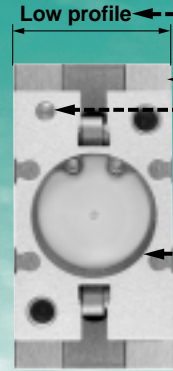
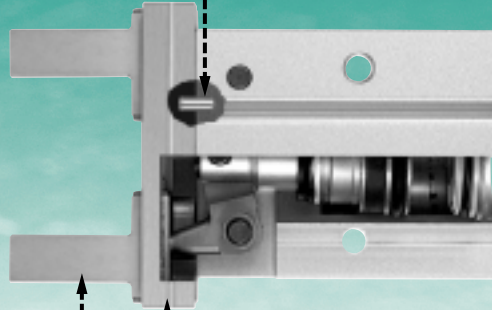


# Integral linear guide used for high

- **Linear guide slippage prevention**  
Guide slippage is prevented by two positioning dowel pins.

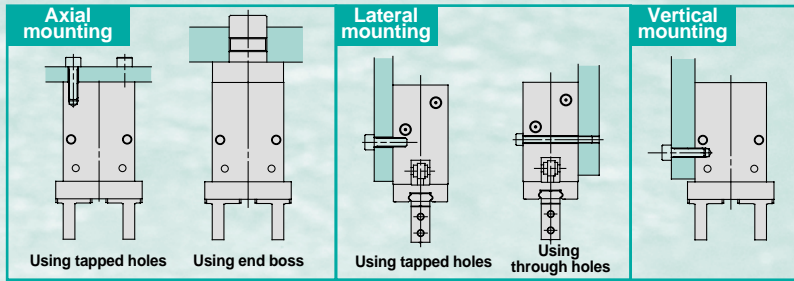
• **Repeatability:  $\pm 0.01$  mm**



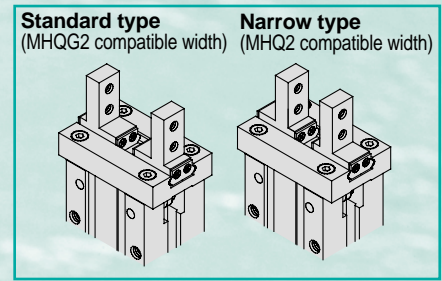
- **Martensitic stainless steel**

## High degree of mounting flexibility

Can be mounted five ways from three directions.



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



## Series Variations

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

Basic type	Body options						Finger options			
	Side ported	Side ported	With One-touch fitting for coaxial tube	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

### 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)	●	●	●	●	●	●	●	●	●	●
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)	●	●	●	●	●	●	●	●	●	●		

# rigidity and high precision

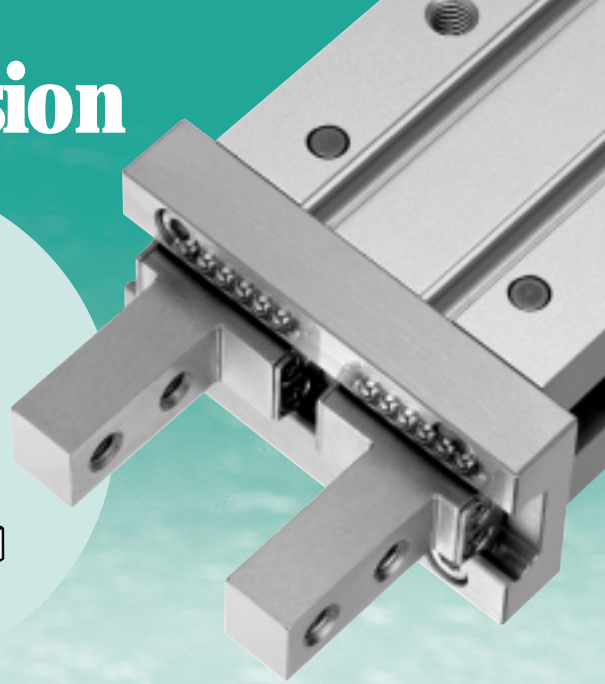
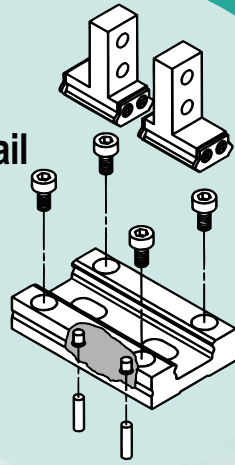
Body thickness tolerance:  $\pm 0.05\text{mm}$

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 2mm greater than conventional types

## Integral guide rail construction



Compact Series  
MHZA2-6/MHZA2-6

Standard Type  
MHZ2

Long Stroke  
MHZL2

With Dust Cover  
MHZJ2

Auto Switches

Order Made

Model Selection

Precautions

**New**

## Accommodates diverse work piece diameters with a single unit

- Nearly double the standard stroke
- Long strokes are also compact and light weight

Series	Opening/Closing stroke mm (Open — Closed)	Weight 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.

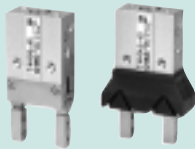
## Long strokes MHZL2



## A wide variety of types and broad size variations

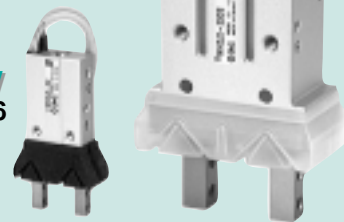
Compact series (without auto switch)

**New**  
ø6



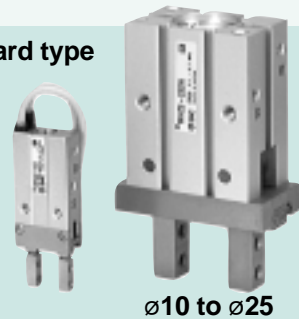
With dust cover  
ø10 to ø25

**New**  
ø6



Standard type

**New**  
ø6



ø10 to ø25

**New**  
ø32, ø40

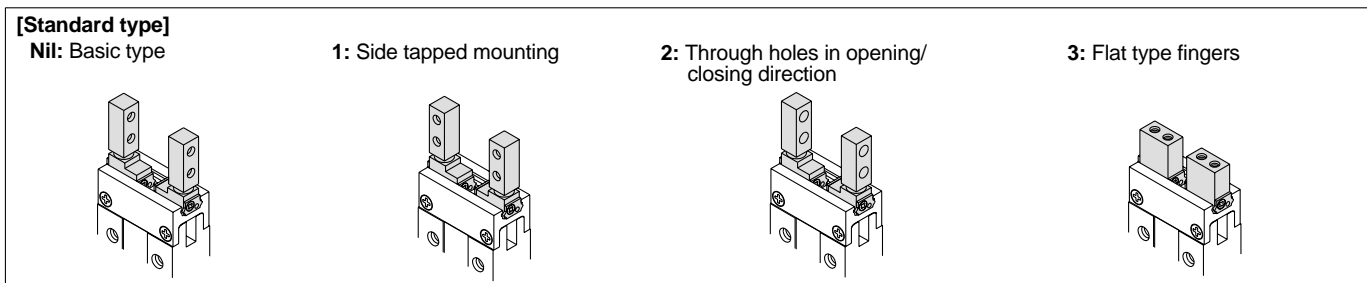
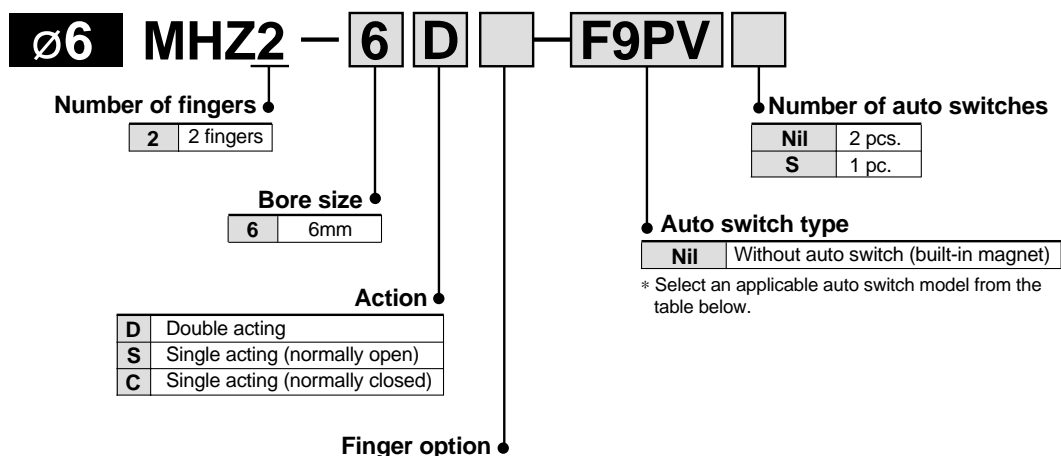


**New**  
Long stroke  
ø10 to ø25



# Standard Type Series MHZ2

## How to Order



Applicable auto switches/\* Refer to pages 48 through 60 for detailed auto switch specifications.

Type	Special function	Electrical entry	Indicator light	Wiring (output)	Load voltage		Auto switch part no.		Lead wire length (m)*				Applicable load		
					DC	AC	Electrical entry direction		0.5 (Nil)	3 (L)	5 (Z)	Flexible lead wire (-61)			
							Perpendicular	In-line							
Solid state switch	—	Grommet	Yes	3 wire (NPN)	24V	12V	—	F9NV	F9N	●	●	—	○	—	Relay, PLC
				3 wire (PNP)				F8N	—	●	●	○	○		
				2 wire				F9PV	F9P	●	●	—	○		
				F8P				—	●	●	○	○			
				F9BV				F9B	●	●	—	○			
F8B	—	●	●	○	○										

\* Lead wire length symbols: 0.5m ..... Nil (Example) F9N  
3m ..... L (Example) F9NL  
5m ..... Z (Example) F9NZ

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

Note 1) When using a D-F8□ switch, mount it at a distance of 10mm or more from magnetic substances such as iron, etc.

Note 2) Add "-61" at the end of the part number for the flexible lead wire.

(Examples)

When ordering with an air gripper

MHZ□ 2-16D-F9NVS-61

● Flexible lead wire

When ordering auto switches only

D-F9PL-61

● Flexible lead wire

## How to Order

**ø10 to ø25 MHZ2 - 16 D - - - - F9PV - -**

**Number of fingers**

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

**Bore size**

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

**Action**

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

**Number of auto switches**

Nil	2 pcs.
S	1 pc.

**Auto switch type**

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

\* Select an auto switch model from the table below.

**Finger position/Option**

**Body option**

**Standard type**  
[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 order made specifications on page 63.

**Narrow type**  
[MHQ2 compatible type]  
N: Basic type

N1: Side tapped mounting

N2: Through holes in opening/closing direction

**Nil: Basic type**

**E: End boss type**  
Side ported (double acting/single acting)

**W: End boss type**  
Axial port with ø4  
One-touch fitting for coaxial tubing (double acting)

**K: End boss type**  
Axial port with ø4  
One-touch fitting (single acting)

**M: End boss type**  
Axial M5 port (single acting)

**Applicable auto switches**/\* Refer to pages 48 through 60 for detailed auto switch specifications.

Type	Special function	Electrical entry	Indicator light	Wiring (output)	Load voltage		Auto switch part no.		Lead wire length (m)*			Note 2) Flexible lead wire (-61)	Applicable load	Applicable model				
					DC	AC	Electrical entry direction	In-line	0.5 (Nil)	3 (L)	5 (Z)			ø10	ø16	ø20	ø25	
Solid state auto switch	—	Grommet	Yes	3 wire (NPN)	24V	—	Y69A	Y59A	●	●	○	Standard	IC circuit	●	●	●	●	
							F9NV	F9N	●	●	—	○		—	●	●	●	
				F8N	—	●	●	○	○	—	●	●		●				
				Y7PV	Y7P	●	●	○	Standard	Relay, PLC	●	●		●	●			
				F9PV	F9P	●	●	—	○		—	●		●	●			
				F8P	—	●	●	○	○		—	●		●	●			
	Y69B	Y59B	●	●	○	○	—	●	●		●							
	F9BV	F9B	●	●	—	○	—	●	●		●							
	F8B	—	●	●	○	○	—	●	●		●							
	Diagnostic indication (2 color indicator)	—	Grommet	Yes	3 wire (NPN)	24V	—	Y7NWV	Y7NW	●	●	○	Standard	IC circuit	—	—	●	●
								F9NWV	F9NW	●	●	○	○		—	—	—	—
					Y7PWV	Y7PW	●	●	○	Standard	IC circuit	—	—		●	●		
F9PWV					F9PW	●	●	○	○	—		—	—		—			
Y7BWV					Y7BW	●	●	○	Standard	—		—	—		●	●		
F9BWV					F9BW	●	●	○	○			—	—		—	—		

\* Lead wire length symbols: 0.5m ..... Nil (Example) F9N  
3m ..... L (Example) F9NL  
5m ..... Z (Example) Y59AZ

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

Note 1) Use caution regarding hysteresis in the 2 color indicator types. When using this type, refer to "Auto Switch Hysteresis" on page 56.

Note 3) Through hole mounting is not possible when using auto switch types D-Y59, D-Y69, or D-Y7.

Note 2) Add "-61" at the end of the part number for the flexible lead wire.

(Examples)

When ordering with an air gripper

MHZ □2-16D-F9NVS-□61

Flexible lead wire ●

When ordering auto switches only

D-F9PL-□61

Flexible lead wire ●

# Series MHZ2

ø6



ø10 to ø25

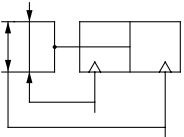


ø32, ø40

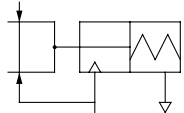


## Symbols:

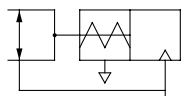
### Double acting type



### Single acting type, normally open



### Single acting type, normally closed



## Specifications

Fluid		Air	
Operating pressure	Double acting	ø6: 0.15 to 0.7MPa ø10: 0.2 to 0.7MPa ø16 to ø40: 0.1 to 0.7MPa	
	Single acting	Normally open	ø6: 0.3 to 0.7MPa ø10: 0.35 to 0.7MPa ø16 to ø40: 0.25 to 0.7MPa
		Normally closed	ø6: 0.3 to 0.7MPa ø10: 0.35 to 0.7MPa ø16 to ø40: 0.25 to 0.7MPa
Ambient and fluid temperature		-10 to 60°C	
Repeatability		ø6 to ø25: ±0.01mm ø32, ø40: ±0.02mm	
Maximum operating frequency		ø6 to ø25: 180c.p.m. ø32, ø40: 60c.p.m.	
Lubrication		Non-lube	
Action		Double acting, Single acting	
Auto switch (option) <sup>Note</sup>		Solid state switch (3 wire, 2 wire)	

Note) Refer to pages 48 through 60 for details regarding auto switch specifications.

## Models

Action	Model	Bore size (mm)	Gripping force <sup>Note 1)</sup>		Opening/Closing stroke (both sides) mm	Weight <sup>Note 2)</sup> g	
			Gripping force per finger Effective value N				
			External gripping force	Internal gripping force			
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
		MHZ2-25D(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 0.5MPa, gripping point L = 20mm, at center of stroke.

Note 2) Values excluding weight of auto switch.

## Options

### • Body options/End boss type

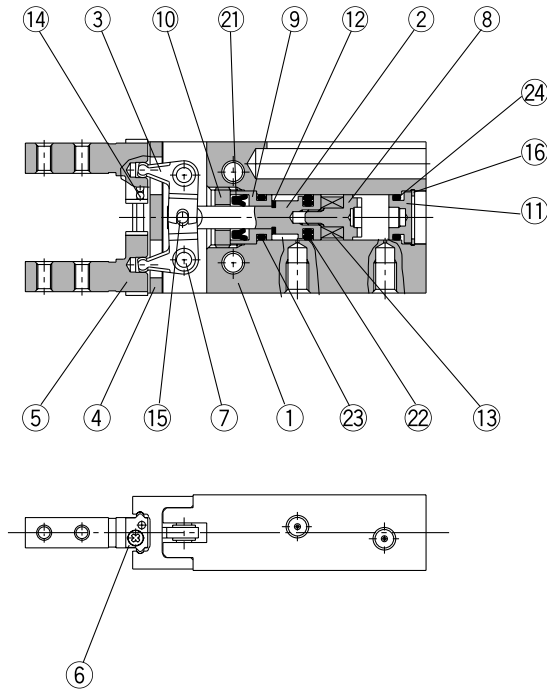
Symbol	Piping port position	Type of piping port							Applicable model	
		MHZ2-6	MHZ2-10	MHZ2-16	MHZ2-20	MHZ2-25	MHZ2-32	MHZ2-40	Double acting	Single acting
Nil	Basic type	M3 x 0.5	M5 x 0.8					—	●	●
E	Side ported	—	M3 x 0.5	M5 x 0.8			—	●	●	
W	Axial port	—	With ø4 One-touch fitting for coaxial tube				—	●	—	
K	Axial port	—	With ø4 One-touch fitting				—	—	●	
M	Axial port	—	M5 x 0.8				—	—	●	

\* For detailed body option specifications, refer to option specifications on page 25.

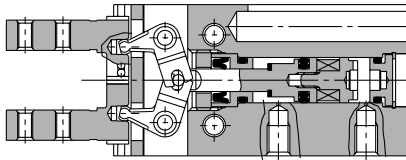
# Series MHZ2

## Construction/MHZ2-6□

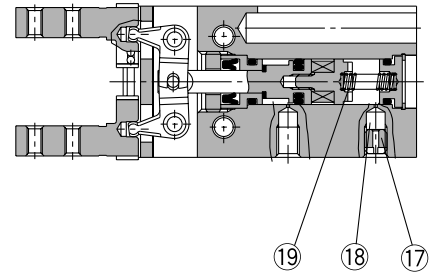
### Double acting/with fingers open



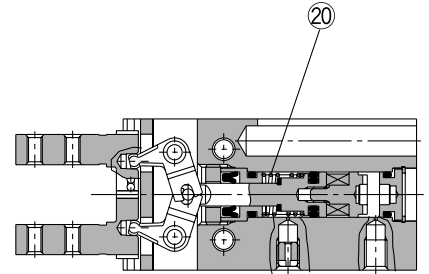
### Double acting/with fingers closed



### Single acting/normally open



### Single acting/normally closed



#### Parts list

No.	Description	Material	Note
1	<b>Body</b>	Aluminum alloy	Hard anodized
2	<b>Piston</b>	Stainless steel	
3	<b>Lever</b>	Stainless steel	Heat treated
4	<b>Guide</b>	Stainless steel	Heat treated
5	<b>Finger</b>	Stainless steel	Heat treated
6	<b>Roller stopper</b>	Stainless steel	
7	<b>Lever shaft</b>	Stainless steel	Nitrided
8	<b>Magnet holder</b>	Stainless steel	
9	<b>Holder</b>	Brass	Electroless nickel plated
10	<b>Holder lock</b>	Stainless steel	
11	<b>Cap</b>	Aluminum alloy	Clear anodized
12	<b>Bumper</b>	Urethane rubber	
13	<b>Magnet</b>	Rare earth magnet	Nickel plated

#### Parts list

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

#### Replacement parts: Seal kits

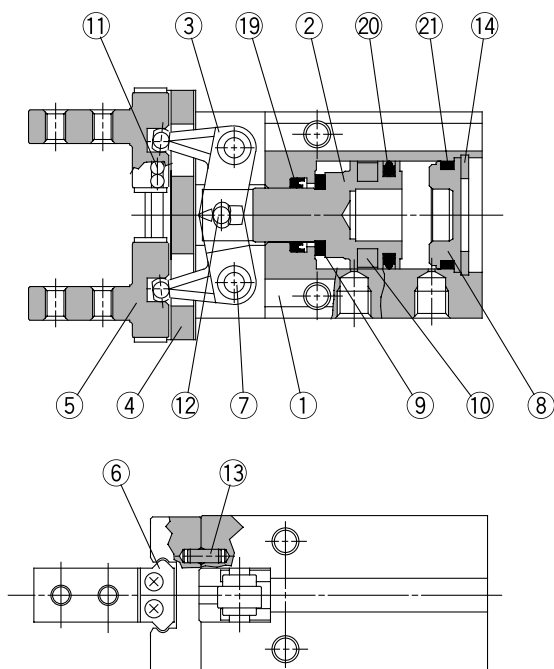
Seal kit no.	Description
MHZ6-PS	Kit includes items 21, 22, 23 and 24 from the table above.

\* Seal kits consist of items 21, 22, 23 and 24 in one kit, and can be ordered using the seal kit number.

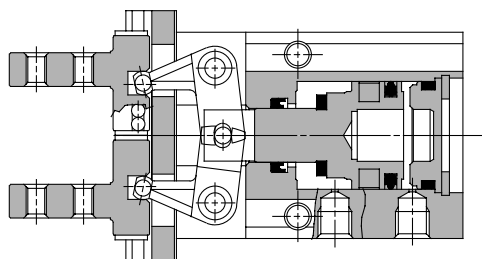
Note) Contact SMC when replacing seals.

## Construction/MHZ2-10□ to 40□

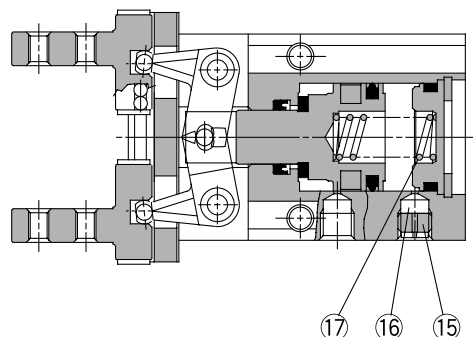
### Double acting/with fingers open



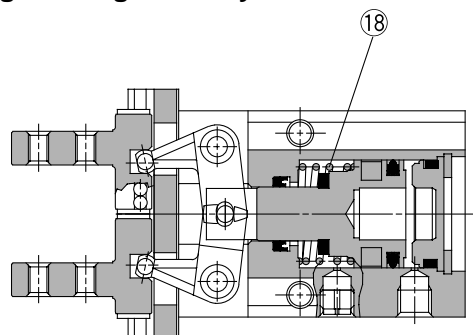
### Double acting/with fingers closed



### Single acting/normally open



### Single acting/normally closed



#### Parts list

No.	Description	Material	Note
1	<b>Body</b>	Aluminum alloy	Hard anodized
2	<b>Piston</b>	ø10, ø16: Stainless steel ø20 to ø40: Aluminum alloy	ø20 to ø40: Hard anodized
3	<b>Lever</b>	Stainless steel	Heat treated
4	<b>Guide</b>	Stainless steel	Heat treated
5	<b>Finger</b>	Stainless steel	Heat treated
6	<b>Roller stopper</b>	Stainless steel	
7	<b>Lever shaft</b>	Stainless steel	Nitrided
8	<b>Cap</b>	ø10 to ø25: Synthetic resin ø32, ø40: Aluminum alloy	ø32, ø40: Clear anodized
9	<b>Bumper</b>	Urethane rubber	
10	<b>Rubber magnet</b>	Synthetic rubber	

#### Parts list

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

#### Replacement parts: Seal kits

Seal kit no.						Description
<b>MHZ2-10D</b>	<b>MHZ2-16D</b>	<b>MHZ2-20D</b>	<b>MHZ2-25D</b>	<b>MHZ2-32D</b>	<b>MHZ2-40D</b>	Kits include items 19, 20 and 21 from the table above.
MHZ10-PS	MHZ16-PS	MHZ20-PS	MHZ25-PS	MHZ32-PS	MHZ40-PS	

\* Seal kits consist of items 19, 20 and 21 in one kit, and can be ordered using the seal kit number for each cylinder bore size.

# Series MHZ2

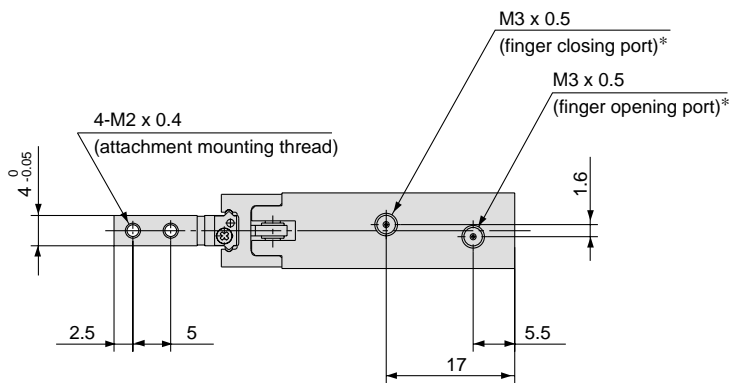
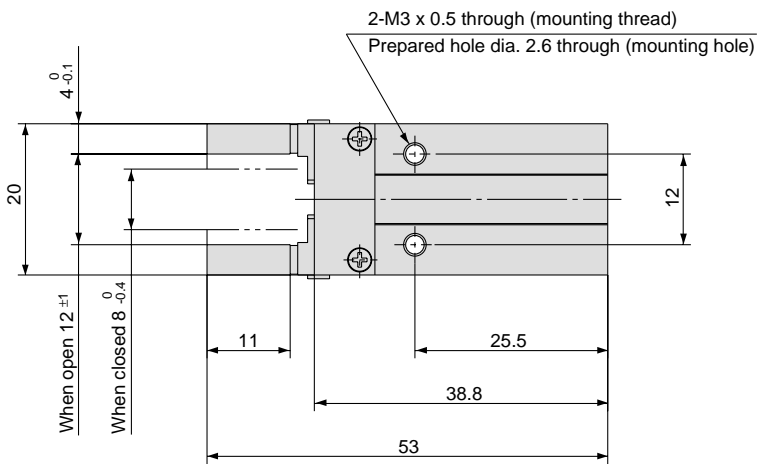
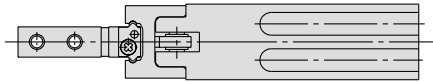
## Dimensions

Scale: 100%

MHZ2-6□

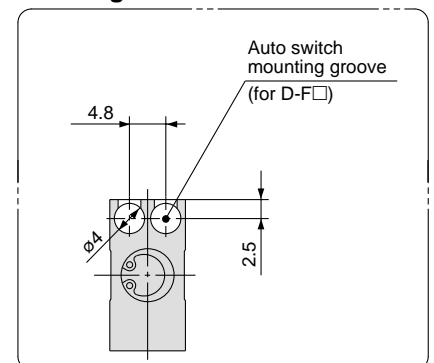
Double acting/Single acting

Basic type



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

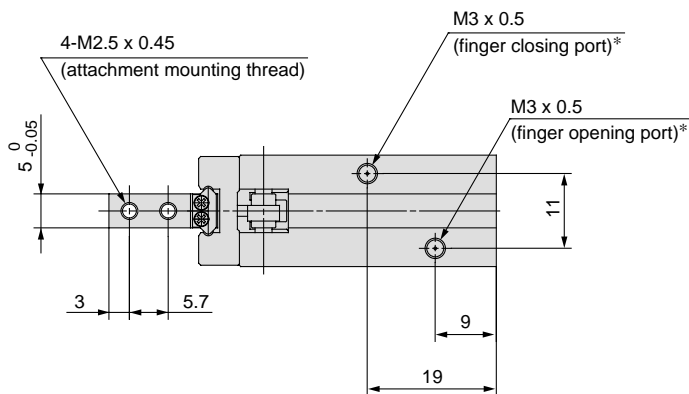
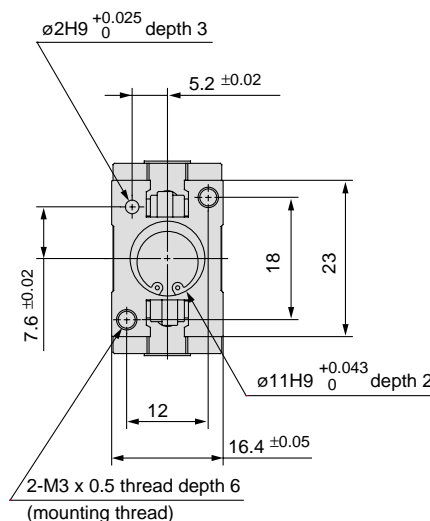
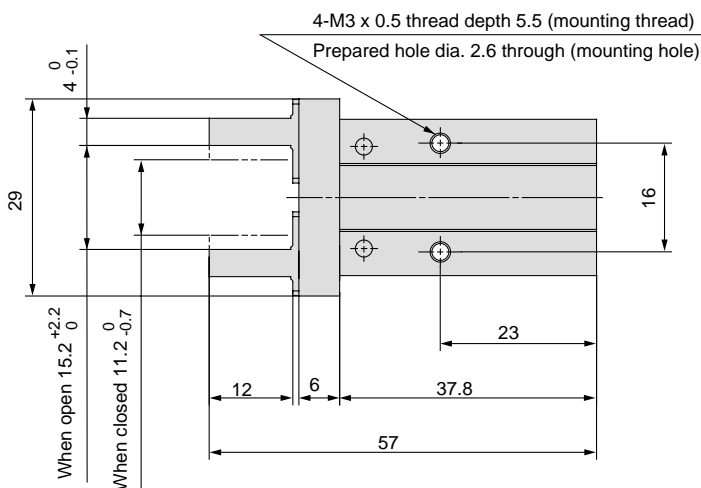
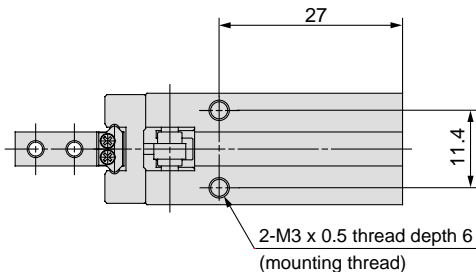
### Auto switch mounting groove dimensions





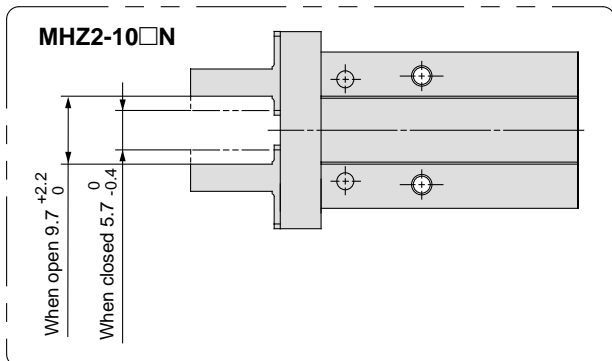
Scale: 90%

**MHZ2-10□**  
Double acting/Single acting  
Basic type

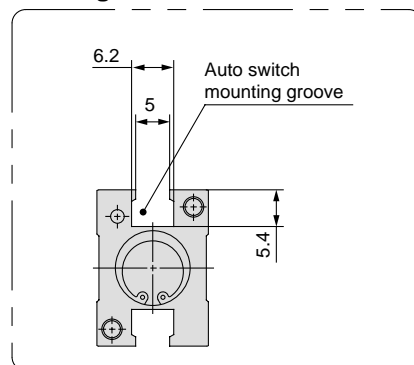


\* For single action, the port on one side is a breathing hole.

**Finger position/Narrow type**



**Auto switch mounting groove dimensions**



Note) When using D-Y59, D-Y69 and D-Y7 type auto switches, through hole mounting is not possible.

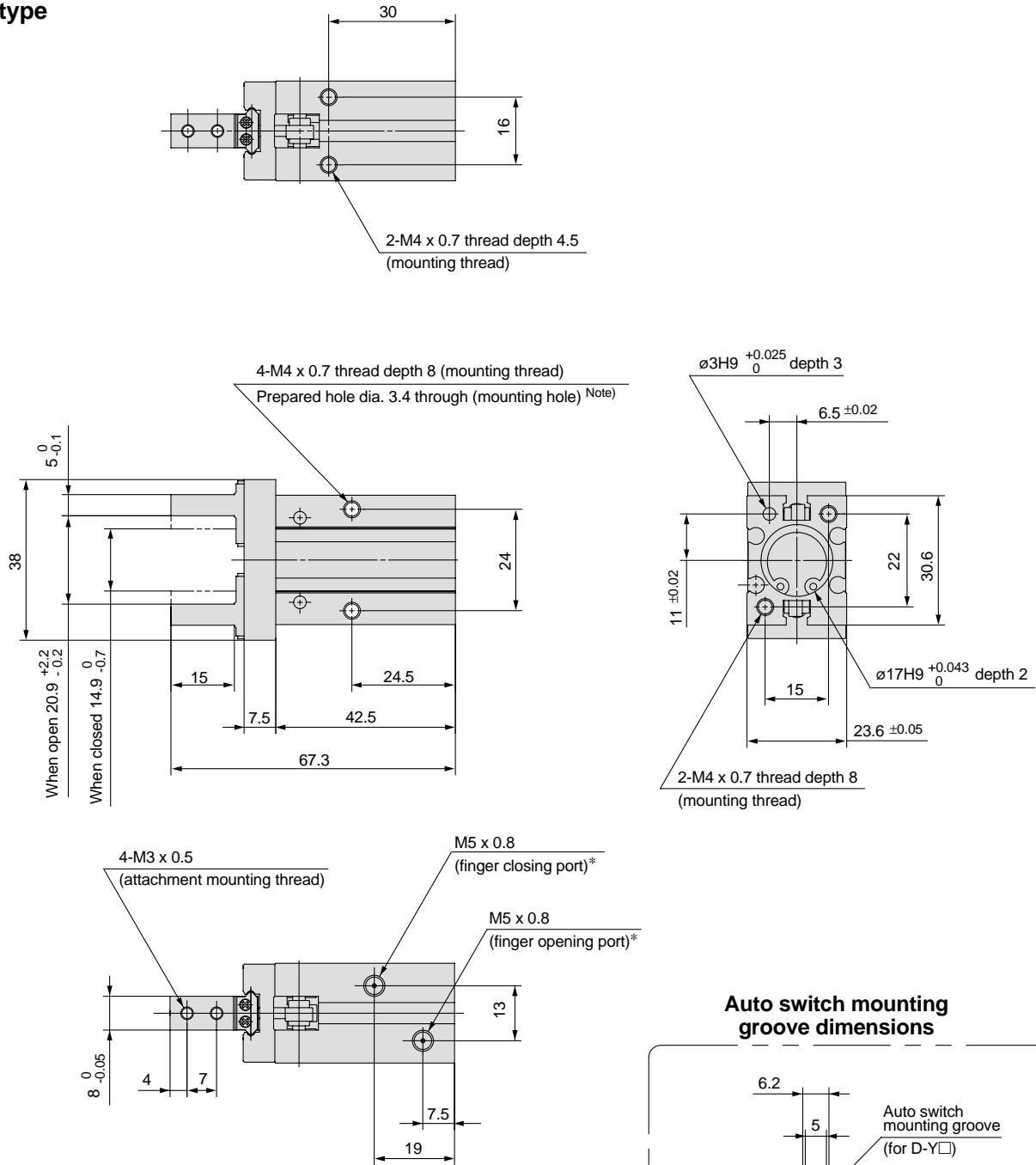
# Series MHZ2

## Dimensions

### MHZ2-16□

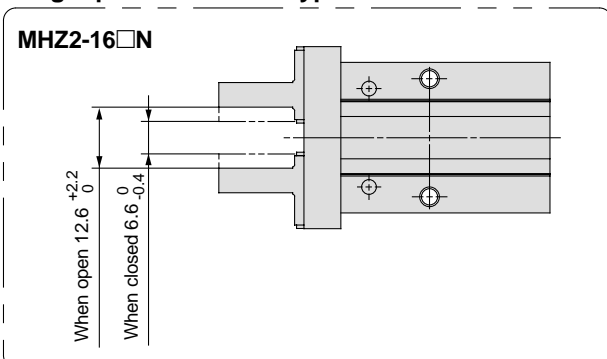
Double acting/Single acting  
Basic type

Scale: 65%

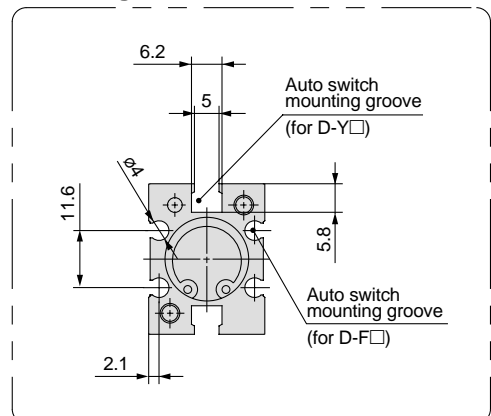


\* For single action, the port on one side is a breathing hole.

### Finger position/Narrow type



### Auto switch mounting groove dimensions

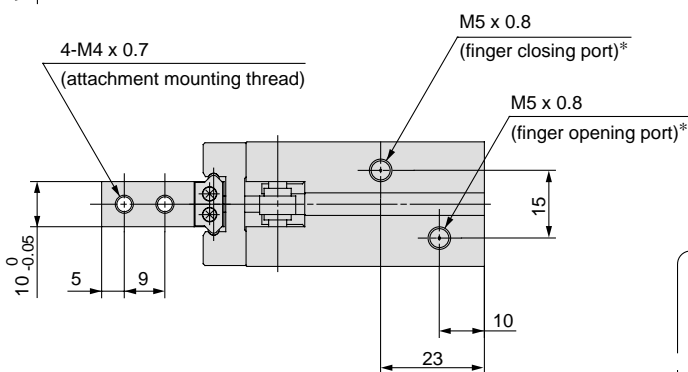
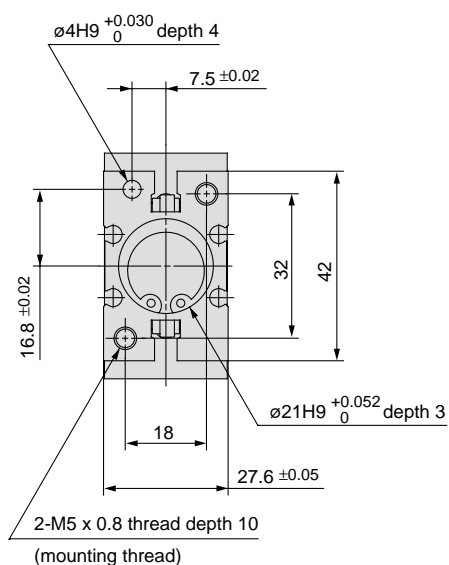
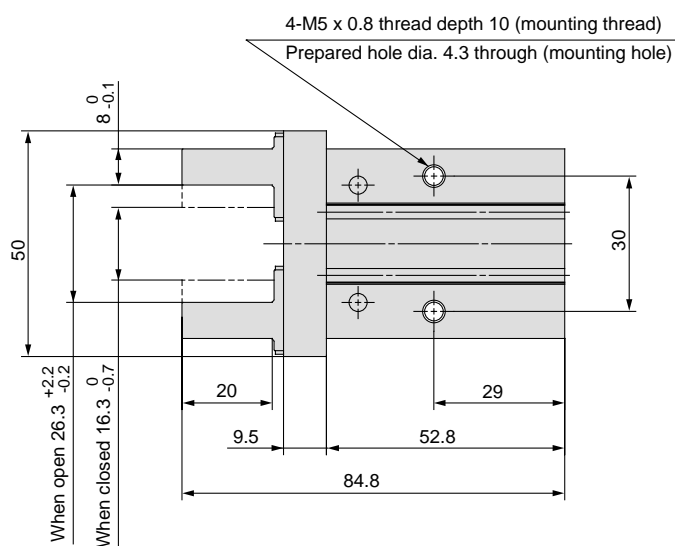
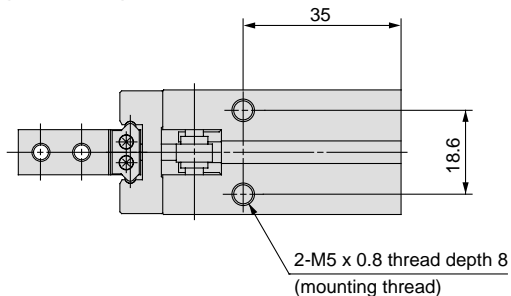


Note) When using D-Y59, D-Y69 and D-Y7 type auto switches, through hole mounting is not possible.

Scale: 60%

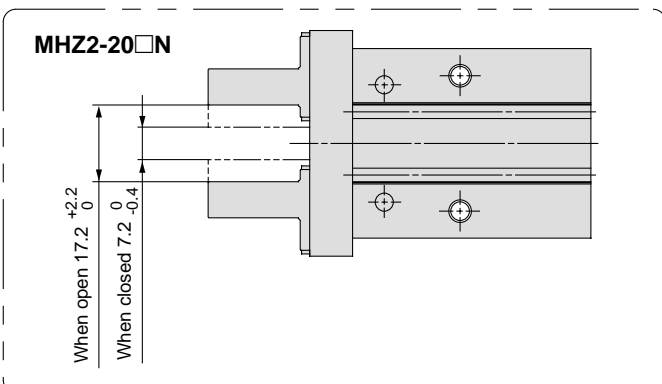
**MHZ2-20□**

Double acting/Single acting  
Basic type

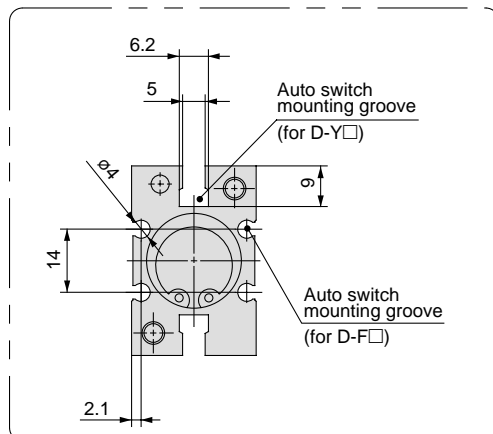


\* For single action, the port on one side is a breathing hole.

**Finger position/Narrow type**



**Auto switch mounting groove dimensions**



Note) When using D-Y59, D-Y69 and D-Y7 type auto switches, through hole mounting is not possible.

# Series MHZ2

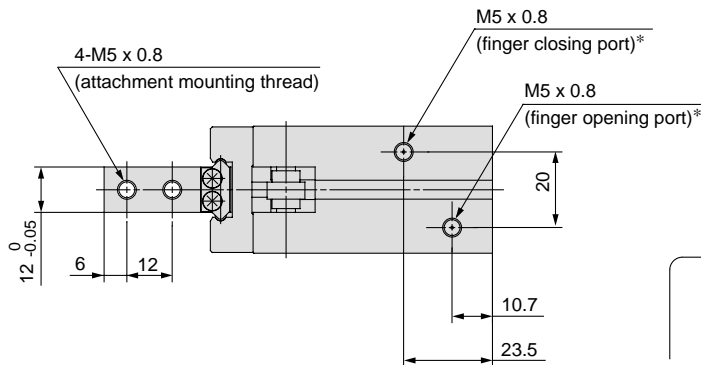
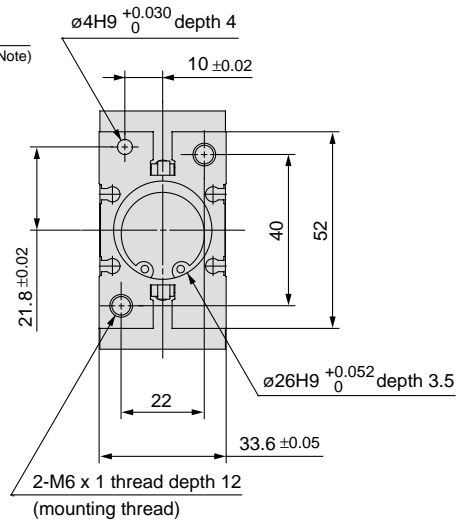
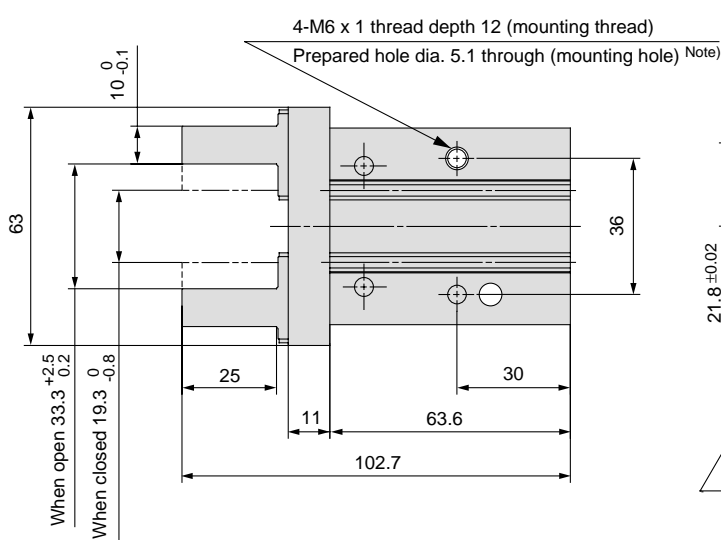
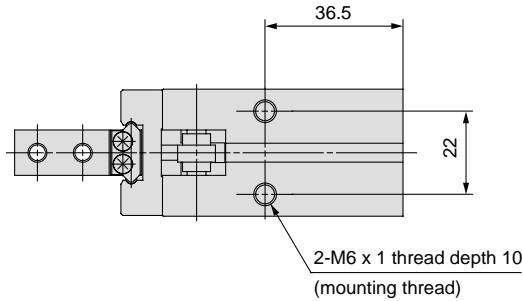
## Dimensions

MHZ2-25□

Double acting/Single acting

Basic type

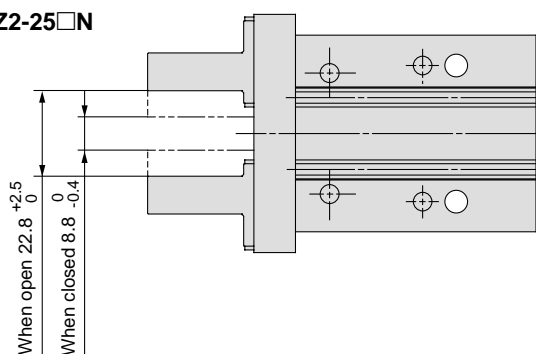
Scale: 50%



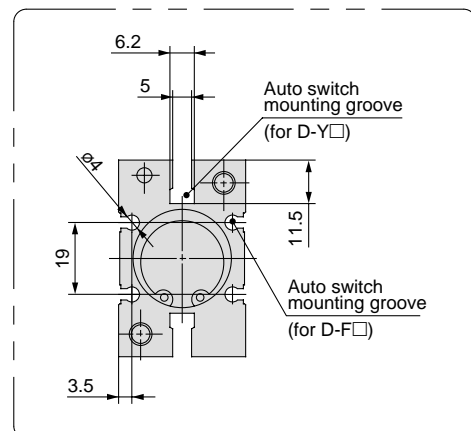
\* For single action, the port on one side is a breathing hole.

### Finger position/Narrow type

MHZ2-25□N



### Auto switch mounting groove dimensions



Note) When using D-Y59, D-Y69 and D-Y7 type auto switches, through hole mounting is not possible.