

Parallel Type Air Gripper with Dust Cover

MHZJ2 Series

ø6, ø10, ø16, ø20, ø25, ø32, ø40

How to Order

MHZJ2-16 D □ □ -M9BW □ - □

Number of fingers

2	2 fingers
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Bore size

6	6 mm
10	10 mm
16	16 mm
20	20 mm
25	25 mm

Action

D	Double acting
S	Single acting (Normally open)
C	Single acting (Normally closed)

Body option

* ø32, ø40: Made to Order (For details, refer to page 451.) * ø6 is only applicable with basic type.

Made to Order
Refer to page 441 for details.

Number of auto switches

Nil	2 pcs.
S	1 pc.
n	n pc.

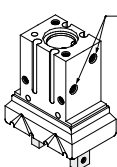
Auto switch

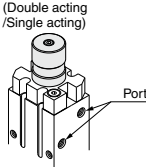
Nil	Without auto switch (Built-in magnet)
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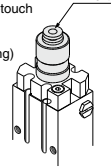
* For the applicable auto switch model, refer to the table below.

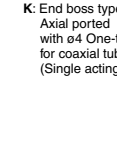
Dust cover type

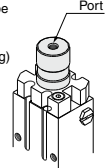
Nil	Chloroprene rubber (CR)
F	Fluororubber (FKM)
S	Silicone rubber (Si)

Nil: Basic type


E: End boss type Side ported (Double acting /Single acting)


W: End boss type Axial ported with ø4 One-touch fitting for coaxial tubing (Double acting)


K: End boss type Axial ported with ø4 One-touch fitting for coaxial tubing (Single acting)


M: End boss type Axial ported with M5 port (Single acting)


Applicable Auto Switches

Refer to pages 797 to 850 for further information on the auto switch.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m) *					Applicable model					Pre-wired connector	Applicable load
					DC	AC	Electrical entry direction		0.5 (Nil)	1 (M)	3 (L)	5 (Z)	ø6	ø10	ø16	ø20	ø25			
							Perpendicular	In-line												
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	M9NV	M9N	●	●	○	●	●	●	●	●	○	IC circuit		
							F8N	—	●	—	○	●	—	●	●	●	○			
				3-wire (PNP)	12 V	—	M9PV	M9P	●	●	○	●	●	●	●	●	○		—	
							F8P	—	●	—	○	●	—	●	●	●	○			
				2-wire	5 V, 12 V	—	M9BV	M9B	●	●	○	●	●	●	●	●	○		—	
							F8B	—	●	—	○	●	—	●	●	●	○			
	Diagnosis (2-color indicator)	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	M9NVV	M9NW	●	●	○	●	●	●	●	○	IC circuit			
							M9PWW	M9PW	●	●	○	●	●	●	●	○				
				3-wire (PNP)	12 V	—	M9BWW	M9BW	●	●	○	●	●	●	●	○	—			
							M9NAV**	M9NA**	○	○	○	○	●	●	●	○				
				Water resistant (2-color indicator)	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	M9PAV**	M9PA**	○	○	○	○	●	●	○	IC circuit	
										M9BAV**	M9BA**	○	○	○	○	●	●	○		

** Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

* Lead wire length symbols: 0.5 m..... Nil (Example) M9NW

* Solid state auto switches marked with ○ are produced upon receipt of order.

1 m..... M (Example) M9NWM

3 m..... L (Example) M9NWL

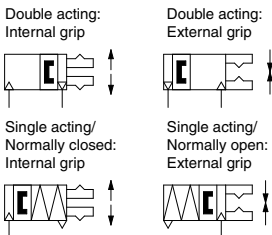
5 m..... Z (Example) M9NWZ

Note 1) 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.

Note 2) When using a D-F8□ switch on sizes ø6, mount it at a distance of 10 mm or more from magnetic substances such as iron, etc.



Symbol



Made to Order Made to Order Individual Specifications
(Refer to pages 451 to 453 for details.)

Symbol	Specifications/Description
-X6100	With dust cover (ø32, ø40)

Made to Order

[Click here for details](#)

Symbol	Specifications/Description
-X4	Heat resistance (100°C)
-X5	Fluororubber seal
-X7	Closing direction spring assist
-X12	Opening direction spring assist
-X50	Without magnet
-X53	EPDM seal/Fluorine grease
-X56	Axial ported type
-X63	Fluorine grease
-X64	Finger: Side tapped mounting
-X65	Finger: Through-hole mounting
-X77A	Dust cover adhesion
-X77B	Dust cover adhesion (Finger part only)
-X78A	Dust cover caulking
-X78B	Dust cover caulking (Finger part only)
-X79	Grease for food processing machines, Fluorine grease
-X79A	Grease for food processing machines
-X81A	Anti-corrosive treatment of finger

Moisture Control Tube IDK Series



When operating an actuator with a small diameter and a short stroke at a high frequency, the dew condensation (water droplet) may occur inside the piping depending on the conditions.

Simply connecting the moisture control tube to the actuator will prevent dew condensation from occurring. For details, refer to [the IDK series in the Best Pneumatics No. 6](#).

Specifications

		Fluid	Air
Operating pressure	Double acting	Normally open	ø6: 0.15 to 0.7 MPa
			ø10: 0.2 to 0.7 MPa
	Single acting	Normally open	ø6: 0.3 to 0.7 MPa
Normally closed		ø10: 0.35 to 0.7 MPa	
Ambient and fluid temperature		-10 to 60°C	
Repeatability		±0.01 mm	
Max. operating frequency		180 c.p.m.	
Lubrication		Not required	
Action		Double acting, Single acting	
Auto switch (option) ^(Note)		Solid state auto switch (3-wire, 2-wire)	

(Note) Refer to pages 797 to 850 for further information on auto switches.

Model

Action	Model	Bore size (mm)	Gripping force ^(Note 1)		Opening/Closing stroke (Both sides) (mm)	Weight ^(Note 2) (g)	
			Gripping force per finger Effective value (N)				
			External	Internal			
Double acting	MHZJ2- 6D	6	3.3	6.1	4	28	
	MHZJ2-10D	10	9.8	17	4	60	
	MHZJ2-16D	16	30	40	6	130	
	MHZJ2-20D	20	42	66	10	250	
	MHZJ2-25D	25	65	104	14	460	
Single acting	Normally closed	MHZJ2- 6S	6	1.9	—	4	28
		MHZJ2-10S	10	6.3	—	4	60
		MHZJ2-16S	16	24	—	6	130
		MHZJ2-20S	20	28	—	10	255
		MHZJ2-25S	25	45	—	14	465
	Normally open	MHZJ2- 6C	6	—	3.7	4	28
		MHZJ2-10C	10	—	12	4	60
		MHZJ2-16C	16	—	31	6	130
		MHZJ2-20C	20	—	56	10	255
MHZJ2-25C	25	—	83	14	465		

Note 1) Values based on pressure of 0.5 MPa, gripping point L = 20 mm, at center of stroke.

Note 2) Values excluding weight of auto switch.

Option

● Body Option/End Boss Type

Symbol	Piping port location	Type of piping port				Applicable model	
		MHZJ2-10	MHZJ2-16	MHZJ2-20	MHZJ2-25	Double acting	Single acting
Nil	Basic type	M3 x 0.5	M5 x 0.8		●	●	
E	Side ported	M3 x 0.5	M5 x 0.8		●	●	
W	Axial ported	With ø4 One-touch fitting for coaxial tubing				●	—
K	Axial ported	With ø4 One-touch fitting				—	●
M	Axial ported	M5 x 0.8				—	●

* For detailed body option specifications, refer to option specifications on pages 449 and 450.

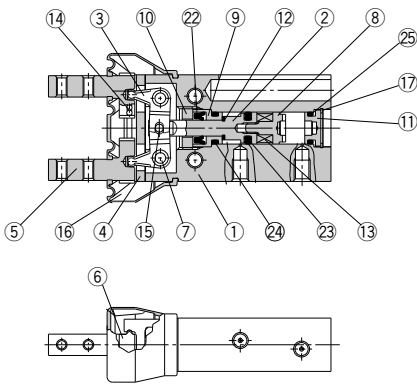
Refer to pages 454 to 458 for the specifications with auto switch.

- Auto switch installation examples and mounting positions
- Auto switch hysteresis
- Auto switch mounting
- Protrusion of auto switch from edge of body

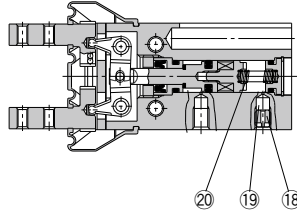
MHZJ2 Series

Construction: MHZJ2-6□

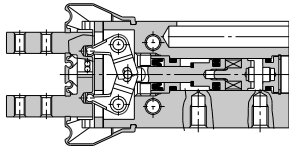
Double acting/With fingers open



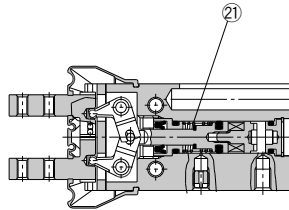
Single acting/Normally open



Double acting/With fingers closed



Single acting/Normally closed



Component Parts

No.	Description	Material	Note
1	Body	Aluminum alloy	Hard anodized
2	Piston	Stainless steel	
3	Lever	Stainless steel	Heat treated
4	Guide	Stainless steel	Heat treated
5	Finger	Stainless steel	Heat treated
6	Roller stopper	Stainless steel	
7	Lever shaft	Stainless steel	Nitriding
8	Magnet holder	Stainless steel	
9	Holder	Brass	Electroless nickel plated
10	Holder lock	Stainless steel	
11	Cap	Aluminum alloy	Clear anodized
12	Bumper	Urethane rubber	
13	Magnet	—	Nickel plated
14	Steel balls	High carbon chrome bearing steel	
15	Needle roller	High carbon chrome bearing steel	
16	Dust cover	CR	Chloroprene rubber
		FKM	Fluororubber
		Silicone rubber	
17	Type C retaining ring	Carbon steel	Nickel plated
18	Exhaust plug	Brass	Electroless nickel plated
19	Exhaust filter	Polyvinyl formal	
20	N.O. spring	Stainless steel spring wire	
21	N.C. spring	Stainless steel spring wire	
22	Rod seal	NBR	
23	Piston seal	NBR	
24	Gasket	NBR	
25	Gasket	NBR	

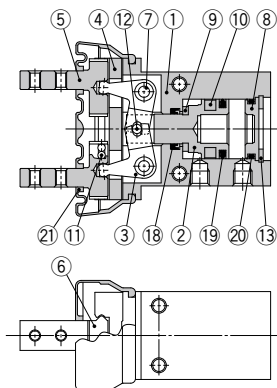
Replacement Parts

Description		MHZJ2-6	Main parts
Seal kit		Please contact SMC to replace the seal kit.	
Dust cover	Material	CR	MHZJ2-J6
		FKM	MHZJ2-J6F
		Silicone rubber	MHZJ2-J6S
Finger assembly		Please contact SMC to replace the finger assembly.	
Piston assembly		MHZJ2-6D□	MHZJ-A0603
		MHZJ2-6S□	
		MHZJ2-6C□	
			② ⑧ ⑨ ⑩ ⑫ ⑬ ⑮ ⑰ ⑲ ⑳ ㉑ ㉒ ㉓ ㉔
			② ⑧ ⑨ ⑩ ⑫ ⑬ ⑮ ⑰ ⑲ ⑳ ㉑ ㉒ ㉓ ㉔

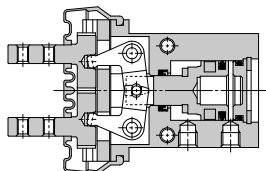
Replacement part/Grease pack part no.: GR-S-010 (5 g)

Construction: MHZJ2-10□ to 25□

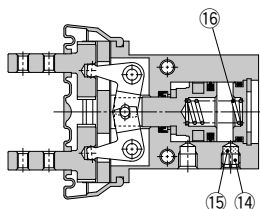
Double acting/With fingers open



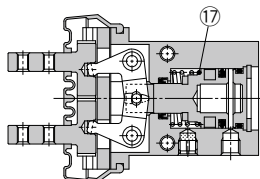
Double acting/With fingers closed



Single acting/Normally open



Single acting/Normally closed



Component Parts

No.	Description	Material	Note
1	Body	Aluminum alloy	Hard anodized
2	Piston	ø10, ø16: Stainless steel ø20, ø25: Aluminum alloy	Hard anodized
3	Lever	Stainless steel	Nitriding
4	Guide	Stainless steel	Heat treated
5	Finger	Stainless steel	Heat treated
6	Roller stopper	Stainless steel	
7	Lever shaft	Stainless steel	Nitriding
8	Cap	Aluminum alloy	Clear anodized
9	Bumper	Urethane rubber	
10	Rubber magnet	Synthetic rubber	
11	Steel balls	High carbon chrome bearing steel	

No.	Description	Material	Note
12	Needle roller	High carbon chrome bearing steel	
13	Type C retaining ring	Carbon steel	Nickel plated
14	Exhaust plug A	Brass	Electroless nickel plated
15	Exhaust filter A	Polyvinyl formal	
16	N.O. spring	Stainless steel spring wire	
17	N.O. spring	Stainless steel spring wire	
18	Rod seal	NBR	
19	Piston seal	NBR	
20	Gasket	NBR	
21	Dust cover	CR	Chloroprene rubber
		FKM	Fluororubber
		Silicone rubber	

Replacement Parts

Description		MHZJ2-10	MHZJ2-16	MHZJ2-20	MHZJ2-25	Main parts
Seal kit		MHZJ10-PS	MHZJ16-PS	MHZJ20-PS	MHZJ25-PS	⑱⑲⑳
Dust cover	Material	CR	MHZJ2-J10	MHZJ2-J16	MHZJ2-J20	MHZJ2-J25
		FKM	MHZJ2-J10F	MHZJ2-J16F	MHZJ2-J20F	MHZJ2-J25F
		Silicone rubber	MHZJ2-J10S	MHZJ2-J16S	MHZJ2-J20S	MHZJ2-J25S
Finger assembly		MHZJ-AA1002	MHZJ-AA1602	MHZJ-AA2002	MHZJ-AA2502	④⑤⑥⑪ Mounting thread
Piston assembly		MHZJ-A1003	MHZJ-A1603	MHZJ-A2003	MHZJ-A2503	②⑨⑩⑫
End boss assembly	MHZJ2-□□□□W	MHZ-A1007	MHZ-A1607	MHZ-A2007	MHZ-A2507	Main body of adaptor Mounting screw for adaptor
	MHZJ2-□□□□K	MHZ-A1008	MHZ-A1608	MHZ-A2008	MHZ-A2508	
	MHZJ2-□□□□M	MHZ-A1009	MHZ-A1609	MHZ-A2009	MHZ-A2509	
	MHZJ2-□□□□E	MHZ-A1010	MHZ-A1610	MHZ-A2010	MHZ-A2510	
Lever assembly		MHZJ-A1004	MHZJ-A1604	MHZJ-A2004	MHZJ-A2504	③

* Material of packing
NBR = Nitrile rubber, FKM = Fluororubber

* Material of dust cover

CR = Chloroprene rubber, FKM = Fluororubber, Silicone rubber

* End boss type

W = One-touch fitting for coaxial tubing, K = With One-touch fitting, M = With M5 port, E = Side ported

* The end boss assembly other than type E should be mounted on the special body.

Replacement part/Grease pack part no.: GR-S-010 (10 g)

MHZ

MHF

MHL

MHR

MHK

MHS

MHC

MHT

MHY

MHW

-X□

MRHQ

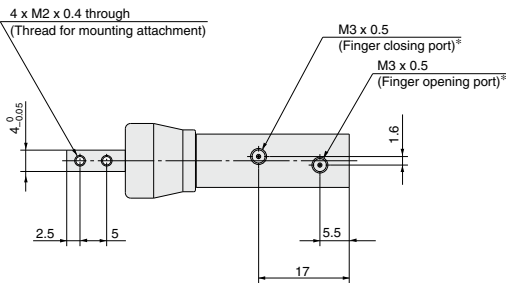
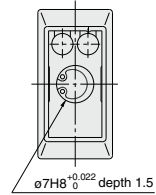
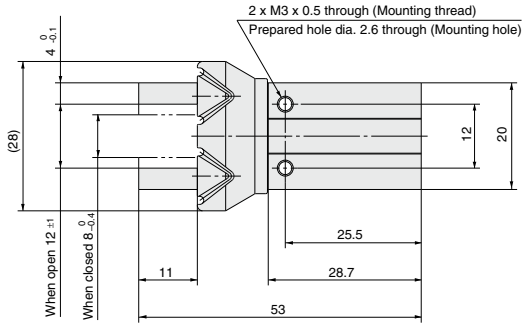
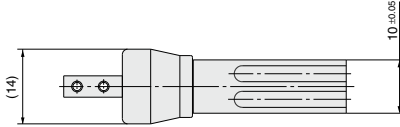
MA

D-□

MHZJ2 Series

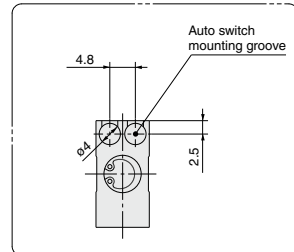
Dimensions

MHZJ2-6□ Double acting/Single acting Basic type

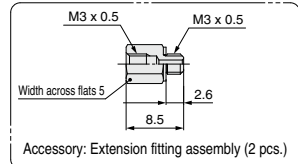
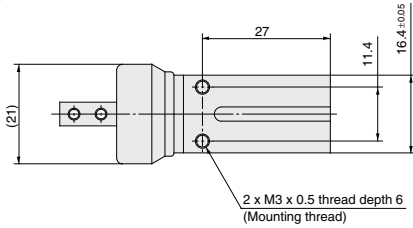


* For single action, the port on one side is a breathing hole.

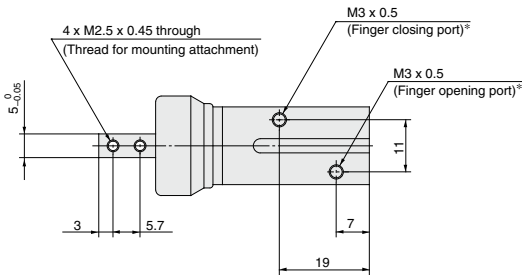
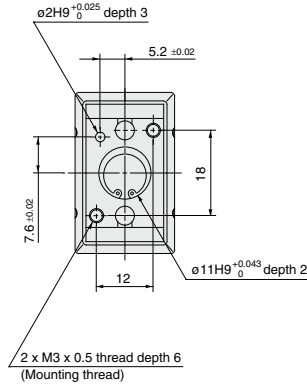
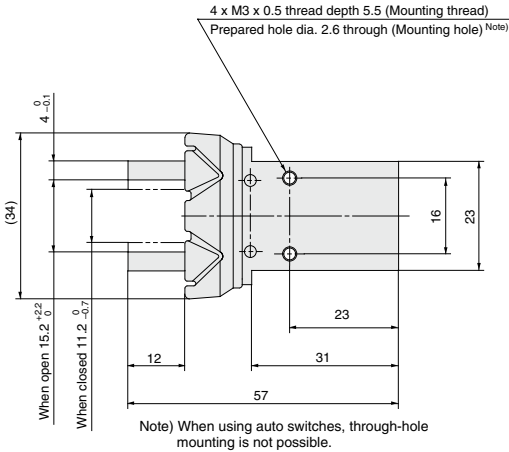
Auto Switch Mounting Groove Dimensions



MHZJ2-10 □ Double acting/Single acting
Basic type

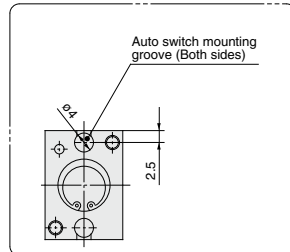


Note) If the fitting attached to the port interferes with the auto switch, please use the extension fitting assembly supplied with the air gripper.



* For single action, the port on one side is a breathing hole.

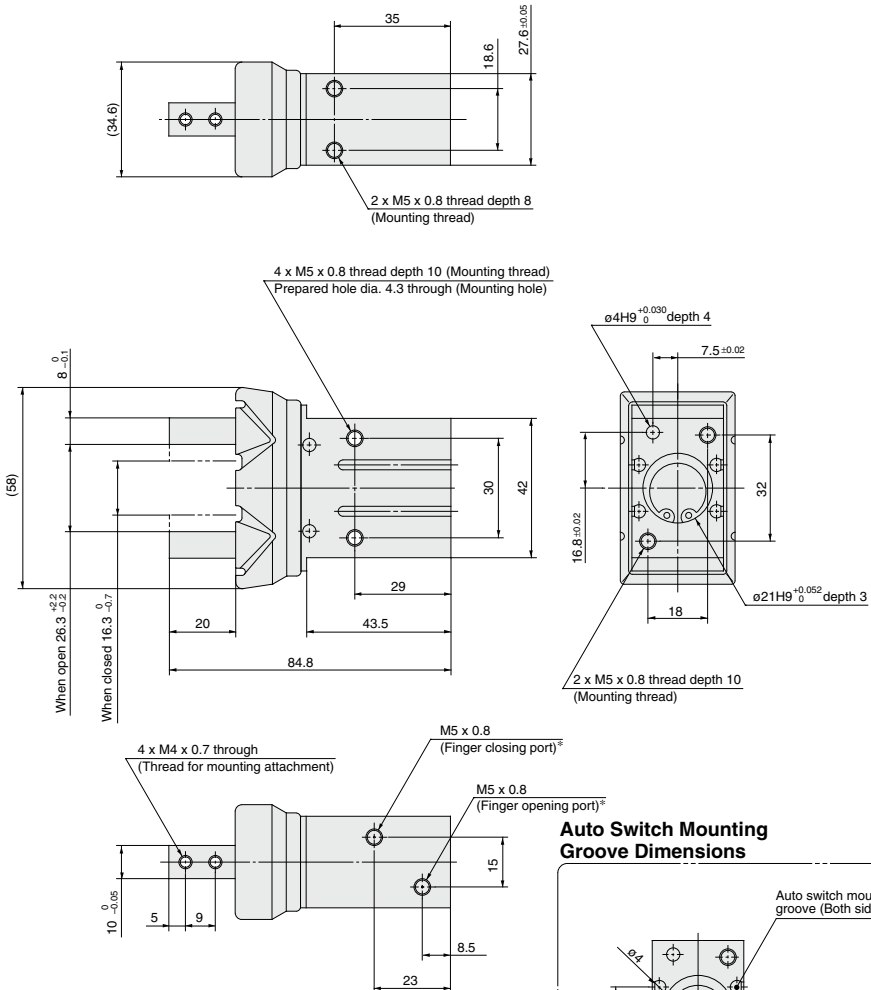
Auto Switch Mounting Groove Dimensions



Note) When using auto switches, through-hole mounting is not possible.

- MHZ
- MHF
- MHL
- MHR
- MHK
- MHS
- MHC
- MHT
- MHY
- MHW
- X □
- MRHQ
- MA
- D- □

MHZJ2-20 □ Double acting/Single acting
Basic type



* For single action, the port on one side is a breathing hole.

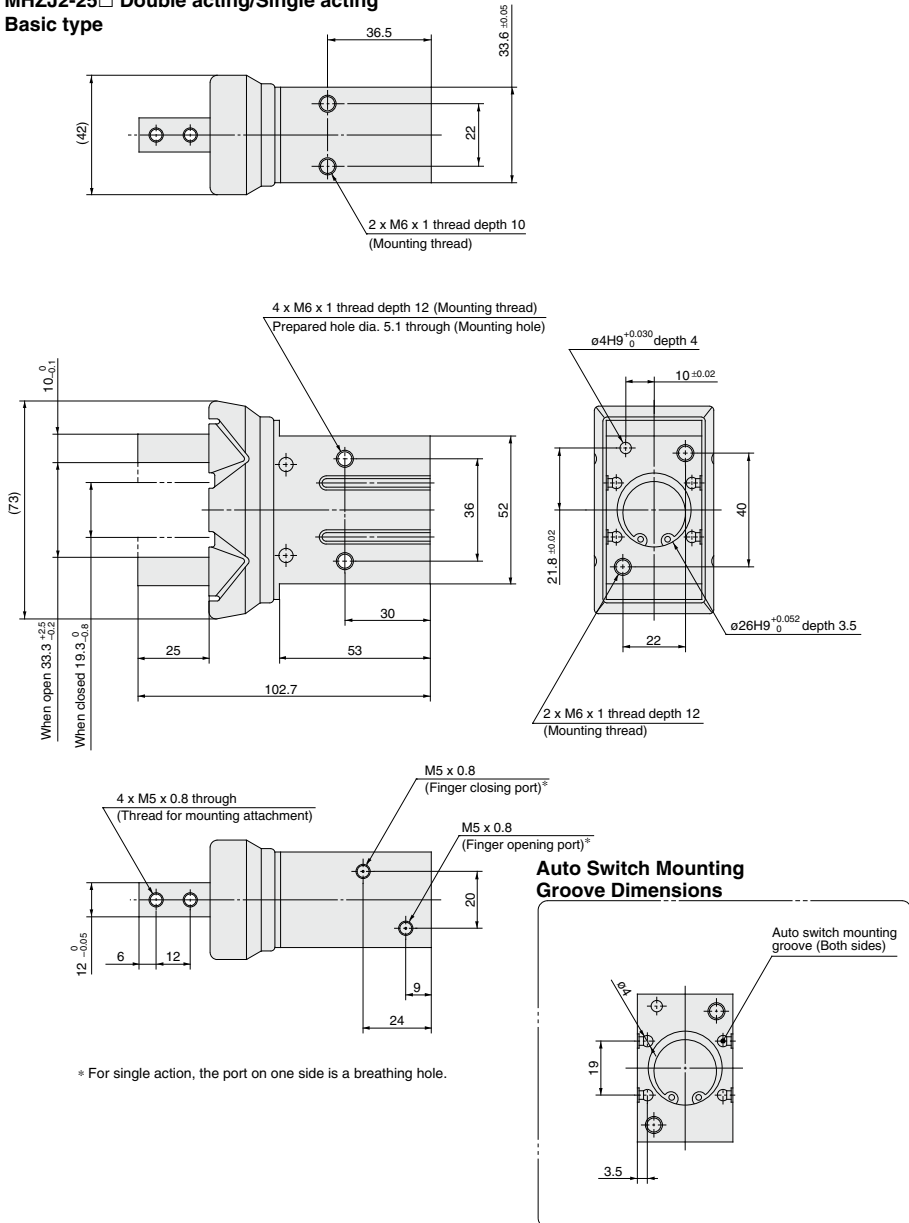
MHZ
MHF
MHL
MHR
MHK
MHS
MHC
MHT
MHY
MHW
-X □
MRHQ
MA
D- □

MHZJ2 Series

Dimensions

MHZJ2-25 □ Double acting/Single acting

Basic type

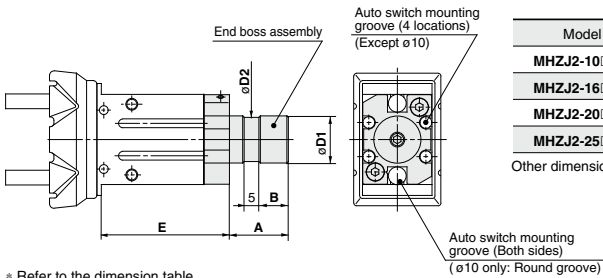


With Dust Cover/MHZJ2 Series Body Option: End Boss Type

Applicable Model

Symbol	Piping port location	Type of piping port				Applicable model		
		MHZJ2-10	MHZJ2-16	MHZJ2-20	MHZJ2-25	Double acting	Single acting	
							Normally open	Normally closed
E	Side ported	M3 x 0.5	M5 x 0.8		●	●	●	
W	Axial ported	With ø4 One-touch fitting for coaxial tubing				●	—	—
K		With ø4 One-touch fitting				—	●	●
M		M5 x 0.8				—	●	●

Side Ported [E]

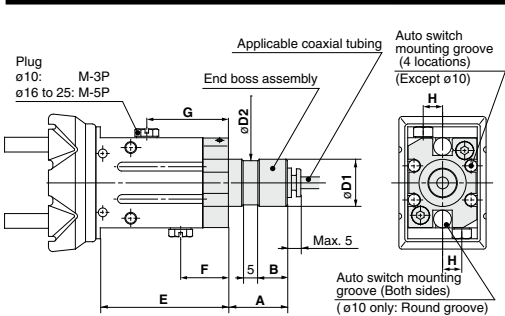


- * Refer to the dimension table.
- * When auto switches are used on ø10, side mounting with through-holes is not possible.

Model	A	B	D1	D2	E
MHZJ2-10□□E	15	7	12f8 ^{-0.016} _{-0.043}	11	40
MHZJ2-16□□E	20	10	16f8 ^{-0.016} _{-0.043}	15	43.5
MHZJ2-20□□E	22	12	20f8 ^{-0.020} _{-0.053}	19	51.7
MHZJ2-25□□E	25	15	25f8 ^{-0.020} _{-0.053}	24	61.3

Other dimensions and specifications correspond to the standard type.

Axial Ported (with One-touch fitting for coaxial tubing) [W]



- * Refer to the dimension table.
- * When auto switches are used on ø10, side mounting with through-holes is not possible.

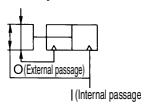
Model	A	B	D1	D2	E	F	G	H
MHZJ2-10D□W	15	7	12f8 ^{-0.016} _{-0.043}	11	40	16	28	5.5
MHZJ2-16D□W	20	10	16f8 ^{-0.016} _{-0.043}	15	43.5	16.2	27.7	6.5
MHZJ2-20D□W	22	12	20f8 ^{-0.020} _{-0.053}	19	51.7	16.7	31.2	7.5
MHZJ2-25D□W	25	15	25f8 ^{-0.020} _{-0.053}	24	61.3	17.3	32.3	10

Other dimensions and specifications correspond to the standard type.

Applicable Coaxial Tubing

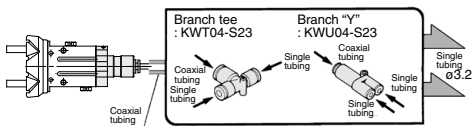
Model	TW04B-20
Specifications	
Outside diameter	4 mm
Max. operating pressure	0.6 MPa
Min. bending radius	10 mm
Operating temperature	-20 to 60°C
Material	Nylon 12

Reference symbol



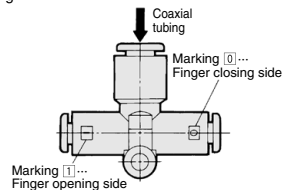
Changing from Coaxial to Single Tubing

Changing to single tubing is possible by using a branch "Y" or branch tee fitting. In this case particularly, single tube fittings and tubing for ø3.2 will be necessary.



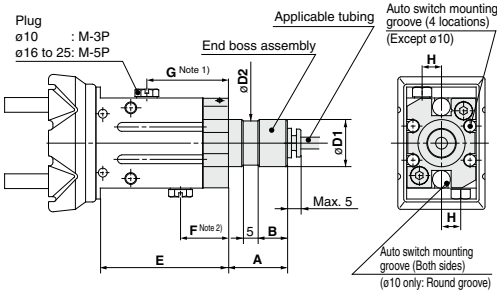
Branch Tee, Different Diameter Tee, Branch "Y", Male Run Tee

Please contact your SMC sales representative for details of the coaxial fittings and tubing.



MHZJ2 Series

Axial Ported (with One-touch fitting) [K]



- * Refer to the dimension table.
 - * When auto switches are used on ø10, side mounting with through-holes is not possible.
 - Note 1) Normally open type plug position.
 - Note 2) Normally closed type plug position.
- The plug is mounted on only one side for the single acting type.

Model	A	B	D1	D2	E	F	G	H
MHZJ2-10 ^S C□K	15	7	12f8 ^{-0.016} _{-0.043}	11	40	16	28	5.5
MHZJ2-16 ^S C□K	20	10	16f8 ^{-0.016} _{-0.043}	15	43.5	16.2	27.7	6.5
MHZJ2-20 ^S C□K	22	12	20f8 ^{-0.020} _{-0.053}	19	51.7	16.7	31.2	7.5
MHZJ2-25 ^S C□K	25	15	25f8 ^{-0.020} _{-0.053}	24	61.3	17.3	32.3	10

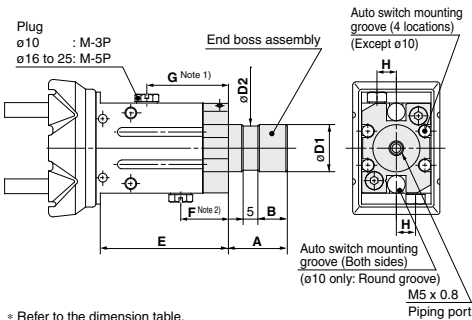
Other dimensions and specifications correspond to the standard type.

Applicable Tubing

Description/Model	Nylon tubing	Soft nylon tubing	Polyurethane tubing	Polyurethane coil tubing
	T0425	TS0425	TU0425	TCU0425B-1
Outside diameter (mm)	4	4	4	4
Max. operating pressure (MPa)	1.0	0.8	0.5	0.5
Min. bending radius (mm)	13	12	10	—
Operating temperature (°C)	-20 to 60	-20 to 60	-20 to 60	-20 to 60
Material	Nylon 12	Nylon 12	Polyurethane	Polyurethane

Refer to "Pneumatic Piping Equipment (CAT. E50)" regarding One-touch fittings and tubing.

Axial Ported (with M5 port) [M]



- * Refer to the dimension table.
 - * When auto switches are used on ø10, side mounting with through-holes is not possible.
 - Note 1) Normally open type plug position.
 - Note 2) Normally closed type plug position.
- The plug is mounted on only one side for the single acting type.

Model	A	B	D1	D2	E	F	G	H
MHZJ2-10 ^S C□M	15	7	12f8 ^{-0.016} _{-0.043}	11	40	16	28	5.5
MHZJ2-16 ^S C□M	20	10	16f8 ^{-0.016} _{-0.043}	15	43.5	16.2	27.7	6.5
MHZJ2-20 ^S C□M	22	12	20f8 ^{-0.020} _{-0.053}	19	51.7	16.7	31.2	7.5
MHZJ2-25 ^S C□M	25	15	25f8 ^{-0.020} _{-0.053}	24	61.3	17.3	32.3	10

Other dimensions and specifications correspond to the standard type.

Weight

Model	End boss type (Symbol)			
	E	W	K	M
MHZJ2-10□□	70	70	70	70
MHZJ2-16□□	165	165	165	165
MHZJ2-20□□	290	290	290	290
MHZJ2-25□□	525	525	525	525

MHZJ2 Series

Made to Order Individual Specifications

Please contact SMC for detailed dimensions, specifications and lead times.



1 With dust cover (For MHZJ 32, 40)

Symbol
-X6100

With dust cover type (size 32, 40)

MHZJ2 - 32 D - M9BW - X6100

Number of fingers
2 2 fingers

Bore size
32 32 mm
40 40 mm

Action
D Double acting

Dust cover type
Nil Chloroprene rubber (CR)
F Fluororubber (FKM)
S Silicone rubber

Auto switch
Nil Without auto switch (Built-in magnet)

* Available only for D-M9□.

With dust cover
Number of auto switches

Nil	2 pcs.
S	1 pc.
n	n pc.

Special specifications

Symbol	Basic type	Dust cover type		
		Nil: Chloroprene rubber (CR)	F: Fluororubber (FKM)	S: Silicone rubber
Nil	Basic type	○	○	○
A	Heat resistance	—	○	○
B	Fluororubber seal	—	○	—

* When using the heat resistance or fluororubber seal types, refer to "Precautions" shown below.

Specifications

Model		Basic type	Heat resistance	Fluororubber seal
Fluid		Air		
Operating pressure	Double acting	0.1 to 0.7 MPa		
Ambient and fluid temperature		-10 to 60°C	-10 to 100°C	-10 to 60°C
Repeatability		±0.02 mm		
Max. operating frequency		60 c.P/m		
Lubrication		Not required		
Action		Double acting		

Model

Action	Model	Bore size (mm)	Gripping force ^{Note 1)}		Opening/ Closing stroke (Both sides) (mm)	Weight ^{Note 2)} (g)
			Gripping force per finger Effective value (N)			
			External	Internal		
Double acting	MHZJ2-32D-X6100□	32	158	193	22	760
	MHZJ2-40D-X6100□	40	254	318	30	1325

Note 1) Values based on pressure of 0.5 MPa, gripping point L = 20 mm, at center of stroke.

Note 2) Values excluding weight of auto switch.

Handling Precautions

Heat resistance

Warning

Be aware that smoking cigarettes after your hands have come into contact with the grease used for this air gripper can create a gas that is hazardous to humans.

Caution

- Note 1) Magnet is built-in, but when using an auto switch, the acceptable temperature range becomes -10 to 60°C.
- Note 2) With the part number for the dust cover option, only fluororubber (F) or silicone rubber (S) options may be selected.
- Note 3) For lubrication, specialized grease GR-F is recommended.

Fluororubber seal

Caution

- Note 1) Please contact SMC, since the type of chemical and the operating temperature may not allow the use of this product.
- Note 2) Since the standard-type magnet is built-in, please contact SMC for the product's adaptability to the operating environment.
- Note 3) For the air gripper with a dust cover, the dust cover material is also fluororubber. Thus, enter (F) for the fluororubber dust cover in the part number.

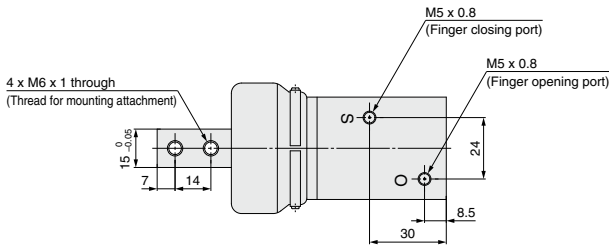
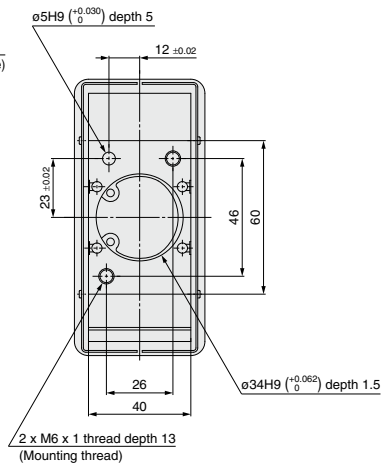
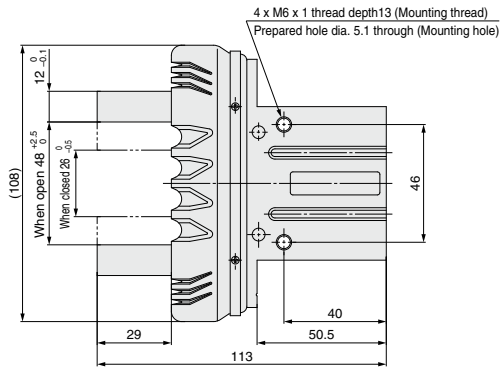
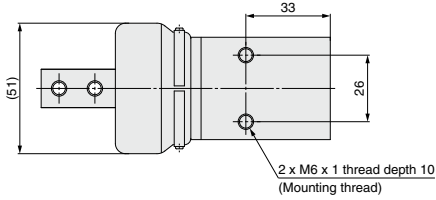
MHZ
MHF
MHL
MHR
MHK
MHS
MHC
MHT
MHY
MHW
-X□
MRHQ
MA
D-□

MHZJ2 Series

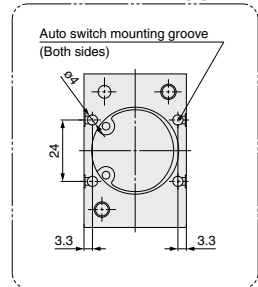
Dimensions (Dimensions other than specified below are the same as the standard type.)

MHZJ2-32D□-X6100

Basic type/Double acting



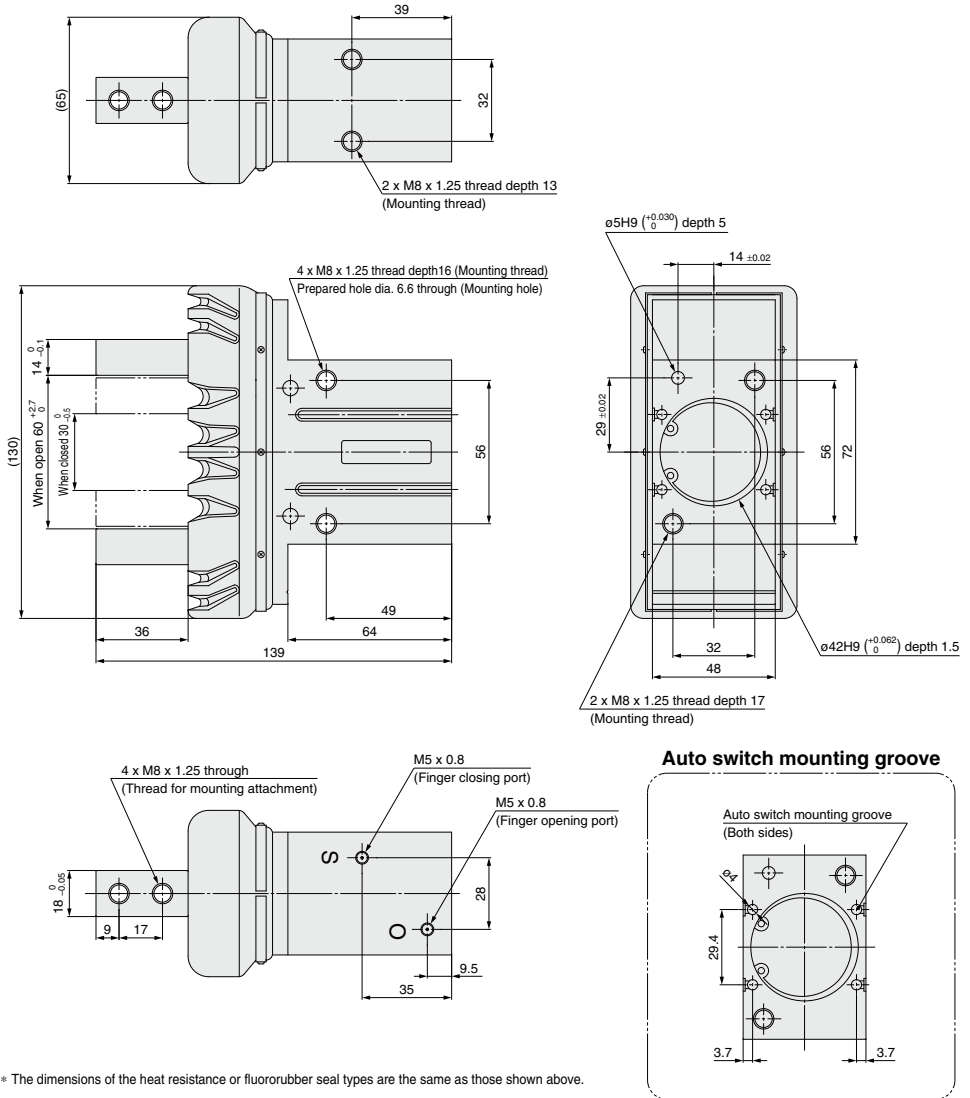
Auto switch mounting groove



* The dimensions of the heat resistance or fluororubber seal types are the same as those shown above.

Dimensions (Dimensions other than specified below are the same as the standard type.)

MHZJ2-40D□-X6100
Basic type/Double acting



* The dimensions of the heat resistance or fluororubber seal types are the same as those shown above.

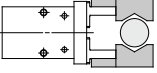
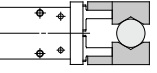
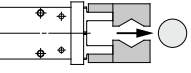
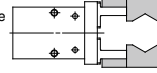
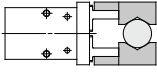
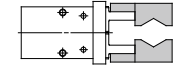
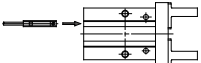
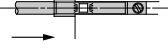
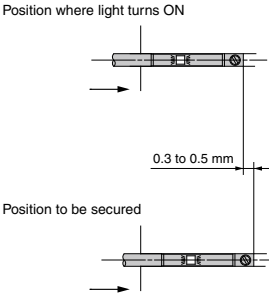

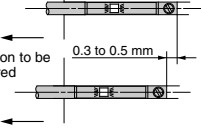
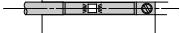


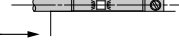
- MHZ
- MHF
- MHL
- MHR
- MHK
- MHS
- MHC
- MHT
- MHY
- MHW
- X□
- MRHQ
- MA
- D-□

MHZ2/MHZ□2 Series

Auto Switch Installation Examples and Mounting Position

Various auto switch applications are possible through different combinations of auto switch quantities and detecting positions.

1) Detection when Gripping Exterior of Workpiece

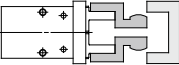
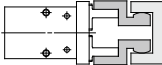
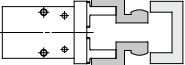
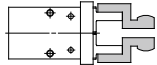
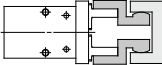
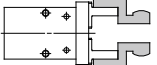
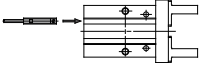
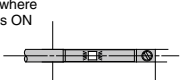
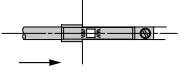
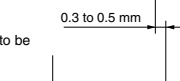
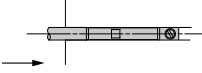

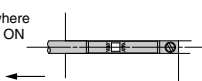

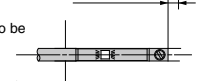
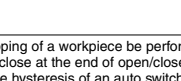
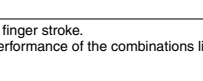
Detection example		1. Confirmation of fingers in reset position	2. Confirmation of workpiece held	3. Confirmation of workpiece released
Position to be detected	Position of fingers fully opened 	Position when gripping workpiece 	Position of fingers fully closed 	
Operation of auto switch	Auto switch turned on when fingers return. (Light ON)	Auto switch turned on when gripping a workpiece. (Light ON)	When a workpiece is not held (Abnormal operation): Auto switch to turn ON (Light ON)	
Detection combinations	One auto switch *One position, any of ①, ②, and ③ can be detected.	●	●	●
	Two auto switches *Two positions of ①, ②, and ③ can be detected.	●	●	—
		—	●	●
How to determine auto switch installation position	Step 1) Fully open the fingers. 	Step 1) Position fingers for gripping a workpiece. 	Step 1) Fully close the fingers. 	
At no pressure or low pressure, connect the auto switch to a power supply, and follow the directions.	Step 2) Insert the auto switch into the switch installation groove in the direction shown in the following drawing.0 			
	Step 3) Slide the auto switch in the direction of the arrow until the indicator light illuminates. 	Step 3) Slide the auto switch in the direction of the arrow until the light illuminates and fasten it at a position 0.3 to 0.5 mm in the direction of the arrow beyond the position where the indicator light illuminates. 		
	Step 4) Slide the auto switch further in the direction of the arrow until the indicator light goes out. 			
	Step 5) Move the auto switch in the opposite direction and fasten it at a position 0.3 to 0.5 mm beyond the position where the indicator light illuminates. 			
	Position where light turns ON  Position to be secured 0.3 to 0.5 mm 	Position where light turns ON  Position to be secured 0.3 to 0.5 mm 		

Note 1) It is recommended that gripping of a workpiece be performed close to the center of the finger stroke.

Note 2) When holding a workpiece close at the end of open/close stroke of fingers, detecting performance of the combinations listed in the above table may be limited, depending on the hysteresis of an auto switch, etc.

Various auto switch applications are possible through different combinations of auto switch quantities and detecting positions.

2) Detection when Gripping Interior of Workpiece

Detection example		1. Confirmation of fingers in reset position	2. Confirmation of workpiece held	3. Confirmation of workpiece released
Position to be detected		Position of fingers fully closed 	Position when gripping workpiece 	Position of fingers fully opened 
Operation of auto switch		Auto switch turned ON when fingers return. (Light ON)	Auto switch turned ON when gripping a workpiece. (Light ON)	When a workpiece is not held (Abnormal operation): Auto switch to turn ON (Light ON)
Detection combinations	One auto switch *One position, any of ①, ②, and ③ can be detected.	●	●	●
	Two auto switches *Two positions of ①, ②, and ③ can be detected.	●	●	—
		●	●	●
Pattern	A	—	●	●
B	—	—	●	●
C	●	—	—	●
How to determine auto switch installation position		Step 1) Fully close the fingers. 	Step 1) Position fingers for gripping a workpiece. 	Step 1) Fully open the fingers. 
At no pressure or low pressure, connect the auto switch to a power supply, and follow the directions.		Step 2) Insert the auto switch into the switch installation groove in the direction shown in the following drawing.		
				
		Step 3) Move the auto switch in the direction of the arrow and fasten it at a position 0.3 to 0.5 mm beyond the position where the indicator light illuminates.	Step 3) Slide the auto switch in the direction of the arrow until the indicator light illuminates.	
				
		Position where light turns ON	Step 4) Slide the auto switch further in the direction of the arrow until the indicator light goes out.	
				
Position to be secured	Step 5) Move the auto switch in the opposite direction 0.3 to 0.5 mm in the direction indicated by the arrow from its location when the indicator light comes on again.			
				
Position where light turns ON	Position where light turns ON			
				
Position to be secured	Position to be secured			
				

Note 1) It is recommended that gripping of a workpiece be performed close to the center of the finger stroke.

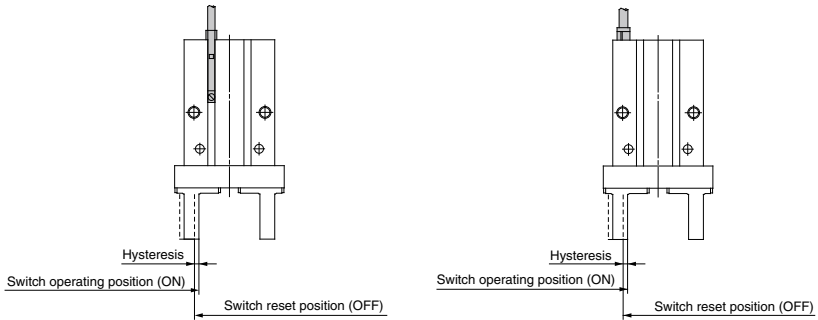
Note 2) When holding a workpiece close at the end of open/close stroke of fingers, detecting performance of the combinations listed in the above table may be limited, depending on the hysteresis of an auto switch, etc.

- MHZ
- MHF
- MHL
- MHR
- MHK
- MHS
- MHC
- MHT
- MHY
- MHW
- X□
- MRHQ
- MA
- D-□

MHZ2, MHZ□2 Series

Auto Switch Hysteresis

Auto switches have hysteresis similar to micro switches.
Use the table below as a guide when adjusting auto switch positions, etc.



Hysteresis

Auto switch model Air gripper model	D-Y59A/Y59B D-Y69A/Y69B D-Y7P(V) D-Y7□W(V)	D-F8□	D-M9□(V) D-M9□W(V) D-M9□A(V)
	MHZ2-6□	No setting	0.5
MHZ2-10□, MHZL2-10□	0.5	No setting	0.5 <small>Note</small>
MHZ2-16□, MHZL2-16□	0.5	0.5	0.5
MHZ2-20□, MHZL2-20□	0.5	0.5	0.8
MHZ2-25□, MHZL2-25□	0.5	0.5	0.5
MHZ2-32□	0.5	0.5	0.7
MHZ2-40□	0.5	0.5	0.9
MHZJ2-6□	No setting	0.5	0.5
MHZJ2-10□		0.5	0.5
MHZJ2-16□		0.5	0.5
MHZJ2-20□		0.5	0.8
MHZJ2-25□		0.5	0.5

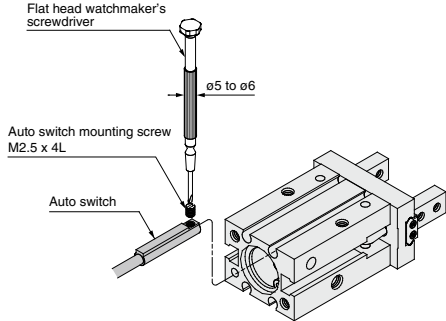
Note) When mounting D-M9□(V), M9□W(V) and M9□A(V) on MHZ2-10□ and MHZL2-10, mounting brackets (BMG2-012) are required.

Auto Switch Mounting

Applicable models:

- MHZ2-6
- MHZJ2 Series
- Round groove of the MHZ2 series
- Round groove of the MHZL2 series

To set the auto switch, insert the auto switch into the auto switch installation groove of the gripper from the direction indicated in the following drawing. After setting the position, tighten the attached auto switch mounting screw with a flat head watchmaker's screwdriver.

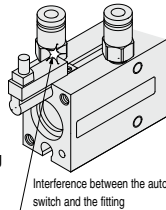


Note) Use a watchmaker's screwdriver with a grip diameter of 5 to 6 mm to tighten the auto switch mounting screw.
Also, tighten with a torque of about 0.05 to 0.15 N·m, or about 0.05 to 0.10 N·m for D-M9□A(V).

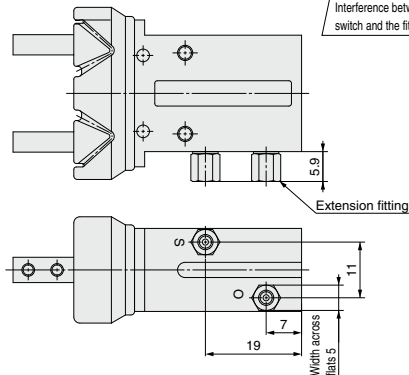
[Mounting of Auto Switch: Precautions]

When mounting an auto switch on the piping surface of the MHZJ2-10□, the auto switch may not be mountable due to interference with the fitting. Use an extension fitting included with the product for the combinations in the table below.

Auto switch model	One-touch Mini Fittings (KQ2H/KQ2S/KQ2L/KQ2W) KJH/KJS/KJL/KJW
D-M9□(V)	×
D-M9□W(V)	×
D-F8□	×
D-M9□A(V)	×



Mounting dimensions of extension fitting

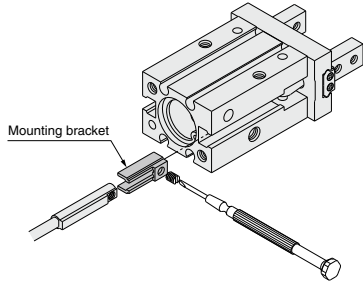


* When mounting extension fittings, first, tighten it by hand, then give it an additional 1/4 turn with a wrench.

Applicable models:

- Square groove on the side of the MHZ2 series
- Square groove on the side of the MHZL2 series

- (1) To set the auto switch, insert the auto switch into the installation groove of the cylinder as shown below and set it roughly.
- (2) Insert the auto switch into the auto switch bracket installation groove.
- (3) After confirming the detecting position, tighten the set screws (M2.5) attached to the auto switch and set it.
- (4) Be sure to change the detecting position in the state of (2).



Auto Switch Mounting Bracket: Part No.

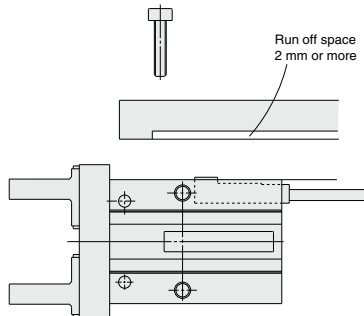
Auto switch part no.	Auto switch mounting bracket part no.
D-M9□(V)	BMG2-012
D-M9□W(V)	
D-F8□	
D-M9□A(V)	

Note) Use a watchmaker's screwdriver with a grip diameter of 5 to 6 mm to tighten the set screws (M2.5).
The tightening torque should be 0.05 to 0.1 N·m.
As a guide, it should be turned about 90° beyond the point at which tightening can be felt.

Note) D-F8□ cannot be mounted on MHZ2-10□, MHZJ2-10□ and MHZL2-10□

[Handling of Mounting Brackets: Precautions]

When auto switch is set on the mounting side as shown below, allow at least 2 mm run off space on mounting plate since the auto switch is protruded from the gripper edge.



MHZ

MHF

MHL

MHR

MHK

MHS

MHC

MHT

MHY

MHW

-X□

MRHQ

MA

D-□

MHZ2, MHZ□2 Series

Protrusion of Auto Switch from Edge of Body

The amount of auto switch protrusion from the body's end surface is as shown in the table below.

Use this as a standard when mounting, etc.

D-F8□ has no protrusion from the body's end surface.

The end boss type has no protrusion either.

Standard Body

Lead wire type		In-line electrical entry type			Perpendicular electrical entry type				
		Explanatory drawing			Explanatory drawing				
Auto switch model		Finger position			Finger position				
Air gripper model		D-Y59□ D-Y7P D-Y7□W	D-M9□ D-M9□W	D-M9□A	D-Y69□ D-Y7PV D-Y7□WV	D-M9□V D-M9□WV	D-M9□AV		
Standard	MHZ2-6□	Open	No setting		No setting		9	11	
		Close					11	13	
	MHZ2-10□	Open	1	3.5 <small>Note 3)</small>	5.5 <small>Note 3)</small>	—	1.5 <small>Note 3)</small>	3.5 <small>Note 3)</small>	
		Close	7.5	6.5 <small>Note 3)</small>	8.5 <small>Note 3)</small>	6.5	4.5 <small>Note 3)</small>	6.5 <small>Note 3)</small>	
	MHZ2-16□	Open	—	1	3	—	—	—	
		Close	6	4	6	5	2	4	
	MHZ2-20□	Open	—	—	—	—	—	—	
		Close	4	2	4	3	—	—	
	MHZ2-25□	Open	—	—	—	—	—	—	
		Close	1	—	—	—	—	—	
	MHZ2-32□	Open	—	—	—	—	—	—	
		Close	3	—	—	2	—	—	
	MHZ2-40□	Open	—	—	—	—	—	—	
		Close	2	—	—	1	—	—	
	With dust cover	MHZJ2-6□	Open	11		13		9	11
			Close	13		15		11	13
MHZJ2-10□		Open	5		7		3	5	
		Close	7		9		5	7	
MHZJ2-16□		Open	2		4		—	—	
		Close	5		7		3	5	
MHZJ2-20□		Open	—		—		—	—	
		Close	3		5		1	3	
MHZJ2-25□		Open	—		—		—	—	
		Close	2		4		—	—	
Long stroke	Double acting	MHZL2-10D	Open	0.5	1.5 <small>Note 3)</small>	3.5 <small>Note 3)</small>	—	—	
			Close	8.5	8 <small>Note 3)</small>	10 <small>Note 3)</small>	7.5	6 <small>Note 3)</small>	8 <small>Note 3)</small>
		MHZL2-16D	Open	—	—	—	—	—	—
			Close	8	6	8	7	4	6
	MHZL2-20D	Open	—	—	—	—	—	—	
		Close	7	5	7	6	3	5	
	MHZL2-25D	Open	—	—	—	—	—	—	
		Close	5.5	3.5	5.5	4.5	1.5	3.5	
	Single acting (Normally open)	MHZL2-10S	Open	—	—	—	—	—	
			Close	—	—	—	—	—	
		MHZL2-16S	Open	—	—	—	—	—	
			Close	3	1	3	2	—	
		MHZL2-20S	Open	—	—	—	—	—	
			Close	1	—	—	—	—	
		MHZL2-25S	Open	—	—	—	—	—	
			Close	—	—	—	—	—	
		MHZL2-10C	Open	—	—	—	—	—	
			Close	5.5	5 <small>Note 3)</small>	7 <small>Note 3)</small>	4.5	3 <small>Note 3)</small>	5 <small>Note 3)</small>
MHZL2-16C		Open	—	—	—	—	—		
		Close	5.5	3.5	5.5	4.5	1.5	3.5	
MHZL2-20C		Open	—	—	—	—	—		
		Close	3.5	1.5	3.5	2.5	—		
MHZL2-25C	Open	—	—	—	—	—			
	Close	1.5	—	—	0.5	—			

Note 1) There is no protrusion if no values are entered in the table.

Note 2) The actual mounting position should be adjusted after confirming the auto switch operating conditions.

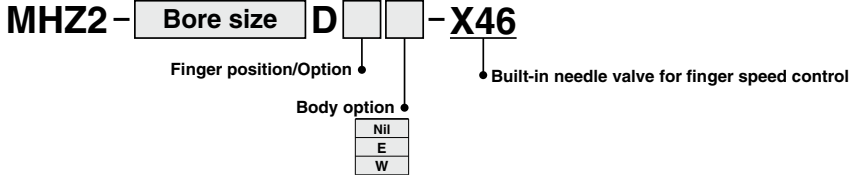
Note 3) When mounting D-M9□(V), M9□W(V) and M9□A(V) on MHZ2-10□ and MHZL2-10□, mounting brackets (BMG2-012) are required.

1 Built-in needle valve for finger speed control

Symbol
-X46

Installation of a variable throttle allows adjustment of the finger opening/closing speed.

How to Order

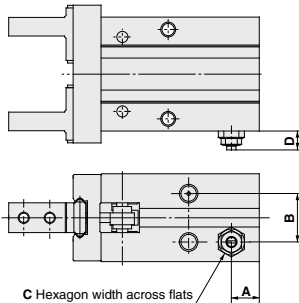


Specifications

Bore size (mm)	10, 16, 20, 25
Action	Double acting
Needle position	Refer to the dimensions and figures below.
Specifications/dimensions other than the above	Same as the standard type

Note) Not available for ø6, ø32 and ø40.

Dimensions (Dimensions other than specified below are the same as the standard type.)



Model	A	B	C	D*
MHZ2-10D□□-X46	9	11	4.5	5.2
MHZ2-16D□□-X46	7.5	13	7	5.8
MHZ2-20D□□-X46	10	15	7	6
MHZ2-25D□□-X46	10.7	20	7	6.2

Dimensions other than the above are identical to the standard type; refer to pages 417 to 420.

* Reference values to establish criteria for needle adjustment.

Adjust so that the finger opening/closing speed will be no greater than necessary. If the finger opening/closing speed is greater than necessary, impact forces acting on the fingers and other parts will increase. This can cause a loss of repeatability when gripping workpieces and have an adverse effect on the life of the unit.

This needle is used to adjust the finger closing speed. When adjusting the opening speed (attenuating impact during operation, etc.), use a meter-out control speed controller AS series.

Guide for Internal Needle Adjustment

Model	Number of rotations from fully closed needle condition <small>(Note)</small>
MHZ2-10D□□-X46	1/4 to 1/2
MHZ2-16D□□-X46	1/2 to 1
MHZ2-20D□□-X46	1 to 1 1/2
MHZ2-25D□□-X46	1 1/2 to 2

Note) The condition in which the needle is tightened gently until it stops.

MHZ

MHF

MHL

MHR

MHK

MHS

MHC

MHT

MHY

MHW

-X□

MRHQ

MA

D-□

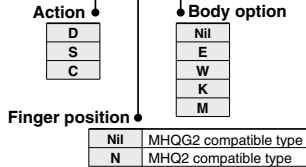
2 MHQ2/MHQG2 Compatible Flat Type Fingers

Symbol
-X51

Previous MHQ2/MHQG2 series compatible flat type finger is selectable for the MHZ2 series.

How to Order

MHZ2 – **Bore size** [] [] [] – **X51**



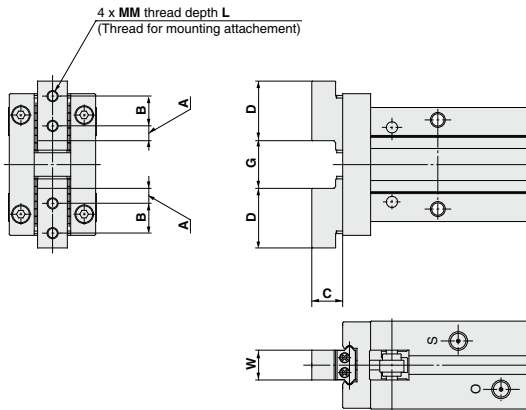
Specifications

Bore size (mm)	10, 16, 20, 25
Action	Double acting, Single acting (normally open, normally closed)
Finger dimensions	Refer to the dimensions and figures below.
Specifications/dimensions other than the above	Same as the standard type

Note 1) Not available for ø6, ø32 and ø40.

Note 2) An option symbol (3) for the flat finger type is not specified.

Dimensions (Dimensions other than specified below are the same as the standard type.)



Model		A	B	C	D	G		MM	L	W
						Open	Closed			
MHZ2-10□□□-X51	MHQG2 compatible	3	6	5.2	12	9.7 ^{+0.2} _{-0.2}	5.7 ⁰ _{-0.4}	M2 x 0.4	3.6	5 ⁰ _{-0.05}
	MHQ2 compatible	2	5	5.2	9	9.7 ^{+0.2} _{-0.2}	5.7 ⁰ _{-0.4}	M2 x 0.4	3.6	5 ⁰ _{-0.05}
MHZ2-16□□□-X51	MHQG2 compatible	4	8	8.3	16	12.6 ^{+0.2} _{-0.2}	6.6 ⁰ _{-0.4}	M3 x 0.5	6	8 ⁰ _{-0.05}
	MHQ2 compatible	2.5	7	8.3	12	12.6 ^{+0.2} _{-0.2}	6.6 ⁰ _{-0.4}	M3 x 0.5	6	8 ⁰ _{-0.05}
MHZ2-20□□□-X51	MHQG2 compatible	5	10	10.5	20.8	17.2 ^{+0.2} _{-0.2}	7.2 ⁰ _{-0.4}	M4 x 0.7	8	10 ⁰ _{-0.05}
	MHQ2 compatible	3.3	9	10.5	15.5	17.2 ^{+0.2} _{-0.2}	7.2 ⁰ _{-0.4}	M4 x 0.7	8	10 ⁰ _{-0.05}
MHZ2-25□□□-X51	MHQG2 compatible	6.5	12	13.1	25	22.8 ^{+0.5} _{-0.5}	8.8 ⁰ _{-0.4}	M5 x 0.8	10	12 ⁰ _{-0.05}
	MHQ2 compatible	3.5	12	13.1	19	22.8 ^{+0.5} _{-0.5}	8.8 ⁰ _{-0.4}	M5 x 0.8	10	12 ⁰ _{-0.05}