

BBT
SHANK A145

BDV
SHANK B17

HSK
SHANK C36



- An abundant series of high rigidity Angle Heads for systematic machining of multiple surfaces.
- Entire series is a dual contact specification as standard. Further increased rigidity.



A Stop Block is required for use.

Spiral bevel gears used



All series are heat treated first and adopt spiral bevel gears with finish machined teeth. This suppresses tooth runout, eliminating noise and vibration to achieve solid machining precision.

Unique special sealing mechanism



The conventional sealing mechanism has been further enhanced with improved waterproofing and dustproofing effects.

4 types available to suit the application (select from our abundant lineup to suit the shape of the workpiece.)

AG90 Series



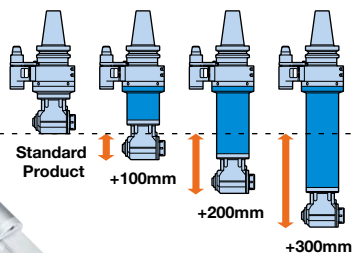
TWIN HEAD

- High Precision Collet Chuck System

NEW BABY CHUCK Type



Long Type



Long types with +100mm, +200mm or +300mm additional length compared to standard units are newly available.



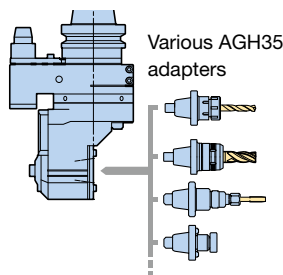
- Through Tools
Through Tool



- Powerful ø32 specification
HMC32 Type



- Replaceable adapter type
BUILD-UP Type



AG45 Series



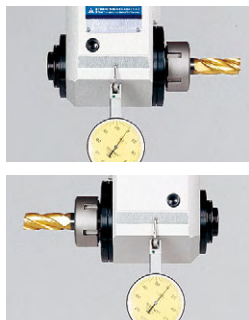
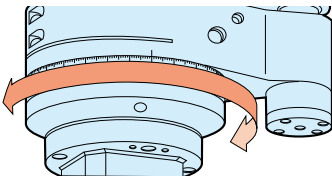
- 45° spindle angle
NEW BABY CHUCK Type

Enhanced Angle Head series compatible with various multi-axis machining.



360° cutting edge directions available

With a head reference surface on both sides of the spindle angle, the cutting edge direction can be speedily set.



SPECIAL DESIGNS

We are able to design and manufacture special Angle Heads such as special angle or long type models to meet various machining requirements.



SLIM HEAD
FMC16
Specifications



SPECIAL HEAD
SCA25.4
Specifications



Flange Specifications
HMC25
Specifications



- Dedicated for drilling/tapping
Compact Type



- Weight under 2 kg
Clears ATC weight restrictions
BBT30 Lightweight Type



- For Face Milling
Face Milling Type



- Built-In tap depth control
Tapper Type

AGU Series



- 1° increment flexible angle
Universal Type



- Adjustable within 30°
AGU30 Type

Small bore type



- Bore ø30 - Tool clamping diameter: ø3 - ø6



Min. bore diameter ø30

Significantly reduces work time through systematized multilateral machining.
BIG-PLUS DUAL CONTACT equipped as standard to further improve rigidity.



Spindle angle
90°

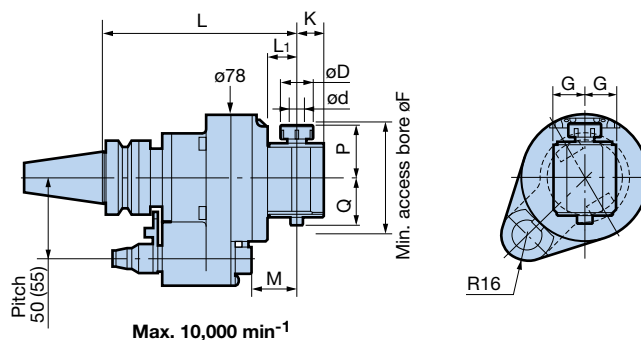
NEW BABY CHUCK Type PAT. Clamping diameter: $\varnothing 0.25 - \varnothing 20$

- High runout accuracy is achieved through the adoption of the high-accuracy New Baby Chuck.



Compact and lightweight
High-speed
ATC enabled

Weight 2.3kg - 2.7kg



● Model Description

BBT30-AG90-6-120

- L dimension
- Maximum clamping diameter
- 90° Head type
- BIG-PLUS BT No.

- Tap Collet with tension mechanism can also be used to enable tapping. (NBC10 & 13 only)

BIG-PLUS (BBT Shank) tools can be used on both BIG-PLUS spindles and conventional **BT spindles**.

BIG-PLUS BBT SHANK Model	ød	øD	G	K	L	L ₁	M	P	Q	øF	Collet Model	Weight (kg)
BBT30-AG90- 6-120	0.25 - 6	20	19.5	17	120	18.5	28.5	33	29	65	NBC 6	2.3
- 8-125	0.5 - 8	25	21.5	21	125	23.5	33.5	42	41	87	NBC 8	2.5
-10-125	1.5 - 10	30	24.5	25				45	43	92	NBC10	2.6
-13-125	2.5 - 13	35						52	45	102	NBC13	2.7

- The cutting tool rotates in reverse to the machine spindle.
- Nut and wrench are included. Collet is not included.
- The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
- A Stop Block is required when mounting on machines. Please order separately.
- When supplied through the Stop Block, coolant can be ejected from the housing.
- Automatic tool change may not be available depending on machine tool models.
- New Baby Endmill Collets cannot be used.



For Collets, **G4**

For Tap Collets, **G28**

For Stop Blocks, **G31**



Spindle angle
90°

A

ANGLE HEAD

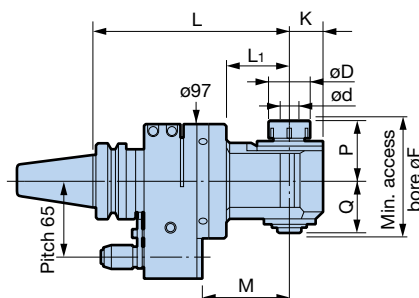


Fig. 1 NBS6 - NBS13 Type
Max. 6,000 min⁻¹

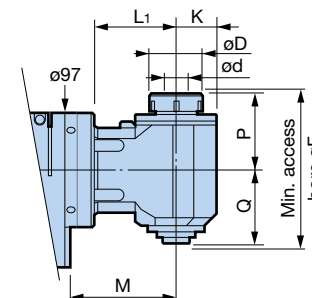


Fig. 2 NBS20 Type
Max. 3,000 min⁻¹

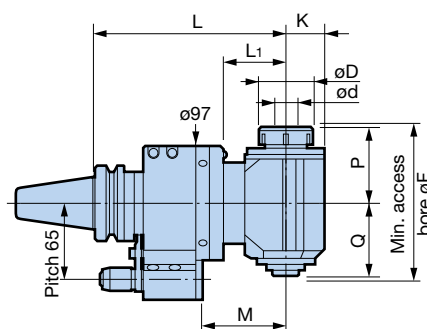
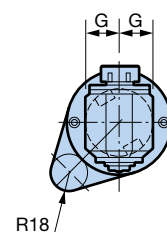


Fig. 3 High Rigidity Type
Max. 3,000 min⁻¹



Model Description

BBT40 - AG90 / NBS 6 - 170

- BBT40: BIG-PLUS BT No.
- AG90: 90° Head type
- NBS: NEW BABY CHUCK System
- 6: Maximum clamping diameter
- 170: L dimension

- High rigidity S type with reinforced Locating Pin part is also available. Add the letter S at the end when ordering.
- Tap Collet with tension mechanism can also be used to perform tapping. (NBS10 or larger)

BIG-PLUS (BBT Shank) tools can be used on both BIG-PLUS spindles and conventional BT spindles.

BIG-PLUS BBT SHANK Model	Fig.	ød	øD	G	K	L	L ₁	M	P	Q	øF	Collet Model	Weight (kg)	
													Standard Type	High Rigidity Type
BBT40-AG90/NBS 6 -170	1	0.25 - 6	20	21	17	170	55	77	33	29	67	NBC 6	5.1	6.0
-200						200	85	107					5.3	6.2
-230						230	115	137					5.5	6.4
-260						260	145	167					5.7	6.6
-AG90/NBS10 -170	1	1.5 - 10	30	30	25	170	55	77	45	43	91	NBC10	5.5	6.4
-200						200	85	107					5.9	6.8
-230						230	115	137					6.2	7.1
-AG90/NBS13 -170	1	2.5 - 13	35	31	28	170	55	77	52	45	101	NBC13	5.6	6.5
-200						200	85	107					6.0	6.9
-230						230	115	137					6.3	7.2
-AG90/NBS20 -185	2	2.5 - 20	46	35	35	185	70	92	65	62	132	NBC20	6.7	7.6
-AG90/NBS20S -165 S	3	2.5 - 20	46	35	33	165	53	72	65	62	132	NBC20	—	8.0

- The cutting tool rotates in reverse to the machine spindle.
- Nut and wrench are included. Collet is not included.
- The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
- A Stop Block is required when mounting on machines. Please order separately.
- When supplied through the Stop Block, coolant can be ejected from the housing.
- Automatic tool change may not be available depending on machine tool models.
- New Baby Endmill Collets cannot be used.

For Collets, **G4**



For Tap Collets, **G28**

For Stop Blocks, **G31**

NEW BABY CHUCK Type PAT. Clamping diameter: $\phi 0.25 - \phi 20$

- High runout accuracy is achieved through the adoption of the high-accuracy New Baby Chuck.



Spindle angle
90°

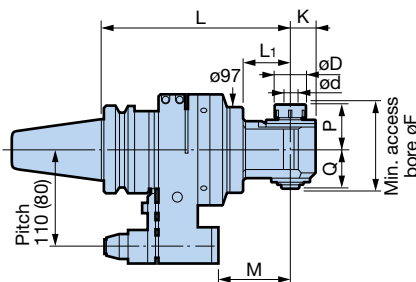


Fig. 1 NBS6 - NBS13 Type
Max. 6,000 min⁻¹

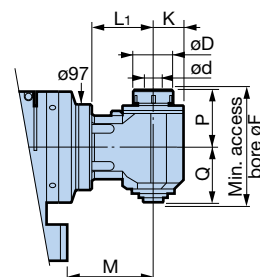


Fig. 2 NBS20 Type
Max. 3,000 min⁻¹

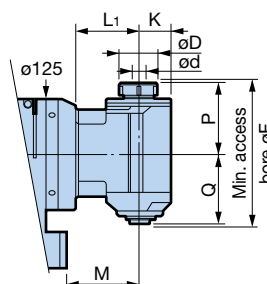
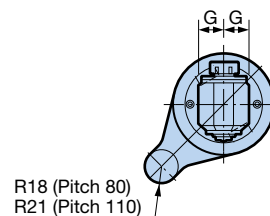


Fig. 3 Double-speed Type
Max. 8,000 min⁻¹



Model Description

BBT50 - AG90 / NBS 6 - 215

- BBT50: BIG-PLUS BT No.
- AG90: 90° Head type
- NBS: NEW BABY CHUCK System
- 6: Maximum clamping diameter
- 215: L dimension

- High rigidity S type with reinforced Locating Pin part is also available. Add the letter S at the end when ordering.
- Tap Collet with tension mechanism can also be used to perform tapping. (NBS10 or larger)

BIG-PLUS (BBT Shank) tools can be used on both BIG-PLUS spindles and conventional BT spindles.

BIG-PLUS BBT SHANK Model	Fig.	ϕd	ϕD	G	K	L	L ₁	M	P	Q	ϕF	Collet Model	Weight (kg)		
													Standard Type (Pitch 110)	High Rigidity Type (Pitch 110)	High Rigidity Type (Pitch 80)
BBT50-AG90/NBS6 -215	1	0.25 - 6	20	21	17	215	55	82	33	29	67	NBC 6	12.6	13.9	13.2
-245						245	85	112					12.8	14.1	13.4
-275						275	115	142					13.0	14.3	13.6
-305						305	145	172					13.2	14.5	13.8
-AG90/NBS10 -215	1	1.5 - 10	30	30	25	215	55	82	45	43	91	NBC10	13.0	14.3	13.6
-245						245	85	112					13.4	14.7	14.0
-275						275	115	142					13.7	15.0	14.3
-AG90/NBS13 -215	1	2.5 - 13	35	31	28	215	55	82	52	45	101	NBC13	13.1	14.4	13.7
-245						245	85	112					13.5	14.8	14.1
-275						275	115	142					13.8	15.1	14.4
-AG90/NBS20 -230	2	2.5 - 20	46	35	35	230	70	97	65	62	132	NBC20	14.2	15.5	14.8
-AG90/NBS16H-215	3	2.5 - 16	42	45	35	215	71	82	80	80	163	NBC16	14.6	15.9	15.2

- The cutting tool rotates in reverse to the machine spindle.
- Nut and wrench are included. Collet is not included.
- The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
- A Stop Block is required when mounting on machines. Please order separately.
- When supplied through the Stop Block, coolant can be ejected from the housing.
- Automatic tool change may not be available depending on machine tool models.
- New Baby Endmill Collets cannot be used.



For Collets, **G4**

For Tap Collets, **G28**

For Stop Blocks, **G31**

● TWIN HEAD (180° diagonal) PAT. Clamping diameter: $\phi 1.5 - \phi 10$

- Twin spindle head with a compact design. Symmetrical machining can be performed using one unit, contributing to the reduction of the number of magazines.



Spindle angle
90°

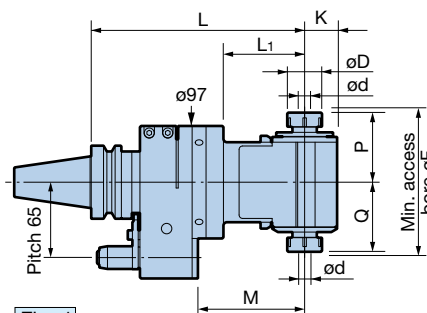


Fig. 1

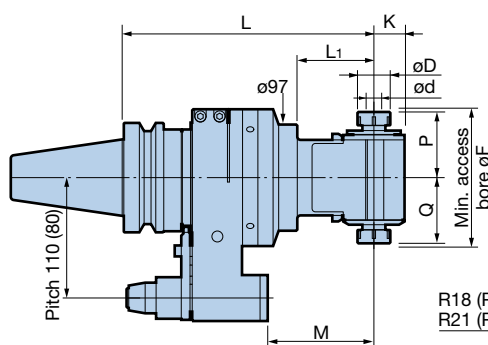
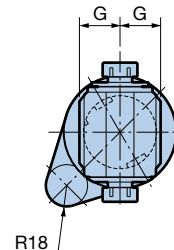
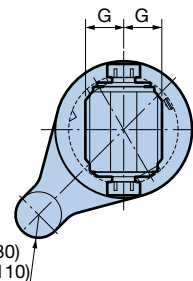


Fig. 2



- High rigidity S type with reinforced Locating Pin part is also available. Add the letter S at the end when ordering.
- Tap Collet with tension mechanism can also be used to perform tapping.

BIG-PLUS (BBT Shank) tools can be used on both BIG-PLUS spindles and conventional **BT spindles**.

BIG-PLUS BBT SHANK Model	Fig.	ϕd	ϕD	G	K	L	L ₁	M	P	Q	ϕF	Collet Model	Weight (kg)	
													Standard Type	High Rigidity Type
BBT40-AG90/NBS10W-185	1	1.5 - 10	30	31	28	185	70	92	60	60	124	NBC10	6.3 (pitch 65)	7.2 (pitch 65)
BBT50-AG90/NBS10W-230	2	1.5 - 10	30	31	28	230	70	97	60	60	124	NBC10	13.8	15.1 (pitch 110) 14.4 (pitch 80)

1. The cutting tool rotates in reverse to the machine spindle.
2. Nut and wrench are included. Collet is not included.
3. Output spindles do not rotate in forward direction simultaneously.
4. The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
5. A Stop Block is required when mounting on machines. Please order separately.
6. When supplied through the Stop Block, coolant can be ejected from the housing.
7. Automatic tool change may not be available depending on machine tool models.
8. New Baby Endmill Collets cannot be used.



For Collets, **G4**

For Tap Collets, **G28**

For Stop Blocks, **G31**

Oil Hole Type PAT. Clamping diameter: $\phi 2.5 - \phi 13$

● Feeds coolant through the cutting tool via Stop Block!



Spindle angle
90°

For drilling

Coolant
through tool

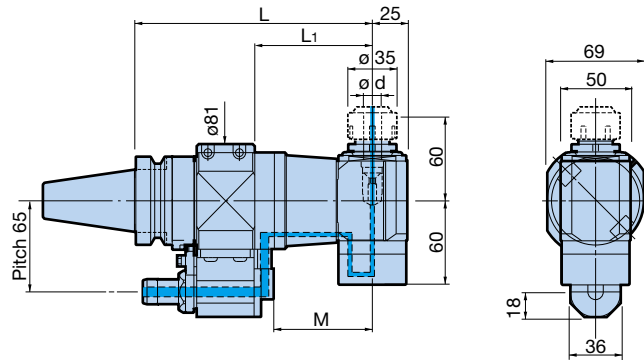
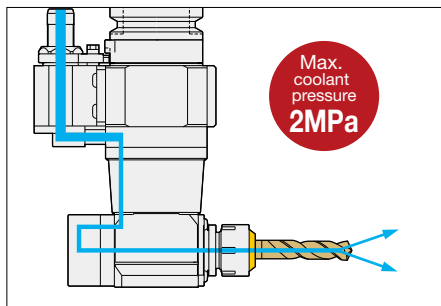


Fig. 1 Max. 5,000min⁻¹



Feeds coolant from the cutting edge via Stop Block

● Model Description

BBT40 - O AG90 - 13 - 170

- L dimension
- Maximum clamping diameter
- 90° Head type
- Oil Hole
- BIG-PLUS BT No.

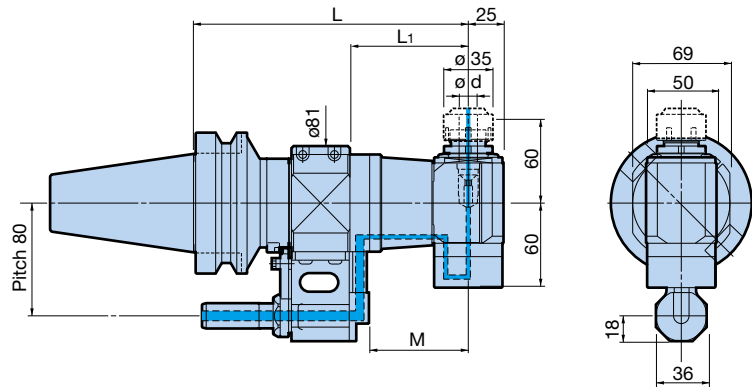


Fig. 2 Max. 5,000min⁻¹

BIG-PLUS (BBT Shank) tools can be used on both BIG-PLUS spindles and conventional BT spindles.

BIG-PLUS BBT SHANK Model	Fig.	ϕd	L	L ₁	M	Collet Model	Speed Ratio Input:output	Weight (kg)
BBT40-OAG90-13-170	1	2.5 - 13	170	84	70.5	NBC13	1:1	6.0
BBT50-OAG90-13-195	2		195					9.2

1. The cutting tool rotates in reverse to the machine spindle.
2. For use with an oil hole drill only. Never run without supplying coolant through the unit.
3. Baby Perfect Seal nut with sealing mechanism is required. Please order separately.
4. Collet is ordered separately.
5. Wrench and adjust screw are included.
6. The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
7. A Stop Block is required when mounting on machines. Please order separately.
8. Automatic tool change may not be available depending on machine tool models.



For Perfect Seal, **G24**

For Collets, **G4**

For Stop Blocks, **G31**

ANGLE HEAD AG90 SERIES

DUAL CONTACT
BBT/BT
SHANK

Long type PAT. Clamping diameter: $\phi 0.25 - \phi 20$

- Ideal for inner-diameter lateral drilling and keyway grooving of large workpieces.
100, 200 or 300mm additional length to standard units are newly available!



Spindle angle
90°



- Tap Collet with tension mechanism can also be used to perform tapping.
- ※ Usable with NBS10 or larger.

BIG-PLUS (BBT Shank) tools can be used on both BIG-PLUS spindles and conventional BT spindles.

Fig. 1

Max. 6000min⁻¹

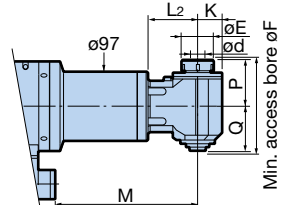
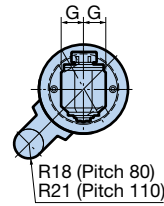
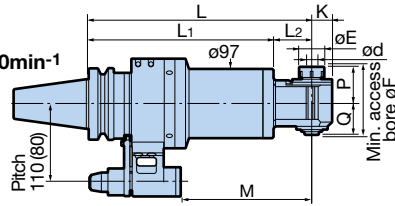


Fig. 2 Max. 3,000min⁻¹

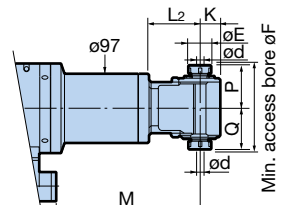


Fig. 3 Twin head (180° diagonal) Max. 6000min⁻¹

BIG-PLUS BBT SHANK Model	Fig.	ød	øE	G	K	L	L ₁	L ₂	M	P	Q	øF	Collet Model	Speed ratio Input:output	Weight (kg)
BBT50-AG90/NBS 6 -315LS	1	0.25 - 6	20	21	17	315	260	55	182	33	29	67	NBC 6	1:1	18.9
-345LS						345		85	212						19.1
-375LS						375		115	242						19.3
-405LS						405		145	272						19.5
-AG90/NBS10 -315LS	1	1.5 - 10	30	30	25	315	260	55	182	45	43	91	NBC10		19.3
-345LS						345		85	212						19.7
-375LS						375		115	242						20.0
-AG90/NBS13 -315LS	1	2.5 - 13	35	31	28	315	260	55	182	52	45	101	NBC13		19.4
-345LS						345		85	212						19.8
-375LS						375		115	242						20.1
-AG90/NBS20 -330LS	2	2.5 - 20	46	35	35	330	260	70	197	65	62	132	NBC20		20.5
-AG90/NBS10W-330LS	3	1.5 - 10	30	31	28	330	260	70	197	60	60	124	NBC10		20.1
BBT50-AG90/NBS 6 -415LS	1	0.25 - 6	20	21	17	415	360	55	282	33	29	67	NBC 6	1:1	23.3
-445LS						445		85	312						23.5
-475LS						475		115	342						23.7
-505LS						505		145	372						23.9
-AG90/NBS10 -415LS	1	1.5 - 10	30	30	25	415	360	55	282	45	43	91	NBC10		23.7
-445LS						445		85	312						24.1
-475LS						475		115	342						24.4
-AG90/NBS13 -415LS	1	2.5 - 13	35	31	28	415	360	55	282	52	45	101	NBC13		23.8
-445LS						445		85	312						24.2
-475LS						475		115	342						24.5
-AG90/NBS20 -430LS	2	2.5 - 20	46	35	35	430	360	70	297	65	62	132	NBC20		24.9
-AG90/NBS10W-430LS	3	1.5 - 10	30	31	28	430	360	70	297	60	60	124	NBC10		24.5
BBT50-AG90/NBS 6 -515LS	1	0.25 - 6	20	21	17	515	460	55	382	33	29	67	NBC 6	1:1	27.7
-545LS						545		85	412						27.9
-575LS						575		115	442						28.1
-605LS						605		145	472						28.3
-AG90/NBS10 -515LS	1	1.5 - 10	30	30	25	515	460	55	382	45	43	91	NBC10		28.1
-545LS						545		85	412						28.5
-575LS						575		115	442						28.8
-AG90/NBS13 -515LS	1	2.5 - 13	35	31	28	515	460	55	382	52	45	101	NBC13		28.2
-545LS						545		85	412						28.6
-575LS						575		115	442						28.9
-AG90/NBS20 -530LS	2	2.5 - 20	46	35	35	530	460	70	397	65	62	132	NBC20		29.3
-AG90/NBS10W-530LS	3	1.5 - 10	30	31	28	530	460	70	397	60	60	124	NBC10		28.9

1. The cutting tool rotates in reverse to the machine spindle.
2. Nut and wrench are included. Collet is not included.
3. Output spindles of Twin Head do not rotate in forward direction simultaneously.
4. The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
5. New Baby Endmill Collets cannot be used.

6. A Stop Block is required when mounting on machines. Please order separately.
7. Automatic tool change may not be available depending on machine tool models.
8. When supplied through the Stop Block, coolant can be ejected from the housing.



For Collets, **G4**
For Stop Blocks, **G31**

BIG A150

Compact type PAT. Clamping diameter: $\phi 2.5 - \phi 13$

- Compact and lightweight while fully equipped with the functions and accuracy required in drilling!

For drilling/tapping



Lightweight
and
compact



● Model Description

BBT40 - **AG90** - **13** - **120**

- L dimension
- Maximum clamping diameter
- 90° Head type
- BIG-PLUS BT No.

Compact and lightweight, while outperforming others:

- Reliable New Baby Collet
- Spiral bevel gears and angular contact bearings
- Special sealing mechanism for improved dustproof and waterproof performance

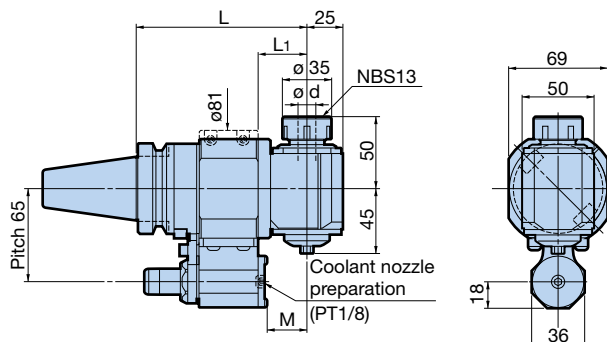


Fig. 1 Max. 5,000min⁻¹

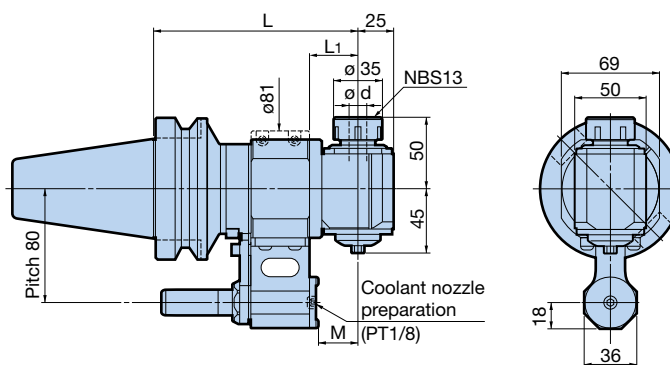


Fig. 2 Max. 5,000min⁻¹

- Tap Collet with tension mechanism can also be used to perform tapping.

BIG-PLUS (BBT Shank) tools can be used on both BIG-PLUS spindles and conventional **BT spindles**.

BIG-PLUS BBT SHANK Model	Fig.	ϕd	L	L ₁	M	Collet Model	Speed ratio Input:output	Weight (kg)
BBT40-AG90-13-120	1	2.5 - 13	120	34	27.85	NBC13	1:1	4.5
-170			170	84	77.85			5.5
BBT50-AG90-13-145	2	2.5 - 13	145	34	27.85	NBC13	1:1	7.6
-195			195	84	77.85			8.6

- The cutting tool rotates in reverse to the machine spindle.
- Nut and wrench are included. Collet is not included.
- New Baby Endmill Collet cannot be used.
- The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
- A Stop Block is required when mounting on machines. Please order separately.
- A tapped hole (PT1/8) is prepared at the bottom cover of the Locating Pin housing so that a pipe for coolant can be connected.
- Automatic tool change may not be available depending on machine tool models.



- For Collets, **G4**
- For Tap Collets, **G28**
- For Stop Blocks, **G31**

Application example



Compact yet with high rigidity and runout accuracy, allowing stable machining.

	Drilling	Tapping
Tools used	$\phi 12$ carbide drill	M5 Tap
Workpiece material	S50C	A2017
Cutting speed	70m/min	7.5m/min
Feed	372mm/min 0.2mm/rev	384mm/min
Spindle speed	1,860min ⁻¹	450min ⁻¹

BBT30 lightweight type Clamping diameter: $\phi 3 - \phi 6$

- Clears the ATC weight limit of the #30 machining center.



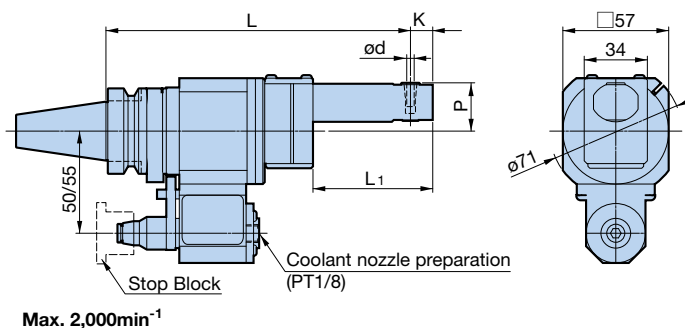
Spindle angle
90°

A

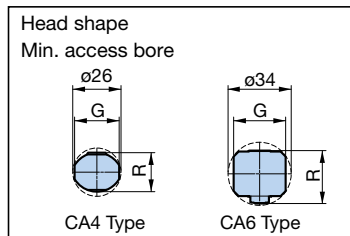
ANGLE HEAD



Lightweight
under **2kg**



Max. 2,000min⁻¹



BIG-PLUS (BBT Shank) tools can be used on both BIG-PLUS spindles and conventional BT spindles.

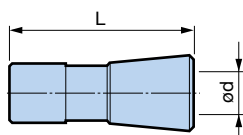
BIG-PLUS BBT SHANK Model	ød	L	L ₁	K	P	G	R	Speed ratio Input:output	Weight (kg)
BBT30-AG90-CA4SG-164	3 - 4	164	64.5	12	26	24	21	1:1.13 (acceleration)	1.90
BBT30-AG90-CA6SG-164	3 - 6	164	67	14.5	28	28	28.5	1:0.91 (deceleration)	1.98

1. The cutting tool rotates in forward to the machine spindle.
2. The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
3. A Stop Block is required when mounting on machines. Please order separately.
4. Exclusive collet is not included. Please order separately.
5. A tapped hole (PT1/8) is prepared at the bottom cover of the Locating Pin housing so that a pipe for coolant can be connected.



For Stop Blocks, **G31**

- Exclusive collet



Model	ød	L	Model	ød	L
CA4-3	3	16.5	CA6-3	3	22
-3.5	3.5		-4	4	
-4	4		-5	5	
			-6	6	

1. Use only cutting tools that have a shank tolerance within h7.

Face Milling type

- Tool life is improved by high-rigidity bearings and optimum spindle dimensions!
- Series' highest rotation transmission force of 20kw (at 1,500min⁻¹)
- 90° indexing mechanism is used to allow index of 90° increments after adjustment. (Indexing accuracy ±5')



DUAL CONTACT

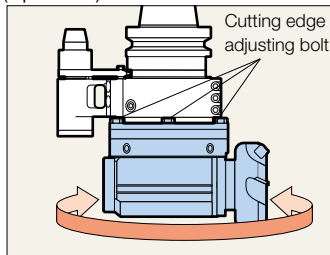


BIG-PLUS®

Spindle angle
90°

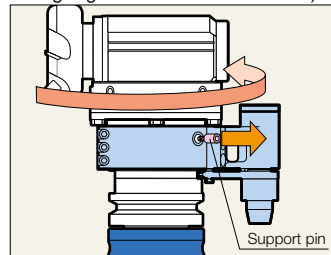
■ Cutting edge direction freely adjustable in 360°

The cutting edge direction can be easily set at any angle through 360 degrees simply by loosening its adjustment bolts (8 positions).

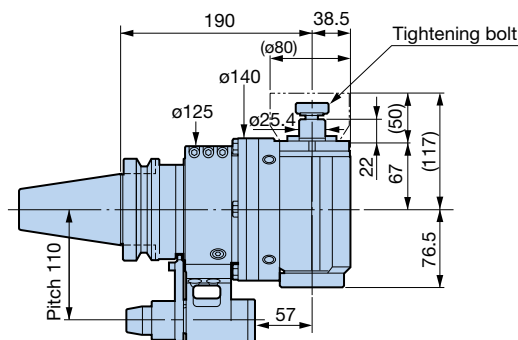


■ Cutting edge direction indexable in 90° increments

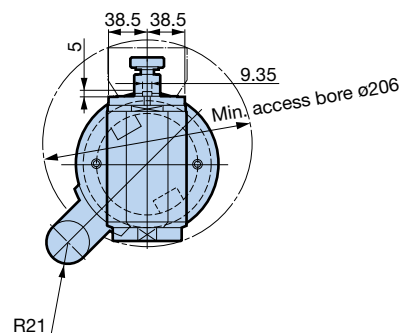
Indexing can be done in 90° increments after the cutting edge direction is adjusted. (Remove the support pin to adjust the cutting edge direction in 90° increments)



▲ Note: Be sure to remove from the machine before setting in 90° increments.



Max. 1,500min⁻¹



BIG-PLUS (BBT Shank) tools can be used on both BIG-PLUS spindles and conventional **BT spindles**.

BIG-PLUS BBT SHANK Model	Weight (kg)
BBT50-AG90-FMA25.4S-190S	19.2

Figures in () indicate dimensions when 80mm diameter and 50mm high face mill cutter is mounted.

1. The cutting tool rotates in reverse to the machine spindle.
2. A Stop Block is required when mounting on machines. Please order separately.
3. Coolant cannot be supplied through the Locating Pin.
4. The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
5. Automatic tool change may not be available depending on machine tool models.



For Stop Blocks, **G31**

Versatile $\phi 32$ milling chuck allows use of various tools according to any machining application.



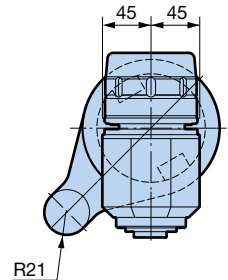
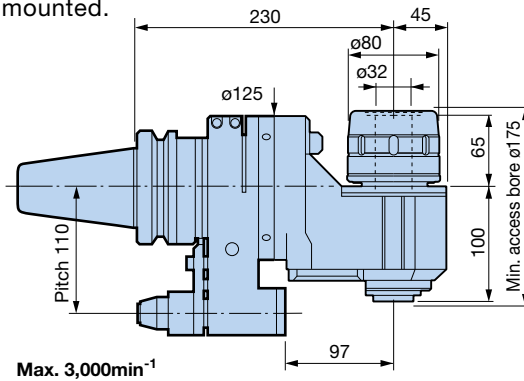
Spindle angle
90°

A
ANGLE HEAD

HMC32 Type

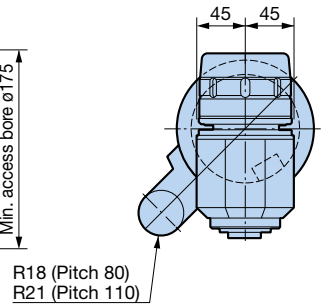
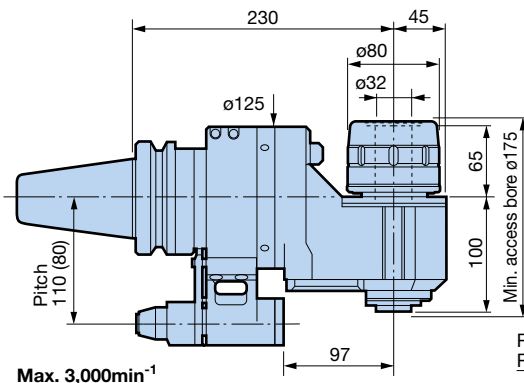
● Standard type

- High-rigidity milling chuck type that allows the most commonly used cylindrical shanks to be mounted.



● High rigidity S type

- About 30% higher rigidity compared to standard type



BIG-PLUS (BBT Shank) tools can be used on both BIG-PLUS spindles and conventional BT spindles.

Type	BIG-PLUS BBT SHANK Model	Weight (kg)
Standard type	BBT50-AG90/HMC32-230	16.8 (pitch 110)
High rigidity S type	-230S	18.1 (pitch 110) 17.4 (pitch 80)



For Straight Collets, **G20**

For Stop Blocks, **G31**

1. The cutting tool rotates in forward to the machine spindle.
2. The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
3. A Stop Block is required when mounting on machines. Please order separately.
4. When supplied through the Stop Block, coolant can be ejected from the housing.
5. Automatic tool change may not be available depending on machine tool models.
6. Wrench is included. (Model: FK80-90)

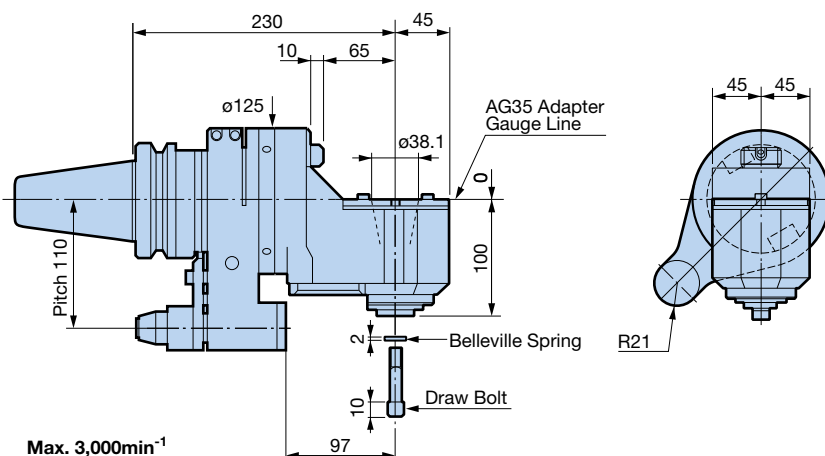
Offset design provides optimum tool projection with each adapter.



Spindle angle
90°

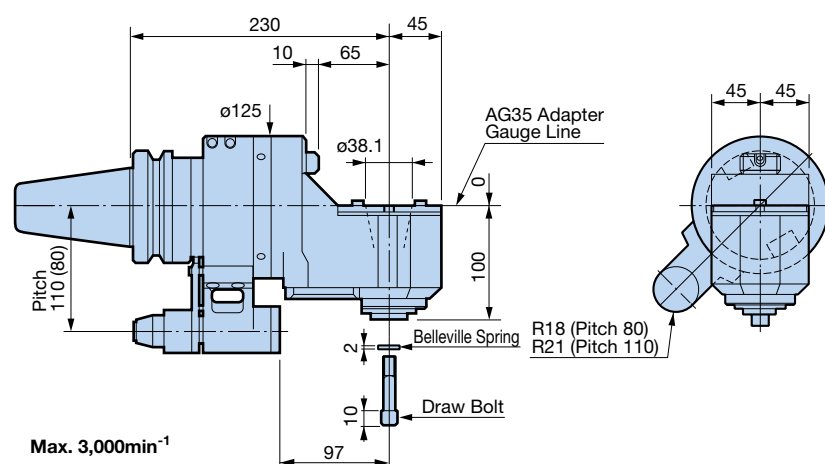
BUILD-UP Type

● Standard type



● High rigidity S type

· About 30% higher rigidity compared to standard type



BIG-PLUS (BBT Shank) tools can be used on both BIG-PLUS spindles and conventional BT spindles.

Type	BIG-PLUS BBT SHANK Model	Weight (kg)
Standard type	BBT50-AG90/AGH35-230	15.0 (pitch 110)
High rigidity S type	-230S	16.3 (pitch 110) 15.6 (pitch 80)



For Stop Blocks, **G31**

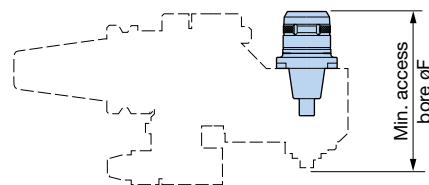
1. The cutting tool rotates in forward to the machine spindle.
2. The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
3. A Stop Block is required when mounting on machines. Please order separately.
4. When supplied through the Stop Block, coolant can be ejected from the housing.
5. Automatic tool change may not be available depending on machine tool models.
6. Wrench is included.

BUILD-UP Type AG35 ADAPTER

- Abundant adapters support various machining applications.

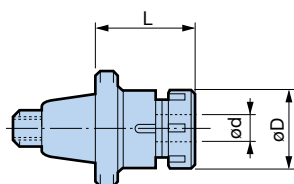
Spindle angle
90°

- Min. access bore when mounted on the Angle Head



- Tap Collet with tension mechanism can also be used to perform tapping.

NEW BABY CHUCK PAT.

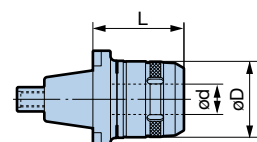


Model	ød	øD	L	øF	Weight (kg)
AG35-NBS10	1.5 - 10	30	47	162	0.6
-NBS13	2.5 - 13	35	54	168	0.7
-NBS16	2.5 - 16	42	54	170	0.8
-NBS20	2.5 - 20	46	54	170	0.9

1. Collet and wrench must be ordered separately. (See wrench G27)

For Collets, **G4**

For Tap Collets, **G28**

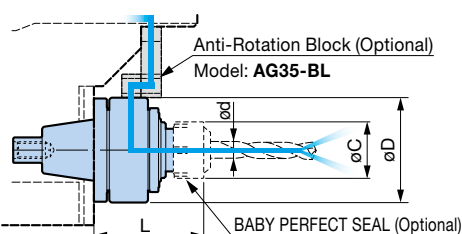


NEW Hi- POWER MILLING CHUCK

Model	ød	øD	L	øF	Weight (kg)
AG35-HMC20S	20	50	60	178	1.5

1. Wrench included. (Model: FK45-50L)

For Straight Collets, **G20**



Hi-JET HOLDER

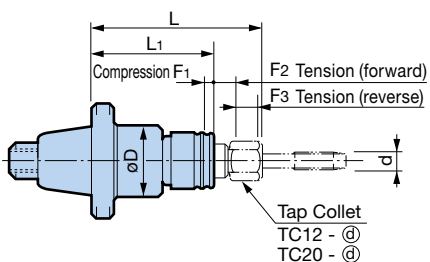
Through
Tools

Model	ød	øC	øD	L	øF	Weight (kg)
AG35-ONBS13N	3 - 13	35	65	68	186	1.1
-ONBS20N	3 - 20	46	65	68	188	1.2

1. Baby Perfect Seal nut with sealing mechanism is required. (optional accessory)
2. Collet and wrench must be ordered separately.
3. Anti-rotation block set must be ordered separately. (Model: AG35-BL)
4. Max. coolant pressure is 2MPa.

For Baby Perfect Seal, **G24**

For Collets, **G4**

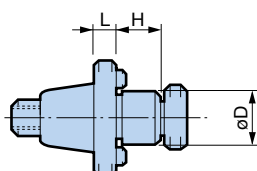


AUTO TAPPER B (with Tap Depth Control)

Model	d	øD	L	L ₁	F ₁	F ₂	F ₃	Weight (kg)
AG35-ATB12	M3 - M12	40	95	65	0.5	5	4	0.8
-ATB20	M7 - M20	54	125	100		6.5	5	1.5

1. Tap Collet must be ordered separately.

For TC Tap Collets, **A139**

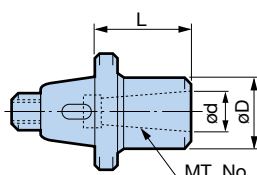


FACE MILL ARBOR

Model	øD	L	H	Weight (kg)
AG35-FMA25.4-20	25.4	20	22	1.0
-30	25.4	30	22	1.0
AG35-FMH22 -30	22	30	18	1.0
-FMH27 -20	27	20	20	1.0

※ Cutter face protrudes by 7.5mm from the 125mm diameter housing with the following combinations; AG35-FMA25.4-20 + 50mm thick tool, AG35-FMA25.4-30/AG35-FMH22-30 + 40mm thick tool and AG35-FMH27-20 + 50mm thick tool.

MORSE TAPER ADAPTER



Model	ød	MT.No.	øD	L	øF	Weight (kg)
AG35-MT1	12.065	1	24	50	164	0.6
-MT2	17.78	2	32	60	180	0.7

Tapper Type

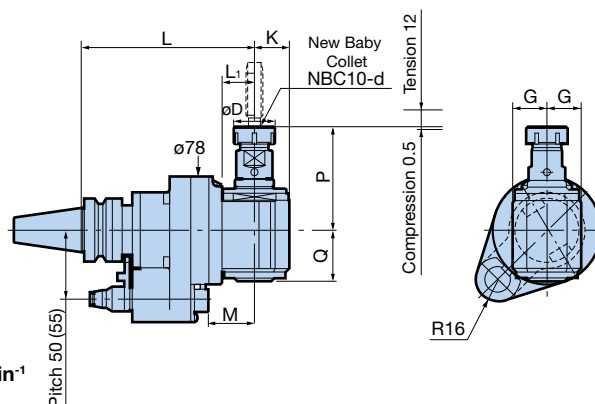
- Tapping depth is adjusted with automatic depth control.
- Spindle speed is reduced by half to achieve increased transmission torque.



Spindle angle
90°



Fig. 1
Max. 2,000min⁻¹



Model Description

BBT40 - AG90 / TC 12 - 185

- BBT40 - BIG-PLUS BT No.
- AG90 - 90° Head type
- TC - Tapper type with depth control mechanism
- 12 - Tapping capacity
- 185 - L dimension

Fig. 2
Max. 2,000min⁻¹

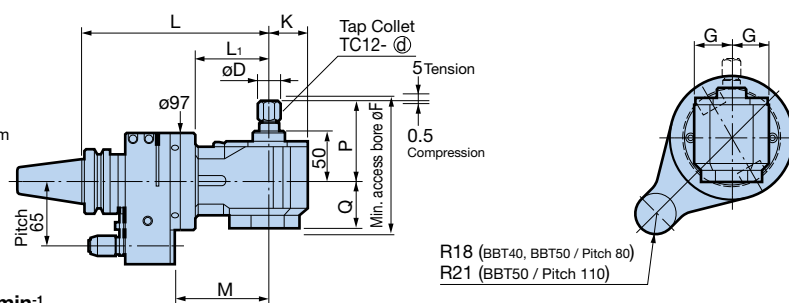


Fig. 3
Max. 2,000min⁻¹

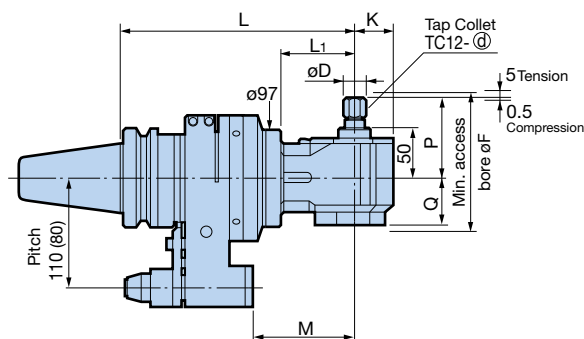
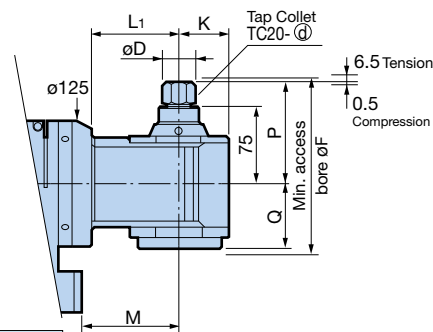


Fig. 4
Max. 1,000min⁻¹



- High rigidity S type with reinforced Locating Pin part is also available. Add the letter S at the end when ordering. (except BBT30)

BIG-PLUS (BBT Shank) tools can be used on both BIG-PLUS spindles and conventional BT spindles.

BIG-PLUS BBT SHANK Model	Fig.	d	øD	G	K	L	L ₁	M	P	Q	øF	Collet Model	Speed ratio Input:output	Weight (kg)		
														Standard Type (Pitch)	High Rigidity Type (Pitch)	High Rigidity Type (Pitch 80)
BBT30-AG90-FT12-125	1	M4 - M12	30	24.5	25	125	23.5	33.5	75	37	117	NBC10	1:1	2.7	—	—
BBT40-AG90/TC12-185	2	M3 - M12	22	38	39	185	70	92	80	46	135	TC12-@	2:1 (Deceleration)	7.0 (65)	7.9 (65)	—
BBT50-AG90/TC12-230	3	M3 - M12	22	38	39	230	70	97	80	46	135	TC12-@		14.5 (110)	15.8 (110)	15.1
-AG90/TC20-230	4	M7 - M20	22/31	49	49	230	86	97	100	66.5	178	TC20-@		16.3 (110)	17.6 (110)	16.9

- The cutting tool rotates in reverse to the machine spindle.
- TC Tap Collet and NBC Collet are not included. Please order separately.
- The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
- Note that tap rotation is reduced to half the speed of the machine spindle. (except BBT30)
- A Stop Block is required when mounting on machines. Please order separately.
- The BBT30 Type does not provide depth control.
- When supplied through the Stop Block, coolant can be ejected from the housing.
- Automatic tool change may not be available depending on machine tool models.

For TC Tap Collets, **A139**

For NBC Collets, **G4**

For Stop Blocks, **G31**



45° exclusive fixing housing realizes secure diagonal machining.

- Highly versatile NEW BABY CHUCK enables high-accuracy machining.



Spindle angle
45°

NEW BABY CHUCK Type PAT. Clamping diameter: $\phi 1.5 - \phi 13$



Model Description

BBT40 - AG45 / NBS 10 - 215

- BBT40: BIG-PLUS BT No.
- AG45: 45° Head type
- NBS: NEW BABY CHUCK system
- 10: Maximum clamping diameter
- 215: L dimension

- High rigidity S type with reinforced Locating Pin part is also available. Add the letter S at the end when ordering.
- Tap Collet with tension mechanism can also be used to perform tapping.

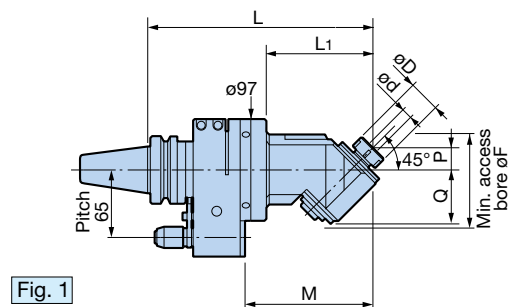


Fig. 1
Max. 6000min⁻¹

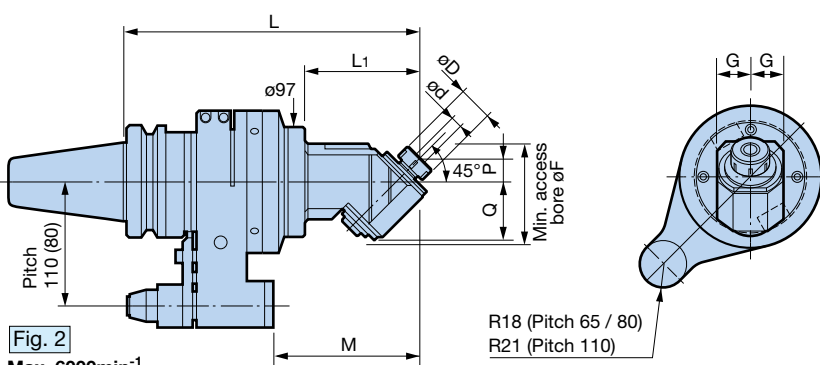


Fig. 2
Max. 6000min⁻¹

BIG-PLUS (BBT Shank) tools can be used on both BIG-PLUS spindles and conventional BT spindles.

BIG-PLUS BBT SHANK Model	Fig.	ød	øD	G	L	L ₁	M	P	Q	øF	Collet Model	Weight (kg)		
												Standard Type (Pitch)	High Rigidity Type (Pitch)	High Rigidity Type (Pitch 80)
BBT40-AG45/NBS10-215	1	1.5 - 10	30	30	215	100	122	20	51.5	90	NBC10	5.7 (65)	6.6 (65)	-
-AG45/NBS13-220		2.5 - 13	35		220	105	127	25			NBC13	5.8 (65)	6.7 (65)	-
BBT50-AG45/NBS10-260	2	1.5 - 10	30	30	260	100	127	20	51.5	90	NBC10	13.2 (110)	14.5 (110)	13.8
-AG45/NBS13-265		2.5 - 13	35		265	105	132	25			NBC13	13.3 (110)	14.6 (110)	13.9

1. The cutting tool rotates in reverse to the machine spindle.
2. Nut and wrench are included. Collet is not included.
3. The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
4. A Stop Block is required when mounting on machines. Please order separately.
5. When supplied through the Stop Block, coolant can be ejected from the housing.
6. Automatic tool change may not be available depending on machine tool models.
7. New Baby Endmill Collets cannot be used.



For Collets, **G4**

For Tap Collets, **G28**

For Stop Blocks, **G31**

The cutting edge angle can be freely adjusted, making it ideal for machining the corners of molds in deep areas.

- The original 1° indexing mechanism allows easy angle adjustment.
- Robust clamping mechanism allows secure endmilling.



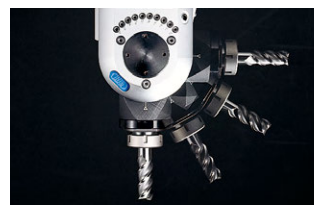
Spindle angle
0° - 90°

Universal Type PAT. Clamping diameter: $\phi 2.5$ - $\phi 20$



Indexing mechanism in 1° increments

Accurate angle adjustment is possible simply by tightening the angle setting pin.



The spindle angle can be adjusted in the range of 0° to 90°

The 1° angle indexing mechanism allows the angle to be easily set. (Indexing accuracy $\pm 5'$)

Model Description

- BBT40 - AGU / NBS 13 - 270
- BBT40: BIG-PLUS BT No.
 - AGU: Universal type
 - NBS: NEW BABY CHUCK System
 - 13: Maximum clamping diameter
 - 270: L dimension

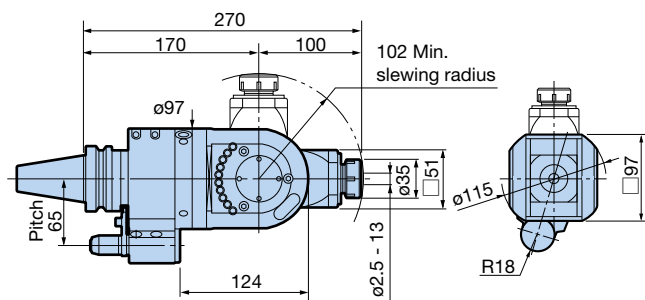


Fig. 1 Max. 6000min⁻¹

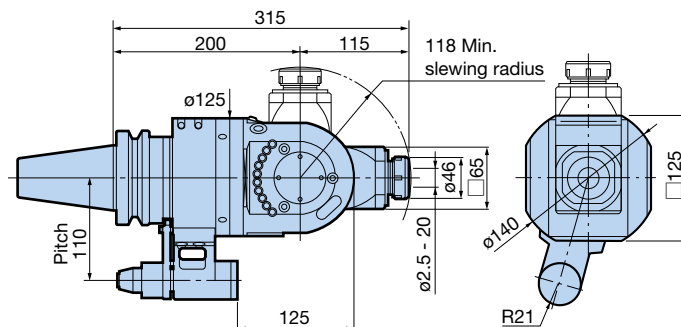


Fig. 2 Max. 4,000min⁻¹

BIG-PLUS (BBT Shank) tools can be used on both BIG-PLUS spindles and conventional BT spindles.

BIG-PLUS BBT SHANK Model	Fig.	Applicable Collet	Speed ratio Input:output	Weight (kg)
BBT40-AGU/NBS13-270	1	NBC13	1:1	9.7
BBT50-AGU/NBS20-315	2	NBC20	1:1	20.8

1. The cutting tool rotates in reverse to the machine spindle.
2. Nut and wrench are included. Collet is not included.
3. The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
4. A Stop Block is required when mounting on machines. Please order separately.
5. Automatic tool change may not be available depending on machine tool models.

● Tap Collet with tension mechanism can also be used to perform tapping.

For Collets, **G4**

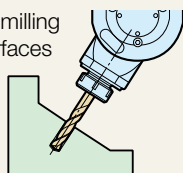
For Tap Collets, **G28**

For Stop Blocks, **G31**

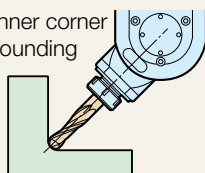


Machining examples Easy angle setup

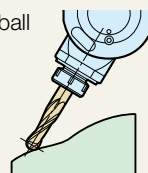
- Drilling or endmilling on angled surfaces



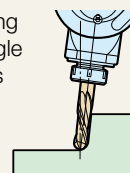
- Inner corner rounding



- Profiling with ball endmill



- Machining draft angle of molds



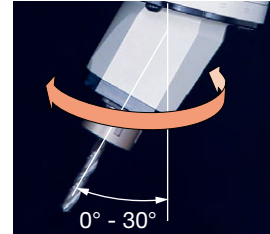
AGU30 type PAT. Clamping diameter: $\phi 2.5 - \phi 20$

- Spindle angle adjustable $0^\circ - 30^\circ$.
- Rigidity is improved by the flange coupling in the swivel!
- The new drive system achieves high transmission torque, low vibration and noise.



Spindle angle
 $0^\circ - 30^\circ$

A
ANGLE HEAD



Angle adjustment by scale alignment

The angle spindle can be easily adjusted between 0° and 30° just by aligning to the scale provided on the swivel.

Model Description

BBT40 - **AGU30** / **NBS** **13** - **240**

- L dimension
- Maximum clamping diameter
- NEW BABY CHUCK System
- AGU30 Type
- BIG-PLUS BT No.

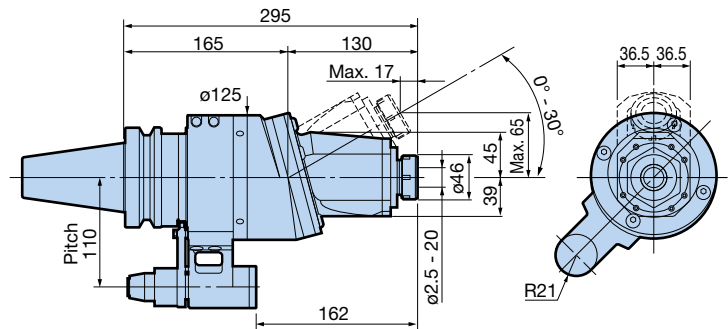
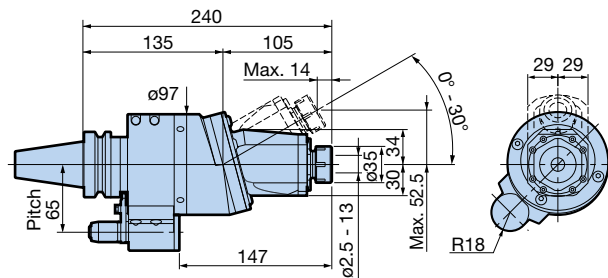


Fig. 1 Max. 6000min⁻¹

Fig. 2 Max. 4,000min⁻¹

BIG-PLUS (BBT Shank) tools can be used on both BIG-PLUS spindles and conventional BT spindles.

BIG-PLUS BBT SHANK Model	Fig.	Collet Model	Speed ratio Input:output	Weight (kg)
BBT40-AGU30/NBS13-240	1	NBS13	1:1	6.9
BBT50-AGU30/NBS20-295	2	NBS20	1:1	16.1

- Tap Collet with tension mechanism can also be used to perform tapping.

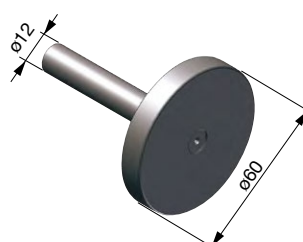
1. The cutting tool rotates in forward to the machine spindle.
2. Nut and wrench are included. Collet is not included.
3. The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
4. A Stop Block is required when mounting on machines. Please order separately.
5. Automatic tool change may not be available depending on machine tool models.
6. When supplied through the Stop Block, coolant can be ejected from the housing.



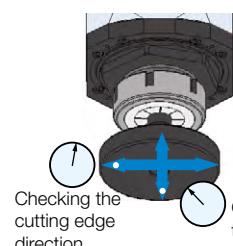
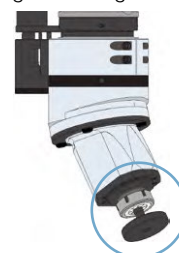
For Collets, **G4**
For Tap Collets, **G28**
For Stop Blocks, **G31**

SETTING DISK (Standard accessory)

Use when accurate angle setting or fine adjustment of the cutting edge direction is required.



The angle and cutting edge direction can be adjusted using the setting disk.



Checking the angle

Small bore type

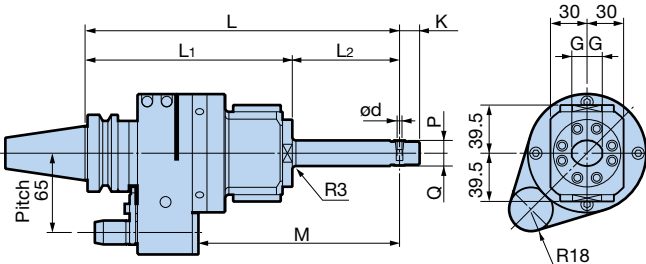
- Achieves angular drilling in the min. $\phi 30$ bore. (minimum diameter for CA6SGM is $\phi 40$)
- Prevents interference through flexible combination of base units and heads.
- The head is positioned at the center of the spindle, enabling easy programming.



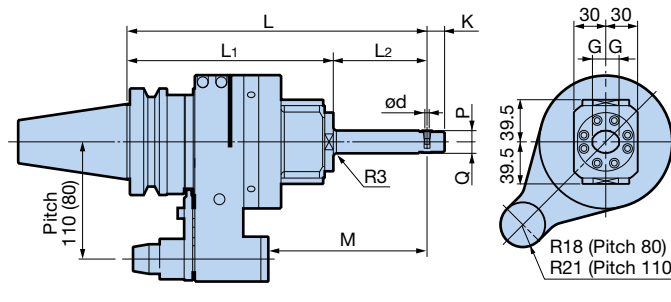
● Model Description

BBT40 - AG90 - CA 4 SGM - 226

BBT40: Base unit
 AG90: Head
 CA: Collet type
 4: Modular system
 SGM: 90° Head type
 226: L dimension
 L dimension: Maximum clamping diameter
 BIG-PLUS BT No.

Fig. 1 Max. 2,000min⁻¹

Base unit	Head	Clamping diameter $\phi 3-\phi 4$
BBT40-AGB-162	AG90-CA4SGM-64	
	AG90-CA4SGM-96	
	AG90-CA4SGM-128	
BBT50-AGB-186	AG90-CA6SGM-45	Clamping diameter $\phi 3-\phi 6$
	AG90-CA6SGM-89	
	AG90-CA6SGM-133	

Fig. 2 Max. 2,000min⁻¹

BIG-PLUS (BBT Shank) tools can be used on both BIG-PLUS spindles and conventional BT spindles.

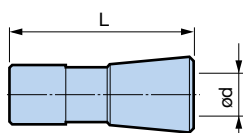
BIG-PLUS BBT SHANK Set Model	Base Model	Head Model	Fig.	ød	G	K	L	L ₁	L ₂	M	P	Q	Speed ratio Input:output	Weight (kg)		
														Pitch 65	Pitch 80	Pitch 110
BBT40-AG90-CA4SGM-226	BBT40- AGB- 162	AG90-CA4SGM- 64	1	3 - 4	12.5	16.5	226	170	56	133	10.5	10.5	1:1.06 (Acceleration)	5.6	—	—
-258		- 96					258		88	165				5.7		
-290		-128					290		120	197				5.8		
-CA6SGM-207		AG90-CA6SGM- 45		207	37	114	1:0.77 (Deceleration)		5.7							
-251		- 89		251	81	158			12.5	16	5.9					
-295		-133		295	125	202			6.1							
BBT50-AG90-CA4SGM-250 <input type="checkbox"/>	BBT50- AGB- 186 <input type="checkbox"/>	AG90-CA4SGM- 64	2	3 - 4	12.5	16.5	250	194	56	117	10.5	10.5	1:1.06 (Acceleration)	—	12.5	11.9
-282 <input type="checkbox"/>		- 96					282		88	149				12.6	12	
-314 <input type="checkbox"/>		-128					314		120	181				12.7	12.1	
-CA6SGM-231 <input type="checkbox"/>		AG90-CA6SGM- 45		231	37	98	1:0.77 (Deceleration)		12.6	12						
-275 <input type="checkbox"/>		- 89		275	81	142			12.5	16	—	12.8	12.2			
-319 <input type="checkbox"/>		-133		319	125	186			13	12.4						

1. The cutting tool rotates in forward to the machine spindle.
2. Models with pitch 80 carry "S" at the end of the model number.
3. The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
4. A Stop Block is required when mounting on machines. Please order separately.
5. Automatic tool change may not be available depending on machine tool models.

6. Wrench is included. Exclusive collet is not included. Please order separately.
7. Coolant cannot be supplied through the Locating Pin.


 For Stop Blocks, **G31**

● Exclusive collet



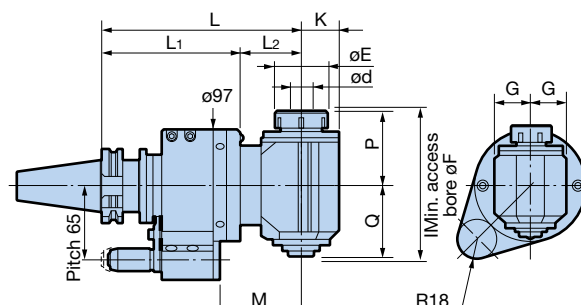
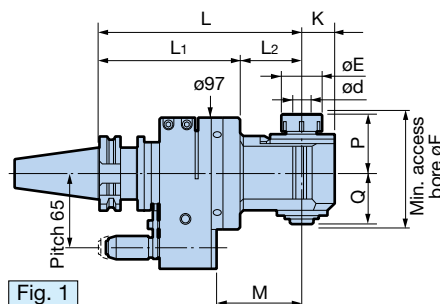
Model	ϕd	L
CA4-3	3	16.5
-3.5	3.5	
-4	4	

Model	ϕd	L
CA6-3	3	22
-4	4	
-5	5	
-6	6	

1. Use a drill with a shank diameter matched with ϕd of the collet.
2. Tool shank tolerance must be within h7.

**NEW BABY CHUCK Type PAT.** Clamping diameter: $\varnothing 0.25 - \varnothing 20$

- High runout accuracy is achieved through the adoption of the high-precision New Baby Chuck.

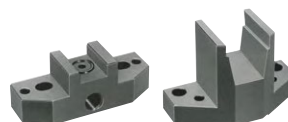
**Fig. 2** High Rigidity Type

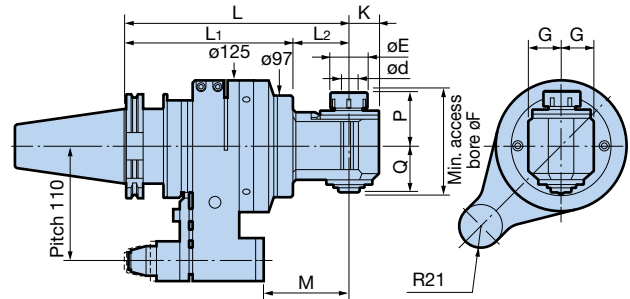
- Tap Collet with tension mechanism can also be used to perform tapping. (NBS10 or larger)

BIG-PLUS (BDV Shank) tools can be used on both BIG-PLUS spindles and conventional **DV** spindles.

BIG-PLUS BDV SHANK Model	Fig.	Clamping diameter $\varnothing d$	$\varnothing E$	G	K	L	L ₁	L ₂	M	P	Q	$\varnothing F$	Collet Model	Max. (min ⁻¹)	Weight (kg)
BDV40-AG90/NBS 6 -180	1	0.25 - 6	20	21	17	180	125	55	77	33	29	67	NBC 6	6,000	5.1
-210						210		85	107						5.3
-240						240		115	137						5.5
-270						270		145	167						5.7
-AG90/NBS10 -180	1	1.5 - 10	30	30	25	180	125	55	77	45	43	91	NBC10	6,000	5.5
-210						210		85	107						5.9
-240						240		115	137						6.2
-AG90/NBS13 -180	1	2.5 - 13	35	31	28	180	125	55	77	52	45	101	NBC13	6,000	5.6
-210						210		85	107						6.0
-240						240		115	137						6.3
-AG90/NBS20S-175S	2	2.5 - 20	46	35	33	175	122	53	72	65	62	132	NBC20	3,000	8.0

1. The cutting tool rotates in reverse to the machine spindle.
2. Nuts and wrench are included. Collet is not included.
3. The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
4. A Stop Block is required when mounting on machines. Please order separately.
5. When supplied through the Stop Block, coolant can be ejected from the housing.
6. Automatic tool change may not be available depending on machine tool models.
7. New Baby Endmill Collets cannot be used.

For Collets, **G4**For Tap Collets, **G28**For Stop Blocks, **G31**



● Tap Collet with tension mechanism can also be used to perform tapping. (NBS10 or larger)

BIG-PLUS (BDV Shank) tools can be used on both BIG-PLUS spindles and conventional DV spindles.

BIG-PLUS BDV SHANK Model	Clamping diameter $\varnothing d$	$\varnothing E$	G	K	L	L ₁	L ₂	M	P	Q	$\varnothing F$	Collet Model	Max. (min ⁻¹)	Weight (kg)
BDV50-AG90/NBS 6 -215	0.25 - 6	20	21	17	215	160	55	82	33	29	67	NBC 6	6,000	12.6
-245					245		85	112						12.8
-275					275		115	142						13.0
-305					305		145	172						13.2
-AG90/NBS10 -215	1.5 - 10	30	30	25	215	160	55	82	45	43	91	NBC10	6,000	13.0
-245					245		85	112						13.4
-275					275		115	142						13.7
-AG90/NBS13 -215	2.5 - 13	35	31	28	215	160	55	82	52	45	101	NBC13	6,000	13.1
-245					245		85	112						13.5
-275					275		115	142						13.8
-AG90/NBS20 -230	2.5 - 20	46	35	35	230	160	70	97	65	62	132	NBC20	3,000	14.2

1. The cutting tool rotates in reverse to the machine spindle.
2. Nuts and wrench are included. Collet is not included.
3. The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
4. A Stop Block is required when mounting on machines. Please order separately.
5. When supplied through the Stop Block, coolant can be ejected from the housing.
6. Automatic tool change may not be available depending on machine tool models.
7. New Baby Endmill Collets cannot be used.



For Collets, **G4**

For Tap Collets, **G28**

For Stop Blocks, **G31**

Versatile $\phi 32$ milling chuck allows use of various tools according to any machining application.

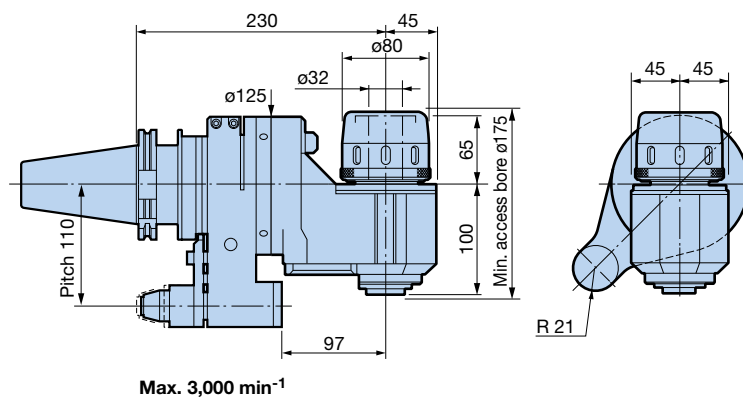


Spindle angle
90°

HMC32 Type

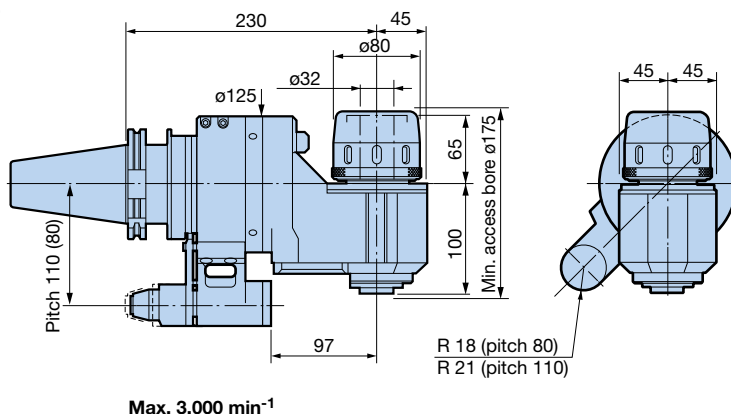
● Standard type

- High-rigidity milling chuck type that allows the most commonly used cylindrical shanks to be mounted.



● High rigidity S type

- About 30% higher rigidity compared to standard type



BIG-PLUS (BDV Shank) tools can be used on both BIG-PLUS spindles and conventional DV spindles.

Type	BIG-PLUS BDV SHANK Model	Weight (kg)
Standard type	BDV50-AG90/HMC32-230	16.8 (pitch 110)
High rigidity S type	-230S	18.1 (pitch 110) 17.4 (pitch 80)



For Straight Collets, **G20**
For Stop Blocks, **G31**

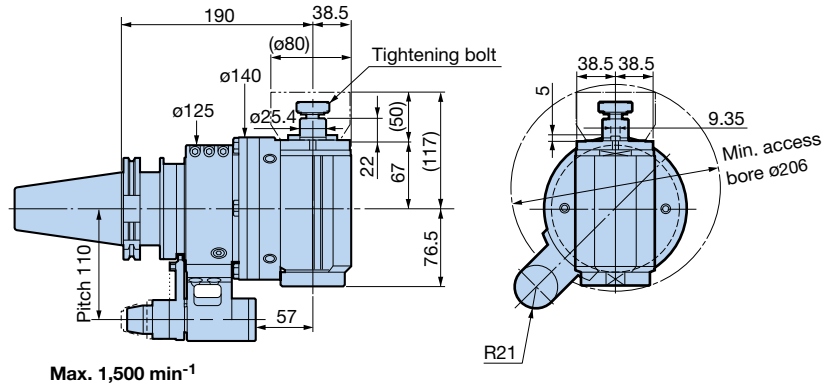
- The cutting tool rotates in forward to the machine spindle.
- The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
- A Stop Block is required when mounting on machines. Please order separately.
- When supplied through the Stop Block, coolant can be ejected from the housing.
- Automatic tool change may not be available depending on machine tool models.
- Wrench is included. (Model: **FK80-90**)

Face Milling Type

- Tool life is improved by high-rigidity bearings and optimum spindle dimensions!
- Series' highest rotation transmission force of 20kw (at 1,500min⁻¹)
- 90° indexing mechanism is used to allow index of 90° increments after adjustment.
(Indexing accuracy ±5')



Spindle angle
90°



Max. 1,500 min⁻¹

BIG-PLUS (BDV Shank) tools can be used on both BIG-PLUS spindles and conventional DV spindles.

BIG-PLUS BDV SHANK Model	Weight (kg)
BDV50-AG90-FMA25.4S-190S	19.2

Figures in () indicate dimensions when 80mm diameter and 50mm high face mill cutter is mounted.

1. The cutting tool rotates in reverse to the machine spindle.
2. A Stop Block is required when mounting on machines. Please order separately.
3. Coolant cannot be supplied through the Locating Pin.
4. The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
5. Automatic tool change may not be available depending on machine tool models.

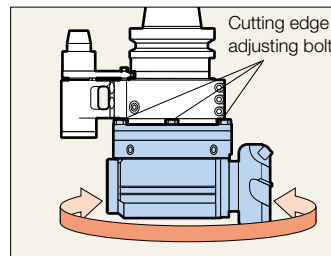


For Stop Blocks, G31

■ Cutting edge direction

freely adjustable in 360°

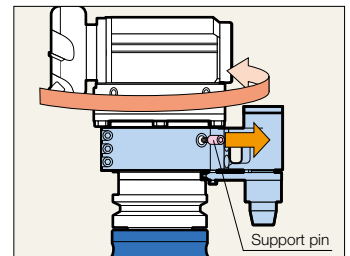
The cutting edge direction can be easily set at any angle through 360 degrees simply by loosening its adjustment bolts (8 positions).



■ Cutting edge direction indexable

in 90° increments

Indexing can be done in 90° increments after the cutting edge is adjusted. (Remove the support pin to adjust the cutting edge direction in 90° increments)



⚠ Caution: Be sure to remove from the machine before setting in 90° increments.

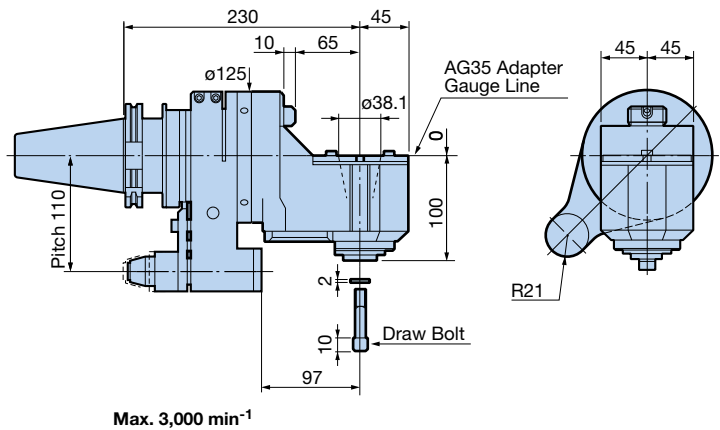
Offset design provides optimum tool projection with each adapter.

BUILD-UP Type

● Standard type

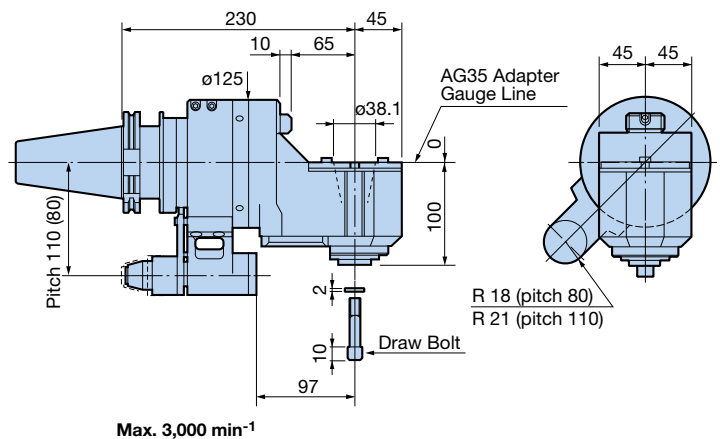


Spindle angle
90°



● High rigidity S type

· About 30% higher rigidity compared to standard type



BIG-PLUS (BDV Shank) tools can be used on both BIG-PLUS spindles and conventional DV spindles.

Type	BIG-PLUS BDV SHANK Model	Weight (kg)	
Standard type	BDV50-AG90/AGH35-230	15.0 (pitch 110)	
High rigidity S type	-230S	16.3 (pitch 110)	15.6 (pitch 80)



For Stop Blocks, **G31**

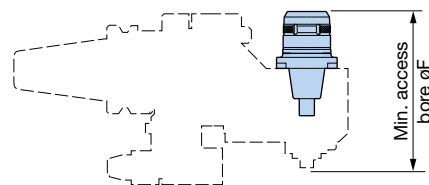
1. The cutting tool rotates in forward to the machine spindle.
2. The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
3. A Stop Block is required when mounting on machines. Please order separately.
4. When supplied through the Stop Block, coolant can be ejected from the housing.
5. Automatic tool change may not be available depending on machine tool models.

BUILD-UP Type AG35 ADAPTER

- Abundant adapters support various machining applications.

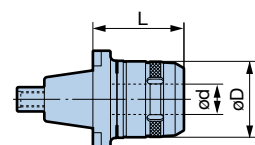
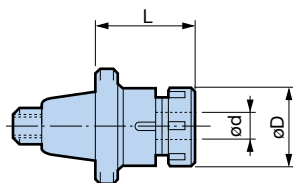
Spindle angle
90°

- Min. access bore when mounted on the Angle Head



- Tap Collet with tension mechanism can also be used to perform tapping.

NEW BABY CHUCK PAT.



Model	ød	øD	L	øF	Weight (kg)
AG35-NBS10	1.5 - 10	30	47	162	0.6
-NBS13	2.5 - 13	35	54	168	0.7
-NBS16	2.5 - 16	42	54	170	0.8
-NBS20	2.5 - 20	46	54	170	0.9

- Collet and wrench must be ordered separately. (See wrench G27)

For Collets, **G4**

For Tap Collets, **G28**

NEW Hi- POWER MILLING CHUCK

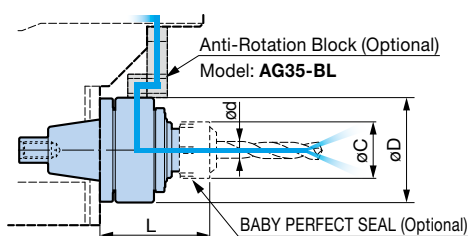
Model	ød	øD	L	øF	Weight (kg)
AG35-HMC20S	20	50	60	178	1.5

- Wrench included. (Model: FK45-50L)

For Straight Collets, **G20**

Hi-JET HOLDER

Through
Tools



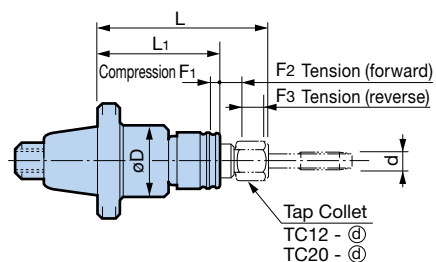
Model	ød	øC	øD	L	øF	Weight (kg)
AG35-ONBS13N	3 - 13	35	65	68	186	1.1
-ONBS20N	3 - 20	46	65	68	188	1.2

- Baby Perfect Seal nut with sealing mechanism is required. (optional accessory)
- Collet and wrench must be ordered separately.
- Anti-rotation block set must be ordered separately. (Model: AG35-BL)
- Max. coolant pressure is 2MPa.

For Baby Perfect Seal, **G24**

For Collets, **G4**

AUTO TAPPER B (with Tap Depth Control)

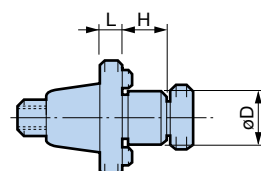


Model	d	øD	L	L ₁	F ₁	F ₂	F ₃	Weight (kg)
AG35-ATB12	M3 - M12	40	95	65	0.5	5	4	0.8
-ATB20	M7 - M20	54	125	100		6.5	5	1.5

- Tap Collet must be ordered separately.

For TC Tap Collets, **A139**

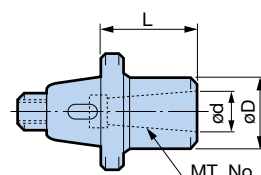
FACE MILL ARBOR



Model	øD	L	H	Weight (kg)
AG35-FMA25.4-20	25.4	20	22	1.0
-30	25.4	30	22	1.0
AG35-FMH22 -30	22	30	18	1.0
-FMH27 -20	27	20	20	1.0

※ Cutter face protrudes by 7.5mm from the 125mm diameter housing with the following combinations; AG35-FMA25.4-20 + 50mm thick tool, AG35-FMA25.4-30/AG35-FMH22-30 + 40mm thick tool and AG35-FMH27-20 + 50mm thick tool.

MORSE TAPER ADAPTER



Model	ød	MT.No.	øD	L	øF	Weight (kg)
AG35-MT1	12.065	1	24	50	164	0.6
-MT2	17.78	2	32	60	180	0.7

The cutting edge angle can be freely adjusted, making it ideal for machining the corners of molds in deep areas.

- The original 1° indexing mechanism allows easy angle adjustment.
- Robust clamping mechanism allows secure endmilling.

DUAL CONTACT



BIG-PLUS®

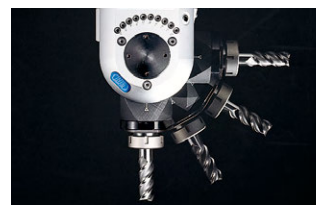
Spindle angle
0° - 90°

Universal Type Clamping diameter: $\varnothing 2.5 - \varnothing 20$



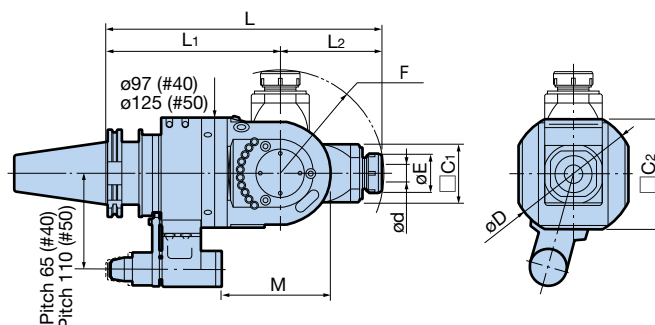
Indexing mechanism in 1° increments

Accurate angle adjustment is possible simply by tightening the angle setting pin.



The spindle angle can be adjusted in the range of 0° to 90°

The 1° angle indexing mechanism allows the angle to be easily set. (Indexing accuracy $\pm 5'$)

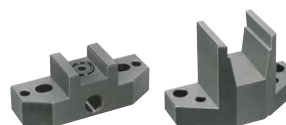


BIG-PLUS (BDV Shank) tools can be used on both BIG-PLUS spindles and conventional DV spindles.

BIG-PLUS BDV SHANK Model	Clamping diameter $\varnothing d$	$\varnothing E$	$\varnothing D$	$\square C_1$	$\square C_2$	L	L ₁	L ₂	M	F	Collet Model	Max. (min ⁻¹)	Weight (kg)
BDV40-AGU/NBS13-280	2.5 - 13	35	115	51	97	280	180	100	124	102	NBC13	6,000	9.7
BDV50-AGU/NBS20-315	2.5 - 20	46	140	65	125	315	200	115	125	118	NBC20	4,000	20.8

1. The cutting tool rotates in reverse to the machine spindle.
2. Nut and wrench are included. Collet is not included.
3. The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
4. A Stop Block is required when mounting on machines. Please order separately.
5. Automatic tool change may not be available depending on machine tool models.

● Tap Collet with tension mechanism can also be used to perform tapping.



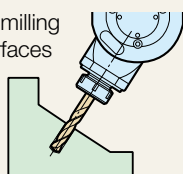
For Collets, **G4**

For Tap Collets, **G28**

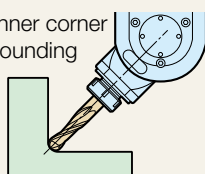
For Stop Blocks, **G31**

Machining examples Easy angle setup

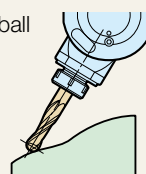
- Drilling or endmilling on angled surfaces



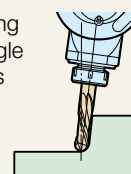
- Inner corner rounding



- Profiling with ball endmill



- Machining draft angle of molds



High runout accuracy is achieved through the adoption of the high-precision New Baby Chuck.

Spindle angle
90°

NEW BABY CHUCK Type PAT. Clamping diameter: $\phi 0.25 - \phi 20$

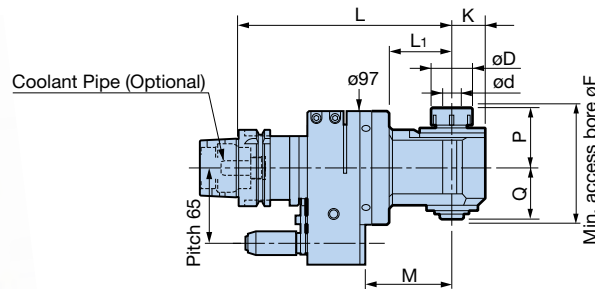


Fig. 1 Max. 6,000min⁻¹

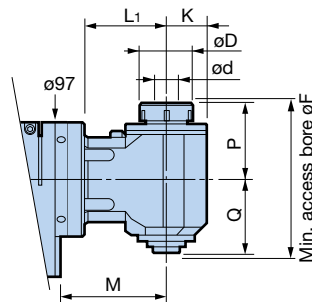


Fig. 2 Max. 3,000min⁻¹

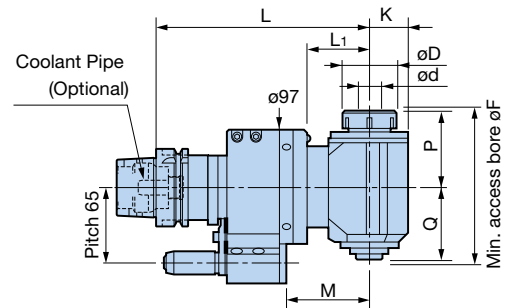


Fig. 3 Rigid Type
Max. 3,000min⁻¹













● Model Description


HSK-A63 - **AG90** / **NBS** **6** - **185**

- L dimension
- Maximum clamping diameter
- NEW BABY CHUCK System
- 90° Head Type
- HSK Shank Type

A Type (DIN 69893-1) (ISO 12164)

- High rigidity S type with reinforced Locating Pin also available. Add the letter S at the end when ordering.
- Tap Collet with tension mechanism can also be used to perform tapping. (NBS10 or larger)

Model	Fig.	ød	øD	G	K	L	L ₁	M	P	Q	øF	Collet Model	Speed Ratio Input:output	Weight (kg)	
														Standard	High Rigidity
HSK-A63-AG90/NBS 6 -185 	1	0.25 - 6	20	21	17	185	55	77	33	29	67	NBC 6	1:1	5.0	5.9
-215 						215	85	107						5.2	6.1
-245 						245	115	137						5.4	6.3
-275 						275	145	167						5.6	6.5
-AG90/NBS10 -185 	1	1.5 - 10	30	30	25	185	55	77	45	43	91	NBC10		5.4	6.3
-215 						215	85	107						5.8	6.7
-245 						245	115	137						6.1	7.0
-AG90/NBS13 -185 						185	55	77						5.5	6.4
-215 	1	2.5 - 13	35	31	28	215	85	107	52	45	101	NBC13		5.9	6.8
-245 						245	115	137						6.2	7.1
-AG90/NBS20 -200 						200	70	92						65	62
-AG90/NBS20S -180 S 	3	2.5 - 20	46	35	33	180	53	72	65	62	132	NBC20		—	7.9

1. The cutting tool rotates in reverse to the machine spindle.
2. Nut and wrench are included. Collet is not included.
3. The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
4. A Stop Block is required when mounting on machines. Please order separately.
5. When supplied through the Stop Block, coolant can be ejected from the housing.
6. Automatic tool change may not be available depending on machine tool models.
7. New Baby Endmill Collets cannot be used.
8. Coolant pipe is not included. (Cannot be used with center through) 



 For Collets, **G4**

 For Tap Collets, **G28**

 For Stop Blocks, **G31**

High runout accuracy is achieved through the adoption of the high-precision New Baby Chuck.

Spindle angle
90°

NEW BABY CHUCK Type PAT. Clamping diameter: $\phi 0.25 - \phi 20$

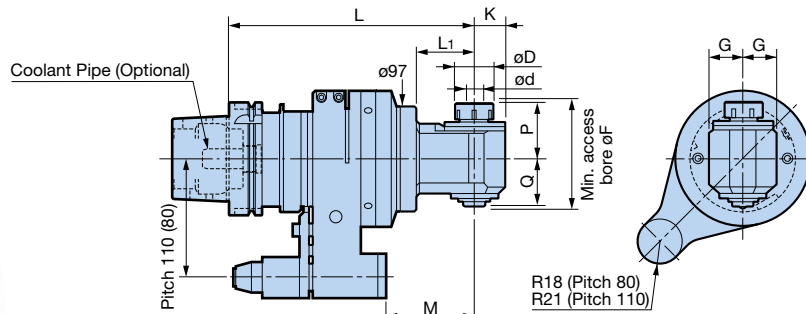


Fig. 1 Max. 6,000min⁻¹

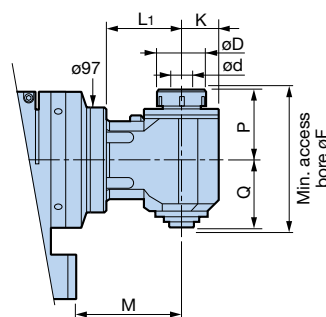


Fig. 2 Max. 3,000min⁻¹

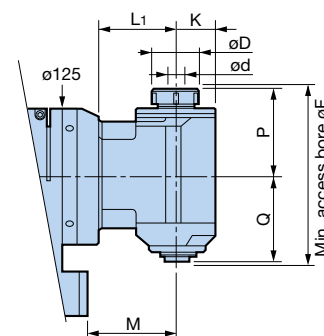


Fig. 3 Double-speed type
Max. 8,000min⁻¹

A Type (DIN 69893-1) (ISO 12164)

- High rigidity S type with reinforced Locating Pin also available. Add the letter S at the end when ordering.
- Tap Collet with tension mechanism can also be used to perform tapping. (NBS10 or larger)

Model	Fig.	ød	øD	G	K	L	L ₁	M	P	Q	øF	Collet Model	Speed Ratio Input:output	Weight (kg)		
														Standard (pitch 110)	High Rigidity (pitch 110)	High Rigidity (pitch 80)
HSK-A100-AG90/NBS6-225	1	0.25 - 6	20	21	17	225	55	82	33	29	67	NBC 6	1:1	11.8	13.1	12.4
-255						255	85	112						12.0	13.3	12.6
-285						285	115	142						12.2	13.5	12.8
-315						315	145	172						12.4	13.7	13.0
-AG90/NBS10 -225	1	1.5 - 10	30	30	25	225	55	82	45	43	91	NBC10		12.2	13.5	12.8
-255						255	85	112						12.6	13.9	13.2
-285						285	115	142						12.9	14.2	13.5
-AG90/NBS13 -225	1	2.5 - 13	35	31	28	225	55	82	52	45	101	NBC13		12.3	13.6	12.9
-255						255	85	112						12.7	14.0	13.3
-285						285	115	142						13.0	14.3	13.6
-AG90/NBS20 -240	2	2.5 - 20	46	35	35	240	70	97	65	62	132	NBC20		13.4	14.7	14.0
-AG90/NBS16H-225	3	2.5 - 16	42	45	35	225	71	82	80	80	163	NBC16	1:2 (acceleration)	13.8	15.1	14.4

1. The cutting tool rotates in reverse to the machine spindle.
2. Nut and wrench are included. Collet is not included.
3. The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
4. A Stop Block is required when mounting on machines. Please order separately.
5. When supplied through the Stop Block, coolant can be ejected from the housing.
6. Automatic tool change may not be available depending on machine tool models.
7. New Baby Endmill Collets cannot be used.
8. Coolant pipe is not included. (Cannot be used with center through) C65



For Collets, **G4**

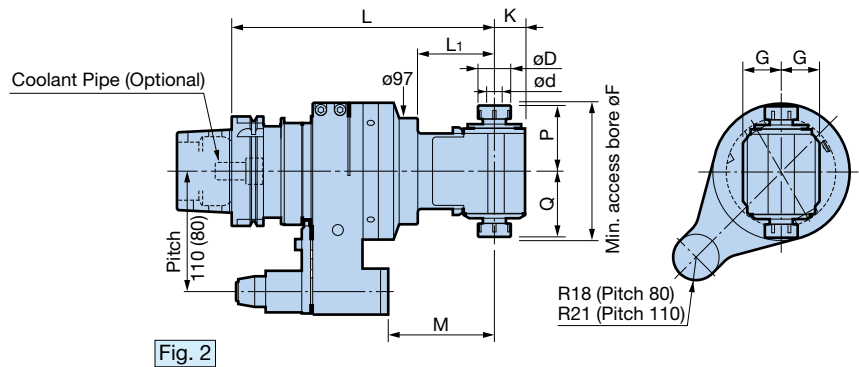
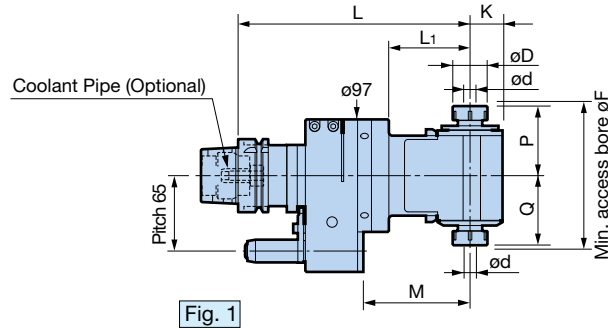
For Tap Collets, **G28**

For Stop Blocks, **G31**

● TWIN HEAD (180° diagonal) PAT. Clamping diameter: $\phi 1.5 - \phi 10$

Spindle angle
90°


- Twin spindle head with a compact design.
Symmetrical machining can be performed using one unit,
contributing to the reduction of the number of magazines.



- High rigidity S type with reinforced Locating Pin also available. Add the letter S at the end when ordering.
- Tap Collet with tension mechanism can also be used to perform tapping.

A Type (DIN 69893-1) (ISO 12164)

Model	Fig.	ϕd	ϕD	G	K	L	L ₁	M	P	Q	ϕF	Collet Model	Speed ratio Input:output	Weight (kg)	
														Standard Type	High Rigidity Type
HSK-A 63-AG90/NBS10W-200	1	1.5 - 10	30	31	28	200	70	92	60	60	124	NBC10	1.1	6.2 (pitch 65)	7.1 (pitch 65)
HSK-A100-AG90/NBS10W-240	2	1.5 - 10	30	31	28	240	70	97	60	60	124	NBC10		13.0	14.3 (pitch 110) 13.6 (pitch 80)

1. The cutting tool rotates in reverse to the machine spindle.
2. Nut and wrench are included. Collet is not included.
3. Output spindles do not rotate in forward direction simultaneously.
4. The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
5. New Baby Endmill Collets cannot be used.
6. A Stop Block is required when mounting on machines. Please order separately.
7. Automatic tool change may not be available depending on machine tool models.
8. When supplied through the Stop Block, coolant can be ejected from the housing.
9. Coolant pipe is not included. (Cannot be used with center through) 



-  For Collets, **G4**
-  For Tap Collets, **G28**
-  For Stop Blocks, **G31**

Compact type PAT. Clamping diameter: $\phi 2.5 - \phi 13$

Spindle angle
90°

For drilling/tapping

**Lightweight
&
Compact**

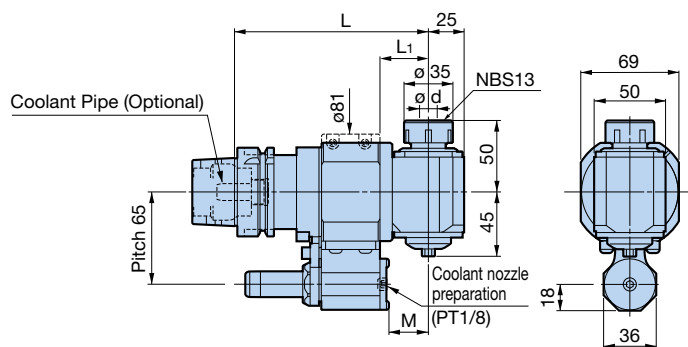


Fig. 1 Max. 5,000min⁻¹

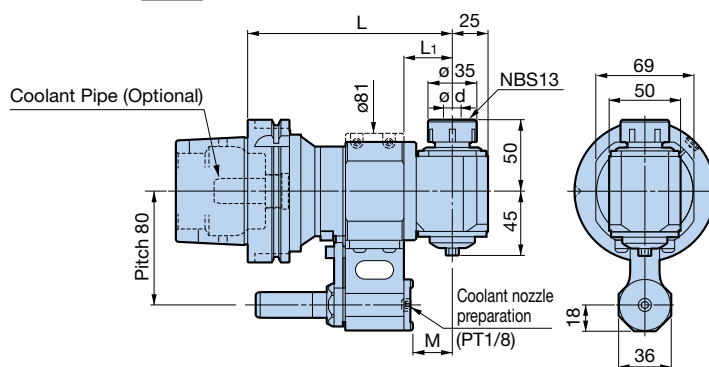


Fig. 2 Max. 5,000min⁻¹

● Model Description


HSK-A63 - AG90 - 13 - 135

- L dimension
- Maximum clamping diameter
- 90° Head Type
- HSK Shank Type


A Type (DIN 69893-1) (ISO 12164)

● Tap Collet with tension mechanism can also be used to perform tapping.

Model	Fig.	ϕd	L	L ₁	M	Collet Model	Speed ratio Input:output	Weight (kg)
HSK-A 63-AG90-13-135	1	2.5 - 13	135	34	27.85	NBC13	1:1	4.4
-185			185	84	77.85			5.4
HSK-A100-AG90-13-145	2	2.5 - 13	145	34	27.85	NBC13	1:1	6.8
-195			195	84	77.85			7.8

1. The cutting tool rotates in reverse to the machine spindle.
2. Nut and wrench are included. Collet is not included.
3. The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
4. A Stop Block is required when mounting on machines. Please order separately.
5. Consult with the machine tool manufacturer for the dimensions of the Stop Block, as they vary depending on machine models.
6. A tapped hole (PT1/8) is prepared at the bottom cover of the Locating Pin housing so that a pipe for coolant can be connected.
7. Automatic tool change may not be available depending on machine tool models.
8. New Baby Endmill Collets cannot be used.
9. Coolant pipe is not included. (Cannot be used with center through) 



 For Collets, **G4**

 For Tap Collets, **G28**

 For Stop Blocks, **G31**

Application example



Compact yet with high rigidity and runout accuracy, allowing stable machining.

	Drilling	Tapping
Tools used	$\phi 12$ carbide drill	M5 Tap
Workpiece material	S50C	A2017
Cutting speed	70m/min	7.5m/min
Feed	372mm/min 0.2mm/rev	384mm/min
Spindle speed	1,860min ⁻¹	450min ⁻¹

Oil Hole Type PAT. Clamping diameter: $\phi 2.5 - \phi 13$

- Feeds coolant through the cutting tool via Stop Block.

Spindle angle
90°



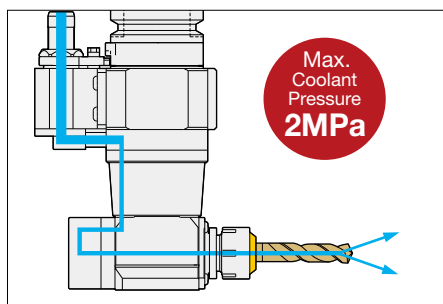
Coolant through
tool

For drilling

● Model Description

HSK-A63 - O AG90 - 13 - 185

- L dimension
- Maximum clamping diameter
- 90° Head Type
- Oil Hole
- HSK Shank Type



Feeds oil from the cutting edge via Stop Block

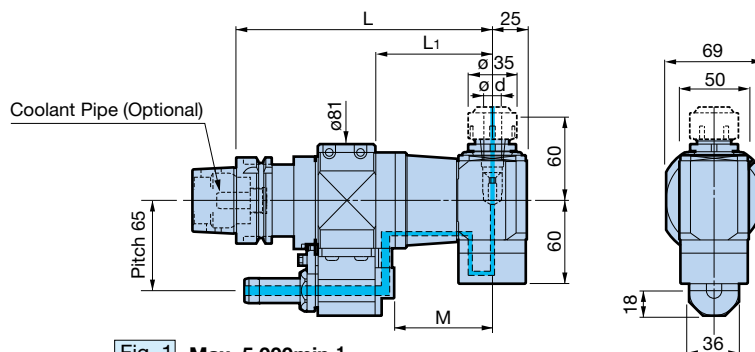


Fig. 1 Max. 5,000min⁻¹

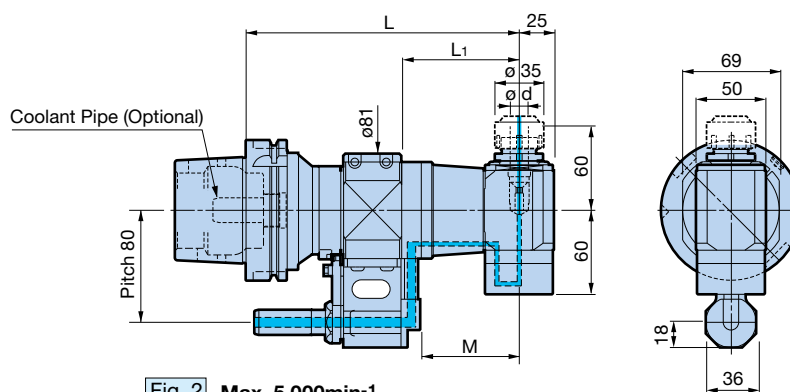


Fig. 2 Max. 5,000min⁻¹

A Type (DIN 69893-1) (ISO 12164)

Model	Fig.	ϕd	L	L ₁	M	Collet Model	Speed ratio Input:output	Weight (kg)
HSK-A 63-OAG90-13-185	1	2.5 - 13	185	84	70.5	NBC13	1:1	5.9
HSK-A100-OAG90-13-195	2		195					8.4

- The cutting tool rotates in reverse to the machine spindle.
- For use with an oil hole drill only. Never run without supplying coolant through the unit.
- Baby Perfect Seal nut with sealing mechanism is required. Please order separately.
- Collet is ordered separately.
- Wrench and Adjusting Screw are included.
- The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
- A Stop Block is required when mounting on machines. Please order separately.
- Automatic tool change may not be available depending on machine tool models.
- Coolant pipe is not included. (Cannot be used with center through) C65

For Collets, **G4**

For Perfect Seal, **G24**

For Stop Blocks, **G31**



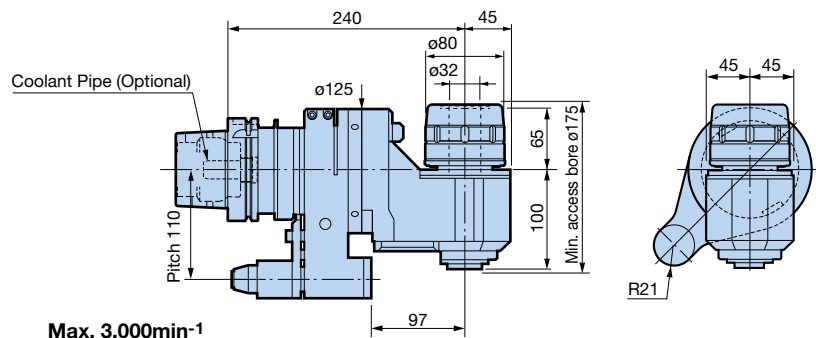
Highly versatile ø32 milling chuck is used.
Straight Collets allow the use of tools with various diameters.

Spindle angle
90°

HMC32 Type


- Standard type

- High-rigidity milling chuck type that allows the most commonly used cylindrical shanks to be mounted.



Max. 3,000min⁻¹

Model	Weight (kg)
HSK-A100-AG90/HMC32-240	16.0

1. **The cutting tool rotates in forward to the machine spindle.**
2. The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
3. A Stop Block is required when mounting on machines. Please order separately.
4. Automatic tool change may not be available depending on machine tool models.
5. When supplied through the Stop Block, coolant can be ejected from the housing.
6. Coolant pipe is not included.
(Cannot be used with center through coolant/air)  **C65**
7. Wrench is included. (Model: **FK80-90**)

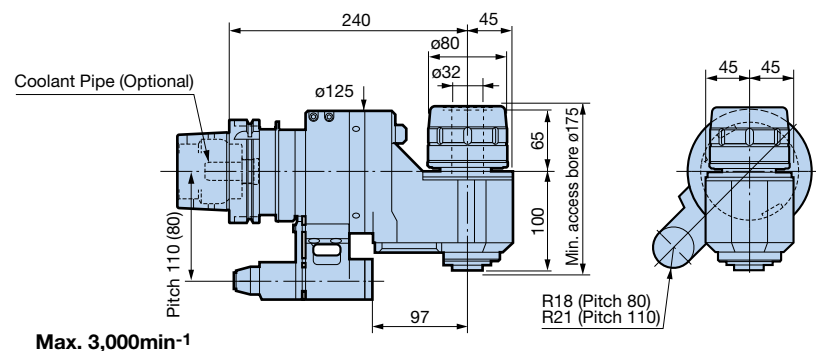


 For Straight Collets, **G20**


 For Stop Blocks, **G31**

- High rigidity S type

- About 30% higher rigidity compared to standard type

Max. 3,000min⁻¹

Model	Weight (kg)	
	Pitch 110	Pitch 80
HSK-A100-AG90/HMC32-240S	17.3	16.6

1. **The cutting tool rotates in forward to the machine spindle.**
2. The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
3. A Stop Block is required when mounting on machines. Please order separately.
4. Automatic tool change may not be available depending on machine tool models.
5. When supplied through the Stop Block, coolant can be ejected from the housing.
6. Coolant pipe is not included.
(Cannot be used with center through coolant/air)  **C65**
7. Wrench is included. (Model: **FK80-90**)



 For Straight Collets, **G20**

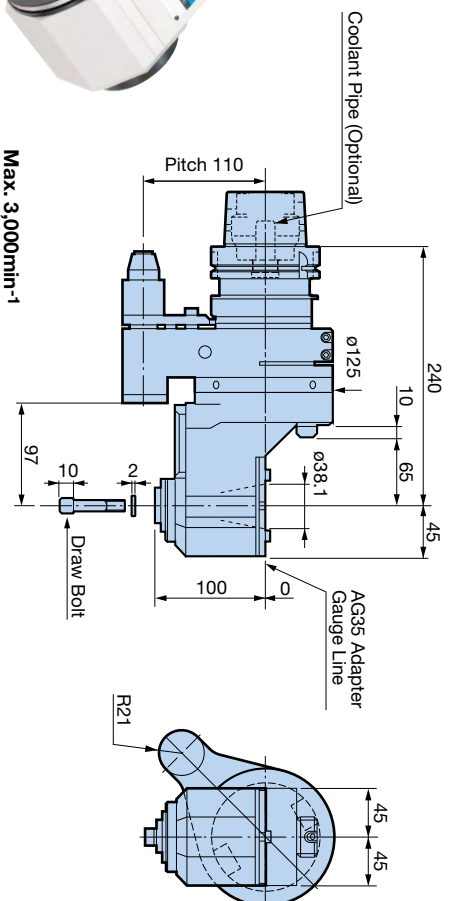
 For Stop Blocks, **G31**

Offset design provides optimum tool projection with each adapter.

Spindle angle
90°

BUILD-UP Type

● Standard type



Max. 3,000min⁻¹

Model	Weight (kg)
HSK-A100-AG90/AGH35-240	14.2

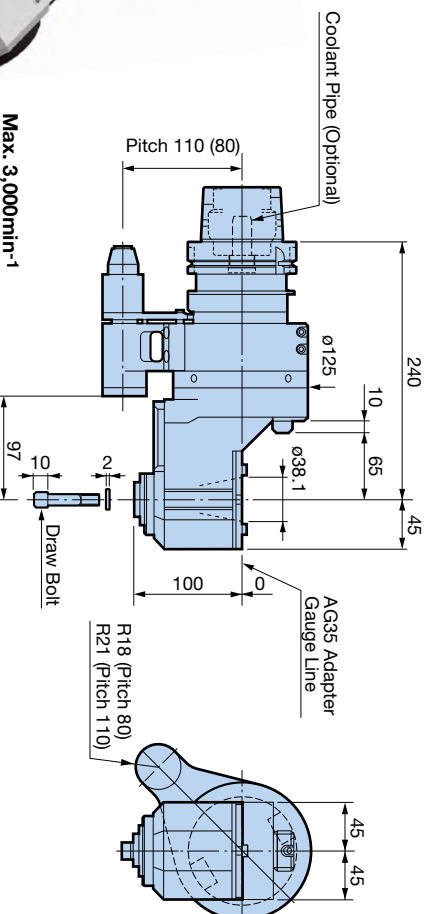
1. The cutting tool rotates in forward to the machine spindle.
2. The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
3. A Stop Block is required when mounting on machines. Please order separately.
4. Automatic tool change may not be available depending on machine tool models.
5. When supplied through the Stop Block, coolant can be ejected from the housing.
6. Coolant pipe is not included.
7. Wrench is included. (Model: FK80-90)



For the AG35 adapter series, **A156**
For Stop Blocks, **G31**

● High rigidity S type

· About 30% higher rigidity compared to standard type



Max. 3,000min⁻¹

Model	Weight (kg)	
HSK-A100-AG90/AGH35-240S	Pitch 110	Pitch 80
	15.5	14.8

1. The cutting tool rotates in forward to the machine spindle.
2. The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
3. A Stop Block is required when mounting on machines. Please order separately.
4. Automatic tool change may not be available depending on machine tool models.
5. When supplied through the Stop Block, coolant can be ejected from the housing.
6. Coolant pipe is not included.
7. Wrench is included. (Model: FK80-90)



For the AG35 adapter series, **A156**
For Stop Blocks, **G31**

Face Milling Type

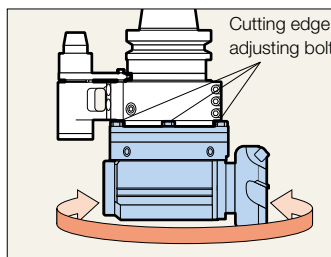
Spindle angle
90°

- Tool life is improved by high-rigidity bearings and optimum spindle dimensions!
- Series' highest rotation transmission force of 20kw (at 1,500min⁻¹)
- 90° indexing mechanism is used to allow index of 90° increments after adjustment. (Indexing accuracy ±5')



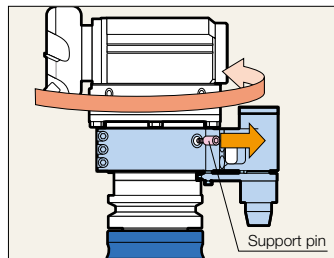
■ Cutting edge direction freely adjustable in 360°

The cutting edge direction can be easily set at any angle through 360 degrees simply by loosening its adjustment bolts (8 positions).

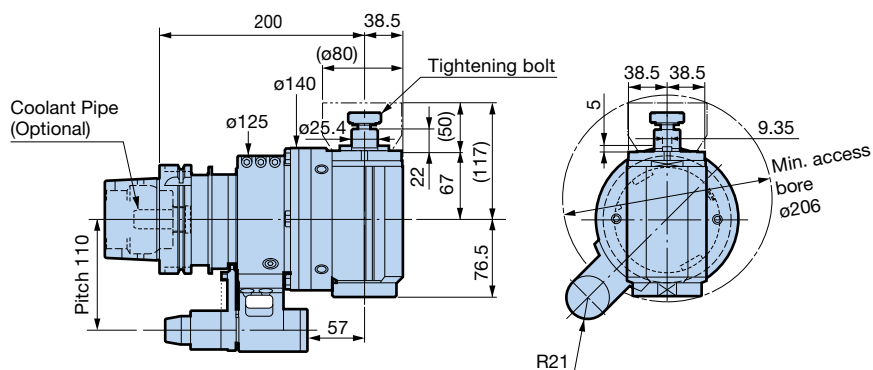


■ Cutting edge direction indexable in 90° increments

Indexing can be done in 90° increments after the cutting edge is adjusted. (Remove the support pin to adjust the cutting edge direction in 90° increments)



▲ Note: Be sure to remove from the machine before setting in 90° increments.



Max. 1,500min⁻¹

Model	Weight (kg)
HSK-A100-AG90-FMA25.4S-200S	18.4

Figures in () indicate dimensions when 80mm diameter and 50mm high face mill cutter is mounted.

1. The cutting tool rotates in reverse to the machine spindle.
2. Coolant cannot be supplied through the Locating Pin.
3. The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
4. A Stop Block is required when mounting on machines. Please order separately.
5. Automatic tool change may not be available depending on machine tool models.
6. Coolant pipe is not included. (Cannot be used with center through) C65



For Stop Blocks, **G31**

Tapper Type

- Tapping depth is adjusted with automatic depth control.

Spindle angle
90°

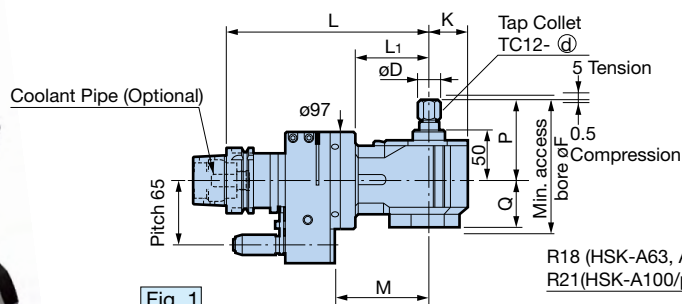


Fig. 1
Max. 2,000min⁻¹

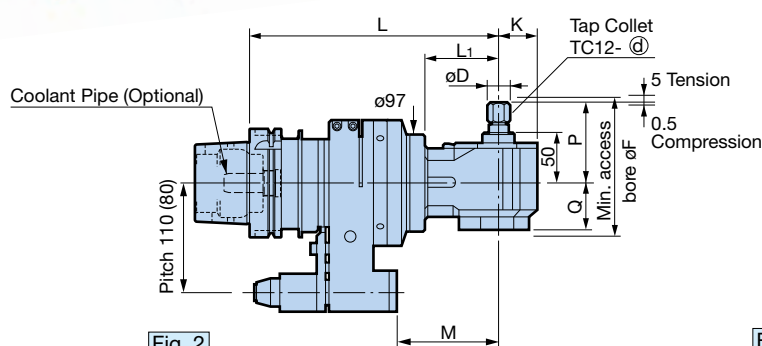
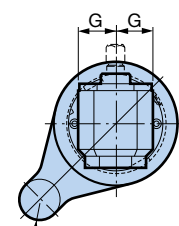


Fig. 2
Max. 2,000min⁻¹

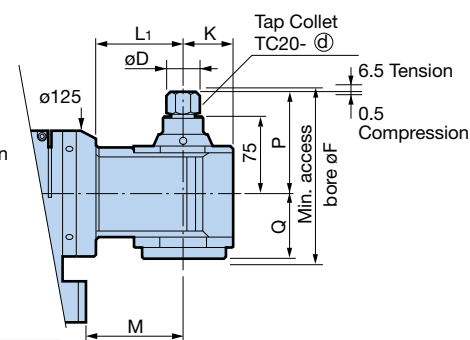


Fig. 3
Max. 1,000min⁻¹

● Model Description

HSK-A63 - **AG90** / **TC12** - **200**

● HSK Shank Type ● 90° Head Type ● Tapping range ● L dimension

A Type (DIN 69893-1) (ISO 12164)

- High rigidity S type with reinforced Locating Pin is also available. Add the letter S at the end when ordering.

Model	Fig.	d	øD	G	K	L	L ₁	M	P	Q	øF	Collet Model	Speed ratio Input:output	Weight (kg)		
														Standard (pitch)	High Rigidity (pitch)	High Rigidity (pitch 80)
HSK-A 63-AG90/TC12-200	1	M3 - M12	22	38	39	200	70	92	80	46	135	TC12-Ⓢ	2:1 (Deceleration)	6.9 (65)	7.8 (65)	—
HSK-A100-AG90/TC12-240	2	M3 - M12	22	38	39	240	70	97	80	46	135	TC12-Ⓢ		13.7 (110)	15.0 (110)	14.3
-AG90/TC20-240	3	M7 - M20	22/31	49	49		86		100	66.5	178	TC20-Ⓢ		15.5 (110)	16.8 (110)	16.1

1. The cutting tool rotates in reverse to the machine spindle.
2. TC Tap Collet is not included. Please order separately.
3. The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
4. Note that tap rotation is reduced to half the speed of the machine spindle.

5. A Stop Block is required when mounting on machines. Please order separately.
6. When supplied through the Stop Block, coolant can be ejected from the housing.
7. Automatic tool change may not be available depending on machine tool models.
8. Coolant pipe is not included. (Cannot be used with center through) **C65**



For TC Tap Collets, **A139**

For Stop Blocks, **G31**

45° exclusive fixing housing brings about secure diagonal machining.

- Highly versatile NEW BABY CHUCK enables high-accuracy machining.

Spindle angle
45°

NEW BABY CHUCK Type PAT. Clamping diameter: $\phi 1.5 - \phi 13$



● Model Description

HSK-A63 - AG45 / NBS10 - 230

- HSK Shank Type
- 45° Head Type
- NEW BABY CHUCK System
- Maximum clamping diameter
- L dimension

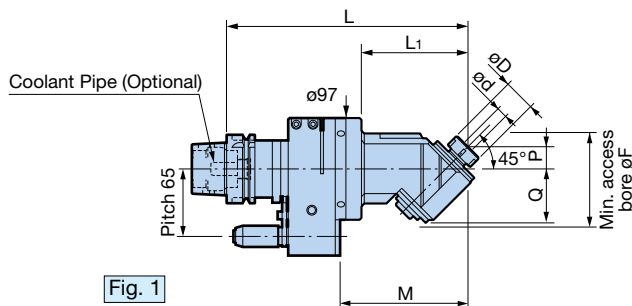


Fig. 1
Max. 6,000min⁻¹

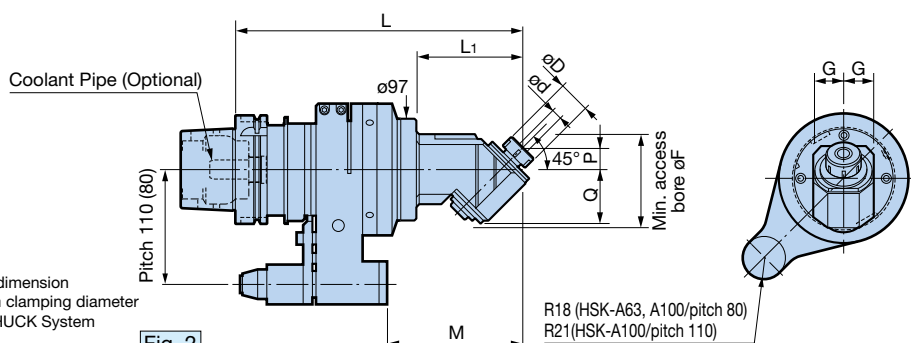



Fig. 2
Max. 6,000min⁻¹

- High rigidity S type with reinforced Locating Pin also available. Add the letter S at the end when ordering.
- Tap Collet with tension mechanism can also be used to perform tapping.

A Type (DIN 69893-1) (ISO 12164)

Model	Fig.	ød	øD	G	L	L ₁	M	P	Q	øF	Collet Model	Speed ratio Input:output	Weight (kg)		
													Standard Type (pitch)	High Rigidity Type (pitch)	High Rigidity Type (pitch 80)
HSK-A 63-AG45/NBS10-230	1	1.5 - 10	30	30	230	100	122	20	51.5	90	NBC10	1:1	5.6 (65)	6.5 (65)	—
-AG45/NBS13-235		2.5 - 13	35		235	105	127	25			NBC13		5.7 (65)	6.6 (65)	—
HSK-A100-AG45/NBS10-270	2	1.5 - 10	30	30	270	100	127	20	51.5	90	NBC10	1:1	12.4 (110)	13.7 (110)	13.0
-AG45/NBS13-275		2.5 - 13	35		275	105	132	25			NBC13		12.5 (110)	13.8 (110)	13.1

- The cutting tool rotates in reverse to the machine spindle.
- Nut and wrench are included. Collet is not included.
- The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
- A Stop Block is required when mounting on machines. Please order separately.
- When supplied through the Stop Block, coolant can be ejected from the housing.
- Automatic tool change may not be available depending on machine tool models.
- New Baby Endmill Collets cannot be used.
- Coolant pipe is not included. (Cannot be used with center through) 



 For Collets, **G4**

 For Tap Collets, **G28**

 For Stop Blocks, **G31**

The cutting edge angle can be freely adjusted, making it ideal for machining the corners of molds in deep areas.

- The original 1° indexing mechanism allows easy angle adjustment.
- Robust clamping mechanism allows secure endmilling.

Spindle angle
0° - 90°

Universal Type PAT. Clamping diameter: $\varnothing 2.5 - \varnothing 20$



Model Description

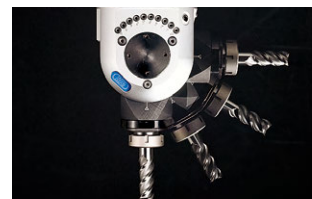
HSK-A63 - AGU / NBS13 - 285

- L dimension
- Maximum clamping diameter
- NEW BABY CHUCK System
- Universal type
- HSK Shank Type



Indexing mechanism in 1° increments

Accurate angle adjustment is possible simply by tightening the angle setting pin.



The spindle angle can be adjusted in the range of 0° to 90°

The 1° angle indexing mechanism allows the angle to be easily set. (Indexing accuracy $\pm 5'$)

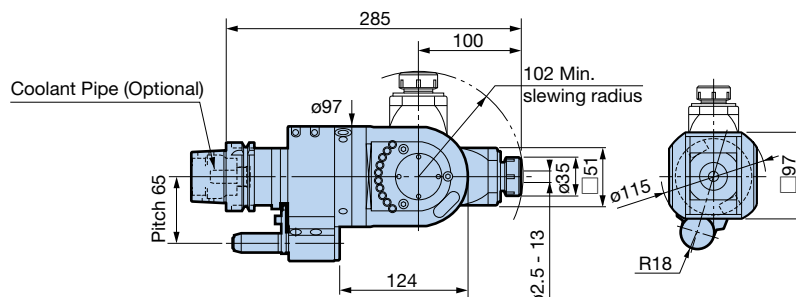


Fig. 1 Max. 6,000min⁻¹

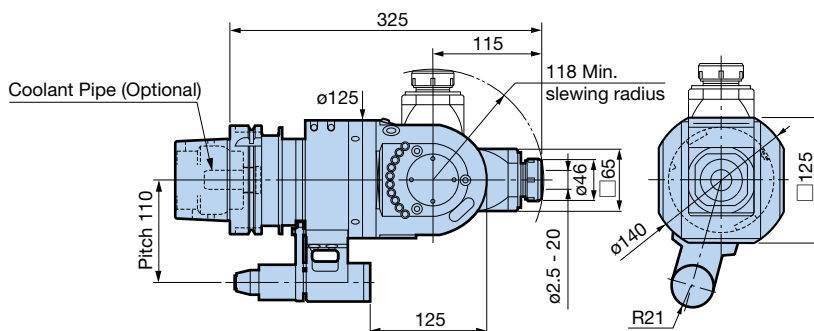


Fig. 2 Max. 4,000min⁻¹

A Type (DIN 69893-1) (ISO 12164)

Model	Fig.	Collet Model	Speed ratio Input:output	Weight (kg)
HSK-A 63-AGU/NBS13-285	1	NBS13	1:1	9.6
HSK-A100-AGU/NBS20-325	2	NBS20	1:1	20.0

1. The cutting tool rotates in reverse to the machine spindle.
2. Nut and wrench are included. Collet is not included.
3. The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
4. A Stop Block is required when mounting on machines. Please order separately.
5. Automatic tool change may not be available depending on machine tool models.
6. Coolant pipe is not included. (Cannot be used with center through) C65

● Tap Collet with tension mechanism can also be used to perform tapping.

For Collets, **G4**

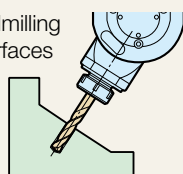
For Tap Collets, **G28**

For Stop Blocks, **G31**

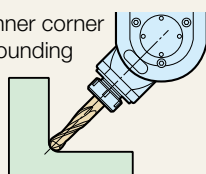


Machining examples Easy angle setup

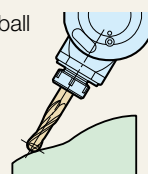
- Drilling or endmilling on angled surfaces



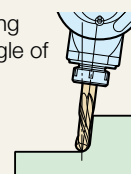
- Inner corner rounding



- Profiling with ball endmill



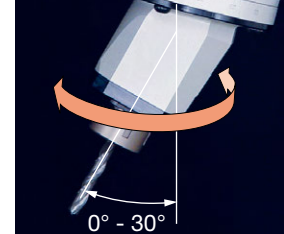
- Machining draft angle of molds



AGU30 Type PAT. Clamping diameter: $\varnothing 2.5 - \varnothing 20$

- Spindle angle adjustable 0°- 30°.
- Rigidity is improved by the flange coupling in the swivel!
- The new drive system achieves high transmission torque, low vibration and low noise.

Spindle angle
0° - 30°



Angle adjustment by scale alignment

The angle spindle can be easily adjusted between 0° and 30° just by aligning to the scale provided on the swivel.

- Model Description

HSK-A63 - AGU30 / NBS 13 - 255

-
- | Parameter | HSK Shank Type | AGU30 Type | NEW BABY CHUCK System | Maximum clamping diameter | L dimension |
|---------------------------|----------------|------------|-----------------------|---------------------------|-------------|
| L dimension | Low | Medium | High | Very High | Very High |
| Maximum clamping diameter | Low | High | Medium | Very High | Very High |
| NEW BABY CHUCK System | Low | Medium | High | Very High | Very High |
| AGU30 Type | Low | High | Medium | Very High | Very High |
| HSK Shank Type | Low | Medium | High | Very High | Very High |

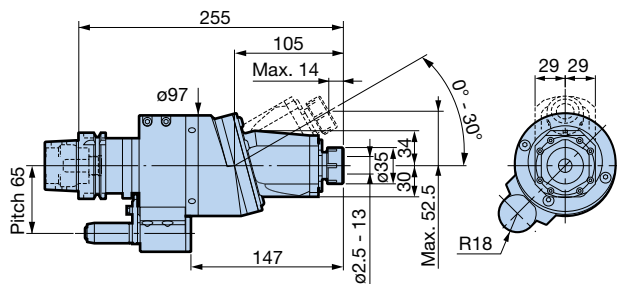


Fig. 1 Max. 6,000min⁻¹

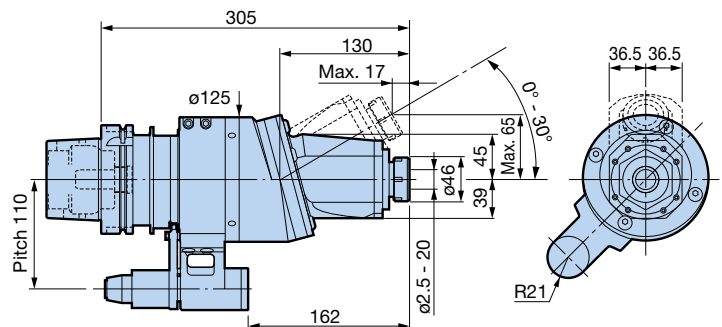



Fig. 2 Max. 4,000min⁻¹


A Type (DIN 69893-1) (ISO 12164)

Model	Fig.	Collet Model	Speed ratio Input:output	Weight (kg)
HSK-A 63-AGU30/NBS13-255	1	NBC13	1:1	6.8
HSK-A100-AGU30/NBS20-305	2	NBC20	1:1	15.3

- Tap Collet with tension mechanism can also be used to perform tapping.

1. **The cutting tool rotates in forward to the machine spindle.**
2. Nut and wrench are included. Collet is not included.
3. The angles of the Locating Pin to the drive key groove and direction of cutting edge are freely adjustable.
4. A Stop Block is required when mounting on machines. Please order separately.
5. Automatic tool change may not be available depending on machine tool models.
6. When supplied through the Stop Block, coolant can be ejected from the housing.
7. Coolant pipe is not included. (Cannot be used with center through)  **C65**

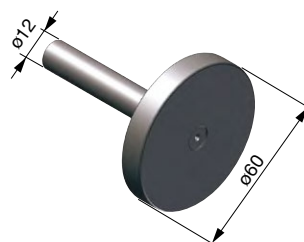


 For Collets, **G4**

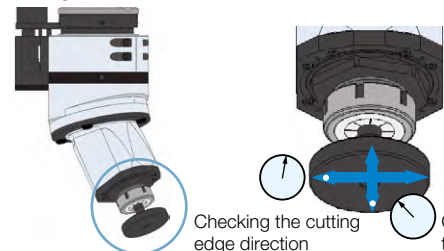
For Tap Collets, G28

For Stop Blocks, **G31**

- **SETTING DISK** (Standard accessory)
Use when accurate angle setting or fine adjustment of the cutting edge direction is required.



The angle and cutting edge direction can be adjusted using the setting disk.



Small bore type

- Achieves angular drilling in the min. $\phi 30$ bore. (minimum diameter for CA6SGM is $\phi 40$)
- Prevents interference through flexible combination of base units and heads.
- The head is positioned at the center of the spindle, enabling easy programming.

