

Max.
120,000
min⁻¹

BBT
SHANK A169

BDV
SHANK B24

HSK
SHANK C49

For small diameter
drilling/endmilling

RBX

Ceramic ball
bearing type

Max. spindle speed 120,000min⁻¹



● High-speed micro-machining can be performed on a normal machining center, eliminating the need of an expensive high-speed machine!

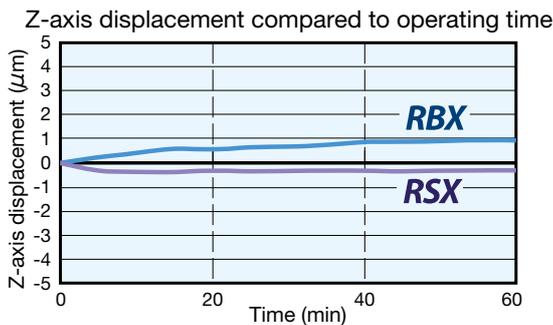
A Stop Block is required depending on the type.



Extended tool life with minimal thermal displacement

High speed rotation of the machine spindle generates heat, causing spindle expansion and Z-axial displacement. This displacement results in dimension defects of precision molds or tool breakage in micro machining.

The Air Turbine Spindle utilizes air for both driving and cooling the spindle simultaneously, thus the Z-axis displacement is eliminated.



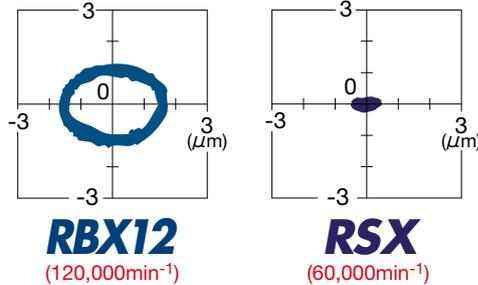
Outstanding dynamic runout accuracy

Most problems associated with micro-machining are caused by poor dynamic runout of a machine spindle.

We have established a runout measuring system that can detect spindle movement during rotation at high speed and achieved the best dynamic runout accuracy.

<Measuring Example>

Plotted position of test bar (16 mm) at max. spindle speed



Improved machining accuracy

Improved tool life

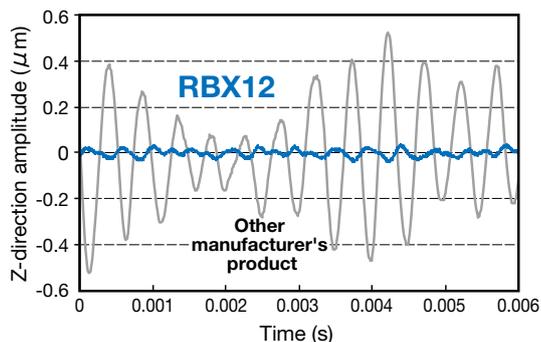
Automatic tool change (RBX ATC Type)

ATC is made possible by supplying air via Stop Block. Unmanned operation results in increased machining efficiency.



ATC compatible

Vibration in Z-axis direction at 120,000rpm (reference value)



Advice



Choosing a toolholder with high runout accuracy is one of the most important factors when micro-machining. Accuracy of the nut and collet is also essential, not to mention elimination of machine spindle rotation.

The ultra-precision spindle enables challenging micromachining!

Ceramic ball bearing type
RBX Series PAT.

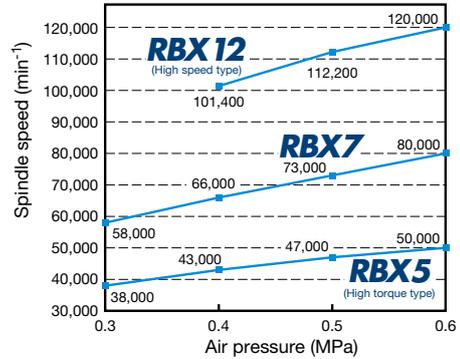
- Achieves efficient and accurate micromachining with excellent runout accuracy in the max. spindle speed range. 120,000rpm high-speed machining possible. World's smallest compact design (RBX12).

Machine spindle rotation
zero

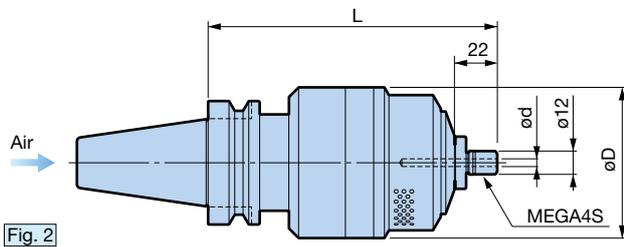
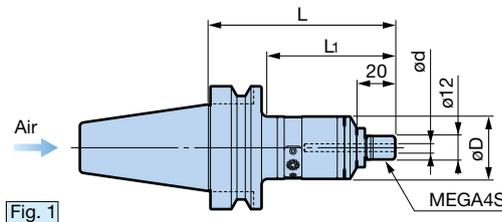


Max.
120,000min⁻¹

Spindle speed against air pressure (reference)



[Center through type]



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

BIG-PLUS BBT SHANK Model	Fig.	Operating spindle speed (min ⁻¹)	Clamping diameter øD	Usable tool diameter	øD	L	L ₁	Mega Nut	Collet Model	Weight (kg)
BBT30-RBX12C-4S- 95	1	100,000 - 120,000	0.45 - 4.05	ø0.6 or smaller	32	95	70	MGN4S-HG	NBC4S	0.7
BBT40-RBX 5C-4S-150	2	40,000 - 50,000	0.45 - 4.05	ø1.5 or smaller	96	150	-	MGN4S	NBC4S	4.1
-RBX 7C-4S-150		60,000 - 80,000		ø1.0 or smaller	78					3.1
-RBX12C-4S- 95	1	100,000 - 120,000	0.45 - 4.05	ø0.6 or smaller	32	95	65	MGN4S-HG	NBC4S	1.3
BBT50-RBX 5C-4S-160	2	40,000 - 50,000		ø1.5 or smaller	96	160	-	MGN4S		NBC4S
-RBX 7C-4S-160		60,000 - 80,000	ø1.0 or smaller	78	6.3					

1. Nut, exclusive wrench (RBX5,7 → XW27, RBX12 → XW20) and Mega Wrench (MGR12) are included, but collet must be ordered separately.
2. Air filter regulator (XF1) is required. **A171**

For Micro Collets, **G2**

Caution

· Clean air is an essential condition for the use of this product. Therefore, coolant should never be supplied through the spindle of the machine using the Air Turbine Spindle.

■ RBX12 MEGA NUT (Standard accessory)



Exclusive nut for high-speed rotation.

Model **MGN4S-HG**

For RBX5 and RBX7 nuts, **G3**

[Side through type]

- ATC is available by supplying air via Stop Block. This enables unmanned operation.

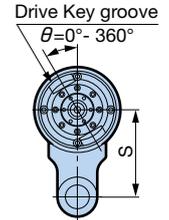
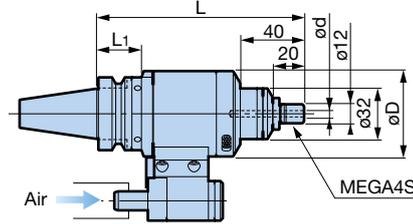


Fig. 1

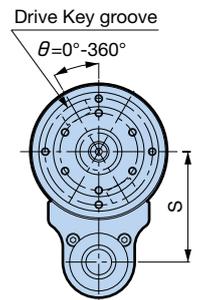
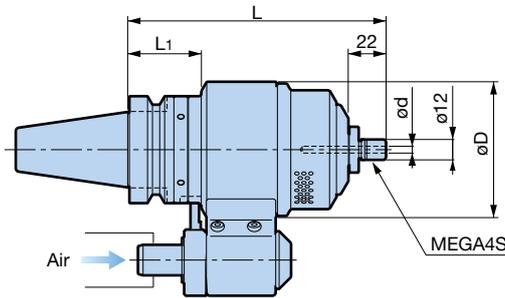


Fig. 2

ATC compatible

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

BIG-PLUS BBT SHANK Model	Fig.	Operating spindle speed (min ⁻¹)	Clamping diameter øD	Usable tool diameter	L	L ₁	ød	S	Mega Nut	Collet Model	Weight (kg)
BBT30-RBX 7-4S-152-55	2	60,000 - 80,000	0.45 - 4.05	ø1.0mm or less	152	28	80	55	MGN4S	NBC4S	2.7
-RBX12-4S-130-55	1	100,000 - 120,000		ø0.6mm or less	130	—	54		MGN4S-HG		1.7
BBT40-RBX 5-4S-151-65	2	40,000 - 50,000	0.45 - 4.05	ø1.5mm or less	151	43	96	65	MGN4S	NBC4S	5.0
-RBX 7-4S-151-65		60,000 - 80,000		ø1.0mm or less			80				4.0
-RBX12-4S-135-65		100,000 - 120,000		ø0.6mm or less			63				3.0
BBT50-RBX 5-4S-166-80	2	40,000 - 50,000	0.45 - 4.05	ø1.5mm or less	166	58	100	MGN4S	NBC4S	9.7	
-RBX 7-4S-166-80		60,000 - 80,000		ø1.0mm or less						8.7	

1. Nut, exclusive wrench (RBX5,7 → XW27, RBX12 → XW20) and Mega Wrench (MGR12) are included, but collet must be ordered separately.

2. Air filter regulator (XF1) is required. A171

3. A Stop Block is required when mounting on machines. Please order separately.

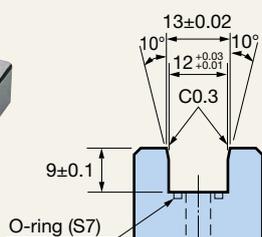


※ Other shank types are also available. Please contact us for details.

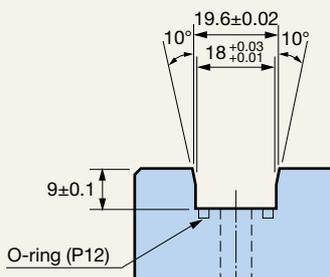
Stop Block



For BBT30



For BBT40/50
BDV40/50
HSK-A63/100



1. When ordering, provide us with the manufacturer, model and specifications of the machine tool, as well as the BIG product model number.
2. Consult us regarding Stop Block and mounting dimensions.
3. Check with the machine tool manufacturer for the shape of the Stop Block, as it will vary for each machine tool model. Although the Stop Block dimensions are compatible with other products such as Hi-Jet Holder or High Spindle, do not share the same Stop Block with them, as Air Turbine Spindle needs clean air.

Ceramic ball bearing type
RBX Series PAT.

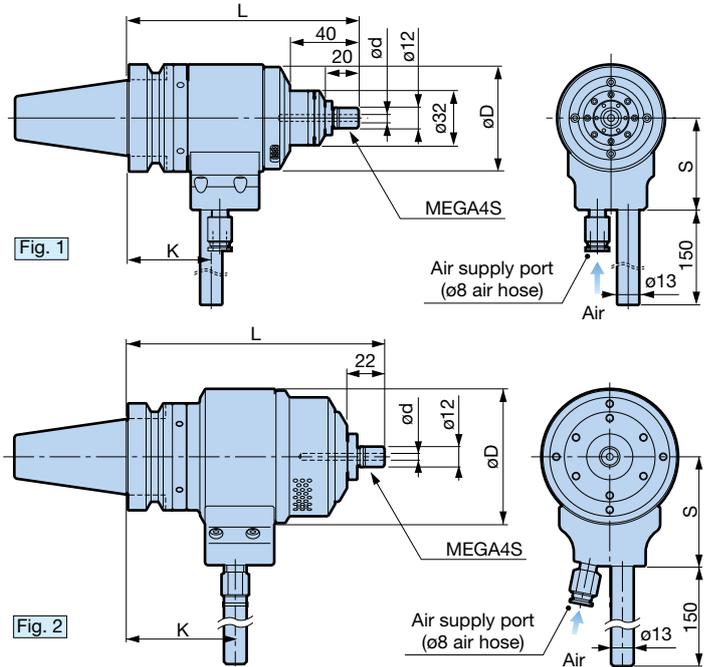
[Manual tool change type]

● Easy installation as Stop Block is not needed.

Machine
spindle rotation
zero



Max.
120,000min⁻¹



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

BIG-PLUS BBT SHANK Model	Fig.	Operating spindle speed (min ⁻¹)	Clamping diameter ød	Usable tool diameter	L	øD	K	S	Mega Nut	Collet Model	Weight (kg)
BBT30-RBX 7-4S-152H	2	60,000 - 80,000	0.45 - 4.05	ø1.0mm or less	152	80	64.5	65	MGN4S	NBC4S	2.7
-RBX12-4S-130H	1	100,000 - 120,000		ø0.6mm or less	130	54	46	50	MGN4S-HG	NBC4S	1.7
BBT40-RBX 5-4S-151H	2	40,000 - 50,000	0.45 - 4.05	ø1.5mm or less	151	96	63	71	MGN4S	NBC4S	5.0
-RBX 7-4S-151H		60,000 - 80,000		ø1.0mm or less		80		65			4.0
-RBX12-4S-135H	1	100,000 - 120,000	0.45 - 4.05	ø0.6mm or less	135	63	49	54	MGN4S-HG	NBC4S	2.7
BBT50-RBX 5-4S-166H	2	40,000 - 50,000		ø1.5mm or less	166	100	78	80	MGN4S	NBC4S	9.7
-RBX 7-4S-166H		60,000 - 80,000	ø1.0mm or less							NBC4S	8.7

- Nut, exclusive wrench (RBX5,7 → XW27, RBX12 → XW20) and Mega Wrench (MGR12) are included, but collet must be ordered separately.
- Air filter regulator (XF1) is required.

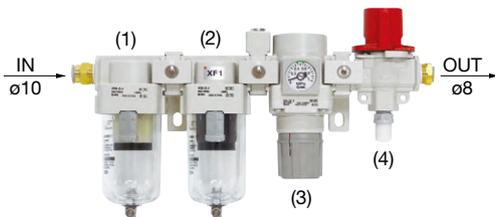
For Micro Collets, **G2**

For RBX5 and RBX7 nuts, **G3**

For RBX12 nuts, **A169**

Air filter regulator

● Regulator that cleans the air used in driving the turbine.

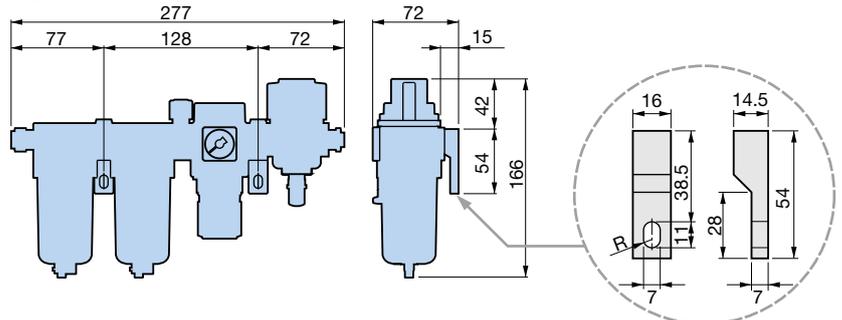


(Required for both the RBX and RSX models)

Model	XF1
-------	-----

- [Accessories]
- ø10 air tube (3m)
 - ø8 air tube (3m)

● Dimensions



- Mist separator (filtration: 0.3 μm)
- Micro mist separator (filtration: 0.01 μm)
- Precision regulator
- Three ports valves for extracting residual pressure (non-grease type)

AIR TURBINE SPINDLE

High-speed AIR SPINDLE

DUAL CONTACT
BBT/BT
SHANK

Hydrostatic air bearing type

RSX PAT.

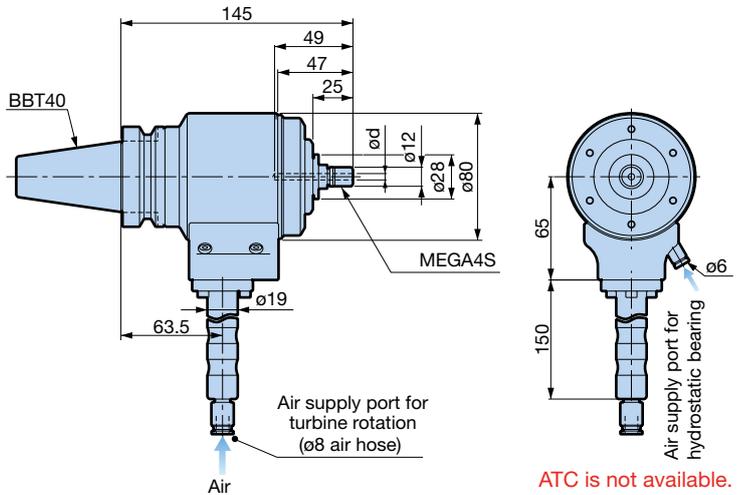
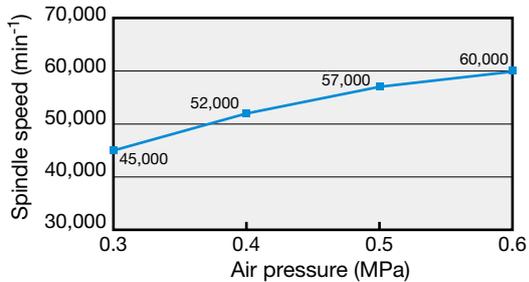
- Highest runout accuracy.

Ultra-high-precision AIR TURBINE SPINDLE capable of $\phi 0.03\text{mm}$ drilling in practical use.



Ideal for optical mold machining!

Spindle speed against air pressure (reference)



ATC is not available.

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

BIG-PLUS BBT SHANK Model	BBT40-RSX7-4S-145H
Operating spindle speed	40,000 - 60,000min ⁻¹
Clamping diameter ϕd	$\phi 0.45 - 4.05\text{mm}$ (Collet Model NBC4S)
Spindle nose runout accuracy	1 μm or less
Air pressure	0.6MPa or less
Air flow rate	300L/min [ANR] (at 0.6MPa)
Weight	Approx. 4kg

1. Nut, exclusive wrench (XW15) and Mega Wrench (MGR12) are included, but collet must be ordered separately.
2. Air filter regulator (XF1) and air dryer regulator (XF2) are required.

For Micro Collets, G2

※ Other shank types are also available. Please contact us for details.

Air dryer regulator

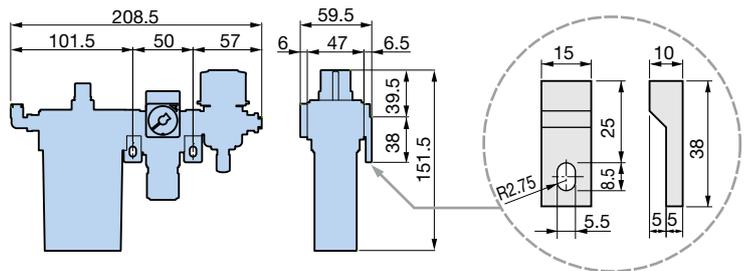
- Moisture removal apparatus for RSX type hydrostatic air bearings.



Model	XF2
-------	-----

[Accessories] · $\phi 6$ Air Tube(1m) · · · · · 1P
(3m) · · · · · 1P

Dimensions



- (1) Membrane air dryer
- (2) Precision regulator
- (3) Three ports valves for extracting residual pressure (non-grease type)

The ultra-precision spindle enables challenging micromachining!

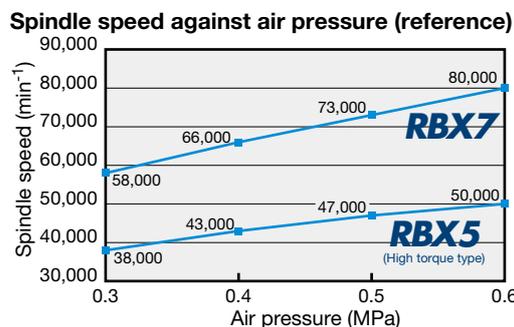
Ceramic ball bearing type
RBX Series PAT.

Machine spindle
rotation **zero**



Max.
80,000min⁻¹

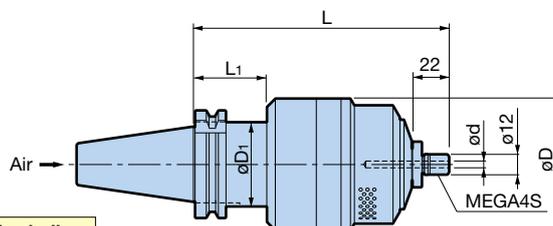
	RBX5	RBX7
Operating spindle speed (min ⁻¹)	40,000 - 50,000	60,000 - 80,000
Clamping diameter	ø0.45 - 4.05mm (MEGA4S)	
Spindle nose runout accuracy	Within 1 μm	
Air pressure	0.3 - 0.6MPa or less	
Air flow rate	300L/min [ANR] (at 0.6MPa)	



[Center Through Type]



ATC compatible



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

BIG-PLUS BDV SHANK Model	Operating spindle speed (min ⁻¹)	Clamping diameter ød	Usable tool diameter	L	L ₁	øD	øD ₁	Weight (kg)
BDV40-RBX5C-4S-150	40,000 - 50,000	0.45 - 4.05	ø1.5 or smaller	150	43	96	49.6	4.1
-RBX7C-4S-150	60,000 - 80,000		ø1.0 or smaller			78		3.1
BDV50-RBX5C-4S-145	40,000 - 50,000	0.45 - 4.05	ø1.5 or smaller	145	38	96	68	6.8
-RBX7C-4S-145	60,000 - 80,000		ø1.0 or smaller			78		5.8

1. Nut, exclusive wrench (RBX5, 7 → XW27) and Mega Wrench (MGR12) are included. Collet is not included. Please order separately.
2. Air filter regulator (XF1) is required.

For Micro Collets, **G2**

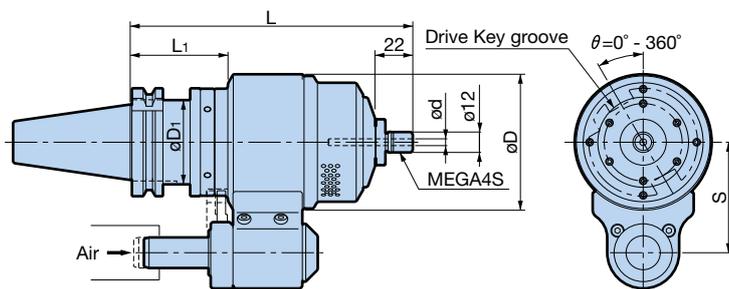


• Clean air is an essential condition for the use of this product. Therefore, coolant should never be supplied through the spindle of the machine using the Air Turbine Spindle.

[Side Through Type]



ATC compatible



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

BIG-PLUS BDV SHANK Model	Operating spindle speed (min ⁻¹)	Usable tool diameter	L	L ₁	øD	øD ₁	S	Weight (kg)
BDV40-RBX5-4S-165-65	40,000 - 50,000	ø1.5 or smaller	165	57	96	49.6	65	5.0
-RBX7-4S-165-65	60,000 - 80,000	ø1.0 or smaller			80			4.0
BDV50-RBX5-4S-170-80	40,000 - 50,000	ø1.5 or smaller	170	62	100	68	80	9.7
-RBX7-4S-170-80	60,000 - 80,000	ø1.0 or smaller						8.7

1. Nut, exclusive wrench (RBX5, 7 → XW27) and Mega Wrench (MGR12) are included. Collet is not included. Please order separately.
2. Air filter regulator (XF1) is required.
3. A Stop Block is required when mounting on machines. Please order separately.

※ Other shank types are also available. Please contact us for details.



For Micro Collets, **G2**

For Stop Blocks, **A170**

The ultra-precision spindle enables challenging micromachining!

Machine spindle rotation **zero**

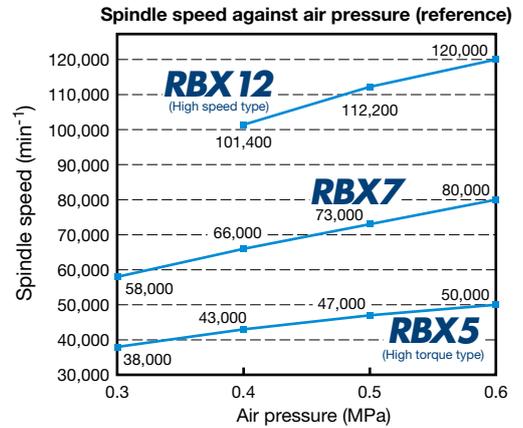
Max. **120,000**min⁻¹

Ceramic ball bearing type

RBX Series PAT.

- Achieves efficient and accurate micromachining with excellent runout accuracy in the max. spindle speed range. 120,000rpm high-speed machining possible. World's smallest compact design (RBX12).

	RBX5 (High torque type)	RBX7	RBX12
Operating spindle speed (min ⁻¹)	40,000 - 50,000	60,000 - 80,000	100,000 - 120,000
Clamping diameter	ø0.45 - 4.05mm (MEGA4S)		
Spindle nose runout accuracy	Within 1 μm		
Air pressure	0.3 - 0.6MPa		0.4 - 0.6MPa
Air flow rate	300L/min [ANR] (at 0.6MPa)		125L/min [ANR] (at 0.6MPa)



[Center Through Type]



ATC compatible

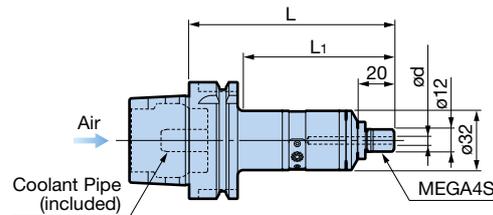


Fig. 1

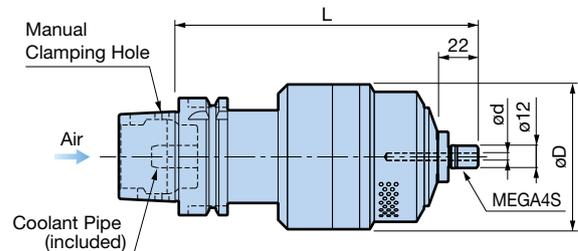


Fig. 2

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

Model	Fig.	Operating spindle speed (min ⁻¹)	Clamping diameter ød	Usable tool diameter	øD	L	L ₁	Mega Nut	Collet Model	Weight (kg)
HSK-A 63-RBX 5C-4S-160	2	40,000 - 50,000	0.45 - 4.05	ø1.5 or smaller	96	160	-	MGN4S	NBC4S	3.9
-RBX 7C-4S-160		60,000 - 80,000		ø1.0 or smaller	78					2.9
-RBX12C-4S-110	1	100,000 - 120,000		ø0.6 or smaller	32	110	81	MGN4S-HG		1.0
HSK-A100-RBX 5C-4S-165	2	40,000 - 50,000	0.45 - 4.05	ø1.5 or smaller	96	165	-	MGN4S	NBC4S	5.9
-RBX 7C-4S-165		60,000 - 80,000		ø1.0 or smaller	78					4.9

1. Nut, exclusive wrench (RBX5,7 → **XW27**, RBX12 → **XW20**) and Mega Wrench (**MGR12**) are included. Collet is not included. Please order separately.

2. Air filter regulator (XF1) is required. **A171**

For Micro Collets, **G2**



Caution

• Clean air is an essential condition for the use of this product. Therefore, coolant should never be supplied through the spindle of the machine using the Air Turbine Spindle.

■ RBX12 MEGA NUT (Standard accessory)



Exclusive nut for high-speed rotation.

Model **MGN4S-HG**

For RBX5 and RBX7 nuts, **G3**

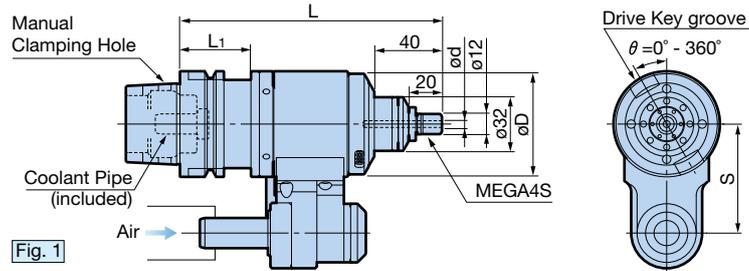
AIR TURBINE SPINDLE

HSK
SHANK

[Side Through Type]

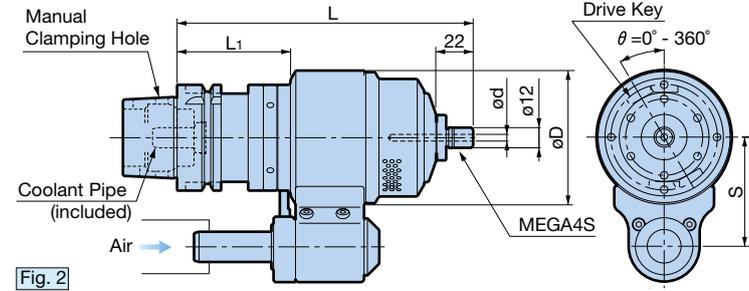


ATC compatible



Max. **120,000min⁻¹**

Machine spindle rotation **ZERO**



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

Model	Fig.	Operating spindle speed (min ⁻¹)	Clamping diameter ød	Usable tool diameter	øD	L	L ₁	S	Mega Nut	Collet Model	Weight (kg)
HSK-A 63-RBX 5-4S-175-65	2	40,000 - 50,000	0.45 - 4.05	ø1.5 or smaller	96	175	67	65	MGN4S	NBC4S	4.8
				ø1.0 or smaller	80						3.8
				ø0.6 or smaller	63						155
HSK-A100-RBX 5-4S-180-80	2	40,000 - 50,000	0.45 - 4.05	ø1.5 or smaller	100	180	72	80	MGN4S	NBC4S	9.4
				ø1.0 or smaller							8.4

- Nut, exclusive wrench (RBX5,7 → **XW27**, RBX12 → **XW20**) and Mega Wrench (**MGR12**) are included. Collet is not included. Please order separately.
- Air filter regulator (XF1) is required. **A171**

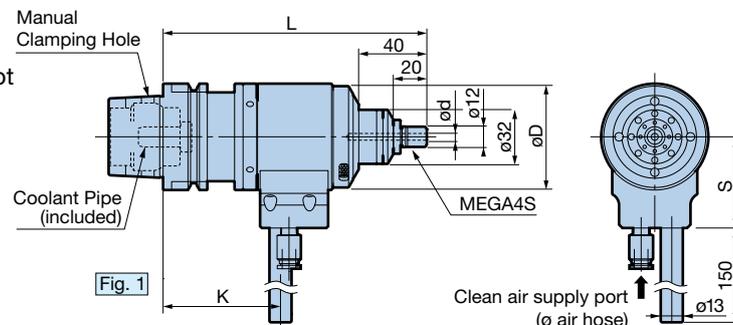


For Micro Collets, **G2**

For Stop Blocks, **A170**

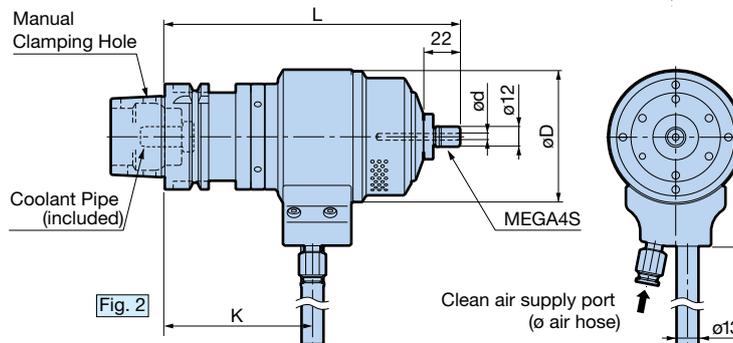
[Manual Tool Change Type]

- Easy installation as Stop Block is not needed.



Max. **120,000min⁻¹**

Machine spindle rotation **ZERO**



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

Model	Fig.	Operating spindle speed (min ⁻¹)	Clamping diameter ød	Usable tool diameter	øD	L	K	S	Mega Nut	Collet Model	Weight (kg)	
HSK-A 63-RBX 5-4S-175H	2	40,000 - 50,000	0.45 - 4.05	ø1.5 or smaller	96	175	87	71	MGN4S	NBC4S	4.8	
				ø1.0 or smaller	80						65	3.8
				ø0.6 or smaller	63						155	69
HSK-A100-RBX 5-4S-180H	2	40,000 - 50,000	0.45 - 4.05	ø1.5 or smaller	100	180	92	80	MGN4S	NBC4S	9.4	
				ø1.0 or smaller							8.4	

- Nut, exclusive wrench (RBX5,7 → **XW27**, RBX12 → **XW20**) and Mega Wrench (**MGR12**) are included. Collet is not included. Please order separately.
- Air filter regulator (XF1) is required. **A171**

For Micro Collets, **G2**

BIG C50