



Raise efficiency of drilling

**Hi-JET
HOLDER**

Achieve High Speed Milling

**HIGH
SPINDLE**

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Reduce the preparation time

ANGLE HEAD

ANGLE HEAD

PAT.

AG90/AGU SERIES



Patented: Japan, USA, Canada, Germany, UK, France, Italy, Taiwan, and South Korea

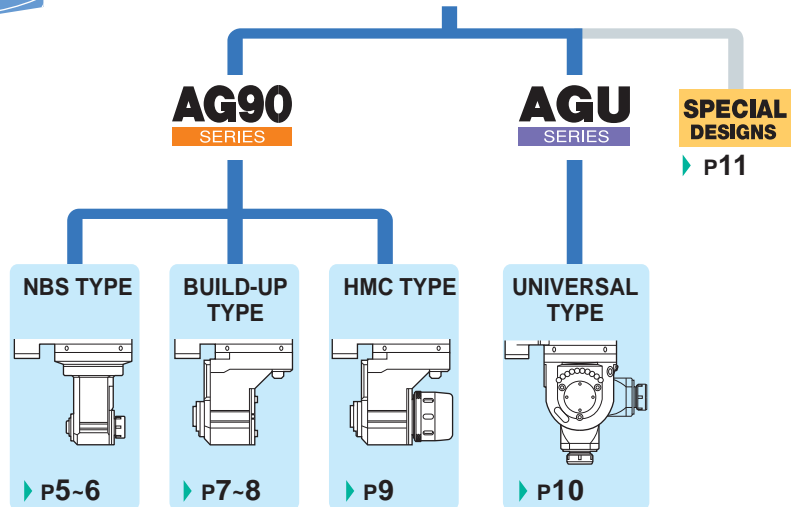
BIG-PLUS
SPINDLE SYSTEM PAT.
DUAL CONTACT
US Patent No. 5,352,073

BIG ANGLE HEADS eliminate multiple set-ups and combine vertical, horizontal and angular operations on one machine. One original set-up saves time, speeds production and guarantees accuracy.



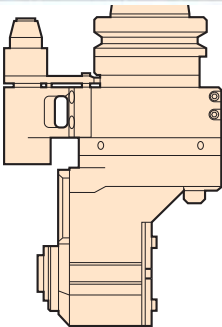
ANGLE HEAD SERIES

WIDE RANGE OF COMPACT AND RIGID HEADS, FROM MILLING CHUCK TYPES TO UNIVERSAL TYPES, SUITABLE FOR ALL KINDS OF MACHINING APPLICATIONS.



BUILD-UP TYPE / HMC TYPE

Compact design assures rigidity



Overhang is minimized for added rigidity and strength. As a result, the projection length with cutting tool is shorter, which reduces the overall load on the Angle Head and thus improves the unit's cutting capabilities. Further, the minimized overhang helps eliminate interference with the ATC (automatic tool changer) and connecting storage pockets in the tool magazine. High Rigidity S-Type, which has a steel housing and a stronger locating pin assembly, is also available.

※ ATC may not be utilized for some machining centers.

Innovative sealing method



The advanced non-contact sealing method prevents coolant and particle contamination better than any other sealing method.

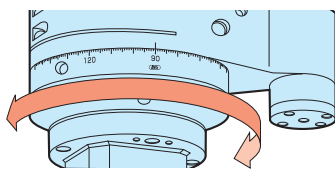
Unique coolant jacket



Jacket allows coolant coming through stop block to be efficiently directed to the tool cutting edge while simultaneously cooling the Angle Head.

Cutter head adjustable 360°

Reference faces are provided on both sides of all heads for easier setting of cutter directions.



SUPERIOR QUALITY COMPONENTS

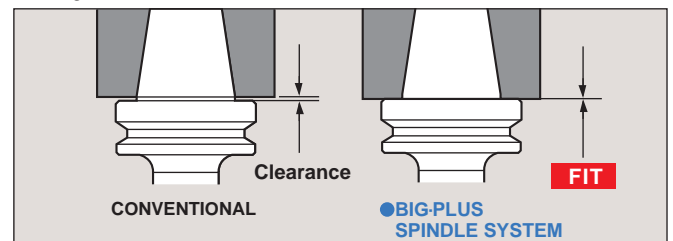
Superior quality components



For smooth and powerful operations and to minimize noise and vibration, all Angle Heads are equipped with hardened and ground chrome-nickel steel spiral bevel gears, super precision hardened and ground spindles, and high precision angular contact ball bearings.

BIG-PLUS is standard on all BT & CV Taper versions PAT.

Simultaneous taper and flange contact between machine spindle and toolholder provides improved rigidity and ATC repeatability. Interchangeability with conventional spindles ensures suitability for your existing machines.



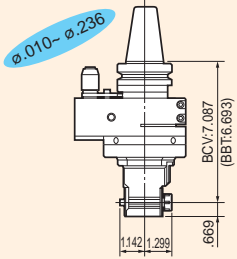
BIG-PLUS
SPINDLE SYSTEM PAT.
DUAL CONTACT
US Patent No. 5,352,073

AG90 SERIES
(SPINDLE ANGLE : 90°)

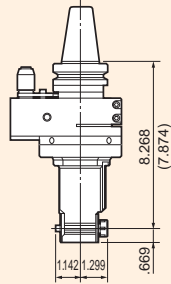
NBS TYPE P5~6

BCV40 (BBT40) MAX. 6,000 r.p.m. (Except for NBS20 models)

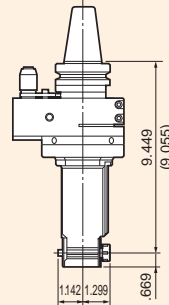
BCV50 (BBT50)



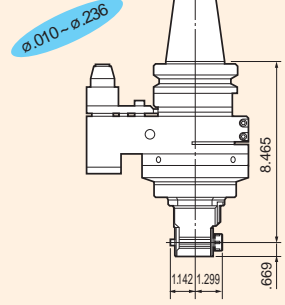
BCV40-AG90/NBS 6-180
BBT40-AG90/NBS 6-170



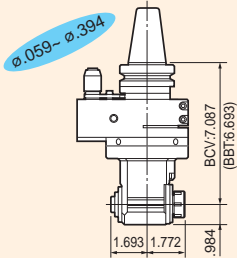
BCV40-AG90/NBS 6-210
BBT40-AG90/NBS 6-200



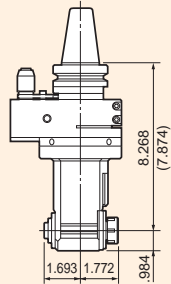
BCV40-AG90/NBS 6-240
BBT40-AG90/NBS 6-230



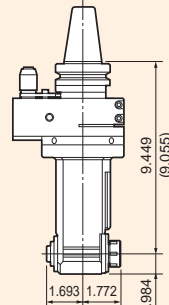
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BBT50-AG90/NBS 6-215



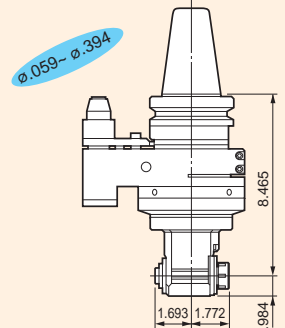
BCV40-AG90/NBS 10-180
BBT40-AG90/NBS 10-170



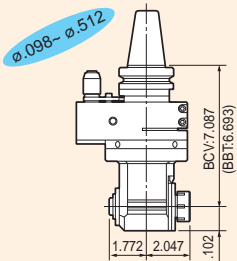
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BBT40-AG90/NBS 10-200



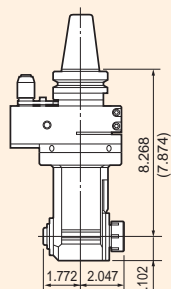
BCV40-AG90/NBS 10-240
BBT40-AG90/NBS 10-230



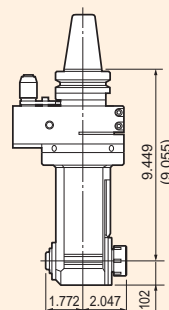
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BBT50-AG90/NBS 10-215



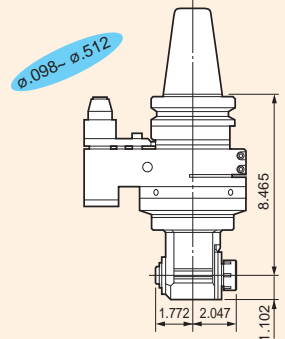
BCV40-AG90/NBS 13-180
BBT40-AG90/NBS 13-170



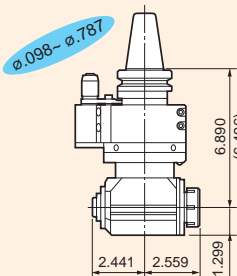
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BBT40-AG90/NBS 13-200



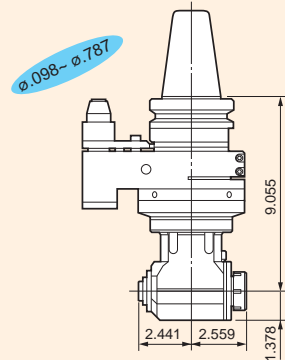
BCV40-AG90/NBS 13-240
BBT40-AG90/NBS 13-230



BCV50-AG90/NBS 13-215
BBT50-AG90/NBS 13-215



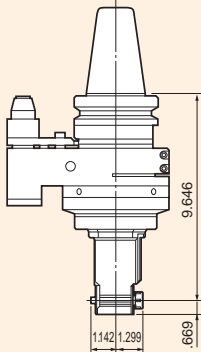
BCV40-AG90/NBS 20S-175S
BBT40-AG90/NBS 20S-165S
MAX. 3,000 r.p.m.



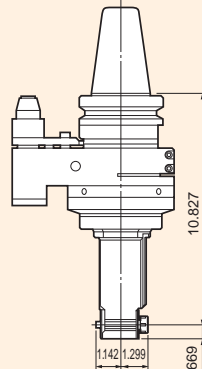
BCV50-AG90/NBS 20-230
BBT50-AG90/NBS 20-230
MAX. 3,000 r.p.m.

Automatic tool change may not be utilized for some machining centers.

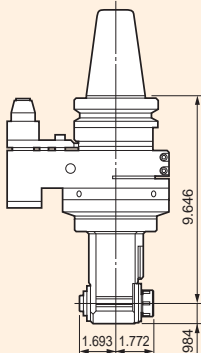
MAX. **6,000** r.p.m. (Except for #50-AG90/NBS20-230)



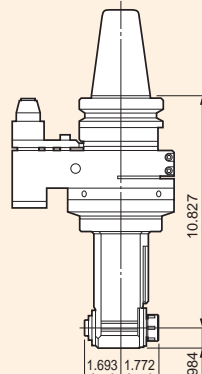
BCV50-AG90/NBS 6-245
BBT50-AG90/NBS 6-245



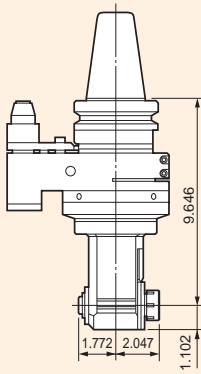
BCV50-AG90/NBS 6-275
BBT50-AG90/NBS 6-275



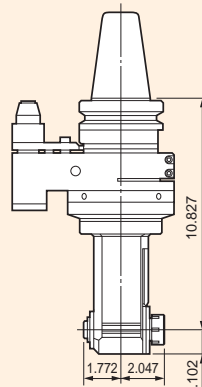
BCV50-AG90/NBS 10-245
BBT50-AG90/NBS 10-245



BCV50-AG90/NBS 10-275
BBT50-AG90/NBS 10-275



BCV50-AG90/NBS 13-245
BBT50-AG90/NBS 13-245

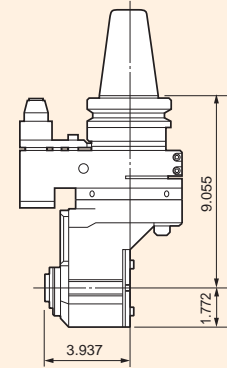


BCV50-AG90/NBS 13-275
BBT50-AG90/NBS 13-275

BUILD-UP TYPE ▶P7~8

BCV50 (BBT50)

BCV50-AG90/AGH35-230
BBT50-AG90/AGH35-230
MAX. **3,000** r.p.m.
(QUICK CHANGE ADAPTERS)

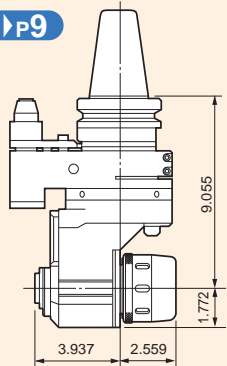


HMC TYPE ▶P9

BCV50 (BBT50)

$\phi .250-\phi 1.250$

BCV50-AG90/HMC1.250-230
BBT50-AG90/HMC1.250-230
MAX. **3,000** r.p.m.

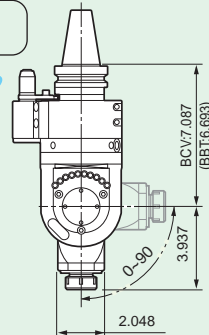


AGU SERIES (SPINDLE ANGLE : 0°-90°) UNIVERSAL TYPE ▶P10

BCV40 (BBT40)

$\phi .098-\phi .512$

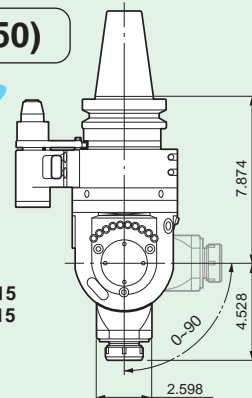
BCV40-AGU/NBS13-280
BBT40-AGU/NBS13-270
MAX. **6,000** r.p.m.



BCV50 (BBT50)

$\phi .098-\phi .787$

BCV50-AGU/NBS20-315
BBT50-AGU/NBS20-315
MAX. **4,000** r.p.m.



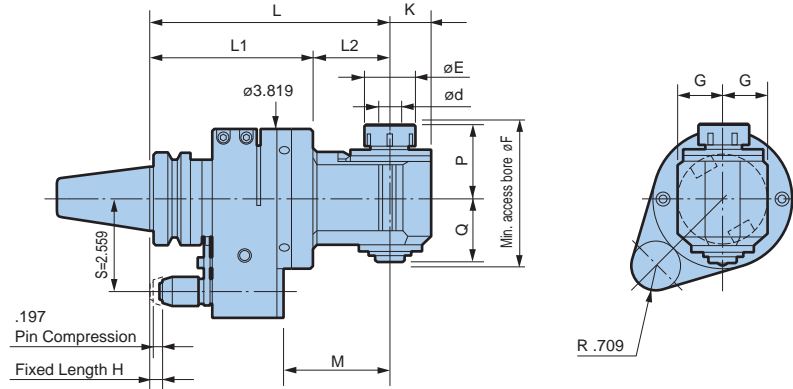
Automatic tool change may not be utilized for some machining centers.

AG90 SERIES
(SPINDLE ANGLE : 90°)

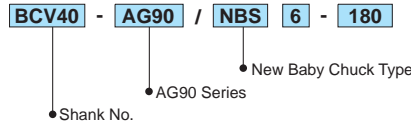
NBS TYPE

It is the outstanding rigidity and accuracy of the NEW BABY CHUCK, used for holding the cutting tool, that produces high precision with less runout. Available in various sizes to meet specific production requirements.

40 TAPER



● Model Description



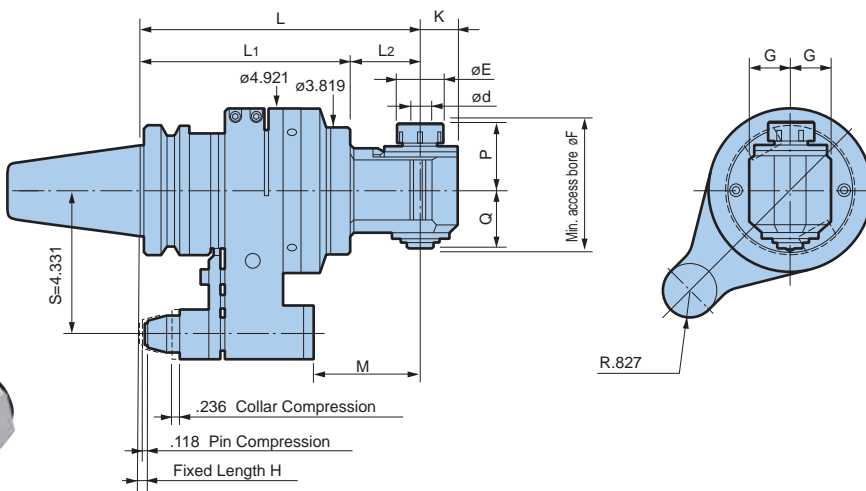
● The rotation of the cutting tool is in reverse direction of the machine spindle.(Speed Ratio 1:1)

Shank	Model	ød	øE	G	K	L	L1	L2	M	P	Q	øF	Collet	Max. r.p.m.	Weight (lbs)		
BCV	BCV40-AG90/NBS 6 -180	.010 - .236	.787	.827	.669	7.087	4.921	2.165	3.031	1.299	1.142	2.638	NBC 6	6,000	11.2		
	-210					8.268		3.346	4.213						11.7		
	-240					9.449		4.528	5.394						12.1		
	-AG90/NBS10 -180	-210	.059 - .394	1.181	1.181	.984	7.087	4.921	2.165	3.031	1.772	1.693	3.583	NBC10	6,000	12.1	
		-210					8.268		3.346	4.213						13.0	
		-240					9.449		4.528	5.394						13.7	
		-AG90/NBS13 -180	-210	.098 - .512	1.378	1.220	1.102	7.087	4.921	2.165	3.031	2.047	1.772	3.976	NBC13	6,000	12.3
			-210					8.268		3.346	4.213						13.2
			-240					9.449		4.528	5.394						13.9
-AG90/NBS20S -175S	.098 - .787	1.811	1.378	1.299	6.890	4.803	2.087	2.835	2.559	2.441	5.197	NBC20	3,000	17.6			
BBT	BBT40-AG90/NBS 6 -170	.010 - .236	.787	.827	.669	6.693	4.528	2.165	3.031	1.299	1.142	2.638	NBC 6	6,000	11.2		
	-200					7.874		3.346	4.213						11.7		
	-230					9.055		4.528	5.394						12.1		
	-AG90/NBS10 -170	-200	.059 - .394	1.181	1.181	.984	6.693	4.528	2.165	3.031	1.772	1.693	3.583	NBC10	6,000	12.1	
		-200					7.874		3.346	4.213						13.0	
		-230					9.055		4.528	5.394						13.7	
		-AG90/NBS13 -170	-200	.098 - .512	1.378	1.220	1.102	6.693	4.528	2.165	3.031	2.047	1.772	3.976	NBC13	6,000	12.3
			-200					7.874		3.346	4.213						13.2
			-230					9.055		4.528	5.394						13.9
-AG90/NBS20S -165S	.098 - .787	1.811	1.378	1.299	6.496	4.409	2.087	2.835	2.559	2.441	5.197	NBC20	3,000	17.6			

1. The standard Fixed Length H is .315. Other lengths are available upon request.
2. The angles of positioning pin to drive key groove and direction of cutting edge are adjustable from 0 to 360.
3. BIG-PLUS tools can be used in machining centers with conventional spindles.
4. For greater rigidity, High Rigidity S-Type with a steel housing and a stronger locating pin assembly is also available. Please add "S" after each model number when ordering High Rigidity Type.



50 TAPER



● The rotation of the cutting tool is in reverse direction of the machine spindle.(Speed Ratio 1:1)

Shank	Model	ød	øE	G	K	L	L1	L2	M	P	Q	øF	Collet	Max. r.p.m.	Weight (lbs)													
BCV	BCV50-AG90/NBS 6-215	.010 -.236	.787	.827	.669	8.465	6.299	2.165	3.228	1.299	1.142	2.638	NBC 6	6,000	27.8													
	-245					9.646		3.346	4.409						28.2													
	-275					10.827		4.528	5.591						28.7													
	BCV	-AG90/NBS10-215	.059 -.394	1.181	1.181	.984	8.465	6.299	2.165	3.228	1.772	1.693	3.583	NBC10	6,000	28.7												
		-245					9.646		3.346	4.409						29.5												
		-275					10.827		4.528	5.591						30.2												
		BCV	-AG90/NBS13-215	.098 -.512	1.378	1.220	1.102	8.465	6.299	2.165	3.228	2.047	1.772	3.976	NBC13	6,000	28.9											
			-245					9.646		3.346	4.409						29.8											
			-275					10.827		4.528	5.591						30.4											
BCV			-AG90/NBS20-230	.098 -.787	1.811	1.378	1.378	9.055	6.299	2.756	3.819	2.559	2.441	5.197	NBC20	3,000	31.3											
			BBT					BBT50-AG90/NBS 6-215		.010 -.236	.787						.827	.669	8.465	6.299	2.165	3.228	1.299	1.142	2.638	NBC 6	6,000	27.8
								-245											9.646		3.346	4.409						28.2
	-275			10.827	4.528	5.591	28.7																					
	BBT			-AG90/NBS10-215	.059 -.394	1.181	1.181	.984	8.465	6.299	2.165	3.228	1.772	1.693	3.583	NBC10	6,000	28.7										
				-245					9.646		3.346	4.409						29.5										
		-275		10.827					4.528		5.591	30.2																
		BBT		-AG90/NBS13-215	.098 -.512	1.378	1.220	1.102	8.465	6.299	2.165	3.228	2.047	1.772	3.976	NBC13	6,000	28.9										
				-245					9.646		3.346	4.409						29.8										
-275				10.827					4.528		5.591	30.4																
BBT			-AG90/NBS20-230	.098 -.787	1.811	1.378	1.378	9.055	6.299	2.756	3.819	2.559	2.441	5.197	NBC20	3,000	31.3											

1. The standard Fixed Length H is .315. Other lengths are available upon request.
2. The angles of positioning pin to drive key groove and direction of cutting edge are adjustable from 0 to 360.
3. BIG-PLUS tools can be used in machining centers with conventional spindles.

For NEW BABY COLLET P22

For STOP BLOCK P21

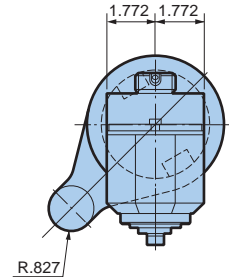
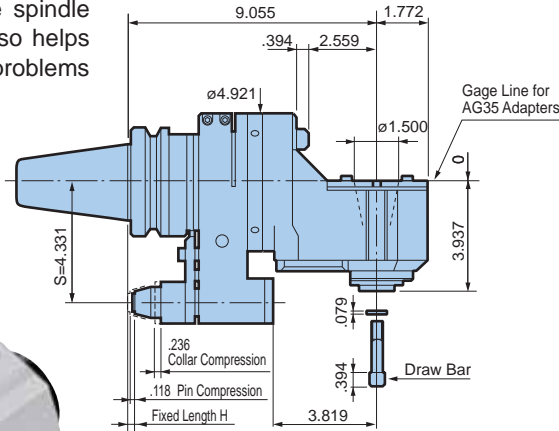
AG90 SERIES (SPINDLE ANGLE : 90°)

BUILD-UP TYPE

Spindle head is equipped with short taper for quick changing of various adapters.

STANDARD TYPE

Designed for greater rigidity by having the face of the spindle bore in line with the center of the machine spindle. Also helps minimize interference problems with ATC and storage problems within magazine.



MAX. 3,000 r.p.m.

Shank	Model	Weight(lbs)
BCV	BCV50-AG90/AGH35-230	33.1
BBT	BBT50-AG90/AGH35-230	33.1

1. The cutter rotates in the same direction of the machine spindle.
2. The standard Fixed Length H is .236. Other lengths are available upon request.
3. The angles of positioning pin to drive key groove and direction of cutting edge are adjustable from 0 to 360.
4. BIG-PLUS tools can be used in machining centers with conventional spindles.

For STOP BLOCK P21

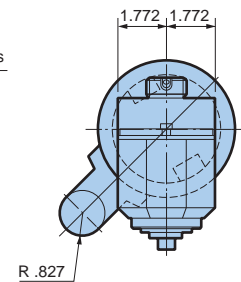
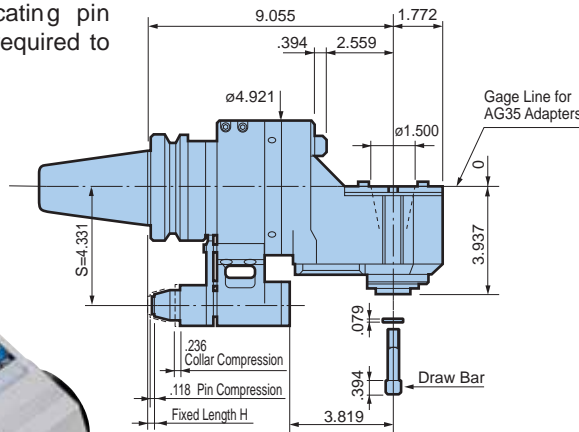
● Model Description

BCV50 - **AG90** / **AGH 35** - **230**

- Shank No.
- AG90 Series
- Build-Up Type

HIGH RIGIDITY TYPE

Provided with a steel housing and reinforced locating pin assembly for applications where increased rigidity is required to perform various types of heavier machining.



MAX. 3,000 r.p.m.

Shank	Model	Weight(lbs)
BCV	BCV50-AG90/AGH35-230S	35.9
BBT	BBT50-AG90/AGH35-230S	35.9

1. The cutter rotates in the same direction of the machine spindle.
2. The standard Fixed Length H is .236. Other lengths are available upon request.
3. The angles of positioning pin to drive key groove and direction of cutting edge are adjustable from 0 to 360.
4. BIG-PLUS tools can be used in machining centers with conventional spindles.

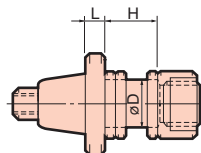
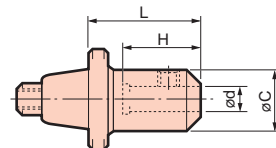
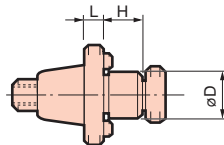
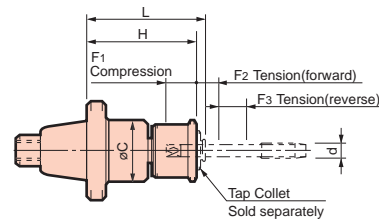
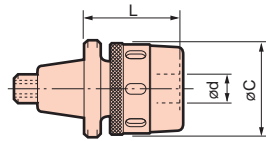
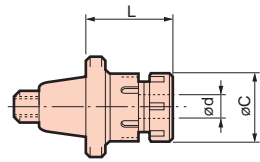
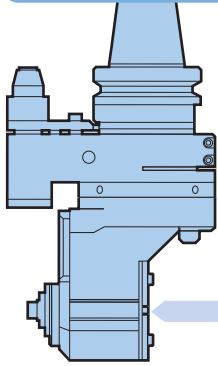
For STOP BLOCK P21

● Model Description

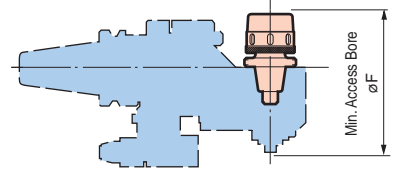
BCV50 - **AG90** / **AGH 35** - **230** - **S**

- Shank No.
- AG90 Series
- Build-Up Type
- High Rigidity Type

BUILD-UP TYPE AG35 ADAPTER SERIES



øF= Minimum bore size that an AG35 adapter can fit into, excluding the cutting tool.



NEW BABY CHUCK

Model	ød	L	øC	øF	Weight (lbs)
AG35-NBS10	.059-.394	1.850	1.181	6.378	1.3
-NBS13	.098-.512	2.126	1.378	6.614	1.5
-NBS16	.098-.630		1.654	6.693	1.8
-NBS20	.098-.787		1.811		2.0

For NEW BABY COLLET P22

HI-POWER MILLING CHUCK

Model	ød	L	øC	øF	Weight (lbs)
AG35-HMC.750	.750	2.362	2.079	7.008	3.3

For STRAIGHT COLLET THE BACK COVER PAGE

AUTO TAPPER TYPE B

Model	d	L	øC	H	F1	F2	F3	Weight (lbs)
AG35-ATB12E	No.6-U1/2	3.150	1.594	2.835	.020	.197	.157	2.2
-ATB20E	U3/8-U3/4	4.528	2.264	4.035		.256	.197	3.7

Tap collets with torque control or positive drive available upon request.

SHELL MILL ARBOR

Model	øD	L	H	Weight (lbs)
AG35-SM1.000-20	1.000	.787	.689	2.2

END MILL ADAPTER

Model	ød	L	øC	H	øF	Weight (lbs)
AG35-EM .750	.750	3.248	1.750	3.880	7.756	3.0

STUB ARBOR

Model	øD	L	H	Weight (lbs)
AG35-SA1.000	1.000	.394	1.181	2.8

AG90 SERIES
(SPINDLE ANGLE : 90°)

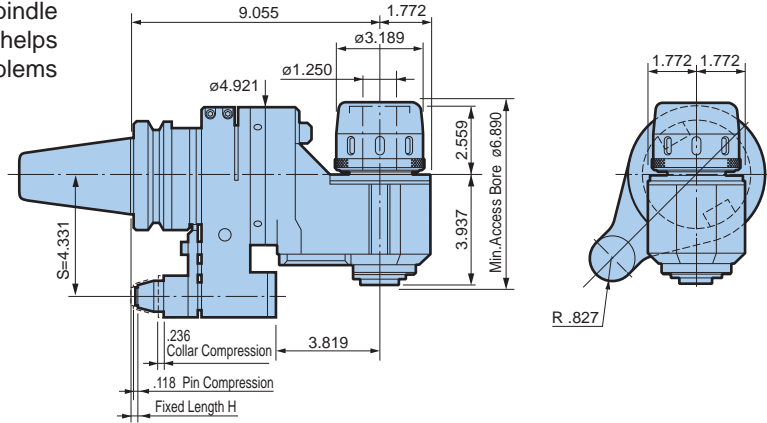
HMC TYPE



Greater versatility is obtainable with Milling Chuck capacity of $\phi 1.250"$ by utilizing Straight Reduction Collets and other accessories.

STANDARD TYPE

Designed for greater rigidity by having the face of the spindle bore in line with the center of the machine spindle. Also helps minimize interference problems with ATC and storage problems within magazine.



MAX. 3,000 r.p.m.

Shank	Model	Weight(lbs)
BCV	BCV50-AG90/HMC1.250-230	37.0
BBT	BBT50-AG90/HMC1.250-230	37.0

1. The standard Fixed Length H is .236. Other lengths are available upon request.
2. The angles of positioning pin to drive key groove and direction of cutting edge are adjustable from 0 to 360.
3. The cutter rotates in the same direction of the machine spindle.
4. BIG-PLUS tools can be used in machining centers with conventional spindles.

➡ For STRAIGHT COLLET THE BACK COVER PAGE

➡ For STOP BLOCK P21

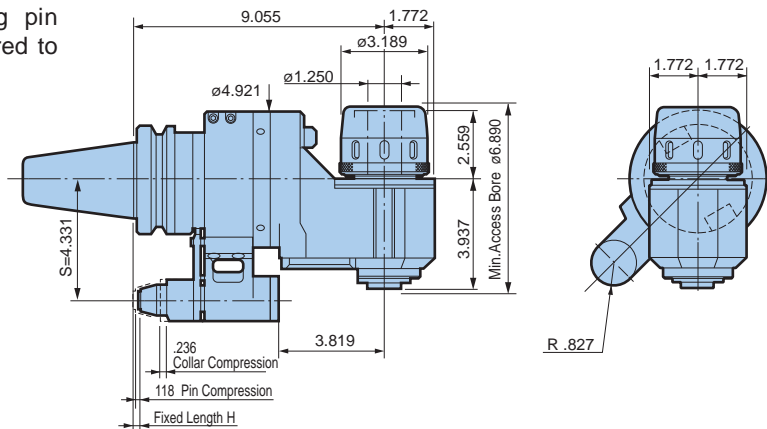
● Model Description

BCV50 - AG90 / HMC 1.250 - 230

- Shank No.
- AG90° Series
- Hi-Power Milling Chuck Type
- Inner dia

HIGH RIGIDITY TYPE

Provided with a steel housing and reinforced locating pin assembly for applications where increased rigidity is required to perform various types of heavier machining.



MAX. 3,000 r.p.m.

Shank	Model	Weight(lbs)
BCV	BCV50-AG90/HMC1.250-230S	39.9
BBT	BBT50-AG90/HMC1.250-230S	39.9

1. The standard Fixed Length H is .236. Other lengths are available upon request.
2. The angles of positioning pin to drive key groove and direction of cutting edge are adjustable from 0 to 360.
3. The cutter rotates in the same direction of the machine spindle.
4. BIG-PLUS tools can be used in machining centers with conventional spindles.

➡ For STRAIGHT COLLET THE BACK COVER PAGE

➡ For STOP BLOCK P21

● Model Description

BCV50 - AG90 / HMC 1.250 - 230 S

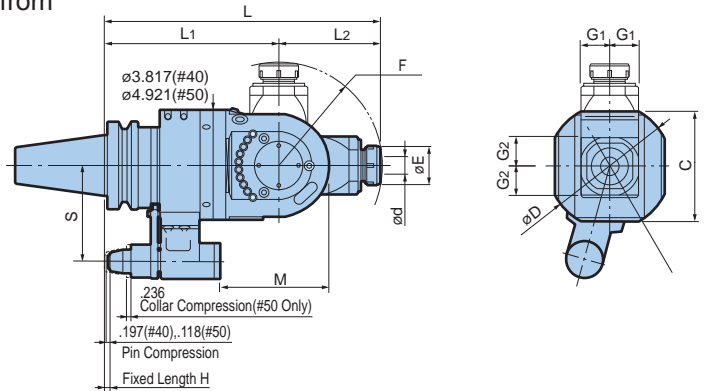
- Shank No.
- AG90° Series
- Hi-Power Milling Chuck Type
- Chucking size(in)
- High Rigidity Type

AGU SERIES (SPINDLE ANGLE : 0° to 90°)

UNIVERSAL TYPE



Suitable for all cutting angles. In addition to the cutter head being adjustable a full 360°, the spindle also becomes easily and precisely adjustable from 0° to 90° by 1° increments.



Shank	Model	ød	øE	øD	C	G1	G2	L	L1	L2	M	F	S	Collet	Max. r.p.m.	Weight (lbs)
BCV	BCV40-AGU/NBS13-280	.098-.512	1.378	4.528	3.819	1.024	1.014	11.024	7.087	3.937	4.882	4.016	2.559	NBC13	6,000	21.4
	BCV50-AGU/NBS20-315	.098-.787	1.811	5.512	4.921	1.299	1.280	12.402	7.874	4.528	4.921	4.646	4.331	NBC20	4,000	44.1
BBT	BBT40-AGU/NBS13-270	.098-.512	1.378	4.528	3.819	1.024	1.014	10.630	6.693	3.937	4.882	4.016	2.559	NBC13	6,000	21.4
	BBT50-AGU/NBS20-315	.098-.787	1.811	5.512	4.921	1.299	1.280	12.402	7.874	4.528	4.921	4.646	4.331	NBC20	4,000	44.1

1. The standard fixed length H 40Taper=.315, 50Taper=.236. Other lengths are available upon request.
2. The angles of positioning pin to drive key groove and direction of cutting edge are adjustable from 0 to 360.
3. The cutter rotates in the same direction of the machine spindle.
4. BIG-PLUS tools can be used in machining centers with conventional spindles.

➡ For NEW BABY COLLET P22 ➡ For STOP BLOCK P21



EASILY ADJUSTABLE SPINDLE ANGLE FROM 0° to 90°.



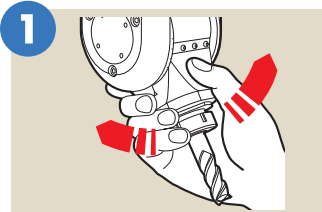
PRECISE ANGLE ADJUSTMENT
Unique setting mechanism enables the spindle angle to be precisely set at 1° increments.



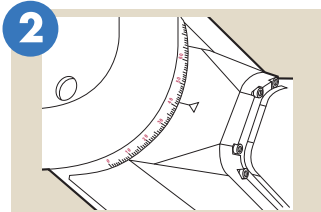
EXCLUSIVE CLAMPING BOLTS AND NUTS
Specially selected materials and special design for clamping the head guarantees rigidity for even end milling applications.

HOW TO SET THE ANGLE

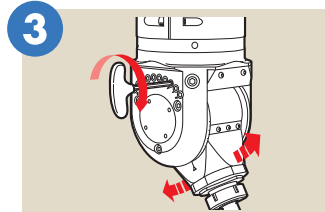
Easy and precise angle settings at 1° increments is achieved by the unique angle setting mechanism without utilizing any special tools or a test bar.



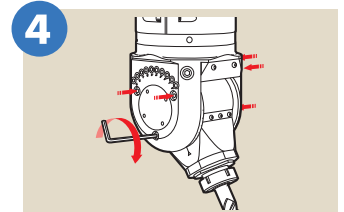
Loosen all Clamping Screws and then manually slide the Spindle Housing close to the target angle.
Caution: Do not hold a cutting tool directly to avoid injury.



For example, when setting at 42°, align the arrow mark on the Spindle Housing with the 42° mark engraved on the head within 1°.



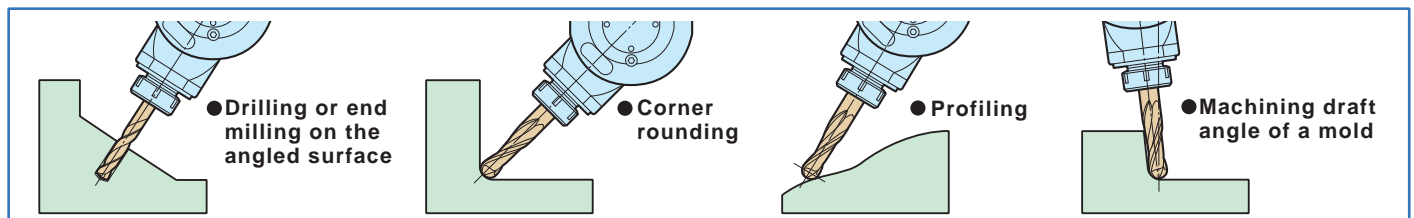
Tighten the Angle Setting Screw marked "2". Due to the concentricity of the round shaped Angle Setting Screw, the Spindle Housing is fixed at the exact target angle.



Tighten all Clamping Screws and then loosen the Angle Setting Screw.

APPLICATION EXAMPLES

Adjustable AGU Universal Series expands Angle Head capabilities to accomplish various angular machining applications.



SPECIAL DESIGNS

Our long experience and expertise enables us to design and manufacture special custom made Angle Heads for almost any customer application.

ULTRA SMALL HEAD



SPECIAL CUTTER HEAD



SPECIAL ANGLE



EXTRA LONG



FLANGE MOUNT



OIL FEEDER



APPLICATION EXAMPLES

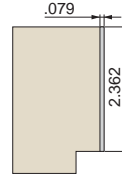


● AG90 SERIES (BUILD-UP TYPE)

STANDARD

BBT50-AG90/AGH35-230 (with AG35-SM1.000)

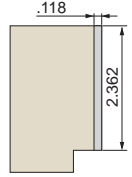
Workpiece : Carbon Steel 1055 (ANSI)
 Cutter : 3.150 (Shell Mill)
 Cutting Depth : .079
 Spindle Speed : 600 r.p.m.
 Cutting Speed : 492 SFM
 Cutting Feed : 14.173 i.p.m.



HIGH RIGIDITY

BBT50-AG90/AGH35-230S (with AG35-SM1.000)

Workpiece : Carbon Steel 1055 (ANSI)
 Cutter : 3.150 (Shell Mill)
 Cutting Depth : .118
 Spindle Speed : 600 r.p.m.
 Cutting Speed : 492 SFM
 Cutting Feed : 14.173 i.p.m.

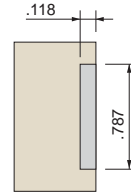


● AG90 SERIES (HMC TYPE)

STANDARD

BBT50-AG90/HMC1.250-230

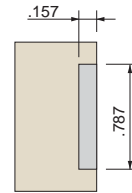
Workpiece : Carbon Steel 1055 (ANSI)
 Cutter : .787 (End Mill with 2-flute of H.S.S.)
 Cutting Depth : .118
 Spindle Speed : 400 r.p.m.
 Cutting Speed : 82 SFM
 Cutting Feed : 2.835 i.p.m.



HIGH RIGIDITY

BBT50-AG90/HMC1.250-230S

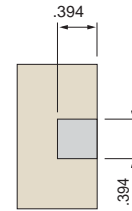
Workpiece : Carbon Steel 1055 (ANSI)
 Cutter : .787 (End Mill with 2-flute of H.S.S.)
 Cutting Depth : .157
 Spindle Speed : 400 r.p.m.
 Cutting Speed : 82 SFM
 Cutting Feed : 2.835 i.p.m.



● AG90 SERIES (NBS TYPE)

BBT50-AG90/NBS10-275

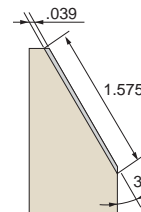
Workpiece : Cast Iron Class 40 (ANSI)
 Cutter : .394 (End Mill with 2-flute of H.S.S.)
 Cutting Depth : .394
 Spindle Speed : 1,000 r.p.m.
 Cutting Speed : 102 SFM
 Cutting Feed : 3.937 i.p.m.



● AGU SERIES (UNIVERSAL TYPE)

BBT50-AGU/NBS20-315

Workpiece : Carbon Steel 1055 (ANSI)
 Cutter : .787 (End Mill with 2-flute of H.S.S.)
 Cutting Depth : .039
 Cutting Width : 1.575
 Spindle Speed : 400 r.p.m.
 Cutting Speed : 82 SFM
 Cutting Feed : 3.937 i.p.m.



All new applications are subject to review by engineering in order to confirm the Angle Head will operate within its capacity.

Speed In increaser

HIGH SPINDLE

PAT.

MAX
20,000
r.p.m.



Patented: Japan, USA, Canada, Germany, UK, France, Italy, Taiwan, and South Korea

BIG-PLUS
SPINDLE SYSTEM PAT.
DUAL CONTACT
US Patent No. 5,352,073

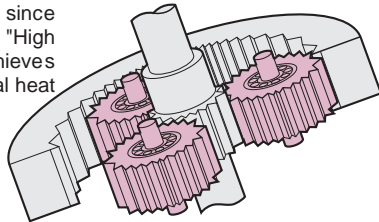
High Spindle improves drilling and end milling performance on existing machines by multiplying the spindle speed 4, 5, or 6 times.



HIGH SPEED MACHINING INCREASES PRODUCTIVITY WITH GREATER ACCURACY AND SUPERIOR FINISH

Reinforced gear driving system

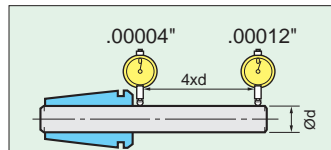
The planetary gears, which have been constantly up-graded since the development of our first "High Spindle" back in 1970, achieves smooth operation with minimal heat generation and high torque transmission.



High precision collet chuck system



.00004" at nose
[NEW BABY CHUCK]



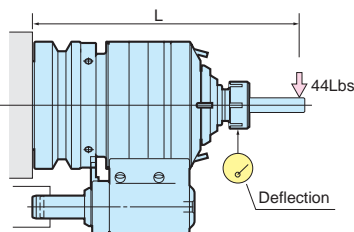
Collet Class	Max. Runout	
	At nose	At 4xd
AA	.00004"	.00012"

The BIG New Baby Collet is world renowned for its unmatched accuracy and precision. It offers concentricity close to sub-micron.

Runout at spindle nose in GTG4, 5 & 6 models guaranteed to be within .0002". Runout at 4x the distance of the cutter dia. in GTG4, 5 & 6 models guaranteed to be within .0004".

Rigidity increased 1.7 times

Larger diameter body and spindle with double angular contact bearings and reinforced locating pin assembly greatly increases rigidity.



Model	L (Inch)	Deflection (Inch)	Comparison against previous model
BBT40-GTG5-10-140-65	7.874	.0014	58% less
BBT50-GTG6-10-158-80	8.661	.0010	78% less
BBT50-GTG4-16-177-80	9.449	.0004	93% less

Obtain optimum cutting tool performance

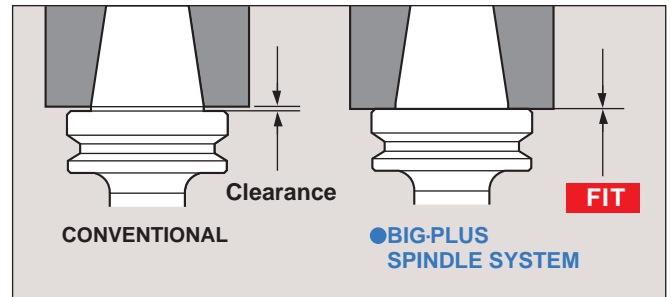
High efficiency cutting tools have been developed for advanced high speed machining. HIGH SPINDLE maximizes performance of these cutting tools by increasing the spindle speeds up to higher required levels.

Reduce load to machine spindle

Continuous use at high revolutions results in shorter life span of the machine spindle due to excessive load to its motor and bearings. HIGH SPINDLE reduces this load and greatly extends the life of the expensive machine spindle.

BIG-PLUS is standard on all BT & CV Taper versions PAT.

Simultaneous taper and flange contact between machine spindle and toolholder provides improved rigidity and ATC repeatability. Interchangeability with conventional spindles ensures suitability for your existing machines.



Higher durability (Advanced sealing method)

The advanced non-contact sealing method provides improved protection against coolant and particle contamination than any other seals.

Multi-directional coolant supply

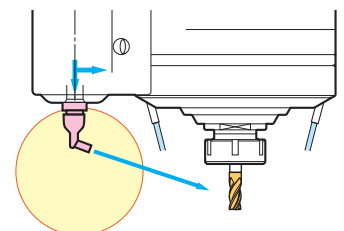
Universal Coolant Nozzles are capable of being adjusted to suit the length of cutting tool. Thus, the maximum coolant delivery to the cutting edge is assured.

Note: HIGH SPINDLE can be operated without coolant running through the housing.



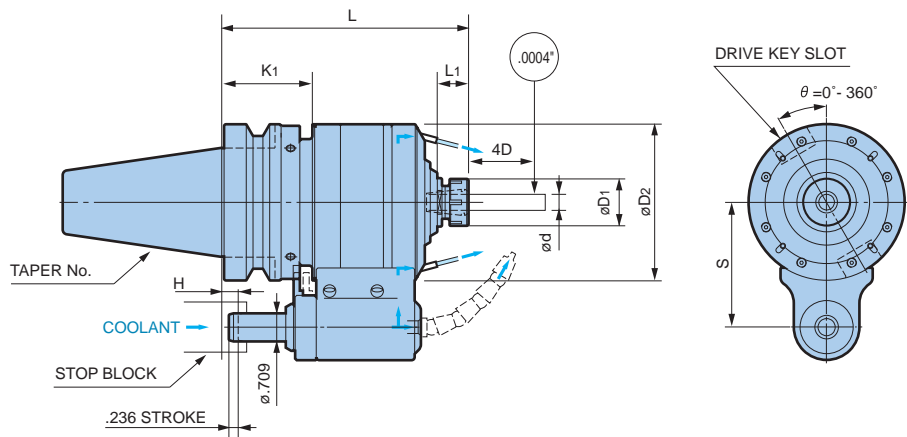
Pinpoint coolant jet for shorter cutting tools

A 1/8" pipe tap thread is provided in the High Spindle so that various types of customer supplied coolant-jet nozzles can be utilized which will provide pinpoint delivery to the cutting edge of short tools (BCV/BBT taper models only).



For Machining Centers

Higher spindle speeds are available without excessive load on the machine spindle.



● Model Description
BCV40 - **GTG** **5** - **10** - **155** - **65**
 ● Shank No. ● Gear Type ● Speed Ratio

Shank	Model	ød	L	L1	øD1	øD2	K1	S	H	Speed Ratio	Max. r.p.m.	Weight (lbs)
BCV	BCV40-GTG5-10-155-65	.059-.394	6.102	.787	1.181	3.150	2.283	2.559	-.354 +.236	4.67	20,000	11.0
	BCV50-GTG6-10-163-80	.059-.394	6.417	.787	1.181	3.937	2.480	3.150	-.157 +.433	5.67	20,000	19.8
	BCV50-GTG4-16-182-80	.098-.630	7.165	1.004	1.654	4.331	2.480	3.150	-.157 +.433	3.80	15,000	23.8
BBT	BBT40-GTG5-10-140-65	.059-.394	5.512	.787	1.181	3.150	1.693	2.559	-.354 +.236	4.67	20,000	10.6
	BBT50-GTG6-10-158-80	.059-.394	6.220	.787	1.181	3.937	2.283	3.150	-.354 +.236	5.67	20,000	19.4
	BBT50-GTG4-16-177-80	.098-.630	6.969	1.004	1.654	4.331	2.283	3.150	-.354 +.236	3.80	15,000	23.4

- 1 pc. of maximum size collet is included as standard accessory. (GTG5,6=NBC10-10AA,GTG4=NBC16-16AA)
- θ (angle of locating pin to drive key groove) is adjustable to any degree from 0° to 360°.
- Special Air Purge oil mist lubrication style is available upon request for machining graphite, ceramic, tungsten and other composite materials.
- Please be aware of the risk of fire when using an oil based coolant.
- BIG-PLUS tools can be used in machining centers with conventional spindles.

For NEW BABY COLLET P22

For STOP BLOCK P21

For POSITIONING PINS THE BACK COVER PAGE

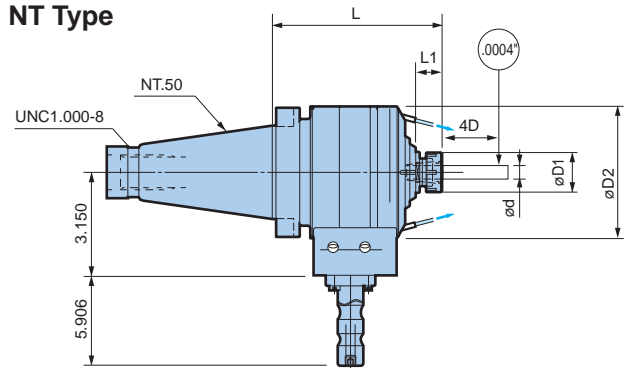
For Conventional Machines

Higher spindle speeds increase the productivity on Conventional Machines.

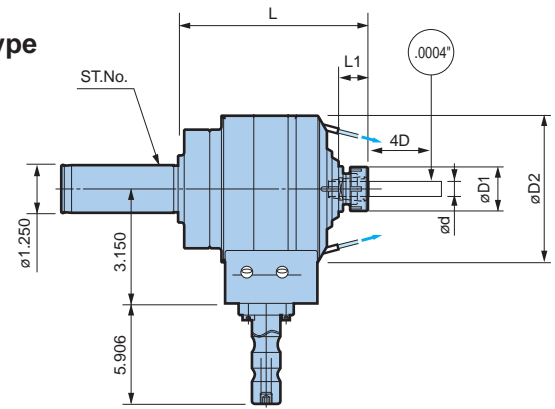


● Model Description
NT50U - **GTG** **4** - **16** - **150**
 ● Shank No. ● Gear Type ● Speed Ratio

NT Type



ST Type



Model	Shank	ød	L	L1	øD1	øD2	Speed Ratio	Max. r.p.m.	Weight (lbs)
NT50U-GTG4-16-150	50 taper	.098-.630	5.906	1.004	1.654	4.331	3.80	15,000	20.5
ST1.250-GTG4-16-155	1-1/4" cylindrical	.098-.630	6.102	1.004	1.654	4.331	3.80	15,000	15.9

- 1 pc. of maximum size collet is included as standard accessory. (NBC16-16AA)
- Please be aware of the risk of fire when using an oil based coolant.

For NEW BABY COLLET P22

APPLICATION EXAMPLES

MODEL	BBT40-GTG5-10-140	BBT50-GTG6-10-158	BBT50-GTG6-10-158	BBT50-GTG4-16-177
CUTTER	Solid carbide end mill ø.315"/ 2 flutes	Solid carbide end mill ø.236"/ 2 flutes	Solid carbide drill ø.079"	Solid carbide end mill ø.630"
WORKPIECE MATERIAL	Duralumin(A-2017)	1055	Duralumin(A-2017)	Duralumin(A-2017)
REVOLUTION	20,000 r.p.m.	16,000 r.p.m.	20,000 r.p.m.	15,000 r.p.m.
FEED RATE	118.1 IPM	137.8 IPM	78.7 IPM	39.4 IPM
RESULT	High metal removal rate 5.5 cu.in./min.	High metal removal rate 2.1 cu.in./min.	Extended tool life 1,200 holes by 1 drill	Surface roughness RMS max. .0008"

※ Results will vary depending on workpiece, cutting tool, machine model, and other conditions.
 ※ The rigidity and concentricity are often affected by the projection-length of a cutting tool. It is recommended to keep the projection as short as possible.

Coolant Feed
**Hi-JET
HOLDER**

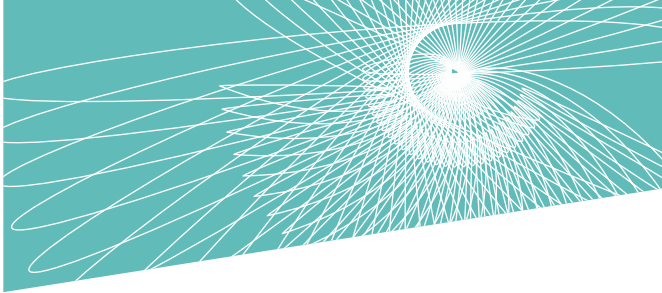
for water-soluble coolant only

PAT.



Spindle Speeds up to
10,000 r.p.m.
for 40 tapers and 8,000 r.p.m. for 50 tapers

Bearings in a separate housing from the coolant for extended life.



ENSURING COOLANT DELIVERY TO CUTTING EDGE REQUIRED FOR HIGH SPEED CUTTING.

High speed available

Spindle speeds up to
10,000 r.p.m.
40 Tapers

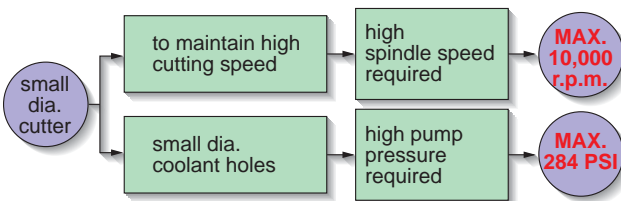
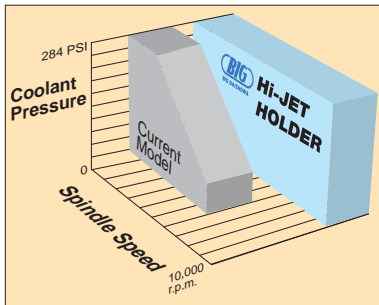
Spindle speeds up to
8,000 r.p.m.
50 Tapers

To meet the increasing demand for high-speed operations due to use of carbide cutters, Hi-Jet Coolant Feed Holder models are available that run at speeds up to 10,000 r.p.m. for 40 tapers and 8,000 r.p.m. for 50 tapers. Their compact design and 360 adjustability assures compatibility with automatic tool changers of machining centers.



Suitable for small dia. cutters due to high speed and pressure

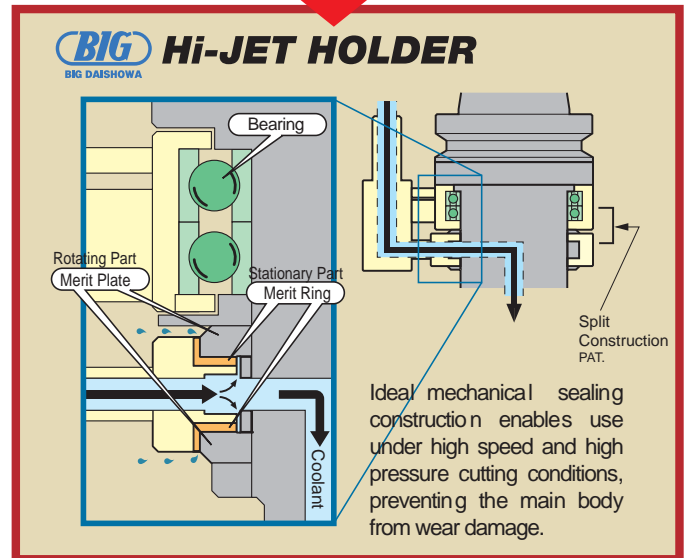
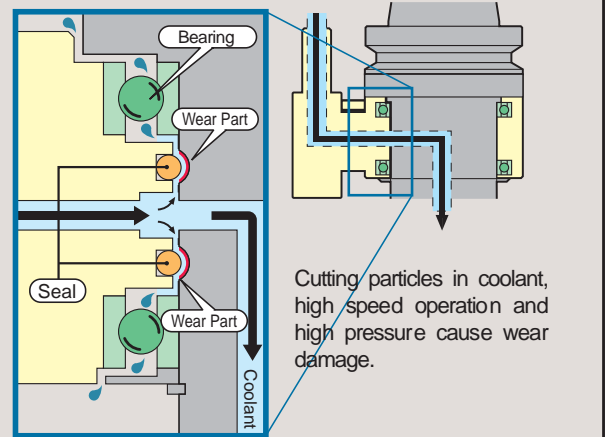
Small diameter cutters require high spindle speeds to maintain high cutting speed and high coolant pressure due to their small dia. coolant holes. The BIG Hi-Jet Holder accepts even smaller diameter shanks, providing high spindle speeds (Max. 10,000 r.p.m.) and high coolant pressures (Max. 284 PSI).



Non-contact seal design eliminates wear damage to body

With the Hi-Jet Holder, coolant runs through a separate sealing section called the Merit Set. In the Merit Set, the sealing ring that stays stationary when the body rotates does not come in contact with the body. Only the sealing plate, which rotates with the body, has actual contact with the body. As a result, there is no friction from any seals which can cause body wear. The only wear will be to the Merit Set seals, which are easily replaceable parts. Coolant contamination and high speed operations are no longer limiting factors to the service life of the Coolant Feed Holders.

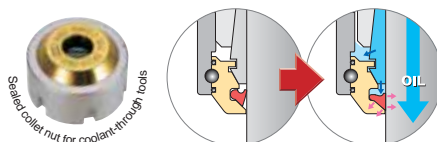
Competitor Design



US Patent No. 5,439,333

For New Baby Chuck Type (ONBS) Coolant Sealed Nut

BABY PERFECT SEAL PAT. US Patent No. 5,975,817



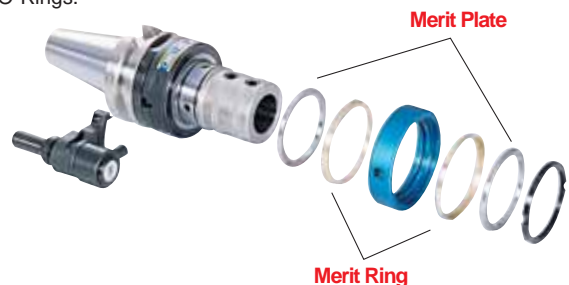
Perfect sealing by utilizing coolant pressure!

- For high speed cutting
- Prevents the ingress of particles to the collet and body
- Special collets no longer necessary

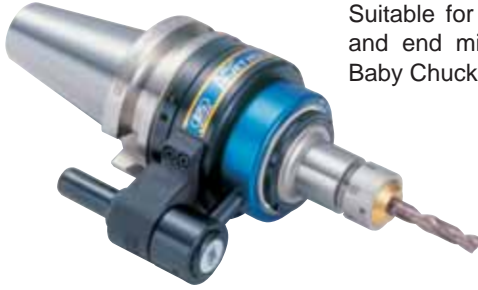


Easy maintenance by replacement of worn parts

Easily replaceable Merit Sets consist of Merit Plates, Merit Rings and O-Rings.

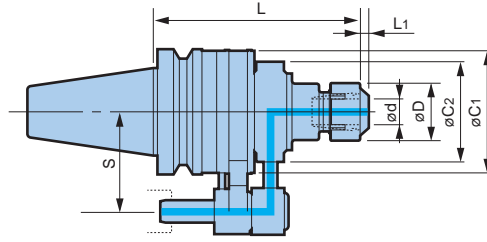


NEW BABY CHUCK TYPE



Suitable for small diameter drills, gun drills and end mills due to high precision New Baby Chuck.

- Model Description
- CV40** - Shank No.
- ONBS** - Oil hole New Baby Chuck
- 13** - Max. Capacity
- N** - Hi-Jet type
- 165** - Max. Capacity



Shank	Model	ød	øD	L	øC1	øC2	S	Max. r.p.m.	Merit Set 2 pcs. of Merit Ring and 2 pcs. of Merit Plate	Weight (lbs)
CV	CV40-ONBS13N-165	.118 - .512	1.378	6.614	3.213	2.874	2.559	10,000	MES-40	8.8
	-ONBS20N-165	.118 - .787	1.811			3.150		8,000	MES-50	9.5
	CV50-ONBS13N-165	.118 - .512	1.378	6.614	3.921	3.150	3.150	8,000	MES-50	16.1
	-ONBS20N-165	.118 - .787	1.811			3.150		8,000	MES-50	16.5
BT	BT40-ONBS13N-165	.118 - .512	1.378	6.614	3.213	2.874	2.559	10,000	MES-40	8.8
	-ONBS20N-165	.118 - .787	1.811			3.150		8,000	MES-50	9.5
	BT50-ONBS13N-165	.118 - .512	1.378	6.614	3.921	3.150	3.150	8,000	MES-50	16.1
	-ONBS20N-165	.118 - .787	1.811			3.150		8,000	MES-50	16.5

1. Collet, Adjusting Screw and Wrench are optional items.
2. Max. coolant pressure is 284 PSI.
3. Clamping Nut is sold separately. Please order BABY PERFECT SEAL(BPS) for your application.

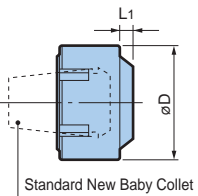
- ➔ For NEW BABY COLLET P22
- ➔ For STOP BLOCK P21
- ➔ For POSITIONING PINS THE BACK COVER PAGE

BABY PERFECT SEAL PAT.

Sealed collet nut for coolant-through tools (order separately) US Patent No. 5,975,817



- Model Description
- BPS 13** - Main body size
- 03035** - Baby perfect seal
- Tool shank dia. clamping range: ø3 - ø3.5mm (ø.118" - ø.138")



ONBS13

Model	Cutter Shank Dia.	øD	L1	Collet Model
BPS13-03035	.118 - .138	1.378	.169	NBC13- 3- 4
-0304	.118 - .157			3- 4.5
-04045	.157 - .177			4- 5
-0405	.157 - .197			4- 5.5
-05055	.197 - .217			5- 6
-0506	.197 - .236		5- 6.5	
-06065	.236 - .256		6- 7	
-0607	.236 - .276		6- 7.5	
-07075	.276 - .295		7- 8	
-0708	.276 - .315		7- 8.5	
-08085	.315 - .335	8- 9		
-0809	.315 - .354	8- 9.5		
-09095	.354 - .374	9- 10		
-0910	.354 - .394	9-10.5		
-10105	.394 - .413	10-11		
-1011	.394 - .433	10-11.5		
-11115	.433 - .453	11-12		
-1112	.433 - .472	11-12.5		
-12125	.472 - .492	12-13		
-1213	.472 - .512	12-13		

ONBS20

Model	Cutter Shank Dia.	øD	L1	Collet Model
BPS20-03035	.118 - .138	1.811	.157	NBC20- 3- 4
-0304	.118 - .157			3- 4.5
-04045	.157 - .177			4- 5
-0405	.157 - .197			4- 5.5
-05055	.197 - .217			5- 6
-0506	.197 - .236		5- 6.5	
-06065	.236 - .256		6- 7	
-0607	.236 - .276		6- 7.5	
-07075	.276 - .295		7- 8	
-0708	.276 - .315		7- 8.5	
-08085	.315 - .335	8- 9		
-0809	.315 - .354	8- 9.5		
-09095	.354 - .374	9- 10		
-0910	.354 - .394	9- 10.5		
-10105	.394 - .413	10-11		
-1011	.394 - .433	10- 11.5		
-11115	.433 - .453	11- 12		
-1112	.433 - .472	11- 12.5		
-12125	.472 - .492	12- 13		
-1213	.472 - .512	12- 13.5		
-1314	.512 - .551	13- 14.5		
-1415	.551 - .591	14- 15.5		
-1516	.591 - .630	15- 16.5		
-1617	.630 - .669	16- 17.5		
-1718	.669 - .709	17- 18.5		
-1819	.709 - .748	18- 19.5		
-1920	.748 - .787	19- 20		

PS RING ● Spare seal for Baby Perfect Seal



1 package contains 5 pcs. (1 size).

Model	Corresponding BPS Model	Model	Corresponding BPS Model	Model	Corresponding BPS Model
PS-0304	BPS□-03035, 0304	PS-0809	BPS□-08085, 0809	PS-1314	BPS□-1314
0405	-04045, 0405	0910	-09095, 0910	1415	-1415
0506	-05055, 0506	1011	-10105, 1011	1516	-1516
0607	-06065, 0607	1112	-11115, 1112	1617	-1617
0708	-07075, 0708	1213	-12125, 1213	1718	-1718
				1819	-1819
				1920	-1920

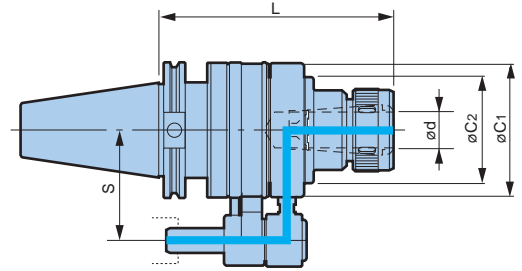
(Replacement of PS Ring is recommended when coolant leaks due to damage of the PS Ring.)

COLLET CHUCK TYPE

Accepts popular TG100 single angle style collets.



● Model Description
CV40 - **OHC** **1.000** **N** - **175**
 ● Shank No. ● Oil hole Collet Chuck ● Max. Capacity ● Hi-Jet type



Shank	Model	ød	Collet Serie	L	øC1	øC2	S	Max. r.p.m.	Merit Set 2 pcs. of Merit Ring and 2 pcs. of Merit Plate	Weight (lbs)
CV	CV40-OHC 1.000N-175	.093 - 1.000	TG100	6.890	3.213	3.150	2.559	8,000	MES-50	11.1
	CV50-OHC 1.000N-172			6.772	3.921	3.858	3.150	6,000	MES-65	16.5
BT	BT40-OHC 1.000N-175			6.890	3.213	3.150	2.559	8,000	MES-50	11.1

1. Max. coolant pressure is 284 PSI.
2. Collet and clamping nut are optional items.

➡ For STOP BLOCK P21

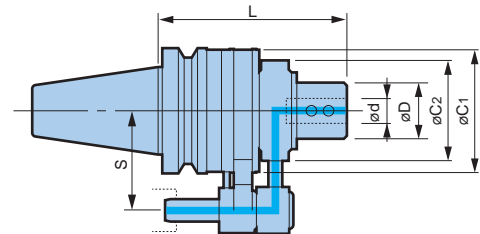
➡ For POSITIONING PINS THE BACK COVER PAGE

SIDE LOCK TYPE

Suitable for popular straight shanks with flat.



● Model Description
CV40 - **OSL** **1.000** **N** - **165**
 ● Shank No. ● Oil hole Side Lock Holder ● Max. Capacity ● Hi-Jet type



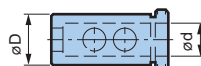
Shank	Model	ød	øD	L	øC1	øC2	S	Max. r.p.m.	Merit Set 2 pcs. of Merit Ring and 2 pcs. of Merit Plate	Weight (lbs)
CV	CV40-OSL 1.000N-165	1.000	1.890	6.496	3.213	3.150	2.559	8,000	MES-50	9.7
	-OSL 1.250N-160	1.250	2.283	6.299				3.858	6,000	MES-65
	CV50-OSL .750N-150	.750	1.890	5.906	3.921	3.150	3.150	8,000	MES-50	16.3
	-OSL 1.000N-165	1.000		6.496				6,000	MES-65	17.4
	-OSL 1.250N-165	1.250	2.283	3.858		6,000	MES-65	17.6		
	-OSL 1.500N-165	1.500	2.500	4,000		MES-90	26.2			
-OSL 2.000N-180	2.000	3.307	7.087	5.079		4.764	4,000	MES-90	26.2	
BT	BT40-OSL 1.000N-165	1.000	1.890	6.496		3.213	3.150	2.559	8,000	MES-50
	-OSL 1.250N-165	1.250	2.283	6.299	3.858				6,000	MES-65
	BT50-OSL .750N-150	.750	1.890	5.906	3.921	3.150	3.150	8,000	MES-50	16.3
	-OSL 1.000N-165	1.000		6.496				6,000	MES-65	17.4
	-OSL 1.250N-165	1.250	2.283	3.858		6,000	MES-65	17.4		
	-OSL 1.500N-165	1.500	2.500	4,000		MES-90	26.2			
-OSL 2.000N-180	2.000	3.307	7.087	5.079		4.764	4,000	MES-90	26.2	
-OSL 2.500N-200	2.500	4.114	8.854	6.350		5.937	4,000	MES-90	31.5	

1. Max. coolant pressure is 284 PSI.

➡ For STOP BLOCK P21

➡ For POSITIONING PINS THE BACK COVER PAGE

OSL REDUCTION COLLET



Model	ød	øD
OSL 1 1/4 - 3/4	.750	1.250
- 1	1.000	1.500
1 1/2 - 1	1.000	
- 1 1/4	1.250	

STOP BLOCK



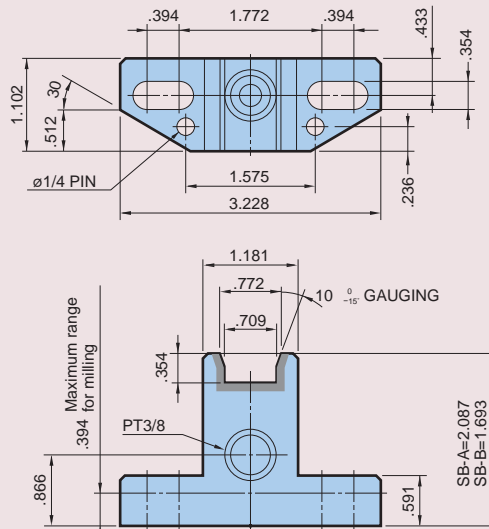
Dimensional information of semi-finished stop blocks and instructions for additional machining

The dimensions and configuration of the stop block depend upon the model of the machining center. Therefore, the machine manufacturer should be referred to for advice.

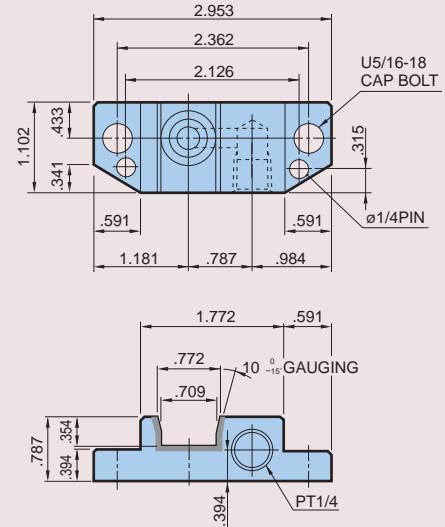
Semi-finished stop blocks are available, in order to ease the fitting to a machine. Please choose the appropriate stop block from the models shown below.

For #40(S=2.559)
#50(S=3.150)

● MODEL : SB-A/SB-B



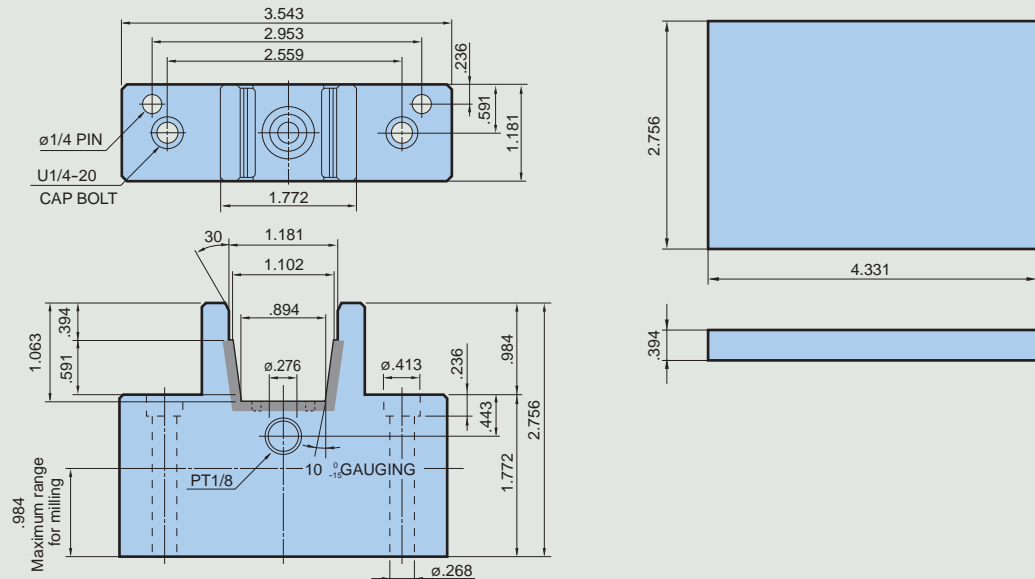
● MODEL : SB-F



1. Adjustment to the required height by milling the base.
2. Fix the stop block by inserting two dowel pins (ø1/4)

For #50(S=4.331)

● MODEL : SB-G/E



1. Adjustment to the required height by milling the base.
2. Fix the stop block by inserting two dowel pins (ø1/4)

Note :  on the sketch indicates heat treatment (HRC45-50), all other surfaces can be milled.

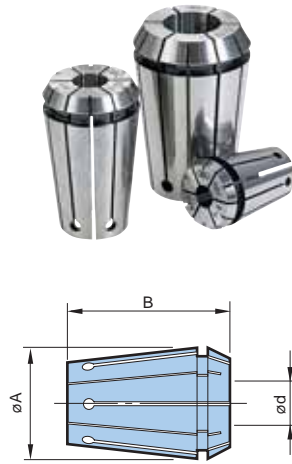


CAUTION

The use of our stop block is strongly recommended. The units are designed to operate only if our original stop block is used and properly mounted to the machine. Failure to use our stop block could void any or all warranties of the tool.

NEW BABY COLLET

New Baby Collet "AA" class guarantees ultra T.I.R. of .00004" at the nose.



● T.I.R. of collet

.00004" .00012"

Collet Class	T.I.R.	
	At nose	At end of test bar
AA	.00004"	.00012"

● Model Description

NBC 6 - 0.5 AA

- Max. capacity (mm)
- Main body size
- New Baby Collet

NBS6	
Model	Clamping Range ød
NBC 6-0.5 AA	.010 - .020
-0.75AA	.020 - .030
-1 AA	.030 - .039
-1.25AA	.039 - .049
-1.5 AA	.049 - .059
-1.75AA	.059 - .069
-2 AA	.069 - .079
-2.25AA	.079 - .089
-2.5 AA	.089 - .098
-2.75AA	.098 - .108
-3 AA	.108 - .118
-3.175AA	.115 - .125
-3.25AA	.118 - .128
-3.5 AA	.128 - .138
-3.75AA	.138 - .148
-4 AA	.148 - .157
-4.25AA	.157 - .167
-4.5 AA	.167 - .177
-4.75AA	.177 - .187
-5 AA	.187 - .197
-5.25AA	.197 - .207
-5.5 AA	.207 - .217
-5.75AA	.217 - .226
-6 AA	.226 - .236

øA= .37 B= .55

NBS16	
Model	Clamping Range ød
NBC16- 3 AA	.098 - .118
- 3.175AA	.115 - .125
- 3.5 AA	.118 - .138
- 4 AA	.138 - .157
- 4.5 AA	.157 - .177
- 5 AA	.177 - .197
- 5.5 AA	.197 - .217
- 6 AA	.217 - .236
- 6.5 AA	.236 - .256
- 7 AA	.256 - .276
- 7.5 AA	.276 - .295
- 8 AA	.295 - .315
- 8.5 AA	.315 - .335
- 9 AA	.335 - .354
- 9.5 AA	.354 - .374
- 10 AA	.374 - .394
- 10.5AA	.394 - .413
- 11 AA	.413 - .433
- 11.5AA	.433 - .453
- 12 AA	.453 - .472
- 12.5AA	.472 - .492
- 13 AA	.492 - .512
- 13.5AA	.512 - .531
- 14 AA	.531 - .551
- 14.5AA	.551 - .571
- 15 AA	.571 - .591
- 15.5AA	.591 - .610
- 16 AA	.610 - .630

øA= 1.00 B= 1.37

NBS10	
Model	Clamping Range ød
NBC10- 2 AA	.059 - .079
- 2.5 AA	.079 - .098
- 3 AA	.098 - .118
- 3.175AA	.115 - .125
- 3.5 AA	.118 - .138
- 4 AA	.138 - .157
- 4.5 AA	.157 - .177
- 5 AA	.177 - .197
- 5.5 AA	.197 - .217
- 6 AA	.217 - .236
- 6.5 AA	.236 - .256
- 7 AA	.256 - .276
- 7.5 AA	.276 - .295
- 8 AA	.295 - .315
- 8.5 AA	.315 - .335
- 9 AA	.335 - .354
- 9.5 AA	.354 - .374
-10 AA	.374 - .394

øA= .64 B= 1.06

NBS20	
Model	Clamping Range ød
NBC20- 3 AA	.098 - .118
- 3.175AA	.115 - .125
- 3.5 AA	.118 - .138
- 4 AA	.138 - .157
- 4.5 AA	.157 - .177
- 5 AA	.177 - .197
- 5.5 AA	.197 - .217
- 6 AA	.217 - .236
- 6.5 AA	.236 - .256
- 7 AA	.256 - .276
- 7.5 AA	.276 - .295
- 8 AA	.295 - .315
- 8.5 AA	.315 - .335
- 9 AA	.335 - .354
- 9.5 AA	.354 - .374
- 10 AA	.374 - .394
- 10.5AA	.394 - .413
- 11 AA	.413 - .433
- 11.5AA	.433 - .453
- 12 AA	.453 - .472
- 12.5AA	.472 - .492
- 13 AA	.492 - .512
- 13.5AA	.512 - .531
- 14 AA	.531 - .551
- 14.5AA	.551 - .571
- 15 AA	.571 - .591
- 15.5AA	.591 - .610
- 16 AA	.610 - .630
- 16.5AA	.630 - .650
- 17 AA	.650 - .669
- 17.5AA	.669 - .689
- 18 AA	.689 - .709
- 18.5AA	.709 - .728
- 19 AA	.728 - .748
- 19.5AA	.748 - .768
- 20 AA	.768 - .787

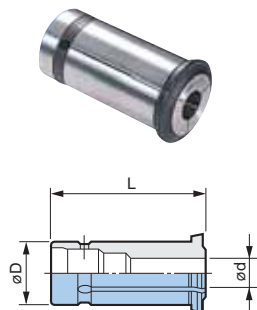
øA= 1.12 B= 1.49

NBS13	
Model	Clamping Range ød
NBC13- 3 AA	.098 - .118
- 3.175AA	.115 - .125
- 3.5 AA	.118 - .138
- 4 AA	.138 - .157
- 4.5 AA	.157 - .177
- 5 AA	.177 - .197
- 5.5 AA	.197 - .217
- 6 AA	.217 - .236
- 6.5 AA	.236 - .256
- 7 AA	.256 - .276
- 7.5 AA	.276 - .295
- 8 AA	.295 - .315
- 8.5 AA	.315 - .335
- 9 AA	.335 - .354
- 9.5 AA	.354 - .374
- 10 AA	.374 - .394
- 10.5AA	.394 - .413
- 11 AA	.413 - .433
- 11.5AA	.433 - .453
- 12 AA	.453 - .472
- 12.5AA	.472 - .492
- 13 AA	.492 - .512

øA= .80 B= 1.22

- Collapsibility is .010" for NBC 6 and .020" for NBC 8 to NBC20.
- For best performance, cutting tool shanks should be cylindrical without flats and be as long as the clamping section of the collet bore.

STRAIGHT COLLET for MILLING CHUCK

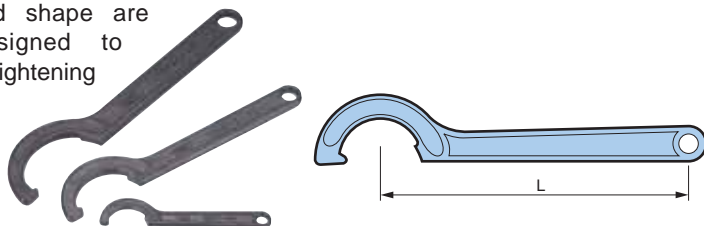


Model	$\varnothing d$	$\varnothing D$	L
C .75 - 1/4	.250	.750	2.36
- 5/16	.312		
- 3/8	.375		
- 7/16	.437		
- 1/2	.500		
- 9/16	.562		
- 5/8	.625		

Model	$\varnothing d$	$\varnothing D$	L
C1.25 - 1/4	.250	1.250	2.91
- 5/16	.312		
- 3/8	.375		
- 7/16	.437		
- 1/2	.500		
- 9/16	.562		
- 5/8	.625		
-11/16	.687		
- 3/4	.750		
-13/16	.812		
- 7/8	.875		
-15/16	.937		
-1	1.000		

WRENCH

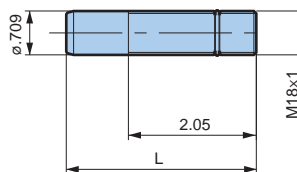
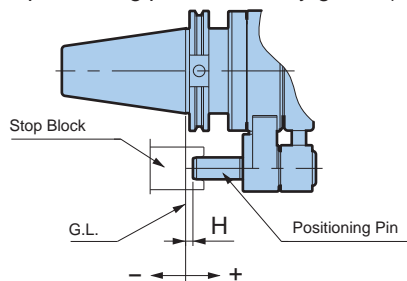
The length and shape are exclusively designed to provide correct tightening torque.



Model	L	Nut Model
NBK 6	2.56	BPS 6, NBN 6
NBK 10	4.09	BPS10, NBN10
NBK 13	4.45	BPS13, NBN13
NBK 16	4.80	BPS16, NBN16
NBK 20	5.16	BPS20, NBN20

POSITIONING PINS for HIGH SPINDLE & HI-JET HOLDER

- H dimension and θ -angle varies with machine tool. Please advise the type of the machine.
- θ (angle of positioning pin to drive key groove) is adjustable from 0 to 360.



Model	L
LP-A	3.661
LP-B	3.071
LP-C	2.480

Setting dimension H (In case of HIGH SPINDLE)

	BCV40	BCV50	BBT40	BBT50
LP-A	-.354 / +.236	-.157 / +.433	-.945 / -.354	-.354 / +.236
LP-B	+.236 / +.827	+.433 / +1.024	-.354 / +.236	+.236 / +.827
LP-C	+.827 / +1.417	+1.024 / +1.614	+.236 / +.827	+.827 / +1.417

Setting dimension H (In case of HI-JET HOLDER)

	CV / BT40	CV / BT50	CV40 - OSL1.250	CV50 - OSL2.000	BT50 - OSL2.000
LP-A	-.236 / +.354	-.354 / +.236	-.197 / +.394	-.079 / +.512	+.118 / +.709
LP-B	+.354 / +.945	+.236 / +.827	+.394 / +.984	+.512 / +1.102	+.709 / +1.299
LP-C	+.945 / +1.535	+.827 / +1.417	+.984 / +1.575	+1.102 / +1.535	+1.299 / +1.535