

MEPAC

(Parallel air chuck)

Parallel air chuck for accurate grasping

The ability to grasp accurately can be confirmed by uncompromising design concept.

The quality of MEPAC, which was evaluated by receiving the Invention Award and actual results of hundreds of thousands of products, is the result of continuing to be particular about making chuck more chuck like. Please utilize the assured function of MEPAC to FA.



In order to perform planning and designing of automated assembly system and machine, element technology for “accurate grasping” must be established and build reliability. We established this element technology by developing high-performance, high-quality parallel air chuck with multitudes of patents while struggling from ensuring reliability because we are a manufacturer of automated assembly system. The latest mechanism, such

as two-piston drive, spring preloader, and double overlap roller guide, received the authoritative Intension Award from The Japan Society for the Advancement of Inventions. MEPAC can be said to be a positively unparalleled chuck with precise structure that cannot be perceived from the external appearance. Please use MEPAC parallel air chuck of MEG for automated assembly system and component design and production.

Eco model



Eco

ECO-Multi

Motorized (Unclamp unit)

Average model



Standard



Taste

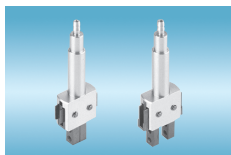


All-purpose



Smart

Personality model



Micro



Short

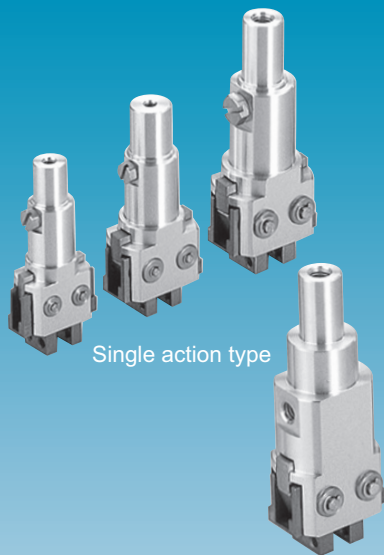


Floating

MEG parallel air chuck

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Standard X95□□ (Type without sensor)



Single action type

Reciprocating type

- Abundant types can be selected from minimum to large workpiece.
- Reciprocating type and single action type (NO, NC) are available. Type can be selected according to the application.

■ Variations

Model No.	Stroke (mm)	4	5	6
X95□□-NO		x	x	x
X95□□-NC		x		x
X95□□ (Reciprocating)		x	x	x

* Refer to A-38 to find the type with sensor.

Product number configuration

X95□□ - □□

Model No. Size code No code: Reciprocating
 NO: Single action (constantly open)
 NC: Single action (constantly closed)

■ Basic specifications

Operating method	Single action type, reciprocating type/ Parallel air chuck
Fluid for use	Clean air (Filtered compressed air)
Working pressure range	0.3 to 0.5 MPa
Ambient temperature	5 to 50°C
Lubrication	Non-lubrication or lubrication equivalent to Turbin oil JIS#90.
Piping connection port	M5 x 0.8
Frequency of use	Max. 60 cpm
Repetitive position accuracy	±0.05 mm

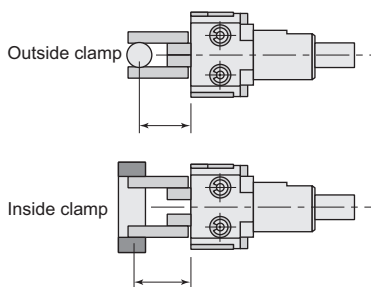
* Refer to precautions in A-72 and in the subsequent pages as well.



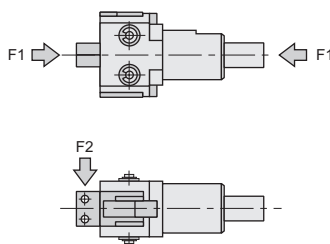
Model

Type		Model No.	Cylinder diameter (mm)	Stroke (mm)	Theoretical clamp force (N)	Max. clamp point (mm)	Max. allowable load (N)		Mass (g)
							F1	F2	
Single action	Constantly open	X9558-NO	8	4	5.0	13	13	7	18
		X9559-NO	10	4	8.5	17	16	10	28
		X9560-NO	12	4	13.0	19	23	13	46
		X9561-NO	14	5	18.0	20	30	20	62
		X9562-NO	16	6	24.0	28	37	27	90
	Constantly closed	X9559-NC	10	4	10.0	17	16	10	28
		X9560-NC	12	4	13.5	19	23	13	46
		X9562-NC	16	6	27.0	28	37	27	90
Reciprocating	X9570	12	4	20.5	19	23	13	57	
	X9571	14	5	24.5	20	30	20	78	
	X9572	16	6	34.0	28	37	27	112	
Remarks	*1, 2		*3	*4, 5		*6, 7			

• Maximum clamp point



• Maximum allowance load



Remark description

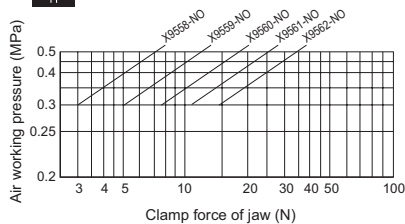
- *1 For the type without sensor, sensor cannot be installed afterward.
- *2 Centering for workpiece will not be performed when NO type is used with inside clamp.
- *3 Stroke allowance is about 0 to +1 mm.
- *4 Clamp force is theoretical value with air pressure of 0.4 MPa.
- *5 For reciprocating type, it is the clamp force on the closed side. Clamp force on the open side is 1/2 to 1/3 of the clamp force on the closed side.
- *6 The maximum allowance load is the static allowance load and it is not within the range in which finger tooling can be operated.
- *7 The maximum allowance load is a rough indication and it is not a guaranteed value. Reduce external force as much as possible.

Standard X95□□ (Type without sensor)

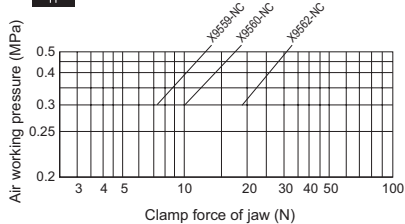
Single action type Clamp force



Single action type - NO (close force)



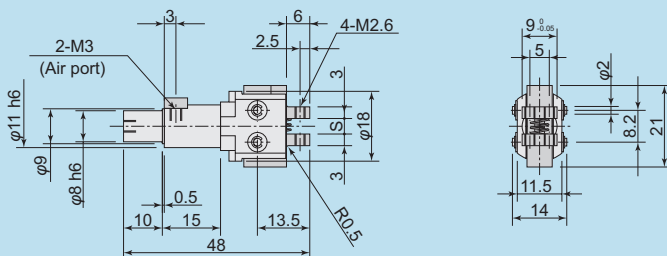
Single action type - NC (open force)



Dimensional drawing

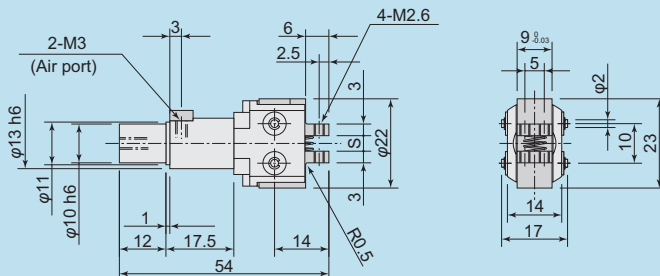
(mm)

X9558-NO



	Open	Close
S	4	0

X9559-NO (NC)



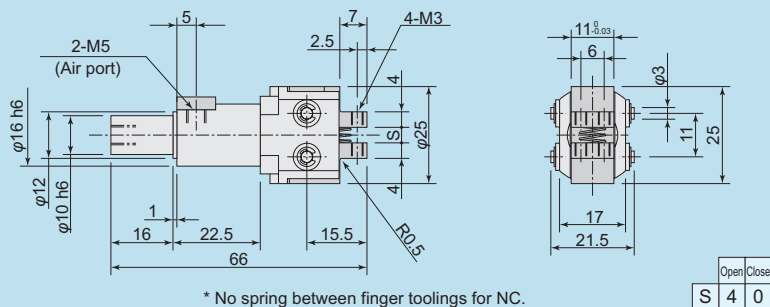
* No spring between finger toolings for NC.

	Open	Close
S	4	0



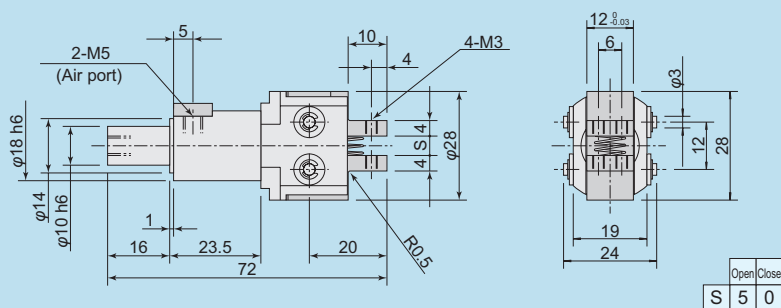
(mm)

X9560-NO (NC)

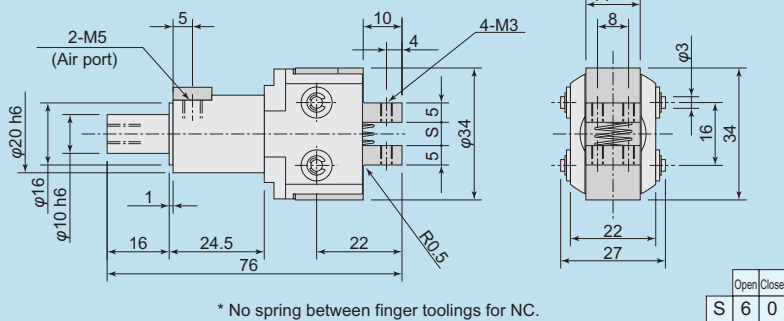


* No spring between finger toolings for NC.

X9561-NO



X9562-NO (NC)

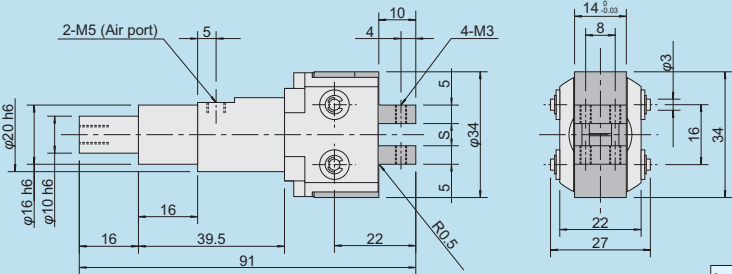


* No spring between finger toolings for NC.



(mm)

X9572



	Open	Close
S	6	0

MEPAC (Parallel air chuck)

Micro X960 ☐



- Thickness is only 10 mm, mass 20 g.
[Ultra-small] two jaws parallel air chuck as small as a female pinkie finger.

■ Variations

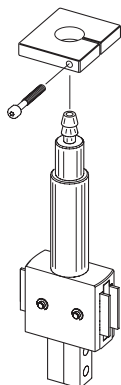
Model No.	Stroke (mm)	4	NO (constantly open)	NC (constantly closed)
X9600	×	×		
X9605	×			×

Product number configuration

X960 ☐

Model No. Size code

■ Example of installation



■ Basic specifications

Operating method	Single action type/Parallel air chuck
Fluid for use	Clean air (Filtered compressed air)
Working pressure range	0.4 to 0.5 MPa
Ambient temperature	5 to 50°C
Lubrication	Non-lubrication or lubrication equivalent to Turbin oil JIS#90.
Piping connection port	With fitting for $\phi 4 \times \phi 2.5$ tube
Frequency of use	Max. 40 cpm
Repetitive position accuracy	± 0.05 mm

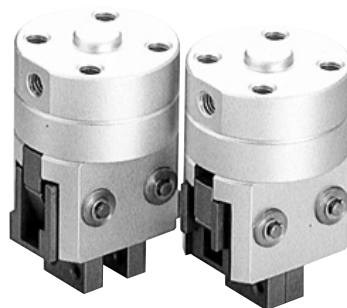
* Refer to precautions in A-72 and in the subsequent pages as well.

Short type

MEPAC with [ultra-short] two jaws, which was developed as a parallel air chuck that can exercise large clamp power even in the narrow space. Elaborate design by holding down the length of body. Enables to use in a narrow space with few overhang by the short trunk shape. In addition, lightweight and simple. Already being active in various automatic assembly machines and carrier devices including industrial robots.

Stroke (mm)	4	4	4	6
Clamp force (N)*	5	8.5	13	24
Single action Constantly open (NO)	x	x	x	x
Single action Constantly closed (NC)	x	x	x	x

* Clamp force is the value for NO type at 0.4 MPa.



Ultra-short but stable clamp

Although the body dimension is small, the clamp force is larger and highly accurate by parallel open and close motion by means of MEPAC original overlap roller guide method. Stable chucking even when there is variation in clamp dimensions and with irregular shape.

The characteristics are light and engaging-free operation.

No engaging phenomena due to the highly efficient in operation by swing action lever mechanism and introduction of ultra-small precision roller. Light operation, excellent high-speed responsiveness, and exercise sufficient clamp force.

Ultra-short and highly accurate

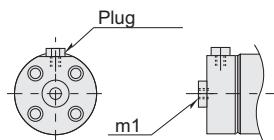
Short body dimensions allows shortening of the dimensions from installation part to workpiece clamp part, and the pursuit of stable supply accuracy by suppressing overhang amount.

Long life despite small size

Highly economically efficient parallel air chuck, which can be used over a long period of time with excellent durability and constantly smooth movement by the mechanism unique to MEPAC, which does not allow functioning with unreasonable force towards the operation direction.

Center port option

As an option, center port type is available.





■ Open/close operation

Constantly open (NO)

When the air comes in from Port A, the large piston pivots the action lever to [Close].

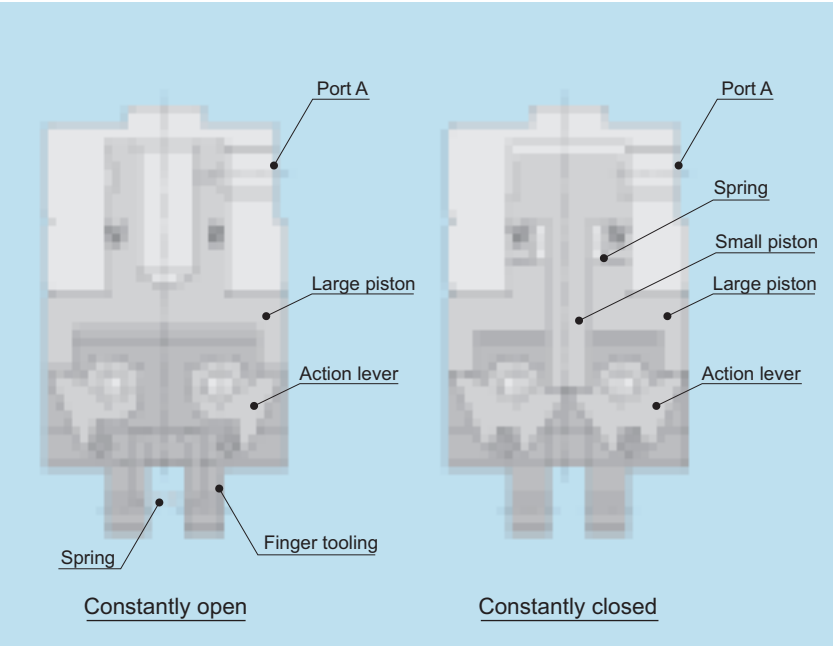
When the air comes out from Port A, the finger tooling became [Open] by spring of the finger tooling, and the large piston is returned.

Constantly closed (NC)

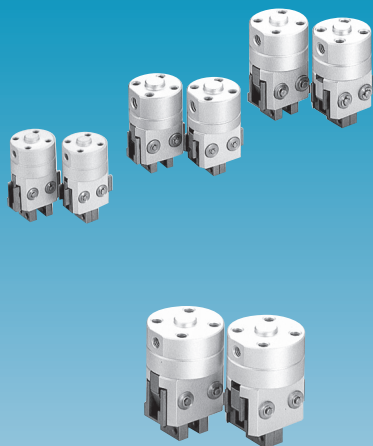
When the air comes in from Port A, the small piston pivots the action lever to [Open].

When the air comes out from Port A, the small piston is returned by the spring on the upper side of the large piston, and the large piston pivots the action lever to [Close].

■ Structural chart



Short X95□□B



- ## ■ Variations

Model No. \ Stroke (mm)	4	6
X95□□B-NO	×	×
X95□□B-NC	×	×

Product number configuration

X95 □□ **B-** □□ - □

Model No.	Size code		NO: Single action (constantly open)	
		Short	NC: Single action (constantly closed)	
				C: Center No code: Standard

* Center port is an option.
Refer to page A-65.

■ Basic specifications

Operating method	Single action type/Parallel air chuck
Fluid for use	Clean air (Filtered compressed air)
Working pressure range	0.3 to 0.5 MPa
Ambient temperature	5 to 50°C
Lubrication	Non-lubrication or lubrication equivalent to Turbin oil JIS#90.
Piping connection port	M5 x 0.8 M3 x 0.5
Frequency of use	Max. 60 cpm
Repetitive position accuracy	±0.05 mm

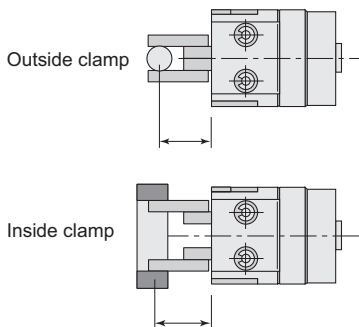
* Refer to precautions in A-72 and in the subsequent pages as well.



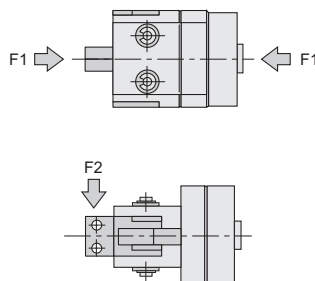
Model

Type		Model No.	Cylinder diameter (mm)	Stroke (mm)	Theoretical clamp force (N)	Max. clamp point (mm)	Max. allowable load (N)		Mass (g)
							F1	F2	
Single action	Constantly open	X9558B-NO	8	4.0	5.0	13.0	13	7	22
		X9559B-NO	10	4.0	8.5	17.0	16	10	32
		X9560B-NO	12	4.0	13.0	19.0	23	13	50
		X9562B-NO	16	6.0	24.0	28.0	37	27	110
	Constantly closed	X9558B-NC	8	4.0	4.5	13.0	13	7	22
		X9559B-NC	10	4.0	10.0	17.0	16	10	32
		X9560B-NC	12	4.0	13.5	19.0	23	13	50
		X9562B-NC	16	6.0	27.0	28.0	37	27	110
Remarks		*1		*2	*3		*4, 5		

Maximum clamp point



Maximum allowance load



Remark description

- *1 Centering for workpiece will not be performed when NO type is used with inside clamp.
- *2 Stroke allowance is about 0 to +1 mm.
- *3 Clamp force is theoretical value with air pressure of 0.4 MPa.
- *4 The maximum allowance load is the static allowance load and it is not within the range in which finger tooling can be operated.
- *5 The maximum allowance load is a rough indication and it is not a guaranteed value. Reduce external force as much as possible.

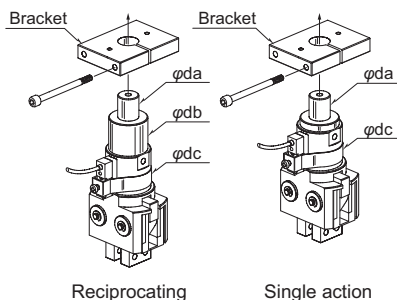
Mounting precautions

■ All models

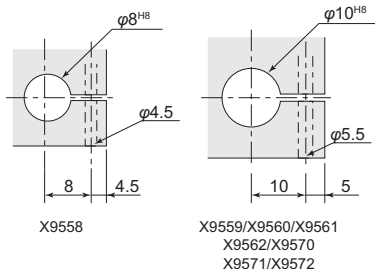
- The bracket is to be provided by the customer.

■ Standard (X95□□□)

- Use ϕda and ϕdb (reciprocating only) of shank part of the body for fixing chuck. Do not perform fixing on the other parts because it may cause deformation of the body and malfunction.
- When fixing with ϕdb , in order to prevent deformation within the cylinder, use the coupling clamping method as shown in the figure.



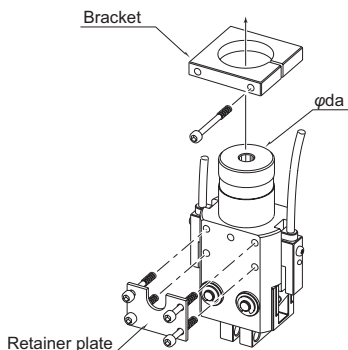
Reference drawing (bracket) (mm)



- If sensor is not used, use ϕdc as a supporter (fitting of anti-vibration).
- Height and angle of the bracket can be adjusted by coupling clamping method.

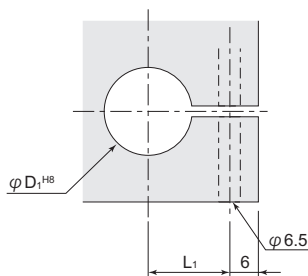
■ Taste (X95□□T)

- Please use the shank part ϕda of the body or mounting face and mounting holes to fix the chuck. Do not perform fixing on the other parts because it may cause deformation of the body and malfunction.
- When fixing with ϕda , in order to prevent deformation within the cylinder, use the coupling clamping method as shown in the figure.



- Height and angle of the bracket can be adjusted by coupling clamping method.

Reference drawing (bracket) (mm)

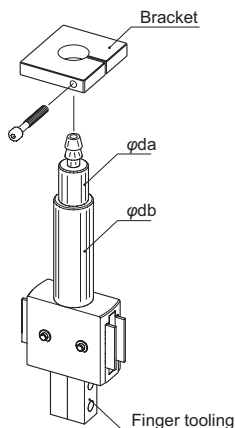


Model No.	D_1	L_1
X9563T/73T	22	17
X9564T/74T	26	19

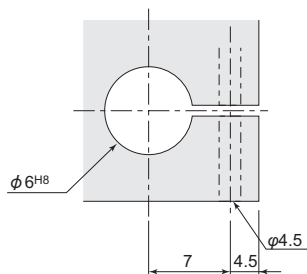
Mounting precautions

■ Micro (X960□□)

- Use ϕda of the shank part of the body for fixing chuck. Do not perform fixing with ϕdb because it may cause deformation of the cylinder integrated parts and malfunction.
- Height and angle can be easily adjusted by using the coupling clamping method.



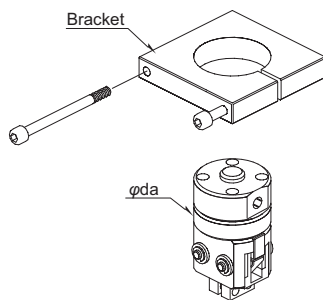
Reference drawing (bracket) (mm)



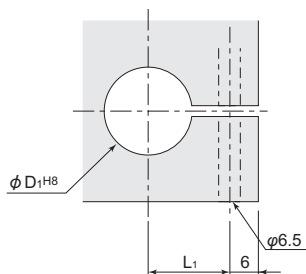
- If chuck became unstable due to inertia, design to install anti-vibration to ϕdb part after fixing the ϕda part.

■ Short (X95□□B)

- For fixing the chuck, use the tap hole for installation on the end face of the body.
- Although it is possible to fix the ϕda part with the coupling clamping method, use it by increasing the bracket accuracy in order to prevent from causing deformation of cylinder integrated part.



Reference drawing (bracket) (mm)



Model No.	D ₁	L ₁
X9558B	18	15
X9559B	22	17
X9560B	25	18.5
X9562B	34	23

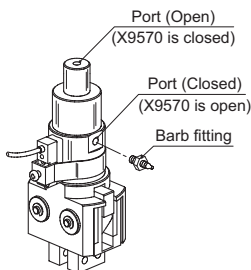
Piping precautions

■ All types (Air type)

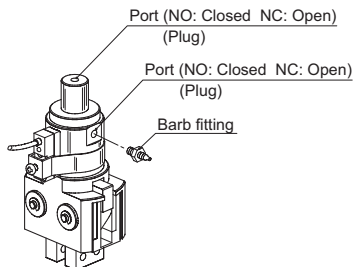
- Please use barb fittings for piping as much as possible by considering inertia force. One-touch connect fittings, etc. may be too big for this product and may conflict with supporter and bracket.
- Install speed controller to the piping line, make sure to adjust the finger open/close speed, and clamp as soft as possible. If the product is used with more than necessary speed, it will increase impact load and may cause adverse effect on accuracy and service life.

■ Standard (X95□□)

- (1) Piping of reciprocating standard type
There are two ports for air piping in this product. Perform piping for both ports.

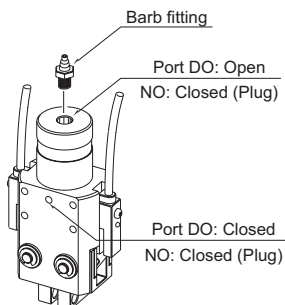


- (2) Piping of single action standard type
There are two ports for air piping in this product. Both are for clamp, therefore, perform piping according to usability.



■ Taste (X95□□T)

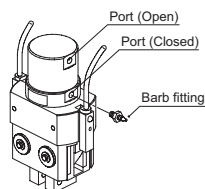
- (1) Piping
There are two ports for air piping in this product. In the case of the single-action type, connect a tube only to one port, and in the case of the reciprocating type, connect tubes to both ports. In the single-action type, fit a plug on the unneeded port after the completion of piping connection.



■ All-purpose (X966□)

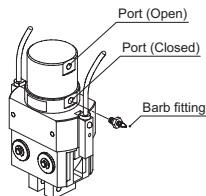
- (1) Piping of reciprocating all-purpose type

There are two ports for air piping in this product. Perform piping for both ports.



- (2) Piping of single action all-purpose type

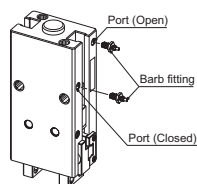
There are two ports for air piping in this product. Both are for clamp, perform piping according to the model. Do not plug the unneeded port.



■ Smart (X967□)

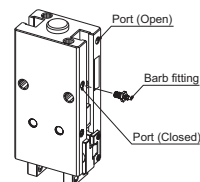
- (1) Piping of reciprocating smart type

There are two ports for air piping in this product. Perform piping for both ports.



- (2) Piping of single action smart type

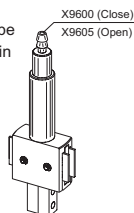
There are two ports for air piping in this product. Perform piping for closed port. Do not plug the open port.



■ Micro (X960□)

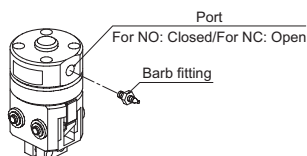
- (1) Insert the pneumatic hose surely up to the base of the fitting and take care not to bend the hose from the opening when chuck moves.

Piping of single action micro type
There is one port for air piping in this product.



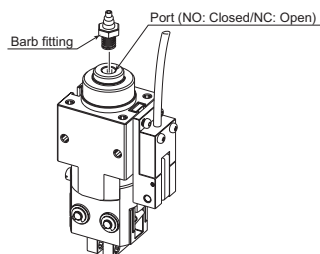
■ Short (X95□□B)

- (1) Piping of single action short type
There is one port for air piping in this product.



■ Floating (X956□FL)

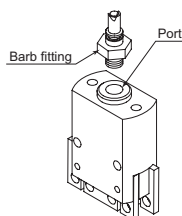
- (1) There is one port for air piping in this product.



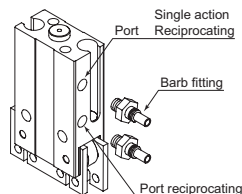
- Since the air piping port is also floated, secure the joint firmly, and use a soft-type air tube (soft nylon, polyurethane).
- Measures for whirl-stop in tightening the joint should be taken on the main body of the chuck. (Do not perform with finger tooling and floating main body.)

■ Eco, ECO-Multi

- Be sure to install flow controls.
- Eco type has one port for air piping.



- ECO-Multi type has two ports for air piping.



- Hexagon type of fitting may be protruded from the main body side of X9608. If there is interference, use small fitting. (Reference CKD. FTS4-M3)

Notes on handling

■ All models

- MEPAC is comprised of precision parts. Handle with care to prevent any dent on or deformation of the body.
- Do not disassemble. If this product is disassembled, the functions and performance of the product may not be reproduced.
- Before use, read and understand the instruction manual for correct use.
- The specification and the shape of this product is subject to change without notice along with improvement of the product.

■ Standard (X95□□)

- Read sensor specification A-84 to find the detail of the sensor.
- Sensor is adjusted so that it is turned ON by finger tooling open at shipping.

■ Taste (X95□□T)

- Read sensor specifications A-86 to find the detail of the sensor.

■ All-purpose (X966□)

- Read sensor specifications A-86 to find the detail of the sensor.
- When using two sensors, use the sensor for checking finger tooling (close) on the air port side in order to avoid interference with tube fitting.
- When this product is shipped from the factory, the sensor is built-in and set for each NO, NC, and DO type. Please contact us when any changes will be made for specification for some reason in order to maintain the performance.

■ Floating (X956□FL)

- Read sensor specifications A-86 and A-96 to find the detail of the sensor.
- Do not use a spring other than specified.
- Do not use the product at the float end (stroke end of the floating mechanism). The chuck may be damaged or finger tooling malfunction may occur due to shock.