



Cycle Time



Roughness



Position Accuracy



True Roundness



# EMB Boring Bars



## Easy Adjustment / High Efficiency / Low Cost

EMB boring bars are “Eccentric Mechanism Boring bars” which can adjust to required diameter via an eccentric mechanism. The boring bar is not at the center of the holder, but offset from the center.



Patent No:  
108599(Taiwan),  
ZL96201178.9(China)  
I265836(Taiwan),  
ZL200510101469.5(China),  
US 7455487 B2(USA)

### ► EMB Boring Bar Family

**00-99101:** 0.03 mm/div. adjustment range  $\pm 0.5.$ ,  $\varnothing 6.5\text{mm} \sim \varnothing 25.5\text{mm}$  boring bars.

**00-99121:** 0.01 mm/div. adjustment range  $\pm 0.1.$ ,  $\varnothing 4.9\text{mm} \sim \varnothing 25.1\text{mm}$  boring bars.

**00-99146:** 0.01 mm/div. adjustment range  $\pm 0.12.$ , G6.3, 10000 r.p.m.  
 $\varnothing 4.87\text{mm} \sim \varnothing 50.12\text{mm}$  boring bars are interchangeable.

**00-99151:** Deep hole boring 4 ~ 6XD.  
 $\varnothing 4.87\text{mm} \sim \varnothing 20.12\text{mm}$  boring size.



00-99101  
00-99121



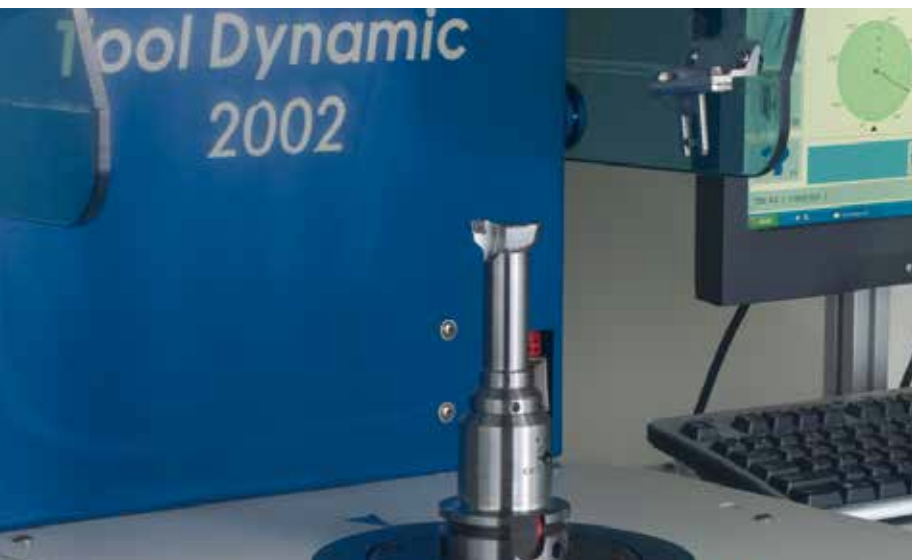
00-99146-BT30H  
00-99146-BT40H  
00-99146-BT50H  
00-99146-HSK63AH  
00-99146-CAT40H



00-99146-SB32H



00-99151A-xxxW



# Direct Adjusting Boring Bar



The Patented tool structure applies bit angle variation to produce slight size variation in diametric direction. Excellent for applications on single size boring tools, deep hole boring tools, special tools, etc. It features easy control of  $\mu$  accuracy.



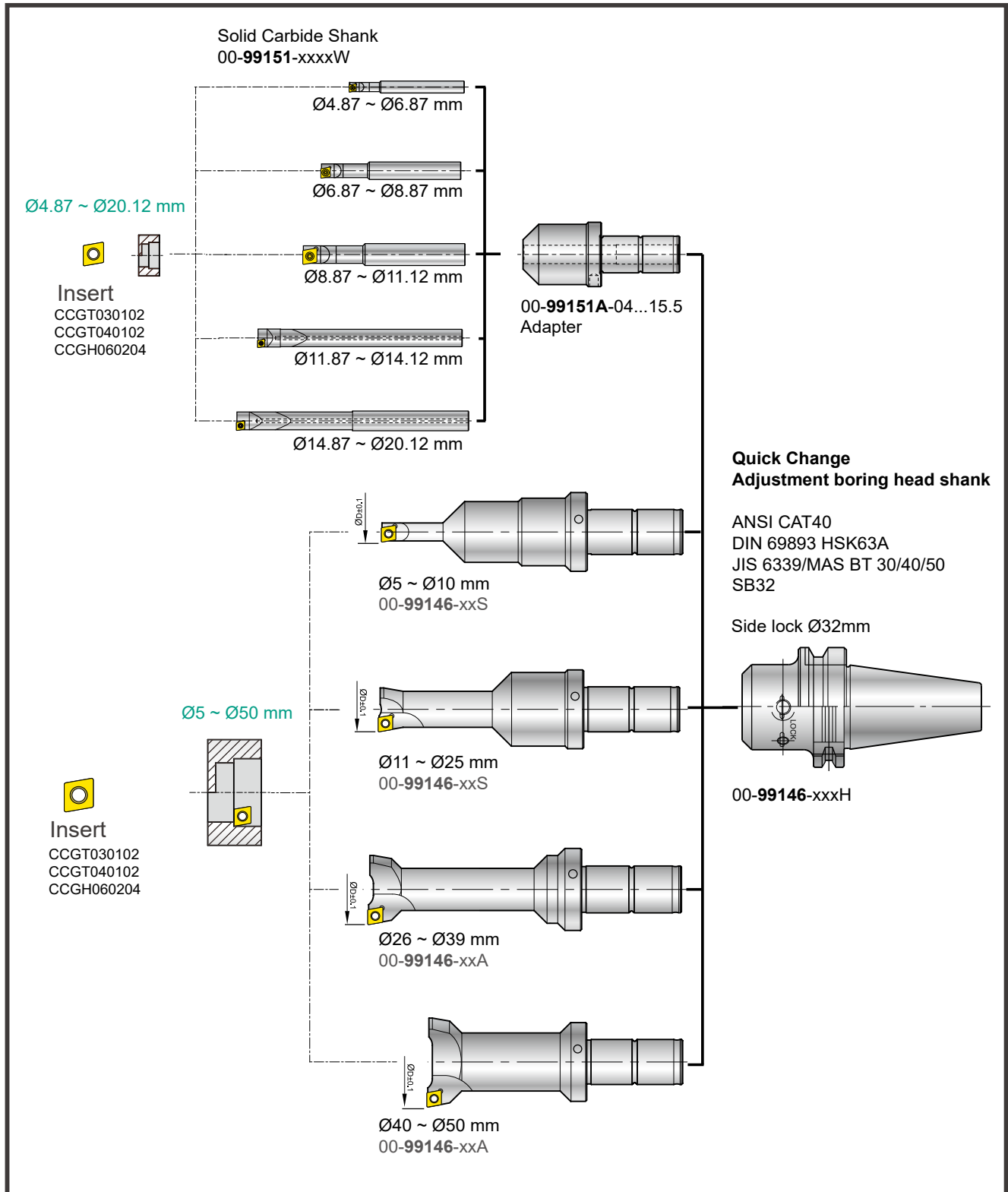
## ► Direct Adjusting Boring Bar Family

**00-99043 screw fit boring head:**  
Adjustment range  $\pm 0.1$ ,  
 $\varnothing 13.9\text{mm} \sim \varnothing 25.1\text{mm}$  boring head.

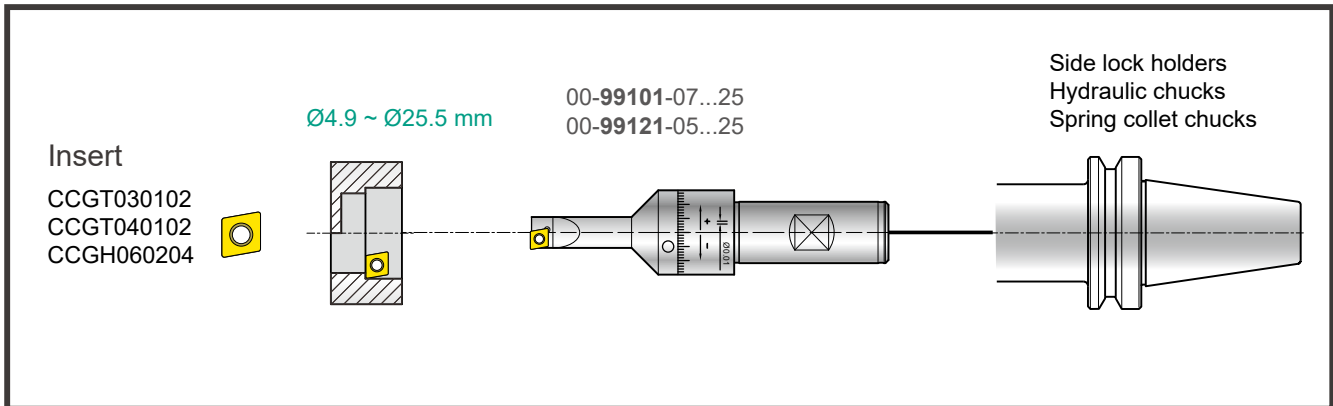
**00-99801 extension bar:**  
Made by steel and solid carbide,  
125mm maximum boring length.

**00-99021 Direct adjusting boring bar**  
Adjustment range  $\pm 0.1$ ,  
 $\varnothing 15.9\text{mm} \sim \varnothing 50.1\text{mm}$  boring head.

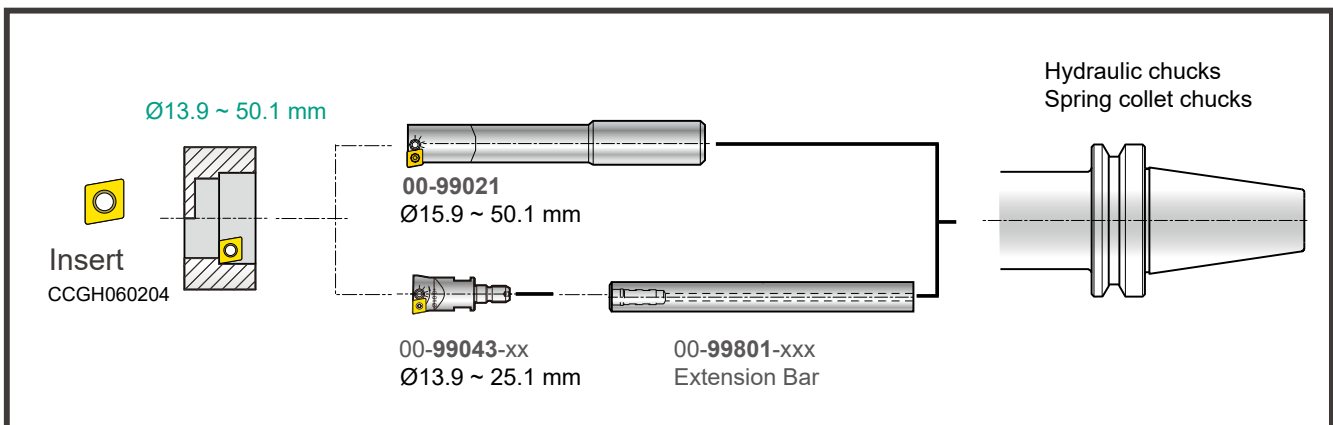
## ► Quick Change High Speed EMB Boring Bars ►►



► 99101/99121 EMB Boring Bars >>



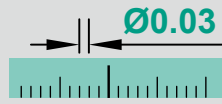
► Direct Adjusting Boring Bar >>



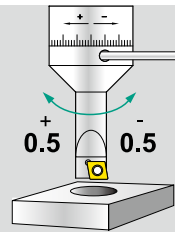
# 99101 EMB Boring Bars 0.03 mm/div.



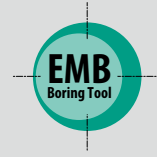
Diameter range:  
6.5mm ~ 25.5mm



Each division 0.03mm shown on the tools, they are adjustable on the tool presetter or machine easily.



Total adjustment range  $\pm 0.5$ mm.



Adjusted to required diameter by eccentric mechanism, it is simple and backlash free.

## Easy Handling

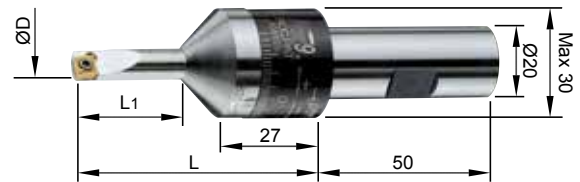
- Minimum readout division is 0.03 mm, it is easy for setting up fine boring.

## Economic

- Low cost, high efficiency. It can replace end mill and brazed tool bits.
- The indexable insert allows a variety of materials to be cut.

## Application

- Ideal as small hole boring tool with excellent accuracy.
- For fine boring operation on milling machines, machining centres and special purpose machines.



\* H type with internal coolant can be ordered on request from Dia. 7mm. Ordering example: 00-99101-07H.

\* Other sizes are available on request.

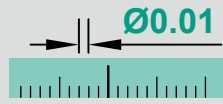
Part No.	Type		ØD	L1	L	Insert	Screw / Key
00-99101-07	SB20-0721-03		6.5-7.5	21	60	CC...040102	*NS-20036 0.6Nm / NK-T6
00-99101-08	SB20-0824-03		7.5-8.5	24	63		
00-99101-09	SB20-0927-03		8.5-9.5	27	65		
00-99101-10	SB20-1030-03	Adjustment range: $\pm 0.5$ mm  Each Division 0.03mm	9.5-10.5	30	68	CC...0602...	*NS-25045 0.9Nm / NK-T7
00-99101-11	SB20-1133-03		10.5-11.5	33	70		
00-99101-12	SB20-1236-03		11.5-12.5	36	73		
00-99101-13	SB20-1339-03		12.5-13.5	39	75		
00-99101-14	SB20-1442-03		13.5-14.5	42	78		
00-99101-15	SB20-1545-03		14.5-15.5	45	80		
00-99101-16	SB20-1648-03		15.5-16.5	48	83		
00-99101-17	SB20-1751-03		16.5-17.5	51	85		
00-99101-18	SB20-1850-03		17.5-18.5	50	82		
00-99101-19	SB20-1950-03		18.5-19.5	50	82		
00-99101-20	SB20-2050-03	CC...0602...	19.5-20.5	50	82	*NS-25060 0.9Nm / NK-T7	
00-99101-21	SB20-2150-03		20.5-21.5	50	82		
00-99101-22	SB20-2250-03		21.5-22.5	50	82		
00-99101-23	SB20-2350-03		22.5-23.5	50	82		
00-99101-24	SB20-2450-03		23.5-24.5	50	82		
00-99101-25	SB20-2550-03		24.5-25.5	50	82		

\*Torque screwdriver is recommended.

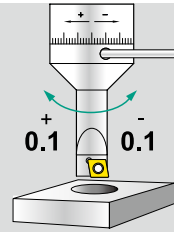
# 99121 EMB Boring Bars 0.01 mm/div.



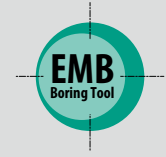
Diameter range:  
4.9mm ~ 25.1mm



Each division 0.01mm shown on the tools, they are adjustable on the tool presetter or machine easily.



Total adjustment range  $\pm 0.1$ mm.



Adjusted to required diameter by eccentric mechanism, it is simple and backlash free.

## Easy Handling

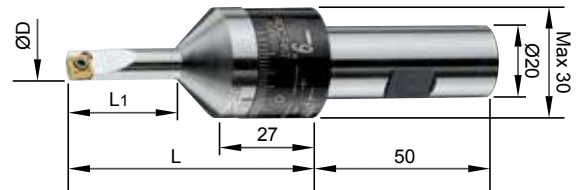
- Minimum readout division is 0.01 mm, it is easy for setting up fine boring.

## Economic

- Low cost, high efficiency. It can replace end mill and brazed tool bits.
- The indexable insert allows a variety of materials to be cut.

## Application

- Ideal as small hole boring tool with excellent accuracy.
- For fine boring operation on milling machines, machining centres and special purpose machines.



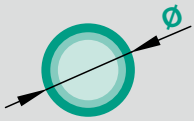
\* H type with internal coolant can be ordered on request from Dia. 7mm. Ordering example: 00-99121-07H.

\* Other sizes are available on request.

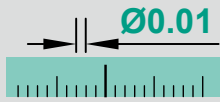
Part No.	Type		ØD	L1	L	Insert	Screw / Key
00-99121-05	SB20-0515-01	Adjustment range: $\pm 0.1$ mm Each Division 0.01mm	4.9-5.1	15	54	CC...030102	*NS-16030 0.4Nm / NK-T6
00-99121-06	SB20-0618-01		5.9-6.1	18	57		
00-99121-07	SB20-0721-01		6.9-7.1	21	60		
00-99121-08	SB20-0824-01		7.9-8.1	24	63	CC...040102	*NS-20036 0.6Nm / NK-T6
00-99121-09	SB20-0927-01		8.9-9.1	27	65		
00-99121-10	SB20-1030-01		9.9-10.1	30	68		
00-99121-11	SB20-1133-01		10.9-11.1	33	70	CC...0602...	*NS-25045 0.9Nm / NK-T7
00-99121-12	SB20-1236-01		11.9-12.1	36	73		
00-99121-13	SB20-1339-01		12.9-13.1	39	75		
00-99121-14	SB20-1442-01		13.9-14.1	42	78		
00-99121-15	SB20-1545-01		14.9-15.1	45	80		
00-99121-16	SB20-1648-01		15.9-16.1	48	83	CC...0602...	*NS-25060 0.9Nm / NK-T7
00-99121-17	SB20-1751-01		16.9-17.1	51	85		
00-99121-18	SB20-1850-01		17.9-18.1	50	82		
00-99121-19	SB20-1950-01		18.9-19.1	50	82		
00-99121-20	SB20-2050-01		19.9-20.1	50	82		
00-99121-21	SB20-2150-01		20.9-21.1	50	82		
00-99121-22	SB20-2250-01		21.9-22.1	50	82		
00-99121-23	SB20-2350-01		22.9-23.1	50	82		
00-99121-24	SB20-2450-01		23.9-24.1	50	82		
00-99121-25	SB20-2550-01		24.9-25.1	50	82		

\*Torque screwdriver is recommended.

# 99146 Quick Change High Speed EMB Boring Bar



Diameter range:  
4.87mm ~ 50.12mm



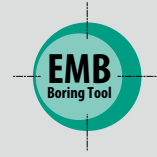
Each division 0.01mm  
shown on the tools, they  
are adjustable on the tool  
presetter or machine easily.



Adjustment range:  
+0.12 / -0.13mm.



Balance grade:  
G6.3 10000 r.p.m



Adjusted to required diameter  
by eccentric mechanism, it is  
simple and backlash free.

## Easy Handling

- Dimensions are easy to read. They are indicated on the tools and are easily adjusted on a tool presetter or in machining center.
- No backlash.

## Interchangeable Boring Bars from Diameters of 5 mm to 50 mm

- This simple boring tool has minimal components. In minutes, the boring bar may be changed and the boring dimension set on the tool presetter.

## Low Cost For Machining Small Holes

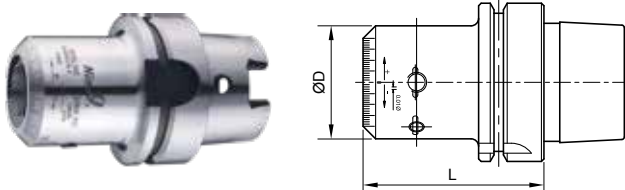
- Low cost micro adjustable boring heads.

## High Speed

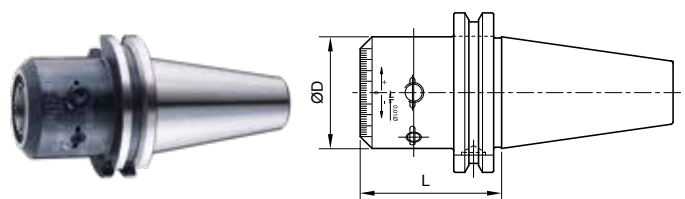
- Boring bar design ensures accurate high speed boring.  
Grade balance is G6.3 10000 r.p.m., all sizes are guaranteed.
- Surface speeds of carbide inserts up to 700 m/min.
- Combination bore / chamfer / facing tools can be ordered on request.

## ► Boring Head Shank >>

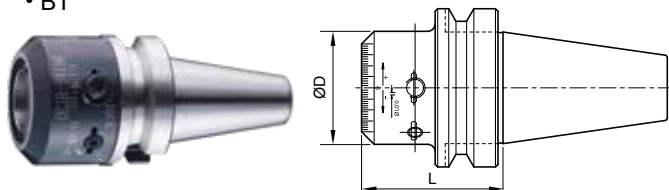
• HSK63



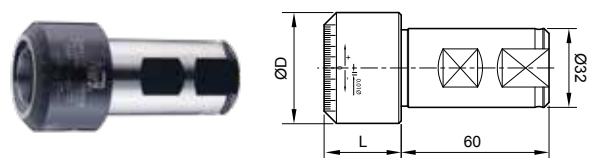
• CAT40



• BT



• SB32

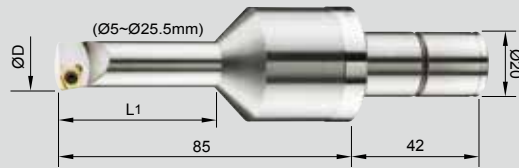


Part No.	Type	ØD	L
00-99146-HSK63AH	HSK63A-146-72	45	72
00-99146-CAT40H	CAT40-146-56	45	56.3
00-99146-BT30H	BT30-146-51	45	51.3
00-99146-BT40H	BT40-146-56	45	56.3
00-99146-BT50H	BT50-146-77	45	77.3
00-99146-SB32H	SB32-146-31	45	31.3

# 99146 Quick Change High Speed EMB Boring Bar

## ► Boring Bar Ø5~Ø25 >>

- Alloy Steel Shank
- Boring Depth : L1, 2~3xD



\* H type with internal coolant can be ordered on request from Dia. 10mm.

Ordering example: 00-99146-1000SH.

\* Other sizes are available on request.

Part No.	Type	ØD	L1	Insert Screw / Key	Part No.	Type	ØD	L1	Insert Screw / Key
00-99146-0500S	C20-0500-10L	4.87~5.12	10.00	CC...030102	00-99146-1725S	C20-1725-42L	17.12~17.37	42.50	
00-99146-0600S	C20-0600-12L	5.87~6.12	12.00	*NS-16030	00-99146-1750S	C20-1750-43L	17.37~17.62	43.75	
00-99146-0700S	C20-0700-14L	6.87~7.12	14.00	0.4Nm / NK-T6	00-99146-1775S	C20-1775-43L	17.62~17.87	43.75	
00-99146-0800S	C20-0800-16L	7.87~8.12	16.00	CC...040102	00-99146-1800S	C20-1800-45L	17.87~18.12	45.00	
00-99146-0900S	C20-0900-18L	8.87~9.12	18.00	*NS-20036,	00-99146-1825S	C20-1825-45L	18.12~18.37	45.00	
00-99146-1000S	C20-1000-25L	9.87~10.12	25.00	0.6Nm / NK-T6	00-99146-1850S	C20-1850-46L	18.37~18.62	46.25	
00-99146-1025S	C20-1025-25L	10.12~10.37	25.00		00-99146-1875S	C20-1875-46L	18.62~18.87	46.25	
00-99146-1050S	C20-1050-26L	10.37~10.62	26.25		00-99146-1900S	C20-1900-47L	18.87~19.12	47.50	
00-99146-1075S	C20-1075-26L	10.62~10.87	26.25		00-99146-1925S	C20-1925-47L	19.12~19.37	47.50	
00-99146-1100S	C20-1100-27L	10.87~11.12	27.50		00-99146-1950S	C20-1950-48L	19.37~19.62	48.75	
00-99146-1125S	C20-1125-27L	11.12~11.37	27.50		00-99146-1975S	C20-1975-48L	19.62~19.87	48.75	
00-99146-1150S	C20-1150-28L	11.37~11.62	28.75		00-99146-2000S	C20-2000-50L	19.87~20.12	50.00	
00-99146-1175S	C20-1175-28L	11.62~11.87	28.75		00-99146-2025S	C20-2025-50L	20.12~20.37	50.00	
00-99146-1200S	C20-1200-30L	11.87~12.12	30.00		00-99146-2050S	C20-2050-50L	20.37~20.62	50.00	
00-99146-1225S	C20-1225-30L	12.12~12.37	30.00	CC...0602...	00-99146-2075S	C20-2075-50L	20.62~20.87	50.00	
00-99146-1250S	C20-1250-31L	12.37~12.62	31.25		00-99146-2100S	C20-2100-50L	20.87~21.12	50.00	CC...0602...
00-99146-1275S	C20-1275-31L	12.62~12.87	31.25	*NS-25045	00-99146-2125S	C20-2125-50L	21.12~21.37	50.00	*NS-25060
00-99146-1300S	C20-1300-32L	12.87~13.12	32.50	0.9Nm	00-99146-2150S	C20-2150-50L	21.37~21.62	50.00	0.9Nm
00-99146-1325S	C20-1325-32L	13.12~13.37	32.50	NK-T7	00-99146-2175S	C20-2175-50L	21.62~21.87	50.00	NK-T7
00-99146-1350S	C20-1350-33L	13.37~13.62	33.75		00-99146-2200S	C20-2200-50L	21.87~22.12	50.00	
00-99146-1375S	C20-1375-33L	13.62~13.87	33.75		00-99146-2225S	C20-2225-50L	22.12~22.37	50.00	
00-99146-1400S	C20-1400-35L	13.87~14.12	35.00		00-99146-2250S	C20-2250-50L	22.37~22.62	50.00	
00-99146-1425S	C20-1425-35L	14.12~14.37	35.00		00-99146-2275S	C20-2275-50L	22.62~22.87	50.00	
00-99146-1450S	C20-1450-36L	14.37~14.62	36.25		00-99146-2300S	C20-2300-50L	22.87~23.12	50.00	
00-99146-1475S	C20-1475-36L	14.62~14.87	36.25		00-99146-2325S	C20-2325-50L	23.12~23.37	50.00	
00-99146-1500S	C20-1500-37L	14.87~15.12	37.50		00-99146-2350S	C20-2350-50L	23.37~23.62	50.00	
00-99146-1525S	C20-1525-37L	15.12~15.37	37.50		00-99146-2375S	C20-2375-50L	23.62~23.87	50.00	
00-99146-1550S	C20-1550-38L	15.37~15.62	38.75		00-99146-2400S	C20-2400-50L	23.87~24.12	50.00	
00-99146-1575S	C20-1575-38L	15.62~15.87	38.75		00-99146-2425S	C20-2425-50L	24.12~24.37	50.00	
00-99146-1600S	C20-1600-40L	15.87~16.12	40.00	CC...0602...	00-99146-2450S	C20-2450-50L	24.37~24.62	50.00	
00-99146-1625S	C20-1625-40L	16.12~16.37	40.00		00-99146-2475S	C20-2475-50L	24.62~24.87	50.00	
00-99146-1650S	C20-1650-41L	16.37~16.62	41.25	Screw:	00-99146-2500S	C20-2500-50L	24.87~25.12	50.00	
00-99146-1675S	C20-1675-41L	16.62~16.87	41.25	*NS-25060	00-99146-2525S	C20-2525-50L	25.12~25.37	50.00	
00-99146-1700S	C20-1700-42L	16.87~17.12	42.50	0.9Nm	00-99146-2550S	C20-2550-50L	25.37~25.62	50.00	
				Key: NK-T7					

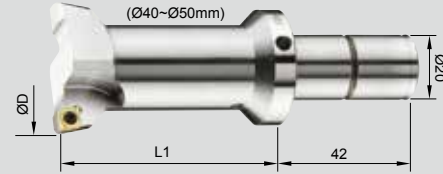
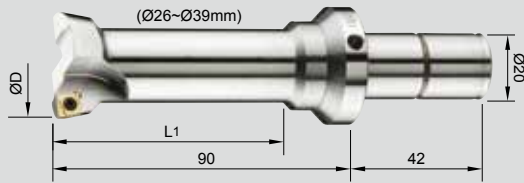
\*Torque screwdriver is recommended.



# 99146 Quick Change High Speed EMB Boring Bar

## ► Boring Bar Ø26~Ø50 >>

- Alloy Steel Shank
- Boring Depth : L1, 2~3xD



### ► Ø26~Ø39mm >>

\* H type with internal coolant can be ordered on request.  
Ordering example: 00-99146-36AH.

### ► Ø40~Ø50mm >>

\* H type with internal coolant can be ordered on request.  
Ordering example: 00-99146-45AH.

Part No.	Type	ØD	L1	Insert Screw / Key	Part No.	Type	ØD	L1	Insert Screw / Key
00-99146-26A	C20-2600-50L	25.87~26.12	50	CC...0602... *NS-25060 0.9Nm NK-T7	00-99146-40A	C20-4000-70L	39.87~40.12	70	CC...0602... *NS-25060 0.9Nm NK-T7
00-99146-27A	C20-2700-50L	26.87~27.12	50		00-99146-41A	C20-4100-70L	40.87~41.12	70	
00-99146-28A	C20-2800-50L	27.87~28.12	50		00-99146-42A	C20-4200-70L	41.87~42.12	70	
00-99146-29A	C20-2900-50L	28.87~29.12	50		00-99146-43A	C20-4300-70L	42.87~43.12	70	
00-99146-30A	C20-3000-50L	29.87~30.12	50		00-99146-44A	C20-4400-70L	43.87~44.12	70	
00-99146-31A	C20-3100-70L	30.87~31.12	70		00-99146-45A	C20-4500-70L	44.87~45.12	70	
00-99146-32A	C20-3200-70L	31.87~32.12	70		00-99146-46A	C20-4600-70L	45.87~46.12	70	
00-99146-33A	C20-3300-70L	32.87~33.12	70		00-99146-47A	C20-4700-70L	46.87~47.12	70	
00-99146-34A	C20-3400-70L	33.87~34.12	70		00-99146-48A	C20-4800-70L	47.87~48.12	70	
00-99146-35A	C20-3500-70L	34.87~35.12	70		00-99146-49A	C20-4900-70L	48.87~49.12	70	
00-99146-36A	C20-3600-70L	35.87~36.12	70		00-99146-50A	C20-5000-70L	49.87~50.12	70	
00-99146-37A	C20-3700-70L	36.87~37.12	70						
00-99146-38A	C20-3800-70L	37.87~38.12	70						
00-99146-39A	C20-3900-70L	38.87~39.12	70						

\*Torque screwdriver is recommended.

## ► High Speed Boring Bar Kit >>

Part No.	Contents	
00-99146-SB32H-05SET	SB32-146-31 Weldon Shank	Boring head shank: 1pc Boring bar: any 5 pcs from Ø5~Ø50 Key: 3~5 pcs Plastic box: 1pc
00-99146-BT30-05SET	BT30H Boring head shank	
00-99146-BT40-05SET	BT40H Boring head shank	
00-99146-BT50-05SET	BT50H Boring head shank	
00-99146-CAT40-05SET	CAT40H Boring head shank	
00-99146-HSK63A-05SET	HSK63A Boring head shank	



(Insert is not included, please order separately)  
• Note: BT50 boring head shank is packed in a separate box.

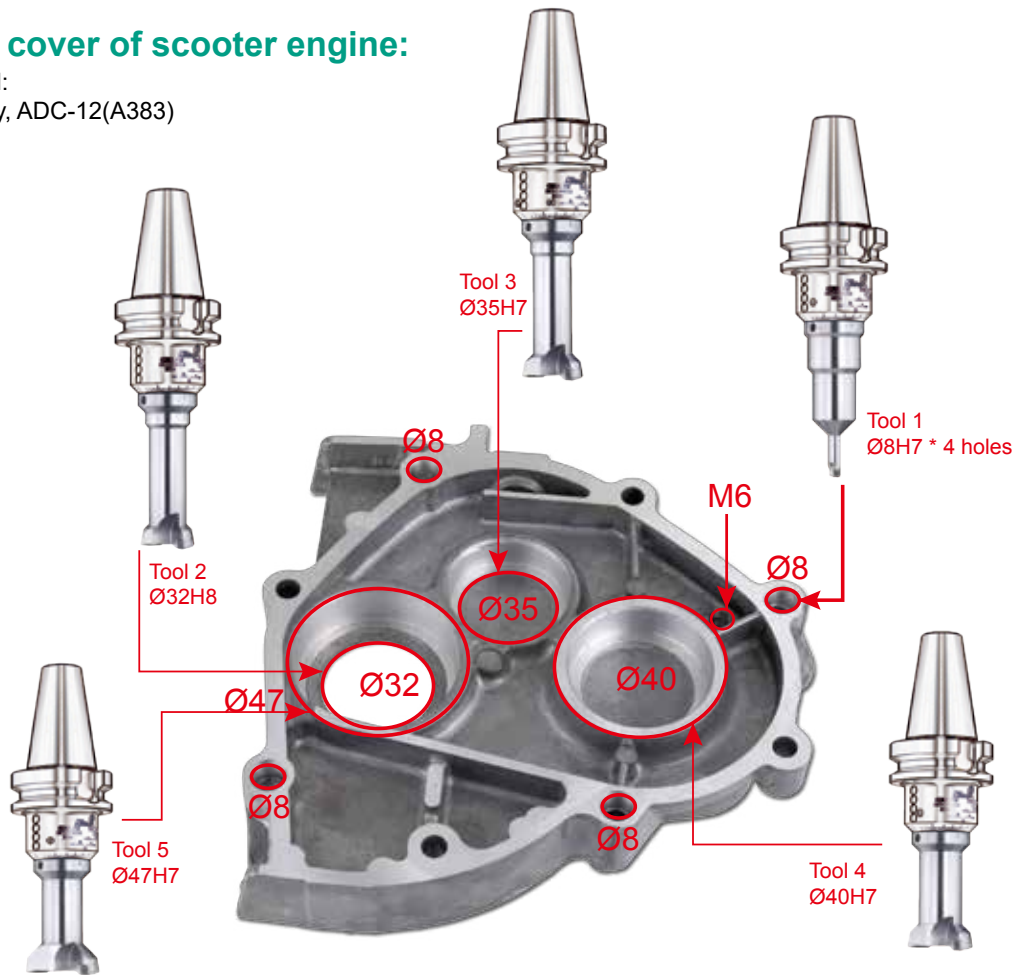
6

Boring Tool

# Application Example

## Machining a cover of scooter engine:


Workpiece material:  
Die casting, Al-alloy, ADC-12(A383)  
Spindle Size: BT40

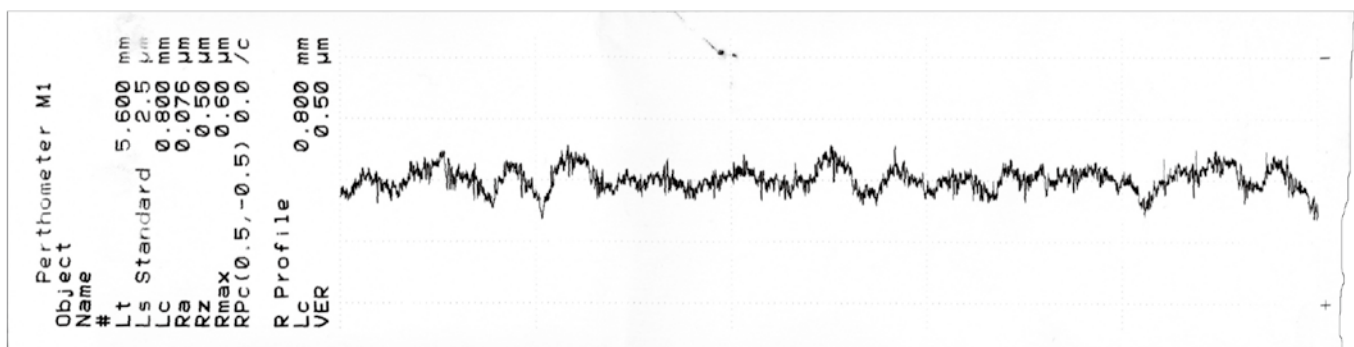


TOOL LIST by Nine9 Boring Bar 99146-series :

No.	Boring Bar	Grade of insert	Dia. mm	Depth	r.p.m.	F = mm/min.	Machining time
1	00-99146-08A	CCGT040102 NC30	Ø8H7	8 mm	8000	400	1.2 sec.
2	00-99146-32A	CCGT060202HP NC9031	Ø32H8	8 mm	2985	209	2.3 sec.
3	00-99146-35A		Ø35H7	12 mm	2730	191	3.8 sec.
4	00-99146-40A		Ø40H7	15 mm	2400	168	5.4 sec.
5	00-99146-47A		Ø47H7	15 mm	2030	142	6.4 sec.

## Working Example

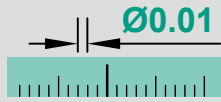
	Material	Vc m/min.	f mm/rev.	Roughness			Tool holder	Insert
				Ra	Rz	Rmax		
	Al alloy, 6061	150	0.2	0.076µm	0.50µm	0.6µm	99146-BT40-26A	CCGH0602U NC9036



# 99151 Deep hole boring 4~6XD



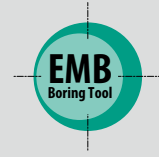
Diameter range:  
4.87mm ~ 20.12mm



Each division 0.01mm shown  
on the tools, they are adjustable  
on the tool presetter or machine  
easily.



Adjustment range:  
+0.12 / -0.13mm.



Adjusted to required diameter  
by eccentric mechanism, it is  
simple and backlash free.

## Easy Handling

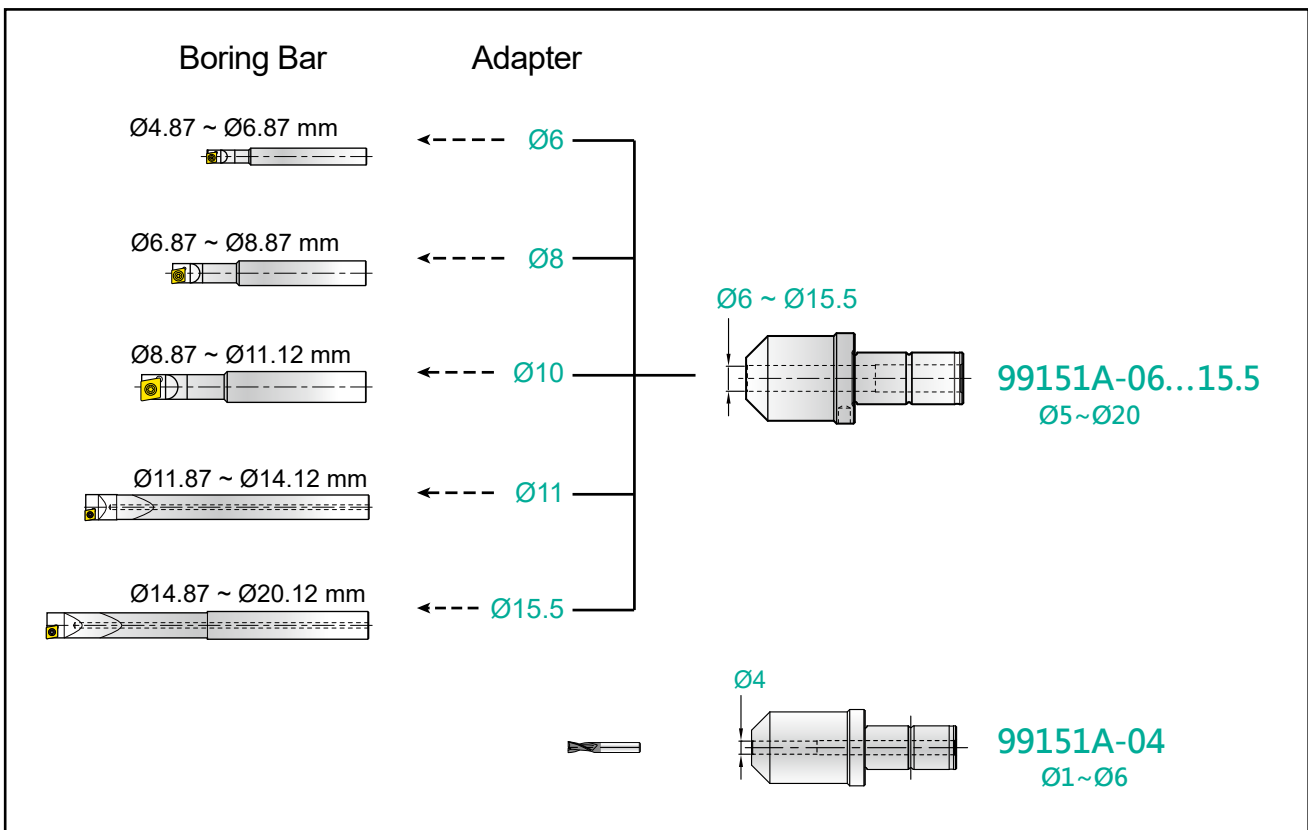
- 4~6xD boring depth, Good balance condition is maintained .

## Economic

- Low cost, high efficiency. It can replace end mill and brazed tool bits.
- The indexable insert allows a variety of materials to be cut .

## Application

- Replace end mill or reamer in small hole boring.
- Apply for electronic parts and micro machining parts.



# 99151 Deep hole boring 4~6XD

## ▶ Adapter >>

- Economical solution of small dia. boring bar.



Part No.	Type	ØD	L
00-99151A-04	C20-ID04	4	49
00-99151A-06	C20-ID06	6	52
00-99151A-08	C20-ID08	8	49
00-99151A-10	C20-ID10	10	42
00-99151A-11	C20-ID11	11	21.5
00-99151A-15.5	C20-ID15.5	15.5	21.5

## ▶ Boring Bar Ø5~Ø20 >>

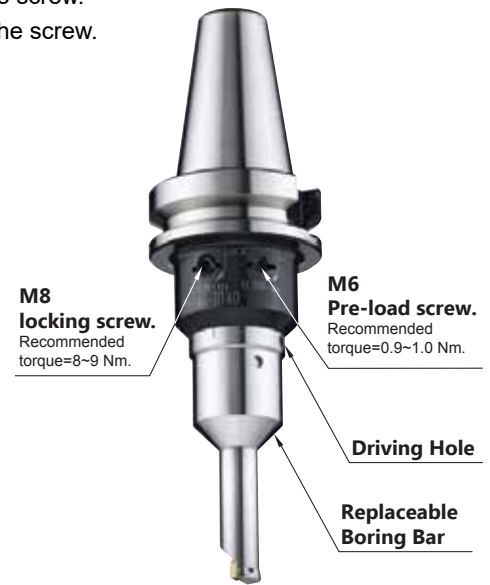
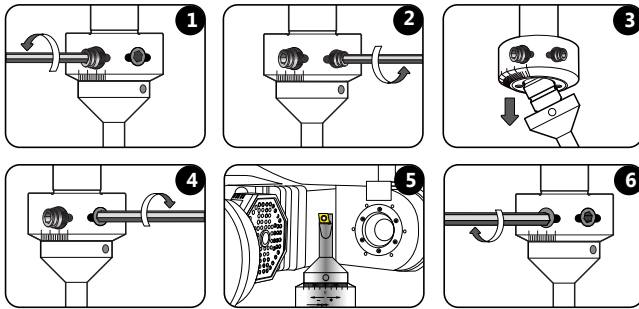
- Solid Carbide Shank
- Boring Depth : L1, 4~6xD

Part No.	Type	ØD	Ød	Ød1	L1	L	Insert Screw / Key	Fig.
00-99151-0500W	C06-0500-20L	4.87~5.12	6	-	20	70	CCGT030102 *NS-16030 / 0.4Nm NK-T6	
00-99151-0525W	C06-0525-20L	5.12~5.37	6	-	20	70		
00-99151-0550W	C06-0550-22L	5.37~5.62	6	-	22	70		
00-99151-0575W	C06-0575-22L	5.62~5.87	6	-	22	70		
00-99151-0600W	C06-0600-24L	5.87~6.12	6	-	24	70		
00-99151-0625W	C06-0625-24L	6.12~6.37	6	-	24	70		
00-99151-0650W	C06-0650-26L	6.37~6.62	6	-	26	70		
00-99151-0675W	C06-0675-26L	6.62~6.87	6	-	26	70		
00-99151-0700W	C08-0700-28L	6.87~7.12	8	-	28	85	CCGT040102 *NS-20036 / 0.6Nm NK-T6	
00-99151-0725W	C08-0725-28L	7.12~7.37	8	-	28	85		
00-99151-0750W	C08-0750-30L	7.37~7.62	8	-	30	85		
00-99151-0775W	C08-0775-30L	7.62~7.87	8	-	30	85		
00-99151-0800W	C08-0800-32L	7.87~8.12	8	-	32	85		
00-99151-0825W	C08-0825-32L	8.12~8.37	8	-	32	85		
00-99151-0850W	C08-0850-34L	8.37~8.62	8	-	34	85		
00-99151-0875W	C08-0875-34L	8.62~8.87	8	-	34	85		
00-99151-0900W	C10-0900-36L	8.87~9.12	10	-	36	110	CC...0602... *NS-25045 / 0.9Nm NK-T7	
00-99151-0925W	C10-0925-36L	9.12~9.37	10	-	36	110		
00-99151-0950W	C10-0950-38L	9.37~9.62	10	-	38	110		
00-99151-0975W	C10-0975-38L	9.62~9.87	10	-	38	110		
00-99151-1000W	C10-1000-40L	9.87~10.12	10	-	40	110		
00-99151-1025W	C10-1025-40L	10.12~10.37	10	-	40	110		
00-99151-1050W	C10-1050-42L	10.37~10.62	10	-	42	110		
00-99151-1075W	C10-1075-42L	10.62~10.87	10	-	42	110		
00-99151-1100W	C10-1100-44L	10.87~11.12	10	-	44	110		
00-99151-1200WS	C11-1200-120L	11.87~12.12	11	11	70	120	CC...0602... *NS-25045 / 0.9Nm NK-T7	
00-99151-1300WS	C11-1300-120L	12.87~13.12	11	-	70	120		
00-99151-1400WS	C11-1400-120L	13.87~14.12	11	-	70	120		
00-99151-1500W	C15.5-1500-180L	14.87~15.12	15.5	14	90	180	CC...0602... *NS-25060 / 0.9Nm NK-T7	
00-99151-1600W	C15.5-1600-180L	15.87~16.12	15.5	15	90	180		
00-99151-1700W	C15.5-1700-180L	16.87~17.12	15.5	-	100	180		
00-99151-1800W	C15.5-1800-180L	17.87~18.12	15.5	-	100	180		
00-99151-1900W	C15.5-1900-180L	18.87~19.12	15.5	-	100	180		
00-99151-2000W	C15.5-2000-180L	19.87~20.12	15.5	-	100	180		

\*Torque screwdriver is recommended.

# Procedures For Assembly

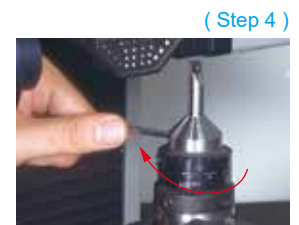
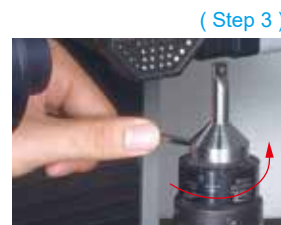
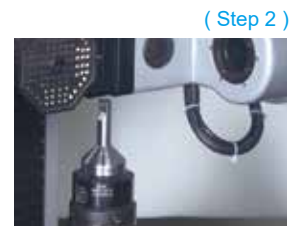
1. Use 4 mm allen-key to **loosen locking screw M8**, take care not to remove the screw.
2. Use 3 mm allen-key to **loosen pre-load screw M6**, take care not to remove the screw.
3. Remove the original boring bar and insert the new boring bar.
4. **Tighten the M6 pre-load screw**. Recommended torque = 0.9 ~ 1.0Nm.
5. Measure the boring diameter of the boring bar using tool presetter and adjust it to the required diameter.
6. **Tighten the M8 locking screw**. Recommended torque = 8 ~ 9Nm.



# Procedures For Adjustment

## On Tool Presetter

1. Loosen M8 locking screw.
2. Set the boring bar at the neutral position. ( Step 1 )
3. Measure the boring diameter using the tool presetter and compare with the required diameter. ( Step 2 )
4. If boring diameter is too big or too small, please put an allen-key into the adjusting driving hole. Turn to “ + ” to increase and turn to “ - ” to reduce boring diameter. ( Step 3 and 4 )
5. Tighten M8 locking screw.

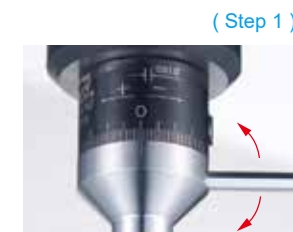


To Increase Diameter

To Reduce Diameter

## On Milling Machine and Machining Centers

1. Set the boring bar at the neutral position. ( Step 1 )
2. Tighten M8 locking screw.
3. Test cut on work piece, about 3-5mm depth on the machine.
4. Measuring boring diameter of workpiece and compare with required diameter.
5. If boring diameter is too big or too small, loosen M8 locking screw, please put an allen-key into the adjusting driving hole. Turn to “ + ” to increase and turn to “ - ” to reduce boring diameter. ( Step 2 and 3 )
6. Tighten M8 locking screw. ( Step 4 )



To Increase Diameter

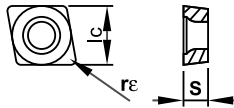


To Reduce Diameter

# Precisely Ground Inserts

- NC30** : • Universal grade for casting iron, carbon steel, alloy steel, stainless steel.
- NC2032** : • For high speed cutting of casting iron.
- NC2033** : • Good for carbon steel, alloy steel, stainless steel.
- NC9036** : • long tool life.  
• Good for Al, Al-alloy, Copper and non-ferrous metal.
- U-XP9001** : • Super finishing insert with large corner radius for high feed rate.  
• Good for Al, Al-alloy and non-ferrous metal.

Parts No.	Coating	Grade		Dimensions			Screw	Key
				lc	S	Re		
CCGT030102	NC30	TiAlN	K20F	3.5	1.4	0.2	*NS-16030 0.4Nm	NK-T6
	NC9036	DLC						
CCGT040102	NC30	TiAlN	K20F	4.3	1.8	0.2	*NS-20036 0.6Nm	NK-T6
	NC9036	DLC						
CCGH0602U	U-XP9001	Polished	K20F	6.35	2.38	-		
CCFT060204	NC2033	TiAlN	K20F	6.35	2.38	0.4	*NS-25045 0.9Nm	NK-T7
	NC9036	DLC						
CCFW060204	NC2032	AlTiN	K20F	6.35	2.38	0.4		

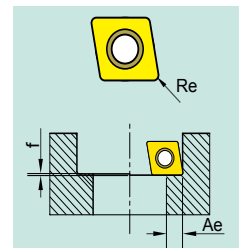


\*Torque screwdriver is recommended.

## Cutting Data

- Note: Super fine finishing insert **U-XP9001** with special specified cutting width **0.15mm**. (Radius) (see table below)

$$\text{Spindle speed } S = \frac{V_c \times 1000}{\pi \times D} \text{ r.p.m.} \quad \text{Feed rate: } f \times S \text{ mm/min.}$$



Material	Cutting conditions or surface finishes	Cutting Speed Vc(m/min.)	feed rate f (mm/rev.)	Re0.2	Re0.4	Grade of Insert
				Ae (mm)		
<b>P</b> Carbon Steel	Regular cutting	120-150-200	0.05-0.07-0.10	0.05	0.1	NC2033
	Interrupted cutting	100-120-140	0.04-0.05-0.08	0.05	0.1	NC30
<b>M</b> Alloy Steel	Regular cutting	100-120-140	0.05-0.07-0.10	0.05	0.1	NC2033
	Interrupted cutting	80-100-120	0.04-0.05-0.08	0.05	0.1	NC30
<b>K</b> Stainless Steel	Regular cutting	80-100-120	0.05-0.07-0.10	0.05	0.1	NC2033
	Interrupted cutting	70-80-100	0.05-0.07-0.10	0.05	0.1	NC30
<b>N</b> Cast Iron	Regular cutting	80-100-120	0.05-0.07-0.10	0.05	0.1	NC2032   NC30
	Regular cutting	150-200-300	0.05-0.07-0.10	0.05	0.1	NC9036
<b>N</b> Brass, Bronze and Al-alloy Si >6%	Super mirror finish	150-200-300	0.15-0.2-0.25	0.05		U-XP9001
	Regular cutting	150-200-300	0.05-0.07-0.10	0.05	0.1	NC9036
<b>N</b> Al, Al-alloy, non-ferrous metal	Super mirror finish	150-200-300	0.15-0.20-0.25	0.05		U-XP9001
	Regular cutting	80-100-120	0.04-0.06-0.08	0.05	0.1	NC30

# Direct Adjusting Boring Bar

**No Backlash!**  
**Micrometric Adjustment!**  
**Extra long!**

The Patented tool structure applies bit angle variation to produce slight size variation in diametric direction.

Excellent for applications on single size boring tools, deep hole boring tools, special tools, etc. It features easy control of  $\mu$  accuracy.



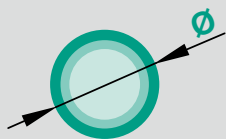
USA Patent



6

Boring Tool

# Direct Adjusting Boring Bar



Diameter range:  
13.9mm ~ 50.1mm



Adjustment range:  
+0.1 / -0.1mm.

## ► Direct Adjusting Boring Bar Family >>

### 00-99021:

Boring bar with direct adjustment :  
Adjustment range  $\pm 0.1$ ,  
 $\text{Ø}15.9\text{mm} \sim \text{Ø}50.1\text{mm}$  boring head.



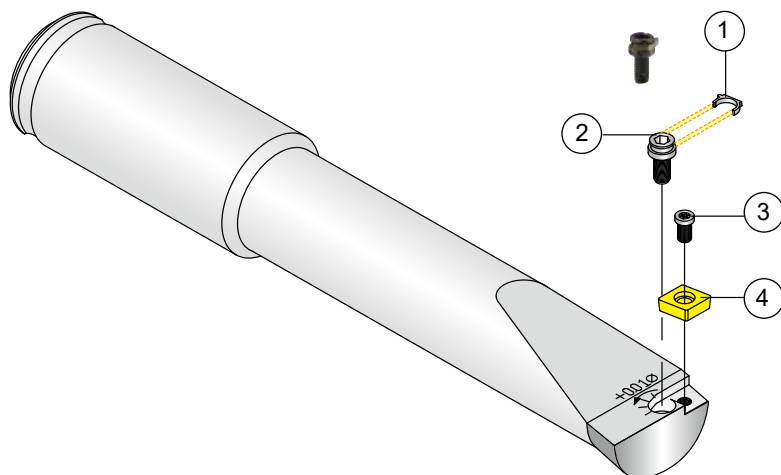
### 00-99043:

Screw fit boring head with direct adjustment  
for anti-vibration extension bar :  
Adjustment range  $\pm 0.1$ ,  
 $\text{Ø}13.9\text{mm} \sim \text{Ø}25.1\text{mm}$  boring head.

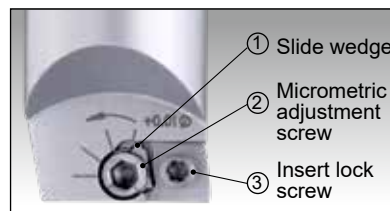


## ► Features >>

- Patented adjustment mechanism, to push insert directly by wedge and screw after insert clamped.
- The boring diameter is adjusted by pushing the micrometric adjustment screw after the insert screw has been tightened.
- There is no backlash while adjusting boring diameter.



- ① Slide wedge
- ② Micrometric adjustment screw
- ③ Insert lock screw
- ④ Insert

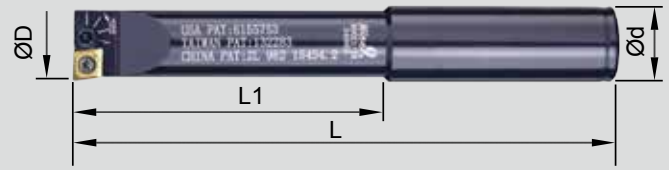




# Direct Adjusting Boring Bar

## ► Cylindrical Shank >>

- Patented adjustment mechanism, to push insert directly by wedge and screw after insert clamped.
- Good for machining centers and special purpose machine for micrometric adjustment.



## ► Ø16 ~ Ø50, Alloy Steel Shank >>

- Boring depth: L1, 4xD.
- Total adjustment range: 0.2mm.

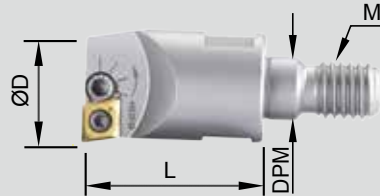
Part No.	Type	ØD	Ød	L1	L	Insert / Screw	Adjustment Screw
00-99021-16	BC16-FB16	15.9~16.1	16	66	114	CC...0602... / Insert lock Screw: *NS-25060 / 0.9Nm Key:NK-T7 (2.5mm)	99021-A
00-99021-18	BC16-FB18	17.9~18.1	16	72	112		
00-99021-20	BC16-FB20	19.9~20.1	16	80	130		
00-99021-22	BC20-FB22	21.9~22.1	20	88	138		
00-99021-25	BC25-FB25	24.9~25.1	25	100	156		
00-99021-27	BC25-FB27	26.9~27.1	25	108	164	CC...09.... / Insert lock Screw: NS-35080 / 2.5Nm Key:NK-T15 (4mm)	99021-D
00-99021-28	BC25-FB28	27.9~28.1	25	112	168		
00-99021-30	BC25-FB30	29.9~30.1	25	120	176		
00-99021-32	BC25-FB32	31.9~32.1	25	128	184		
00-99021-35	BC32-FB35	34.9~35.1	32	140	200		
00-99021-37	BC32-FB37	36.9~37.1	32	140	200		
00-99021-40	BC32-FB40	39.9~40.1	32	140	200		
00-99021-42	BC32-FB42	41.9~42.1	32	140	200		
00-99021-45	BC32-FB45	44.9~45.1	32	140	200		
00-99021-47	BC32-FB47	46.9~47.1	32	140	200		
00-99021-50	BC32-FB50	49.9~50.1	32	140	200		

\*Torque screwdriver is recommended.

# Direct Adjusting Boring Bar

## ► Screw Fit Boring Head >>

- Integrated with direct adjustment for fine boring, adjustment range  $\pm 0.1\text{mm}$ .

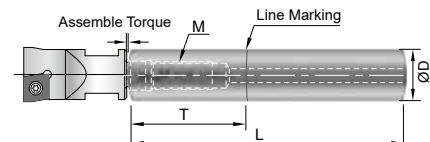


Part No.	Type	ØD	L	M	DPM	Insert / Screw	Adjustment screw
00-99043-14	M6-FB14	13.9~14.1	25	M6xP1.0	6.5	CC...0602... /	99021-A
00-99043-15	M6-FB15	14.9~15.1	25	M6xP1.0	6.5	Insert lock screw: *NS-25045 / 0.9Nm Key: NK-T7	
00-99043-16	M8-FB16	15.9~16.1	25	M8xP1.25	8.5	CC...0602... /	99021-A
00-99043-17	M8-FB17	16.9~17.1	25	M8xP1.25	8.5		
00-99043-18	M8-FB18	17.9~18.1	25	M8xP1.25	8.5		
00-99043-19	M8-FB19	18.9~19.1	30	M8xP1.25	8.5		
00-99043-20	M10-FB20	19.9~20.1	30	M10xP1.5	10.5		
00-99043-21	M10-FB21	20.9~21.1	30	M10xP1.5	10.5		
00-99043-22	M10-FB22	21.9~22.1	30	M10xP1.5	10.5		
00-99043-23	M10-FB23	22.9~23.1	30	M10xP1.5	10.5		
00-99043-24	M10-FB24	23.9~24.1	30	M10xP1.5	10.5		
00-99043-25	M10-FB25	24.9~25.1	30	M10xP1.5	10.5		

\*Torque screwdriver is recommended.

## ► Steel Extension Bar >>

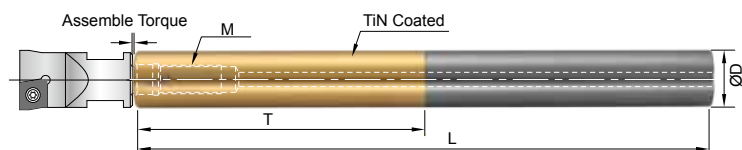
- T is the maximum overhang length.
- With internal coolant hole.



Parts No.	Type	ØD	T	L	M	Assemble Torque
00-99801-12S	BC12-075M06S	12	25	75	M6xP1.0	11.0 Nm
00-99801-14S	BC14-090M08S	14	30	90	M8xP1.25	25.0 Nm
00-99801-16S	BC16-090M08S	16	35	90	M8xP1.25	25.0 Nm
00-99801-18S	BC18-100M10S	18	40	100	M10xP1.5	50.0 Nm
00-99801-20S	BC20-100M10S	20	40	100	M10xP1.5	50.0 Nm
00-99801-25S	BC25-120M12S	25	50	120	M12xP1.75	60.0 Nm

## ► Solid Carbide Extension Bar >>

- T is the maximum overhang length.
- With internal coolant hole.
- Carbide extension bar with longer tool length is available on request. ( REVA brand)



Parts No.	Type	ØD	T	L	M	Assemble Torque
00-99801-12W	BC12-100M06W	12	60	100	M6xP1.0	11.0 Nm
00-99801-14W	BC14-120M08W	14	70	120	M8xP1.25	25.0 Nm
00-99801-16W	BC16-150M08W	16	80	150	M8xP1.25	25.0 Nm
00-99801-18W	BC18-150M10W	18	90	150	M10xP1.5	50.0 Nm
00-99801-20W	BC20-200M10W	20	100	200	M10xP1.5	50.0 Nm
00-99801-25W	BC25-200M12W	25	125	200	M12xP1.75	60.0 Nm

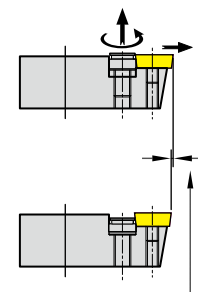
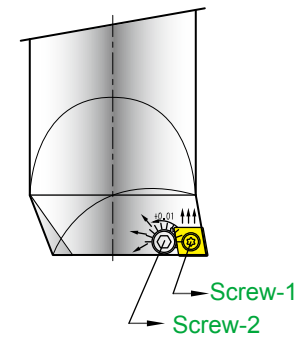
# Procedures For Adjustment

- Extension bar is TiN coated to show the maximum usable boring length.



## On Tool Presetter

1. Turn **screw-2** clockwise to the **bottom end** before tighten the insert.
2. Tighten the insert by **screw 1**.  
(If you have tool presetter, follow step 3-5; if you don't, jump to step 6-9.)
3. Put the boring bar on the spindle of the tool presetter.
4. Measure the diameter of the boring bar by tool presetter; it should be smaller than nominal diameter. Adjusting the diameter of the boring bar by turning **screw-2** counter-clockwise using the Allen-key to increase diameter until required diameter is achieved.
5. If the diameter has been adjusted too big, please loosen the **screw-2**, and then **screw-1**. Repeat step 2-4 until the required diameter is achieved.
6. Put the boring bar on the machine spindle and make a test cut, about 5 mm deep. Measure hole diameter of the test cut.
7. Moving the boring bar to the tool diameter setter. The insert of the boring bar should touch the ceramic probe gently. Setting the dial gage to "zero" and adjust diameter by turning screw-2 counter-clockwise using the Allen key.
8. Read and note the "Adjusting amount" on the dial gage.  
 $\text{Adjusting amount} = (\text{Nominal diameter} - \text{test cut diameter}) / 2$  (mm or inch.)
9. Make test cut and measure again until required adjusting amount is achieved.



Adjusting Range 0.2 mm

Adjusting boring diameter on the presetter.



Direction to increase boring diameter.

6

Boring Tool

# Precisely Ground Inserts

- NC60 :** • Cermet insert, for hardened steel and super finished of the high alloy steel.
- NC10 :** • For casting iron, carbon steel, alloy steel, stainless steel.
- NC2032 :** • For high speed cutting of casting iron.
- NC2033 :** • Good for carbon steel, alloy steel, stainless steel.
- NC9036 :** • Super finishing insert with large corner radius for high feed rate.  
• Good for Al, Al-alloy and non-ferrous metal.

Parts No.		Coating	Grade		Dimensions			Screw	Key		
					lc	S	Re				
CCGH060204	NC60	CERMET			6.35	2.38	0.4				
CCFT060204	NC2033	TiAlN	K20F		6.35	2.38	0.4	*NS-25060 0.9Nm	NK-T7		
	NC9036	DLC									
CCFW060204	NC2032	AlTiN	K20F		6.35	2.38	0.4				
CCGT09T304HP	NC10	TiAlN	K20F		9.52	3.97	0.4			NS-35080 2.5Nm	NK-T15

\*Torque screwdriver is recommended.

## Cutting Data

Spindle speed  $S = \frac{V_c \times 1000}{\pi \times D}$  r.p.m. Feed rate:  $f \times S$  mm/min

	Material	Cutting conditions or surface finishes	Cutting Speed $V_c$ (m/min)	feed rate $f$ (mm/rev.)	Grade of Insert
P	Carbon Steel	Regular cutting	120-150-180	0.05-0.07-0.10	NC60
		Interrupted cutting	100-120-140	0.04-0.05-0.08	NC2033 / NC10
	Alloy Steel	Regular cutting	100-120-140	0.05-0.07-0.10	NC60
		Interrupted cutting	80-100-120	0.04-0.05-0.08	NC2033 / NC10
M	Stainless Steel	Regular cutting	70-80-100	0.05-0.07-0.10	NC2033 / NC10
K	Cast Iron	Regular cutting	80-100-120	0.05-0.07-0.10	NC10 / NC2032
N	Al, Al-alloy, non-ferrous metal	Regular cutting ( DLC )	150-200-300	0.05-0.07-0.10	NC9036