

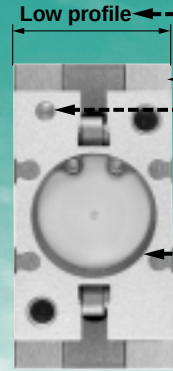
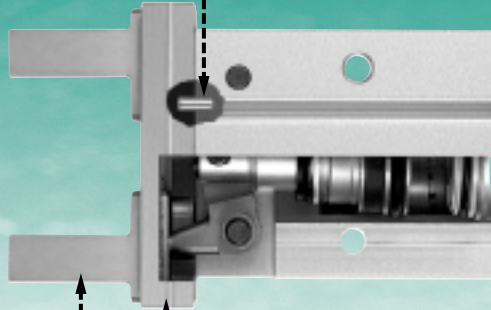
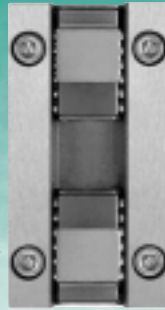
Integral linear guide used for high

- **Linear guide**

- **slippage prevention**

Guide slippage is prevented by two positioning dowel pins.

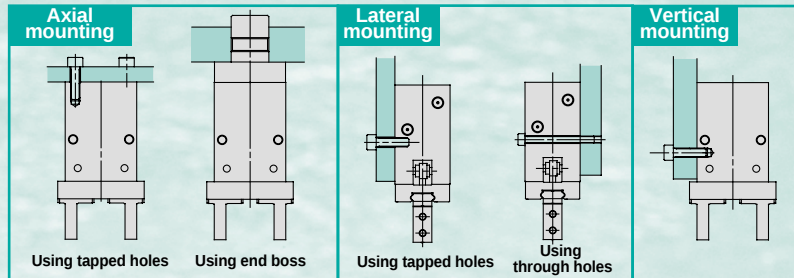
- **Repeatability: $\pm 0.01\text{mm}$**



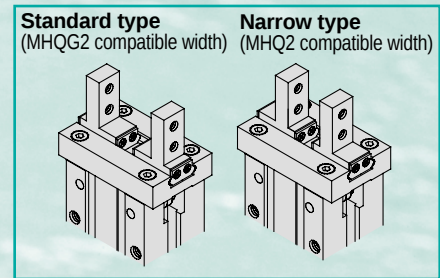
- **Martensitic stainless steel**

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

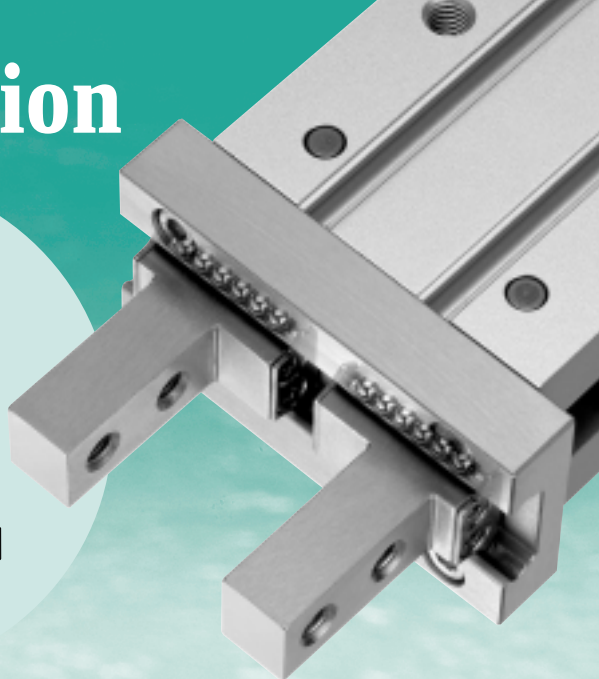
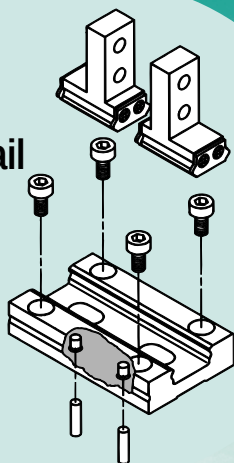
Body thickness tolerance: $\pm 0.05\text{mm}$

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



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

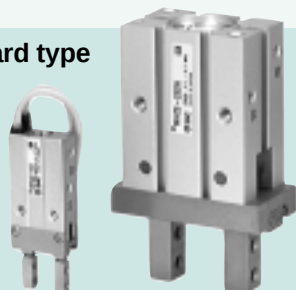
Compact series (without auto switch)

New
ø6



Standard type

New
ø6



ø10 to ø25

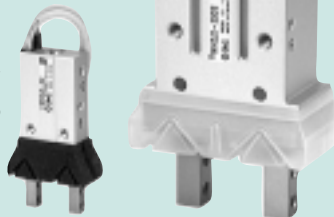
New
ø32, ø40



With dust cover

ø10 to ø25

New
ø6



New

Long stroke
ø10 to ø25



Compact Series
MHZA2-6/MHZA2-6

Standard Type
MHZ2

Long Stroke
MHZL2

With Dust Cover
MHZJ2

Auto Switches

Order Made

Model Selection

Precautions

Standard Type

Series MHZ2

How to Order

ø6 MHZ2 — 6 D — F9PV

Number of fingers
2 2 fingers

Bore size
6 6mm

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

Auto switch type
Nil Without auto switch (built-in magnet)
S Select an applicable auto switch model from the table below.

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

Finger option

[Standard type]
Nil: Basic type

1: Side tapped mounting

2: Through holes in opening/closing direction

3: Flat type fingers

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)}				Applicable load		
					DC	AC	Electrical entry direction		0.5 (Nil)	3 (L)	5 (Z)	Flexible lead wire (-61)			
Solid state switch	—	Grommet	Yes	3 wire (NPN)	24V	12V	—	F9NV	F9N	●	●	—	○	—	Relay, PLC
				F8N				—	●	●	○	○			
				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		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	IC circuit	●	●	●	●	
				3 wire (PNP)	12V		F9PV	F9P	●	●	—	○	—	●	●	●		
							F8P	—	●	●	○	○	—	●	●	●		
							Y69B	Y59B	●	●	○	○	—	●	●	●		
							F9BV	F9B	●	●	—	○	—	●	●	●		
				2 wire	12V		F8B	—	●	●	○	○	—	●	●	●		
							Y7NWV	Y7NW	●	●	○	Standard	IC circuit	—	—	●	●	
							F9NWV	F9NW	●	●	○	○	—	—	—	●	●	
							Y7PWV	Y7PW	●	●	○	Standard	IC circuit	—	—	●	●	
				Diagnostic indication (2 color indicator)	Grommet		Yes	3 wire (PNP)	5V, 12V	F9PWV	F9PW	●	●	○	○	—	—	—
	Y7BWV	Y7BW	●							●	○	○	Standard	—	—	—	●	●
	F9BWV	F9BW	●							●	○	○	—	—	—	—	●	●
	2 wire	12V																

* 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

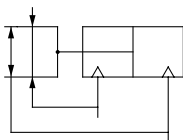


ø32, ø40

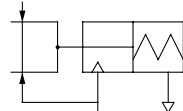


Symbols:

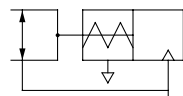
Double acting type



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	
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) ^{Note)}			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 ^{Note 1)}		Opening/ Closing stroke (both sides) mm	^{Note 2)} Weight 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

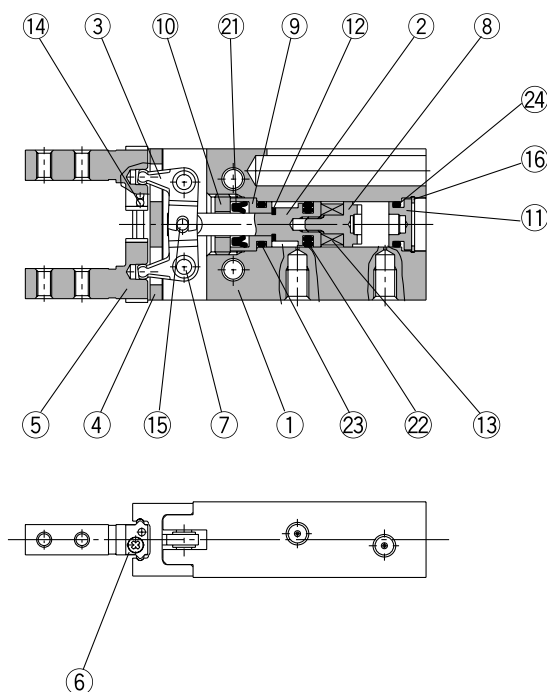
Symbol	Piping port position	Type of piping port							Applicable model	
		MHZ2-6	MHZ2-10	MHZ2-16	MHZ2-20	MHZ2-25	MHZ2-32	MHZ2-40	Double acting	Single acting
Nil	Basic type	M3 x 0.5		M5 x 0.8				●	●	
E	Side ported	—	M3 x 0.5	M5 x 0.8			—	●	●	
W	Axial port	—	With ø4 One-touch fitting for coaxial tube	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

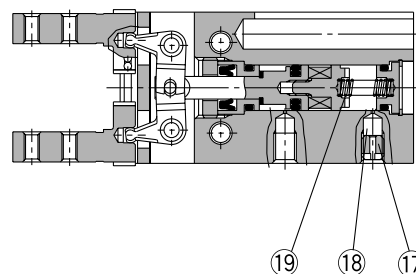
Series MHZ2

Construction/MHZ2-6□

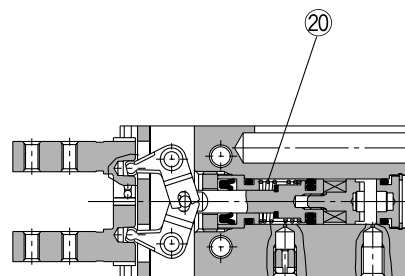
Double acting/with fingers open



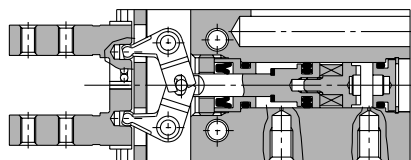
Single acting/normally open



Single acting/normally closed



Double acting/with fingers closed



Parts list

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	Nitrided
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	Rare earth magnet	Nickel plated

Parts list

No.	Description	Material	Note
14	Steel balls	High carbon chromium bearing steel	
15	Needle roller	High carbon chromium bearing steel	
16	C type snap 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: Seal kits

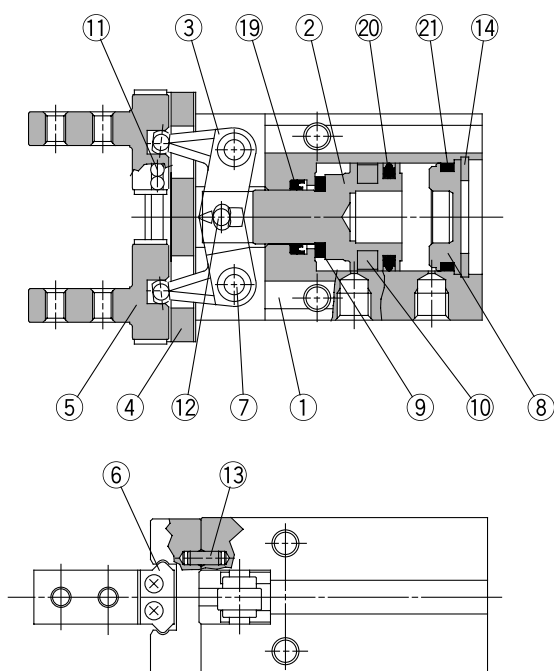
Seal kit no.	Description
MHZ6-PS	Kit includes items 21, 22, 23 and 24 from the table above.

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

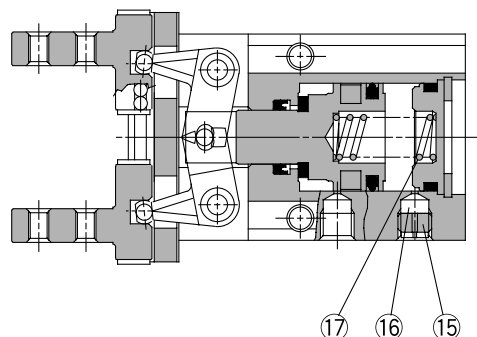
Note) Contact SMC when replacing seals.

Construction/MHZ2-10□ to 40□

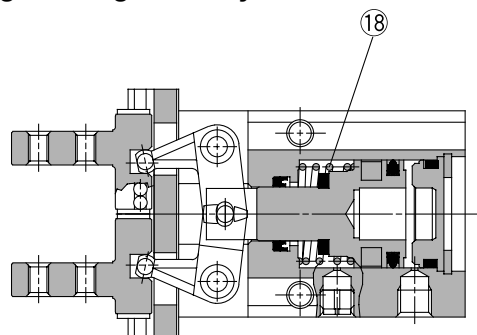
Double acting/with fingers open



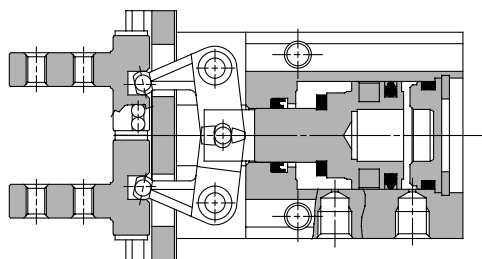
Single acting/normally open



Single acting/normally closed



Double acting/with fingers closed



Parts list

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	Nitrided
8	Cap	ø10 to ø25: Synthetic resin ø32, ø40: Aluminum alloy	ø32, ø40: Clear anodized
9	Bumper	Urethane rubber	
10	Rubber magnet	Synthetic rubber	

Parts list

No.	Description	Material	Note
11	Steel balls	High carbon chromium bearing steel	
12	Needle roller	High carbon chromium bearing steel	
13	Parallel pin	Stainless steel	
14	C type snap 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: Seal kits

Seal kit no.						Description
MHZ2-10D	MHZ2-16D	MHZ2-20D	MHZ2-25D	MHZ2-32D	MHZ2-40D	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.

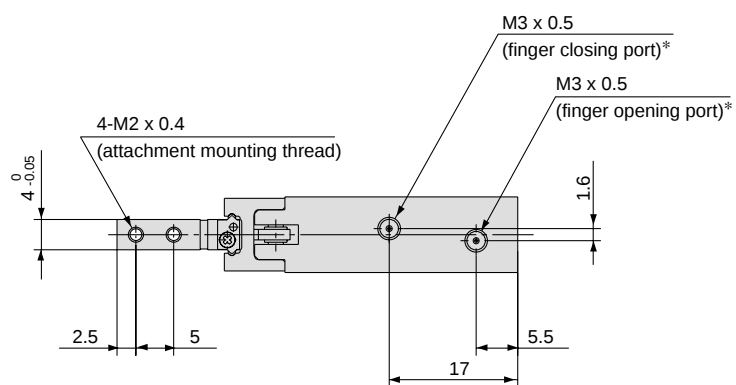
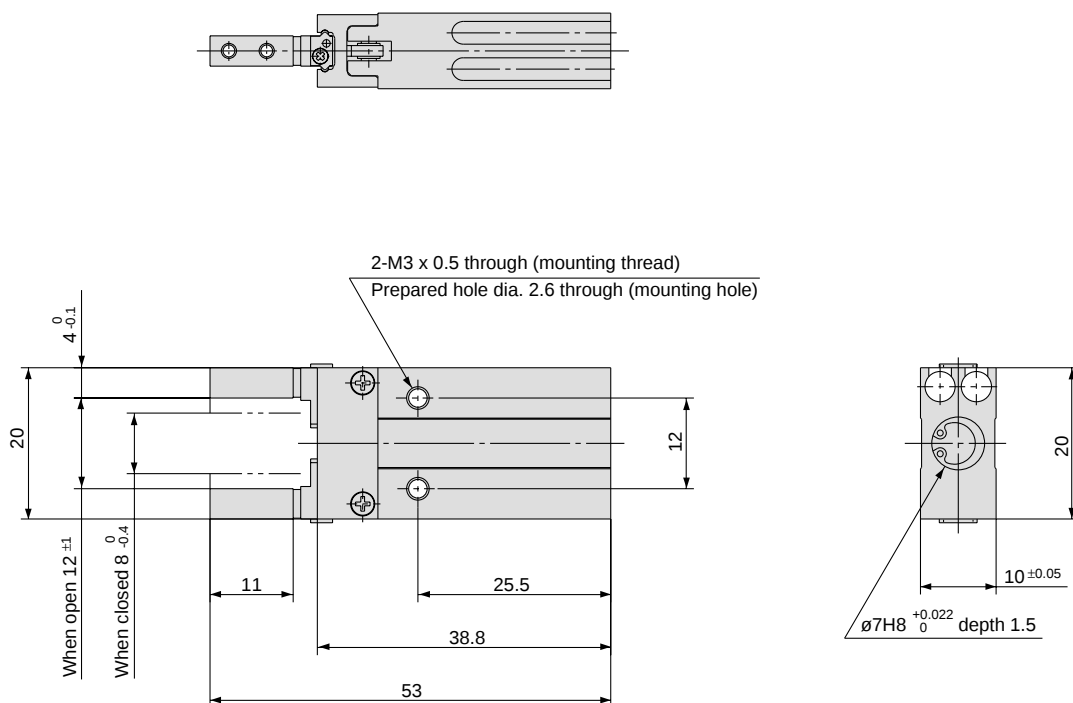
Dimensions

MHZ2-6□

Double acting/Single acting

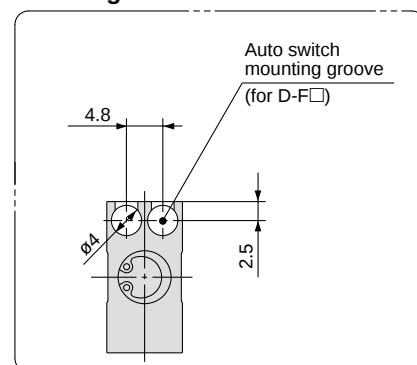
Basic type

Scale: 100%



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

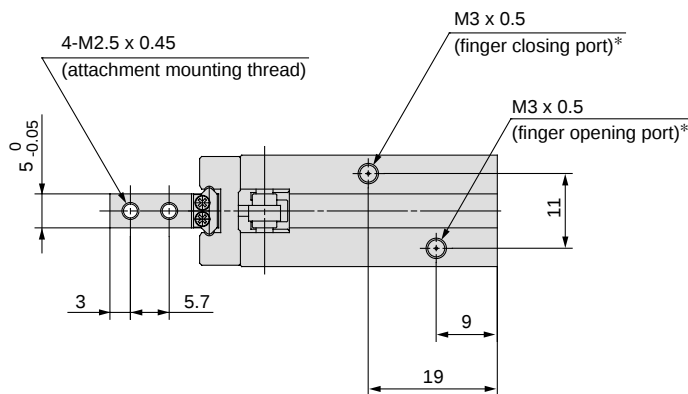
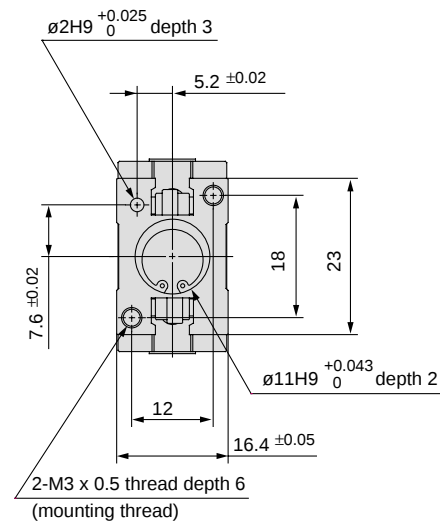
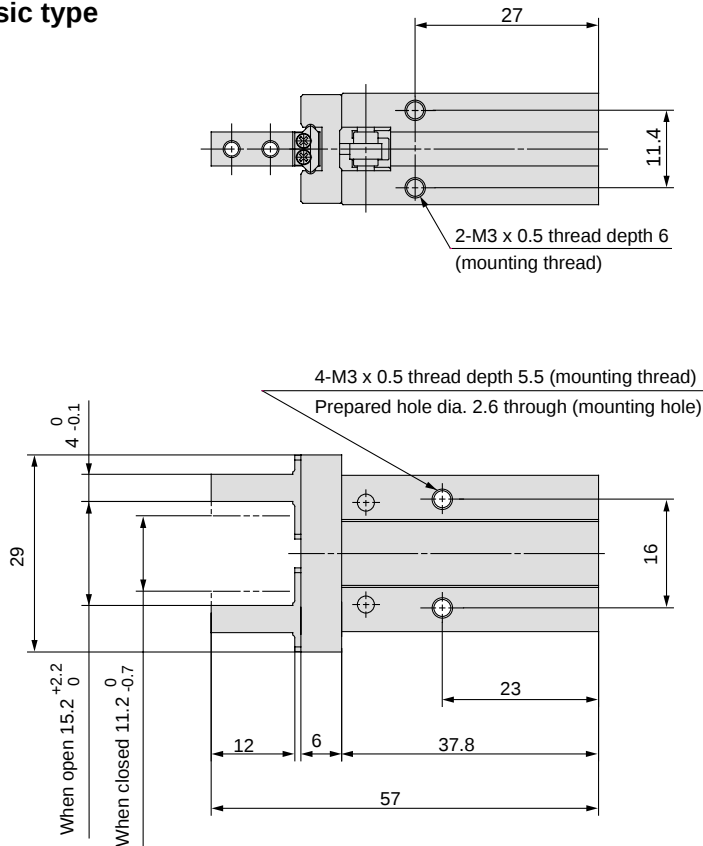
Auto switch mounting groove dimensions



MHZ2-10□

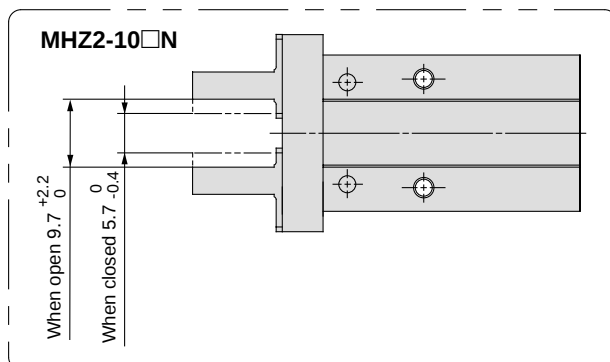
**Double acting/Single acting
Basic type**

Scale: 90%

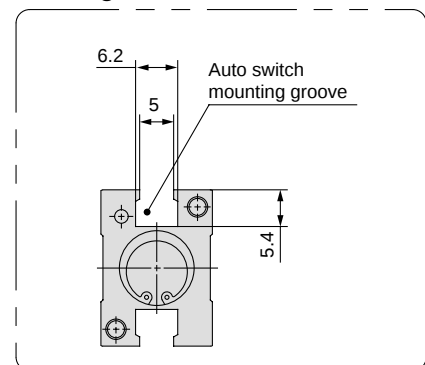


* For single action, the port on one side is a breathing hole.

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.

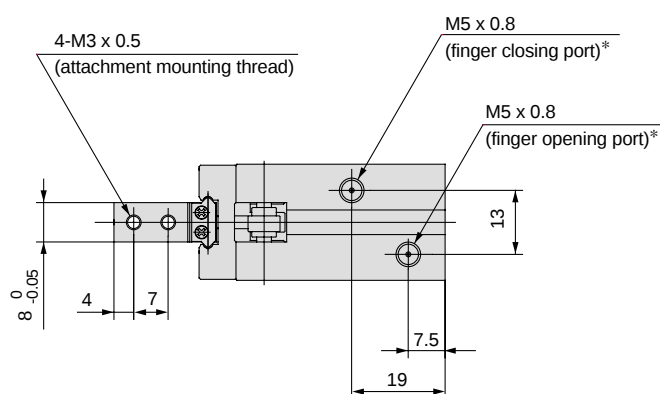
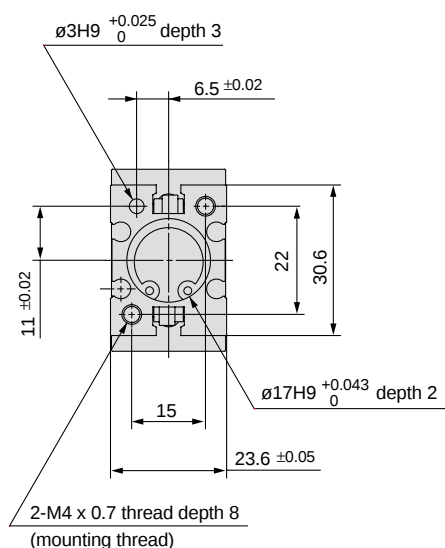
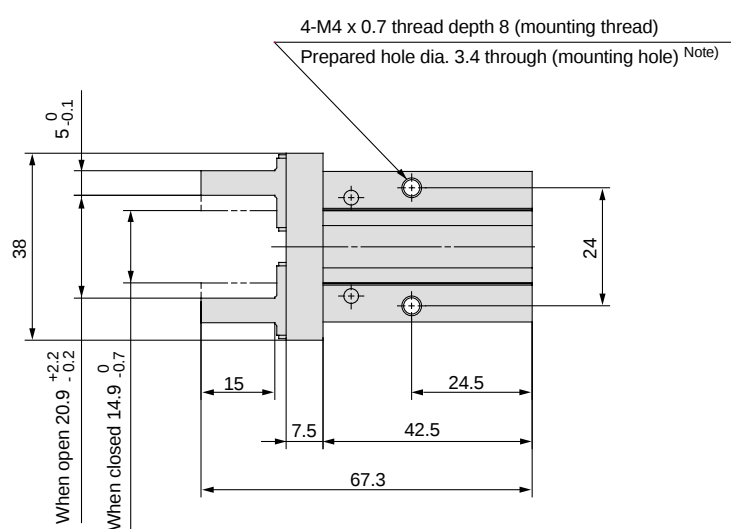
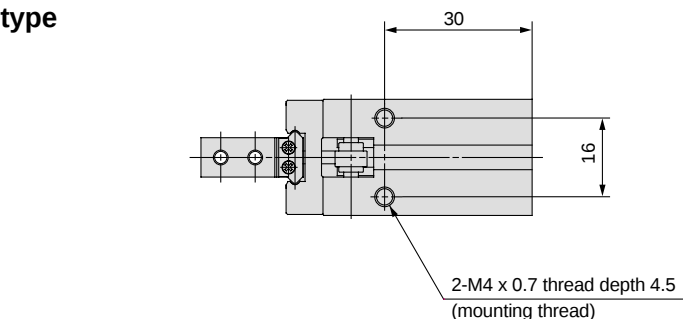
Dimensions

MHZ2-16□

Double acting/Single acting

Basic type

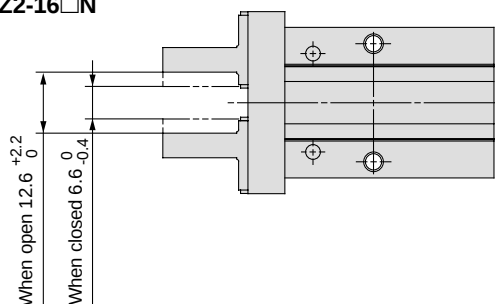
Scale: 65%



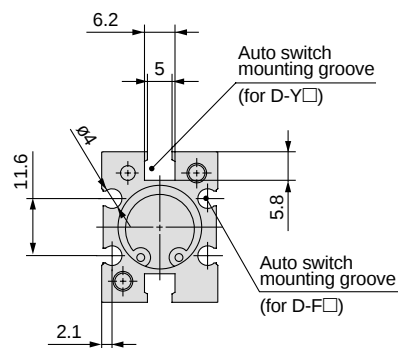
* For single action, the port on one side is a breathing hole.

Finger position/Narrow type

MHZ2-16□N



Auto switch mounting groove dimensions

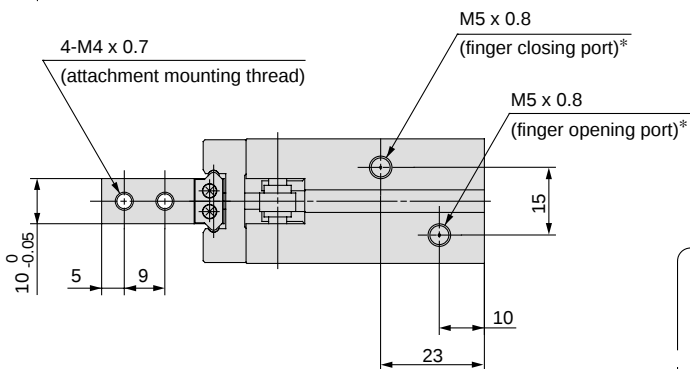
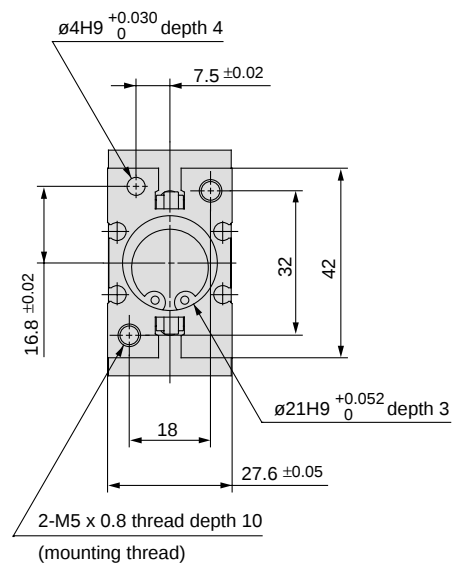
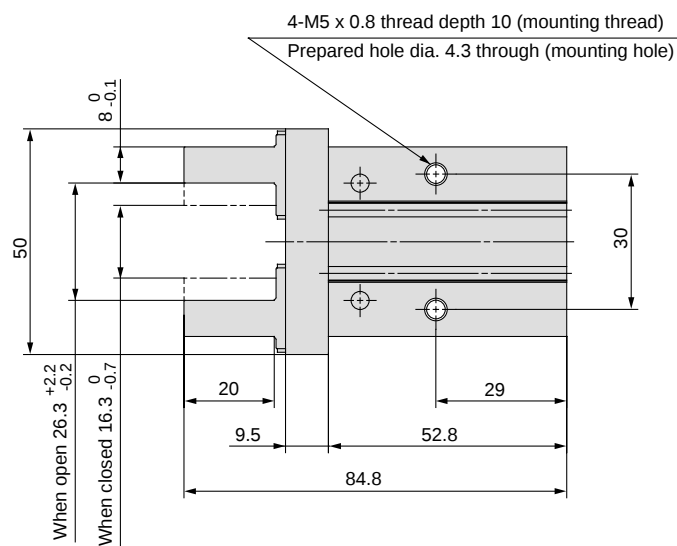
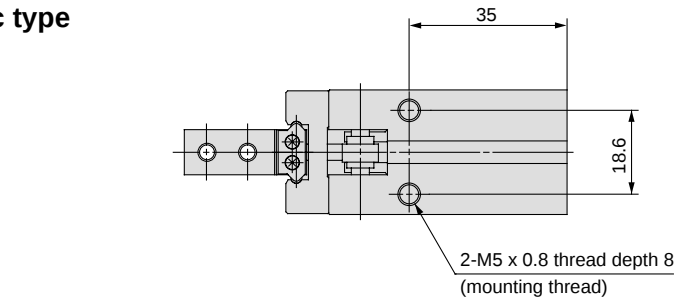


Note) When using D-Y59, D-Y69 and D-Y7 type auto switches, through hole mounting is not possible.

MHZ2-20□

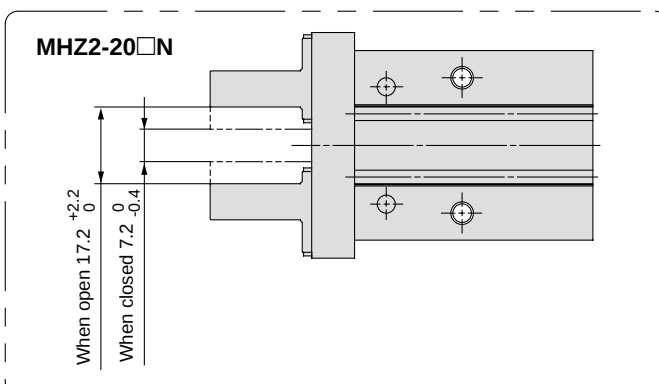
Double acting/Single acting
Basic type

Scale: 60%

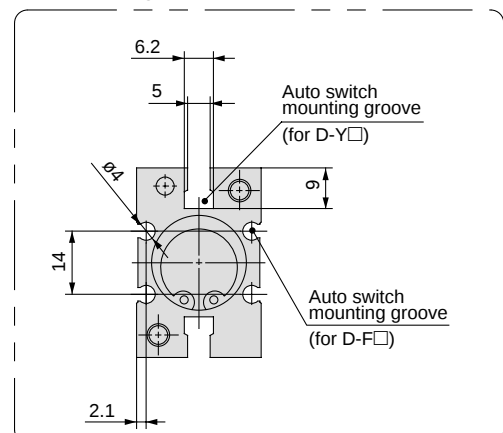


* For single action, the port on one side is a breathing hole.

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.

