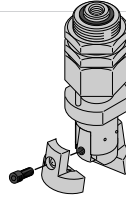


□ Finger blank specifically for K finger type of closing gripper

# Blank Finger

## Characteristics

- Accurate centering is realized by the R-guide of the finger blank and the master fingers.
- Use the finger blank by forming it according to the shape of your work.
- Remove the work stopper when it is not necessary.
- Nitriding proves effective if the wear of the fingers is to be prevented.
- \* Finger material: Ferritic Stainless Steel (Cr: 19 ~ 21%, Mo: 1.5 ~ 2.5%)



**RoHS** The products listed in this page are ECO-friendly products.  
\* Please refer to page 4 for the details of ECO-friendly products.

Model		W		øD1		øD2		øD3		T		L1		L2		L3		L4		Setscrew (supplied)	Applicable gripper												
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.														
CHM08AK11		6		0.24		15		0.59		1		5		0.20		8		0.31		0.45		Hex' Socket Head Cap Screws M2×4t (mm) 2 Pcs.	CHM08A□K Type										
		10		0.39		13		0.51		16.5		0.65		4.8		0.19																	
CHM08AK12		12		0.47		10		0.39		2.1		0.08		5		0.20		8		0.31		11.5		0.45		Hex' Socket Head Cap Screws M2.5×5t (mm) 2 Pcs.	CHM11A□K Type						
CHM08AK13		12		0.47		10		0.39		2.1		0.08		10		0.39		13		0.51		16.5		0.65									
CHM08AK14		12		0.47		10		0.39		2.1		0.08		10		0.39		13		0.51		16.5		0.65		Hex' Socket Head Cap Screws M2.5×5t (mm) 2 Pcs.	CHM11A□K Type						
CHM08AK15		16		0.63		20		0.79		2		0.08		5		0.20		8		0.31		11.5		0.45									
CHM08AK16		16		0.63		20		0.79		2		0.08		10		0.39		13		0.51		16.5		0.65		Hex' Socket Head Cap Screws M2.5×5t (mm) 2 Pcs.	CHM11A□K Type						
CHM11AK11		8		0.31		20		0.79		13		0.51		2.6		0.10		2		0.08		6		0.24				10		0.39		14	
CHM11AK12		12		0.47		16		0.63		20		0.79		6		0.24		10		0.39		14		0.55		Hex' Socket Head Cap Screws M2.5×5t (mm) 2 Pcs.	CHM11A□K Type						
CHM11AK13		12		0.47		16		0.63		20		0.79		6		0.24		10		0.39		14		0.55									
CHM11AK14		16		0.63		12		0.47		16		0.63		20		0.79		6.8		0.27		2		0.08		Hex' Socket Head Cap Screws M2.5×5t (mm) 2 Pcs.	CHM11A□K Type						
CHM11AK14		16		0.63		12		0.47		16		0.63		20		0.79		6.8		0.27		2		0.08									

**CHM Slotless Solid Blank**

\*( ) : Dimension of CHM11 type

Model		W		øD1		øD2		øD3		L1		L2		L3		L4		Setscrew (supplied)	Applicable gripper														
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.																
CHM08AK01		6		0.24		15		0.59		5		0.20		8		0.31		11.5		0.45		Hex' Socket Head Cap Screws M2×4t (mm) 2 Pcs.	CHM08A□K Type										
CHM08AK02		10		0.39		13		0.51		16.5		0.65		4.8		0.19																	
CHM08AK03		12		0.47		10		0.39		2.1		0.08		5		0.20		8		0.31		11.5		0.45		Hex' Socket Head Cap Screws M2.5×5t (mm) 2 Pcs.	CHM11A□K Type						
CHM08AK04		12		0.47		10		0.39		2.1		0.08		10		0.39		13		0.51		16.5		0.65									
CHM08AK05		16		0.63		20		0.79		2		0.08		5		0.20		8		0.31		11.5		0.45		Hex' Socket Head Cap Screws M2.5×5t (mm) 2 Pcs.	CHM11A□K Type						
CHM08AK06		16		0.63		20		0.79		2		0.08		10		0.39		13		0.51		16.5		0.65									
CHM11AK01		8		0.31		20		0.79		13		0.51		2.6		0.10		2		0.08		6		0.24		10		0.39		14		0.55	
CHM11AK02		12		0.47		16		0.63		20		0.79		6		0.24		10		0.39		14		0.55		Hex' Socket Head Cap Screws M2.5×5t (mm) 2 Pcs.	CHM11A□K Type						
CHM11AK03		12		0.47		16		0.63		20		0.79		6		0.24		10		0.39		14		0.55									
CHM11AK04		16		0.63		12		0.47		16		0.63		20		0.79		6.8		0.27		2		0.08		Hex' Socket Head Cap Screws M2.5×5t (mm) 2 Pcs.	CHM11A□K Type						
CHM11AK04		16		0.63		12		0.47		16		0.63		20		0.79		6.8		0.27		2		0.08									

**Package specification**  
1 pc. in a bag

**Caution**  
\* The model with low sales average may be build to order production. For details, please contact Pisco sales office or sales representative.



## Common Safety Instructions for Actuators

□ Be sure to read the following instructions before selecting and using the PISCO devices. Also read the detailed instructions for individual series.

- △Warnings:
1. Watch out for the moving parts of Actuator during operation. Provide safety means, such as a protective cover, where there is danger to human bodies.
  2. Where trouble with power supply can cause performance drop, bodily injuries or damage to the equipment, provide safety means.
  3. Use clean air, removing drainage and dirt. Impurities contained in compressed air cause malfunction.
  4. Do not use Actuators in locations where they are exposed to water drops, oil drops or dust. Malfunction may result from such careless use.
  5. Do not allow excessive external forces or shocks to act on the Actuator body. Also take care not to drop the Actuator, or damage to its body may result.

△Cautions:

1. Actuators can be used without lubrication. But when you do lubricate, use Turbine Oil Class 1 (ISO VG32). Once you started lubrication, continue it. Discontinuance may result in malfunction due to the loss of initial lubricant.

## Common Safety Instructions for Lever Gripper

□ Be sure to read the following instructions before selecting and using the PISCO devices. Also read the detailed instructions for individual series.

- △Warnings:
1. The holding force of the Closing Gripper Series changes in relation to the holding point. Much separation of the holding point from the lever fulcrum of the Lever Gripper and heavy fingers may shorten the gripper life and cause damage to the gripper body. Consult PISCO about such applications.
  2. Use a model having a holding power sufficient for the weight of work to be held. Insufficient holding power may result in the drop of work.
  3. Use the gripper with works of the size as specified in the work dimensions table in the manual. Use with works of wrong size can shorten life or result in unstable holding.
  4. When installing a Blank Finger, use a proper tool and the recommended tightening torque in the table below and make certain that the Blank Finger is not dislocated from the master finger. Wrong torque or dislocation may cause malfunction, dislocation of the holding position or drop of work.

Table. Recommended Tightening Torque

Thread size	Tightening torque
M2×0.4	0.6 ~ 0.8N·m (0.44 ~ 0.59lb-ft)
M2.5×0.45	1.3 ~ 1.5N·m (0.96 ~ 1.11lb-ft)

5. Do not allow lateral loads or shocks to act on the master finger. Damage to the finger or accuracy drop may result.
6. Use the floating panel mount type within the specified stroke range. Loading beyond the specified stroke may cause damage to the gripper body.
7. When light press-fitting is carried out by the work stopper of the Opening Gripper, use a press-fitting force equal to or below the level specified in the table below. The force beyond that may damage the gripper body.

Table. Press-Fitting Force

Cylinder diameter	Press-fitting force
ø8mm	900N (202lb)
ø11mm	1,000N (225lb)

8. When installing the piping to the floating panel mount type Gripper, be sure to tighten with a proper tool on the two-face cut portion. Tightening by the use of other parts may damage the gripper body.



## Safety Instructions

- This Safety Instructions aim to prevent injuries to human bodies and damage to properties by requiring proper use of PISCO devices.


Also the relevant requirements of ISO 4414 and JIS B8370 must be observed.


ISO 4414: Pneumatic fluid power ... Recommendations for the application of equipment to transmission and control systems.

JIS B 8370: General standards for pneumatic systems

Safety instructions are classified into "Danger", "Warning" and "Caution", depending on the degree of danger or damage involved when the safety instructions are not complied with in handling the equipment.

 **Danger** : Failure to heed the warning of apparent danger may result in death or serious injuries.

 **Warning** : Failure to heed the warning of conditionally dangerous situations may result in death or serious injuries.

 **Caution** : Failure to heed the warning of conditionally dangerous situations may result in minor or not too serious injuries or damage to properties.

 **Warning** : 1. Make a selection of pneumatic equipment.

(1) Well knowledgeable and experienced persons such as a pneumatic system designer or who is in charge of deciding specification should select pneumatic equipment.

(2) The applicable conditions of the products in this catalogue are diverse. Therefore, judge the conformity of systems with required analysis or tests by system designers or persons who is in charge of deciding specifications. The guarantee of initial performance and safety of the system is on responsibility of the person who decides specifications. Hereafter, examine all the specification with updated products catalogues and technical documents in order to avoid malfunctions of equipment, and then develop systems.

2. Handle pneumatic equipment with enough knowledge and experience.

(1) Mishandling of compressed air is dangerous. Conduct assembly, operation and maintenance of devices with pneumatic equipment by persons with enough knowledge and experience.

3. Do not operate and remove the equipment until safety is confirmed.

(1) Conduct inspection and maintenance of equipment after confirming fail-proof measures of work pieces or runaway-proof device are properly working.

(2) When removing equipment, make sure that above safety measures are conducted. Then, stop air supply and electric source of equipment making sure the pressure inside the system is zero before removing equipment.

(3) When re-activate equipment, make sure safety measures against fly-out are taken and re-activate equipment with care.

\* Safety Instructions are subject to change without advance notice.



# Common Safety Instructions for Products Listed in This Manual

□ PISCO products are designed and manufactured for use with general industrial machinery and equipment. Therefore be sure to observe the following safety instructions:

△ Danger : 1. Do not use PISCO devices with the following equipment:

- (1) Equipment used for the sustenance or control of people's health or lives
- (2) Equipment used for the movement or transport of people
- (3) Equipment used specifically to ensure safety

△ Warning : 1. Avoid the following uses for PISCO devices:

- (1) Use under conditions not specified for the device
- (2) Use in any outdoor environment
- (3) Use in locations where the device is exposed to excessive vibration or shocks
- (4) Use in locations where the device is exposed to any corrosive gas, inflammable gas, chemicals, seawater, or vapor.

\* Certain PISCO devices, however, can be used in environments as described above. Therefore check on the specifications for the use of individual devices.

- 2. Do not disassemble or remodel the PISCO devices in such a way as may affect the basic structure, performance or function of them.
- 3. Never touch the release ring of the Quick-Fitting Joint when there is pressure working on it. Touching may release the ring, which in turn may cause the tube to fall out.
- 4. Avoid too frequent switching of air pressure. Otherwise the device body may heat up to cause burns on you.
- 5. Do not allow tension, twist or bending forces to act on the joints. Undue forces may damage the joint body.
- 6. For applications in which the threaded side or the tube connection side is subject to vibration, use Rotary Joints, High Rotary Joints or Multi-Circuit Rotary Blocks only. Swinging or rotation may damage the joint body.
- 7. For applications with hot water of 60°C (140°F) or above or thermal oil, use no other joints than Die Temperature Control Fitting, Tube Fitting Stainless SUS316, Tube Fitting Stainless SUS316 Compression Fitting, and All Brass Compression Fitting. Heat or hydrolysis may damage the joint body.
- 8. For applications in which the scattering of static electricity or charging must be prevented, use no other joints than EG Joints. Static electricity may cause system malfunction or trouble.
- 9. Never use joint other than Tube Fitting Spatter or Tube Fitting Brass where they are exposed to spatter. Otherwise can cause fire.
- 10. Carry out maintenance and checks of equipment only after turning power off, shutting fluid off and making certain that the pressure in the piping has dropped to zero. Please conduct maintenance after confirming following points.
  - (1) Make sure that maintenance is safe for all the systems involving PISCO products.
  - (2) When re-activate equipment after maintenance, make sure safety measures against fly-out are taken and re-activate equipment with care.
  - (3) Please secure space for maintenance when the circuit is designed.
- 11. When the fluid is admitted to the equipment and if there is a possibility to cause damage to it due to leakage, conduct safety measures such as protect cover beforehand.

△ Caution : 1. In installing the piping, be sure to remove dust or drainage from within the piping. Dust or drainage left unremoved may enter other equipment, thus causing troubles.

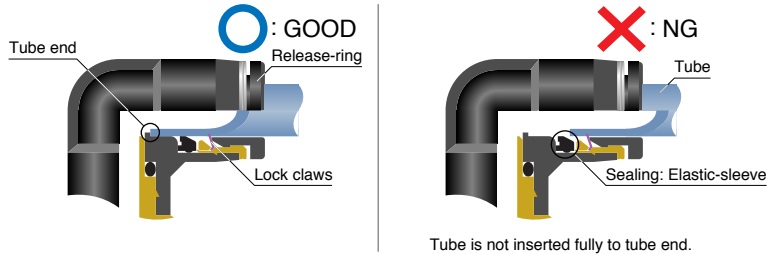
- 2. When using an ultrasoft tube to connect to a Quick-Fitting Joint, be sure to use an insert ring in the bore of the tube. Otherwise the tube may fall out to cause leakage.
- 3. When you use tubes of brands other than ours, be sure to confirm that the outside diameter of the tubes satisfies the tolerance specified Table 1.

Table 1. Tube O.D. Tolerance

mm size	Nylon tube	Urethane tube	inch size	Nylon tube	Urethane tube
ø1.8mm	—	±0.05mm	ø <sup>1</sup> / <sub>8</sub>	±0.0039in.	±0.0059in.
ø3mm	—	±0.15mm	ø <sup>5</sup> / <sub>32</sub>	+0.0039in.	±0.0059in.
ø4mm	±0.1mm	±0.15mm	ø <sup>3</sup> / <sub>16</sub>	±0.0039in.	±0.0059in.
ø6mm	±0.1mm	±0.15mm	ø <sup>1</sup> / <sub>4</sub>	±0.0039in.	±0.0059in.
ø8mm	±0.1mm	±0.15mm	ø <sup>5</sup> / <sub>16</sub>	+0.0039in.	±0.0059in.
ø10mm	±0.1mm	±0.15mm	ø <sup>3</sup> / <sub>8</sub>	±0.0039in.	±0.0059in.
ø12mm	±0.1mm	±0.15mm	ø <sup>1</sup> / <sub>2</sub>	±0.0039in.	±0.0059in.
ø16mm	±0.1mm	±0.15mm	ø <sup>5</sup> / <sub>8</sub>	±0.0039in.	±0.0059in.

4. Cautions on the fitting of tube

- (1) Make certain that the end of the tube is cut at right angles, the tube surface is free from flaws, and the tube is not deformed into an ellipse.
- (2) When fitting a tube, insert the tube to the tube end completely as drawings shown below to prevent leakage.



- (3) On completion of fitting, make certain that the tube does not come out at your pulling.

5. Cautions on the release of tube

- (1) Before releasing the tube, make certain that the pressure inside the tube is zero.
- (2) Push the release ring fully inside and pull out the tube. Unless you push it completely in, the tube may not come out and scrapings of tube may be left inside the joint.

6. Cautions on the installation of joint body

- (1) When installing the joint body, tighten it with a proper tool, using the outside or inside hexagon.
- (2) In tightening the screw, use the tightening torque recommended in Table 3.
  - Use of a torque higher than the recommended level may damage thread or deform gasket, thus causing leaks.
  - Use of a torque lower than the recommended level may cause loose screw and leakage.
- (3) With the joint whose piping direction will not change after tightening, make adjustment within the recommended range of tightening torques.

Table 3. Tightening Torque, Sealock Color and Gasket Material

Thread type	Thread size	Tightening torque	Sealock color	Gasket material
Metric thread	M3×0.5	0.7N·m (0.52lbf·ft)	n/a	SUS304, NBR
	M5×0.8	1.0 ~ 1.5N·m (0.74 ~ 1.11lbf·ft)		
	M6×1.0	2.0 ~ 2.7N·m (1.48 ~ 1.99lbf·ft)		
	M3×0.5	0.5 ~ 0.6N·m (0.37 ~ 0.44lbf·ft)	n/a	POM (Polyacetal)
	M5×0.8	1.0 ~ 1.5N·m (0.74 ~ 1.11lbf·ft)		
	M6×0.75	0.8 ~ 1.0N·m (0.59 ~ 0.74lbf·ft)		
Taper pipe thread	M8×0.75	1.0 ~ 2.0N·m (0.74 ~ 1.48lbf·ft)	White	n/a
	R1/8	7 ~ 9N·m (5.16 ~ 6.64lbf·ft)		
	R1/4	12 ~ 14N·m (8.85 ~ 10.33lbf·ft)		
	R3/8	22 ~ 24N·m (16.23 ~ 17.70lbf·ft)		
Unified thread	R1/2	28 ~ 30N·m (20.65 ~ 22.13lbf·ft)	n/a	SUS304, NBR
	No. 10-32UNF	1.0 ~ 1.5N·m (0.74 ~ 1.11lbf·ft)		
National Pipe Thread Taper (American standard)	1/16-28NPT	7 ~ 9N·m (5.16 ~ 6.64lbf·ft)	Gray	n/a
	1/8-27NPT	7 ~ 9N·m (5.16 ~ 6.64lbf·ft)		
	1/4-18NPT	12 ~ 14N·m (8.85 ~ 10.33lbf·ft)		
	3/8-18NPT	22 ~ 24N·m (16.23 ~ 17.70lbf·ft)		
	1/2-14NPT	28 ~ 30N·m (20.65 ~ 22.13lbf·ft)		

Recommended tightening torque for silencer

Thread Type	Thread Size	Tightening Torque
Metric thread	M5×0.8	1/6 turn after hand-tightening
	M6×1.0	
	M10×1.0	
Parallele pipe thread	G1/8	1/2 ~ 1 turn after hand-tightening
	G1/4	
	G3/8	
	G1/2	

7. Cautions on the removal of joint body

- (1) When removing the joint body, loosen it with a proper tool, using the outside or inside hexagon.
- (2) Remove sealant sticking to the thread on the mating equipment. The sealant left sticking may enter the peripheral equipment and cause trouble.

8. Clean-room package option

\* The product is washed by clean air after assembling in the normal assembly process as same condition as standard specification model. Then, it is packed in ISO class 6 clean-room.