



Air Gripper Unit for Collaborative Robots

Kawasaki Heavy Industries, Ltd.

Dual-Arm SCARA Robot
[duAro 1, 2] compliant

A K-AddOn registered product



JMHZ2-X7500-KA



More information
can be viewed here.

Air Gripper Unit for Collaborative Robots

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■ Compact, lightweight product with high gripping force due to air operation

■ An air gripper that realizes high rigidity and high precision due to its guide-integrated construction

With high-precision linear guide

Repeatability: ± 0.01 mm

Linear guide of the higher rigidity and precision is used.

Higher rigidity (Compared with the same size of the existing MHZ2)

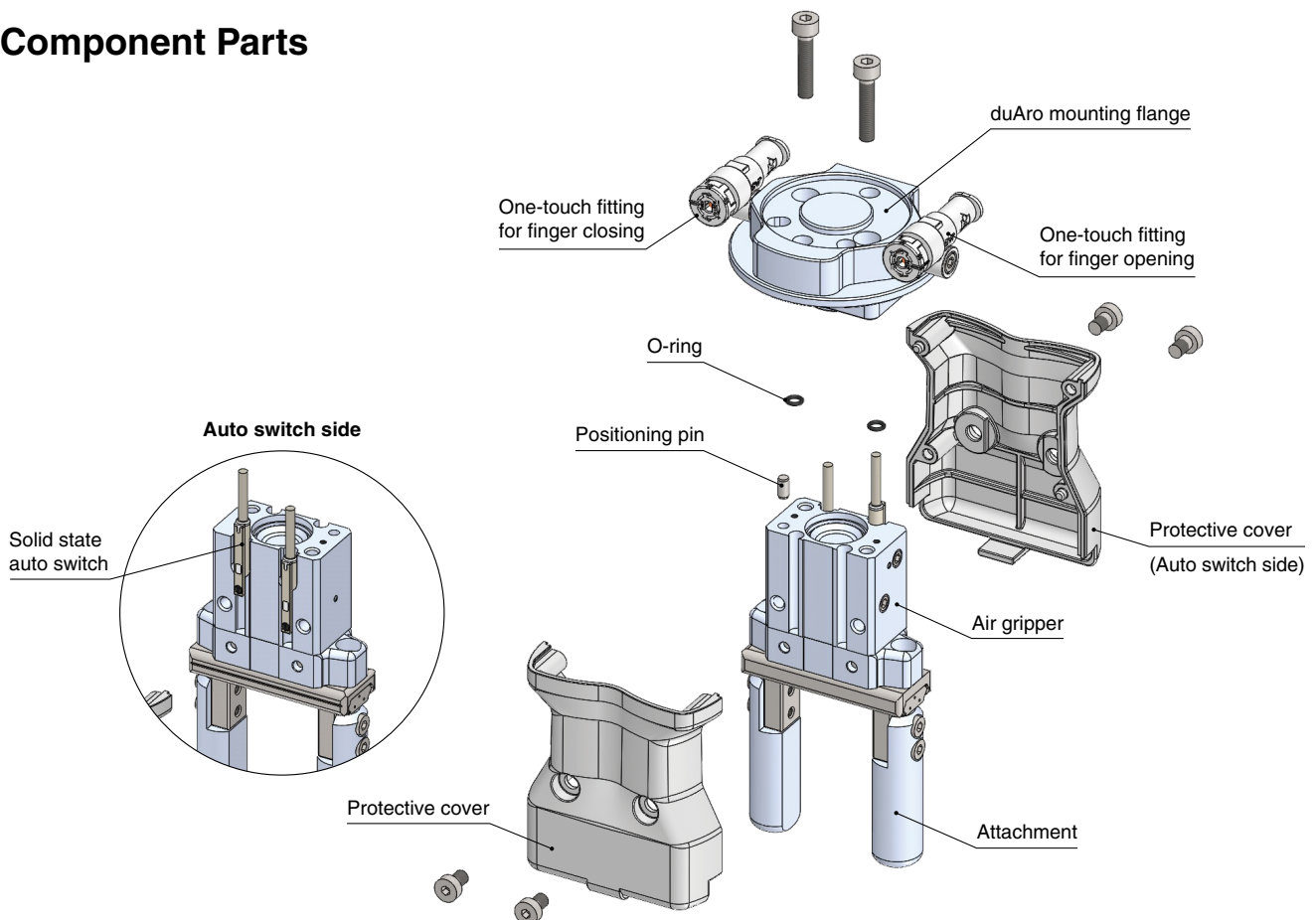
■ Integrated speed adjustment mechanism

■ A split protective cover for easy air gripper maintenance

Allows you to maintain the air gripper without removing the user-specific attachment

■ Selectable attachment, protective cover, and number of auto switches

Component Parts



Specifications

Bore size [mm]	16
Fluid	Air
Operating pressure [MPa]	0.1 to 0.7
Ambient and fluid temperatures [°C]	-10 to 60
Repeatability [mm]	±0.01
Max. operating frequency [c.p.m]	120

Lubrication		Non-lube
Action		Double acting
Gripping force	External	32.7
Effective value per finger [N]	Internal	43.5
Opening/Closing stroke (Both sides) [mm]		10
Weight [g]		280*1

*1 Includes 2 attachments (30 g) and 2 protective covers (20 g)

How to Order

RoHS

JMHZ2-16D-M9BW **-X7500** **A** **C** **-KA**

1

2

3

4

5

6

7

For Kawasaki Heavy Industries, Ltd.

1 Number of fingers

2	2
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2 Bore size

16	16 mm
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3 Action

D	Double acting
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4 Auto switch

Symbol	Specifications	Model
Nil	Without auto switch (Built-in magnet)	—
M9B	Solid state auto switch	D-M9B
M9N		D-M9N
M9P		D-M9P
M9BW	2-color indicator solid state auto switch	D-M9BW
M9NW		D-M9NW
M9PW		D-M9PW

5 Number of auto switches

Nil	2
S	1
N	n

6 Attachment for testing

Nil	Without attachment
A	With attachment

7 Protective cover

Nil	Without protective cover
C	With protective cover

* Options "S" and "N" are shipped with the product.

Applicable Auto Switches/Refer to the Web Catalog and the Best Pneumatics Catalog for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model	Lead wire length [m]*1				Pre-wired connector	Applicable load		
					DC	AC		0.5 (Nil)	1 (M)	3 (L)	5 (Z)				
Solid state auto switch	Diagnostic indication (2-color indicator)	Grommet	Yes	3-wire (NPN)	24 V	—	M9N	●	●	●	○	○	IC circuit	Relay, PLC	
				3-wire (PNP)				●	●	●	○				
				2-wire				●	●	●	○				○
				3-wire (NPN)				●	●	●	○				○
				3-wire (PNP)				●	●	●	○				○
				2-wire				●	●	●	○				○

* Lead wire length symbols:

0.5 m	Nil	(Example) M9NW
1 m	M	(Example) M9NWM
3 m	L	(Example) M9NWL
5 m	Z	(Example) M9NWZ

*1 Auto switches marked with a "○" are produced upon receipt of order.

* When using the 2-color indicator type, please make the setting so that the indicator is lit in red to ensure the detection at the proper position of the air gripper.

* Product mounting bolts are included in the package.

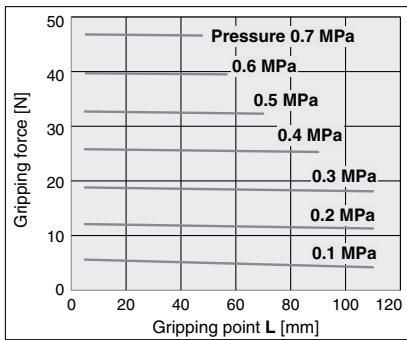
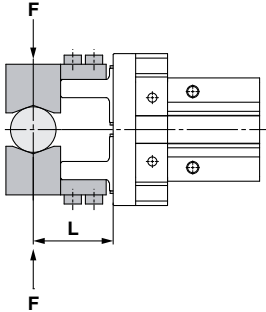
Characteristics

Gripping force

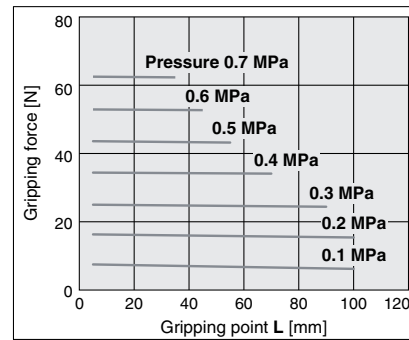
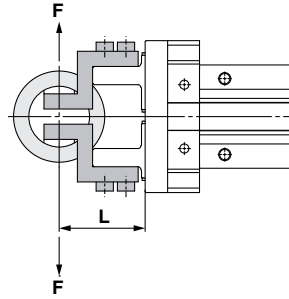
● Indication of effective gripping force

The gripping force shown in the graphs below represents the gripping force of one finger when all fingers and attachments are in contact with the workpiece. F = One finger thrust

External gripping force



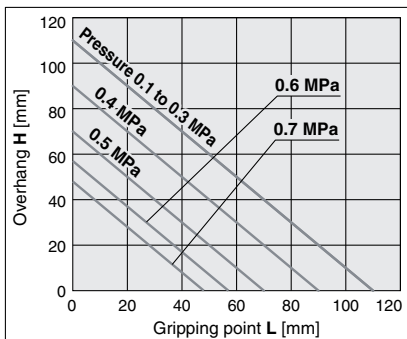
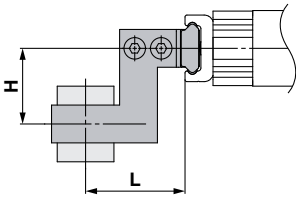
Internal gripping force



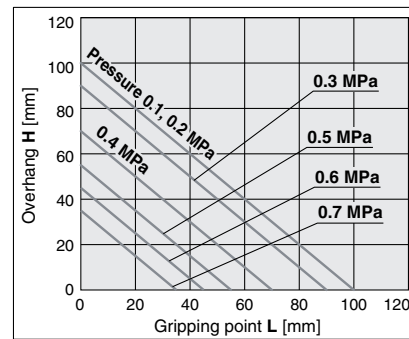
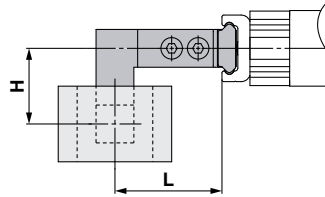
Gripping point

- The air gripper should be operated so that the workpiece gripping point "L" and the amount of overhang "H" stay within the range shown for each operating pressure given in the graphs below.
- If the workpiece gripping point goes beyond the range limits, this will have an adverse effect on the life of the air gripper.

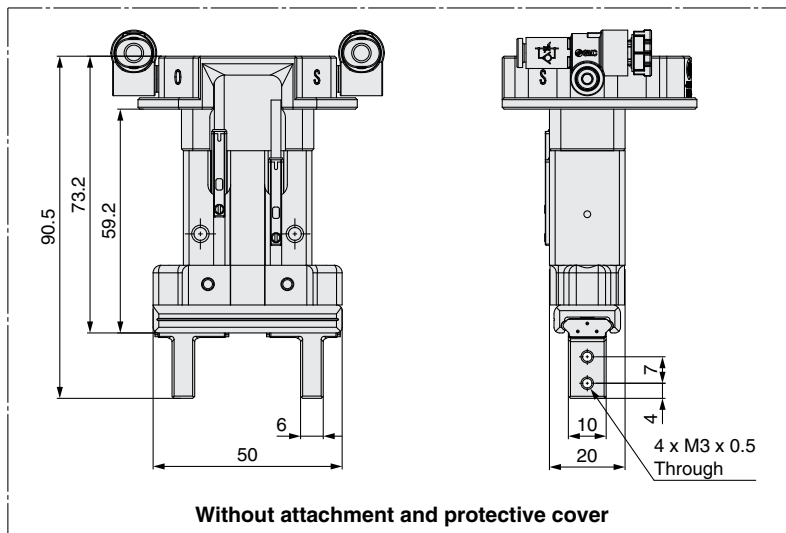
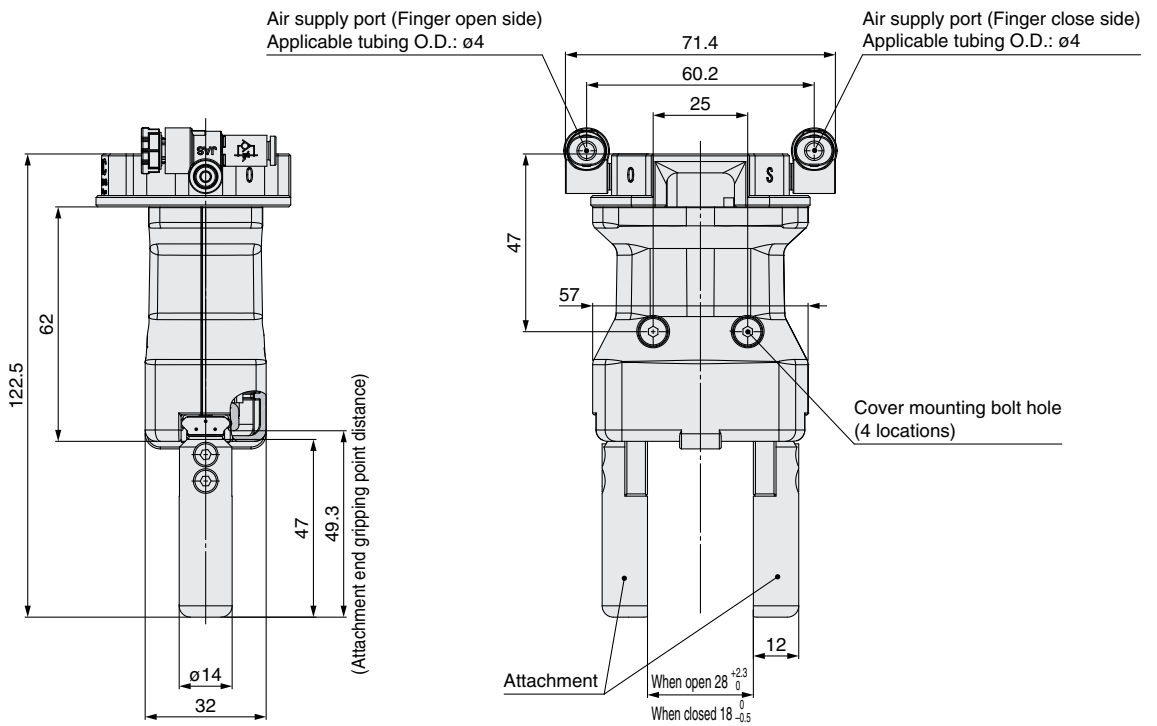
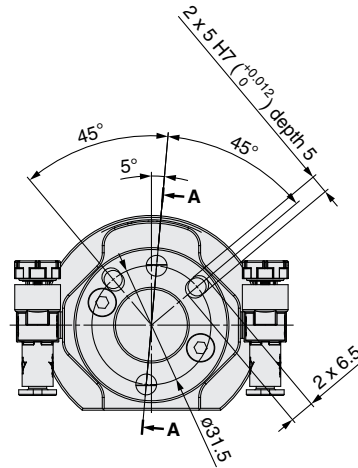
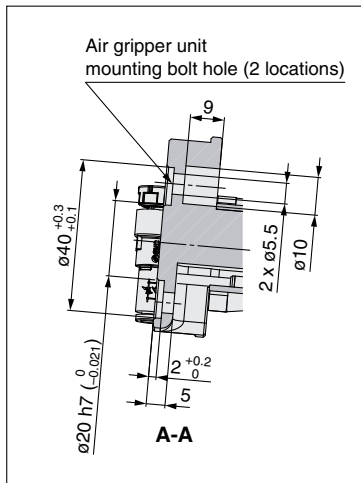
External grip



Internal grip



Dimensions





JMHZ2-X7500-KA

Specific Product Precautions

Be sure to read this before handling the products. For safety instructions, air gripper precautions, air gripper specific product precautions, and auto switch precautions, refer to the “Handling Precautions for SMC Products” and the “Operation Manual” on the SMC website.

Handling

Caution

1. Martensitic stainless steel is used for the finger guide. However, the anti-corrosiveness of this steel is inferior to that of austenitic stainless steel. In particular, rust may be generated in environments where waterdrops are likely to adhere to the product due to condensation, etc.
2. Finite orbit type guide is used in the actuator finger part. By using this, when there are inertial force which cause by movements or rotation to the actuator, steel ball will move to one side and this will cause a large resistance and degrade the accuracy. When there are inertial force which cause by movements or rotation to the actuator, operate the finger to full stroke.
3. When mounting or removing the attachment, use the following tightening torque: 0.59 N. The weight of the attachment is generally about 70 g per side of a finger.

Mounting

Caution

1. For details on the mounting method, refer to the Operation Manual.
2. Tighten to the specified tightening torque. If the tightening torque is exceeded, the body and the mounting screws may break. However, insufficient torque may cause displacement of the body and loosening of the mounting screws.
3. Do not drop, strike, or apply excessive impact to this product. Doing so may result in damage to the internal parts of the body or auto switch. In some cases, this damage may result in a malfunction.
4. Hold the body when handling the product. Do not pull excessively on the auto switch cable or pinch the cable when lifting the body. Failure to do so may result in damage to the auto switch. In some cases, this damage may result in a failure or malfunction.
5. The bolts may loosen due to the operating conditions and environment. Be sure to conduct maintenance such as tightening the bolts periodically.

Wiring

Caution

1. Avoid repeatedly bending or stretching the auto switch cable as well as applying force to it.
2. Do not wire while energizing the product. Doing so may result in damage to the internal parts of the auto switch. In some cases, this damage may result in a malfunction.
3. Do not disassemble the product or make any modifications, including additional machining. Doing so may cause human injury and/or an accident.

Piping

Caution

1. Flushing of the inside of the pipes

Before piping is connected, it should be thoroughly blown out with air (flushing) or washed to remove chips, cutting oil, and other debris from inside the pipe.

2. Tube attachment

- Take a tube having no flaws on its periphery and cut it off at a right angle. When cutting the tube, use tube cutters TK-1, 2, 3, 5, or 6. Do not use pliers, nippers, scissors, etc. If cutting is done with tools other than tube cutters, the tube may be cut diagonally or become flattened, etc., making a secure installation impossible, and causing problems such as the tube pulling out after installation or air leakage. Allow some extra length in the tube.
- Grasp the tube and push it in slowly, inserting it securely all the way into the fitting.
- After inserting the tube, pull on it lightly to confirm that it will not come out. If it is not installed securely all the way into the fitting, this can cause problems such as air leakage or the tube pulling out.

3. Tube detachment

- Push in the release button sufficiently, pushing its collar equally around the circumference.
- Pull out the tube while holding down the release button so that it does not come out. If the release button is not pressed down sufficiently, there will be increased bite on the tube and it will become more difficult to pull it out.
- When the removed tube is to be used again, cut off the portion which has been chewed before reusing it. If the chewed portion of the tube is used as is, this can cause trouble such as air leakage or difficulty in removing the tube.

4. Other Tube Brands

When using other than SMC brand tube, confirm that the following specifications are satisfied with respect to the tube outside diameter tolerance.

- Nylon tube within ± 0.1 mm
- Soft nylon tube within ± 0.1 mm
- Polyurethane tube within ± 0.15 mm, within -0.2 mm

Do not use tube which do not meet these outside diameter tolerances. It may not be possible to connect them, or they may cause other trouble, such as air leakage or the tube pulling out after connection.

5. Piping

- Do not apply unnecessary forces, such as twisting, pulling, moment loads, vibration, impact, etc., on fittings or tubing. This will cause damage to fittings and will crush, burst, or release tubing.
- Do not lift the product by the piping after the tube is connected. Doing so may result in damage to the One-touch tube fitting. For details, refer to the “Handling Precautions for SMC Products” on the SMC website.



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⚠ Safety Instructions Be sure to read the “Handling Precautions for SMC Products” (M-E03-3) and “Operation Manual” before use.

SMC Corporation