

**YU-NC21**

Metric & Inch

**YG NanoCut**

## **Solid Miniature Turning for small bore**

The new YG-1 NanoCut is a turning tool for small bore applications.

A wide range of insert series covers various applications like boring, grooving, profiling and chamfering with optimized grade for improved productivity.

**AHB**  
**TOOLING & MACHINERY**

**COMPLETE METALWORKING SOLUTIONS**

(800) 991-4225

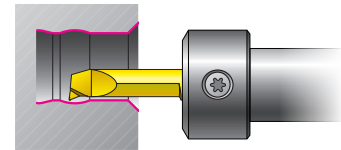
ISO Certified

[www.ahbinc.com](http://www.ahbinc.com)

[customerservice@ahbinc.com](mailto:customerservice@ahbinc.com)

## Overview

At present, as demand for small parts (camera lens, mobile phone parts) and medical instruments (implants) increases, demand for small-diameter products capable of high-precision processing is increasing.



### Application

- Turning of Small Bore Components
- Internal Turning(Boring), Grooving and Threading

### Features

- Minimum Diameter(Boring & Profiling series) :  $\varnothing$  1 mm (.039")
- Internal Coolant for Longer Tool life and Enhanced Chip Evacuation
- Secure Connection Design: Pin + Slant Positioning
- 9 Geometries for Various Applications

### Advantages

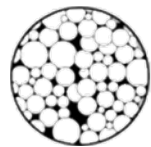
- High Repeatability
- Longer Tool Life

### Benefits

- Reduced Machine Down Time
- Lower Machining Cost

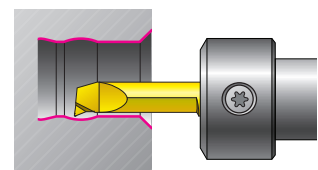
### YG812 - Micro Grain Carbide Grade

**P10 - P20** **M20 - M30** Submicron Grade Carbide Substrate Material for high toughness and wear resistance realizes high precision machining  
**K20 - K30** **S10 - S25**

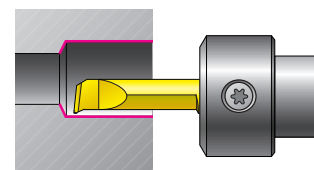


## YG NanoCut Series

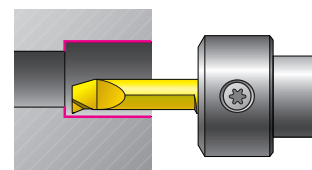
**BP** - Boring & Profiling



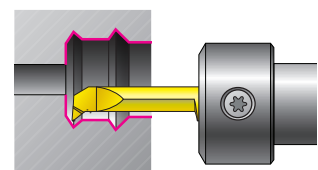
\* **BO** - Boring with Chipbreaker



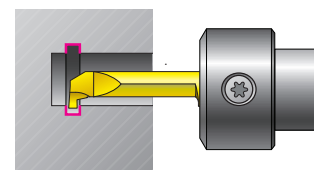
\* **BF** - 90° Boring



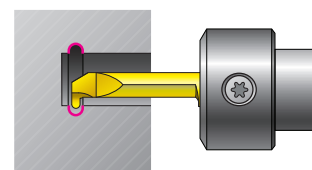
\* **PR** - Profiling



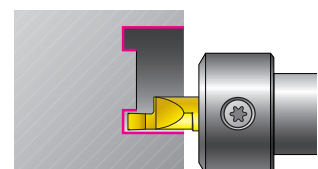
\* **GS** - Grooving Square



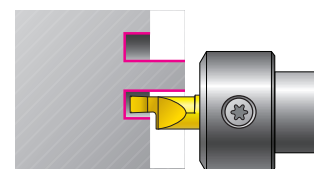
\* **GR** - Grooving Round



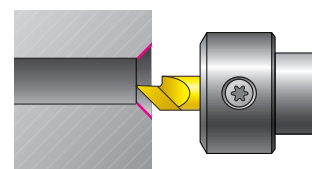
\* **FI** - Face Grooving Internal



\* **FE** - Face Grooving External



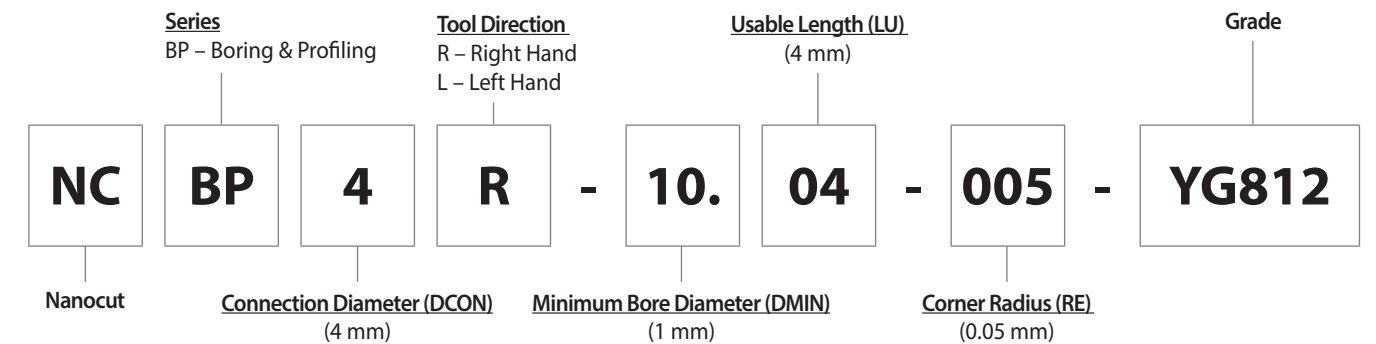
\* **CH** - Chamfering



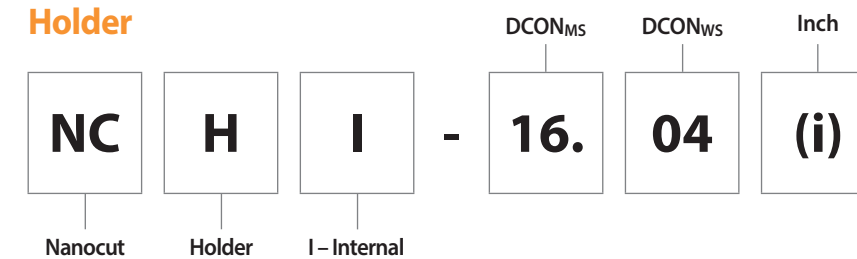
\* Marked series can be offered upon your request.

## Code Keys - Boring bar & Holder

### Boring bar



### Holder

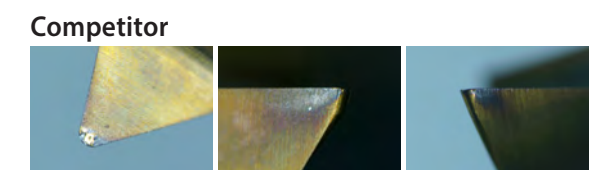
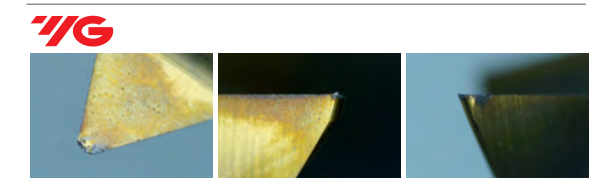


## Success Story

### YG Cutting Conditions

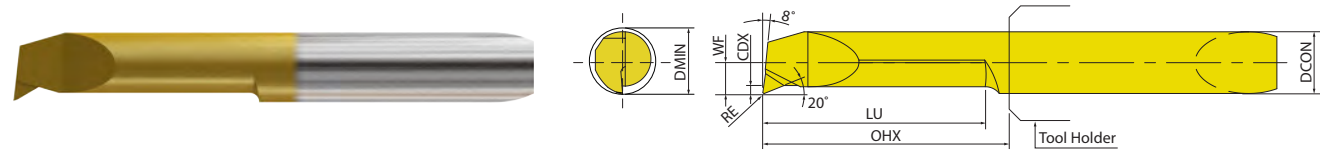
Size	$\varnothing$ 6 mm, R 0.2 mm ( $\varnothing$ .236", R .008")
Work Material	SCM440 (HRC 20)
Cutting Speed	100 m/min. (328 ft./min.)
RPM	637 rev./min.
Feed per Revolution	0.1 mm/rev. (.004 inch/rev.)
Boring Depth	Axial: 10 mm (.390") Radial: 0.15 mm (.006")
Coolant	Wet Cut
Operation	Boring
Machine	Turn Mill

Less is better  
**YG** 55  $\mu$ m  
**43  $\mu$ m**  
 Edge wear (after 30 min.)



## Product List - Boring bar

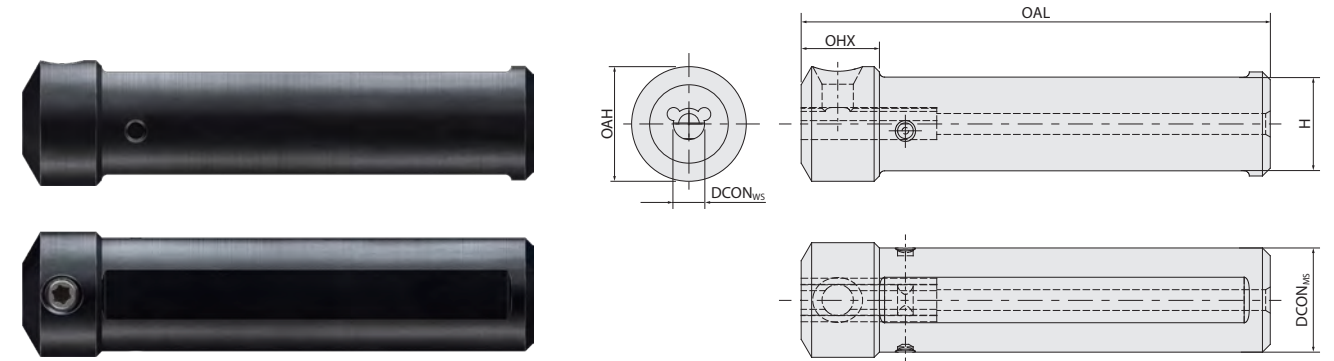
### BP - Boring & Profiling



●: Stock item  
○: Order made item

KAPR DCON	Designation	EDP NCBP..	Metric (mm)							Inch							YG812
			DMIN	LU	RE	CDX	WF	OHX	DMIN	LU	RE	CDX	WF	OHX			
4 mm (.157")	NCBP4R-10.04-005-YG812	04R1004005T	1	4	0.05	0.1	0.45	13	.039	.157	.002	.004	.018	.510	●		
	NCBP4R-10.04-010-YG812	04R1004010T	1	4	0.1	0.1	0.45	13	.039	.157	.004	.004	.018	.512	●		
	NCBP4R-10.06-005-YG812	04R1006005T	1	6	0.05	0.1	0.45	13	.039	.236	.002	.004	.018	.510	●		
	NCBP4R-10.06-010-YG812	04R1006010T	1	6	0.1	0.1	0.45	13	.039	.236	.004	.004	.018	.512	●		
	NCBP4R-17.06-005-YG812	04R1706005T	1.7	6	0.05	0.2	0.7	13	.067	.236	.002	.008	.028	.510	○		
	NCBP4R-17.06-010-YG812	04R1706010T	1.7	6	0.1	0.2	0.7	13	.067	.236	.004	.008	.028	.512	●		
	NCBP4R-17.09-005-YG812	04R1709005T	1.7	9	0.05	0.2	0.7	13	.067	.354	.002	.008	.028	.510	○		
	NCBP4R-17.09-010-YG812	04R1709010T	1.7	9	0.1	0.2	0.7	13	.067	.354	.004	.008	.028	.512	●		
	NCBP4R-22.06-005-YG812	04R2206005T	2.2	6	0.05	0.2	0.95	13	.087	.236	.002	.008	.037	.510	○		
	NCBP4R-22.06-010-YG812	04R2206010T	2.2	6	0.1	0.2	0.95	13	.087	.236	.004	.008	.037	.512	●		
	NCBP4R-22.09-005-YG812	04R2209005T	2.2	9	0.05	0.2	0.95	13	.087	.354	.002	.008	.037	.510	○		
	NCBP4R-22.09-010-YG812	04R2209010T	2.2	9	0.1	0.2	0.95	13	.087	.354	.004	.008	.037	.512	●		
	NCBP4R-22.13-010-YG812	04R2213010T	2.2	13	0.1	0.2	0.95	18	.087	.512	.004	.008	.037	.709	●		
	NCBP4R-27.10-005-YG812	04R2710005T	2.7	10	0.05	0.2	1.2	13	.106	.394	.002	.008	.047	.512	○		
	NCBP4R-27.10-015-YG812	04R2710015T	2.7	10	0.15	0.2	1.2	13	.106	.394	.006	.008	.047	.512	●		
	NCBP4R-27.15-005-YG812	04R2715005T	2.7	15	0.05	0.2	1.2	18	.106	.591	.002	.008	.047	.709	○		
	NCBP4R-27.15-015-YG812	04R2715015T	2.7	15	0.15	0.2	1.2	18	.106	.591	.006	.008	.047	.709	●		
	NCBP4R-32.10-015-YG812	04R3210015T	3.2	10	0.15	0.2	1.45	13	.126	.394	.006	.008	.057	.512	●		
	NCBP4R-32.15-015-YG812	04R3215015T	3.2	15	0.15	0.2	1.45	18	.126	.591	.006	.008	.057	.709	●		
	NCBP4R-32.20-005-YG812	04R3220005T	3.2	20	0.05	0.2	1.45	23	.126	.787	.002	.008	.057	.906	○		
NCBP4R-32.20-015-YG812	04R3220015T	3.2	20	0.15	0.2	1.45	23	.126	.787	.006	.008	.057	.906	●			
NCBP4R-42.10-015-YG812	04R4210015T	4.2	10	0.15	0.3	1.95	13	.165	.394	.006	.012	.077	.512	●			
NCBP4R-42.15-005-YG812	04R4215005T	4.2	15	0.05	0.3	1.95	18	.165	.591	.002	.012	.077	.709	○			
NCBP4R-42.15-015-YG812	04R4215015T	4.2	15	0.15	0.3	1.95	18	.165	.591	.006	.012	.077	.709	●			
NCBP4R-42.20-005-YG812	04R4220005T	4.2	20	0.05	0.3	1.95	23	.165	.787	.002	.012	.077	.906	○			
NCBP4R-42.20-015-YG812	04R4220015T	4.2	20	0.15	0.3	1.95	23	.165	.787	.006	.012	.077	.906	●			
NCBP4R-42.25-005-YG812	04R4225005T	4.2	25	0.05	0.3	1.95	28	.165	.984	.002	.012	.077	1.102	○			
NCBP4R-42.25-015-YG812	04R4225015T	4.2	25	0.15	0.3	1.95	28	.165	.984	.006	.012	.077	1.102	●			
6 mm (.236")	NCBP6R-62.15-020-YG812	06R6215020T	6.2	15	0.2	0.5	2.95	18	.244	.591	.008	.020	.116	.709	●		
	NCBP6R-62.20-020-YG812	06R6220020T	6.2	20	0.2	0.5	2.95	23	.244	.787	.008	.020	.116	.906	●		
	NCBP6R-62.25-020-YG812	06R6225020T	6.2	25	0.2	0.5	2.95	28	.244	.984	.008	.020	.116	1.102	●		
	NCBP6R-62.30-020-YG812	06R6230020T	6.2	30	0.2	0.5	2.95	33	.244	1.181	.008	.020	.116	1.299	●		
	NCBP6R-62.35-020-YG812	06R6235020T	6.2	35	0.2	0.5	2.95	38	.244	1.378	.008	.020	.116	1.496	●		
	NCBP6R-62.40-020-YG812	06R6240020T	6.2	40	0.2	0.5	2.95	43	.244	1.575	.008	.020	.116	1.693	●		

## Product List - Holder



Scale	OHX	Insert Size (DCON <sub>ms</sub> )	Designation	EDP ZBR..	DCON <sub>ms</sub>	OAL	H	OAH
Metric (mm)	14	4 mm (.157")	NCHI-12.4	0400012	12	70	10	15.5
			NCHI-16.4	0400016	16	75	14	17.5
			NCHI-20.4	0400020	20	90	18	20
		6 mm (.236")	NCHI-12.6	0600012	12	70	10	16.5
			NCHI-16.6	0600016	16	75	14	18.5
			NCHI-20.6	0600020	20	90	18	22
Inch	.551	4 mm (.157")	NCHI-0500.4i	0400500	.500	2.756	.421	.624
			NCHI-0625.4i	0400625	.625	2.953	.546	.687
			NCHI-0750.4i	0400750	.750	4.331	.671	.750
		6 mm (.236")	NCHI-0500.6i	0600500	.500	2.756	.421	.663
			NCHI-0625.6i	0600625	.625	2.953	.546	.726
			NCHI-0750.6i	0600750	.750	4.331	.671	.827

YG812 GRADE			Cutting Speed				Feed per Revolution (Fn)			
ISO	VDI	Sub Group	Vc (m/min.)		SFM (ft./min.)		Fn (mm/rev.)		Fn (inch/rev.)	
			Min	Max	Min	Max	Min	Max	Min	Max
P	1-5	Non-Alloyed Steel	170	200	558	656	0.015	0.025	0.0006	0.0010
	6-9	Low-Alloyed Steel	95	160	312	525	0.015	0.025	0.0006	0.0010
	10-11	High-Alloyed Steel	85	95	279	312	0.015	0.025	0.0006	0.0010
M	12-13	Ferritic & Martensitic	105	140	344	459	0.015	0.025	0.0006	0.0010
	14	Austenitic Stainless Steel	95	130	312	427	0.015	0.025	0.0006	0.0010
K	15-16	Grey Cast Iron	140	190	459	623	0.015	0.025	0.0006	0.0010
	17-18	Nodular Cast Iron	140	190	459	623	0.015	0.025	0.0006	0.0010
N	21-30	Non-Ferrous Metals (Al)	-	-	-	-	-	-	-	-
S	31-37	Superalloys & Titanium	10	75	33	246	0.015	0.025	0.0006	0.0010
H	38-41	Hard Materials	-	-	-	-	-	-	-	-

## Target Industry & Component

These are typical components made in Small Part Machining

Hydraulic and Pneumatic Fitting Industry



Brass Fitting and Sensor Housing



Spark Plug Housing



Glow Plug Housing used in Diesel



Lube Nipples in Auto Parts



Automotive Valve Guide



Watch Components (Screw, Case etc.)



Medical – Dental Implant, Orthopedic bone screw



## Target Machine

### YG CNC Sliding Head Lathes (Swiss Auto Lathes)

- Designed for producing precision watch parts and other components
- Exceptionally close geometric tolerances
- A bar being fed through the CNC machine's headstock and being grasped by a collet
- Supporting the bar via a guide bush arrangement for increased stability
- Suitable for various Mill-Turn parts up to a maximum diameter of 42 mm
- Can be configured for producing miniature prismatic components

### YG CNC Sliding Head Lathes Brand





Scan this QR code to see our NanoCut tools at work.

## YG-1 CO., LTD.

### YG-1 USA

730 Corporate Woods Parkway  
Vernon Hills, IL 60061 U.S.A.

Phone: 800-765-8665

Technical Assistance: 888-868-5988

yg1usa.com

### YG-1 CANADA INC.

3375 North Service Road, Unit A8  
Burlington, Ontario, CANADA L7N 3G2

Phone: +1 905-335-2500

FAX: +1 905-335-4003

Customer Service: orders@yg1.ca

yg1.ca

### YG-1 HEAD OFFICE

13-40, Songdogwahak-ro 16beon-gil,  
Yeonsu-gu, Incheon 21984, South Korea

**Notice** YG-1 Global head office is relocating from December 2020 to a new address as above;

Phone: +82-32-526-0909

yg1.kr

E-mail: yg1@yg1.kr

**Note** The information is Provided for reference only. Tool specifications are subject to change without prior notice. Although we endeavor to supply accurate and timely information, there can be no guarantee to cover every particular application. YG-1 or publishers are not liable for any damage for use of the information.

       
Search 'YG-1' on social media outlets



QUICK-SEARCH  
YG-1 PRODUCTS!!  
www.yg1.kr



YUNC201130001