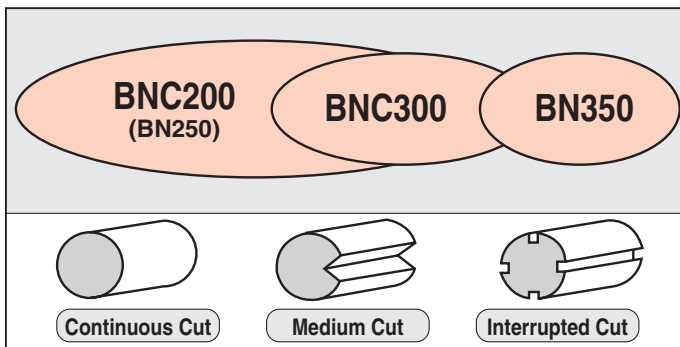
- SUJ2
- SKD61
- SKH
- etc.

## 1 High Speed Finishing



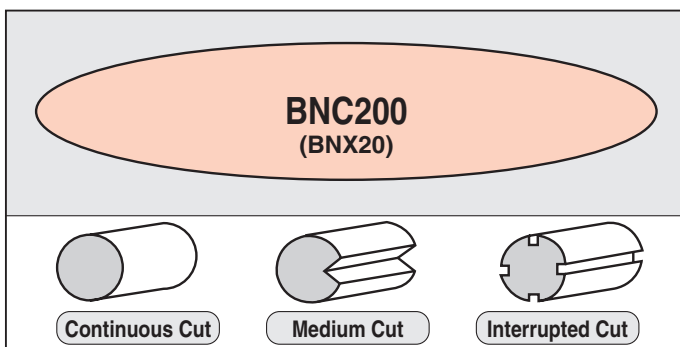
Cutting Speed (m/min)			Feedrate (mm/rev)	D.O.C. (mm)
BNX10	BNC100	BNX25		
120 ~ 300	120 ~ 300	120 ~ 220	0.03 ~ 0.15	0.03 ~ 0.20

## 2 Finishing ( ) 2nd Choice



Cutting Speed (m/min)				Feedrate (mm/rev)	D.O.C. (mm)
BNC200	BN250	BNC300	BN350		
50 ~ 200	50 ~ 150	50 ~ 150	50 ~ 150	0.03 ~ 0.20	0.03 ~ 0.30

## 3 High Efficiency (Removal of Carburized Layer)



Cutting Speed (m/min)		Feedrate (mm/rev)	D.O.C. (mm)
BNC200	BNX20		
50 ~ 170	70 ~ 170	0.05 ~ 0.30	0.05 ~ 0.50

