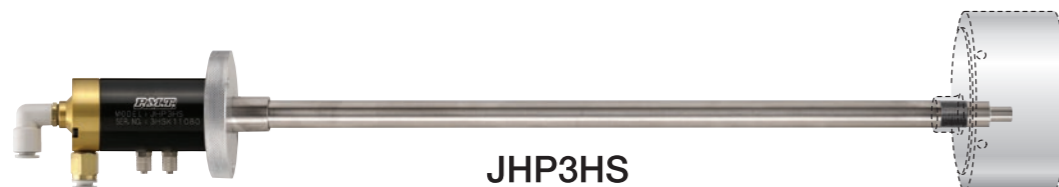


ASA(Air Supply Apparatus)

ASA

Variety of products to meet the requirement for low speed to high speed, for movable ASA, for high pressure coolant and etc. are available.
Special is available on request.

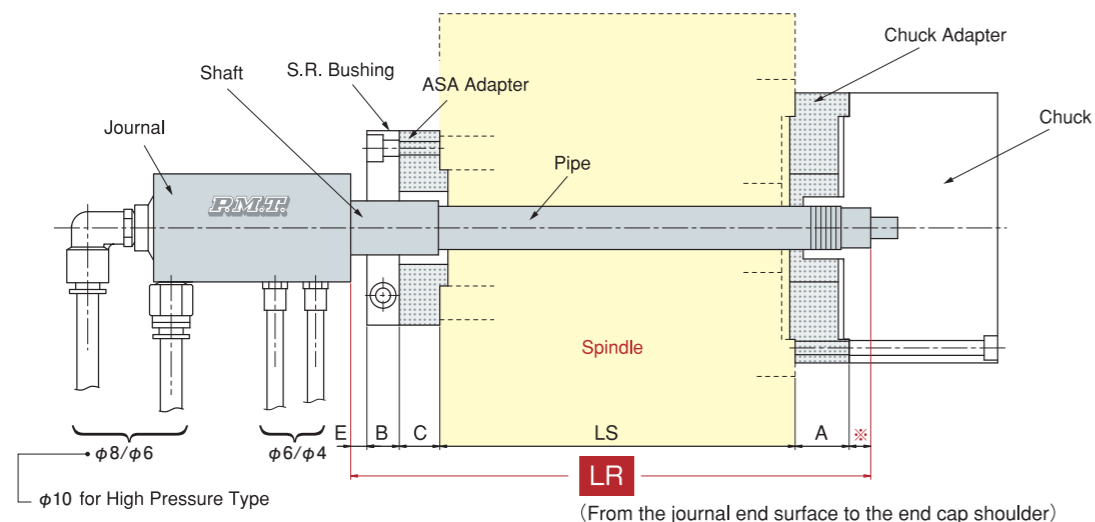


How to determine ASA length

Example..... JHP3-LR

LR=LS (Spindle Length) + ※ + A (Chuck Adapter) + C (ASA Adapter) + B (S.R. Bushing) + E (Max. 10mm)

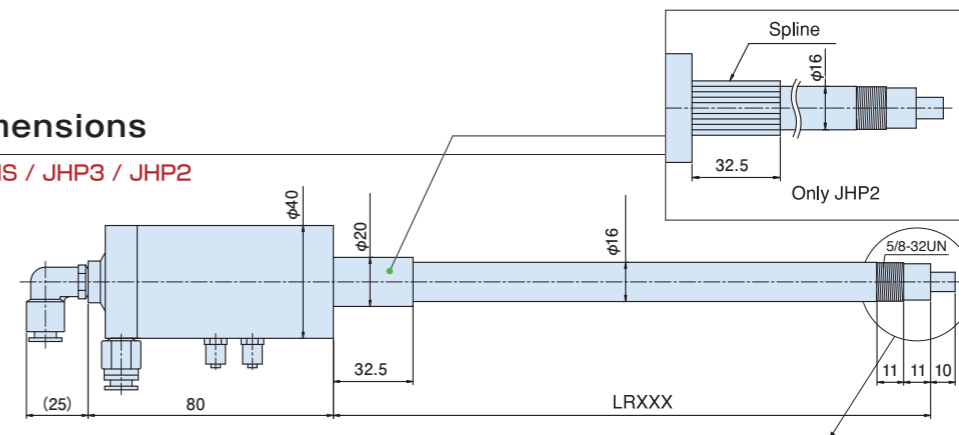
※Dimension differs depending on the type of chuck.(Refer to the page of chuck.)



Kinds of ASA & S.R. Bushing

●Dimensions

JHP3HS / JHP3 / JHP2



JHP3HS

For Diaphragm Chuck and Air Chuck.



JHP3

For Diaphragm Chuck and Air Chuck.



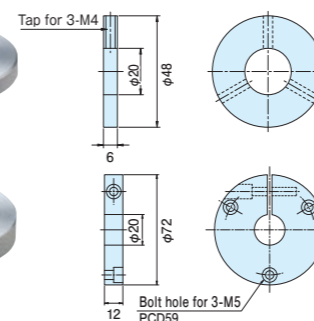
JHP2

For w/movable ASA Air Chuck.

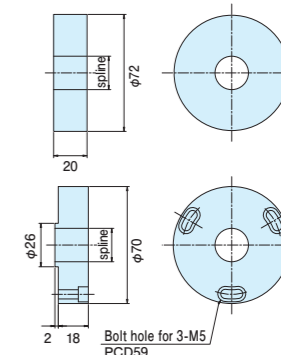


●S.R.Bushing

For JHP3HS/JHP3 4L3,4L3AHPR,JHP3AHPR



For JHP2



- TB-001 : Mainly for JHP3HS. Fine centering is possible.
- TB-004 : With split & mainly for JHP3. Possible for JHP3HS. For tightening ASA and for securing with adapter

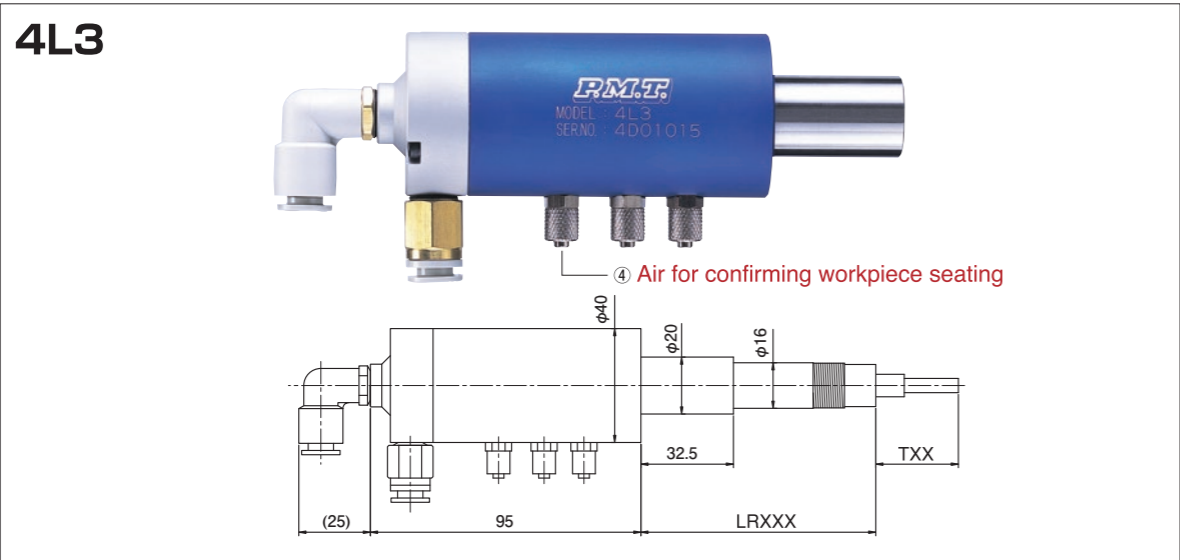
For TB-002, the location and size of mounting hole can be determined and made anywhere according to the customer's choice.

●Max. Air pressure & Coolant pressure

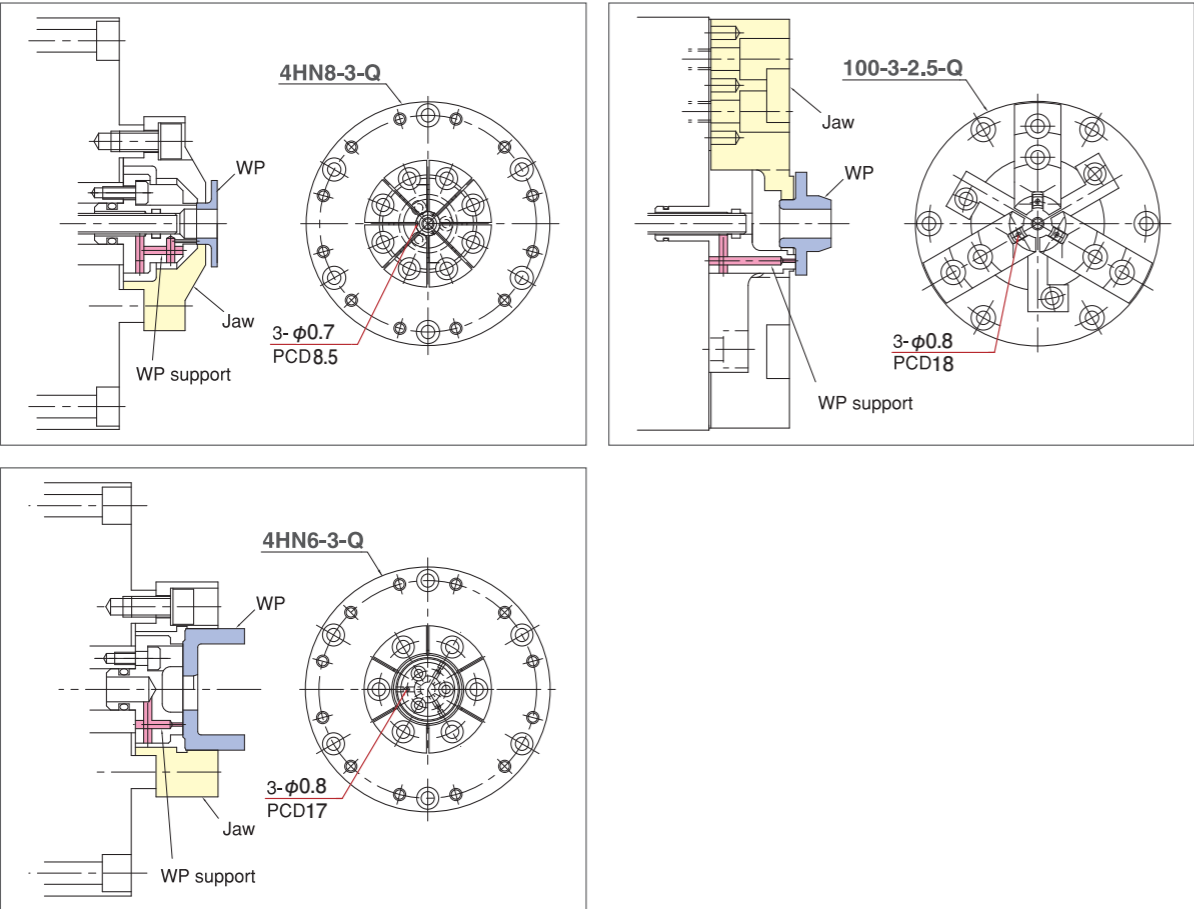
Model No.	Max. Speed	Max. Air/Coolant Press
4L3	8,000min ⁻¹	0.4MPa
4L3AHPR	6,000min ⁻¹	1.0MPa
JHP3HS	12,000min ⁻¹	0.4MPa
JHP3	8,000min ⁻¹	0.4MPa
JHP2	8,000min ⁻¹	0.4MPa
JHP3AHPR	6,000min ⁻¹	1.0MPa

4 Layer ASA (For confirming workpiece seating)

Not only opening & closing jaws, air blow and/or coolant feed through the center bore of chuck, checking and confirming workpiece seated properly or not, is possible.

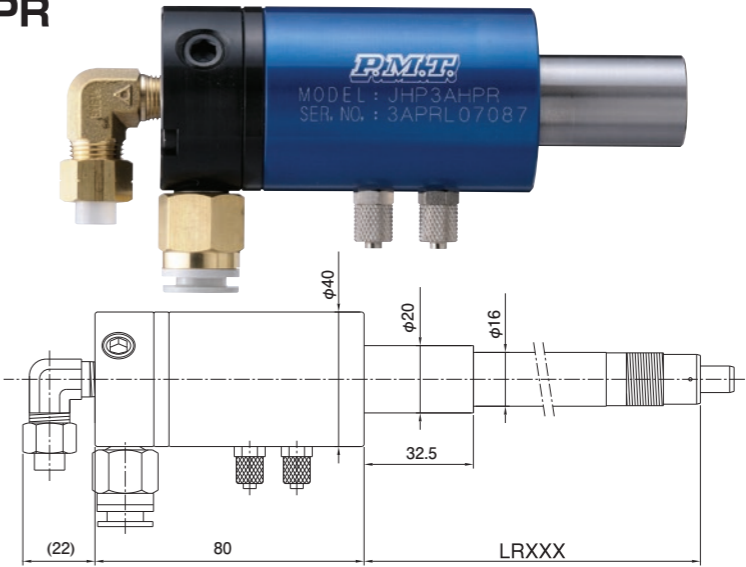


Examples of seating confirmation



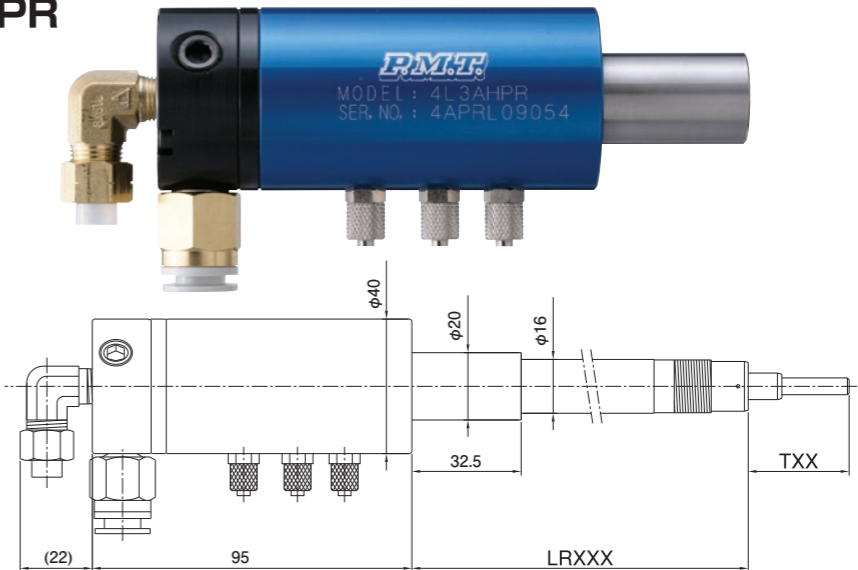
ASA for High Pressure Coolant

JHP3AHPR



JHP3 High pressure coolant type

4L3AHPR



4L3 High pressure coolant type

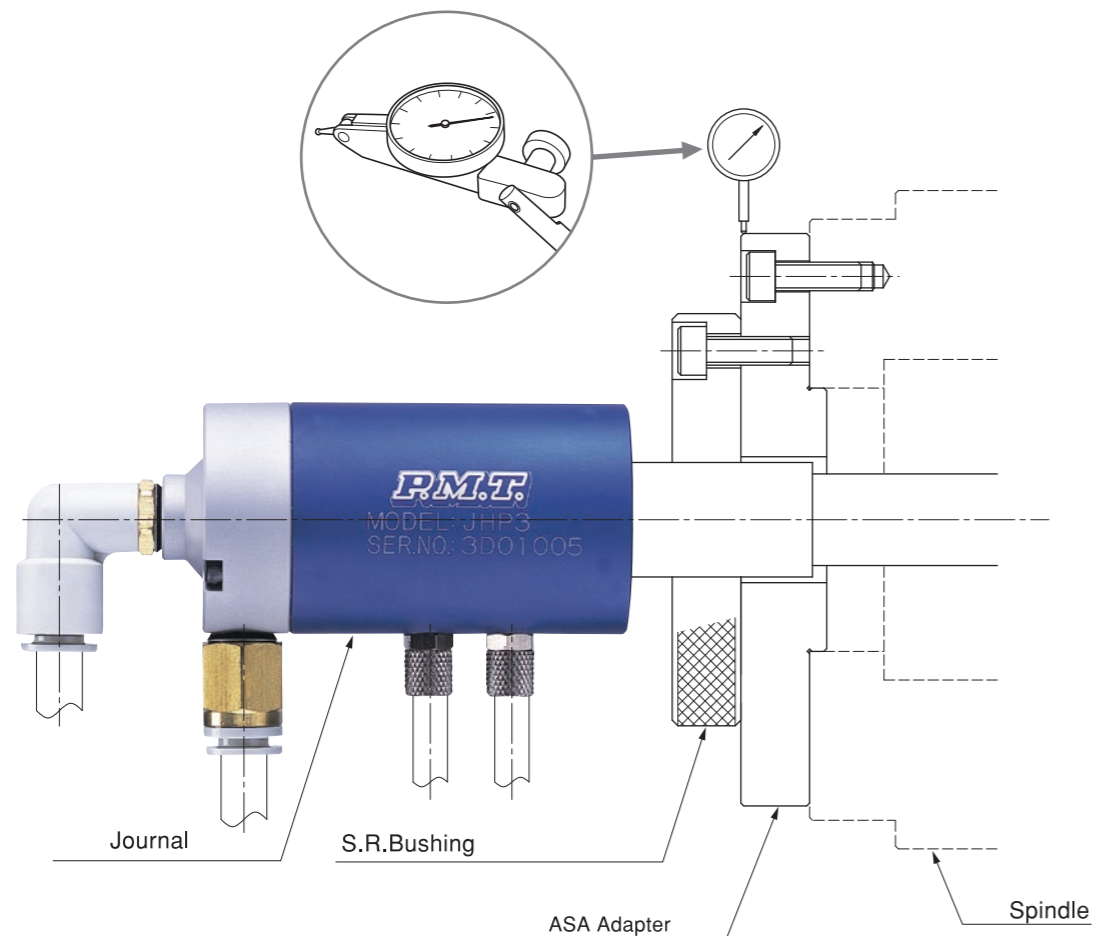
Model No.	Capability corresponding high pressure
JHP3AHPR	1.0MPa
4L3AHPR	1.0MPa

Increased capability to reduce the possibility of penetration of coolant.
Can be used with CNC turning machines and grinding machines.

M 1 Installation of ASA (Air Supply Apparatus)

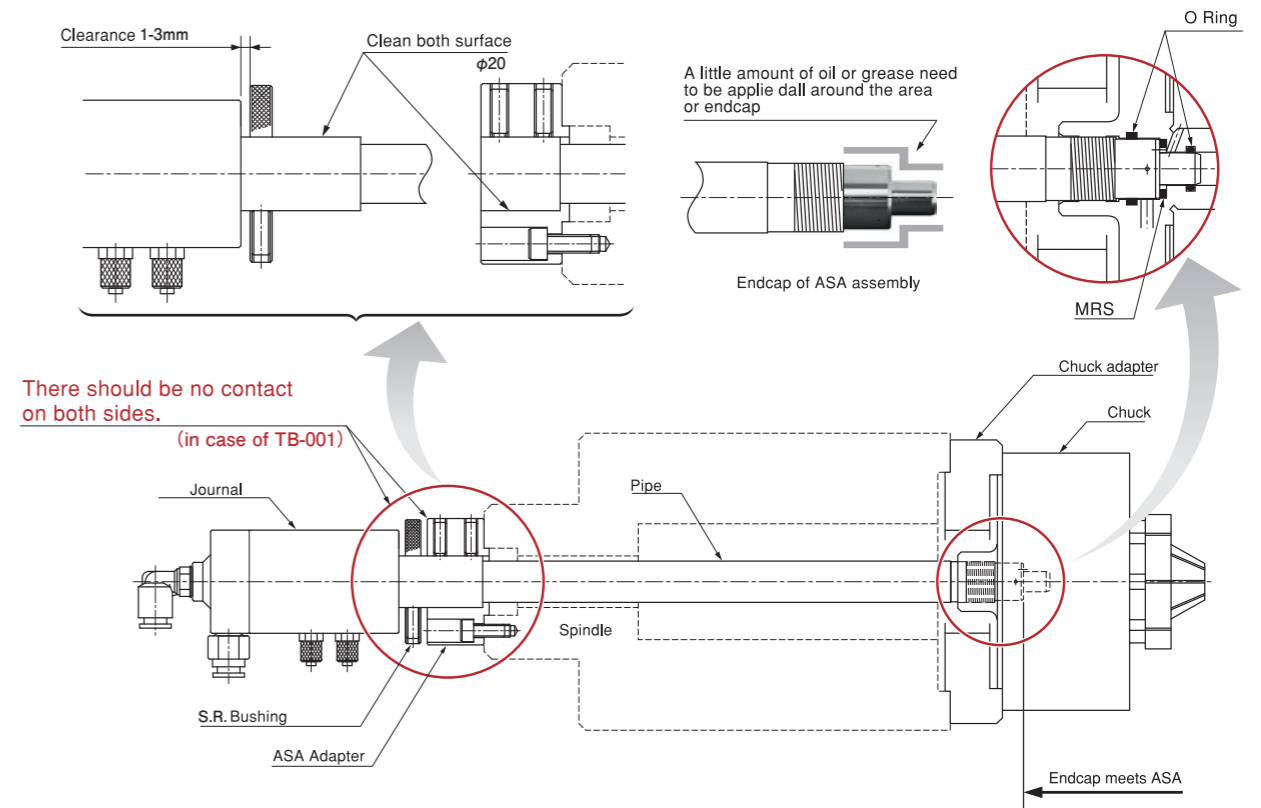
● 1. Installation of ASA Adapter

- (1) Clean the pilot and mounting surface of ASA adapter and at the rear end of spindle where ASA adapter is installed.
- (2) Make sure no damage, scratch, dent etc. on both surface before installation.
- (3) Mount the S.R. Bushing to the rear end of spindle.
- (4) Secure the S.R. Bushing with the spindle by tightening bolts temporarily, not to full extent, to the extent that it could be movable when hitting by plastic hammer lightly. This is to leave an allowance for fine adjustment for centering.
- (5) Set the dial gauge at rear side (journal side) of ASA Adapter.
- (6) Center the ASA Adapter to below $2\mu\text{m}$. Plastic hammer is recommended to use for fine adjustment.
How to center: Rotate the spindle by hand, and check the runout hit where showing highest point of measure lightly, and repeat this procedure until getting below $2\mu\text{m}$.
- (7) Secure the ASA adapter firmly with the spindle by tightening the bolts to the full extent.
- (8) Make sure again if below $2\mu\text{m}$ is still there. If not, repeat procedures (5) and (6) until getting below $2\mu\text{m}$.



● 2. Installation of ASA Assembly

- (1) Make sure the chuck is supplied with the spindle properly.
- (2) Make sure the shaft of rotary journal is supplied with S.R. Bushing. Except TB-001, there's a front side and backside on the S.R. Bushing. Make sure it points the right direction. There are counter-sunk bores with the Bushing, except TB-001. These holes should point to the rotary journal when installed with the shaft. Position the S.R. Bushing firmly on the shaft leaving 1-3mm to the journal surface.
- (3) Clean the inner bore of ASA adapter and the shaft of ASA Journal.
- (4) Apply grease to the end cap, to the area where it meets O Ring and MRS (metal rubber seal) inside the pilot of chuck.
- (5) Insert ASA Assembly through the ASA Adapter, and thence to the chuck or to the chuck adapter, until the contact between the end cap of pipe and the threads inside of pilot of chuck is made.
- (6) Screw ASA further into the chuck until it contacts with MRS (metal rubber seal) by rotating the S.R. Bushing by hand, clockwise. A little further press just by a little more rotation of S.R. Bushing would be enough. Do not use any tool for this operation. Too much tightening might cause the short life of MRS.
- (7) For centering of ASA (Journal), refer to page 53,54

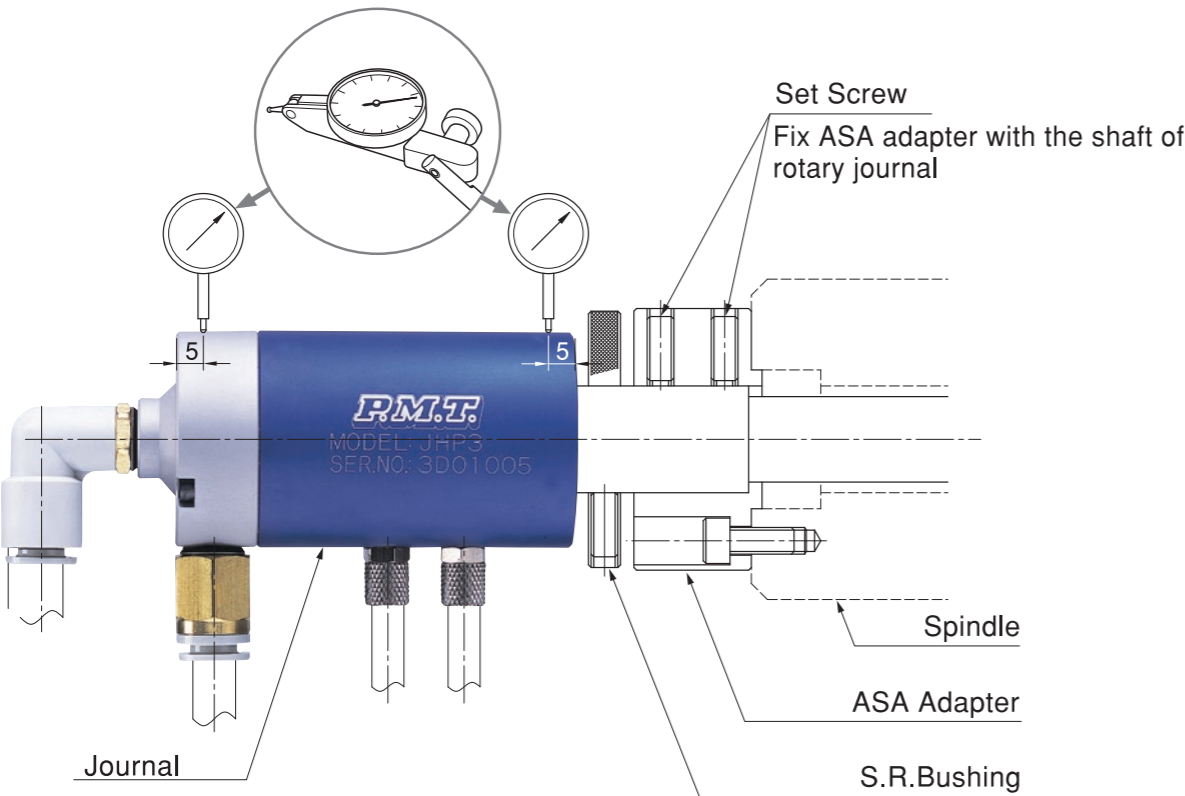


M 1 Installation of ASA

●3.Centering of Rotary Journal

When S.R. Bushing TB-001 is used;

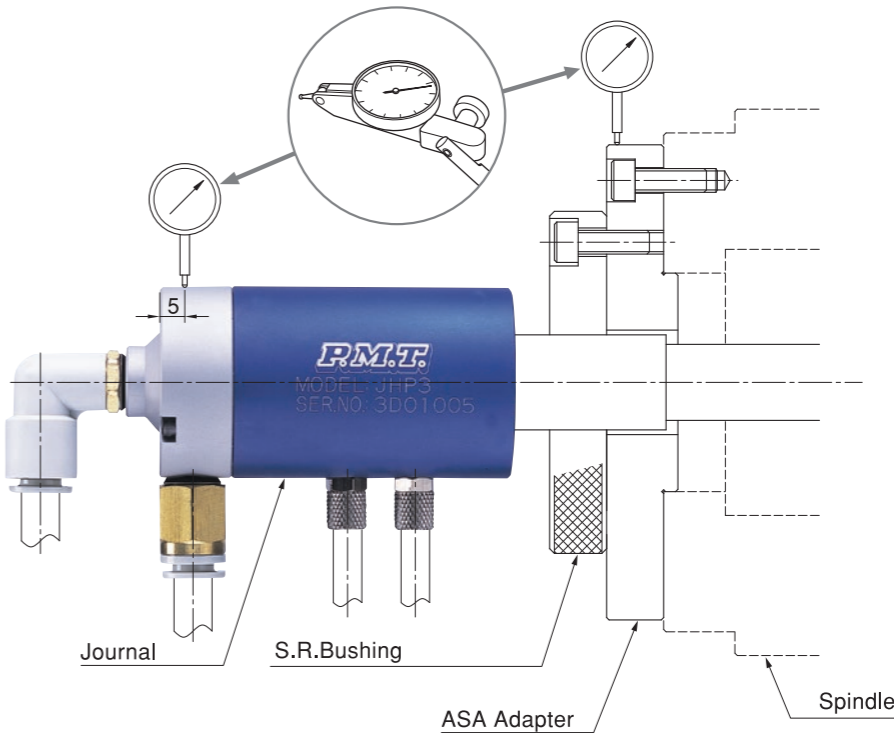
- (1) Tighten all set screws lightly.
- (2) Set the dial gauge at the front side of rotary journal.
- (3) Rotate the spindle by hand, and stop the journal where showing the highest measurement.
Loosen set screw of rear side of adapter (at near side to journal), and adjust the runout to below $5\mu\text{m}$. After this, tighten all the other set screws firmly.
- (4) Set the dial gauge at the rear side of rotary journal.
- (5) Rotate the spindle by hand, and stop the journal where showing highest measurement, tighten the set screw at 180 deg., opposite side of ASA adapter, at the front side(spindle side), and adjust the runout to within $5\mu\text{m}$. After this, tighten all the other set screws firmly.
- (6) Set the dial gauge at the front side of rotary journal to make sure the runout is still within $5\mu\text{m}$.
If found not, repeat the procedures (2) through (5)until $5\mu\text{m}$ is obtained.
- (7) Make sure, after the runout of rotary journal is within $5\mu\text{m}$ at both front and rear side, make sure all the set screws are tightened firmly. Attention not to tighten the set screws too firmly is required to avoid deviation of runout. All set screws need to be tightened firmly, but not too excessively.



For the safety retaining bushing, TB-001 is, generally speaking, highly recommended for both AC and DC except the special TB-002 which is developed to be used with JHP-2. Easier centering and assurance of accuracy is the reason for that. TB-004 has been used, prior to TB-001, mainly for AC(Slide Jaw Type Air Chucks), and secondarily DC(Diaphragm Chucks) as well, as both types are mentioned in the catalog. We have still two types in the catalog, but, simply TB-001 is better as mentioned above. TB-004 is still available when it's necessary for no matter the reason is.

When S.R. Bushing TB-004 is used;

- (1) Loosen set screw holding the shaft of rotary journal. Match the holes location between the S.R. Bushing and ASA Adapter, and put them together tightly.
- (2) Tighten the bolt which is to shrink the slit, to fix the S.R. Bushing with the shaft of rotary journal.
- (3) Tighten 3 bolts which are to secure S.R. Bushing with ASA adapter, temporarily to the extent that makes a little further move possible by plastic hammer when centering.
- (4) Set the dial gauge at the rear side of rotary journal.
- (5) Rotate the spindle by hand. If the runout measured is out of the value specified below, check where at the journal show highest measure, and hit there by plastic hammer for fine adjustment. Repeat this until the permissible runout is obtained.
For 6,000min⁻¹ or below → Below $10\mu\text{m}$
For over 6,000min⁻¹ → Below $5\mu\text{m}$
- (6) Tighten 3 bolts firmly.
- (7) Again, make sure if the runout is still $10\mu\text{m}$ and $5\mu\text{m}$ respectively.



M 2 Caution for Operation & Handling

Not because of production error, defectiveness and/or malfunction of ASA assembly itself, but because of the handling and/or wrong set-up etc., often the trouble is caused with ASA. Please pay enough attention to the followings;

1 Max. rotation speed and Air pressure

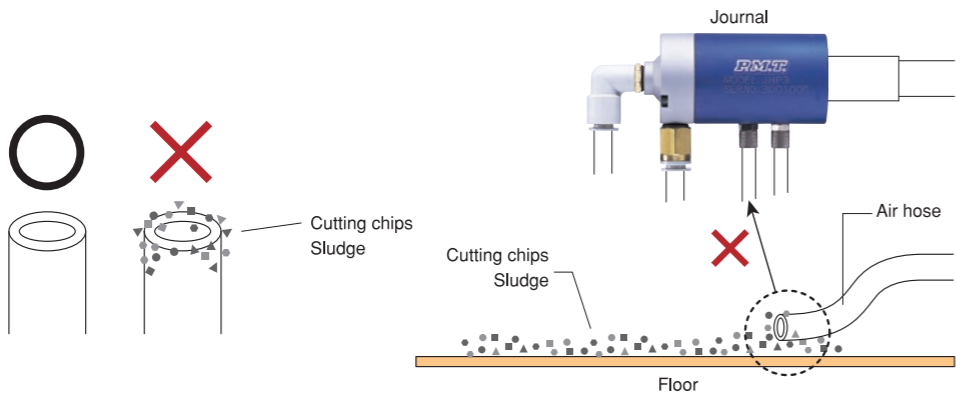


Model	Max. min ⁻¹	Coolant	CWS*	Jaw open/close
JHP2	8,000min ⁻¹	0.4MPa	—	0.8MPa
JHP3			0.2MPa	
4L3				
JHP3HS	12,000min ⁻¹	1.0MPa	—	0.8MPa
JHP3AHPR	6,000min ⁻¹		0.2MPa	
4L3AHPR				

*CWS=Confirm Workpiece Seating

2 Handling of Air Hose

Inside of fitting and/or hoses have to be cleaned before installation to the journal. Otherwise, the foreign sub-stance may get inside, and thus, the jamming will have to be caused eventually. When installing the chuck and air supply apparatus to the machine, pay attention to the end of air hoses not to be touched to the floor to avoid it gets dirty with cutting chips, dirty oil and sludge. If the hoses are connected to the ports of Journal without cleaning the connecting part of hoses, the ASA will cause the trouble such as jamming of Journal.

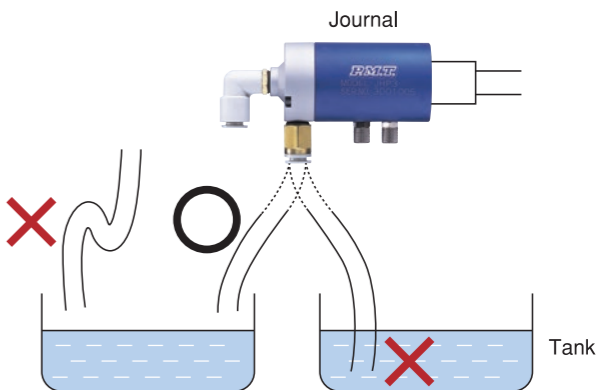


Caution for Operation & Handling

M 2

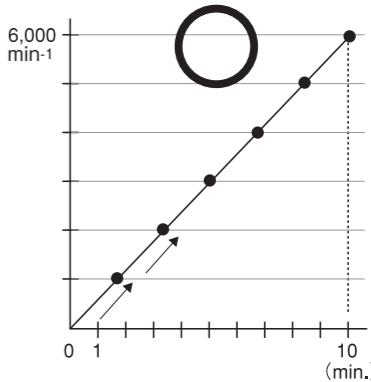
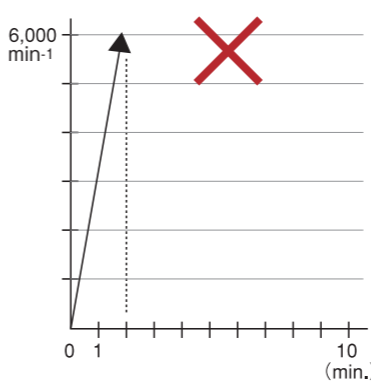
3 Tubing for Drain

Arrange drain hose so that the coolant will return the tank. Do not put the hose into the coolant tank. Make sure there is no trap on drain hose.



4 Warming Up

Before start machining, carry out warm-up running in a few steps, 1000, 2000, 3000....min⁻¹, by spending over 10min. It might cause the jamming to run the ASA quickly at top speed.



5 Air and Oil

Use Air Filter which has under 5μm or better filtration capacity. Maintain the cutting oil as clean as possible all the time. Old filter, low cap of filtration for cutting chips, dirty oil may cause the jamming problem with ASA.



Clean

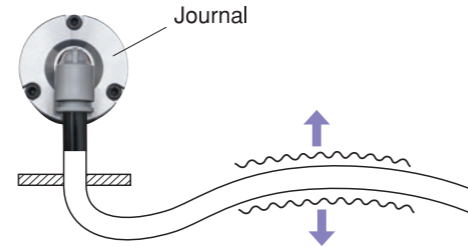


Dirty

M 2 Caution for Operation & Handling

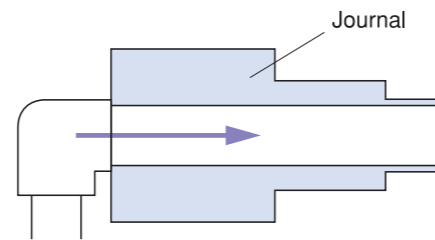
6 Vibration of Hose

When there is a strong vibration with the coolant hose, supply some fixture, near by the journal, to prevent the vibration to be transferred to the journal.



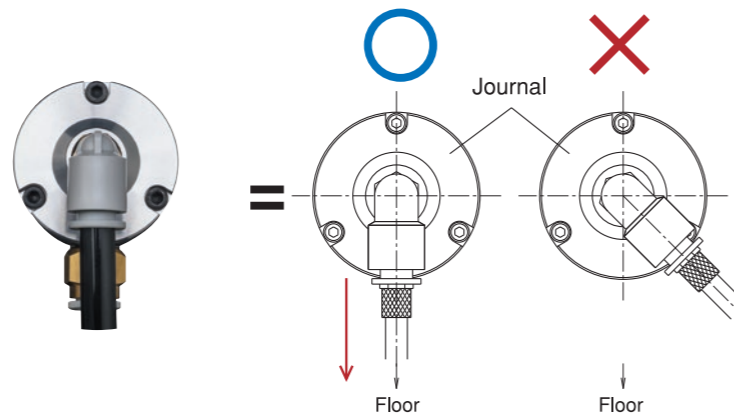
7 Dry Cutting

If the dry-cut is done at high speed, thermal expansion is caused inside of journal, and may cause jamming between the shaft and housing. It is recommended to apply air blow through the journal, in case the coolant is not used, to reduce the heat generation inside journal.



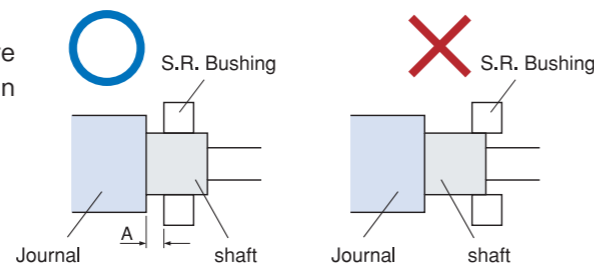
8 Setting Direction of Journal

Set the Journal so that the fittings and hoses will point right at the floor.



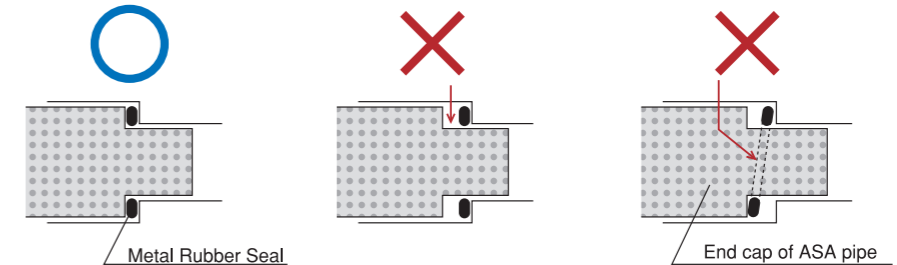
9 Location of Bushing

When installed ASA with machine, make sure the SRB is holding the shaft with more than 90% of the holding surface. (Clearance of A should be within 10mm)

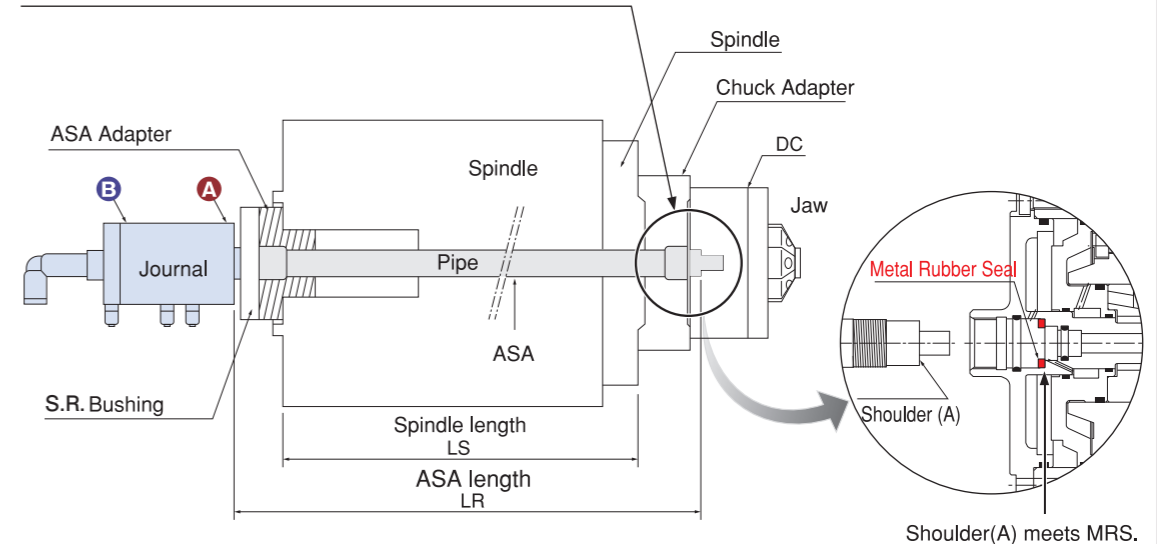


10 Installation of ASA to chuck

When installing the ASA to the chuck, make sure the metal rubber seal is in place, and tighten the ASA until the edge of ASA will reach to it. If the ASA is not tightened firmly and properly, and/or if the metal rubber seal is not in the place properly, the air leakage will have to be caused, and the chuck will malfunction eventually.



Insert ASA until the shoulder (A) of end cap hit the metal rubber seal supplied at the rear side of DC. Screw tighten ASA just a little further to create firm contact with MRS (metal rubber seal), but not too excessively not to damage MRS.

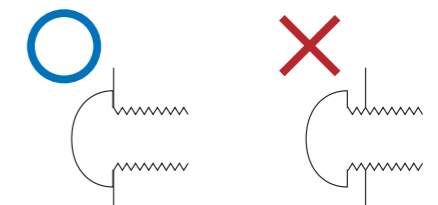


Centering when installing ASA to the machine

Make sure the runout at A and B must be within $10\mu\text{m}$ ($5\mu\text{m}$ when the spindle speed is over $6,000\text{min}^{-1}$). Runout over these accuracies will affect the accuracy of turning and might cause the jamming at journal.

11 Tightening of Screw

After all the installation and adjustment related to the ASA adapter and Bushing, make sure all the screws are firmly tightened, not loose.



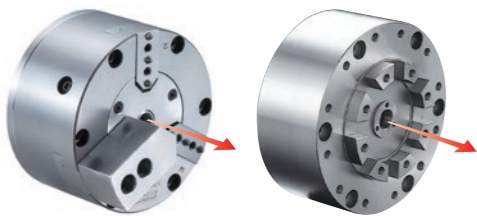
M 2 Caution for Operation & Handling

Trouble Shooting

Case1 Jaws don't move

【Slide Jaw Type Precision Air Chuck】

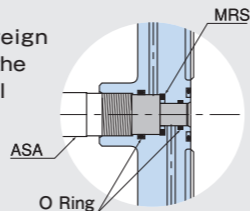
① If this phenomenon took place right after initial operation or rather in short period of use, air leakage might be the cause. Check the leak at the center bore of chuck.



Followings can be considered as the cause;
1, Damaged O Ring or MRS, or both together when installing ASA
Solution⇒**Change O ring and MRS for new ones**

2, Jamming resulted by foreign substance got in between the shaft and housing of journal

Solution⇒**Whole ASA assembly need to be replaced with new one**



② If this took place after certain long while of use, like after 1-2 or more years, jamming anywhere among MJ, Wedge and Body, is usually the cause of trouble.

In almost every cases, this jamming is resulted from the accumulation of chips and sludge, among MJ, Wedge and the Body, which have been progressed a little by little, farther and farther, along with months, years of use, inside the chuck. If this take place, the chuck have to be repaired. It normally takes 3 to 5 weeks.

【Diaphragm Type High Precision Air Chuck】

The followings can be considered as the cause.

① Air Leak



Please refer to aforementioned Case 1.

② Diaphragm Fatigue



Diaphragm material will normally last long. If DC in question has been in use long period, like for example a few years, this might be a cause.

③ Breakage of Diaphragm



Breakage of diaphragm due to the collision caused by operational mistake, or whatever the reason, might be the cause. In this case, DC have to be repaired.

Trouble Shooting

Case2 Accuracy lost

【Slide Jaw Type Precision Air Chuck】

① In case over half a year have passed after started using

The followings can be considered as the cause when the accuracy which have been available since the beginning is lost;

(1)Jaw damaged and/or worn

(2)Jamming took place between the body, wedge and MJ

If (1) is the case, change the jaw for new one, form-machine it.

If (2) is the case, the chuck have to be repaired at our shop.

Note: In order to avoid jamming, as frequent lubrication as possible have to be done as explained in page 45. Enforcement of lubrication will extend the life, accuracy life of chuck.

② If it started within a few weeks of use

(1) Damaged Jaw, (2) Air Leak, (3) Inadequately Prepared Jaw, can be considered as the cause. In case of (1), change jaw for new one, and form-machine it.

In case of (2), check the leak as explained at above Case 1 and consult us with the result.

In case of (3), if the jaw was prepared (form-machined) by the customer, please send the drawing of jaw arranged by the customer, together with the drawing of workpiece so that we will be able to talk with you for the solution.

【Diaphragm Type High Precision Air Chuck】

The followings can be considered as the cause.

① Jaw broke



Arrange new Jaw

② Diaphragm of DC broke or deteriorated



In case the cause is the breakage and/or fatigue of diaphragm material, the chuck have to be repaired. (Normally it takes 4 to 5 weeks.)

③ Wear of clamp surface



Reform-machining is necessary. In case of OD clamp, for example, if the jaw was originally form-machined by opening it at 0.3MPa air pressure, do the same now again by 0.2MPa air pressure. The difference of Jaw stroke by two different air pressure will be the rate of material to be removed by additional reform-machining.