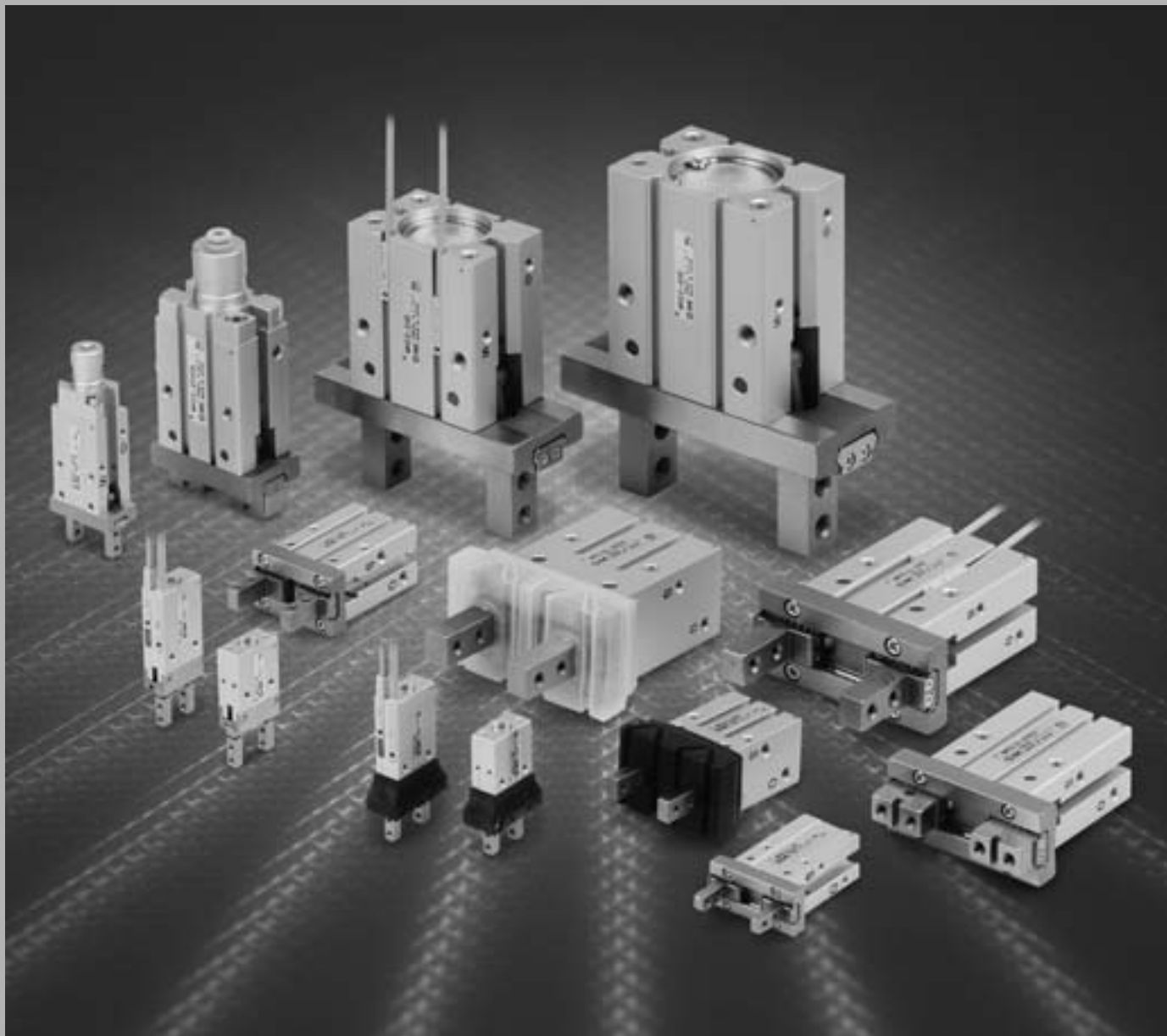


Parallel Style Air Gripper

Series *MHZ*



MHZ

MHF

MHL

MHR

MHK

MHS

MHC

MHT

MHY

MHW

-X□

MRHQ

MA

D-□

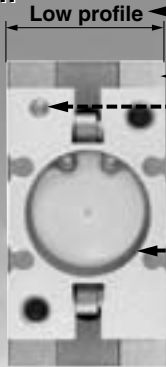
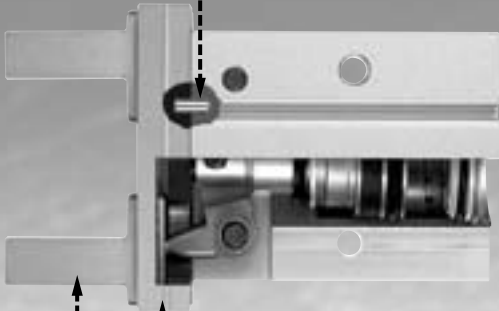
Integral linear guide used for high rigidity

and high precision

• **Linear guide slippage prevention**

Guide slippage is prevented by two positioning dowel pins.

• **Repeatability: ±0.01 mm**



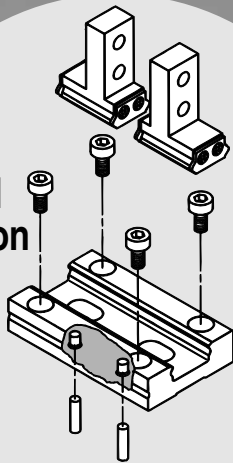
• **Body thickness tolerance: ±0.05 mm**

• **No guide protrusion in direction of body thickness**

• **Improved remounting accuracy**
Positioning dowel pin holes provided

• **Top mounting centering location**
Mounting is more secure with a depth 0.5 to 2 mm greater than conventional types.

Integral guide rail construction

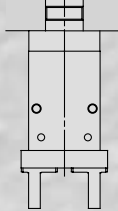
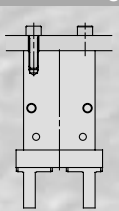


• **Martensitic stainless steel**

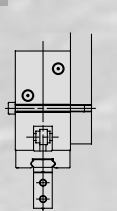
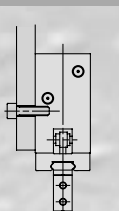
High degree of mounting flexibility

Can be mounted five ways from three directions.

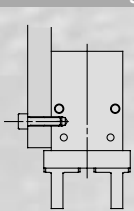
Axial mounting



Lateral mounting

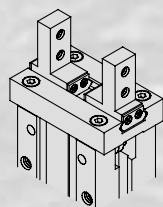


Vertical mounting

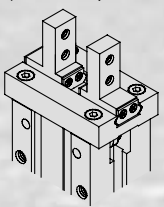


Finger positions can be selected.
(Standard type/MHZ2)

Standard type
(MHQ2 compatible width)



Narrow type
(MHQ2 compatible width)



Series Variations

Series	Bore size (mm)	Action
--------	----------------	--------

Compact series

Standard MHZA2-6	6	Double acting Single acting (Normally open) Single acting (Normally closed)
With dust cover MHZAJ2-6	6	Double acting Single acting (Normally open) Single acting (Normally closed)

Standard MHZ2	6	Double acting Single acting (Normally open) Single acting (Normally closed)
	10, 16 20, 25	Double acting Single acting (Normally open) Single acting (Normally closed)
	32, 40	Double acting Single acting (Normally open) Single acting (Normally closed)

Long stroke MHZL2	10, 16 20, 25	Double acting Single acting (Normally open) Single acting (Normally closed)
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With dust cover MHZJ2	6	Double acting Single acting (Normally open) Single acting (Normally closed)
	10, 16 20, 25	Double acting Single acting (Normally open) Single acting (Normally closed)

Body option							Finger option			
Basic type		End boss type					Finger option			
Side ported	Side ported	With One-touch fitting for coaxial tubing	With One-touch fitting	With M3 port	With M5 port	With hose nipple	Basic type (tapped in open/close direction)	Side tapped	Through-holes in open/close direction	Flat type finger

Accommodates diverse workpiece diameters with a single unit

- Nearly double the standard stroke
- Long stroke are also compact and lightweight

Long stroke MHZL2

Series	Opening/Closing stroke (mm) (Open-Closed)	Mass (g)	Body thickness (mm)
MHZL2-10	8 (4)	60	16.4
MHZL2-16	12 (6)	135	23.6
MHZL2-20	18 (10)	270	27.6
MHZL2-25	22 (14)	470	33.6

Values inside () are for standard series MHZ2.

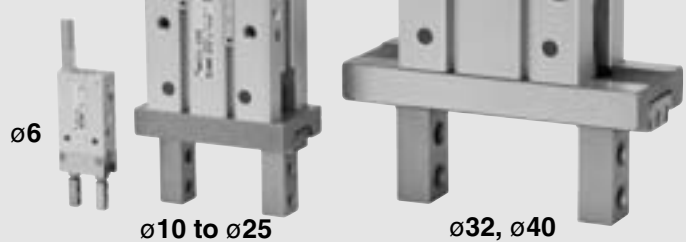


A wide variety of types and broad size variations

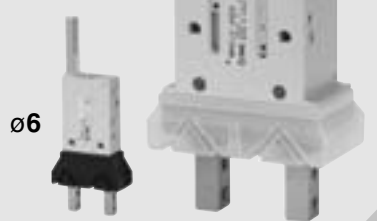
Compact series (without auto switch)



Standard



With dust cover ø10 to ø25



Long stroke ø10 to ø25



Series MHZ Model Selection

Model Selection

Selection Procedure

Step 1 Confirm gripping force

Step 2 Confirm gripping point

Step 3 Confirm external force on fingers

Step 1 Confirmation of Gripping Force

Confirmation of conditions

Calculation of required gripping force

Selection of model from gripping force graph

Example

Workpiece mass:
0.1 kg

Gripping method:
External gripping

Guidelines for the selection of the gripper with respect to component mass

- Although conditions differ according to the work piece shape and the coefficient of friction between the attachments and the workpiece, select a model that can provide a gripping force of 10 to 20 times the workpiece weight, or more.
(Note) For further details, refer to the model selection illustration.

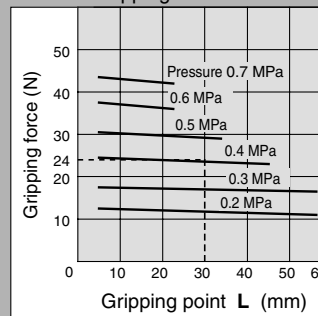
- If high acceleration, deceleration or impact forces are encountered during motion, a further margin of safety should be considered.

Example) When it is desired to set the gripping force at 20 times or more above the workpiece weight.
Required gripping force = $0.1 \text{ kg} \times 20 \times 9.8 \text{ m/s}^2 \approx 19.6 \text{ N}$ or more

Gripping point distance:
 $L = 30 \text{ mm}$

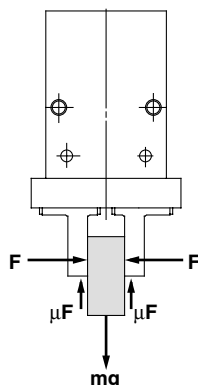
Operating pressure:
0.4 MPa

MHZ□2-16 External Gripping Force



- Selecting MHZ□2-16D.
A gripping force of 24 N is obtained from the intersection point of gripping point distance $L = 30 \text{ mm}$ and pressure of 0.4 MPa.
- The gripping force is 24.5 times greater than the workpiece mass, and therefore satisfies a gripping force setting value of 20 times or more.

Model Selection Illustration



“Gripping force at least 10 to 20 times the workpiece weight”

The “10 to 20 times or more of the workpiece weight” recommended by SMC is calculated with a safety margin of $a = 4$, which allows for impacts that occur during normal transportation, etc.

When $\mu = 0.2$	When $\mu = 0.1$
$F = \frac{mg}{2 \times 0.2} \times 4$	$F = \frac{mg}{2 \times 0.1} \times 4$
$= 10 \times mg$	$= 20 \times mg$

10 x Workpiece weight

20 x Workpiece weight

Note) • Even in cases where the coefficient of friction is greater than $\mu = 0.2$, for reasons of safety, select a gripping force which is at least 10 to 20 times greater than the workpiece weight, as recommended by SMC.

• If high acceleration, deceleration or impact forces are encountered during motion, a further margin of safety should be considered.

When gripping a workpiece as in the figure to the left, and with the following definitions,

F: Gripping force (N)

μ : Coefficient of friction between the attachments and the workpiece

m: Workpiece mass (kg)

g: Gravitational acceleration ($= 9.8 \text{ m/s}^2$)

mg: Workpiece weight (N)

the conditions under which the workpiece will not drop are

$$2 \times \mu F > mg$$

Number of fingers

and therefore,

$$F > \frac{mg}{2 \times \mu}$$

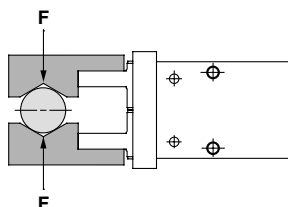
With “a” representing the extra margin, “F” is determined by the following formula:

$$F = \frac{mg}{2 \times \mu} \times a$$

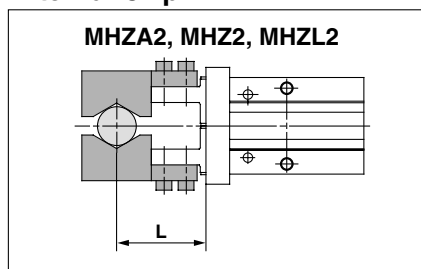
Step 1 Effective Gripping Force: Series MHZ□2/Double Acting/External Gripping Force

- Indication of effective gripping force

The effective gripping force shown in the graphs to the right is expressed as F , which is the thrust of one finger, when both fingers and attachments are in full contact with the workpiece as shown in the figure below.

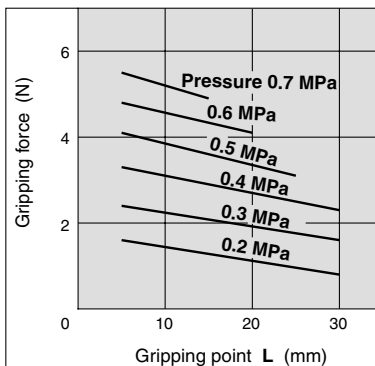


External Grip

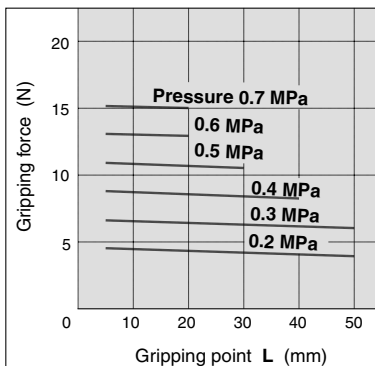


External Gripping Force

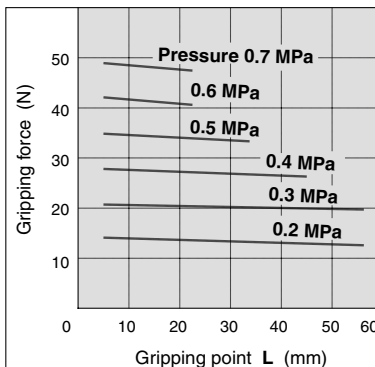
MHZ2-6D/MHZA2-6D



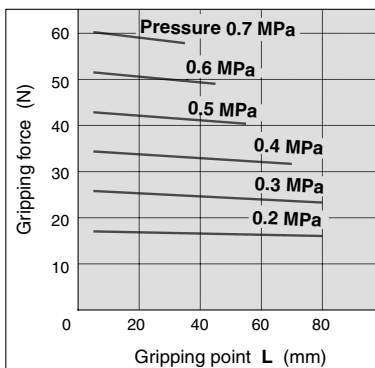
MHZ2-10D/MHZA2-10D



MHZ2-16D/MHZA2-16D

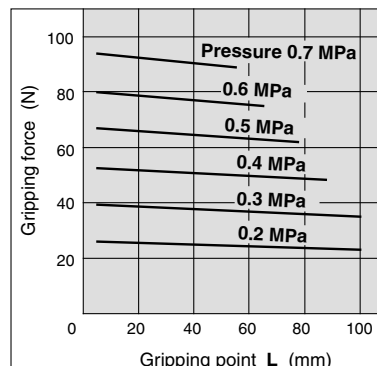


MHZ2-20D/MHZA2-20D

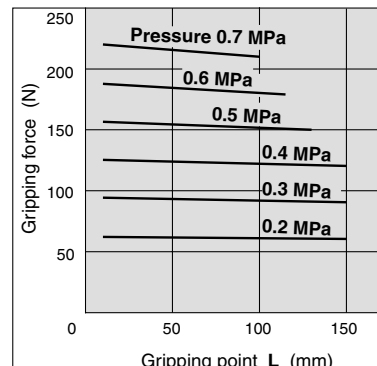


External Gripping Force

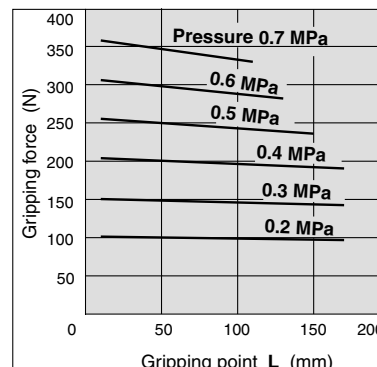
MHZ2-25D/MHZA2-25D



MHZ2-32D



MHZ2-40D



MHZ

MHF

MHL

MHR

MHK

MHS

MHC

MHT

MHY

MHW

-X□

MRHQ

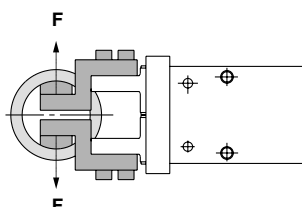
MA

D-□

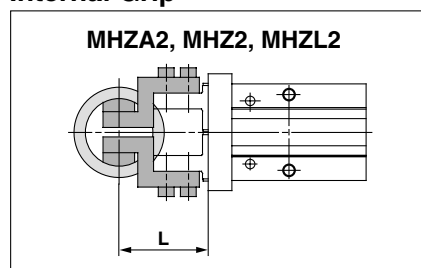
Model Selection

Step 1 Effective Gripping Force: Series MHZ□2/Double Acting/Internal Gripping Force

- Indication of effective gripping force
The effective gripping force shown in the graphs to the right is expressed as F , which is the thrust of one finger, when both fingers and attachments are in full contact with the workpiece as shown in the figure below.

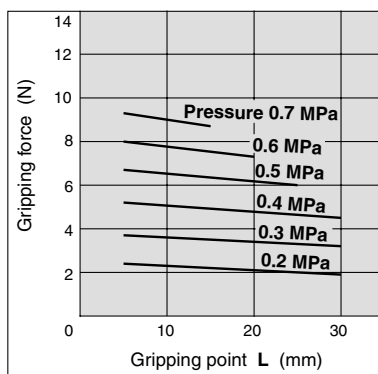


Internal Grip

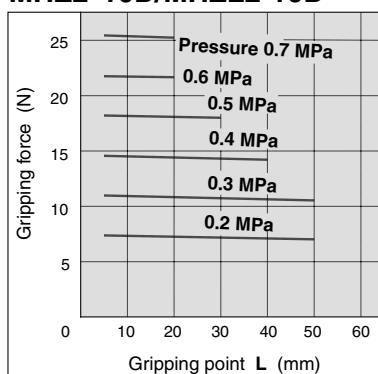


Internal Gripping Force

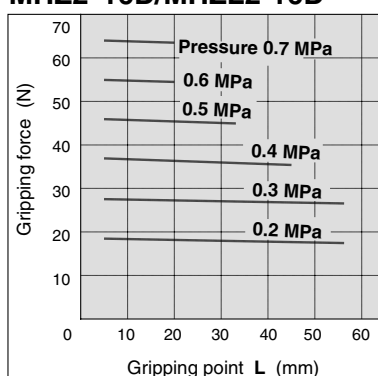
MHZ2-6D/MHZA2-6D



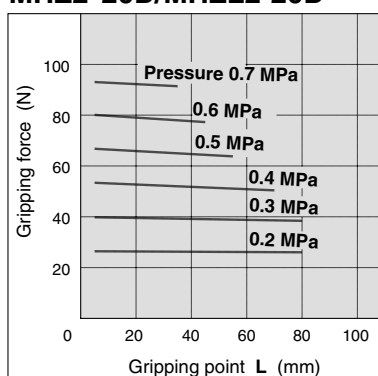
MHZ2-10D/MHZA2-10D



MHZ2-16D/MHZA2-16D

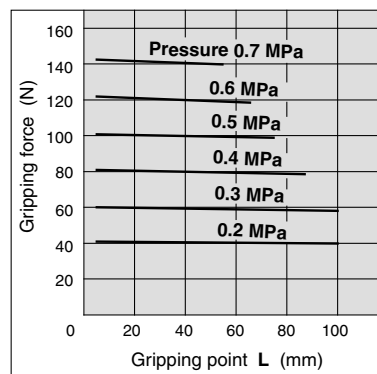


MHZ2-20D/MHZA2-20D

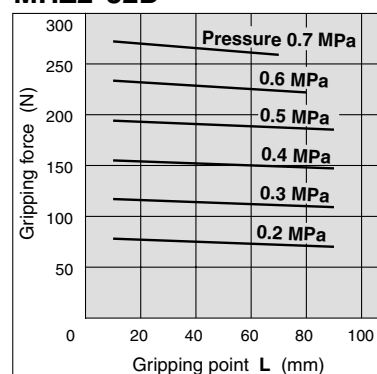


Internal Gripping Force

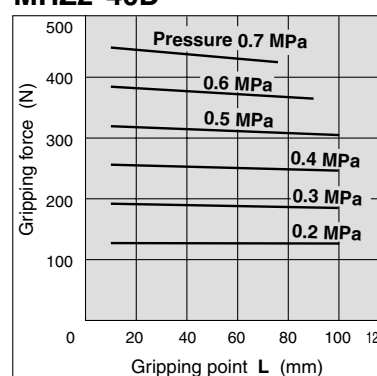
MHZ2-25D/MHZA2-25D



MHZ2-32D



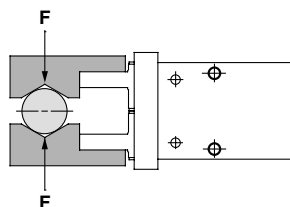
MHZ2-40D



Step 1 Effective Gripping Force: Series MHZ□2/Single Acting/External Gripping Force

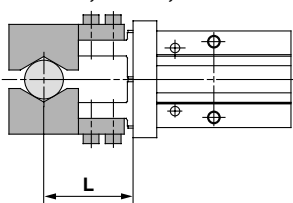
• Indication of effective gripping force

The effective gripping force shown in the graphs to the right is expressed as F , which is the thrust of one finger, when both fingers and attachments are in full contact with the workpiece as shown in the figure below.



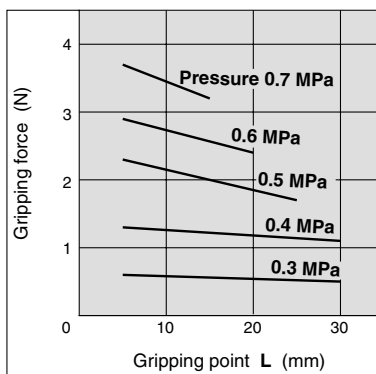
External Grip

MHZA2, MHZ2, MHZL2

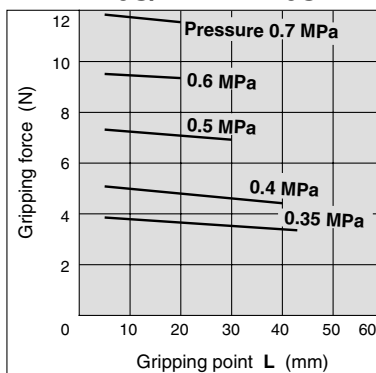


External Gripping Force

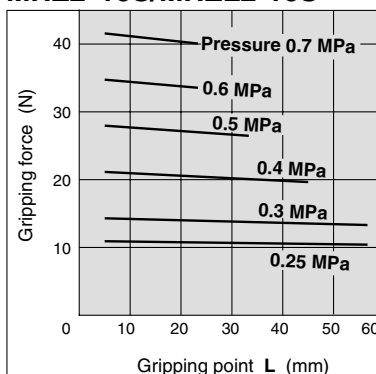
MHZ2-6S/MHZA2-6S



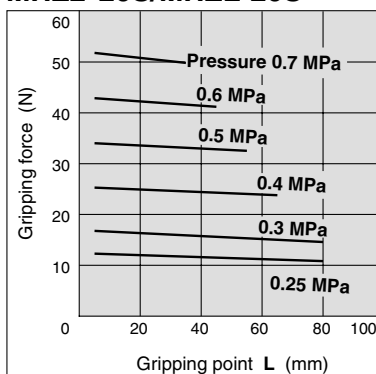
MHZ2-10S/MHZL2-10S



MHZ2-16S/MHZL2-16S

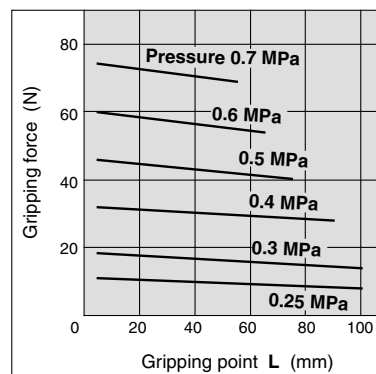


MHZ2-20S/MHZL2-20S

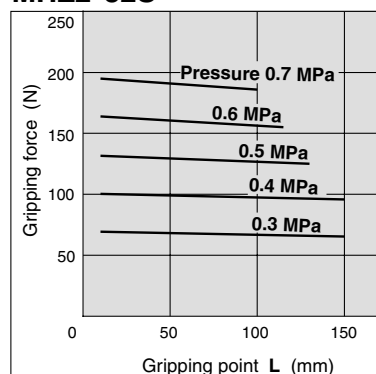


External Gripping Force

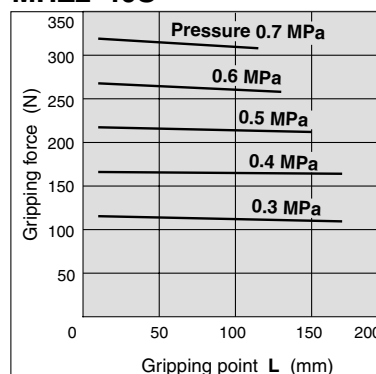
MHZ2-25S/MHZL2-25S



MHZ2-32S



MHZ2-40S



MHZ

MHF

MHL

MHR

MHK

MHS

MHC

MHT

MHY

MHW

-X□

MRHQ

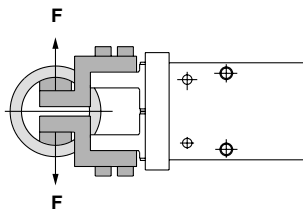
MA

D-□

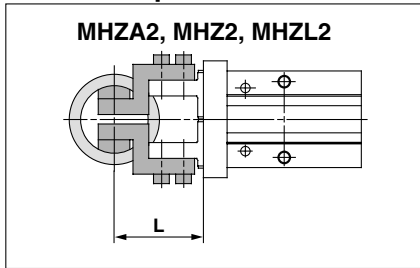
Model Selection

Step 1 Effective Gripping Force: Series MHZ□2/Single Acting/Internal Gripping Force

- Indication of effective gripping force
The effective gripping force shown in the graphs to the right is expressed as F, which is the thrust of one finger, when both fingers and attachments are in full contact with the workpiece as shown in the figure below.

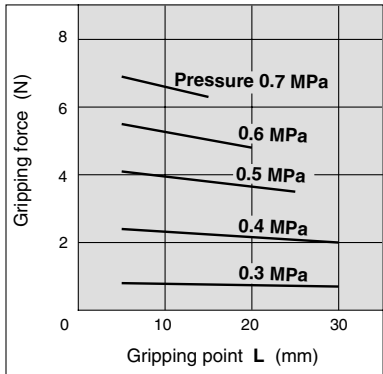


Internal Grip

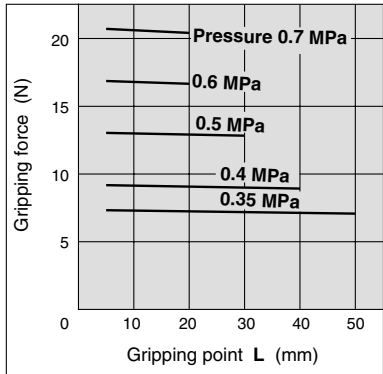


Internal Gripping Force

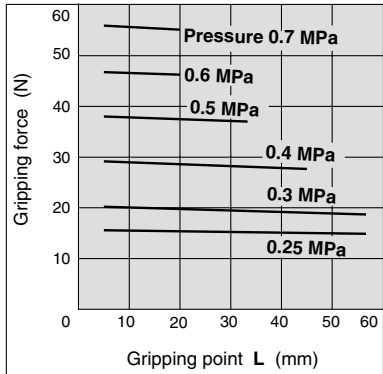
MHZ2-6C/MHZA2-6C



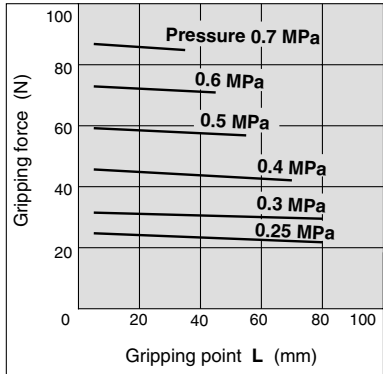
MHZ2-10C/MHZA2-10C



MHZ2-16C/MHZA2-16C

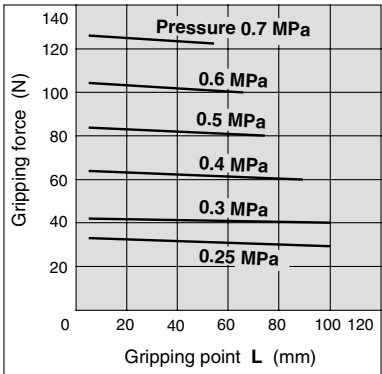


MHZ2-20C/MHZA2-20C

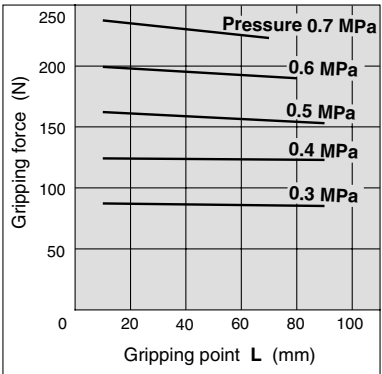


Internal Gripping Force

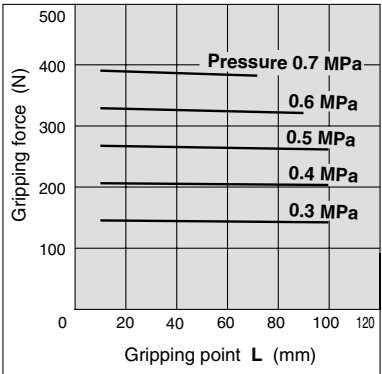
MHZ2-25C/MHZA2-25C



MHZ2-32C

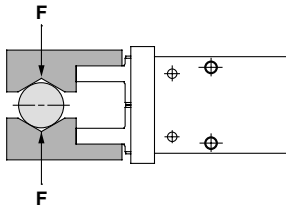


MHZ2-40C



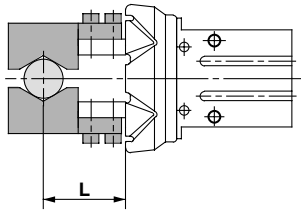
Step 1 Effective Gripping Force: Series MHZ□2/Double Acting/External Gripping Force

- Indication of effective gripping force
The effective gripping force shown in the graphs to the right is expressed as F , which is the thrust of one finger, when both fingers and attachments are in full contact with the workpiece as shown in the figure below.



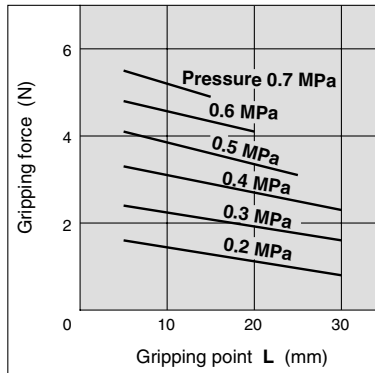
External Grip

MHZAJ2, MHZJ2, 11-MHZ2



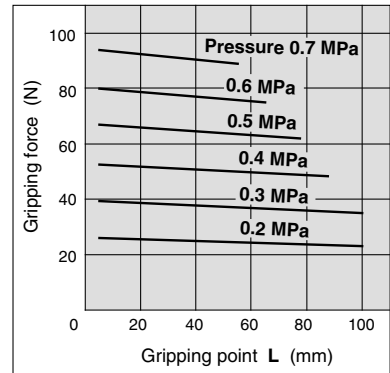
External Gripping Force

MHZJ2-6D/MHZAJ2-6D

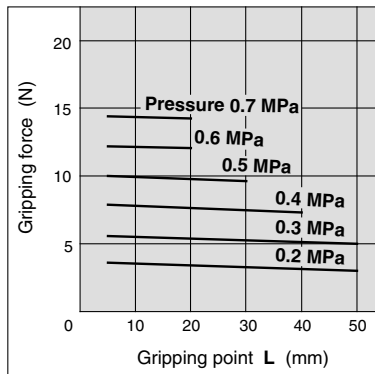


External Gripping Force

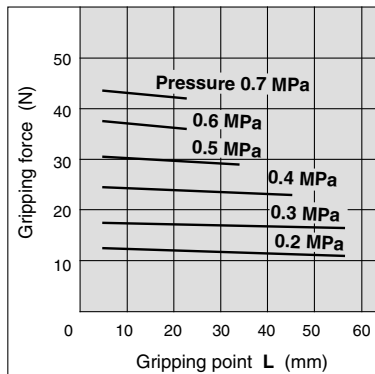
MHZJ2-25D/11-MHZ2-25D



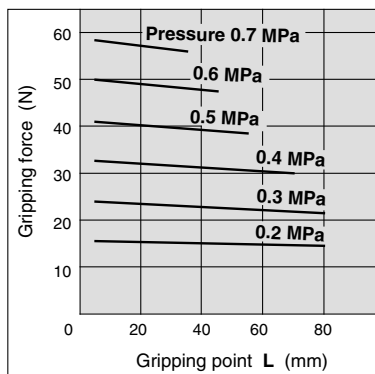
MHZJ2-10D/11-MHZ2-10D



MHZJ2-16D/11-MHZ2-16D



MHZJ2-20D/11-MHZ2-20D



MHZ

MHF

MHL

MHR

MHK

MHS

MHC

MHT

MHY

MHW

-X□

MRHQ

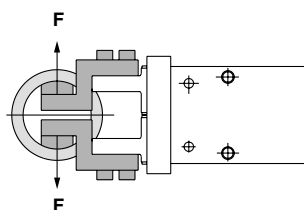
MA

D-□

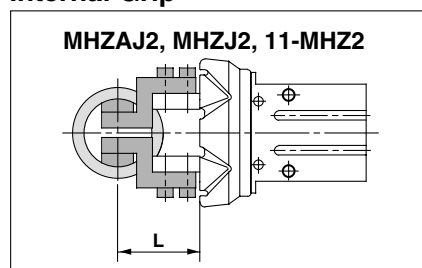
Model Selection

Step 1 Effective Gripping Force: Series MHZ□2/Double Acting/Internal Gripping Force

- Indication of effective gripping force
The effective gripping force shown in the graphs to the right is expressed as F , which is the thrust of one finger, when both fingers and attachments are in full contact with the workpiece as shown in the figure below.

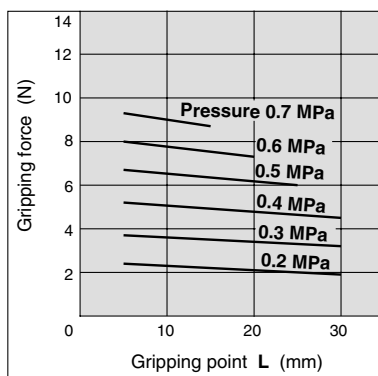


Internal Grip

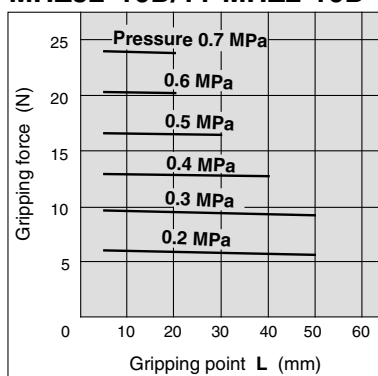


Internal Gripping Force

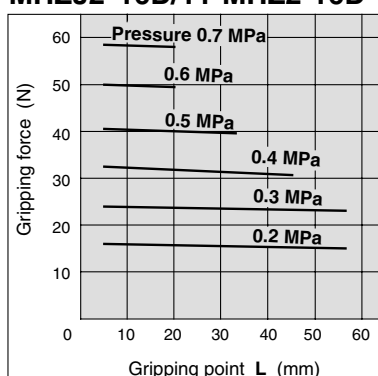
MHZJ2-6D/MHZAJ2-6D



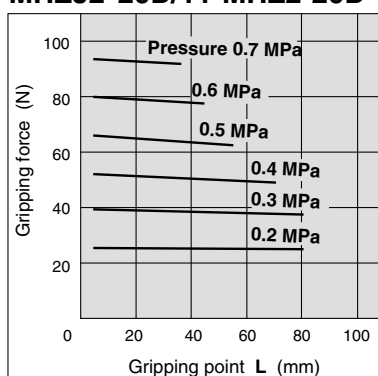
MHZJ2-10D/11-MHZ2-10D



MHZJ2-16D/11-MHZ2-16D

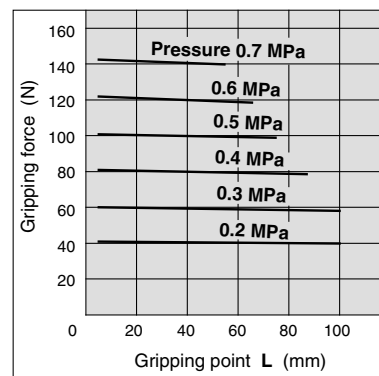


MHZJ2-20D/11-MHZ2-20D



Internal Gripping Force

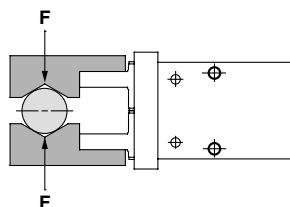
MHZJ2-25D/11-MHZ2-25D



Step 1 Effective Gripping Force: Series MHZ□2/Single Acting/External Gripping Force

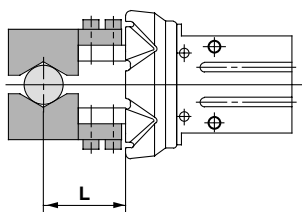
- Indication of effective gripping force

The effective gripping force shown in the graphs to the right is expressed as F , which is the thrust of one finger, when both fingers and attachments are in full contact with the workpiece as shown in the figure below.



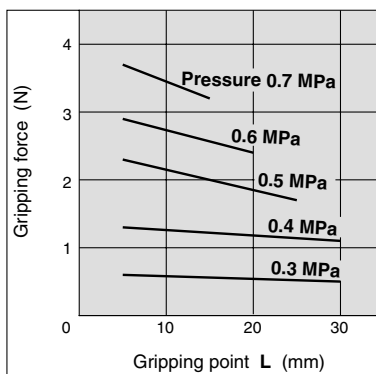
External Grip

MHZAJ2, MHZJ2



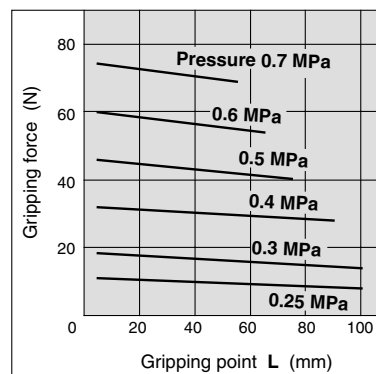
External Gripping Force

MHZJ2-6S/MHZAJ2-6S

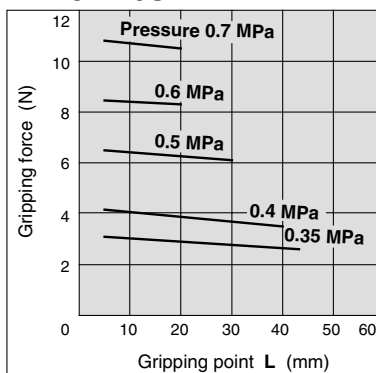


External Gripping Force

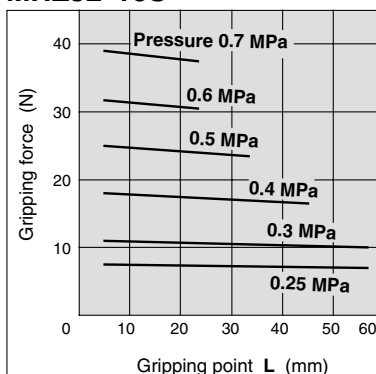
MHZJ2-25S



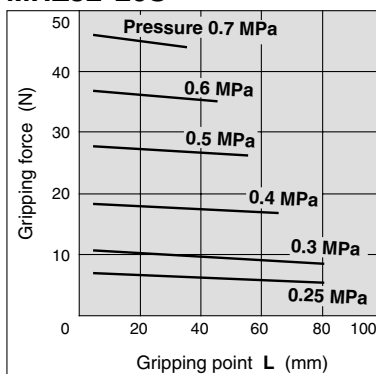
MHZJ2-10S



MHZJ2-16S



MHZJ2-20S



MHZ

MHF

MHL

MHR

MHK

MHS

MHC

MHT

MHY

MHW

-X□

MRHQ

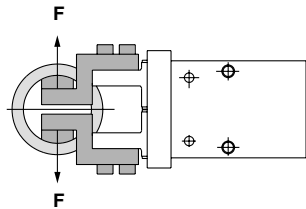
MA

D-□

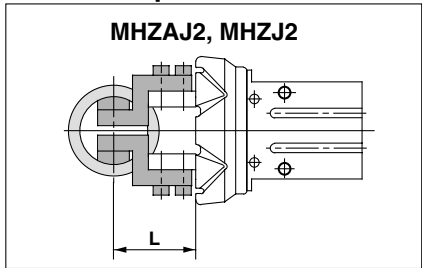
Model Selection

Step 1 Effective Gripping Force: Series MHZ□2/Single Acting/Internal Gripping Force

- Indication of effective gripping force
The effective gripping force shown in the graphs to the right is expressed as F, which is the thrust of one finger, when both fingers and attachments are in full contact with the workpiece as shown in the figure below.

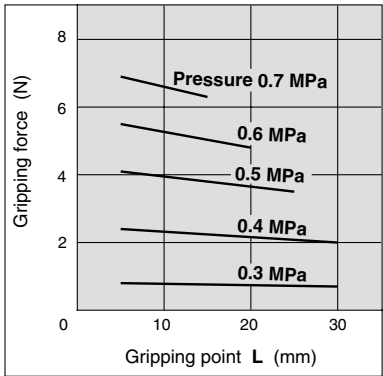


Internal Grip



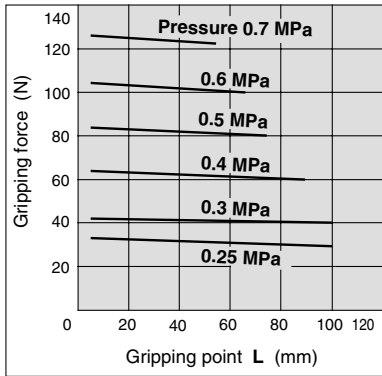
Internal Gripping Force

MHZJ2-6C/MHZAJ2-6C

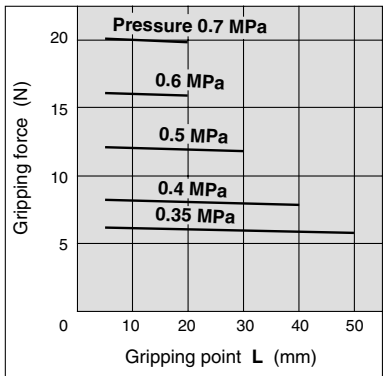


Internal Gripping Force

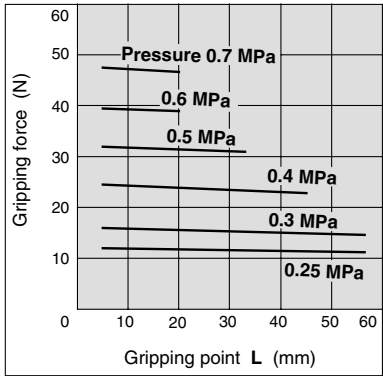
MHZJ2-25C



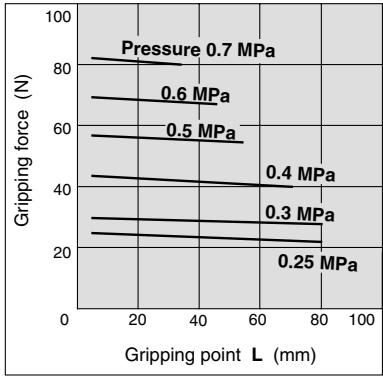
MHZJ2-10C

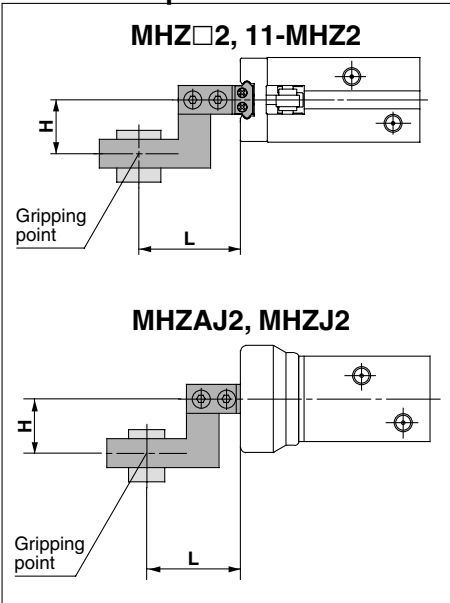


MHZJ2-16C

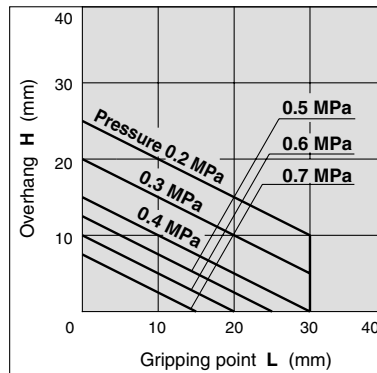
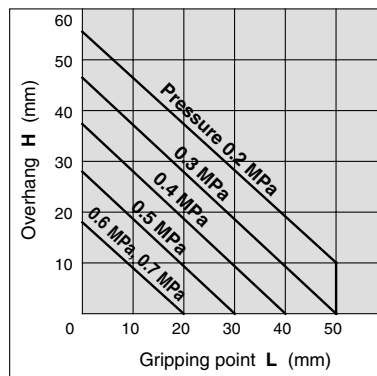
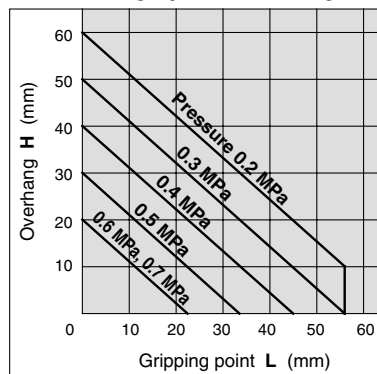
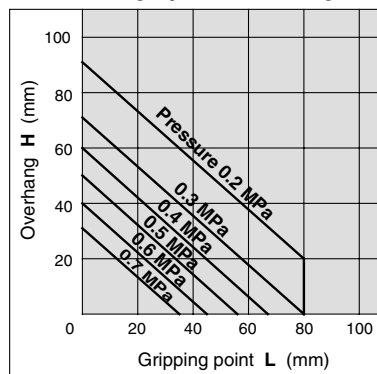
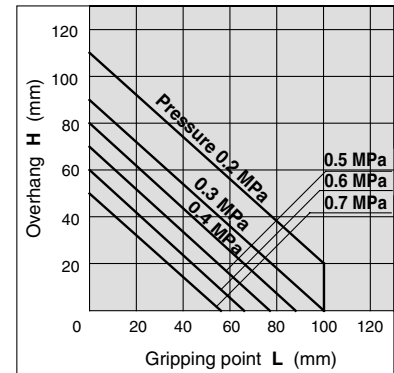
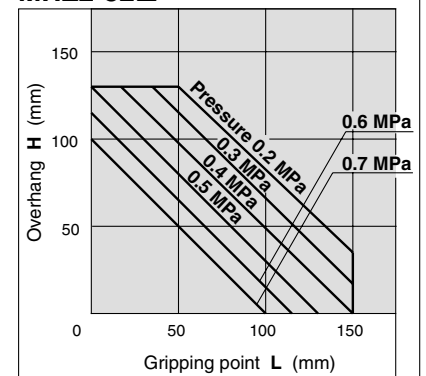
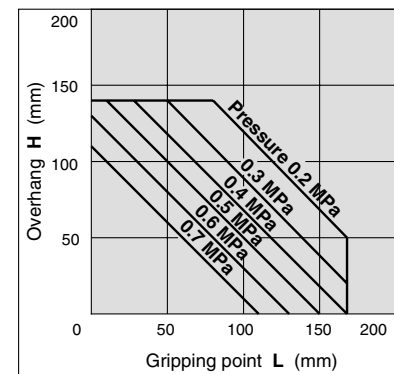


MHZJ2-20C



Step 2 Confirmation of Gripping Point: Series MHZ□/External Grip
External Grip


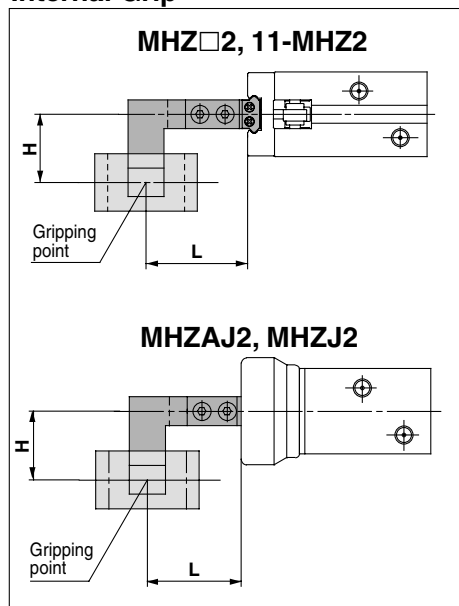
- The air gripper should be operated so that the workpiece gripping point "L" and the amount of overhang "H" stay within the range shown for each operating pressure given in the graphs to the right.
- If the workpiece gripping point goes beyond the range limits, this will have an adverse effect on the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

External Grip
MHZ□2-6□

MHZ□2-10□/11-MHZ2-10□

MHZ□2-16□/11-MHZ2-16□

MHZ□2-20□/11-MHZ2-20□

External Grip
MHZ□2-25□/11-MHZ2-25□

MHZ2-32□

MHZ2-40□

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

Model Selection

Step 2 Confirmation of Gripping Point: Series MHZ□/Internal Grip

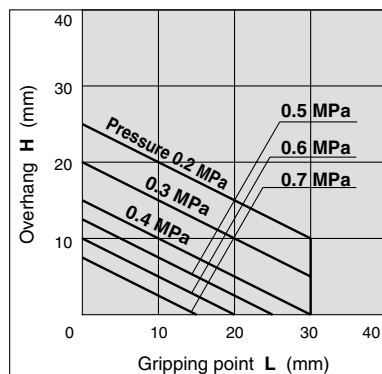
Internal Grip



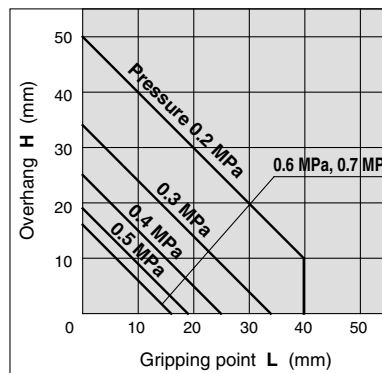
- The air gripper should be operated so that the workpiece gripping point "L" and the amount of overhang "H" stay within the range shown for each operating pressure given in the graphs to the right.
- If the workpiece gripping point goes beyond the range limits, this will have an adverse effect on the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

Internal Grip

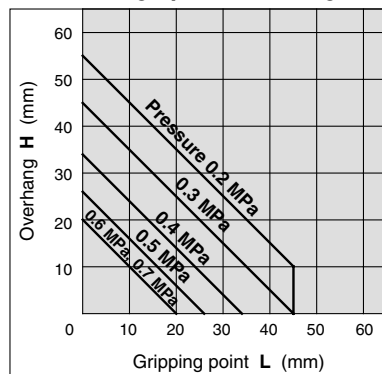
MHZ□2-6□



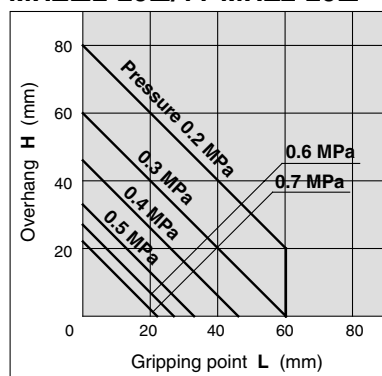
MHZ□2-10□/11-MHZ2-10□



MHZ□2-16□/11-MHZ2-16□

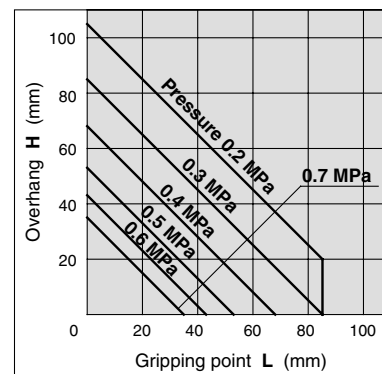


MHZ□2-20□/11-MHZ2-20□

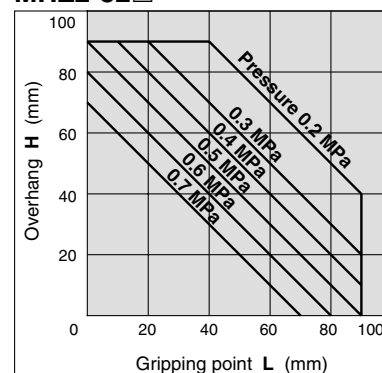


Internal Grip

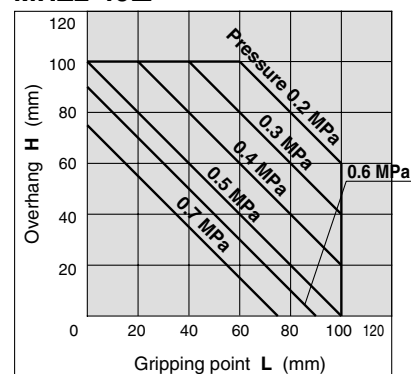
MHZ□2-25□/11-MHZ2-25□

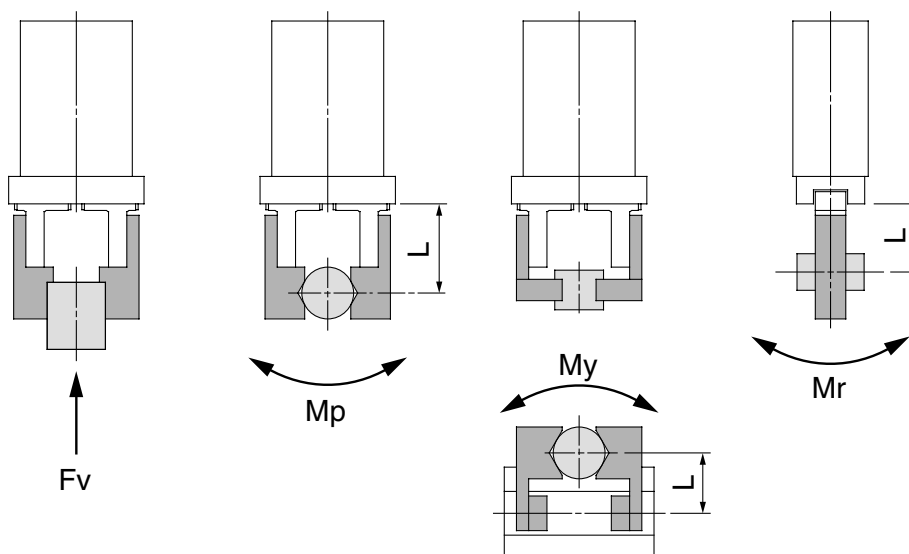


MHZ2-32□



MHZ2-40□



Step 3 Confirmation of External Force on Fingers: Series MHZ□2


L: Distance to the point at which the load is applied (mm)

Model	Allowable vertical load Fv (N)	Maximum allowable moment		
		Pitch moment: Mp (N·m)	Yaw moment: My (N·m)	Roll moment: Mr (N·m)
MHZ□2-6	10	0.04	0.04	0.08
MHZ□2-10	58	0.26	0.26	0.53
MHZ□2-16	98	0.68	0.68	1.36
MHZ□2-20	147	1.32	1.32	2.65
MHZ□2-25	255	1.94	1.94	3.88
MHZ□2-32	343	3	3	6
MHZ□2-40	490	4.5	4.5	9

Note) Values for load and moment in the table indicate static values.

Calculation of allowable external force (when moment load is applied)	Calculation example
$\text{Allowable load } F \text{ (N)} = \frac{M \text{ (maximum allowable moment) (N·m)}}{L \times 10^{-3}}$ (*: Constant for unit conversion)	When a static load of $f = 10 \text{ N}$ is operating, which applies pitch moment to point $L = 30 \text{ mm}$ from the MHZ□2-16D guide. Therefore, it can be used. $\text{Allowable load } F = \frac{0.68}{30 \times 10^{-3}} = 22.7 \text{ (N)}$ Load $f = 10 \text{ (N)} < 22.7 \text{ (N)}$

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

Parallel Style Air Gripper (Standard) Compact Series (Without Auto Switch) Series *MHZA2-6/MHZAJ2-6*

How to Order

MHZA 2 — 6 D — — — — —
MHZAJ 2 — 6 D — — — — —

With dust cover

Number of fingers
 2 2 fingers

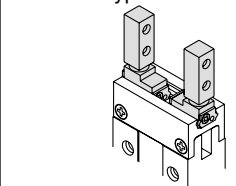
Bore size
 6 6 mm

Action

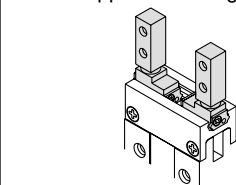
D	Double acting
S	Single acting (Normally open)
C	Single acting (Normally closed)

Finger option

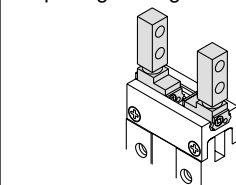
[Standard]
 Nil: Basic type



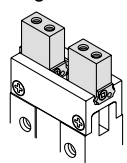
1: Side tapped mounting



2: Through-holes in opening/closing direction



3: Flat type fingers



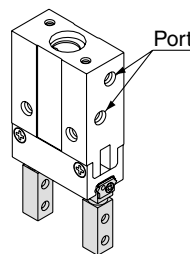
• **Made to Order**
 Refer to page 389 for details.

• **Dust cover type**

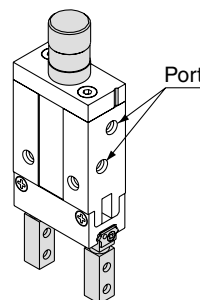
Nil	Chloroprene rubber (CR)
F	Fluororubber (FKM)
S	Silicon rubber (Si)

• **Body option**

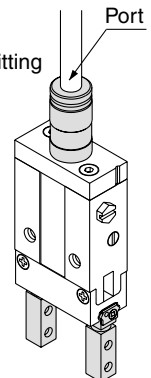
Nil: Basic type



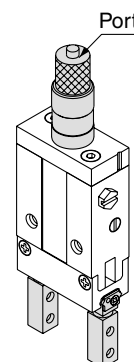
E: End boss type
 Side ported
 (Double acting/Single acting)



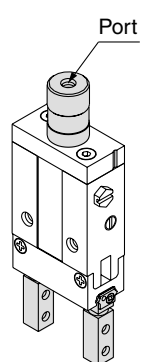
K: End boss type
 Axial ported
 with ø4 One-touch fitting
 (Single acting)



H: End boss type
 Axial ported
 with ø4 hose nipple
 (Single acting)



M: End boss type
 Axial ported
 with M3 port
 (Single acting)



Parallel Style Air Gripper/Compact Series *Series MHZA2-6/MHZAJ2-6*



Specifications

Operating pressure	Fluid		Air
	Double acting		0.15 to 0.7 MPa
	Single acting	Normally open Normally closed	0.3 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

* Use the gripper with dust cover when used in a place where there may be dust.

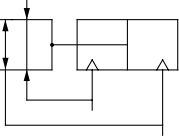
Model

Action		Model	Bore size (mm)	Gripping force ^{Note)}		Opening/ Closing (Both sides) (mm)	Mass (g)
				Gripping force per finger			
				Effective value (N)			
				External	Internal		
Double acting		MHZA2-6D	6	3.3	6.1	4	26
		MHZAJ2-6D	6			4	27
Single acting	Normally open	MHZA2-6S	6	1.9	—	4	26
		MHZAJ2-6S	6			4	27
	Normally closed	MHZA2-6C	6	—	3.7	4	26
		MHZAJ2-6C	6			4	27

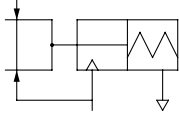
Note) Values based on pressure of 0.5 MPa, gripping point L = 20 mm, at center of stroke.

JIS Symbol

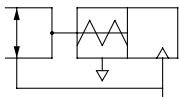
Double acting



Single acting type,
Normally open



Single acting type,
Normally closed



Option

●Body Option/End Boss Type

Symbol	Piping port location	Type of piping port	Applicable model	
		MHZA2-6/MHZAJ2-6	Double acting	Single acting
Nil	Basic type	M3 x 0.5	●	●
E	Side ported	M3 x 0.5	●	●
K	Axial ported	With ø4 One-touch fitting	—	●
H		With ø4 hose nipple	—	●
M		M3 x 0.5	—	●



Made to Order

(Refer to pages 683 to 713 for details.)

Symbol	Specifications/Description
-X4	Heat resistance (100°C)
-X5	Fluororubber seal
-X12	Opening direction spring assist
-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

MHZ

MHF

MHL

MHR

MHK

MHS

MHC

MHT

MHY

MHW

-X□

MRHQ

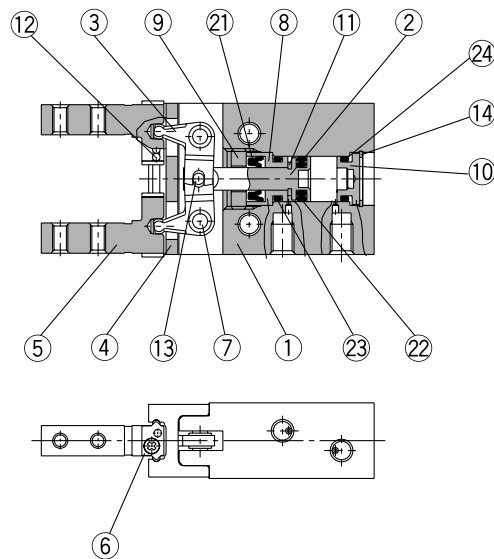
MA

D-□

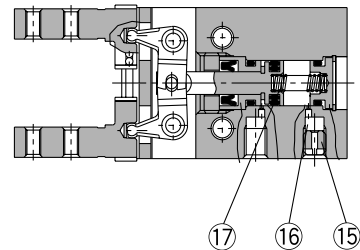
Series MHZA2-6/MHZAJ2-6

Construction: Standard Type MHZA2-6

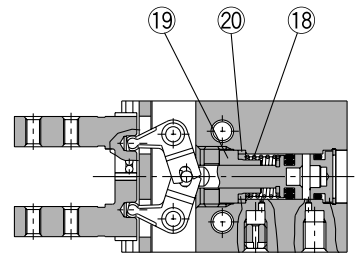
Double acting/With fingers open



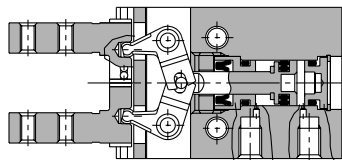
Single acting/Normally open



Single acting/Normally closed



Double acting/With fingers 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	Holder	Brass	Electroless nickel plated
9	Holder lock	Stainless steel	
10	Cap	Aluminum alloy	Clear anodized
11	Bumper	Urethane rubber	
12	Steel balls	High carbon chrome bearing steel	
13	Needle roller	High carbon chrome bearing steel	

Component Parts

No.	Description	Material	Note
14	Type C retaining ring	Carbon steel	Nickel plated
15	Exhaust plug	Brass	Electroless nickel plated
16	Exhaust filter	Polyvinyl formal	
17	N.O. spring	Stainless steel spring wire	
18	N.C. spring	Stainless steel spring wire	
19	N.C. holder	Brass	Electroless nickel plated
20	N.C. spacer	Stainless steel	
21	Rod seal	NBR	
22	Piston seal	NBR	
23	Gasket	NBR	
24	Gasket	NBR	

Replacement Parts

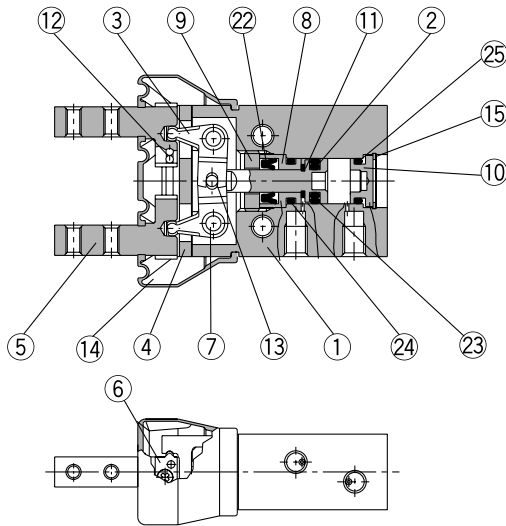
Description		MHZA2-6□	Main parts
Finger assembly		Please contact SMC to replace the seal kit and finger assembly.	
Piston assembly	MHZA2-6D□	MHZA-A0603	②⑧⑨⑪⑬⑮⑰⑲⑳㉑
	MHZA2-6S□		
	MHZA2-6C□	MHZA-A0603C	②⑨⑪⑬⑮⑰⑲⑳㉑㉒
End boss assembly	MHZA2-6□□H	MHZA-A0607	Main body of adaptor Mounting screw for adaptor Seal
	MHZA2-6□□K	MHZA-A0608	
	MHZA2-6□□M	MHZA-A0609	
	MHZA2-6□□E	MHZA-A0610	

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

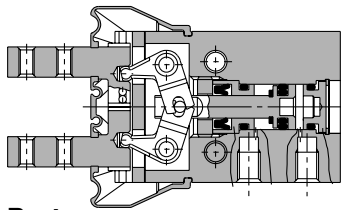
Replacement part/Grease pack part no.: GR-S-005 (5 g)

Construction: With Dust Cover MHZAJ2-6

Double acting/With fingers open



Double acting/With fingers 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	Holder	Brass	Electroless nickel plated
9	Holder lock	Stainless steel	
10	Cap	Aluminum alloy	Clear anodized
11	Bumper	Urethane rubber	
12	Steel balls	High carbon chrome bearing steel	
13	Needle roller	High carbon chrome bearing steel	

Replacement Parts

Description			MHZAJ2-6	Main parts
Seal kit			Please contact SMC to replace the seal kit.	
Dust cover	Material	CR	MHZAJ2-J6	⑭
		FKM	MHZAJ2-J6F	
		Si	MHZAJ2-J6S	
Finger assembly			Please contact SMC to replace the finger assembly.	
Piston assembly	MHZAJ2-6D□		MHZAJ-A0603	②⑧⑨⑪⑬⑮⑰⑲⑳㉑㉒
	MHZAJ2-6S□			
	MHZAJ2-6C□		MHZAJ-A0603C	②⑨⑪⑬⑮⑰⑲⑳㉑㉒
End boss assembly	MHZA2-6□□H		MHZA-A0607	Main body of adaptor Mounting screw for adaptor Seal
	MHZA2-6□□K		MHZA-A0608	
	MHZA2-6□□M		MHZA-A0609	
	MHZA2-6□□E		MHZA-A0610	

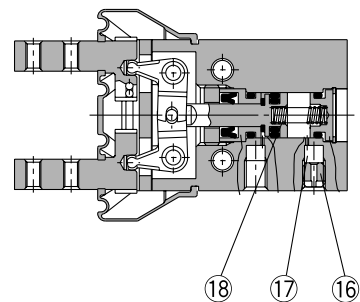
* End boss type

H = With hose nipple, K = With One-touch fitting, M = With M3 port, E = Side ported

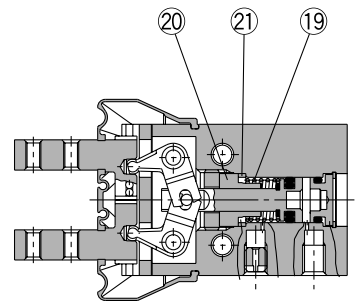
* The end boss assembly other than type E should be mounted on the special body.

Replacement part/Grease pack part no.: GR-S-005 (5 g)

Single acting/Normally open



Single acting/Normally closed



Component Parts

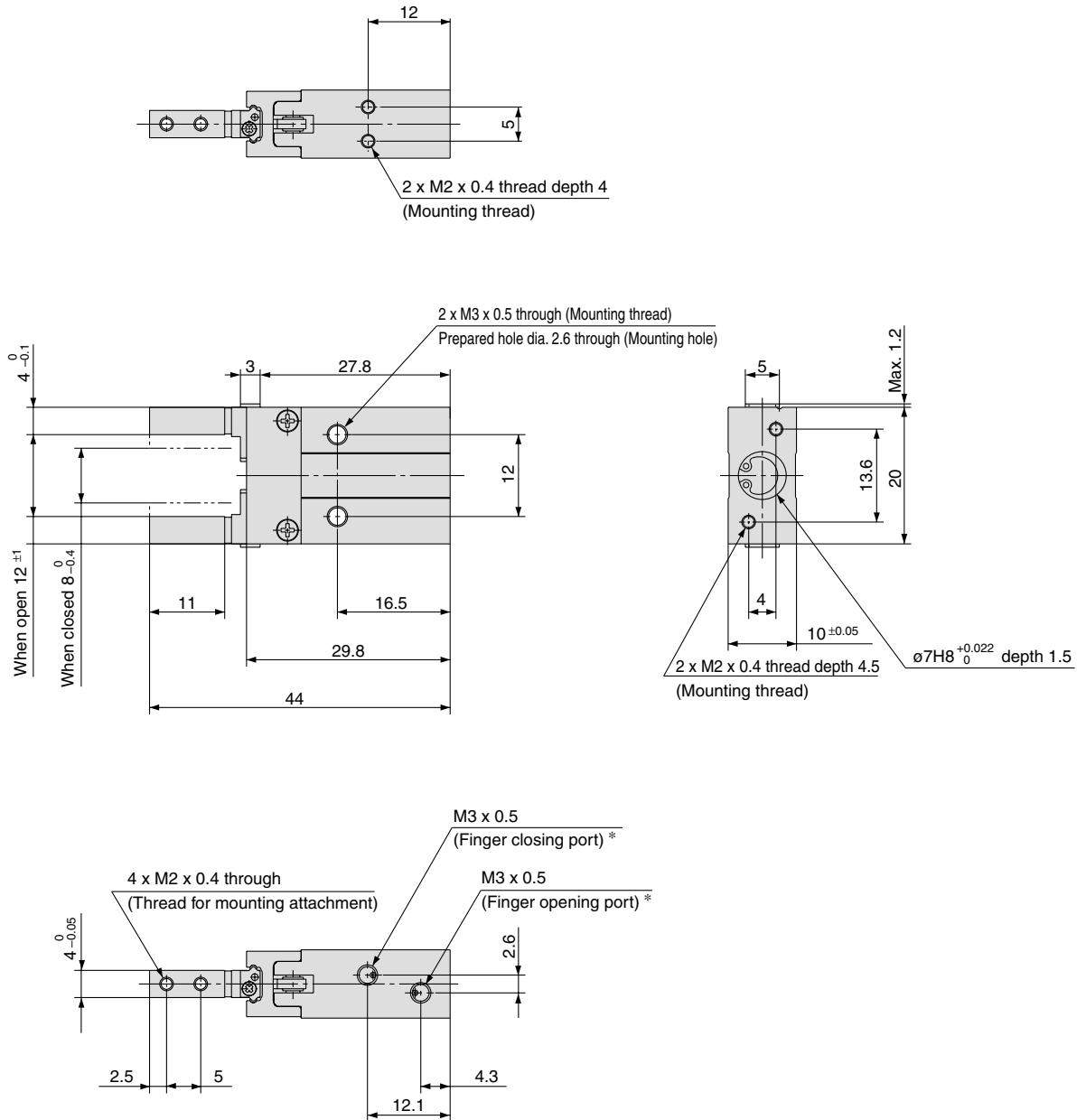
No.	Description	Material	Note
14	Dust cover	CR	Chloroprene rubber
		FKM	Fluororubber
		Si	Silicon rubber
15	Type C retaining ring	Carbon steel	Nickel plated
16	Exhaust plug	Brass	Electroless nickel plated
17	Exhaust filter	Polyvinyl formal	
18	N.O. spring	Stainless steel spring wire	
19	N.C. spring	Stainless steel spring wire	
20	N.C. holder	Brass	Electroless nickel plated
21	N.C. spacer	Stainless steel	
22	Rod seal	NBR	
23	Piston seal	NBR	
24	Gasket	NBR	
25	Gasket	NBR	

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

Series MHZA2-6/MHZAJ2-6

Construction: Standard Type

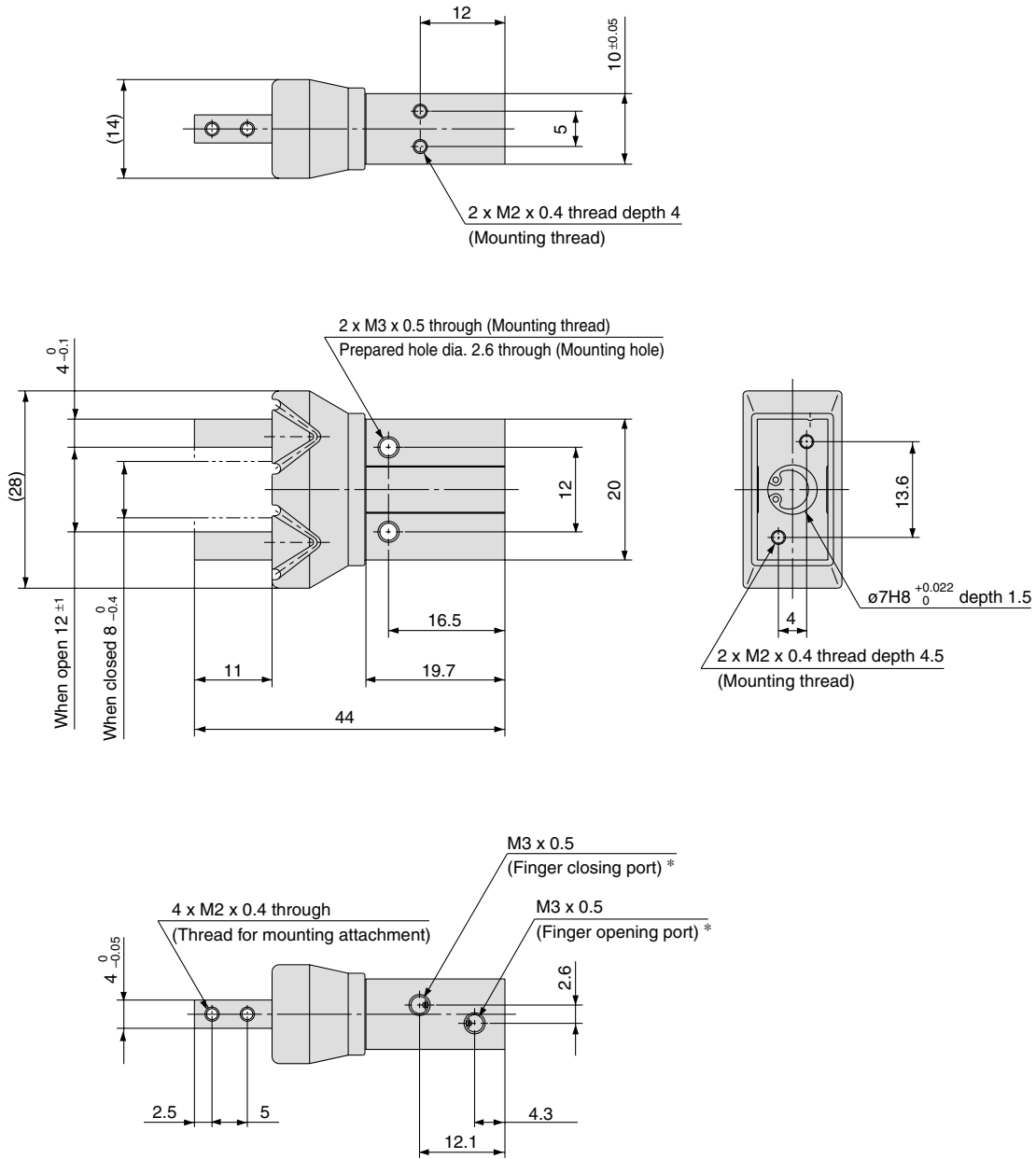
MHZA2-6□ Double acting/Single acting
Basic type



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

Dimensions: With Dust Cover

MHZAJ2-6 ☐ Double acting/Single acting
Basic type

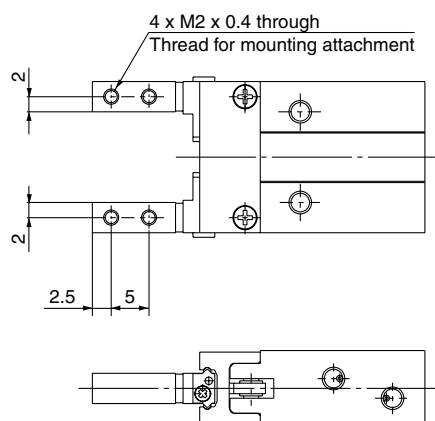


* For single action, the port on one side is a breathing hole.

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

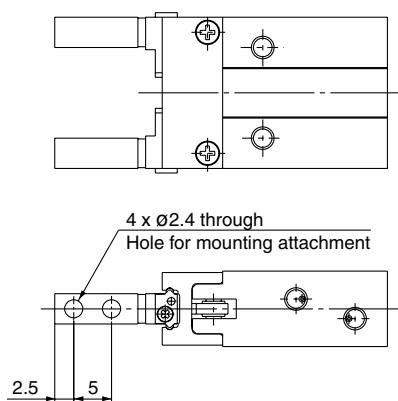
Series MHZA2-6 Finger Option

Side Tapped Mounting [1]



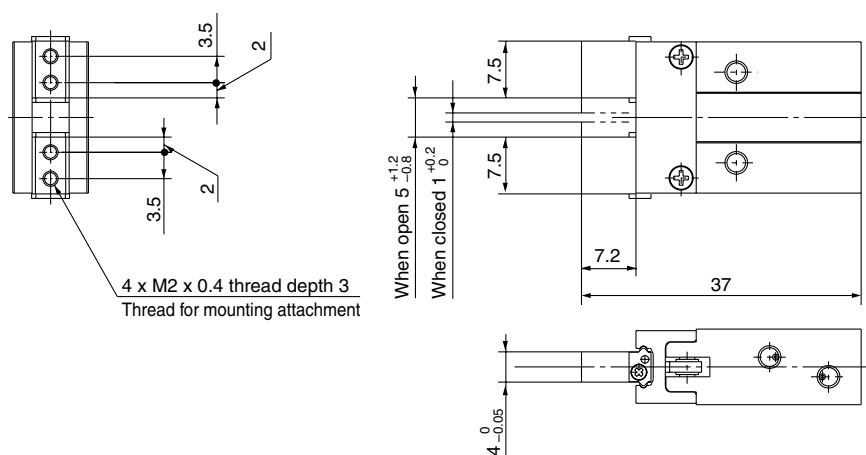
* Specifications and dimensions other than the above are the same as the basic type.

Through-holes in Opening/Closing Direction [2]



* Specifications and dimensions other than the above are the same as the basic type.

Flat Type Fingers [3]



Note) To mount attachments, use M2 hexagon socket head cap screws with $\phi 3.3$ top diameter, or JIS B 1101 type M2 round head screws.

Mass: 25 g

* Specifications and dimensions other than the above are the same as the basic type.

Series MHZA2-6/MHZAJ2-6

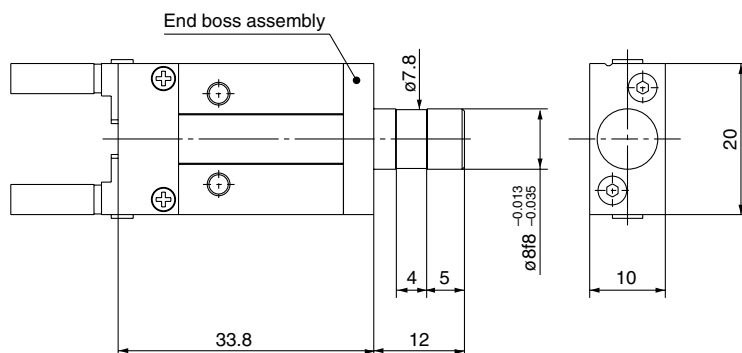
Body Option: End Boss Type

Applicable Model

Symbol	Piping port location	Type of piping port		Applicable model	
		MHZA2	MHZAJ2	Double acting	Single acting
E	Side ported	M3 x 0.5		●	●
H	Axial ported	With ø4 hose nipple		—	●
K		With ø4 One-touch fitting		—	●
M		M3 x 0.5		—	●

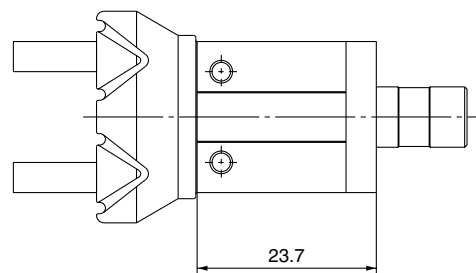
Side Ported [E]

MHZA2-6□□E



* Specifications and dimensions other than the above are the same as the basic type.

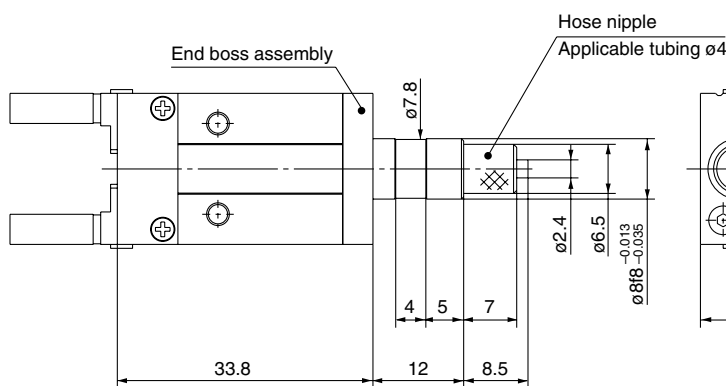
MHZAJ2-6□E□



* Specifications and dimensions other than the above are the same as the basic type or the end boss dimensions of the MHZA type.

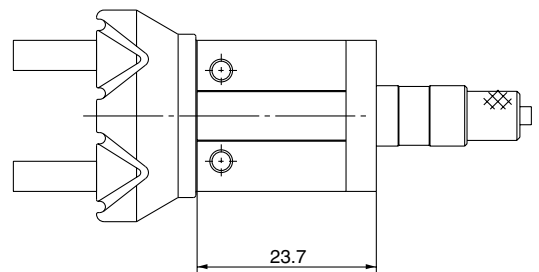
Axial Ported (with hose nipple) [H]

MHZA2-6^S□H



* Specifications and dimensions other than the above are the same as the basic type.

MHZAJ2-6^S□H□



* Specifications and dimensions other than the above are the same as the basic type or the end boss dimensions of the MHZA type.

Applicable Tubing

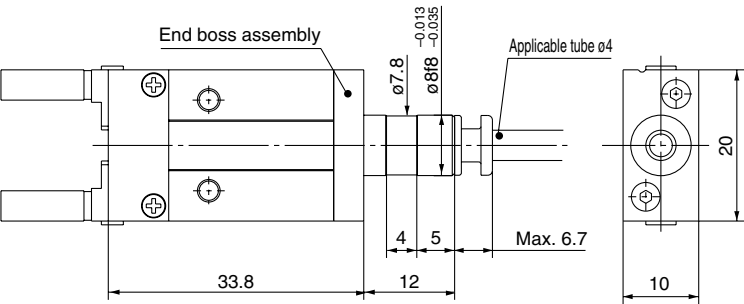
Description/ Model	Nylon tubing	Soft nylon tubing	Polyurethane tubing	Polyurethane coil tubing
	T0425	TS0425	TU0425	TCU0425B-1
Outside diameter (mm)	4	4	4	4
Max. operating pressure (MPa)	1.0	0.8	0.5	0.5
Min. bending radius (mm)	13	12	10	—
Operating temperature (°C)	-20 to 60	-20 to 60	-20 to 60	-20 to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

Refer to "Best Pneumatics No. 6" regarding One-touch fittings and tubing.

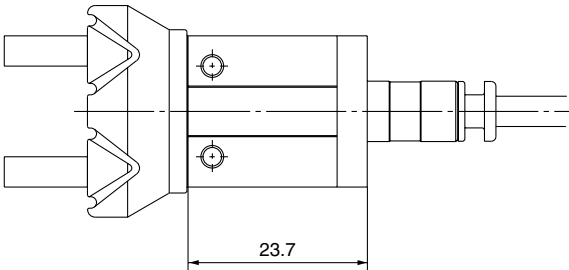
Series MHZA2-6/MHZAJ2-6

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

MHZA2-6^S_C□K



MHZAJ2-6^S_C□K



* Specifications and dimensions other than the above are the same as the basic type.

* Specifications and dimensions other than the above are the same as the basic type or the end boss dimensions of the MHZA type.

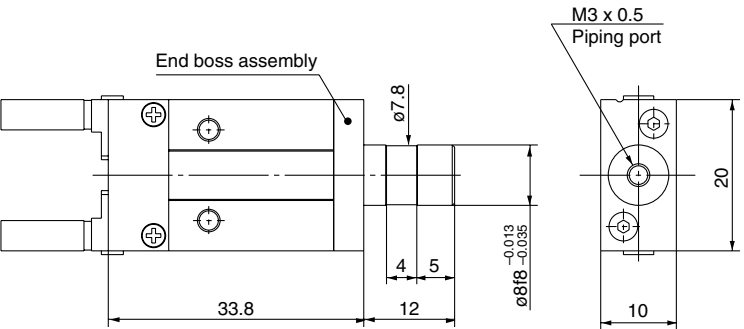
Applicable Tubing

Description/Model	Nylon tubing	Soft nylon tubing	Polyurethane tubing	Polyurethane coil tubing
Specifications	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

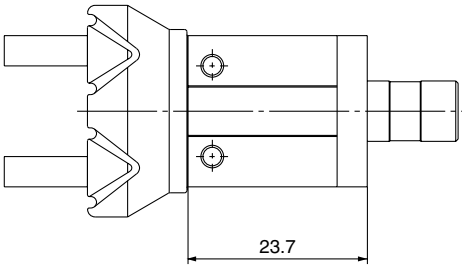
Refer to “Best Pneumatics No. 6” regarding One-touch fittings and tubing.

Axial Ported (with M3 port) [M]

MHZA2-6^S_C□M



MHZAJ2-6^S_C□M



* Specifications and dimensions other than the above are the same as the basic type.

* Specifications and dimensions other than the above are the same as the basic type or the end boss dimensions of the MHZA type.

Mass

Model	End boss type (Symbol)			
	E	H	K	M
MHZA2-6□□	28	28	28	28
MHZAJ2-6□□	29	29	29	29

(g)

Parallel Style Air Gripper/Standard Type Series *MHZ2*

How to Order

Bore size

ø6 **MHZ2-6D** - **M9BW** -

Number of fingers
2 2 fingers

Bore size
6 6 mm

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

Auto switch
Nil Without auto switch (Built-in magnet)
S 1 pc.
2 pcs.

Made to Order
Refer to page 400 for details.

Number of auto switches

Finger option

[Standard]
Nil: Basic type

1: Side tapped mounting

2: Through-holes in opening/closing direction

3: Flat type fingers

Applicable Auto Switch/Refer to pages 761 to 809 for further information on the auto switch.

Applicable Auto Switch Model																
Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m) *				Pre-wired connector	Applicable load		
					DC	AC	Electrical entry direction		0.5 (Nil)	1 (M)	3 (L)	5 (Z)				
							Perpendicular	In-line								
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)				F8N	—	●	—	●	○	—		
				2-wire				M9PV	M9P	●	●	●	○	○		
				3-wire (NPN)				F8P	—	●	—	●	○	—		
	Diagnosis (2-color indicator)			3-wire (PNP)	M9BV	M9B	●	●	●	○	○	—	IC circuit			
				2-wire	F8B	—	●	—	●	○	—					
				3-wire (NPN)	M9NWV	M9NW	●	●	●	○	○					
				3-wire (PNP)	M9PWV	M9PW	●	●	●	○	○					
				2-wire	M9BWV	M9BW	●	●	●	○	○					
				2-wire	M9BWV	M9BW	●	●	●	○	○					

* 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

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

Note 1) When using a D-F8□ switch, mount it at a distance of 10 mm or more from magnetic substances such as iron, etc.
Note 2) Take note of hysteresis with 2-color indication type switches. Refer to page 438 for detailed auto switch specifications.

MHZ

MHF

MHL

MHR

MHK

MHS

MHC

MHT

MHY

MHW

-X□

MRHQ

MA

D-□

How to Order

Bore size

ø10 to ø25

MHZ2 - **16** **D** - **M9BW** -

Number of fingers

2 2 fingers

Bore size

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)

Auto switch

Nil Without auto switch (Built-in magnet)

* For the applicable auto switch model, refer to the table below.

Made to Order

Refer to page 400 for details.

Number of auto switches

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

Finger position/option

Standard
(MHQG2 compatible type)

Nil: Basic type

1: Side tapped mounting

2: Through-holes in opening/closing direction

3: Flat type fingers

The flat type fingers do not have standard and narrow options. When MHQG2/MHQ2 compatible types are required, see the -X51 made-to-order specifications on page 696.

Narrow type
(MHQG2 compatible type)

N: Basic type

N1: Side tapped mounting

N2: Through-holes in opening/closing direction

Body option

Nil: Basic type

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

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

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

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

Applicable Auto Switch/Refer to pages 761 to 809 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)	ø10	ø16	ø20	ø25				
							Perpendicular	In-line												
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	●	●	●	●	○	IC circuit	Relay, PLC
				F8N				—	●	—	●	○	—	●	●	●	—			
				M9PV				M9P	●	●	●	○	●	●	●	●	○			
				F8P				—	●	—	●	○	—	●	●	●	—			
	2-wire			12 V	M9BV	M9B		●	●	●	○	●	●	●	●	○	—			
	F8B				—	●		—	●	○	—	●	●	●	—					
	3-wire (NPN)				5 V, 12 V	M9NWV		M9NW	●	●	●	○	●	●	●	●		○	IC circuit	
	3-wire (PNP)					M9PWV		M9PW	●	●	●	○	●	●	●	●		○		
	2-wire	12 V	M9BWV	M9BW		●	●	●	○	●	●	●	●	○	—					

* Lead wire length symbols: 0.5 m..... Nil (Example) M9NW
1 m..... M (Example) M9NWM
3 m..... L (Example) M9NWL
5 m..... Z (Example) M9NWX

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

Note 1) Take note of hysteresis with 2-color indication type switches. Refer to page 438 for detailed auto switch specifications.

Note 2) Through-hole mounting is not possible when using the auto switch at the square groove on the side.

Note 3) Only MHZ2-10 is shipped with the auto switch mounting brackets. When the auto switch is used at the square groove on the side with MHZ2-16 to 25, mounting brackets are required. Please order them separately. Refer to page 439 for the auto switch mounting brackets.

How to Order

Bore size

ø32 to ø40

MHZ2-32 D - M9BW

Number of fingers
2 2 fingers

Bore size
32 32 mm
40 40 mm

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

Made to Order
Refer to page 400 for details.

Number of auto switches
Nil 2 pcs.
S 1 pc.
n n pc.

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

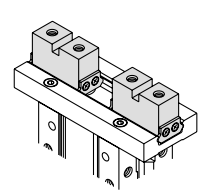
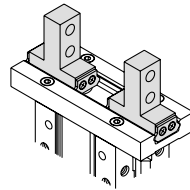
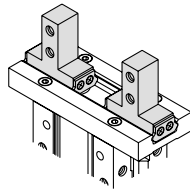
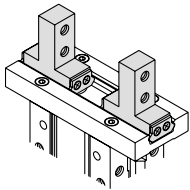
Finger option

[Standard]
Nil: Basic type

1: Side tapped mounting

2: Through-holes in opening/
closing direction

3: Flat type fingers



Applicable Auto Switch/Refer to pages 761 to 809 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) *				Pre-wired connector	Applicable load		
							Electrical entry direction		0.5 (Nil)	1 (M)	3 (L)	5 (Z)				
					DC	AC	Perpendicular	In-line								
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)				F8N	—	●	—	●	○	—		
				2-wire				M9PV	M9P	●	●	●	○	○		
								F8P	—	●	—	●	○	—		
	Diagnosis (2-color indicator)			3-wire (NPN)	24 V	12 V	M9BV	M9B	●	●	●	○	○	—		
				3-wire (PNP)			F8B	—	●	—	●	○	—			
				2-wire			M9NWV	M9NW	●	●	●	○	○	IC circuit		
							M9PWV	M9PW	●	●	●	○	○			
		2-wire	M9BWV	M9BW			●	●	●	○	○	—				

* Lead wire length symbols: 0.5 m..... Nil (Example) M9NW
1 m..... M (Example) M9NWM
3 m..... L (Example) M9NWL
5 m..... Z (Example) M9NWX

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

Note 1) Take note of hysteresis with 2-color indication type switches. Refer to page 438 for detailed auto switch specifications.

Note 2) Through-hole mounting is not possible when using the auto switch at the square groove on the side.

Note 3) When the auto switch is used at the square groove on the side with MHZ2-32 and 40, mounting brackets are required. Please order them separately. Refer to page 439 for the auto switch mounting brackets.

MHZ

MHF

MHL

MHR

MHK

MHS

MHC

MHT

MHY

MHW

-X□

MRHQ

MA

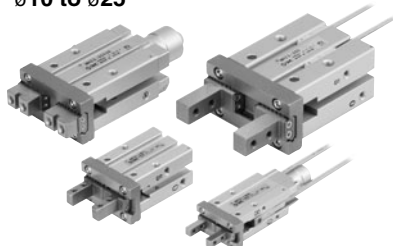
D-□

Series MHZ2

ø6



ø10 to ø25

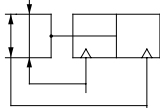


ø32, ø40

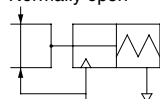


JIS Symbol

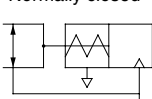
Double acting



Single acting type, Normally open



Single acting type, Normally closed



Refer to pages 436 to 440 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



Made to Order

(Refer to pages 683 to 713 for details.)

Symbol	Specifications/Description
-X4	Heat resistance (100°C)
-X5	Fluororubber seal
-X7	Closing direction spring assist
-X12	Opening direction spring assist
-X46	Fixed orifice
-X50	Without magnet
-X51	MHQ(G)2-compliant finger flat type
-X53	EPDM seal/Fluorine grease
-X56	Axial ported type
-X63	Fluorine grease
-X79	Grease for food

Specifications

Operating pressure	Fluid		Air	
	Double acting		ø6: 0.15 to 0.7 MPa ø10: 0.2 to 0.7 MPa ø16 to ø40: 0.1 to 0.7 MPa	
	Single acting	Normally open Normally closed	ø6: 0.3 to 0.7 MPa ø10: 0.35 to 0.7 MPa ø16 to ø40: 0.25 to 0.7 MPa	
Ambient and fluid temperature			-10 to 60°C	
Repeatability			ø6 to ø25: ±0.01 mm ø32, ø40: ±0.02 mm	
Max. operating frequency			ø6 to ø25: 180 c.p.m. ø32, ø40: 60 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 761 to 809 for further information on auto switches.

* Use the gripper with dust cover when used in a place where there may be dust.

Model

Action		Model	Bore size (mm)	Gripping force ^{Note 1)}		Opening/ Closing stroke (Both sides) (mm)	Mass ^{Note 2)} (g)
				Gripping force per finger Effective value (N)			
				External	Internal		
Double acting	MHZ2-6D	6	3.3	6.1	4	27	
	MHZ2-10D(N)	10	11	17	4	55	
	MHZ2-16D(N)	16	34	45	6	115	
	MHZ2-20D(N)	20	42	66	10	235	
	MHZ2-25D(N)	25	65	104	14	430	
	MHZ2-32D	32	158	193	22	715	
	MHZ2-40D	40	254	318	30	1275	
Single acting	Normally open	MHZ2-6S	6	1.9	—	4	27
		MHZ2-10S(N)	10	7.1		4	55
		MHZ2-16S(N)	16	27		6	115
		MHZ2-20S(N)	20	33		10	240
		MHZ2-25S(N)	25	45		14	435
		MHZ2-32S	32	131		22	760
		MHZ2-40S	40	217		30	1370
	Normally closed	MHZ2-6C	6	—	3.7	4	27
		MHZ2-10C(N)	10		13	4	55
		MHZ2-16C(N)	16		38	6	115
		MHZ2-20C(N)	20		57	10	240
		MHZ2-25C(N)	25		83	14	430
		MHZ2-32C	32		161	22	760
		MHZ2-40C	40		267	30	1370

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

Note 2) Values excluding mass of auto switch.

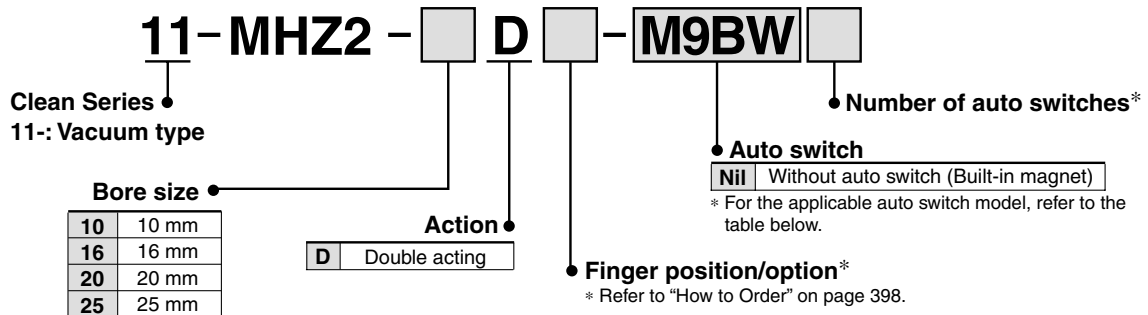
Option

●Body Option/End Boss Type

Symbol	Piping port location	Type of piping port							Applicable mode	
		MHZ2-6	MHZ2-10	MHZ2-16	MHZ2-20	MHZ2-25	MHZ2-32	MHZ2-40	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 412 and 413.

Clean Series: Air Gripper



Applicable Auto Switch/Refer to pages 761 to 809 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) *				Pre-wired connector	Applicable load		
							Electrical entry direction		0.5 (Nil)	1 (M)	3 (L)	5 (Z)				
					DC	AC	Perpendicular	In-line								
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	○	IC circuit	Relay, PLC
				F8N				—	●	—	●	○	—			
				M9PV				M9P	●	●	●	○	○			
				F8P				—	●	—	●	○	—			
	2-wire			5 V, 12 V	M9BV	M9B	●	●	●	○	○	—				
	3-wire (NPN)			5 V, 12 V	M9NWV	M9NW	●	●	●	○	○	IC circuit				
	3-wire (PNP)				M9PWV	M9PW	●	●	●	○	○					
	2-wire				12 V	M9BWV	M9BW	●	●	●	○		○	—		

* 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

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

Note 1) Take note of hysteresis with 2-color indication type switches. Refer to page 438 for detailed auto switch specifications.

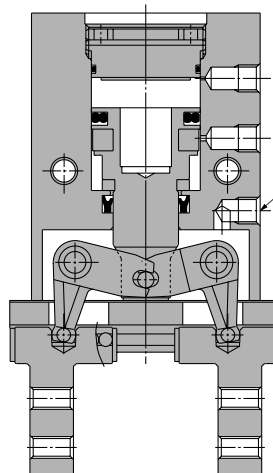
Note 2) When using a D-F8□ switch, mount it at a distance of 10 mm or more from magnetic substances such as iron, etc.

Note 3) Through-hole mounting is not possible when using the auto switch at the square groove on the side.

Note 4) Only MHZ2-10 is shipped with the auto switch mounting brackets. When the auto switch is used at the square groove on the side with MHZ2-16 to 25, mounting brackets are required. Please order them separately. Refer to page 439 for the auto switch mounting brackets.

Specifications

Fluid	Air
Operating pressure	ø10: 0.2 to 0.7 MPa ø16 to ø25: 0.1 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
Particulate generation grade	Grade 2
Auto switch (Option)	Solid state auto switch (3-wire, 2-wire)



Vacuum port

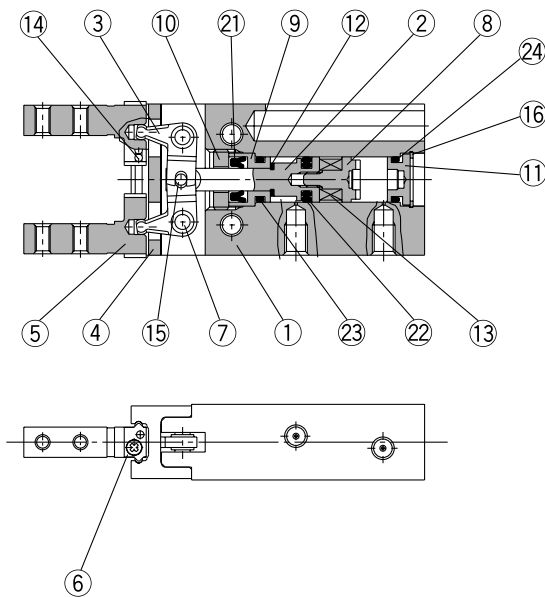
The concentrated vacuuming of internally generated particulates prevents them from spreading into the clean room.

For details, refer to "Pneumatic Clean Series" catalog.

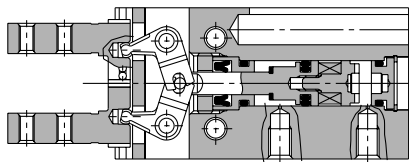
Series MHZ2

Construction: MHZ2-6□

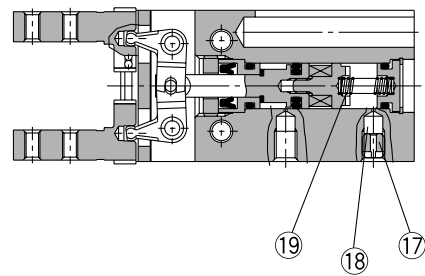
Double acting/With fingers open



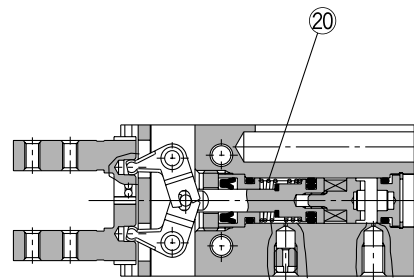
Double acting/With fingers closed



Single acting/Normally open



Single acting/Normally closed



Component Parts

No.	Description	Material	Note
1	Body	Aluminum alloy	Hard anodized
2	Piston	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 nicked plated
10	Holder lock	Stainless steel	
11	Cap	Aluminum alloy	Clear anodized
12	Bumper	Urethane rubber	
13	Magnet	—	Nickel plated

Component Parts

No.	Description	Material	Note
14	Steel balls	High carbon chrome bearing steel	
15	Needle roller	High carbon chrome bearing steel	
16	Type C retaining ring	Carbon steel	Nickel plated
17	Exhaust plug	Brass	Electroless nickel plated
18	Exhaust filter	Polyvinyl formal	
19	N.O. spring	Stainless steel spring wire	
20	N.C. spring	Stainless steel spring wire	
21	Rod seal	NBR	
22	Piston seal	NBR	
23	Gasket	NBR	
24	Gasket	NBR	

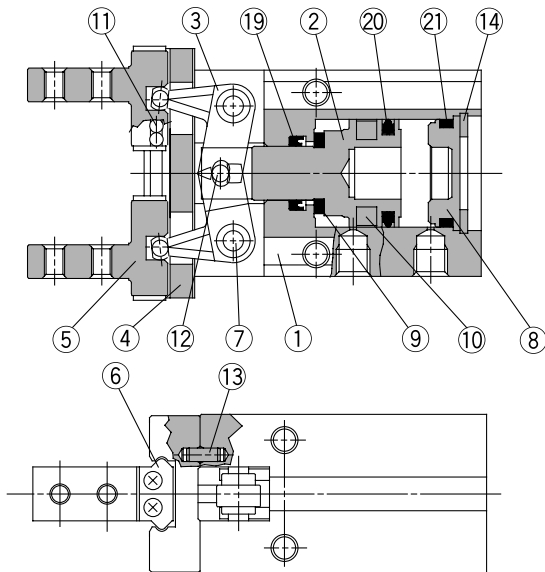
Replacement Parts

Description	MHZ2-6	Main parts
Finger assembly	Please contact SMC to replace the seal kit and finger assembly.	
Piston assembly	MHZ2-6D□	MHZ-A0603 ②⑧⑨⑫⑬⑮⑰⑲⑳㉑㉒㉓
	MHZ2-6S□	
	MHZ2-6C□	MHZ-A0603C ②⑧⑨⑩⑫⑬⑮⑰⑲⑳㉑㉒㉓

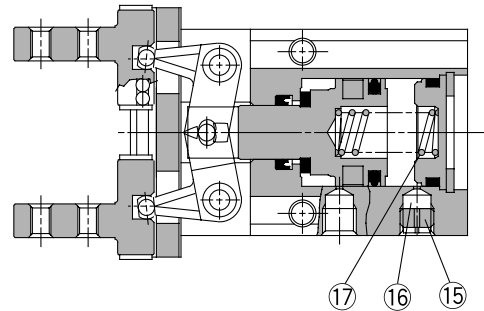
Replacement part/Grease pack part no.: GR-S-005 (5 g)

Construction: MHZ2-10□ to 40□

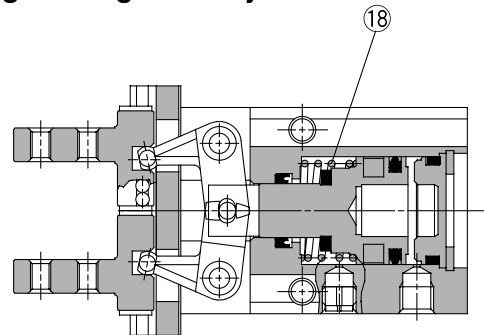
Double acting/With fingers open



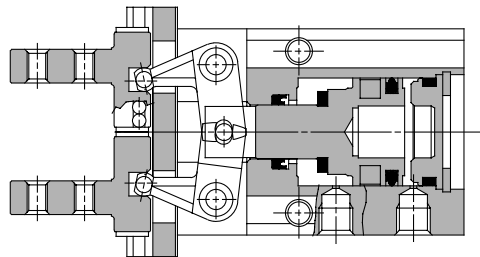
Single acting/Normally open



Single acting/Normally closed



Double acting/With fingers closed



Component Parts

No.	Description	Material	Note
1	Body	Aluminum alloy	Hard anodized
2	Piston	ø10, ø16: Stainless steel ø20 to ø40: Aluminum alloy	ø20 to ø40: Hard anodized
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	Cap	ø10 to ø25: Synthetic resin ø32, ø40: Aluminum alloy	ø32, ø40: Clear anodized
9	Bumper	Urethane rubber	
10	Rubber magnet	Synthetic rubber	

Component Parts

No.	Description	Material	Note
11	Steel balls	High carbon chrome bearing steel	
12	Needle roller	High carbon chrome bearing steel	
13	Parallel pin	Stainless steel	
14	Type C retaining ring	Carbon steel	Nickel plated
15	Exhaust plug A	Brass	Electroless nickel plated
16	Exhaust filter A	Polyvinyl formal	
17	N.O. spring	Stainless steel spring wire	
18	N.C. spring	Stainless steel spring wire	
19	Rod seal	NBR	
20	Piston seal	NBR	
21	Gasket	NBR	

Replacement Parts

Description		MHZ2-10	MHZ2-16	MHZ2-20	MHZ2-25	MHZ2-32	MHZ2-40	Main parts
Seal kit		MHZ10-PS	MHZ16-PS	MHZ20-PS	MHZ25-PS	MHZ32-PS	MHZ40-PS	①⑨②①
Finger assembly	MHZ2-□□□(N)	MHZ-A1002(N)	MHZ-A1602(N)	MHZ-A2002(N)	MHZ-A2502(N)	MHZ-A3202	MHZ-A4002	④⑤⑥⑪⑬ Mounting screw
	MHZ2-□□□(N)1	MHZ-A1002(N)-1	MHZ-A1602(N)-1	MHZ-A2002(N)-1	MHZ-A2502(N)-1	MHZ-A3202-1	MHZ-A4002-1	
	MHZ2-□□□(N)2	MHZ-A1002(N)-2	MHZ-A1602(N)-2	MHZ-A2002(N)-2	MHZ-A2502(N)-2	MHZ-A3202-2	MHZ-A4002-2	
Piston assembly	MHZ2-□□□3	MHZ-A1002-3	MHZ-A1602-3	MHZ-A2002-3	MHZ-A2502-3	MHZ-A3202-3	MHZ-A4002-3	②⑨⑩⑫
	MHZ2-□□□□	MHZ-A1003	MHZ-A1603	MHZ-A2003	MHZ-A2503	MHZ-A3203	MHZ-A4003	
	MHZ2-□□□□S					MHZ-A3203S	MHZ-A4003S	
End boss assembly	MHZ2-□□□□W	MHZ-A1007	MHZ-A1607	MHZ-A2007	MHZ-A2507	—	—	Main body of adaptor, Mounting screw for adaptor, Seal kit
	MHZ2-□□□□K	MHZ-A1008	MHZ-A1608	MHZ-A2008	MHZ-A2508	—	—	
	MHZ2-□□□□M	MHZ-A1009	MHZ-A1609	MHZ-A2009	MHZ-A2509	—	—	
	MHZ2-□□□□E	MHZ-A1010	MHZ-A1610	MHZ-A2010	MHZ-A2510	—	—	

* Finger option
1 = Side tapped, 2 = Through-hole, 3 = Flat type fingers

* 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.

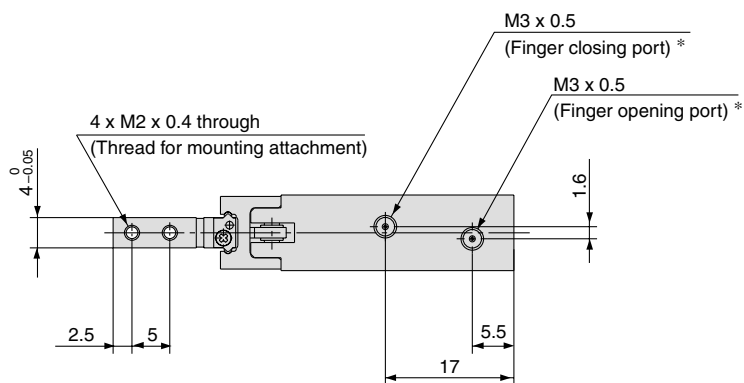
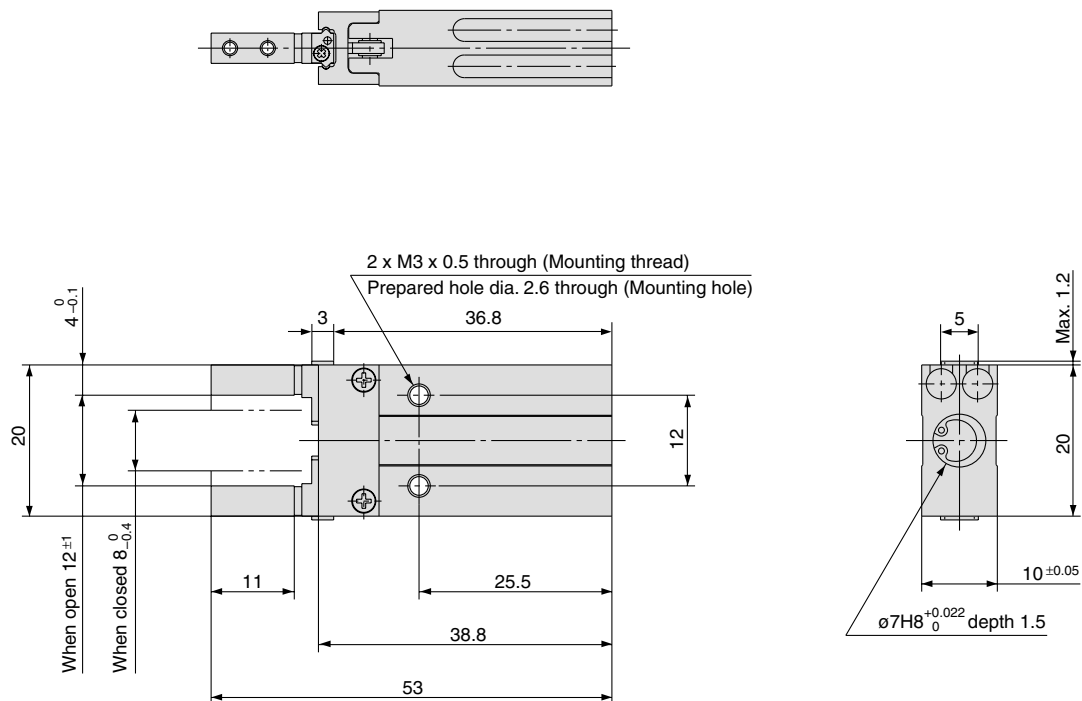
Replacement part/Grease pack part no.: GR-S-005 (5 g)

Series MHZ2

Dimensions

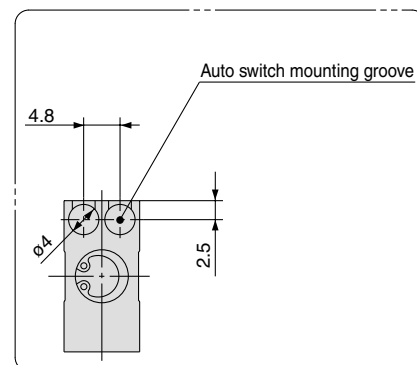
MHZ2-6 □ Double acting/Single acting Basic type

Use series MHZJ2 with a dust cover when used in a place where there may be dust.



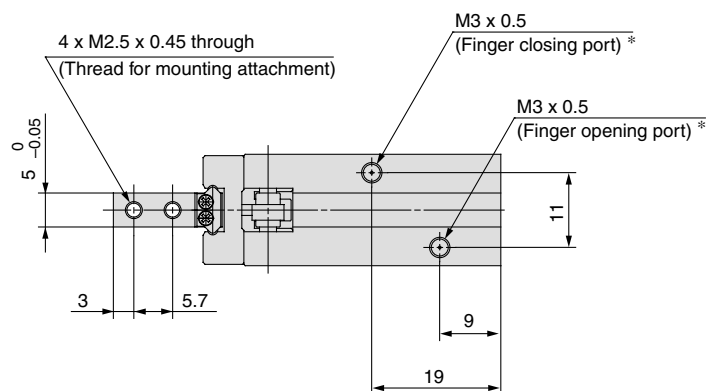
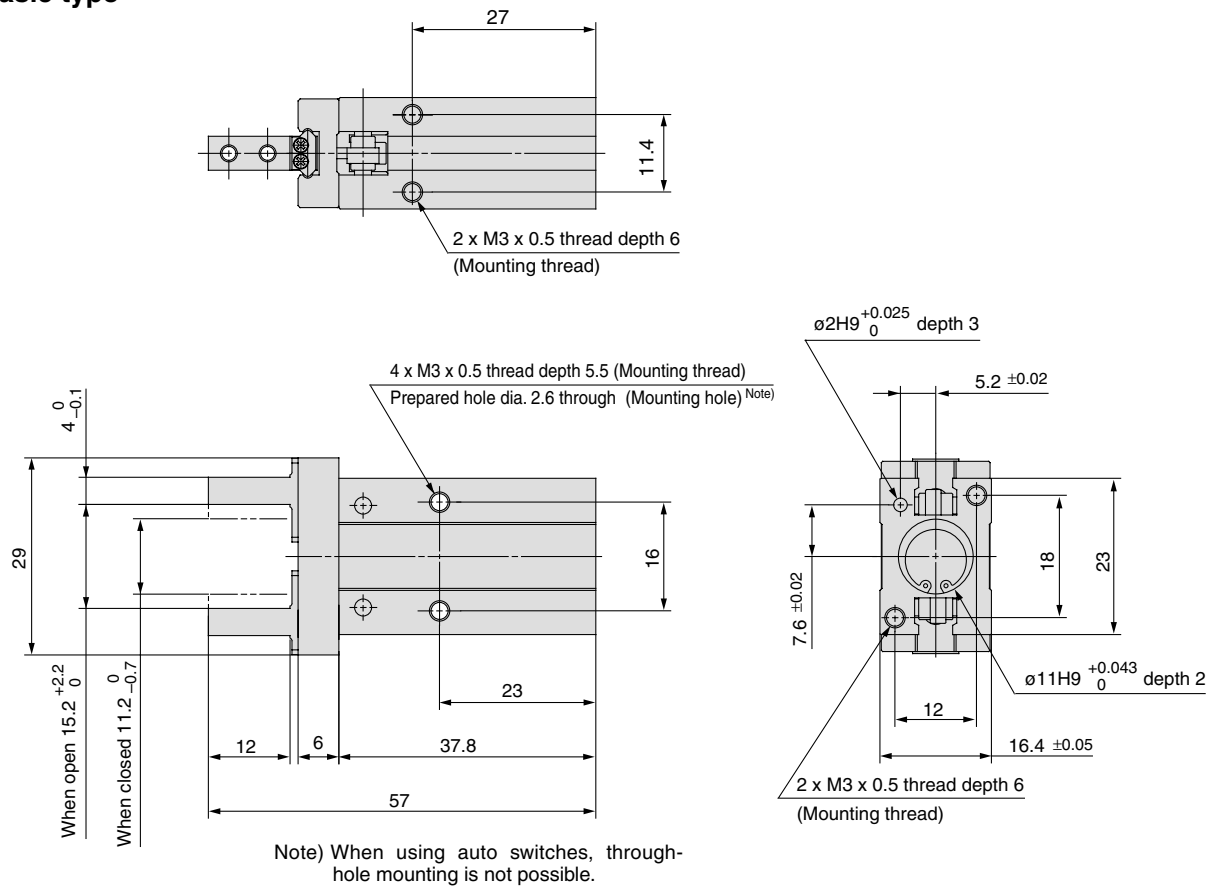
* For single action, the port on one side is a breathing hole.

Auto Switch Mounting Groove Dimensions



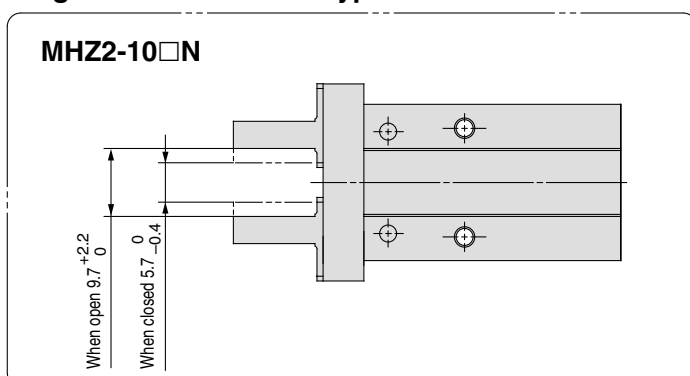
MHZ2-10□ Double acting/Single acting Basic type

Use series MHZJ2 with a dust cover when used in a place where there may be dust.

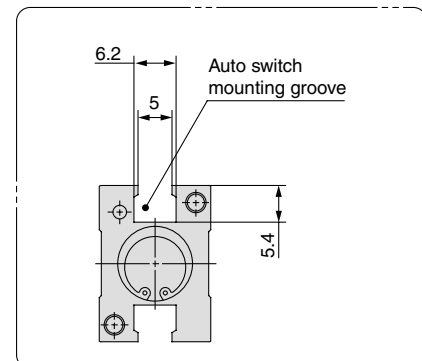


* For single action, the port on one side is a breathing hole.

Finger Position/Narrow Type



Auto Switch Mounting Groove Dimensions



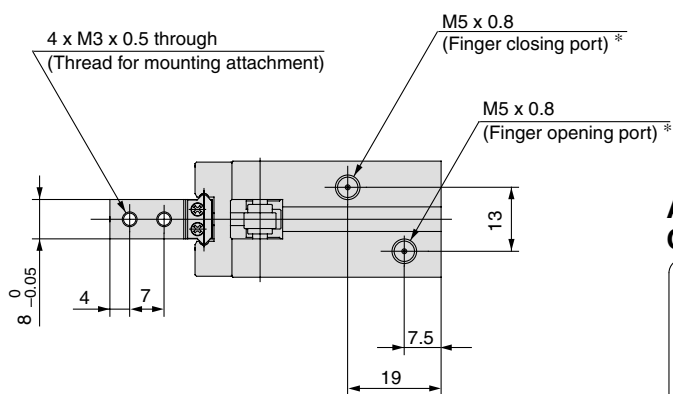
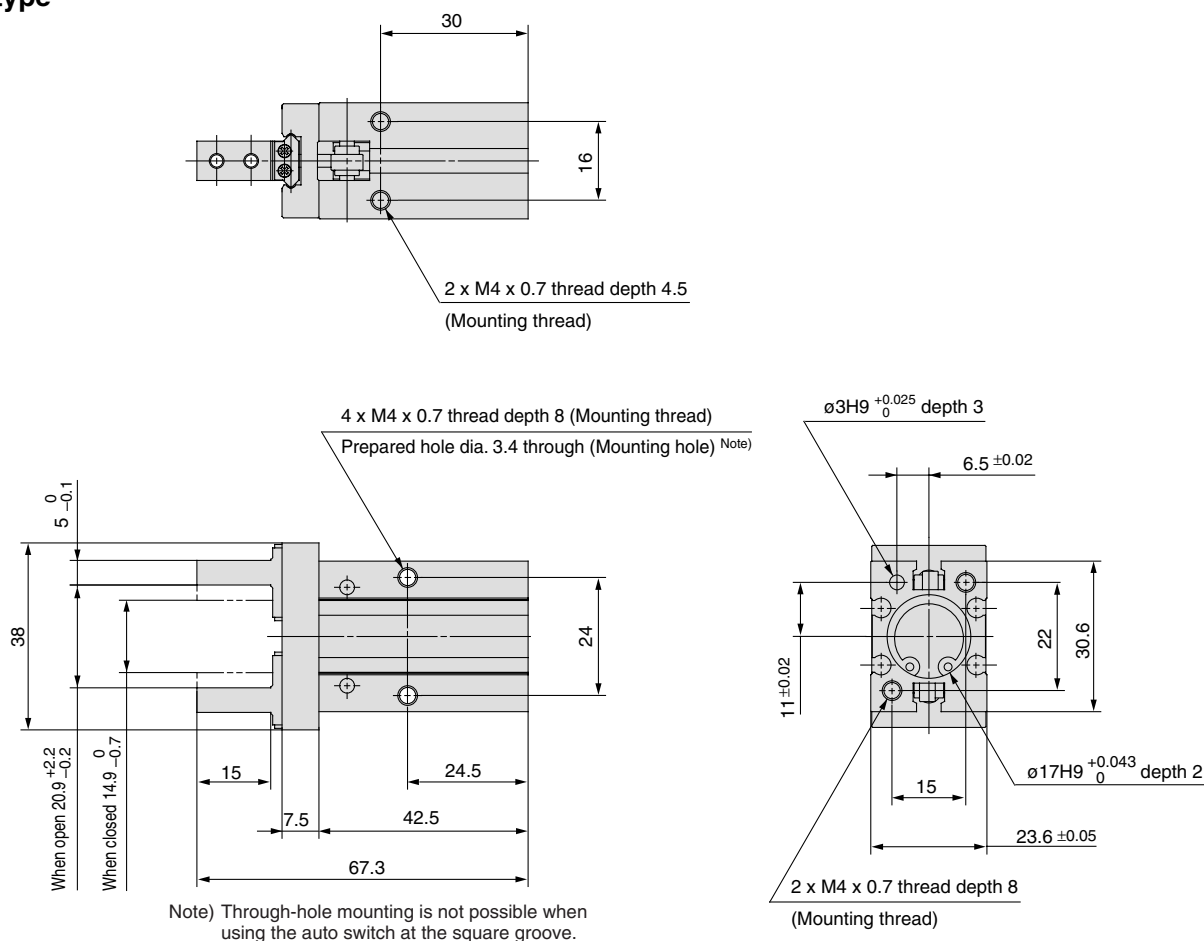
Note) When using auto switches, through-hole mounting is not possible.

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

Dimensions

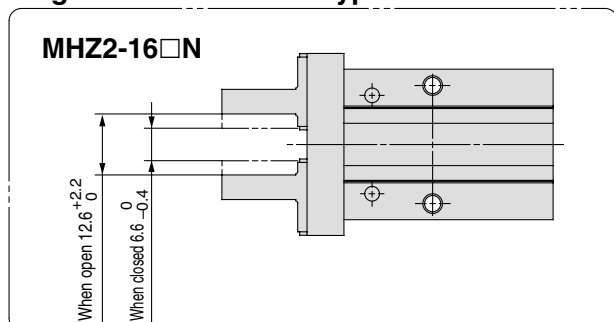
MHZ2-16□ Double acting/Single acting Basic type

Use series MHZJ2 with a dust cover when used in a place where there may be dust.

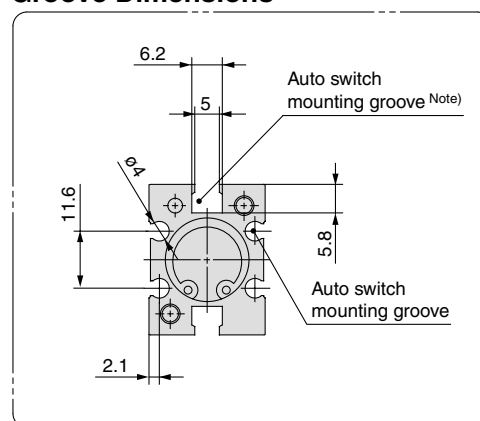


* For single action, the port on one side is a breathing hole.

Finger Position/Narrow Type



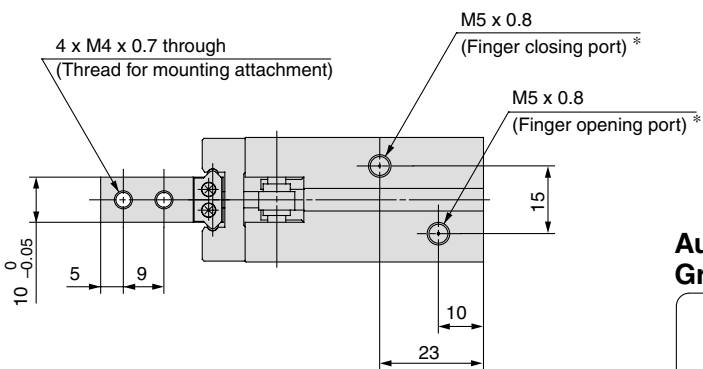
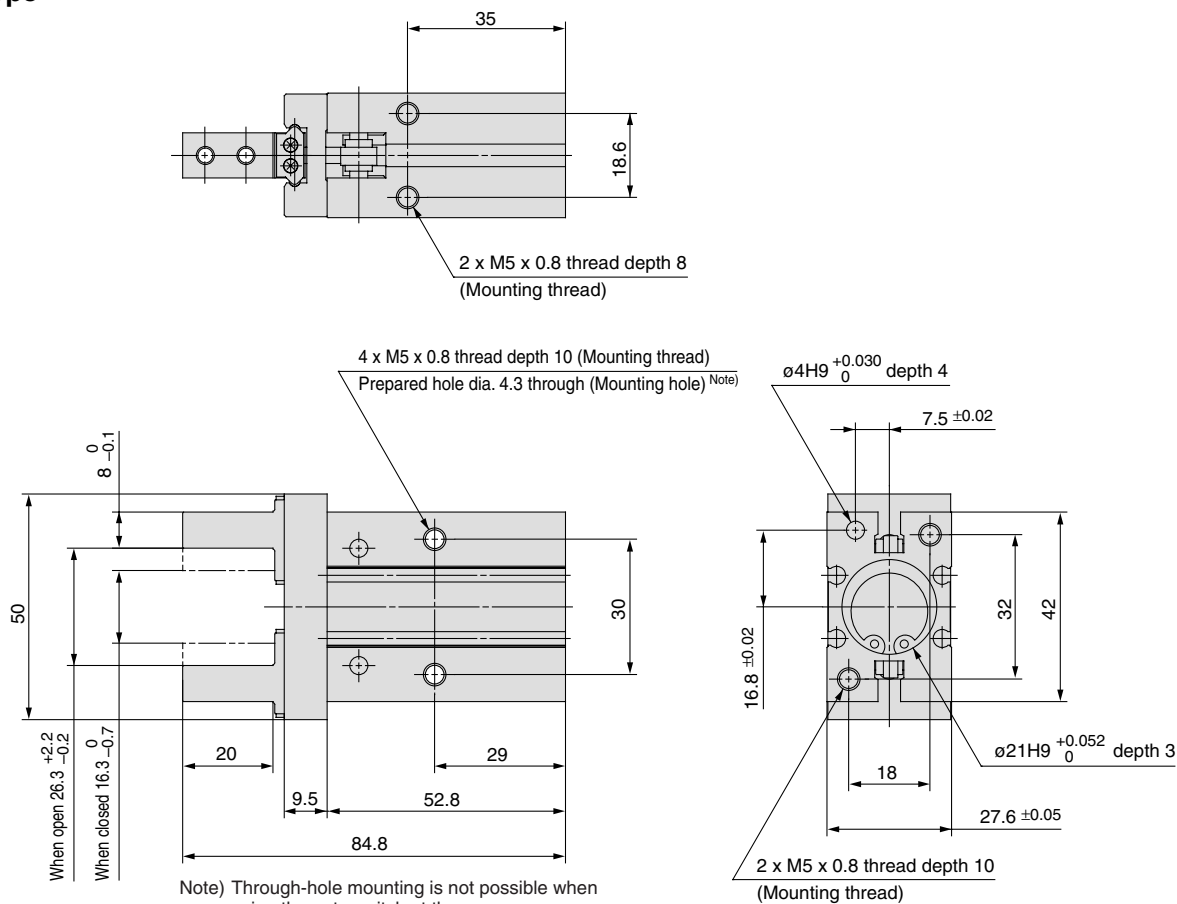
Auto Switch Mounting Groove Dimensions



Note) Through-hole mounting is not possible when using the auto switch at the square groove.

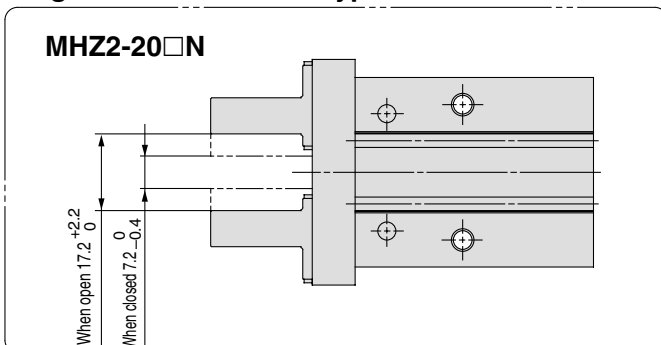
MHZ2-20□ Double acting/Single acting
Basic type

Use series MHZJ2 with a dust cover when used in a place where there may be dust.

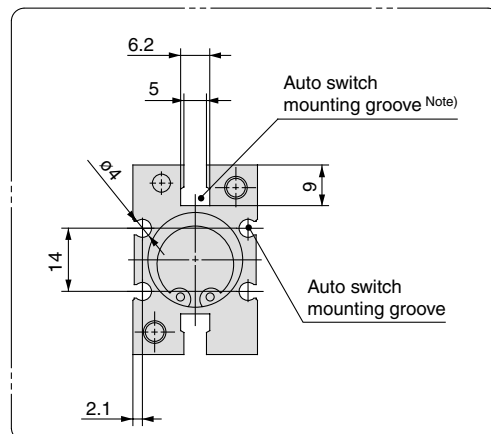


* For single action, the port on one side is a breathing hole.

Finger Position/Narrow Type

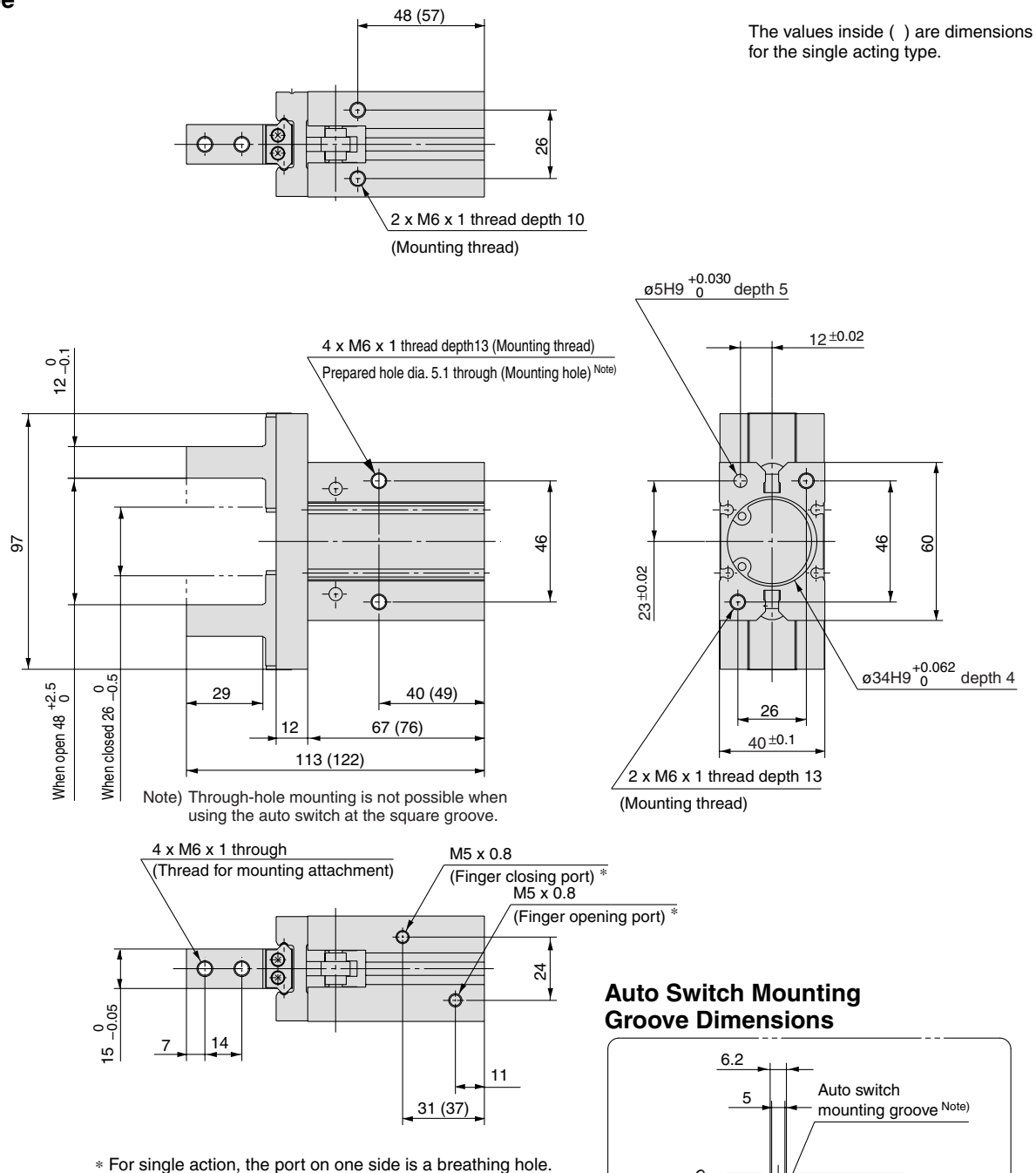


Auto Switch Mounting Groove Dimensions



Note) Through-hole mounting is not possible when using the auto switch at the square groove.

MHZ2-32□ Double acting/Single acting Basic type



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

^{Note)} Through-hole mounting is not possible when using the auto switch at the square groove.

MHZ

MHF

MHL

MHR

MHK

MHS

MHC

MHT

MHY

MHW

-X□

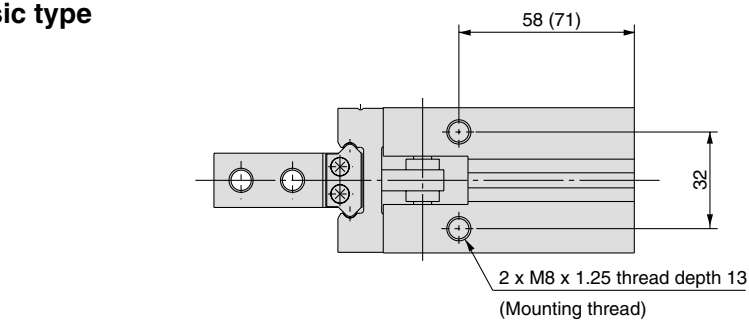
MRHQ

MA

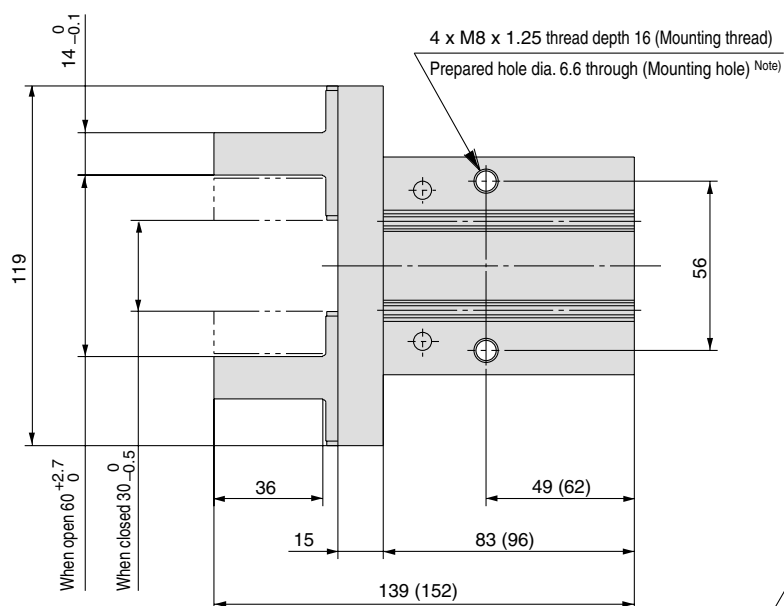
D-□

Dimensions

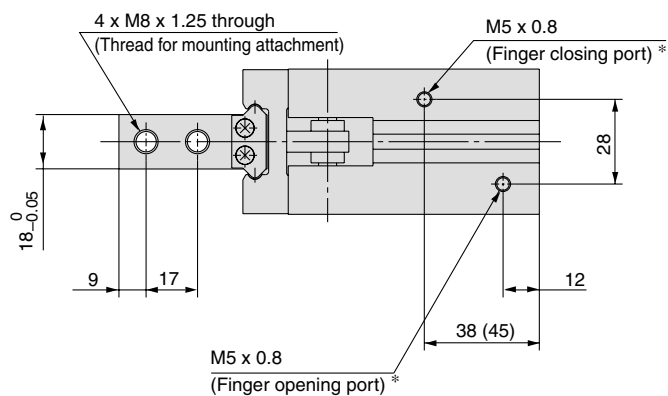
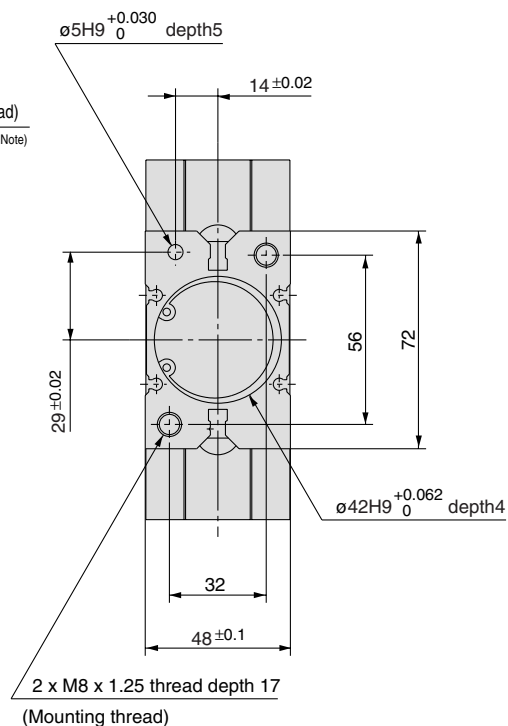
MHZ2-40□ Double acting/Single acting Basic type



The values inside () are dimensions for the single acting type.

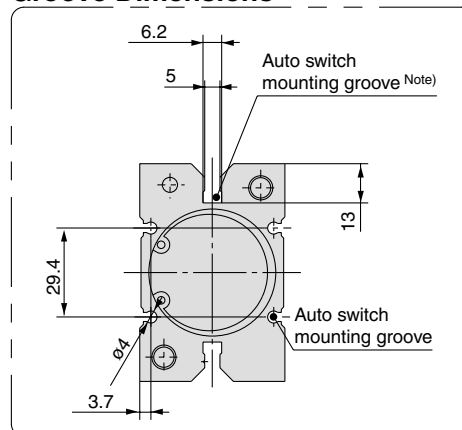


Note) Through-hole mounting is not possible when using the auto switch at the square groove.



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

Auto Switch Mounting Groove Dimensions

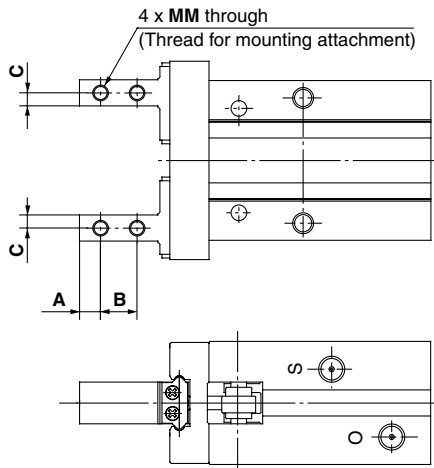


Note) Through-hole mounting is not possible when using the auto switch at the square groove.

Standard Type/series *MHZ2*

Finger Option

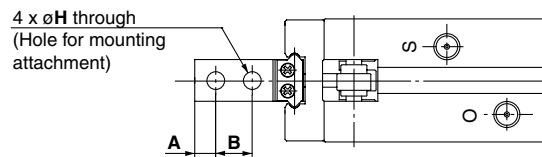
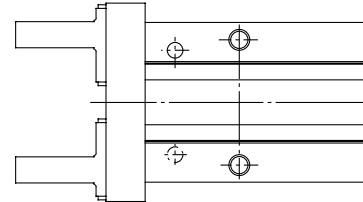
Side Tapped Mounting [1/N1]



Model	A	B	C	MM
MHZ2-6□ 1	2.5	5	2	M2 x 0.4
MHZ2-10□ 1 N1□	3	5.7	2	M2.5 x 0.45
MHZ2-16□ 1 N1□	4	7	2.5	M3 x 0.5
MHZ2-20□ 1 N1□	5	9	4	M4 x 0.7
MHZ2-25□ 1 N1□	6	12	5	M5 x 0.8
MHZ2-32□ 1□	7	14	6	M6 x 1
MHZ2-40□ 1□	9	17	7	M8 x 1.25

* Specifications and dimensions other than the above are the same as the basic type (including narrow type).

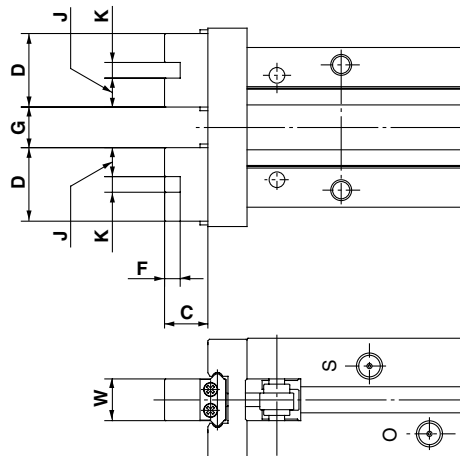
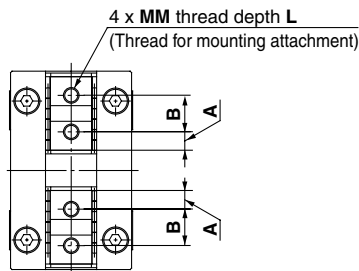
Through-holes in Opening/ Closing Direction [2/N2]



Model	A	B	H
MHZ2-6□ 2	2.5	5	2.4
MHZ2-10□ 2 N2□	3	5.7	2.9
MHZ2-16□ 2 N2□	4	7	3.4
MHZ2-20□ 2 N2□	5	9	4.5
MHZ2-25□ 2 N2□	6	12	5.5
MHZ2-32□ 2□	7	14	6.6
MHZ2-40□ 2□	9	17	9

* Specifications and dimensions other than the above are the same as the basic type (including narrow type).

Flat Type Fingers [3]



Model	A	B	C	D	F	G		J	K	MM	L	W	Mass (g)
						Open	Closed						
MHZ2-6□ 3 ⁽¹⁾	2	3.5	7.2	7.5	—	5 ^{+1.2} _{-0.8}	1 ^{+0.2} _{-0.1}	—	—	M2 x 0.4	3	4 ⁰ _{-0.05}	26
MHZ2-10□ 3□ ⁽²⁾⁽³⁾	2.45	6	5.2	10.9	2	5.4 ^{+2.2} ₀	1.4 ⁰ _{-0.2}	4.45	2H9 ^{+0.025} ₀	M2.5 x 0.45	5	5 ⁰ _{-0.05}	55
MHZ2-16□ 3□ ⁽²⁾⁽³⁾	3.05	8	8.3	14.1	2.5	7.4 ^{+2.2} ₀	1.4 ⁰ _{-0.2}	5.8	2.5H9 ^{+0.025} ₀	M3 x 0.5	6	8 ⁰ _{-0.05}	115
MHZ2-20□ 3□ ⁽²⁾⁽³⁾	3.95	10	10.5	17.9	3	11.6 ^{+2.3} ₀	1.6 ⁰ _{-0.2}	7.45	3H9 ^{+0.025} ₀	M4 x 0.7	8	10 ⁰ _{-0.05}	235
MHZ2-25□ 3□ ⁽²⁾⁽³⁾	4.9	12	13.1	21.8	4	16 ^{+2.5} ₀	2 ⁰ _{-0.2}	8.9	4H9 ^{+0.030} ₀	M5 x 0.8	10	12 ⁰ _{-0.05}	420
MHZ2-32□ 3□	7.3	20	18	34.6	5	25 ^{+2.7} ₀	3 ⁰ _{-0.2}	14.8	5H9 ^{+0.030} ₀	M6 x 1	12	15 ⁰ _{-0.05}	740 (785) ⁽⁴⁾
MHZ2-40□ 3□	8.7	24	22	41.4	6	33 ^{+2.9} ₀	3 ⁰ _{-0.2}	17.7	6H9 ^{+0.030} ₀	M8 x 1.25	16	18 ⁰ _{-0.05}	1335 (1430) ⁽⁴⁾

Note 1) To mount attachments, use M2 hexagon socket head cap screws with ø3.3 top diameter, or JISB1101 type M2 round head screws.

Note 2) Specifications and dimensions other than the above are the same as the basic type (including narrow type).

Note 3) The overall length is the same as the MHQ(G) flat finger type.

Note 4) The values inside () are for the single acting type.

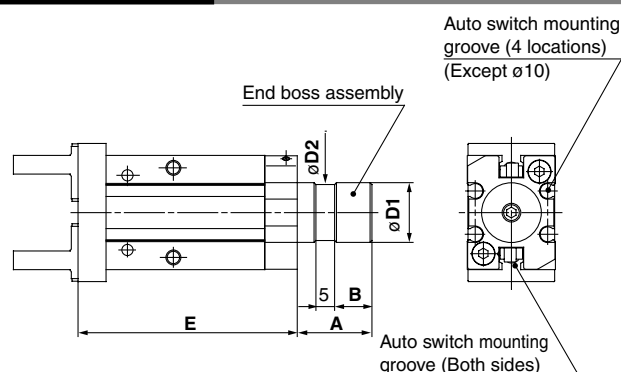
Standard Type/series MHZ2

Body Option: End Boss Type

Applicable Model

Symbol	Piping port location	Type of piping port				Applicable model		
		MHZ2-10	MHZ2-16	MHZ2-20	MHZ2-25	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]



(mm)

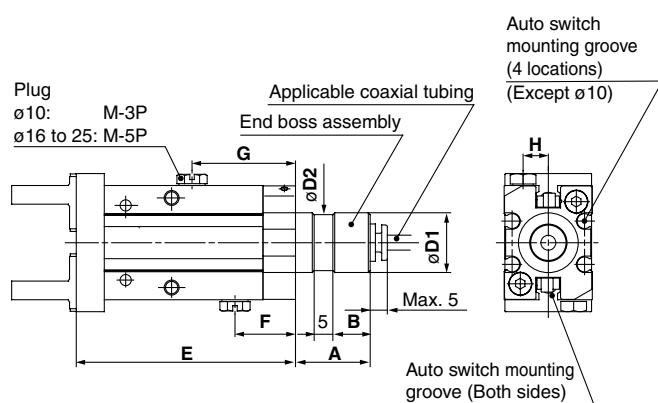
Model	A	B	D1	D2	E
MHZ2-10□□E	15	7	12f8 ^{-0.016} _{-0.043}	11	52.8
MHZ2-16□□E	20	10	16f8 ^{-0.016} _{-0.043}	15	58.7
MHZ2-20□□E	22	12	20f8 ^{-0.020} _{-0.053}	19	70.5
MHZ2-25□□E	25	15	25f8 ^{-0.020} _{-0.053}	24	82.9

Other dimensions and specifications correspond to the standard type.

* Refer to the dimension table.

* When auto switches are used, side mounting with through-holes is not possible.

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



(mm)

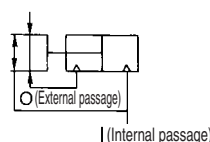
Model	A	B	D1	D2	E	F	G	H
MHZ2-10D□W	15	7	12f8 ^{-0.016} _{-0.043}	11	52.8	18	28.3	5.5
MHZ2-16D□W	20	10	16f8 ^{-0.016} _{-0.043}	15	58.7	16.2	27.7	6.5
MHZ2-20D□W	22	12	20f8 ^{-0.020} _{-0.053}	19	70.5	18.2	31.2	7.5
MHZ2-25D□W	25	15	25f8 ^{-0.020} _{-0.053}	24	82.9	19	31.8	10

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

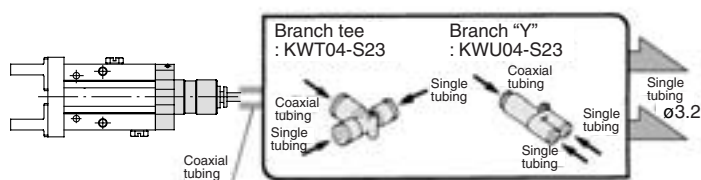


* Refer to the dimension table.

* When auto switches are used, side mounting with through-holes is not possible.

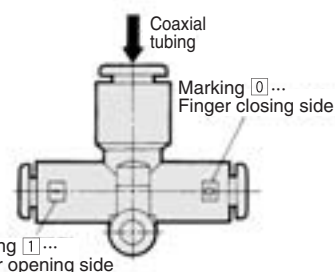
Changing from Coaxial to Single Tubing

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

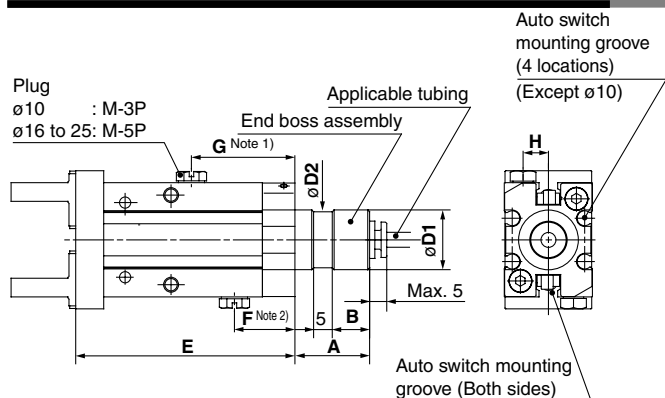


Branch Tee, Different Diameter Tee, Branch "Y", Male Run Tee

Please contact SMC for the coaxial fittings and tubing.



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



* Refer to the dimension table.
* When auto switches are used, 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
MHZ2-10 $\frac{S}{C}$ □ K	15	7	12f8 $\begin{smallmatrix} -0.016 \\ -0.043 \end{smallmatrix}$	11	52.8	18	28.3	5.5
MHZ2-16 $\frac{S}{C}$ □ K	20	10	16f8 $\begin{smallmatrix} -0.016 \\ -0.043 \end{smallmatrix}$	15	58.7	16.2	27.7	6.5
MHZ2-20 $\frac{S}{C}$ □ K	22	12	20f8 $\begin{smallmatrix} -0.020 \\ -0.053 \end{smallmatrix}$	19	70.5	18.2	31.2	7.5
MHZ2-25 $\frac{S}{C}$ □ K	25	15	25f8 $\begin{smallmatrix} -0.020 \\ -0.053 \end{smallmatrix}$	24	82.9	19	31.8	10

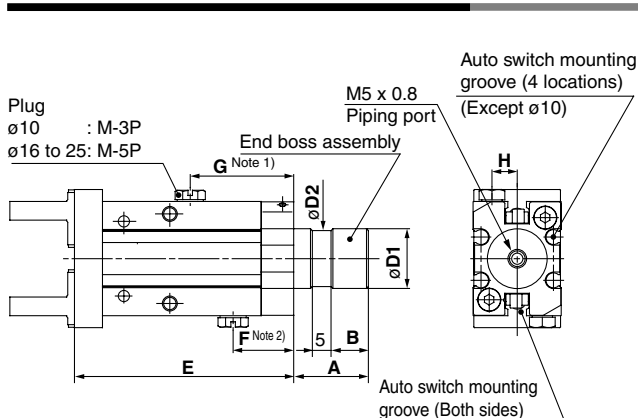
Other dimensions and specifications correspond to the standard type.

Applicable Tubing

Description/Model	Nylon tubing	Soft nylon tubing	Polyurethane tubing	Polyurethane coil tubing
Specifications	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 "Best Pneumatics No. 6" regarding One-touch fittings and tubing.

Axial Ported (with M5 Port) [M]



* Refer to the dimension table.
* When auto switches are used, 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
MHZ2-10 $\frac{S}{C}$ □ M	15	7	12f8 $\begin{smallmatrix} -0.016 \\ -0.043 \end{smallmatrix}$	11	52.8	18	28.3	5.5
MHZ2-16 $\frac{S}{C}$ □ M	20	10	16f8 $\begin{smallmatrix} -0.016 \\ -0.043 \end{smallmatrix}$	15	58.7	16.2	27.7	6.5
MHZ2-20 $\frac{S}{C}$ □ M	22	12	20f8 $\begin{smallmatrix} -0.020 \\ -0.053 \end{smallmatrix}$	19	70.5	18.2	31.2	7.5
MHZ2-25 $\frac{S}{C}$ □ M	25	15	25f8 $\begin{smallmatrix} -0.020 \\ -0.053 \end{smallmatrix}$	24	82.9	19	31.8	10

Other dimensions and specifications correspond to the standard type.

Mass

Model	End boss type (Symbol)			
	E	W	K	M
MHZ2-10 □ □	65	64	66	65
MHZ2-16 □ □	148	147	148	147
MHZ2-20 □ □	277	277	277	277
MHZ2-25 □ □	495	495	496	494

MHZ

MHF

MHL

MHR

MHK

MHS

MHC

MHT

MHY

MHW

-X □

MRHQ

MA

D-□

Parallel Style Air Gripper/Long Stroke Type Series *MHZL2*

How to Order

MHZL2-16 D - M9BW

Number of fingers
2 2 fingers

Bore size

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)

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

Number of auto switches

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

Made to Order
Refer to page 415 for details.

Finger option

Nil: Basic type

1: Side tapped mounting

2: Through-holes in opening/closing direction

3: Flat type fingers

Body option

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 (Single acting)

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

Applicable Auto Switch/Refer to pages 761 to 809 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		
							Electrical entry direction		0.5 (Nil)	1 (M)	3 (L)	5 (Z)	ø10	ø16	ø20	ø25				
					DC	AC	Perpendicular	In-line												
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5V, 12 V	—	M9NV	M9N	●	●	●	○	●	●	●	●	○	IC circuit	Relay PLC
				F8N				—	●	—	●	○	—	●	●	●	—			
				M9PV				M9P	●	●	●	○	●	●	●	●	○			
				F8P				—	●	—	●	○	—	●	●	●	—			
	2-wire			12 V	M9BV	M9B	●	●	●	○	●	●	●	●	○	—				
	F8B			—	●	—	●	○	—	●	●	●	—							
	3-wire (NPN)			5 V, 12 V	M9NVV	M9NW	●	●	●	○	●	●	●	●	○	IC circuit				
	3-wire (PNP)			M9PVV	M9PW	●	●	●	○	●	●	●	●	○	—					
	2-wire	12 V	M9BVV	M9BW	●	●	●	○	●	●	●	●	○	—						

* 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

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

Note 1) Take note of hysteresis with 2-color indication type switches. Refer to page 438 for detailed auto switch specifications.

Note 2) Through-hole mounting is not possible when using the auto switch at the square groove on the side.

Note 3) Only MHZ2-10 is shipped with the auto switch mounting brackets. When the auto switch is used at the square groove on the side with MHZ2-16 to 25, mounting brackets are required. Order them separately. Refer to page 439 for the auto switch mounting brackets.

Specifications

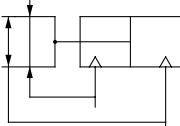


Fluid		Air	
Operating pressure	Double acting		$\phi 10$: 0.2 to 0.7 MPa $\phi 16$ to $\phi 25$: 0.1 to 0.7 MPa
	Single acting	Normally open	$\phi 10$: 0.35 to 0.7 MPa
		Normally closed	$\phi 16$ to $\phi 25$: 0.25 to 0.7 MPa
	Ambient and fluid temperature		-10 to 60°C
Repeatability		± 0.01 mm	
Max. operating frequency		120 c.p.m.	
Lubrication		Not required	
Action		Double acting/Single acting	
Auto switch (Option) ^{Note)}		Solid state auto switch (3-wire, 2-wire)	

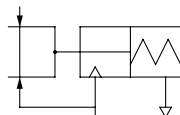
Note) Refer to pages 761 to 809 for further information on auto switches.

JIS Symbol

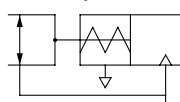
Double acting



Single acting type, Normally open



Single acting type, Normally closed



Refer to pages 436 to 440 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



Made to Order

(Refer to pages 683 to 713 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
-X79	Grease for food

Model

Action		Model	Bore size (mm)	Gripping force ^{Note 1)}		Opening/ Closing stroke (Both sides) (mm)	^{Note 2)} Mass (g)
				Gripping force per finger Effective value (N)			
				External	Internal		
Double acting		MHZL2-10D	10	11	17	8	60
		MHZL2-16D	16	34	45	12	135
		MHZL2-20D	20	42	66	18	270
		MHZL2-25D	25	65	104	22	470
Single acting	Normally open	MHZL2-10S	10	7.1	—	8	70
		MHZL2-16S	16	27		12	145
		MHZL2-20S	20	33		18	290
		MHZL2-25S	25	50		22	515
	Normally closed	MHZL2-10C	10	—	13	8	70
		MHZL2-16C	16		38	12	140
		MHZL2-20C	20		57	18	290
		MHZL2-25C	25		85	22	515

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

Note 2) Values excluding mass of auto switch.

Option

●Body Option/End Boss Type

Symbol	Piping port location	Type of piping port				Applicable model	
		MHZL2-10	MHZL2-16	MHZL2-20	MHZL2-25	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 422 and 423.

MHZ

MHF

MHL

MHR

MHK

MHS

MHC

MHT

MHY

MHW

-X□

MRHQ

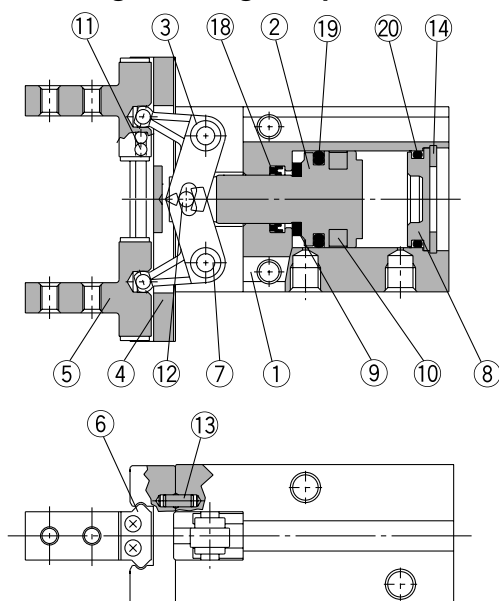
MA

D-□

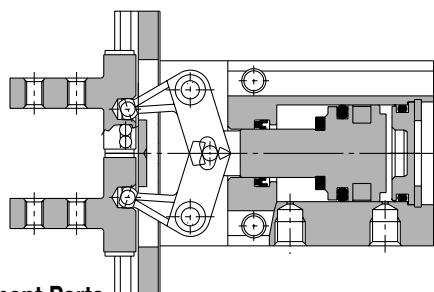
Series MHZL2

Construction: MHZL2-10□ to 25□

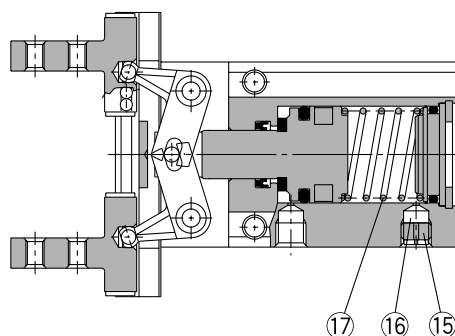
Double acting/With fingers open



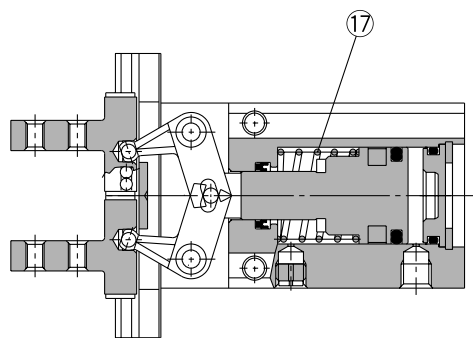
Double acting/With fingers closed



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	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	Cap	Aluminum alloy	Clear anodized
9	Bumper	Urethane rubber	
10	Rubber magnet	Synthetic rubber	

Component Parts

No.	Description	Material	Note
11	Steel balls	High carbon chrome bearing steel	
12	Needle roller	High carbon chrome bearing steel	
13	Parallel pin	Stainless steel	
14	Type C retaining ring	Carbon steel	Nickel plated
15	Exhaust plug A	Brass	Electroless nickel plated
16	Exhaust filter A	Polyvinyl formal	
17	Spring	Stainless steel spring wire	
18	Rod seal	NBR	
19	Piston seal	NBR	
20	Gasket	NBR	

Replacement Parts

Description		MHZL2-10	MHZL2-16	MHZL2-20	MHZL2-25	Main parts
Seal kit		MHZL10-PS	MHZL16-PS	MHZL20-PS	MHZL25-PS	18, 19, 20
Finger assembly	MHZL2-□□□	MHZL-A1002	MHZL-A1602	MHZL-A2002	MHZL-A2502	4, 5, 6, 11, 13 Mounting screw
	MHZL2-□□□1	MHZL-A1002-1	MHZL-A1602-1	MHZL-A2002-1	MHZL-A2502-1	
	MHZL2-□□□2	MHZL-A1002-2	MHZL-A1602-2	MHZL-A2002-2	MHZL-A2502-2	
Piston assembly	MHZL2-□□□3	MHZL-A1002-3	MHZL-A1602-3	MHZL-A2002-3	MHZL-A2502-3	2, 9, 10, 12
	MHZL2-□□□□	MHZL-A1003	MHZL-A1603	MHZL-A2003	MHZL-A2503	
	MHZL2-□□□□	MHZL-A1003C	MHZL-A1603C	MHZL-A2003C	MHZL-A2503C	
End boss assembly	MHZL2-□□□□W	MHZ-A1007	MHZ-A1607	MHZ-A2007	MHZ-A2507	Main body of adaptor Mounting screw for adaptor Seal kit
	MHZL2-□□□□K	MHZ-A1008	MHZ-A1608	MHZ-A2008	MHZ-A2508	
	MHZL2-□□□□M	MHZ-A1009	MHZ-A1609	MHZ-A2009	MHZ-A2509	
	MHZL2-□□□□E	MHZ-A1010	MHZ-A1610	MHZ-A2010	MHZ-A2510	

* Finger option

1 = Side tapped, 2 = Through-hole, 3 = Flat type fingers

* End boss type

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

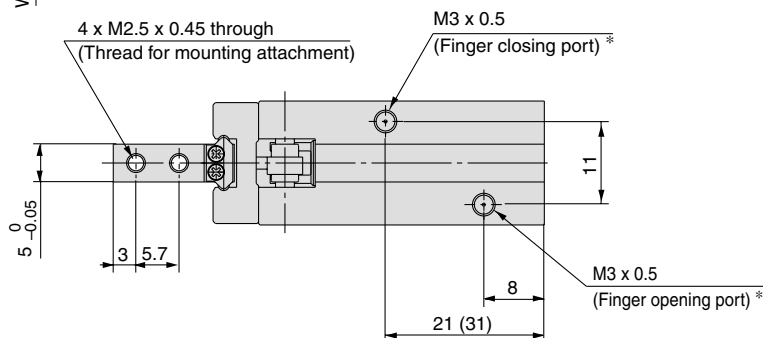
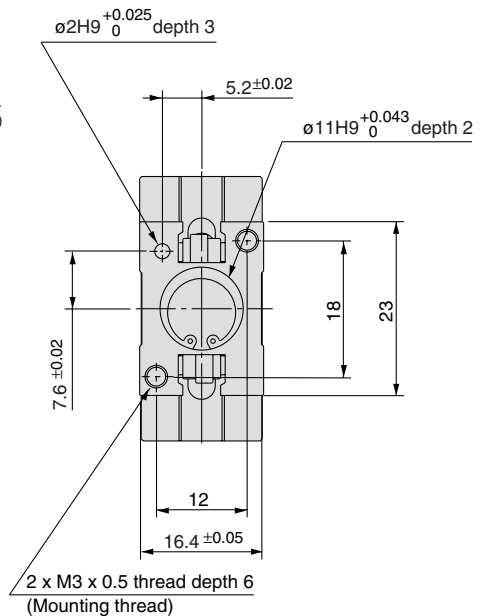
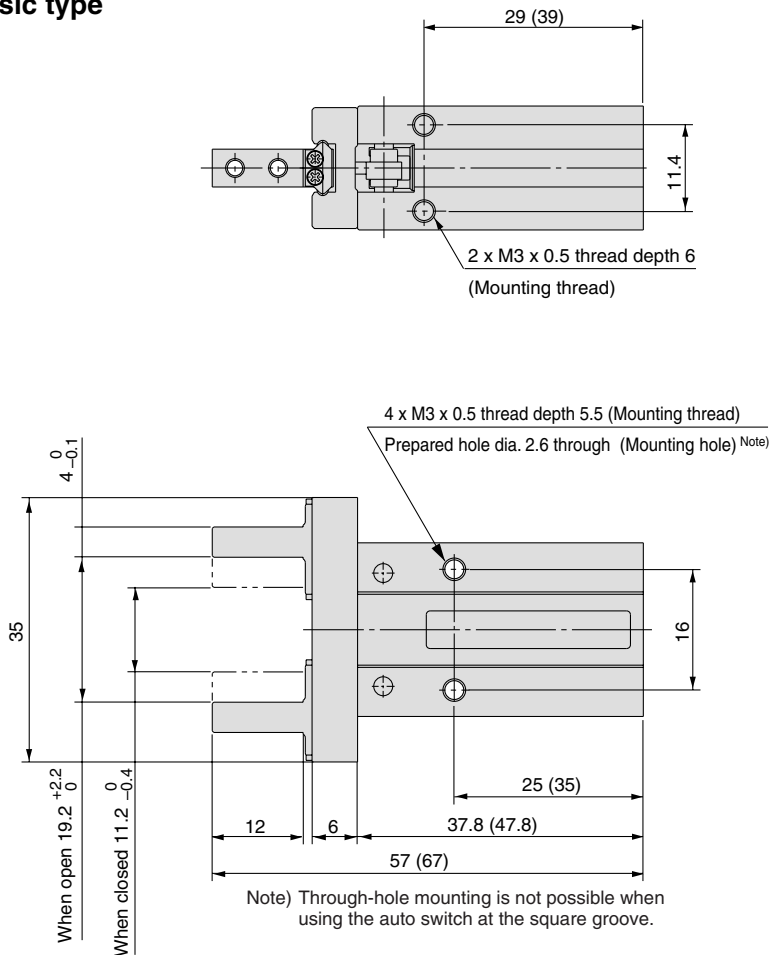
* The end boss assembly other than type E should be mounted on the special body.

Replacement part/Grease pack part no.: GR-S-005 (5 g)

Dimensions

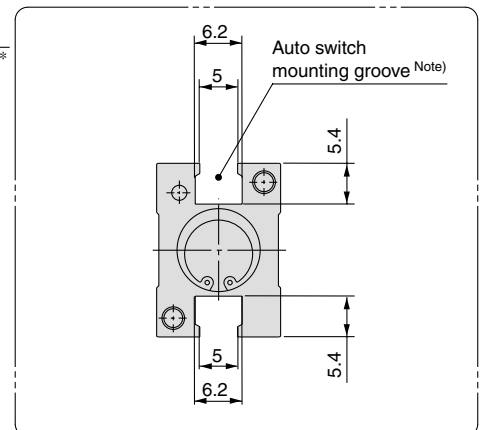
MHZL2-10□ Double acting/Single acting Basic type

The values inside () are dimensions for the single acting type.



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

Auto Switch Mounting Groove Dimensions



Note) Through-hole mounting is not possible when using the auto switch at the square groove.

MHZ

MHF

MHL

MHR

MHK

MHS

MHC

MHT

MHY

MHW

-X□

MRHQ

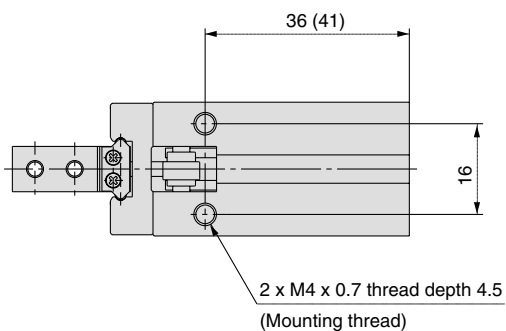
MA

D-□

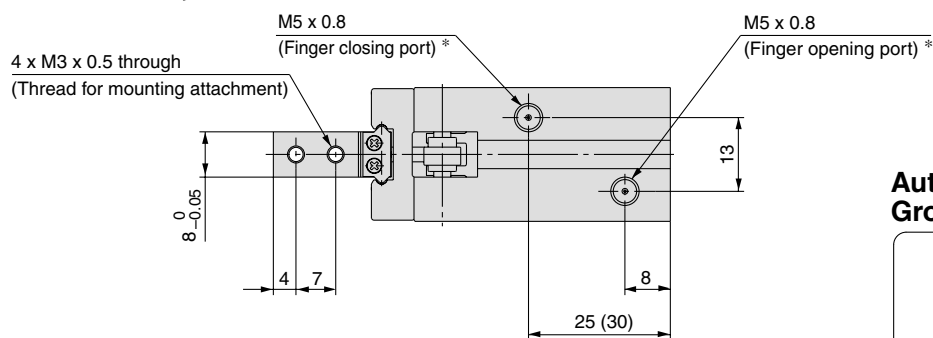
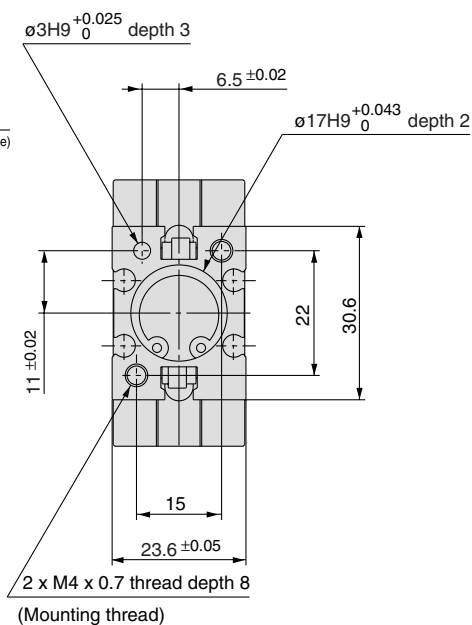
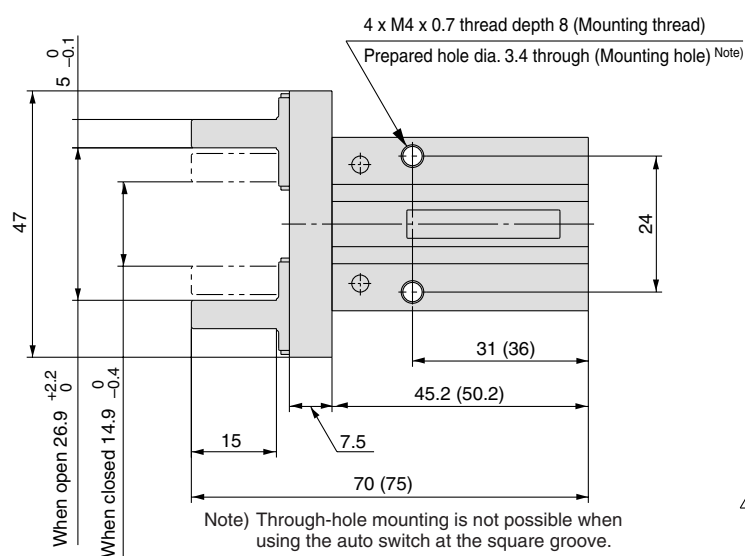
Series MHZL2

Dimensions

MHZL2-16 □ Double acting/Single acting Basic type

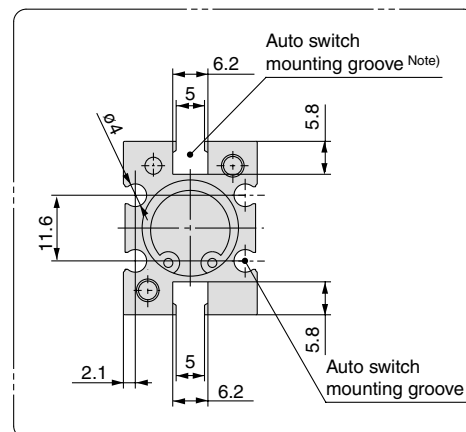


The values inside () are dimensions for the single acting type.



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

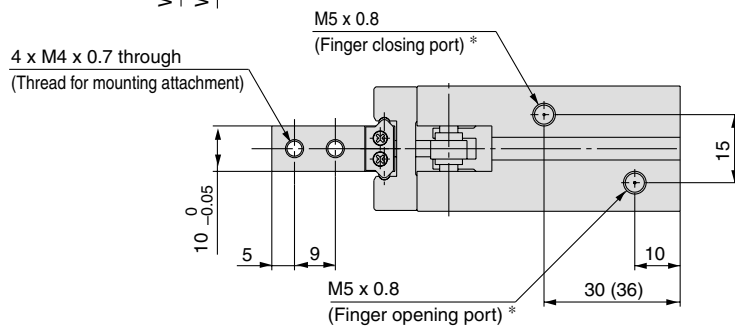
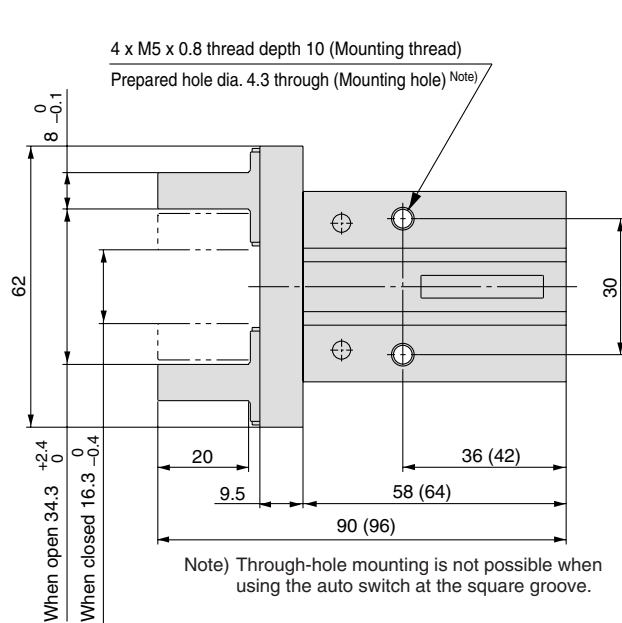
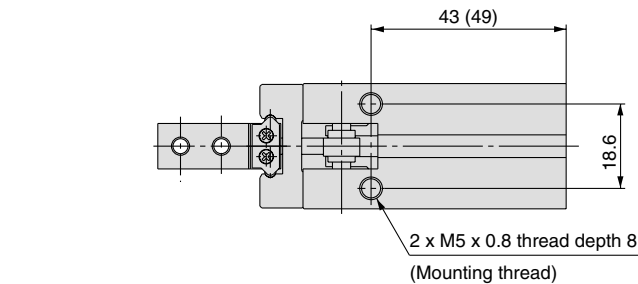
Auto Switch Mounting Groove Dimensions



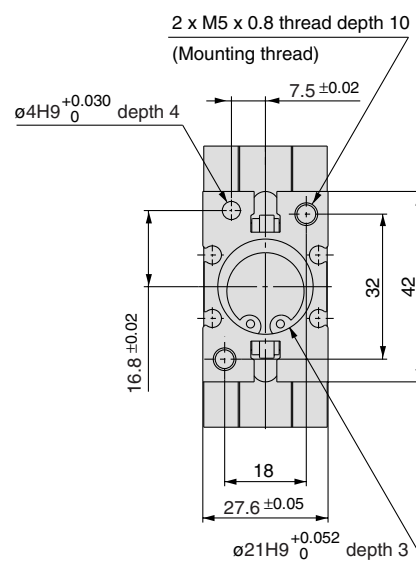
Note) Through-hole mounting is not possible when using the auto switch at the square groove.

MHZL2-20□ Double acting/Single acting Basic type

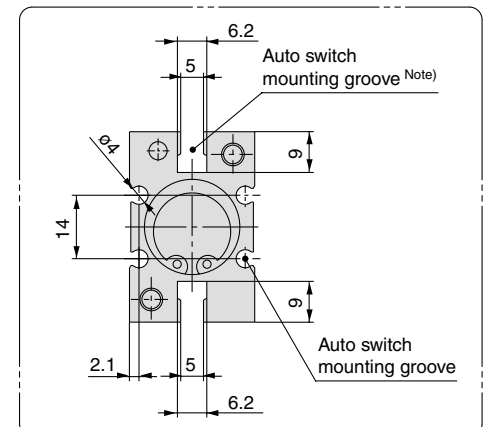
The values inside () are dimensions for the single acting type.



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



Auto Switch Mounting Groove Dimensions



Note) Through-hole mounting is not possible when using the auto switch at the square groove.

MHZ

MHF

MHL

MHR

MHK

MHS

MHC

MHT

MHY

MHW

-X☐

MRHQ

MA

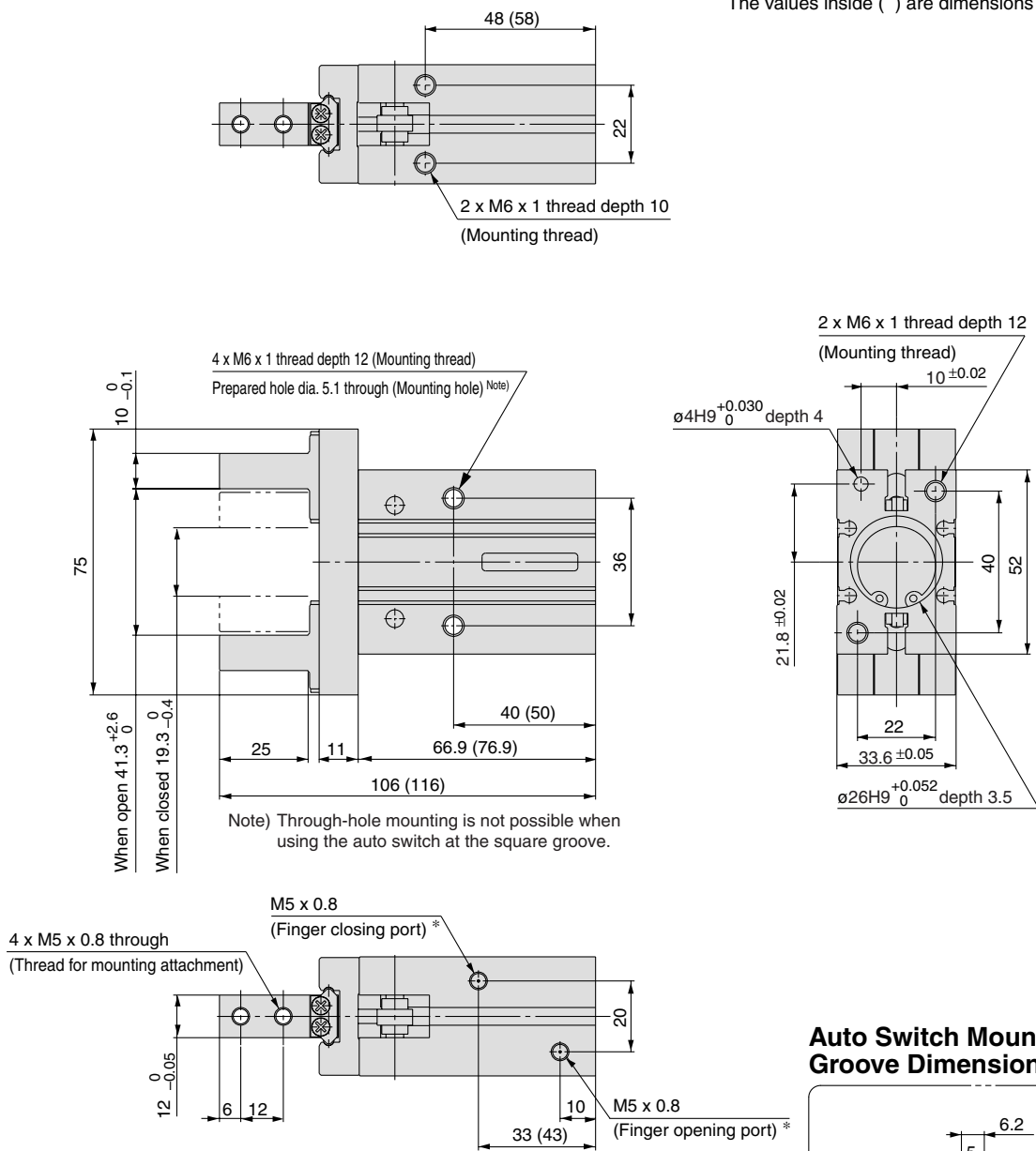
D-☐

Series MHZL2

Dimensions

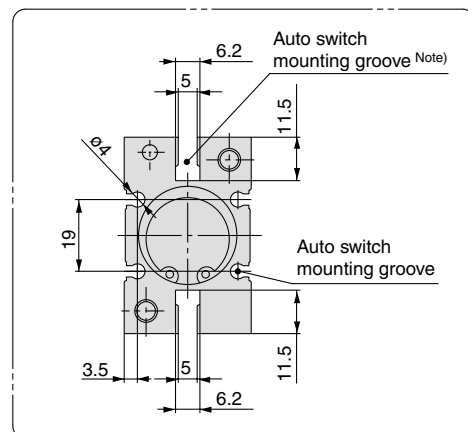
MHZL2-25 □ Double acting/Single acting Basic type

The values inside () are dimensions for the single acting type.



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

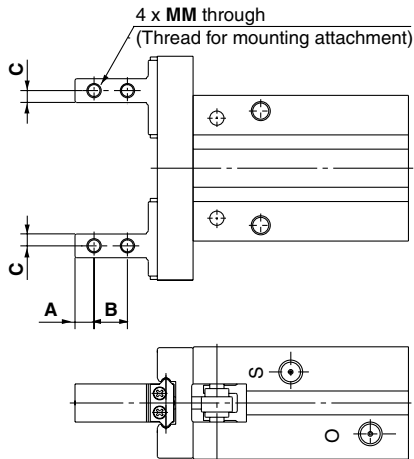
Auto Switch Mounting Groove Dimensions



Note) Through-hole mounting is not possible when using the auto switch at the square groove.

Long Stroke Type/*Series MHZL2* Finger Option

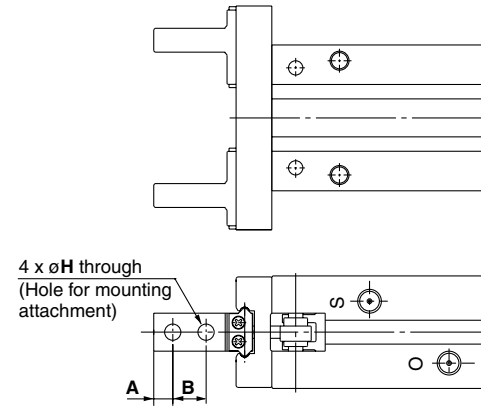
Side Tapped Mounting [1]



Model	A	B	C	MM
MHZL2-10□1□	3	5.7	2	M2.5 x 0.45
MHZL2-16□1□	4	7	2.5	M3 x 0.5
MHZL2-20□1□	5	9	4	M4 x 0.7
MHZL2-25□1□	6	12	5	M5 x 0.8

* Specifications and dimensions other than the above are the same as the basic type.

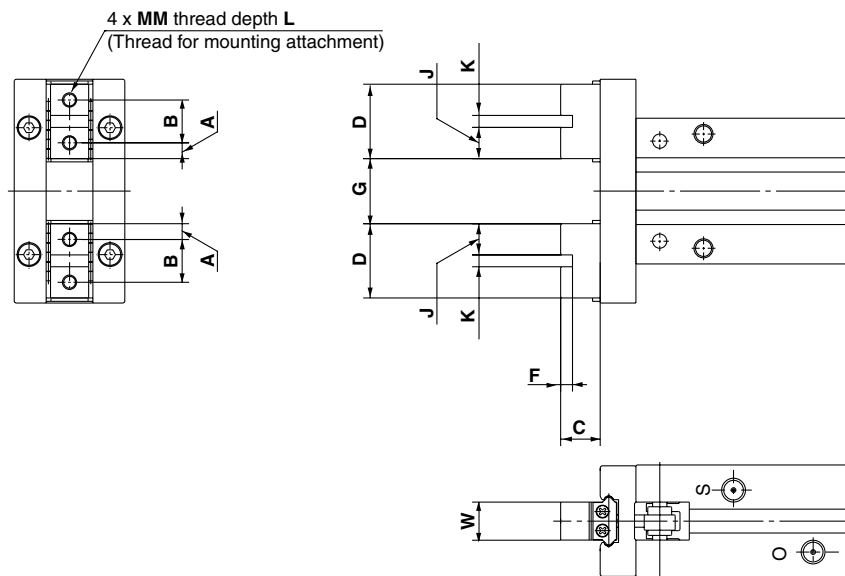
Through-holes in Opening/ Closing Direction [2]



Model	A	B	H
MHZL2-10□2□	3	5.7	2.9
MHZL2-16□2□	4	7	3.4
MHZL2-20□2□	5	9	4.5
MHZL2-25□2□	6	12	5.5

* Specifications and dimensions other than the above are the same as the basic type.

Flat Type Fingers [3]



Model	A	B	C	D	F	G		J	K	MM	L	W	Mass (g)	
						Open	Closed						Double acting	Single acting
MHZL2-10□3□	2.45	7	5.2	11.9	2	9.4 ^{+2.2} ₀	1.4 ⁰ _{-0.2}	4.95	2H9 ^{+0.025} ₀	M2.5 x 0.45	5	5 ⁰ _{-0.05}	60	70
MHZL2-16□3□	3.3	9	8.3	15.6	2.5	13.4 ^{+2.2} ₀	1.4 ⁰ _{-0.2}	6.55	2.5H9 ^{+0.025} ₀	M3 x 0.5	6	8 ⁰ _{-0.05}	135	145
MHZL2-20□3□	3.95	12	10.5	19.9	3	19.6 ^{+2.4} ₀	1.6 ⁰ _{-0.2}	8.45	3H9 ^{+0.025} ₀	M4 x 0.7	8	10 ⁰ _{-0.05}	270	290
MHZL2-25□3□	4.9	14	13.1	23.8	4	24 ^{+2.6} ₀	2 ⁰ _{-0.2}	9.9	4H9 ^{+0.030} ₀	M5 x 0.8	10	12 ⁰ _{-0.05}	460	505

* Specifications and dimensions other than the above are the same as the basic type.

MHZ

MHF

MHL

MHR

MHK

MHS

MHC

MHT

MHY

MHW

-X□

MRHQ

MA

D-□

Long Stroke Type/series MHZL2

Body Option: End Boss Type

Applicable Model

Symbol	Piping port location	Type of piping port				Applicable model		
		MHZL2-10	MHZL2-16	MHZL2-20	MHZL2-25	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]

Auto switch mounting groove (4 locations) (Except ø10)

Auto switch mounting groove (Both sides)

End boss assembly

øD2

øD1

5

B

A

E1 (Double acting) E2 (Single acting)

Model	A	B	D1	D2	E1	E2
MHZL2-10□□E	15	7	12f8 ^{-0.016} _{-0.043}	11	52.8	62.8
MHZL2-16□□E	20	10	16f8 ^{-0.016} _{-0.043}	15	61.4	66.4
MHZL2-20□□E	22	12	20f8 ^{-0.020} _{-0.053}	19	75.7	81.7
MHZL2-25□□E	25	15	25f8 ^{-0.020} _{-0.053}	24	86.2	96.2

(mm)

Other dimensions and specifications correspond to the standard type.

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

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

Auto switch mounting groove (4 locations) (Except ø10)

Auto switch mounting groove (Both sides)

End boss assembly

øD2

øD1

Max. 5

B

A

E1

F

G

H

Plug

Applicable coaxial tubing

Reference symbol

○ (External passage)

□ (Internal passage)

Model	A	B	D1	D2	E1
MHZL2-10D□W	15	7	12f8 ^{-0.016} _{-0.043}	11	52.8
MHZL2-16D□W	20	10	16f8 ^{-0.016} _{-0.043}	15	61.4
MHZL2-20D□W	22	12	20f8 ^{-0.020} _{-0.053}	19	75.7
MHZL2-25D□W	25	15	25f8 ^{-0.020} _{-0.053}	24	86.2

(mm)

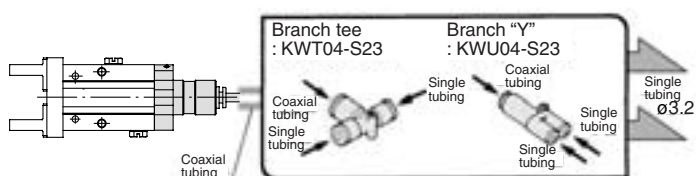
Other dimensions and specifications correspond to the standard type.

Applicable Coaxial Tubing Type W

Model	TW04B-20			
Specifications		F	G	H
Outside diameter	4 mm	ø10	17	30
Max. operating pressure	0.6 MPa	ø16	16.7	33.7
Min. bending radius	10 mm	ø20	18.2	38.2
Operating temperature	-20 to 60°C	ø25	18.3	41.3
Material	Nylon 12			10

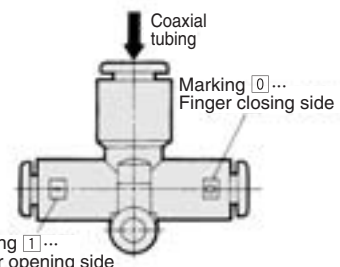
Changing from Coaxial to Single Tubing

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.

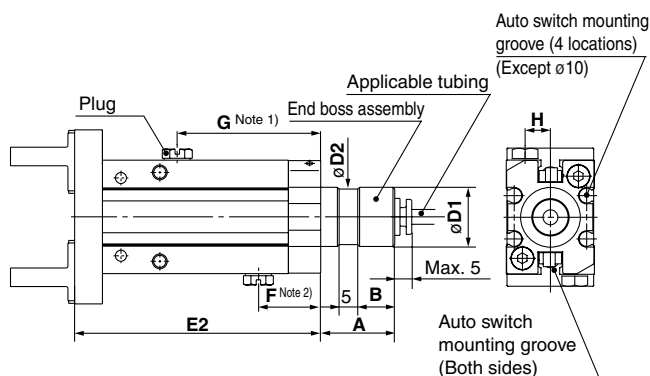


Branch tee, Different diameter tee, Branch "Y", Male run tee

Please contact SMC for the coaxial fittings and tubing.



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



- * Refer to the dimension table.
 * When auto switches are used, 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	E2
MHZL2-10 ^S _C □K	15	7	12f8 ^{-0.016} _{-0.043}	11	62.8
MHZL2-16 ^S _C □K	20	10	16f8 ^{-0.016} _{-0.043}	15	66.4
MHZL2-20 ^S _C □K	22	12	20f8 ^{-0.020} _{-0.053}	19	81.7
MHZL2-25 ^S _C □K	25	15	25f8 ^{-0.020} _{-0.053}	24	96.2

Other dimensions and specifications correspond to the standard type.

Applicable Tubing

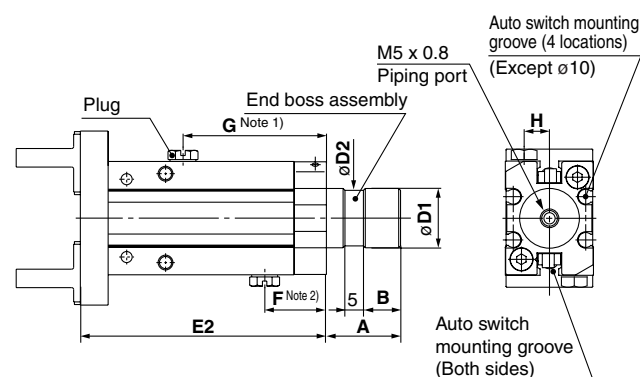
Description/ Model	Nylon tubing	Soft nylon tubing	Polyurethane tubing	Polyurethane coil tubing
Specifications	T0425	TS0425	TU0425	TCU0425B-1
Outside diameter (mm)	4	4	4	4
Max. operating pressure (MPa)	1.0	0.8	0.5	0.5
Min. bending radius (mm)	13	12	10	—
Operating temperature (°C)	-20 to 60	-20 to 60	-20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

Refer to "Best Pneumatics No. 6" regarding One-touch fittings and tubing.

Type K

	F	G	H
ø10	17	40	5.5
ø16	16.7	38.7	6.5
ø20	18.2	44.2	7.5
ø25	18.3	51.3	10

Axial Ported (with M5 port) [M]



- * Refer to the dimension table.
 * When auto switches are used, 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	E2
MHZL2-10 ^S _C □M	15	7	12f8 ^{-0.016} _{-0.043}	11	62.8
MHZL2-16 ^S _C □M	20	10	16f8 ^{-0.016} _{-0.043}	15	66.4
MHZL2-20 ^S _C □M	22	12	20f8 ^{-0.020} _{-0.053}	19	81.7
MHZL2-25 ^S _C □M	25	15	25f8 ^{-0.020} _{-0.053}	24	96.2

Other dimensions and specifications correspond to the standard type.

Type M

	F	G	H
ø10	17	40	5.5
ø16	16.7	38.7	6.5
ø20	18.2	44.2	7.5
ø25	18.3	51.3	10

Mass

Model	End boss type (Symbol)			
	E		W	K
	Double acting	Single acting		
MHZL2□-10□□	70	80	70	80
MHZL2□-16□□	170	180	170	180
MHZL2□-20□□	310	330	310	330
MHZL2□-25□□	535	580	535	580

Parallel Style Air Gripper with Dust Cover

Series *MHZJ2*

How to Order

MHZJ2-16 D - M9BW

Number of fingers

2	2 fingers
---	-----------

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
 * ø6 is only applicable with basic type.

Made to Order
 Refer to page 425 for details.

Number of auto switches

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

Auto switch

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

 * For the applicable auto switch model, refer to the table below.

Dust cover type

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

Port

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 Switch/Refer to pages 761 to 809 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			
							Electrical entry direction		0.5 (Nil)	1 (M)	3 (L)	5 (Z)	ø6	ø10	ø16	ø20	ø25					
					DC	AC	Perpendicular	In-line														
Solid state switch	—	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	M9NV	M9N	●	●	●	○	●	●	●	●	●	○	IC circuit	Relay, PLC		
				F8N			—	●	—	●	○	●	—	●	●	●	—					
				M9PV			M9P	●	●	●	○	●	●	●	●	●	○					
				F8P			—	●	—	●	○	●	—	●	●	●	—					
				M9BV			M9B	●	●	●	○	●	●	●	●	●	○					
				F8B			—	●	—	●	○	●	—	●	●	●	—					
	Diagnosis (2-color indicator)			3-wire (NPN)	5 V, 12 V		M9NWV	M9NW	●	●	●	○	●	●	●	●	●	●	○		IC circuit	
				3-wire (PNP)			M9PWV	M9PW	●	●	●	○	●	●	●	●	●	○				
				2-wire			M9BWV	M9BW	●	●	●	○	●	●	●	●	●	○				
				3-wire (NPN)			5 V, 12 V	M9NAV	M9NA	○	○	●	○	●	●	●	●	●	○			IC circuit
				3-wire (PNP)				M9PAV	M9PA	○	○	●	○	●	●	●	●	●	○			
				2-wire				12 V	M9BAV	M9BA	○	○	●	○	●	●	●	●	●			

* Lead wire length symbols: 0.5 m..... Nil (Example) M9NW
 1 m..... M (Example) M9NWM
 3 m..... L (Example) M9NWL
 5 m..... Z (Example) M9NWLZ

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

Note 1) Take note of hysteresis with 2-color indication type switches. Refer to page 438 for detailed auto switch specifications.

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.

Specifications

Fluid			Air
Operating pressure	Double acting		ø6: 0.15 to 0.7 MPa ø10: 0.2 to 0.7 MPa ø16 to ø25: 0.1 to 0.7 MPa
	Single acting	Normally open	ø6: 0.3 to 0.7 MPa ø10: 0.35 to 0.7 MPa ø16 to ø25: 0.25 to 0.7 MPa
		Normally closed	
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 761 to 809 for further information on auto switches.

Model

Action		Model	Bore size (mm)	Gripping force ^{Note 1)}		Opening/ Closing stroke (Both sides) (mm)	^{Note 2)} Mass (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 open	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 closed	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	460

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

Note 2) Values excluding mass of auto switch.

Option

●Body Option/End Boss Type

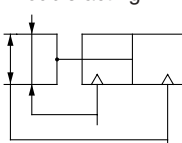
Symbol	Piping port location	Type of piping port				Applicable model	
		MHZJ2-10	MHZJ2-16	MHZJ2-20	MHZJ2-25	Double acting	Single acting
Nil	Basic type	M3 x 0.5		M5 x 0.8		●	●
E	Side ported	M3 x 0.5		M5 x 0.8		●	●
W	Axial ported	With $\phi 4$ One-touch fitting for coaxial tubing				●	—
K	Axial ported	With $\phi 4$ One-touch fitting				—	●
M	Axial ported	M5 x 0.8				—	●

* For detailed body option specifications, refer to option specifications on pages 434 and 435.

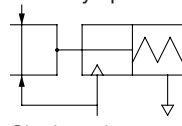


JIS Symbol

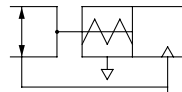
Double acting



Single acting type, Normally open



Single acting type, Normally closed



Refer to pages 436 to 440 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



Made to Order

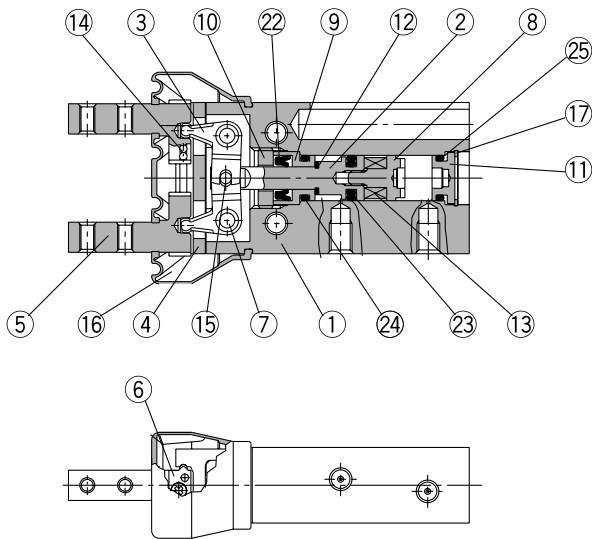
(Refer to pages 683 to 713 for details.)

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

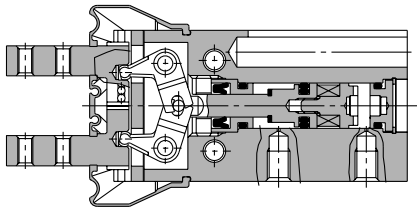
Series MHZJ2

Construction: MHZJ2-6□

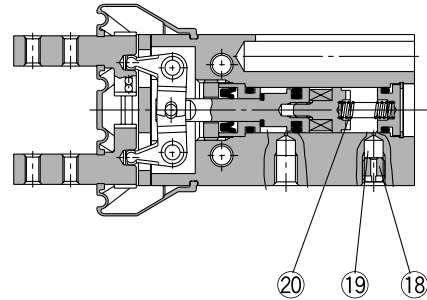
Double acting/With fingers open



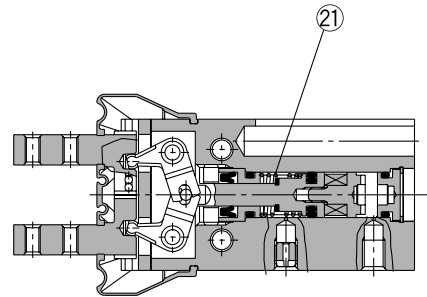
Double acting/With fingers closed



Single acting/Normally open



Single acting/Normally closed



Component Parts

No.	Description	Material	Note
1	Body	Aluminum alloy	Hard anodized
2	Piston	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
		Si	Silicon 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	

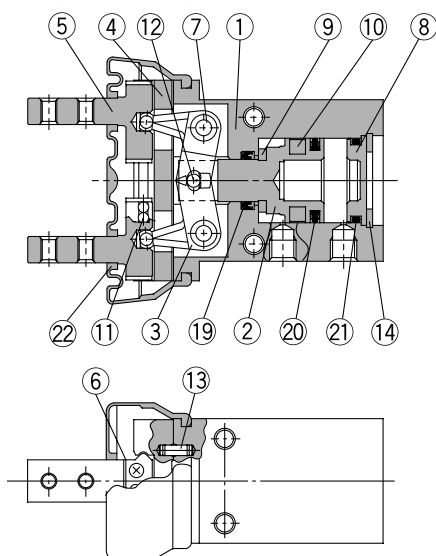
Replacement Parts

Description			MHZJ2-6	Main parts
Seal kit			Please contact SMC to replace the seal kit.	
Dust cover	Material	CR	MHZJ2-J6	⑩
		FKM	MHZJ2-J6F	
		Si	MHZJ2-J6S	
Finger assembly			Please contact SMC to replace the finger assembly.	
Piston assembly	MHZJ2-6D□		MHZJ-A0603	②⑧⑨⑩⑫⑬⑮⑲⑳㉓㉔
	MHZJ2-6S□			
	MHZJ2-6C□		MHZJ-A0603C	②⑧⑨⑩⑫⑬⑮㉑㉒㉓㉔

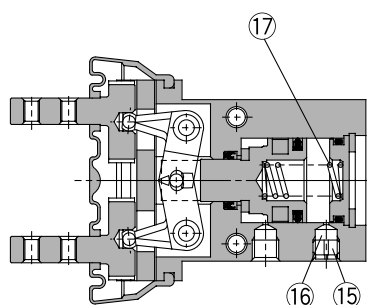
Replacement part/Grease pack part no.: GR-S-005 (5 g)

Construction: MHZJ2-10□ to 25□

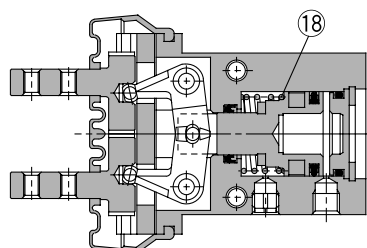
Double acting/With fingers open



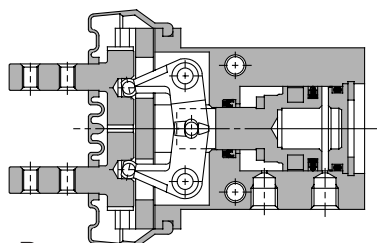
Single acting/Normally open



Single acting/Normally closed



Double acting/With fingers closed



Component Parts

No.	Description	Material	Note
1	Body	Aluminum alloy	Hard anodized
2	Piston	ø10, ø16: Stainless steel ø20, ø25: Aluminum alloy	ø20, ø25: Hard anodized
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	Cap	Aluminum alloy	Clear anodized
9	Bumper	Urethane rubber	
10	Rubber magnet	Synthetic rubber	
11	Steel balls	High carbon chrome bearing steel	
12	Needle roller	High carbon chrome bearing steel	

No.	Description	Material	Note
13	Parallel pin	Stainless steel	
14	Type C retaining ring	Carbon steel	Nickel plated
15	Exhaust plug A	Brass	Electroless nickel plated
16	Exhaust filter A	Polyvinyl formal	
17	N.O. spring	Stainless steel spring wire	
18	N.C. spring	Stainless steel spring wire	
19	Rod seal	NBR	
20	Piston seal	NBR	
21	Gasket	NBR	
22	Dust cover	CR	Chloroprene rubber
		FKM	Fluororubber
		Si	Silicon rubber

Replacement Parts

Description		MHZJ2-10	MHZJ2-16	MHZJ2-20	MHZJ2-25	Main parts
Seal kit		MHZJ10-PS	MHZJ16-PS	MHZJ20-PS	MHZJ25-PS	⑬⑭⑮⑯
Dust cover	Material	CR	MHZJ2-J10	MHZJ2-J16	MHZJ2-J20	MHZJ2-J25
	FKM	MHZJ2-J10F	MHZJ2-J16F	MHZJ2-J20F	MHZJ2-J25F	⑰
	Si	MHZJ2-J10S	MHZJ2-J16S	MHZJ2-J20S	MHZJ2-J25S	⑱⑲⑲⑲⑲
Finger assembly		MHZJ-A1002	MHZJ-A1602	MHZJ-A2002	MHZJ-A2502	④⑤⑥⑦⑧⑨ Mounting thread
Piston assembly		MHZJ-A1003	MHZJ-A1603	MHZJ-A2003	MHZJ-A2503	⑩⑪⑫⑬
End boss assembly	MHZJ2-□□□□W	MHZ-A1007	MHZ-A1607	MHZ-A2007	MHZ-A2507	Main body of adaptor Mounting screw for adaptor Seal kit
	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	

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

* Material of dust cover
CR = Chloroprene rubber, FKM = Fluororubber, Si = Silicon rubber

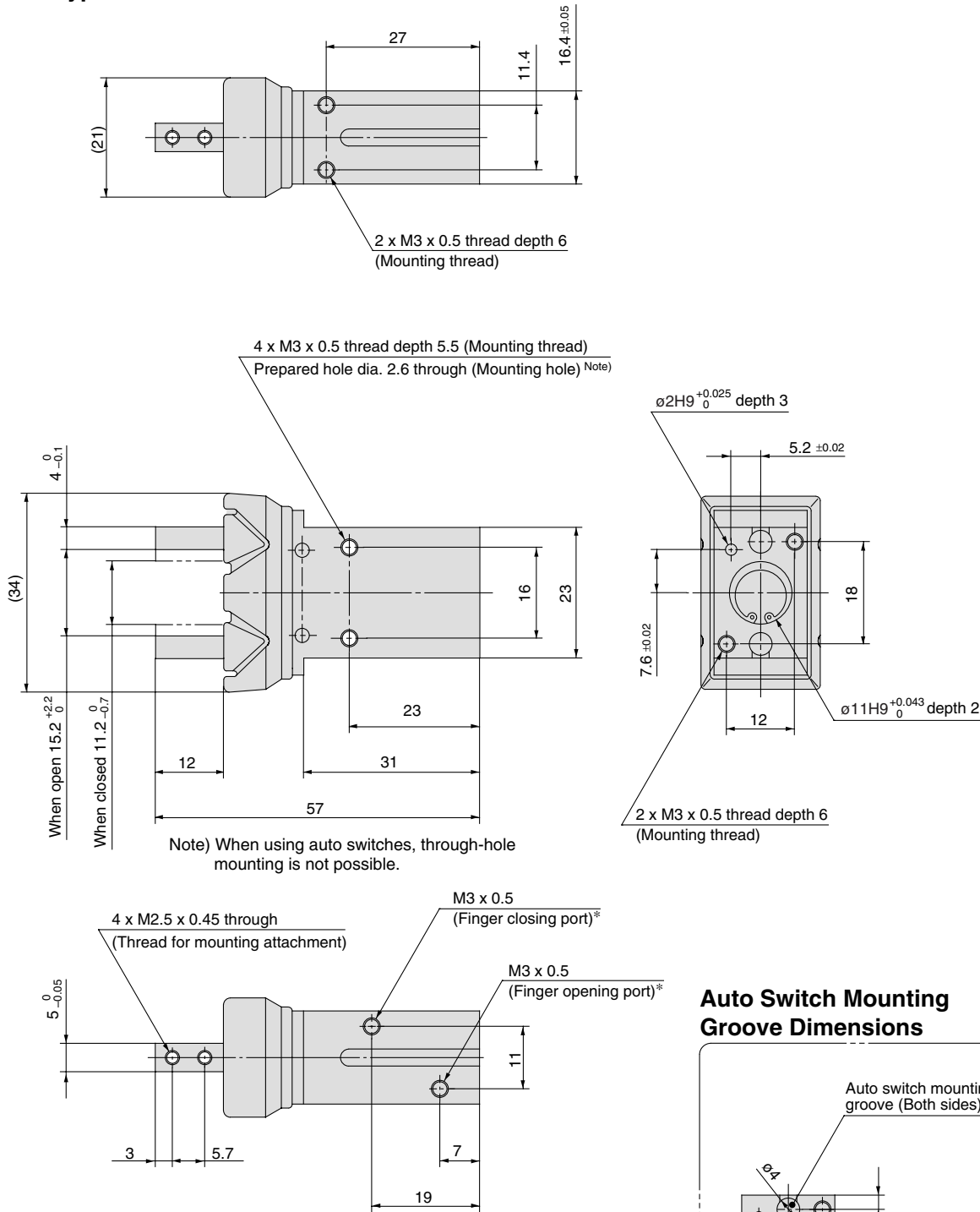
* End boss type

W = One-touching 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-005 (5 g)

MHZJ2-10□ 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□

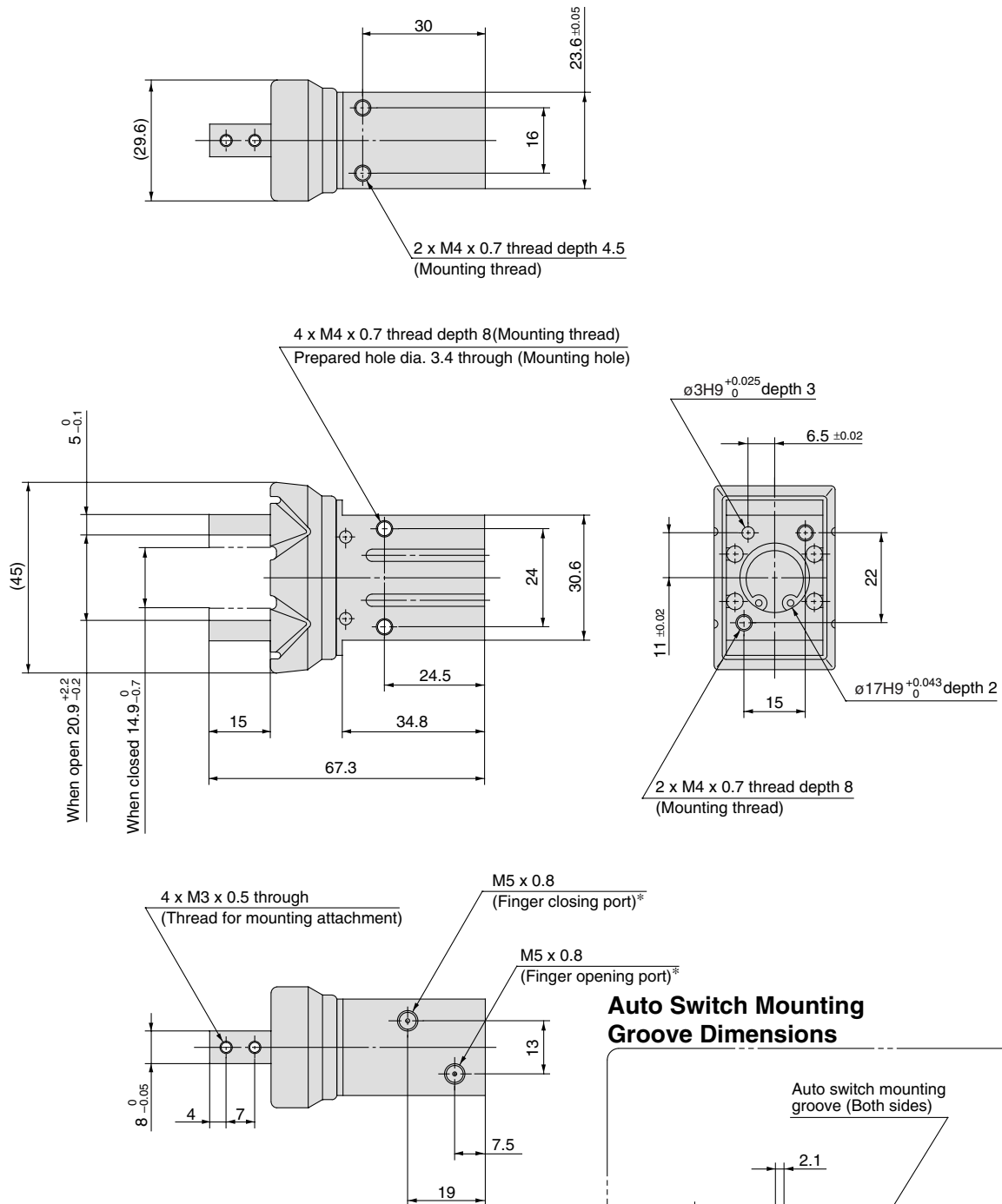
MRHQ

MA

D-□

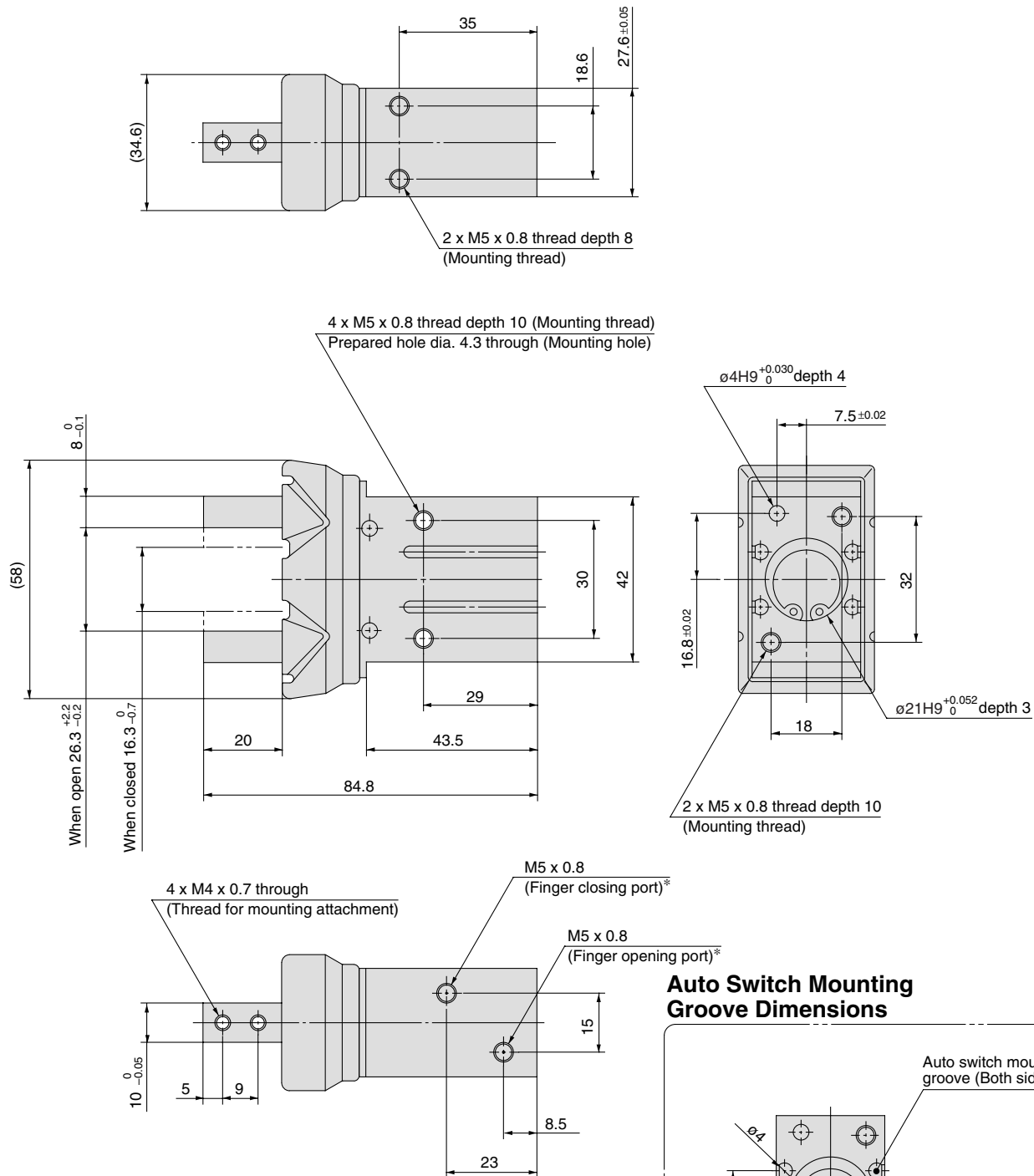
Dimensions

MHZJ2-16 ☐ **Double acting/Single acting**
Basic type



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

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□

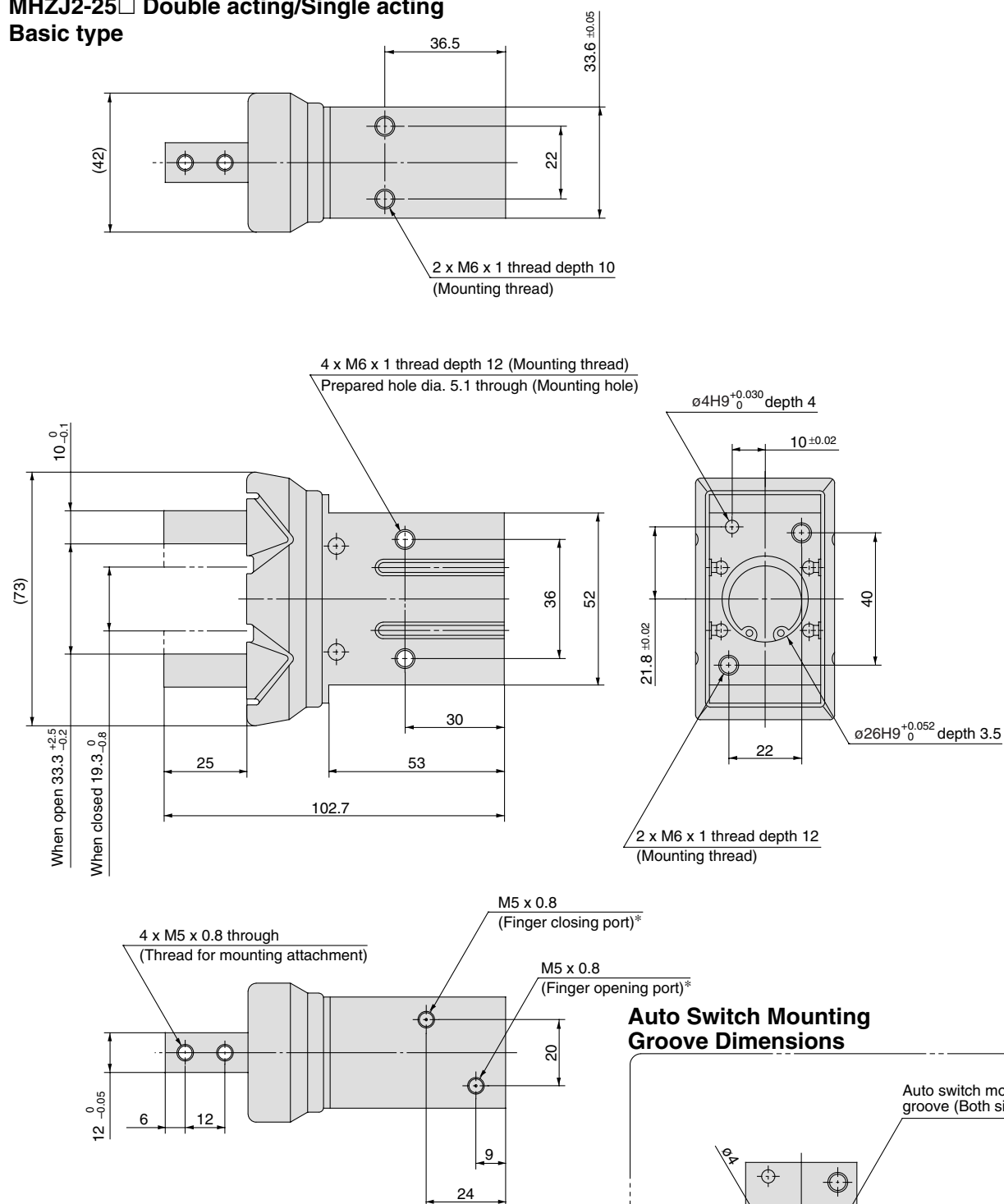
MRHQ

MA

D-□

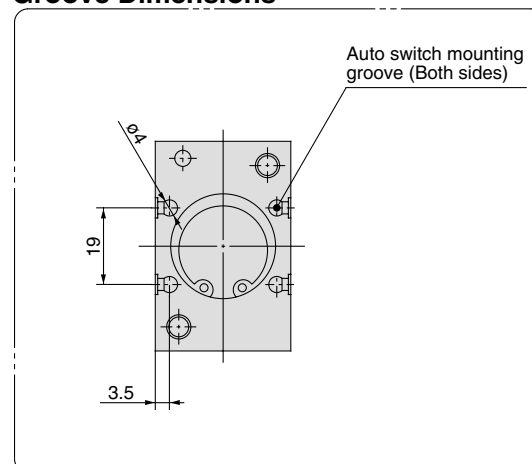
Dimensions

MHZJ2-25 □ Double acting/Single acting Basic type



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

Auto Switch Mounting Groove Dimensions



MHZ

MHF

MHL

MHR

MHK

MHS

MHC

MHT

MHY

MHW

-X□

MRHQ

MA

D-□

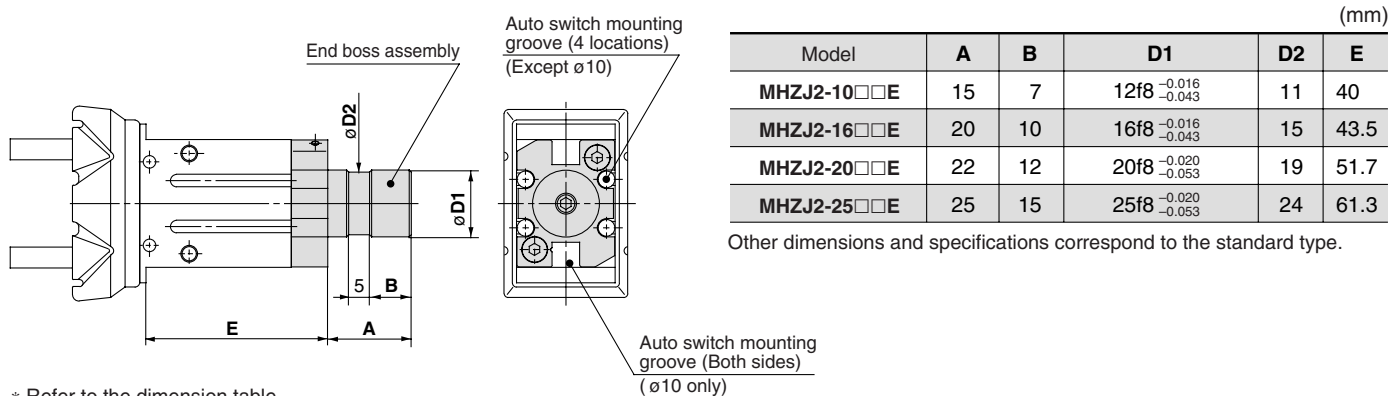
With Dust Cover/Series MHZJ2

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				—	●	●

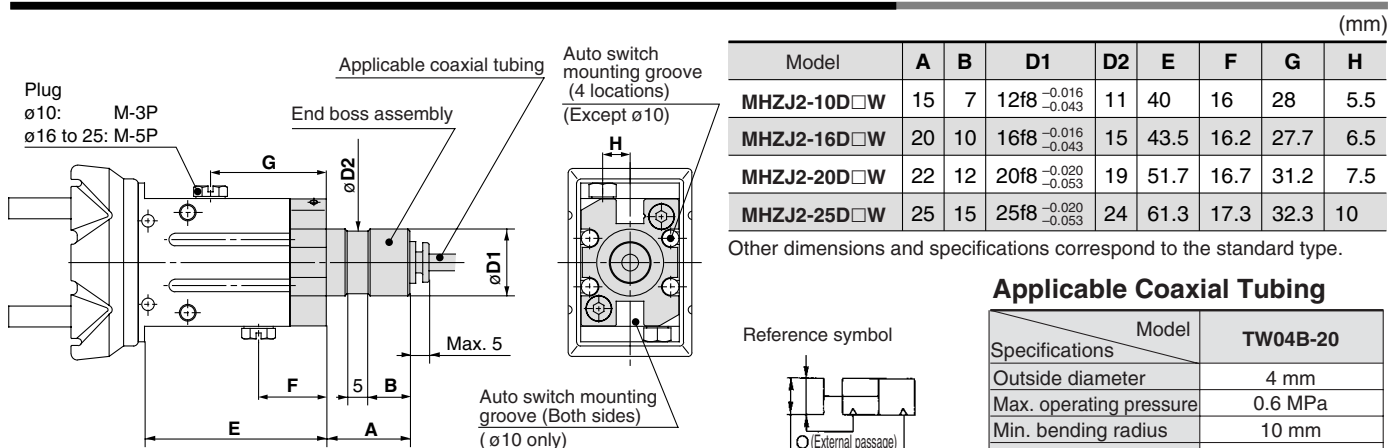
Side Ported [E]



* Refer to the dimension table.

* When auto switches are used on ø10, side mounting with through-holes is not possible.

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



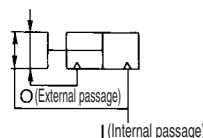
* Refer to the dimension table.

* When auto switches are used on ø10, side mounting with through-holes is not possible.

Applicable Coaxial Tubing

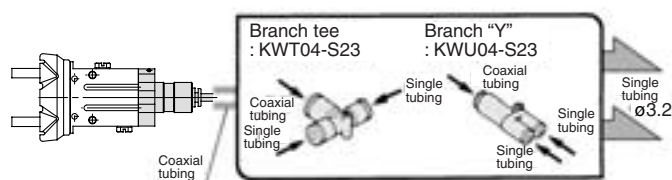
Specifications	Model TW04B-20
Outside diameter	4 mm
Max. operating pressure	0.6 MPa
Min. bending radius	10 mm
Operating temperature	-20 to 60°C
Material	Nylon 12

Reference symbol



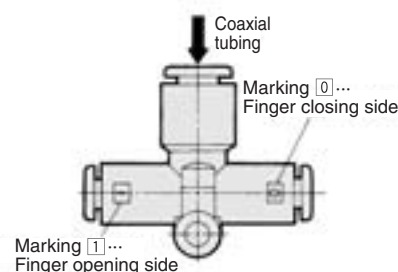
Changing from Coaxial to Single Tubing

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.

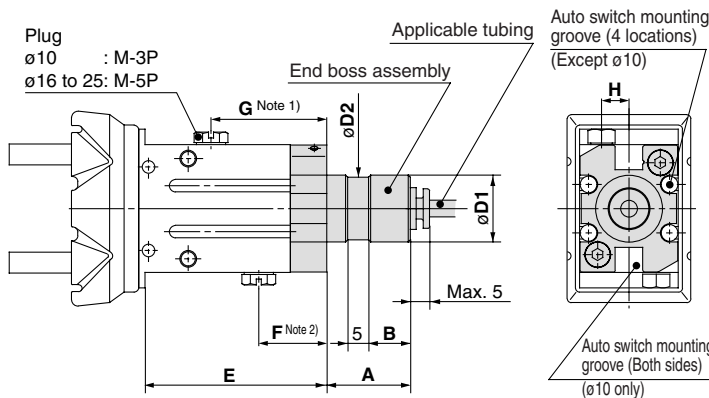


Branch Tee, Different Diameter Tee, Branch "Y", Male Run Tee

Please contact SMC for the coaxial fittings and tubing.



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 □K	15	7	12f8 ^{-0.016} _{-0.043}	11	40	16	28	5.5
MHZJ2-16 ^S □K	20	10	16f8 ^{-0.016} _{-0.043}	15	43.5	16.2	27.7	6.5
MHZJ2-20 ^S □K	22	12	20f8 ^{-0.020} _{-0.053}	19	51.7	16.7	31.2	7.5
MHZJ2-25 ^S □K	25	15	25f8 ^{-0.020} _{-0.053}	24	61.3	17.3	32.3	10

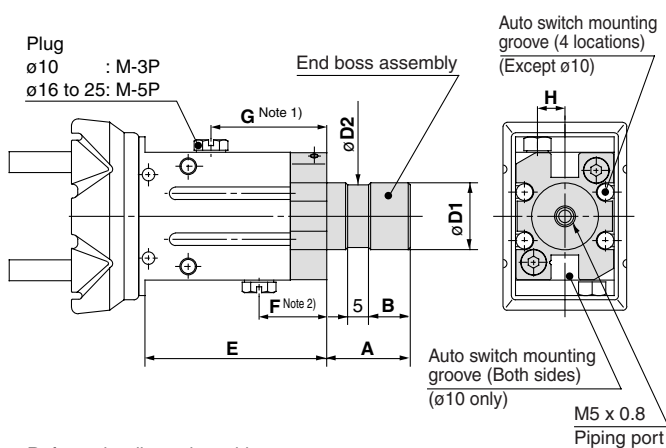
Other dimensions and specifications correspond to the standard type.

Applicable Tubing

Description/Model	Nylon tubing	Soft nylon tubing	Polyurethane tubing	Polyurethane coil tubing
Specifications	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 "Best Pneumatics No. 6" 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 □M	15	7	12f8 ^{-0.016} _{-0.043}	11	40	16	28	5.5
MHZJ2-16 ^S □M	20	10	16f8 ^{-0.016} _{-0.043}	15	43.5	16.2	27.7	6.5
MHZJ2-20 ^S □M	22	12	20f8 ^{-0.020} _{-0.053}	19	51.7	16.7	31.2	7.5
MHZJ2-25 ^S □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.

Mass

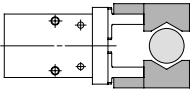
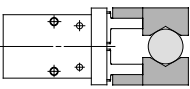
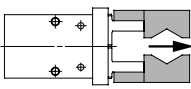
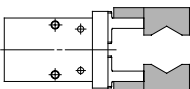
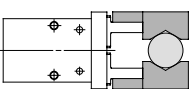
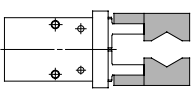
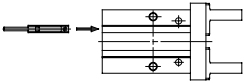
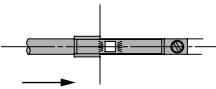
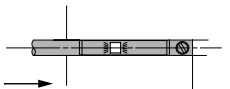
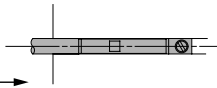
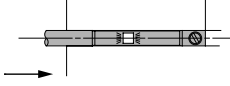
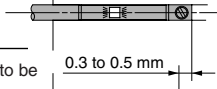
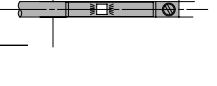
Model	End boss type (Symbol)			
	E	W	K	M
MHZJ2-10□□	70	70	70	70
MHZJ2-16□□	165	165	165	165
MHZJ2-20□□	290	290	290	290
MHZJ2-25□□	525	525	525	525

Series MHZ2/MHZJ2

Auto Switch Installation Examples and Mounting Positions

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

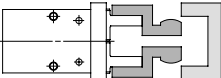
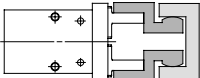
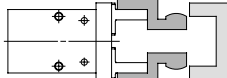
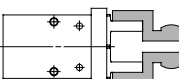
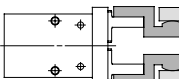
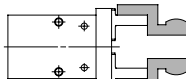
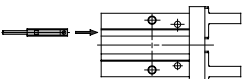
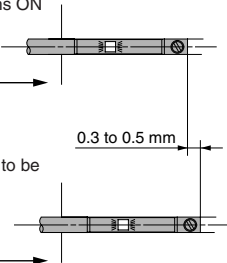
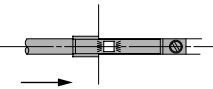
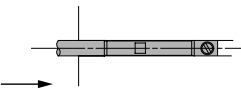
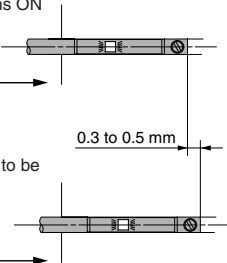
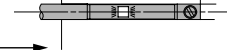
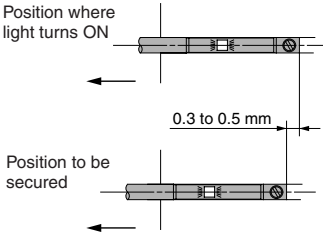
1) Detection when Gripping Exterior of Workpiece

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 illuminating)
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.	A	●	—
		B	—	●
		C	●	—
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. 		
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 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.

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

2) Detection when Gripping Interior of Workpiece

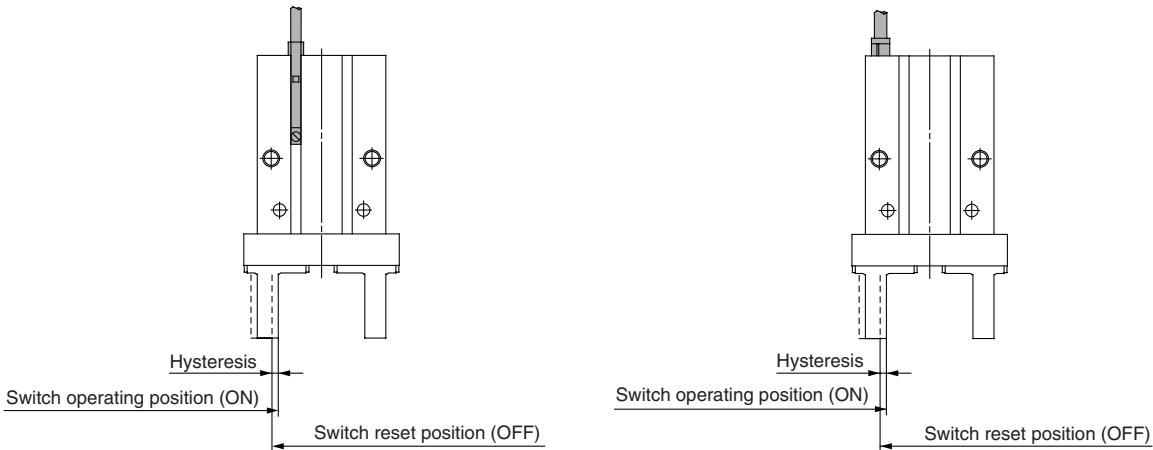
Detection example	1. Confirmation of fingers in reset position	2. Confirmation of workpiece held	3. Confirmation of workpiece released
Position to be detected	Position of fingers fully closed 	Position when gripping 	Position of fingers fully opened 
Operation of auto switch	Auto switch turned ON when 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 illuminating)
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		
	Pattern B		
	Pattern 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. 	Step 4) Slide the auto switch further in the direction of the arrow until the indicator light goes out. 
	Position where light turns ON  0.3 to 0.5 mm 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. 	

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.

Series MHZ2, MHZJ2

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)L
MHZ2-6□	No setting	0.5	0.5
MHZ2-10□, MHZL2-10□	0.5	0.5 Note)	0.5 Note)
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)L on MHZ2-10□ and MHZL2-10, mounting brackets (BMG2-012) are required.

Auto Switch Mounting

Applicable models:

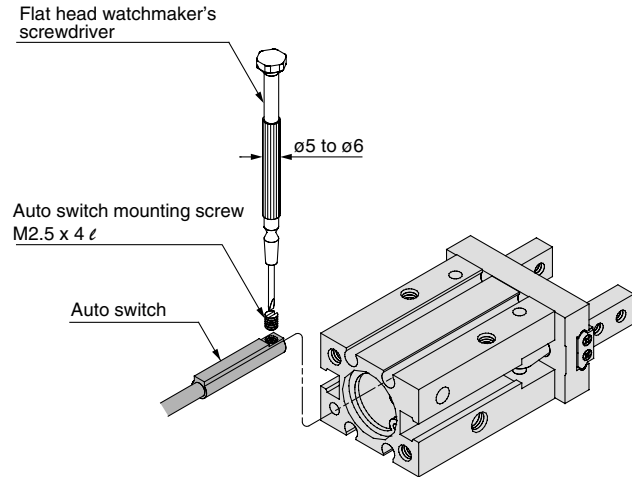
MHZ2-6

Series MHZJ2

Round groove of Series MHZ2

Round groove of Series MHZL2

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.



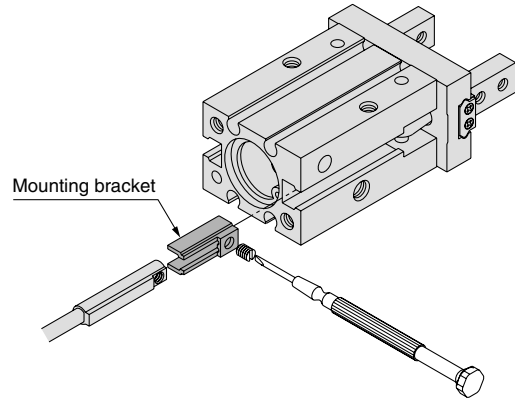
Note) Use a watchmaker's screwdriver with a grip diameter of 5 to 6 mm to tighten the auto switch mounting screw.
The tightening torque should be 0.05 to 0.15 N·m.

Applicable models:

Square groove on the side of Series MHZ2

Square groove on the side of Series MHZL2

- (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.

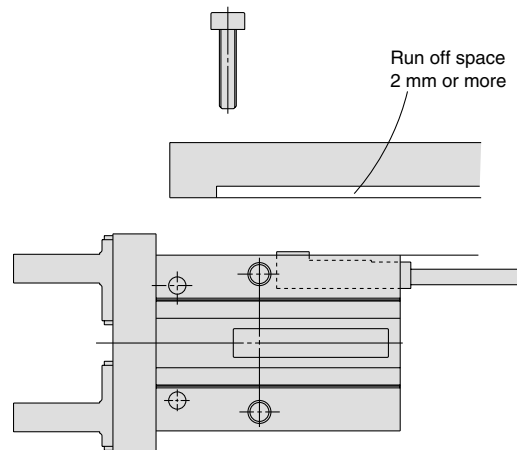
Auto switch part no.	Auto switch mounting bracket part no.
D-M9□(V)	BMG2-012
D-M9□W(V)	
D-F8□	
D-M9□A(V)L	

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□ 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-□

Series MHZ2, MHZJ2

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							
Auto switch model							
Finger position							
Air gripper model							
		D-Y59□ D-Y7P D-Y7□W	D-M9□ D-M9□W	D-M9□AL	D-Y69□ D-Y7PV D-Y7□WV	D-M9□V D-M9□WV	D-M9□AVL
Standard	MHZ2-6□	Open	No setting	11	No setting	9	11
		Close		13		11	13
	MHZ2-10□	Open	1	3.5 ^{Note 3)}	—	1.5 ^{Note 3)}	3.5 ^{Note 3)}
		Close	7.5	6.5 ^{Note 3)}		4.5 ^{Note 3)}	6.5 ^{Note 3)}
	MHZ2-16□	Open	—	1	—	—	—
		Close	6	4		2	4
	MHZ2-20□	Open	—	—	—	—	—
		Close	4	2		—	—
	MHZ2-25□	Open	—	—	—	—	—
		Close	1	—		—	—
	MHZ2-32□	Open	—	—	—	—	—
		Close	3	—		—	—
	MHZ2-40□	Open	—	—	—	—	—
		Close	2	—		—	—
With dust cover	MHZJ2-6□	Open	No setting	11	No setting	9	11
		Close		13		11	13
	MHZJ2-10□	Open		5		3	5
		Close		7		5	7
	MHZJ2-16□	Open		2		—	—
		Close		5		3	5
	MHZJ2-20□	Open		—		—	—
		Close		3		1	3
	MHZJ2-25□	Open		—		—	—
		Close		2		—	—
Long stroke	Double acting	MHZL2-10D	Open	0.5	1.5 ^{Note 3)}	3.5 ^{Note 3)}	—
			Close	8.5	8 ^{Note 3)}	10 ^{Note 3)}	7.5
		MHZL2-16D	Open	—	—	—	—
			Close	8	6	8	7
		MHZL2-20D	Open	—	—	—	—
			Close	7	5	7	6
	Normally open	MHZL2-25D	Open	—	—	—	—
			Close	5.5	3.5	5.5	4.5
		MHZL2-10S	Open	—	—	—	—
			Close	—	—	—	—
		MHZL2-16S	Open	—	—	—	—
			Close	3	1	3	2
	Normally closed	MHZL2-20S	Open	—	—	—	—
			Close	1	—	—	—
		MHZL2-25S	Open	—	—	—	—
			Close	—	—	—	—
		MHZL2-10C	Open	—	—	—	—
			Close	5.5	5 ^{Note 3)}	7 ^{Note 3)}	4.5
	Normally closed	MHZL2-16C	Open	—	—	—	—
			Close	5.5	3.5	5.5	4.5
		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)L on MHZ2-10□ and MHZL2-10, mounting brackets (BMG2-012) are required.



Series MHZ Specific Product Precautions

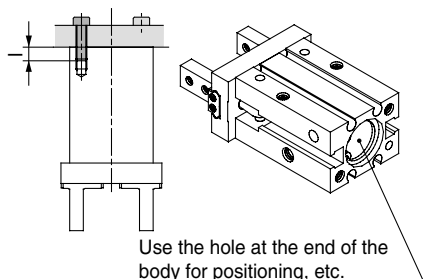
Be sure to read before handling.

Mounting Air Grippers/Series MHZ□2

Possible to mount from 3 directions.

How to mount air grippers

Axial mounting (Body tapped)

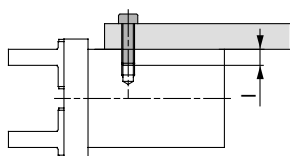


Model	Applicable bolts	Max. tightening torque (N·m)	Max. screw-in depth (ℓ mm)
MHZ□2-6 ^(Note)	M2 x 0.4	0.15	4.5
MHZ□2-10	M3 x 0.5	0.88	6
MHZ□2-16	M4 x 0.7	2.1	8
MHZ□2-20	M5 x 0.8	4.3	10
MHZ□2-25	M6 x 1	7.3	12
MHZ□2-32	M6 x 1	7.9	13
MHZ□2-40	M8 x 1.25	17.7	17

(Note) Axial mounting type is not available for MHZ2-6 and MHZJ2-6.

Model	Hole diameter (mm)	Hole depth (mm)
MHZ□2- 6	ø7H8 ^{+0.022} ₀	1.5
MHZ□2-10	ø11H9 ^{+0.043} ₀	2
MHZ□2-16	ø17H9 ^{+0.043} ₀	2
MHZ□2-20	ø21H9 ^{+0.052} ₀	3
MHZ□2-25	ø26H9 ^{+0.052} ₀	3.5
MHZ□2-32	ø34H9 ^{+0.062} ₀	4
MHZ□2-40	ø42H9 ^{+0.062} ₀	4

Perpendicular mounting (Body tapping)



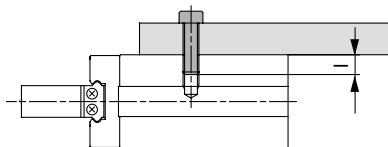
Model	Applicable bolts	Max. tightening torque (N·m)	Max. screw-in depth (ℓ mm)
MHZ□2-6 ^(Note)	M2 x 0.4	0.15	4
MHZ□2-10	M3 x 0.5	0.9	6
MHZ□2-16	M4 x 0.7	1.6	4.5
MHZ□2-20	M5 x 0.8	3.3	8
MHZ□2-25	M6 x 1	5.9	10
MHZ□2-32	M6 x 1	5.9	10
MHZ□2-40	M8 x 1.25	13.7	13

(Note) Except MHZ2-6 and MHZJ2-6.

How to mount air grippers

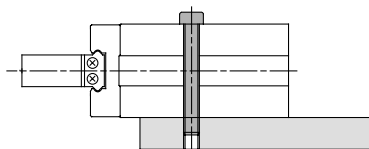
Lateral mounting (Body tapped and through-hole)

●Body tapped



Model	Applicable bolts	Max. tightening torque (N·m)	Max. screw-in depth (ℓ mm)
MHZ□2- 6	M3 x 0.5	0.88	10
MHZ□2-10	M3 x 0.5	0.69	5
MHZ□2-16	M4 x 0.7	2.1	8
MHZ□2-20	M5 x 0.8	4.3	10
MHZ□2-25	M6 x 1	7.3	12
MHZ□2-32	M6 x 1	7.9	13
MHZ□2-40	M8 x 1.25	17.7	16

●Body through-holes



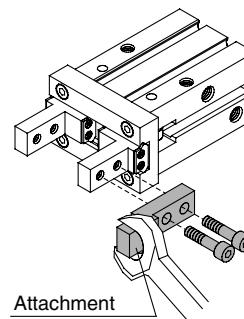
Model	Applicable bolts	Max. tightening torque (N·m)
MHZ□2- 6	M2.5 x 0.45	0.49
MHZ□2-10	M2.5 x 0.45	0.49
MHZ□2-16	M3 x 0.5	0.88
MHZ□2-20	M4 x 0.7	2.1
MHZ□2-25	M5 x 0.8	4.3
MHZ□2-32	M5 x 0.8	4.3
MHZ□2-40	M6 x 1	7.3

(Note) Use body tapped for D-Y59, D-Y69, D-Y7P with auto switch types. Make sure that the bolt's screw-in depth is less than those shown in the table below to prevent the tip of the bolt from pressing the switch body.

Model	Max. screw-in depth (ℓ mm)
MHZ□2- 6	—
MHZ□2-10	5
MHZ□2-16	8
MHZ□2-20	10
MHZ□2-25	12
MHZ□2-32	13
MHZ□2-40	16

How to mount the attachment to the finger

The attachment must be mounted on fingers using bolts such as finger mounting female threads, etc., which should be tightened with the tightening torque in the table below.



Attachment

Model	Applicable bolts	Max. tightening torque (N·m)
MHZ□2- 6	M2 x 0.4	0.15
MHZ□2-10	M2.5 x 0.45	0.31
MHZ□2-16	M3 x 0.5	0.59
MHZ□2-20	M4 x 0.7	1.4
MHZ□2-25	M5 x 0.8	2.8
MHZ□2-32	M6 x 1	4.9
MHZ□2-40	M8 x 1.25	11.8

Operating Environment

⚠ Caution

Use caution for the anti-corrosiveness of linear guide section.

Martensitic stainless steel is used for the finger guide. But, use caution that anti-corrosiveness is inferior to the austenitic stainless steel. Especially, in an environment where waterdrops are adhered by condensation, etc., rust might be generated.