

Slide Jaw Type Air Chuck

AC

Main Features

- Size: 2.5" to 10"
- Nbr. of Jaw: 2, 3, 4 (3 kinds)
- Repeatability: Within 1.5 μ m

High Accuracy,
Flexibility & Performance

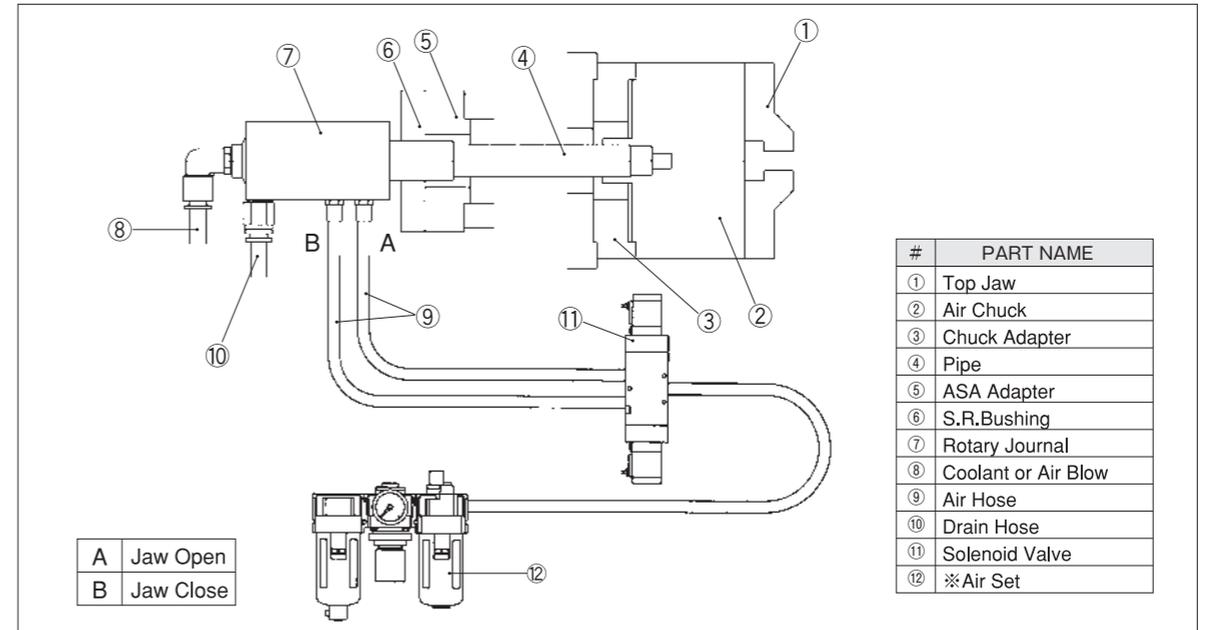


From the vast sales & experience, and the built up technique and know-how therewith, PIONEER deliver precision air chucks most reliable now in the market.

As a solution provider, PIONEER will offer various ideas to cope with misc. applications which are hard to be done in the precision turning/grinding.

1 AC Operation System (Structure & Function)

System Outline



※AirSet: ①Filter + ②Lubricator + ③Regulator

Std. accessories for Air Chucks

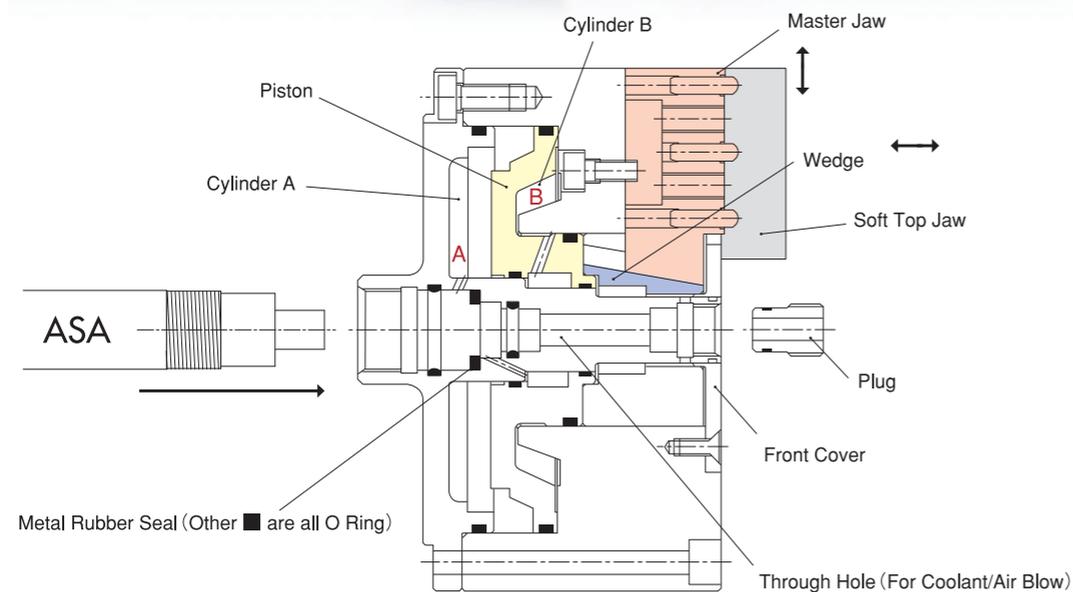
1.Lubrication Oil	This is to lubricate the slide ways among MJ, Wedge and body, and also to remove the sludge among them. Periodical lubrication is recommended for long life and accuracy. Oil is Shell Tona S3M 68. (Equivalent can be used.)
2.Mounting Bolts	Bolts to install the chuck to the spindle/adapter.
3.Soft Top Jaw 1 set	One (1) set of soft top jaw is supplied with any chuck as standard unless any special is requested.
4.Plug	The one (1) to enable coolant through spindle and chuck is supplied as std.

Optional Accessories

1.Loading Pin	To be used for form-machining of jaw (For outer clamping). This should not necessarily be purchased/used. It can be any one to fit the purpose and application. (Refer to the manual)
2.Loading Ring	To be used for form-machining of jaw (internal clamping). As explained above, this also should not necessarily be used. Any one to fit the purpose and application can be used. (Refer to the manual)
3.Special Plug	One is for when the oil mist is used with the chuck and another is for when the coolant is not used. (Refer to operation manual)
4.Wrench 1pc	Wrench to tighten the bolts

※Loading pin and Loading ring should not necessarily be purchased from us. They can be arranged to any one to fit the purpose and application. (Refer to the manual)

● Example: 100-3-2.5



1. In case of mist air application; (Mist air will be delivered to all three jaws inside the chuck and perform auto lubrication.)



2. In case the coolant need to be fed through the chuck;



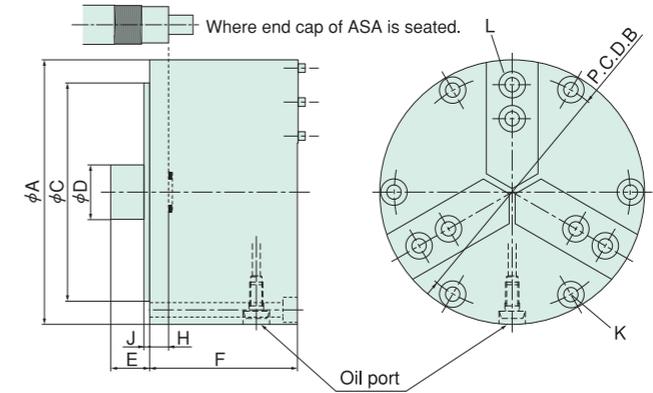
3. In case of no coolant/no mist air application;



2-1

3 Jaw Rotary Air Chuck

Model No./Dim./Spec



● Dimension

Model No.	Dimension									
	A	B	C	D	E	F	H	J	K	L
③ 83-3-2.5	83	70	60	21	14.5	55	7	2	6-M5	3-M5
④ 100-3-1.2	100	88.9	82.55	21	14.5	55	7	2	6-M5	6-M5
100-3-2.5	100	88.9	82.55	21	14.5	55	7	2	6-M5	6-M5
100-3-2.5-Q	100	88.9	82.55	—	—	55	—	2	6-M5	6-M5
⑤ 125-3-2.5	125	114.3	101.6	25	14.5	55	7	2	6-M5	9-M5
⑥ 150-3-2.5	150	135.75	125	25	14.5	55	7	2	6-M6	12-M5
150-3-2.5-Q	150	135.75	125	—	—	55	—	2	6-M6	12-M5
⑧ 200-3-2.5	203	183	167.6	—	—	80	18.5	7	6-M10	9-3/8-24UNF
⑩ 250-3-2.5	254	233.7	215.8	21	12	74	12.5	7	6-M10	12-3/8-24UNF

BTO

● Specifications

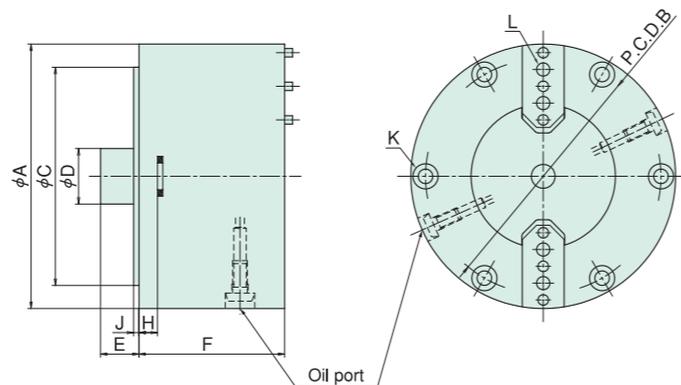
Model No.	Stroke (mm)	Nbr. of Jaw	Chucking Cap.		Gripping Force [※] (kN)	Max. min ⁻¹ (Nominal)	Wgt. (kg)
			O.D (mm)	I.D (mm)			
③ 83-3-2.5	2.5	3	3-73	6-73	4.2	6,000	2.0
④ 100-3-1.2	1.2	3	3-90	6-90	7.4	4,500	2.7
100-3-2.5	2.5	3	3-90	6-90	7.4	4,500	2.7
100-3-2.5-Q	2.5	3	3-90	6-90	7.4	4,500	2.7
⑤ 125-3-2.5	2.5	3	3-110	10-110	10.3	4,300	4.5
⑥ 150-3-2.5	2.5	3	3-135	10-135	10.3	4,000	6.5
150-3-2.5-Q	2.5	3	3-135	10-135	10.3	4,000	6.5
⑧ 200-3-2.5	2.5	3	16-183	16-183	32.0	3,000	18.1
⑩ 250-3-2.5	2.5	3	16-233	16-233	32.0	2,500	27.0

※ Gripping force is the value when it's measured under the pressure of 0.7MPa
Q signify quick change type

BTO

2-2 2 Jaw Rotary Air Chuck

Model No./Dim./Spec



Dimension

Model No.	Dimension										
	A	B	C	D	E	F	H	J	K	L	
④ 100-2-2.5	100	88.9	82.55	21	14.5	55	7	2	6-M5	6-M5	
⑥ 150-2-2.5	150	135.75	125	25	14.5	55	7	2	6-M6	8-M5	

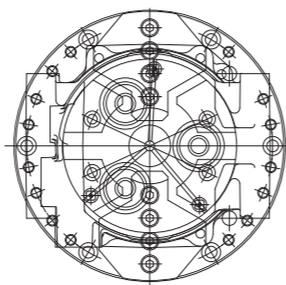
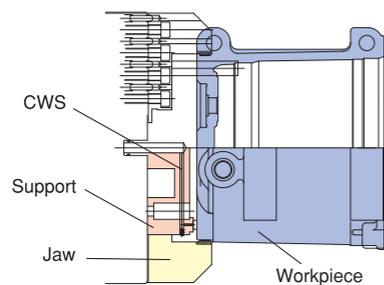
Specifications

Model No.	Stroke (mm)	Nbr.of Jaw	Chucking Cap.		Gripping Force [※] (kN)	Max.min ⁻¹ (Nominal)	Wgt. (kg)
			O.D (mm)	I.D (mm)			
④ 100-2-2.5	2.5	2	3-90	6-90	7.4	4,500	2.7
⑥ 150-2-2.5	2.5	2	3-135	10-135	10.3	4,000	6.7

※Gripping force is the value when it's measured under the pressure of 0.7MPa

Application Example

Housing for automobile

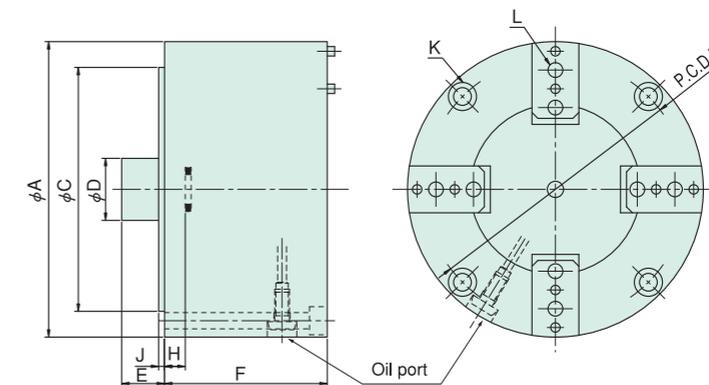


150-2-2.5

2-3 4 Jaw Rotary Air Chuck

Model No./Dim./Spec

Suitable for not round workpiece



Dimension

Model No.	Dimension										
	A	B	C	D	E	F	H	J	K	L	
④ 100-4-2.5	100	88.9	82.55	21	14.5	55	7	2	4-M5	8-M5	
⑤ 125-4-5	125	114.3	101.6	25	14.5	71.5	7	2	4-M5	8-M5	
⑥ 150-4-5	150	135.75	125	25	14.5	71.5	7	2	4-M6	12-M5	

Specifications

Model No.	Stroke (mm)	Nbr.of Jaw	Chucking Cap.		Gripping Force [※] (kN)	Max.min ⁻¹ (Nominal)	Wgt. (kg)
			O.D (mm)	I.D (mm)			
④ 100-4-2.5	2.5	4	3-95	6-99	6.6	4,500	2.7
⑤ 125-4-5	5	4	3-120	6-124	9.7	4,000	5.5
⑥ 150-4-5	5	4	3-135	10-135	9.7	4,000	8.1

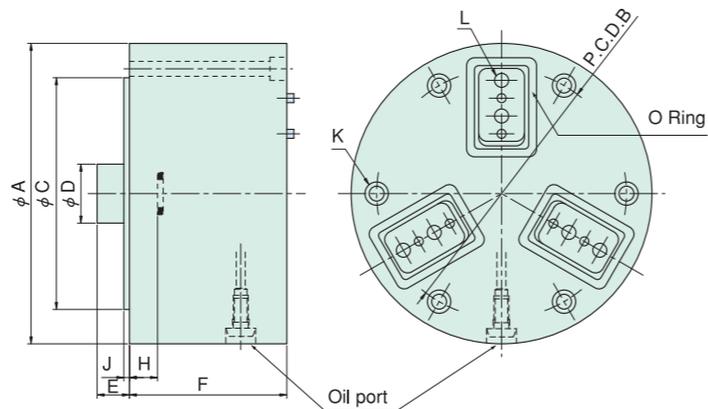
※Gripping force is the value when it's measured under the pressure of 0.7MPa

Application Example



2-4 Sealed Rotary Air Chuck Model No./Dim./Spec

Chuck is sealed to stop cutting chips and sludge penetrate inside.



Dimension

Model No.	Dimension										
	A	B	C	D	E	F	H	J	K	L	
③ 87-3-2.5G	87	70	60	21	11.5	57.5	10	2	6-M5	3-M5	
④ 107-3-2.5G	107	88.9	82.55	21	11.5	56	10	2	6-M5	6-M5	
⑥ 157-3-2.5GT	157	135.75	125	21	10.5	56	10	2	6-M6	9-M5	
⑧ 214-3-2.5G	214	183	167.6	—	—	80	16.5	7	6-M10	6-3/8-24UNF	
⑩ 265-3-2.5G	265	233.7	215.8	—	—	80	16.5	7	6-M10	6-3/8-24UNF	

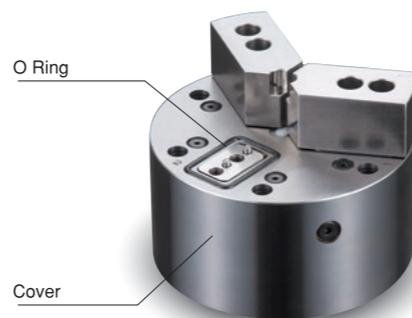
Specifications

Model No.	Stroke (mm)	Nbr.of Jaw	Chucking Cap.		Gripping Force (kN) ※	Max.min ⁻¹ (Nominal)	Wgt. (kg)
			O.D (mm)	I.D (mm)			
③ 87-3-2.5G	2.5	3	3-77	6-77	4.2	6,000	2.2
④ 107-3-2.5G	2.5	3	3-97	6-97	7.4	4,500	3.3
⑥ 157-3-2.5GT	2.5	3	3-142	10-142	10.3	4,000	7.5
⑧ 214-3-2.5G	2.5	3	16-194	16-194	32.0	3,000	20.0
⑩ 265-3-2.5G	2.5	3	16-245	16-245	32.0	2,500	31.5

※Gripping force is the value when it's measured under the pressure of 0.7MPa

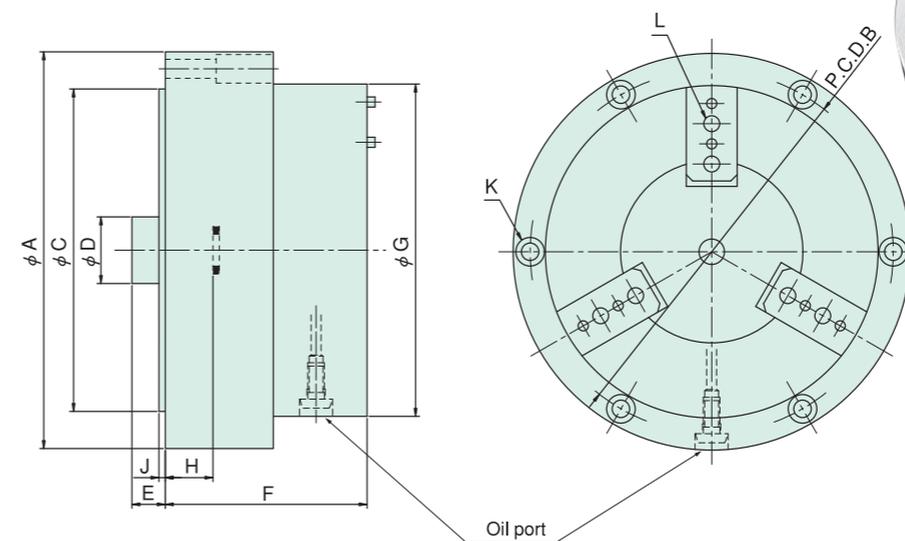
Originally, this chuck was developed for grinding application. It's now being used not only for grinding but also for regular turning application.

Prevent the machined powder and cutting chips from penetrating inside the chuck.



2-5 High Speed Rotary Air Chuck Model No./Dim./Spec

High Speed Type. Up to about 6,000min⁻¹ operation will be possible.



Dimension

Model No.	Dimension										
	A	B	C	D	E	F	G	H	J	K	L
105/125-3-2.5	125	114.3	101.6	21	10.5	63.5	104.7	15	2	6-M5	6-M5

Specifications

Model No.	Stroke (mm)	Nbr.of Jaw	Chucking Cap.		Gripping Force (kN) ※	Max.min ⁻¹ (Nominal)	Wgt. (kg)
			O.D (mm)	I.D (mm)			
105/125-3-2.5	2.5	3	3-90	6-90	9.7	5,500	4.0

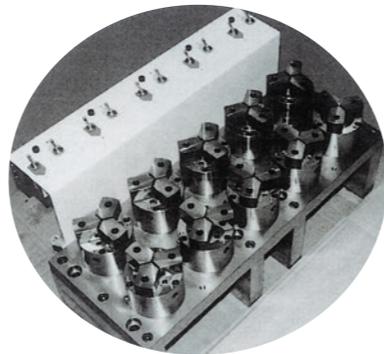
※Gripping force is the value when it's measured under the pressure of 0.7MPa

Max. min⁻¹ is a criterion, and depends on the cutting conditions, mass of workpiece and machined jaw.

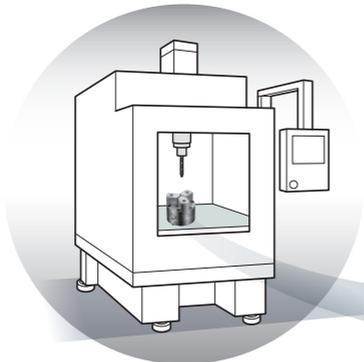
2-6 Stationery Air Chuck

● For drilling, tapping

Model No./Dim./Spec



● Multi-Stationary Air Chucks on Fixture Plate



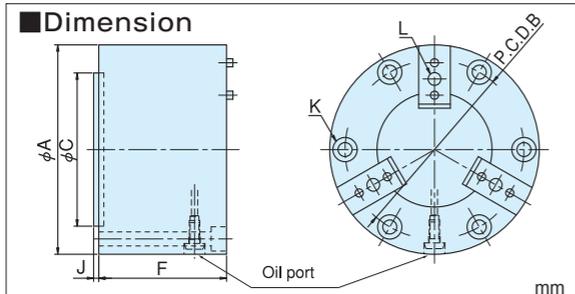
Standard Type

Specifications

Model No.	Stroke (mm)	Nbr. of Jaw	Chucking Cap.		Gripping Force (kN)	Wgt. (kg)
			O.D. (mm)	I.D. (mm)		
2.5 6432S	2	3	3-54	6-54	1.5	0.9
3 332S	2	3	3-72	6-72	2.8	1.8
4 433S	3	3	3-90	6-90	7.4	2.9
6 633S	3	3	3-135	10-135	10.4	7.0

*Gripping force is the value when it's measured under the pressure of 0.7MPa BTO

Dimension



Model No.	Dimension						
	A	B	C	F	J	K	L
2.5 6432S	64	52	30	42	C \square 2	3-M5	3-M5
3 332S	83	70	60	50	C \square 2	6-M5	3-M5
4 433S	100	88.9	60	62	C \square 2.2	6-M5	6-M5
6 633S	150	135.75	125	63	C \square 2	6-M6	12-M5

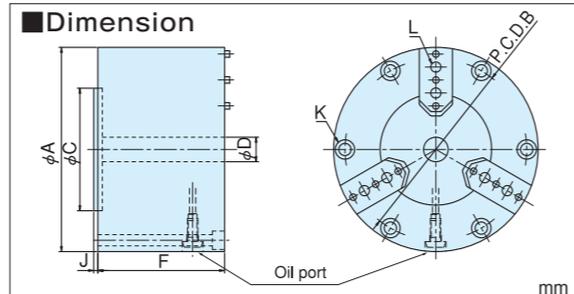
Through-Hole Type

Specifications

Model No.	Stroke (mm)	Nbr. of Jaw	Chucking Cap.		Gripping Force (kN)	Wgt. (kg)
			O.D. (mm)	I.D. (mm)		
4 433S/TH12	3	3	3-90	6-90	7.4	2.9
6 633S/TH30	3	3	3-135	10-135	6.6	7.1

*Gripping force is the value when it's measured under the pressure of 0.7MPa BTO

Dimension



Model No.	Dimension							
	A	B	C	D	F	J	K	L
4 433S/TH12	100	88.9	60	12	62	C \square 2.2	6-M5	6-M5
6 633S/TH30	150	135.75	125	30	61	C \square 2	6-M6	9-M5

BTO

BTO

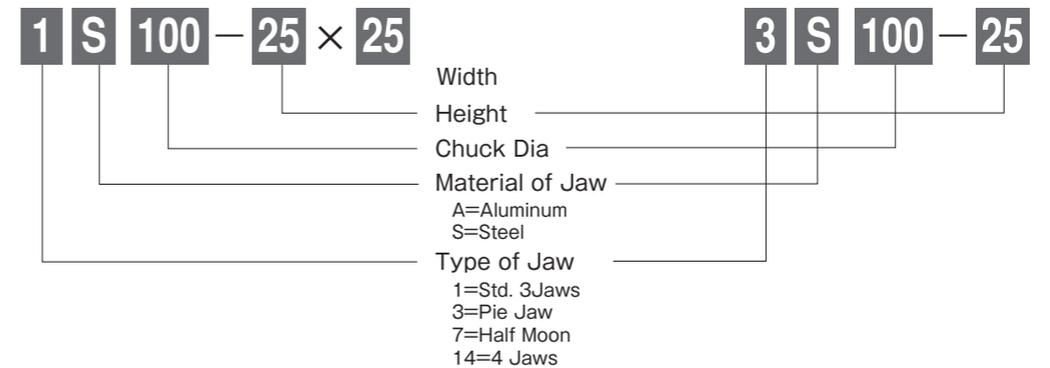
3 Jaw/Form Machining

Model No./Dim./Spec

Material is S45C. Other material is available on request.



Type of Jaw



Type

Chuck Dia	Standard Jaw		Pie Jaw		Chucks To Be Used With	
	Max.Speed (min ⁻¹) *when air pressure is set at 0.7MPa	Max.Speed (min ⁻¹) *when air pressure is set at 0.7MPa	Max.Speed (min ⁻¹) *when air pressure is set at 0.7MPa	Max.Speed (min ⁻¹) *when air pressure is set at 0.7MPa		
3"	1A83-25x25	6000	3A83-25	5000	83-3-2.5 332S	
	1S83-25x25	4000	3S83-25	2500		
	-38x25	3000	-38	2000		
4"	1A100-25x25	4500	3A100-25	4000	100-3-2.5 (1.2) 433S 433S/TH12	
	-38x25	4300	-50	3500		
	1S100-25x19	4300	3S100-25	3000		
	-25x25	4000	-38	2500		
	-38x25	3500	-50	2000		
	-50x25	3000				
5"	1S100-3-5-25x25	4000			100-3-5	
	1A125-25x25	4300	3A125-50	3000	100-4-2.5	
	1S125-25x25	4000	3S125-25	2500		
	-50x25	3000	-38	2000		
14S125-25x25	3000					
6"	1A150-38x25	4000	3A150-38	2500	125-3-2.5 125-4-2.5	
	1S150-25x25	3500	3S150-25	2000		
	-38x25	3000	-38	1500		
	-50x25	2500	-50	1000		
	1S150-4-5-25x25	3000				150-4-5
	1S150-3-5-25x25	2500				150-3-5
8"	1S200-50x50	2000			150-3-2.5 633S	
	1S250-50x50	1500			150-4-5 150-3-5	
10"					200-3-2.5 250-3-2.5	

3"	1S87-25x25	3500			87-3-2.5G
	-38x25	3000			
4"	1S107-25x25	3500			107-3-2.5G
	-38x25	3000			
6"	1S157-38x25	2000			157-3-2.5GT
8"	1S214-50x50	1500			214-3-2.5G

◎Close attention has to be paid to above mentioned max.speed when doing the form-machining of jaw and the machining of components. We (the manufacturer) will not be held responsible for the outcome of form-machining and the accident during the machining(damages or loss resulted from the accident).

◎Other sizes than above are available on request.

◎Half Moon Type is available on request.

●Machining of Jaw

- Clean the mounting surface of both the top Jaws and Master Jaws.
- Set the air pressure to be used to machine the Jaw higher than that to be used for practical machining for production by 0.05 to 0.1MPa
- It is recommended to mark the S/No. of Chuck and/or the type of workpiece on the Work Jaws when they are removed from Chuck. That will ease the Work Jaws to be put back to the right Chuck when they have to be used for the same machining again. As done between the Master Jaws and Chuck Body, it is recommended to put the same Ref. No. on the Work Jaws as the No. marked on the Master Jaws. When once the Work Jaws have to be removed from Chuck, and when they have to be put back to Chuck again, this marking will help fitting both Jaws to the original setting.

●O.D.Clamping

- 1** Install top jaw onto the MJ.
- 2** Open the jaw and machine where the pin for form-machining is to be placed. Put the pin to the pin as shown on the photo, and clamp it by closing the jaws.
- 3** In order to make sure the seating and smooth movement of top Jaw, repeat open and close of jaw a few times not by rotating the chuck.
- 4** Close the top jaw with the pin, and form machine the jaw.
- 5** After machining, chamfer the corners to remove burr.
- 6** Open the top jaw and remove pin. Clean the surface of chuck and top jaw.

●I.D.Clamping

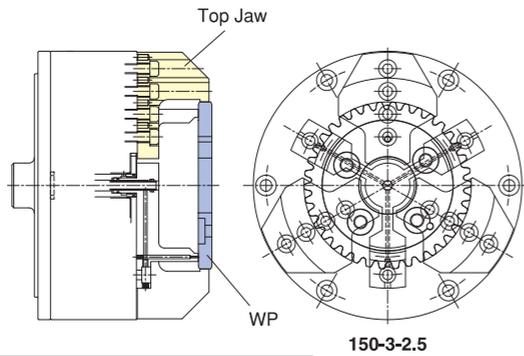
- 1** Install the Top Jaw onto the MJ.
- 2** Close the top jaw and machine the OD of top jaw as much as needed to put the ring for form-machining over the top jaw.
- 3** In order to make sure the seating and smooth movement of top jaw, repeat open and close of jaw a few times not by rotating the chuck. Remove the pin for form-machining, and put the ring for form-machining over the OD of jaw, and properly up to the end.
- 4** Open the top jaw to clamp the ring, and form-machine the jaw.
- 5** After machining, remove burr by chamfering, and remove the ring afterwards.
- 6** Clean the chuck surface and top jaw.

Note : Loading pin should not necessarily be the one from the pins supplied as standard. Any pin, as long as it is good for the purpose, can be used.

4 Application Examples

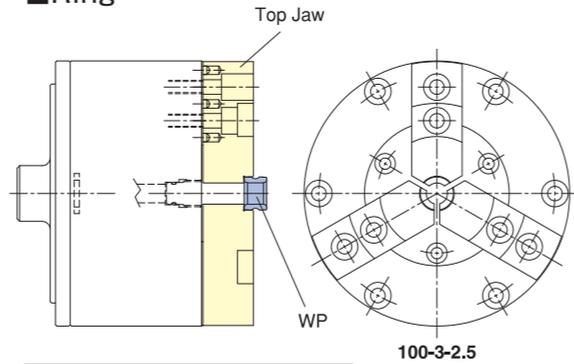
● Automobile Parts etc.

■ Sprocket



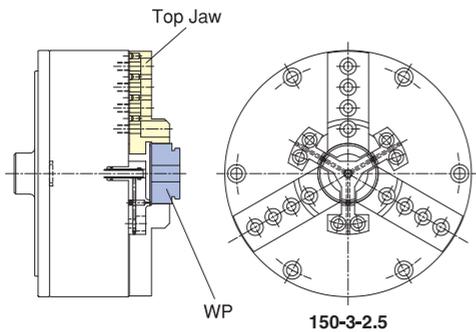
Accuracy Req'd	
Roundness	→ 0.010
Squareness/Flatness	→ 0.020

■ Ring



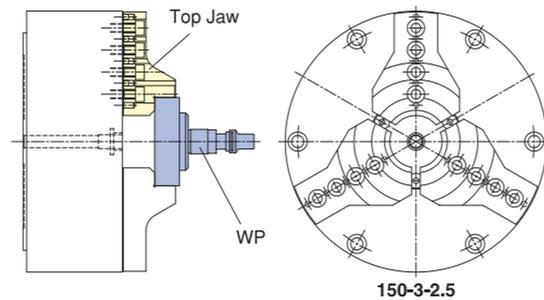
Accuracy Req'd	
Roundness	→ 0.003
Concentricity/squareness	→ 0.050

■ Piston



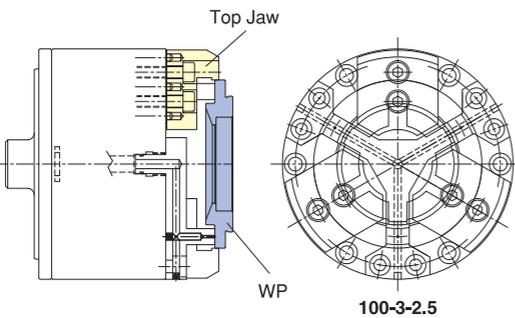
Accuracy Req'd	
Concentricity	→ 0.030
Squareness/Parallelism	→ 0.050

■ Aluminum Piston



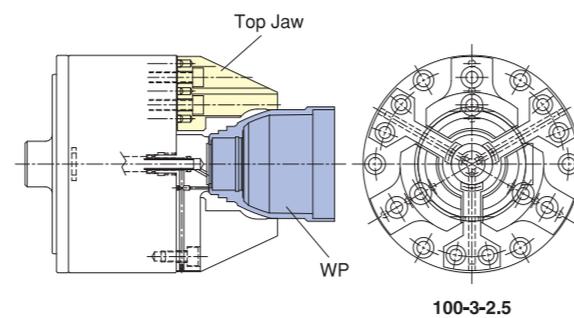
Accuracy Req'd	
Roundness	→ 0.010
Concentricity	→ 0.020

■ Plate



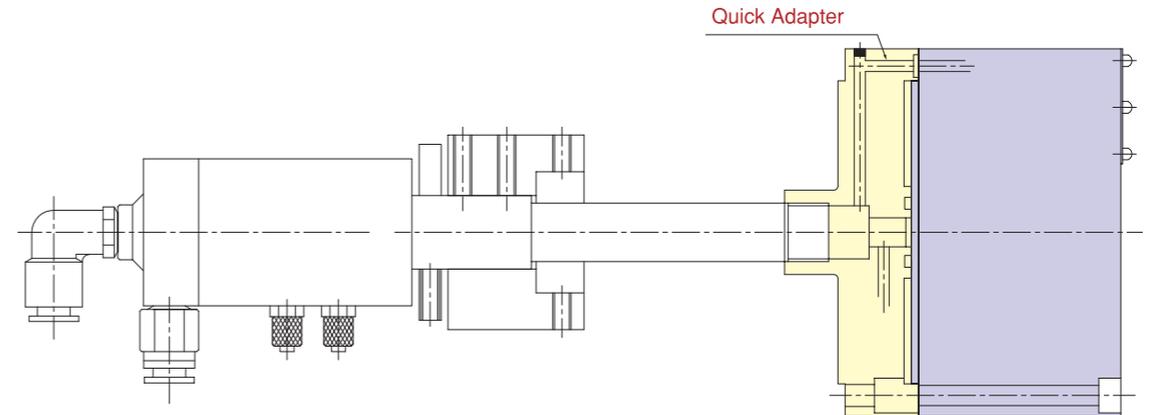
Accuracy Req'd	
Concentricity	→ 0.010/0.100
Squareness/runout	→ 0.050

■ Case



Accuracy Req'd	
Concentricity/Squareness	→ 0.050

5 Quick Change System



※Refer to page11-12 for Mechanism & Feature

※Quick change system is available for any std. rotary air chucks.

M 1 Installation

M-1

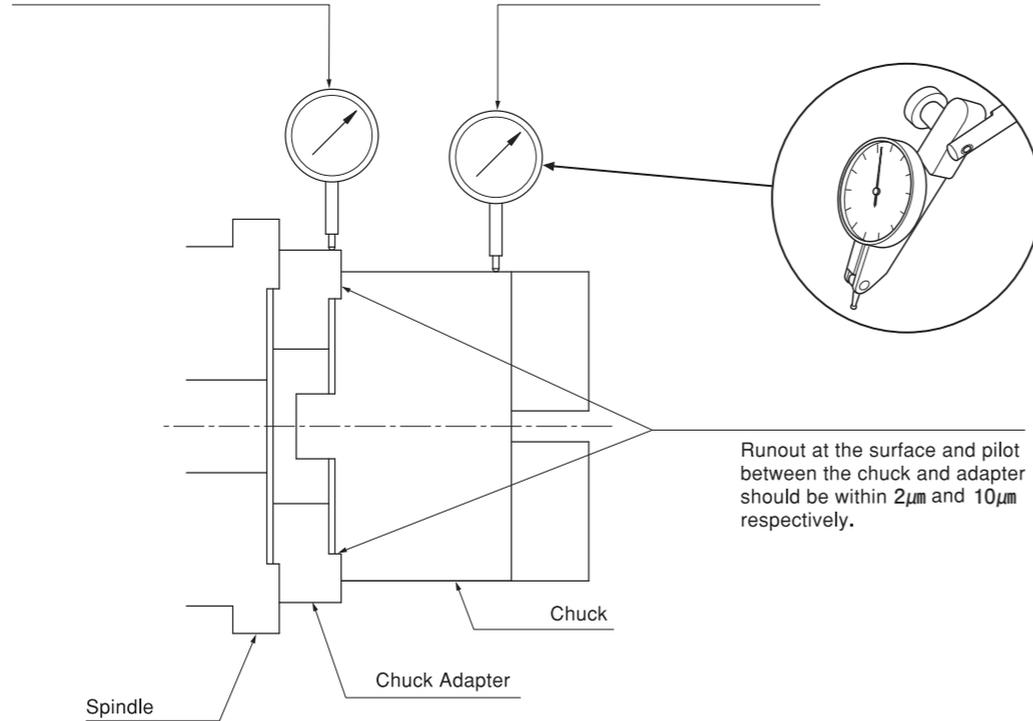
● 1. Installation of Chuck Adapter

- (1) Clean the surface and pilot on both spindle nose and chuck adapter.
- (2) Make sure the surface of both adapter and spindle nose is free from the damage like scratch and dent. If found, correct them by grinding stone or anything suitable. After correcting work, clean both surface again.
- (3) Mount the chuck adapter onto the spindle nose. Make sure not to damage both during the operation.
- (4) Tighten the bolts to secure the chuck adapter to the spindle nose temporarily, not to full extent, leaving a little allowance to make it movable by plastic hammer.
- (5) Put the dial gauge on the front side of chuck adapter.
- (6) Center the chuck adapter to within $2\mu\text{m}$ by knocking it with plastic hammer, all around where seem to be necessary, like; Rotate the spindle by hand, hit the point where the runout was measured highest by plastic hammer. Repeat this operation until below $2\mu\text{m}$ of runout is obtained. If the adapter is hardly moved in other words, if the runout is hardly be improved by this operation, loosen bolts a little further and start the operation again.
- (7) After centering is finished to within $2\mu\text{m}$, tighten the bolts now firmly with the spindle nose.
- (8) Make sure again, if the runout is within $2\mu\text{m}$. If found not, repeat the procedure (6)-(7) until $2\mu\text{m}$ or below is obtained.

M 1 Installation

For centering of chuck adapter
after installed with the spindle
(Below $2\mu\text{m}$)

For centering of chuck after
installed with the chuck adapter
(Below $2\mu\text{m}$)



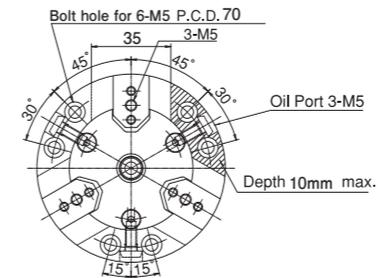
2. Installation of Chuck

- (1) Clean both surface of pilot of chuck adapter and chuck.
- (2) Make sure the surface and pilot are free from the damage such as scratch and dent. If found, correct them by grinding stone or whatever suitable to get the good flat surface. Surface and pilot have to be cleaned after correction work.
- (3) Put the chuck onto the chuck adapter. Caution not to damage the mounting surface is required.
- (4) Tighten the bolts to secure the chuck to the chuck adapter temporarily, not to full extent, leaving a little allowance for the adjustment of runout to be accomplished later, to the extent that it's movable when hitting lightly by plastic hammer.
- (5) Put the dial gauge at the front side of chuck, as shown on the illustration below. As close to the front surface as possible, but away from some unevenness if there is at the surface area.
- (6) Center the chuck to $2\mu\text{m}$ or below.
Procedure: Rotate the spindle (chuck) by hand and measure the runout around the chuck. Find out the point reads highest. Hit there lightly by plastic hammer. Rotate the spindle again to find out highest reading point again, and hit there lightly by plastic hammer. Repeat this procedure until $2\mu\text{m}$ or below runout is obtained. If the runout is hard to be improved, in other word, if it seems that the chuck is hardly moved by plastic hammer, then, loosen the bolts a little, and try above operation until within $2\mu\text{m}$ of runout is obtained.
- (7) After finished centering to within $2\mu\text{m}$, tighten the bolts firmly, to the end.
- (8) Once again, make sure the runout is within $2\mu\text{m}$. If not, repeat the procedure (6)-(7) until $2\mu\text{m}$ or below is obtained.

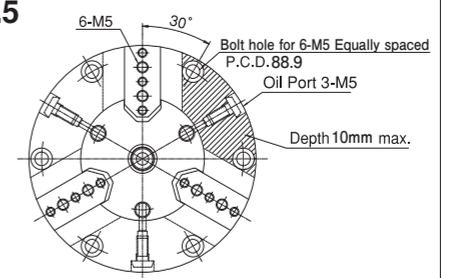
M-2

M 2 Possible Additional Machining Area & Depth

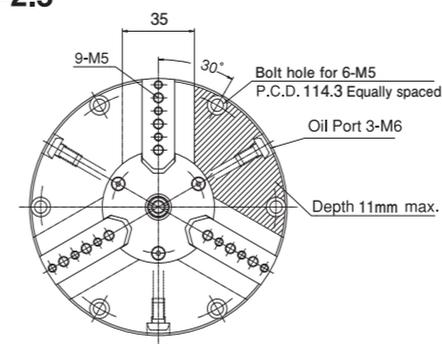
83-3-2.5



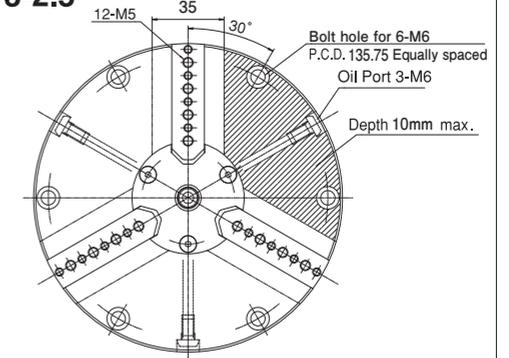
100-3-2.5



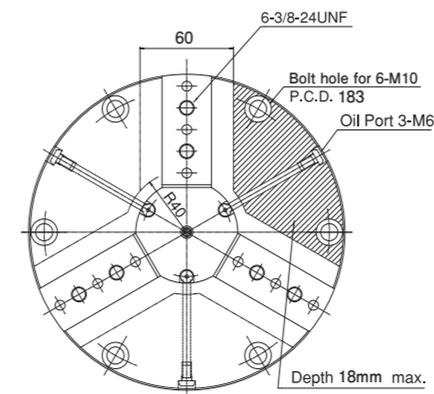
125-3-2.5



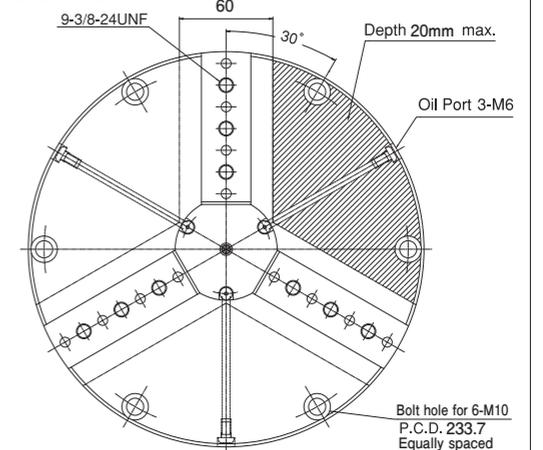
150-3-2.5



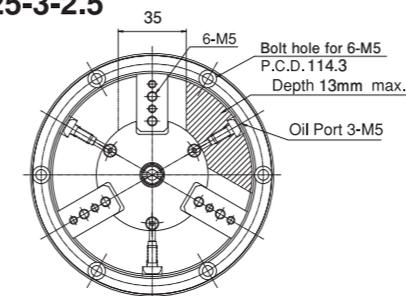
200-3-2.5



250-3-2.5



105/125-3-2.5



M 3 Test Running

M-3

- Be sure that the Chuck is lubricated. (Refer to page 45)
Supply Turbine oil first grade ISO VG32 (Recommended oil) to lubricator through oil port located above lubricator, to the upper limit indicated on the pot. Pay attention not to have chips or dust get into the pot when filling.
- Turn the knob of lubricator to increase the pressure. Carry out inching (Repeat ON/OFF a few times quickly) when the needle of pressure gage reached 0.15 to 0.2MPa, and then, make sure the Jaws open & close OK.
- Turn the needle of Lubricator to adjust the drip rate of oil. In general, suitable dripping rate of lubrication oil is one (1) drip per 2 to 3 times of Chuck open & close.
- Turn the pressure adjustment handle to increase the pressure up to 0.6MPa, and check air leak or any malfunction. There will be some air leak with Journal of ASA, but it will not be a problem usually.
- Start rotating spindle at 100-200 min⁻¹, and increase the min⁻¹ gradually, and see there is no vibration with Chuck or ASA Journal. If there is a vibration with the journal, check the runout of journal by referring to pages 51-54. If not centered within the designated value, retry centering, or call us or local representative.

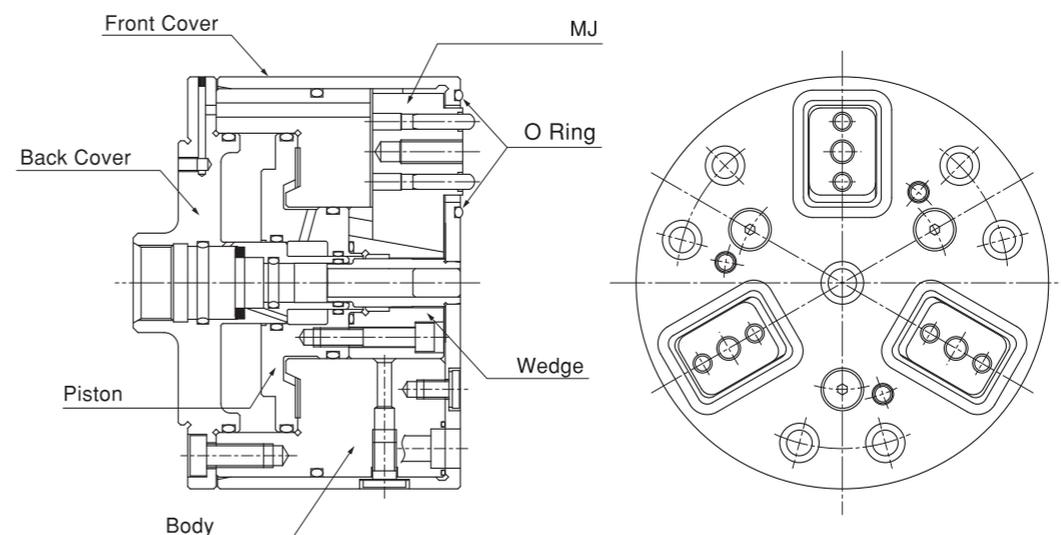
M 4 Overhaul

M-4

Due to the nature of the structure, it is inevitable for chips and sludge from penetrating inside the Slide Jaw Type Air Chucks, and from reaching to the slide ways among MJ, body and wedge. Not much chip or sludge are expected getting inside, however, it keeps going a little by little all the time. Eventually, the jaw get stuck the jamming is caused, and the jaw get stuck. In order to avoid this, it is imperative to lubricate the chuck once every day to get the old oil mixed with chips and sludge out, and fill all the slide ways with new oil. In this way, the life, accuracy life of chuck will be extended.

However, even if the lubrication is done periodically, some small amount of chips or sludge will still remain inside. They will be accumulated and get stiff, and cause jamming eventually. In such case, Overhaul is done to clean inside and to get the smooth movement of jaw back. Disassemble the chuck, clean each component and inside, remove the jamming for example by sand paper lapping, change O rings, and reassemble. Check to see if the jaws move smooth. These are the procedure for overhaul. This operation is normally suggested to do like half a year, or once a year min. Original smooth movement will be back, however, not the repeatability. Longer the chuck is used, bigger the clearance amount the body, MJ and wedge due to the nature with the slide jaw type air chucks. As the bottom line, the frequent lubrication and periodical overhaul will be the keys for longer life.

● Overhaul illustration



● Overhaul Procedure Example

Example: 87-3-2.5G (Shield Chuck)

1. Removal of Front Cover

After dis-mounting Jaws, remove round screw (3 pcs) flat screw and 3 pcs of oil nipples, then, the cover can be dis-mounted. When it's hard to be dis-mounted because of the use of O Ring, insert a round rod through the center of Chuck, and push the cover moderately. If once O Ring located along outside of chuck come off, the cover can be removed smoothly.

2. Removal of Back Cover

Back Cover is ground together with Chuck body. So, before removing, put the check mark at the back side of jaw No.1, and at any other place than the mounting surface or at any critical part of precision so that the Back Cover can be put back to the original position after finished overhaul. Remove the bolts to release Back Cover from Chuck Body. Normally, it's hard to separate Back Cover from Chuck Body by hands. The easy way to do this is to install ASA with Chuck, and send air of approx. 0.1MPa, then, Back Cover will come off. If not, repeat once or twice Chuck open/close by change valve, then, Back Cover and Chuck Body is separated. If still not, increase air pressure a little by little. (Do not use too high air pressure which might cause accident)

3. Dismount of Master Jaws

After removed the Back Cover, dismount the Wedge and Piston which are all tightened together by 3 bolts as one (1) unit, from Chuck Body. Then, remove the Master Jaws. Disassemble above Wedge and Piston. When doing above operation, pay enough attention not to give any scars or scratches to each component.

M 4 Overhaul

4. After Dis-assembly

- 1) Check sliding surface with T-slot of Master Jaws. If there is any mark of jamming or scratches, repair it. If T-slotted part and Wedge shaped T-slot are heavily worn out, then, the chuck will not be repaired and adjusted to the original accuracy.
- 2) Check the sliding surface of Body and Wedge. If there is any mark of jamming or scratches, repair it. If damaged or heavily worn out, correction will be impossible. (If these need to be repaired, then these parts have to be newly made.) In order to correct the mark of jamming or scratches, it is generally recommended to use a sand paper of higher grade than #10000, or, a ultra-fine diamond file. If the mark of jamming or scratches is very deep, the clearance between the Wedge and Body would be bigger after correction. In this case, the original accuracy will be very hard to be obtained after correction.
- 4) Check inside all around.
In the long run of use, O Ring and Seal will be inevitable from deterioration or scratch. Even though the inside is filmed with oil, because of the fluctuation of temperature, and from the air, there is always a chance to get inside moistened. There once was a problem with oil itself. Make sure if there is no rust or corrosion.

5. Cleaning

- Clean every component properly.
Chips, grease and oil have to be cleaned out. Clean carefully even narrow part and gap, T-slot sliding part, air port and oil port are all not easy to be cleaned. Use air to clean these parts.

6. Re-Assembly

- Re-assembly the chuck by the reverse procedure to the dis-assembly.

Note : Manufacturer will not be responsible about the result of overhaul done by customer.

M 5 Lubrication (For Slide ways) M-5

Observation of periodical lubrication is imperative to maintain the accuracy and life. For all the air chucks, except sealed type, there's always the chance for chips, coolant and sludge penetrate inside of chuck. It is, therefore, necessary to keep ejecting those out of chuck by injecting new lubricating oil periodically, to maintain the smooth lubrication, and naturally for long life. It is recommended to observe the followings:

1. Do lubrication at three oil ports supplied with chuck.
2. Remove the plug from ports, and clean all three ports by air blow or cloth. In case of using hex wrench, pay attention not to damage the hex port of chuck side.
3. Do open/close of jaws 5-6 cycles while doing injection so that the lubrication oil can be delivered to all slide ways. (During this operation, there will be a chance for the oil splash out of the port. So, it is recommended to waste cloth at the port area to avoid that.) Not to have oil leak at the port area, before it goes into the chuck. Put the injector nozzle firmly to the port.
4. Injection of lubrication oil to the ports should be continued until the oil will come out of the clearance between the master jaws and chuck body, and to other ports other than the one being used for injection, and eventually up until the clean lubrication oil can be seen after the initial old dirty oil. (Open/close operation of jaws mentioned above 3 will actually have to be repeated until the clear oil will come out of the chuck.)
5. Recommended lubrication oil: Shell Tona S3M68 or equivalent to either of them.
6. Frequency of lubrication: Min. once a day (More than once a day lubrication is recommended for long life.) In case of dry cutting, as frequent as possible, more than once a day, lubrication is requested.

M 6 Caution

M-6

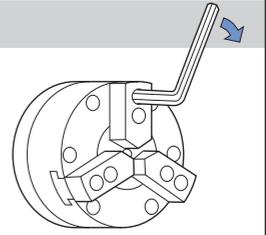
1 Power

Turn off power while changing chuck or ASA, or while doing inspection.

OFF

2 Bolt

Tighten all bolts firmly and evenly.



3 Lubrication

Supply lubrication oil through oil port periodically. Refer to page 45.

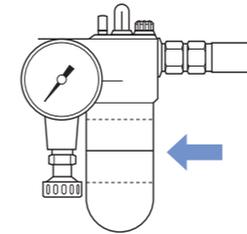
4 Shock

Refrain from hitting Chuck. Jaw and workpiece by hammer etc.



5 Lubricator

Keep paying attention to the volume of lubrication oil in the lubricator so that it will always be over half of pot.



6 S.R. Bushing

After centering is finished, tighten bolts evenly and firmly. Neglecting this will eventually cause jamming and damage to ASA assembly.

7 Change Valve

Do not operate Valve (Manual or Solenoid) while spindle is rotating. Operate it only after spindle is stopped.

8 Hand

Be careful with finger not to be caught by Jaws.



9 Coolant

Max. pressure to be used to feed the coolant is 0.4MPa. Any higher pressure may harm Journal of ASA.

10 MIN-1 Restin

Use of higher MIN-1 than that specified in the catalog may have workpiece fly from Jaws because of the depressions of clamping force. Depending on the cutting conditions etc., even the MIN-1 specified in the catalog may occasionally not be used. When high MIN-1 is required to be used, contact manufacturer or local representative.

11 Spindle Start

For the safety, set system so that the spindle can not be started when the door is open.

12 Air Pressure

Max. air pressure: 0.7MPa

Use of any higher pressure than 0.7MPa will shorten the life of air chuck.

