



Pin clamp cylinder—AQK Series

Compendium of AQK Series

Four clamp arm position options

Clamp arm (0°) Clamp arm (90°) Clamp arm (180°) Clamp arm (270°)

Inlet/outlet port Inlet/outlet port Inlet/outlet port Inlet/outlet port

With positioning and clamping function

Pin diameter located, built-in clamp arm fastened

Guiding pin
clamp arm (unclamped)

Clamp position is adjustable by select shims

Adjustable range: 0.5~2mm
Attach with a 1mm and 2 of 0.5mm shims (one side : 3 shims/ two sides : 6 shims)

shims

With sensor groove

With sensor groove around cylinder body

Multiple pin diameter are applicable to various workpiece port size.

Guiding pin diameter(mm)	Workpiece port size(mm)
Φ14.□ (Note)	Φ15
Φ15.□	Φ16
Φ17.□	Φ18
Φ19.□	Φ20
Φ24.□	Φ25

(Note) "□" represents 1-9.

Mounting diversity

All four sides are equipped with positioning pinhole and mounting screw hole. Specific configuration in the following options

A type mounting groove

B type mounting groove

C type mounting groove

D type mounting groove

Installation instructions (general)



1. Before piping is connected, it should be thoroughly blown out with air (flushing) or washed to remove chips, cutting oil and other debris inside the pipe.
2. operating fluid need to be filtered by 40μm filter element.
3. During low temperature environment, cryogenic measures should be taken to prevent freezing water in the system.
4. Beware of the surface rust on the cylinder after disassemble for a long time. Dust cover should be added on inlet port and apply anti-rust oil on rod and action part.
5. Please attach a meter-out controller at the port to protect product life of cylinder and jig.



Pin clamp cylinder

AQK Series



Specification

Bore size(mm)	50	
Acting type	Double acting	
Fluid	Air(to be filtered by 40µm filter element)	
Operating pressure	0.15~1.0MPa(22~145psi)	
Proof pressure	1.5MPa(215psi)	
Temperature °C	-20~70	
Cushion type	Bumper	
Clamp stroke	Without shims: 10 ⁰ _{-0.5} mm	With shims: 10~12mm
Port size [Note]	1/4"	

[Note] PT thread is available.
Please refer to page 362 for sensor applications.

Product feature

1. According to JIS standards
2. Pin surface adopted titanium alloy processing to enhance friction resistance.
3. Part of cylinder front cover has equipped with metallic rod wiper that can effectively remove slag and debris etc.
4. Possible to mount on 4 surfaces.
5. With sensor groove around cylinder body, easy to mount sensors.

Ordering code

AQK50 S A A A □ □-177X340

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Model	AQK : Pin clamp cylinder					
② Bore size	50					
③ Magnet	S : With magnet					
④ Install dim.	A : Mounting screws M10X1.5/ pinhole diameter Φ10		B : Mounting screws M12X1.75/ pinhole diameter Φ10			
⑤ The relative position of screw surface and pinhole	A:A type mounting groove	B:B type mounting groove	C:C type mounting groove	D:D type mounting groove		
⑥ Clamp arm position	A : Clamp arm same side with inlet port	B : Clamp arm at 90° with inlet port	C : Clamp arm at 180° with inlet port	D : Clamp arm at 270° with inlet port		
⑦ Adjusting shims	Blank: Without adjustable shims		2 : With adjusting shim 2mm (2 of 0.5mm+1 of 1mm)			
⑧ Thread code	Blank: PT 1/4					
⑨ Guide pin specification code	Code [Note]	Pin height (without shims)	Code	Pin height (with shims)	Pin diameter	Workpiece port size
	14□X290	29	14□X310	31	Φ14.□	Φ15
	15□X290	29	15□X310	31	Φ15.□	Φ16
	17□X340	34	17□X360	36	Φ17.□	Φ18
	19□X340	34	19□X360	36	Φ19.□	Φ20
24□X340	34	24□X360	36	Φ24.□	Φ25	

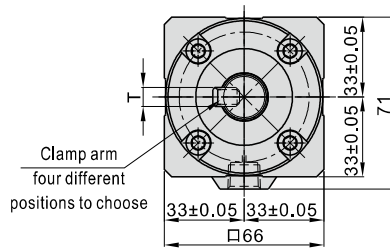
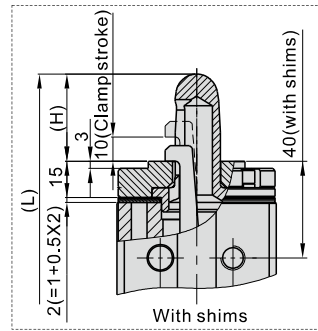
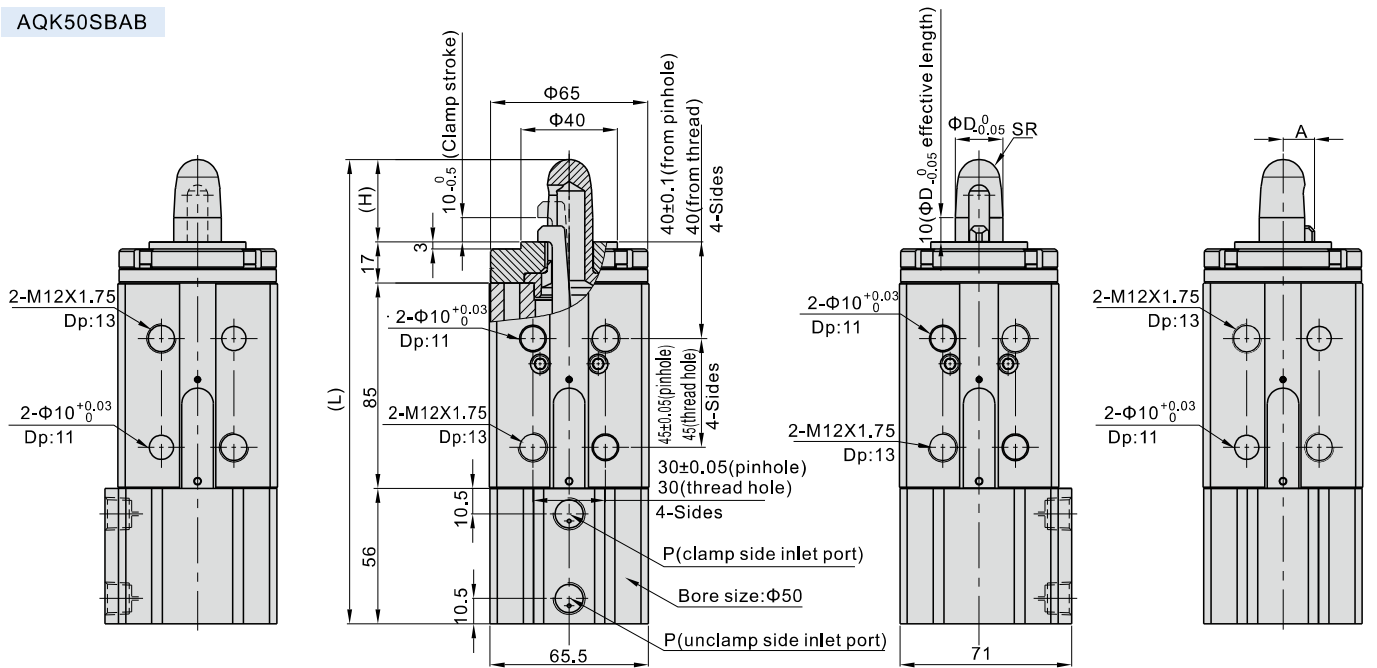
[Note] "□" means 1-9. Take 177X340 for example, 177 means pinhole diameter 17.7mm, 340 means guiding pin height 34mm.



Pin clamp cylinder

AQK Series

AQK50SBAB



Pin hole	ΦD (Pin dim.)	SR (pin sphere radius)	H (pin height)		A (arm length)	T (arm width)	L (full length)	
			Without shims	With shims			Without shims	With shims
Φ15	Φ14.□	5.5	29	31	11	7	187	189
Φ16	Φ15.□	6	29	31	11	7	187	189
Φ18	Φ17.□	7	34	36	12	8	192	194
Φ20	Φ19.□	8.5	34	36	13	8	192	194
Φ25	Φ24.□	10.5	34	36	15.5	8	192	194

[Note] "□" refers to number 1-9.
P inlet port size is PT 1/4, and G, NPT thread are also selectable.

Installation instruction

1. Sensor options and mounting :

Applicable sensors for AQK series are CMSG(DMSG/EMSG). Those sensors can easily fix on the cylinder as the right figure, other accessories are not needed. Loosen the mounting screws on sensor, import it to mounting groove to the suitable position and it can be fixed after tighten screws.

Also: in the power magnetic environment, you should choose the anti-interference sensor, the specific selection of the reference P336 page.

2. Since the cylinder performs both positioning and clamping simultaneously,

any other application may cause an accident or damage to the cylinder.

3. The thickness of clamping workpiece should be under 10mm, the clamping cylinder with shim can clamp up to 12 mm (with all shims removed).

4. Only apply to the workpiece has flat side, do not clamp without setting the workpiece.

5. Please attach a speed controller and adjust the cylinder speed by meter-out.

6. prevent any foreign material, such as machining chips, from entering into internal cylinder.

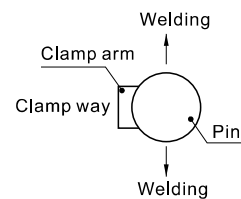
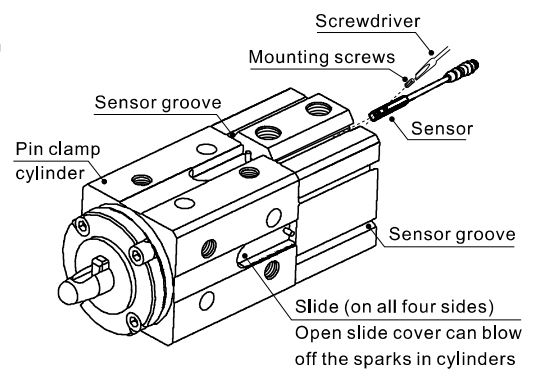
And the opening part of a guide pin should not face in the same direction as oncoming spatter.

If the spatter enters the cylinder from the opening part of the guide pin, it will shorten the product life and cause a malfunction.

7. Consider the welding point of the guide pin when determining the direction of the clamp arm setting.

The clamp arm will be damaged if clamping is performed at the welded point of the guide pin. Therefore, set the clamping directions as illustrated right figure to prevent the clamping damaged from welded point.

8. If sparks enters the cylinder body, remove it by first detaching the covers. Do not scratch or make dents on the sliding parts of the piston rod by striking it or grasping them with other objects. Or it may cause seal damage and leakage.





Pin clamp cylinder(Lock type)——BAQK Series

Compendium of BAQK Series

Bidirectional locked
Both stretch and retract can lock cylinder equivalently unrelated to piston action

Applicable with AQK series pin clamp cylinder
Same instructions as AQK series

Spring + Clip clamping device
Simple structure, fast and effective unlock, stable switch state

General pin specification with AQK series

Multiple unlock options
Pneumatic and manual unlock options

Pneumatic unlock
compressed air

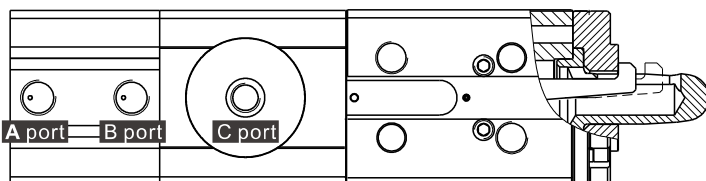
Manual unlock
Manual unlock screw

Applicable with AQK series pin clamp cylinder

Installation instructions (general)



- Before piping is connected, it should be thoroughly blown out with air (flushing) or washed to remove chips, cutting oil and other debris inside the pipe.
- operating fluid need to be filtered by 40 μ m filter element.
- During low temperature environment, cryogenic measures should be taken to prevent freezing water in the system.
- Beware of the surface rust on the cylinder after disassemble for a long time.
Dust cover should be added on inlet port and apply anti-rust oil on rod and action part.
- Please attach a meter-out controller at the port to protect product life of cylinder and jig.
- The locking device can only work when cylinder stops, do not activate the rod under working condition.
It's necessary to take extra measures if the control system has safety requirement.
- The locking device can be released only when the force on both sides of the piston reaches equilibrium or the cylinder stops, otherwise it may cause accident by rod sudden action.
- application example.



Circulation	Inlet			Acting	
	A port	B port	C port		
	no	no	yes	clamp machine unlocked	
	no	yes	yes	Clamp arm fastened workpiece	0~0.5S
	no	no	no	clamp machine locked	
	no	no	yes	clamp machine unlocked	0.5S above
	yes	no	yes	clamp arm loosen workpiece	0~0.5S



Pin clamp cylinder—Lock type

BAQK Series



Specification

Bore size(mm)	50	
Acting type	Double acting	
Fluid	Air(to be filtered by 40µm filter element)	
Operating pressure	0.15~1.0MPa(22~145psi)	
Proof pressure	1.5MPa(215psi)	
Temperature °C	-20~70	
Cushion type	Bumper	
Clamp stroke	Without shims: 10 ⁰ _{-0.5} mm	With shims: 10~12mm
Unlock pressure	0.3~0.7MPa(45~100psi)	
Static retention	1400N	
Port size	Cylinder	1/4"
[Note]	Clamp device	G1/8

[Note] PT thread is available.
Please refer to page 362 for sensor applications.

Product feature

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2. Pin surface adopted titanium alloy processing to enhance friction resistance.
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Ordering code

BAQK50 S A A A □ □-177X340

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

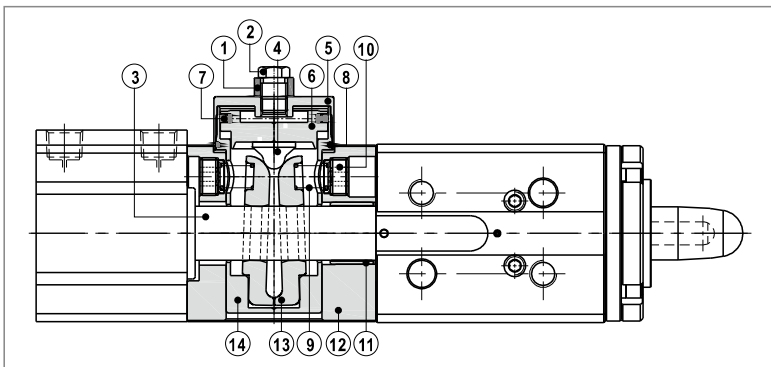
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② Bore size	50					
③ Magnet	S : With magnet					
④ Install dim.	A : Mounting screws M10X1.5/ pinhole diameter Φ10		B : Mounting screws M12X1.75/ pinhole diameter Φ10			
⑤ The relative position of screw surface and pinhole	A:A type mounting groove	B:B type mounting groove	C:C type mounting groove	D:D type mounting groove		
	Refer to AQK series ordering code for specific mounting groove					
⑥ Clamp arm position	A : Clamp arm same side with inlet port	B : Clamp arm at 90° with inlet port	C : Clamp arm at 180° with inlet port	D : Clamp arm at 270° with inlet port		
	The relation between clamp arm and inlet port please refer to AQK series ordering code content					
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Pin clamp cylinder—Lock type

BAQK Series

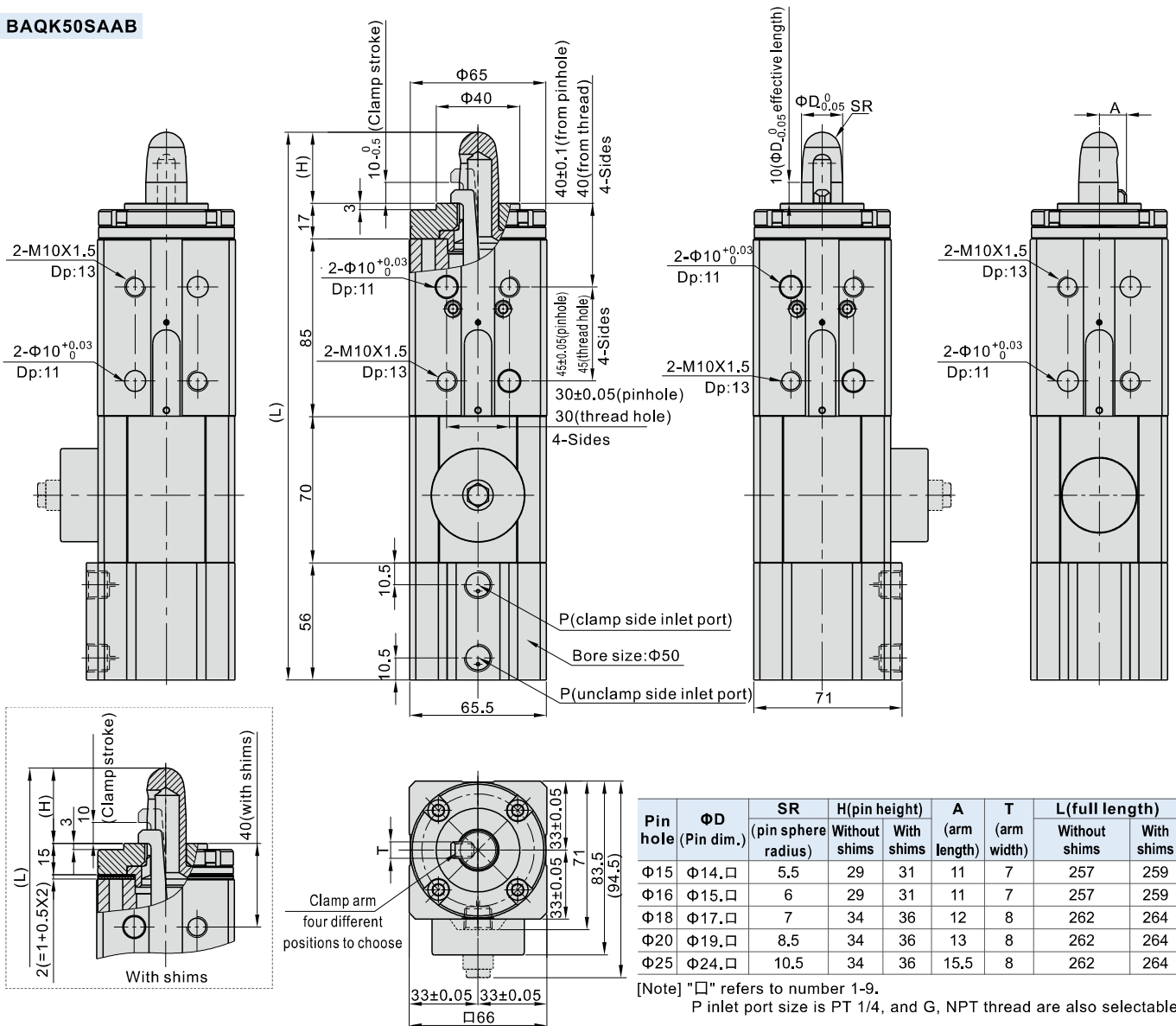
Inner structure and material of major parts



NO.	Item	Material
1	Spacer	POM
2	Unlock screws	Cutting steel
3	Rod	S45C hard chrome plating bar
4	Unlocker	Wear resistant material
5	Cap	Aluminum alloy
6	Unlock piston	Aluminum alloy
7	Piston packing	NBR
8	O ring	NBR
9	Spring	Spring steel
10	Spring fixed screws	Low carbon steel
11	Bimetal bearing	Low carbon steel+sintered bronze
12	Fixed holder	Aluminum alloy
13	Air gripper	Aluminium Bronze
14	Sleeve	Aluminum alloy

Dimensions

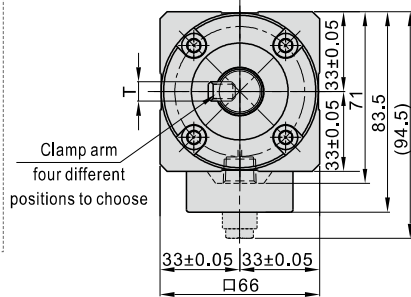
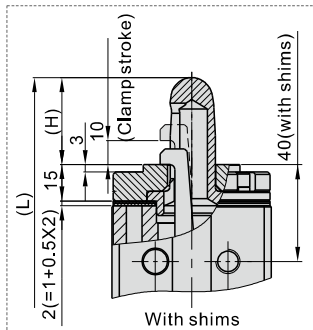
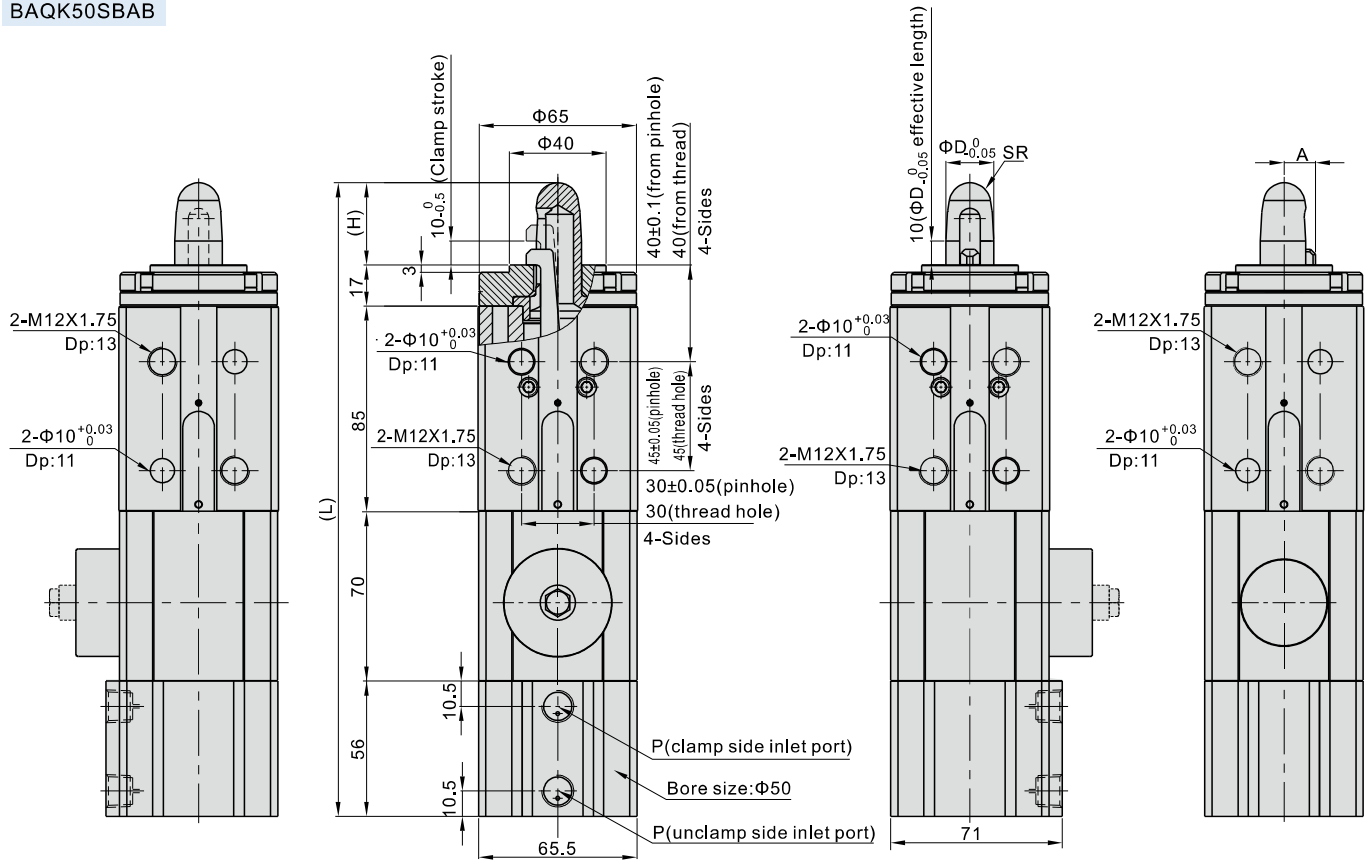
BAQK50SAAB



Pin clamp cylinder—Lock type

BAQK Series

BAQK50SBAB



Pin hole	ΦD (Pin dim.)	SR (pin sphere radius)	H(pin height)		A (arm length)	T (arm width)	L(full length)	
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Φ16	Φ15.□	6	29	31	11	7	257	259
Φ18	Φ17.□	7	34	36	12	8	262	264
Φ20	Φ19.□	8.5	34	36	13	8	262	264
Φ25	Φ24.□	10.5	34	36	15.5	8	262	264

[Note] "□" refers to number 1-9.

P inlet port size is PT 1/4, and G, NPT thread are also selectable.

Installation instruction

BAQK series mounting dimensions are equivalent to AQK series, please refer to AQK series for specific mounting groove.