

Long Stroke

Series MHZL2

How to Order

MHZL2 – 16 D [] [] M9PV []

Number of fingers

2	2 fingers
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Bore size

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

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	1 pc.
2	2 pcs.

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

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 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

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 auto switch	—	Grommet	Yes	3-wire (NPN)	5V, 12 V	—	M9NV	M9N	●	●	●	○	●	●	●	●	○	IC circuit				
				3-wire (PNP)			F8N	—	●	—	●	○	—	●	●	●	—					
				2-wire	12 V	—	M9PV	M9P	●	●	●	○	●	●	●	●	○		—			
				3-wire (NPN)			F8P	—	●	—	●	○	—	●	●	●	—					
				Diagnosis (2-colour indicator)	Grommet	Yes	3-wire (PNP)	5V, 12 V	—	M9BV	M9B	●	●	●	○	●	●		●	●	○	IC circuit
							2-wire			F8B	—	●	—	●	○	—	●		●	●	—	
	Water resistant (2-colour indicator)	Grommet	Yes	3-wire (NPN)	5V, 12 V	—	M9NWV	M9NW	●	●	●	○	●	●	●	●	○	IC circuit				
				3-wire (PNP)			M9PWV	M9PW	●	●	●	○	●	●	●	●	○					
				2-wire	12 V	—	M9BWV	M9BW	●	●	●	○	●	●	●	●	○		—			
				3-wire (NPN)			M9NAV**	M9NA**	○	○	●	○	●	●	●	●	○					
				3-wire (PNP)	5V, 12 V	—	M9PAV**	M9PA**	○	○	●	○	●	●	●	●	○		IC circuit			
				2-wire			M9BAV**	M9BA**	○	○	●	○	●	●	●	●	○					

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

* Lead wire length symbols: 0.5 m..... Nil (Example) M9NW
 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) When using the 2-colour indicator type, please make the setting so that the indicator is lit in red to ensure the detection at the proper position of the air gripper.

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

Note 3) When the product is ordered with auto switch, 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 (BMG2-012) are required. Order them separately.

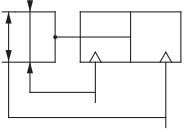
Specifications



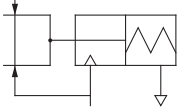
Fluid		Air	
Operating pressure	Double acting		ø10: 0.2 to 0.7MPa ø16 to ø25: 0.1 to 0.7MPa
	Single acting	Normally open	ø10: 0.35 to 0.7MPa
		Normally closed	ø16 to ø25: 0.25 to 0.7MPa
Ambient and fluid temperature		-10 to 60°C	
Repeatability		±0.01mm	
Maximum operating frequency		120c.p.m.	
Lubrication		Non-lube	
Action		Double acting, Single acting	
Auto switch (option) ^{Note)}		Solid state switch (3 wire, 2 wire)	

Symbols:

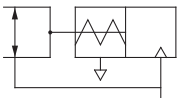
Double acting type



Single acting type, normally open



Single acting type, normally closed



Models

Action	Model	Bore size (mm)	Gripping force ^{Note 1)}		Opening/Closing stroke (both sides) mm	Weight ^{Note 2)} g	
			Gripping force per finger Effective value N				
			External gripping force	Internal gripping force			
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 0.5MPa, gripping point L = 20mm, at center of stroke.

Note 2) Values excluding weight of auto switch.

Options

• Body options/End boss type

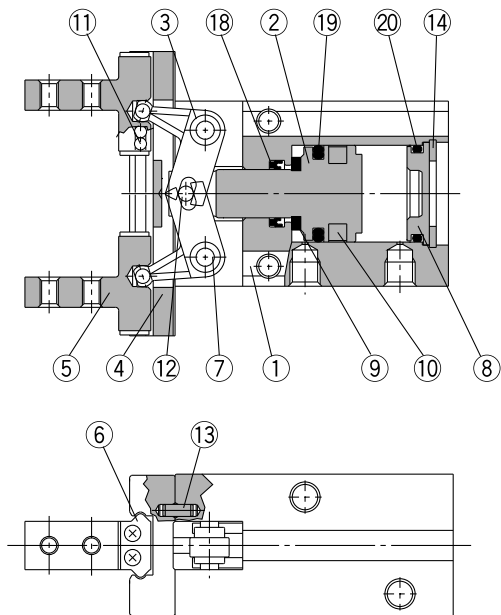
Symbol	Piping port position	Type of piping port				Applicable model	
		MHZL2-10	MHZL2-16	MHZL2-20	MHZL2-25	Double acting	Single acting
Nil	Basic type	M3	M5			●	●
E	Side ported	M3	M5			●	●
W	Axial port	With ø4 One-touch fitting for coaxial tube				●	—
K	Axial port	With ø4 One-touch fitting				—	●
M	Axial port	M5				—	●

* For detailed body option specifications, refer to option specifications on pages 5-42 and 5-43

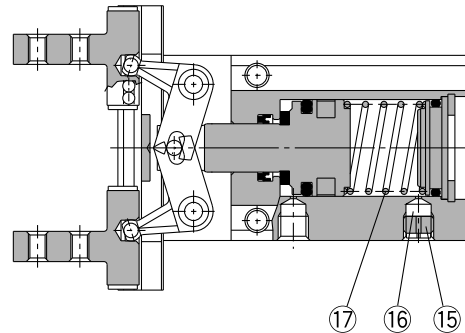
Series MHZL2

Construction/MHZL2-10□ to 25□

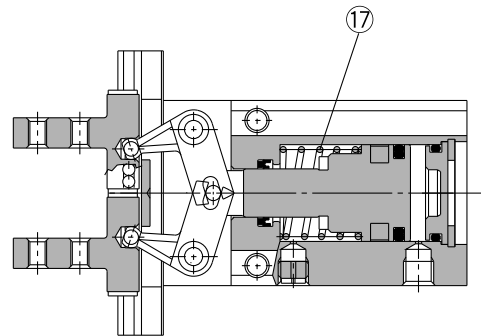
Double acting/with fingers open



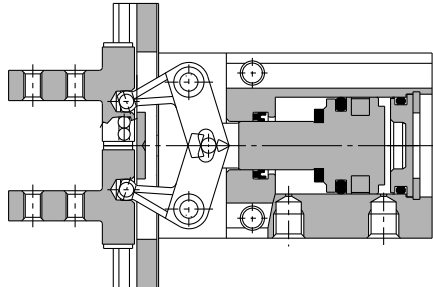
Single acting/normally open



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, 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	Nitrided
8	Cap	Aluminum alloy	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	Spring	Stainless steel spring wire	
18	Rod seal	NBR	
19	Piston seal	NBR	
20	O-ring	NBR	

Replacement parts: Seal kits

Seal kit no.				Description
MHZL2-10D	MHZL2-16D	MHZL2-20D	MHZL2-25D	Kits include items 18, 19 and 20 from the table above.
MHZL10-PS	MHZL16-PS	MHZL20-PS	MHZL25-PS	

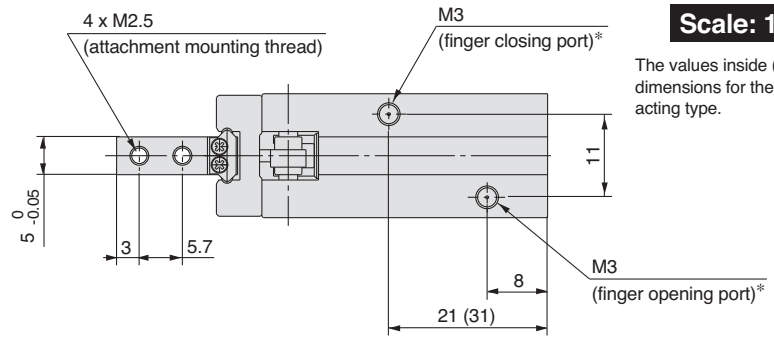
* Seal kits consist of items 18, 19 and 20 in one kit, and can be ordered using the seal kit number for each cylinder bore size.

Dimensions

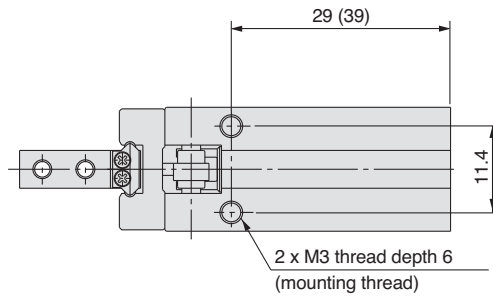
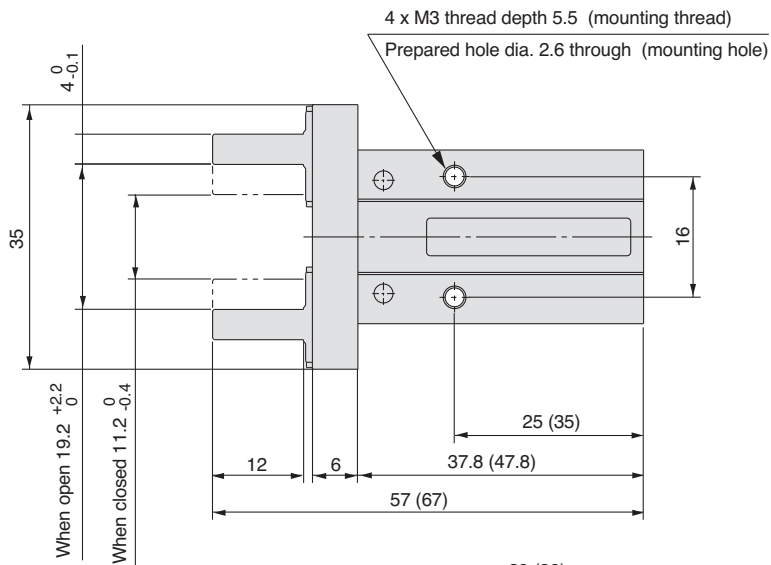
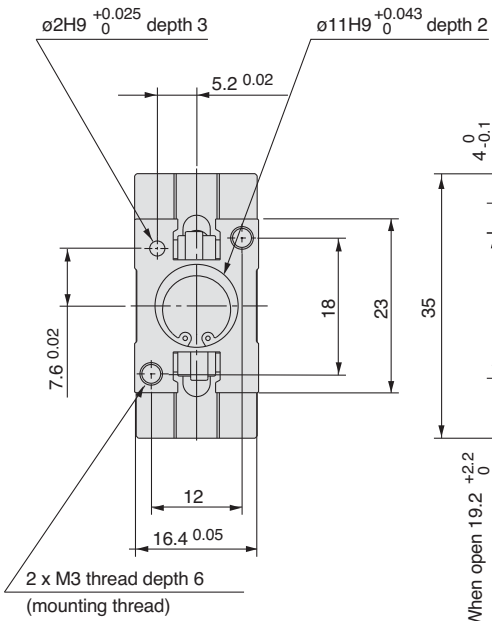
MHZL2-10□
Double acting/Single acting
Basic type

Scale: 100%

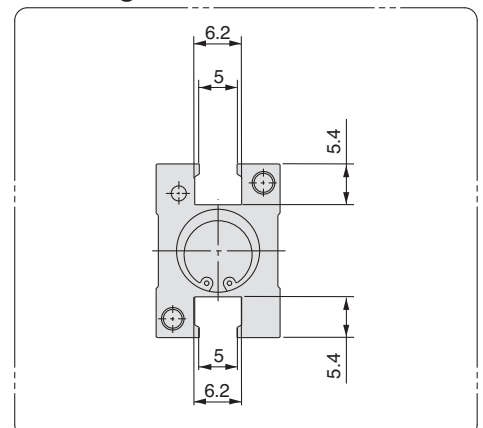
The values inside () are dimensions for the single acting type.



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



Auto switch mounting groove dimensions



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

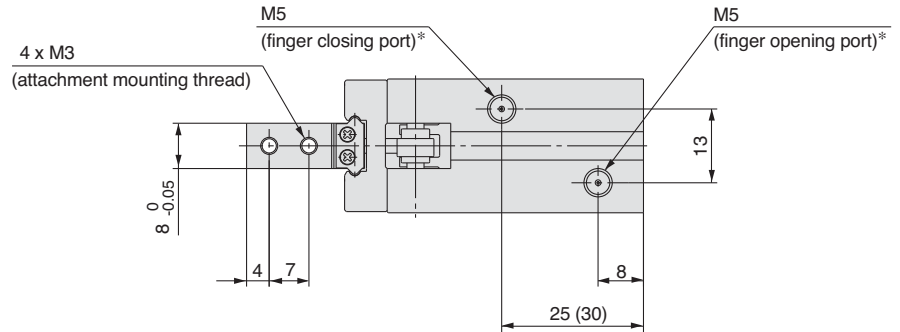
Series MHZL2

Dimensions

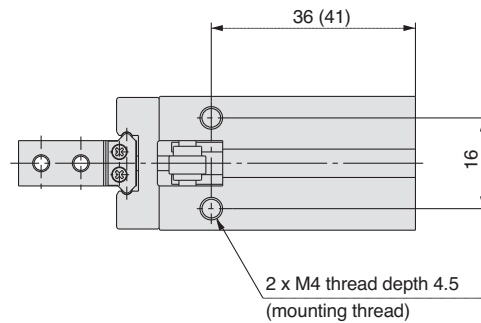
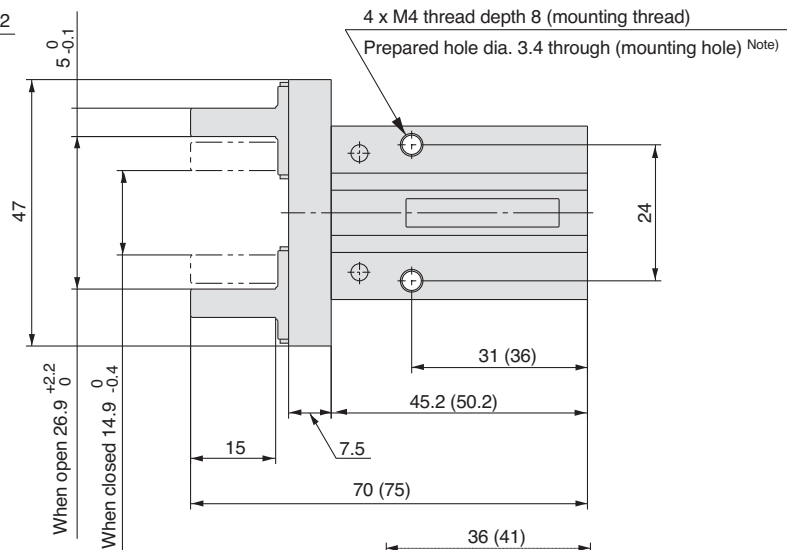
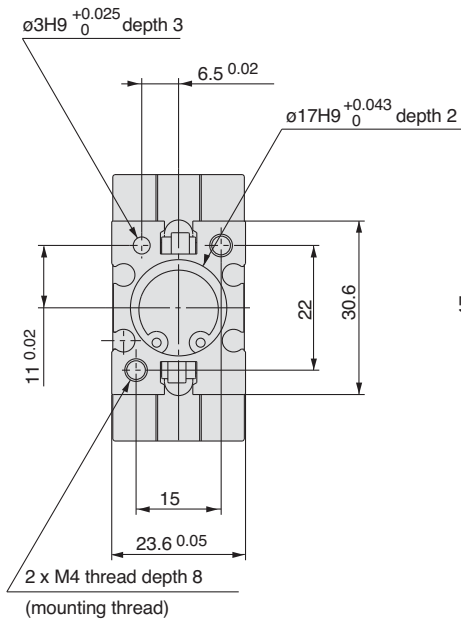
MHZL2-16 □
Double acting/Single acting
Basic type

Scale: 75%

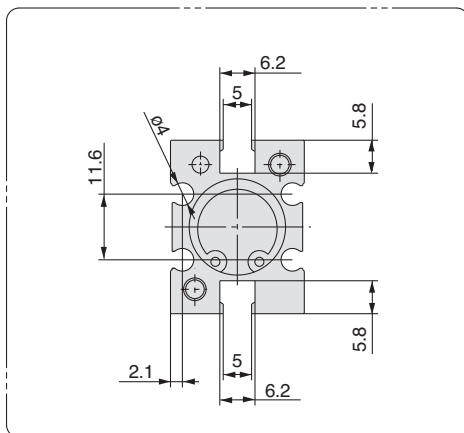
The values inside () are dimensions for the single acting type.



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



Auto switch mounting groove dimensions

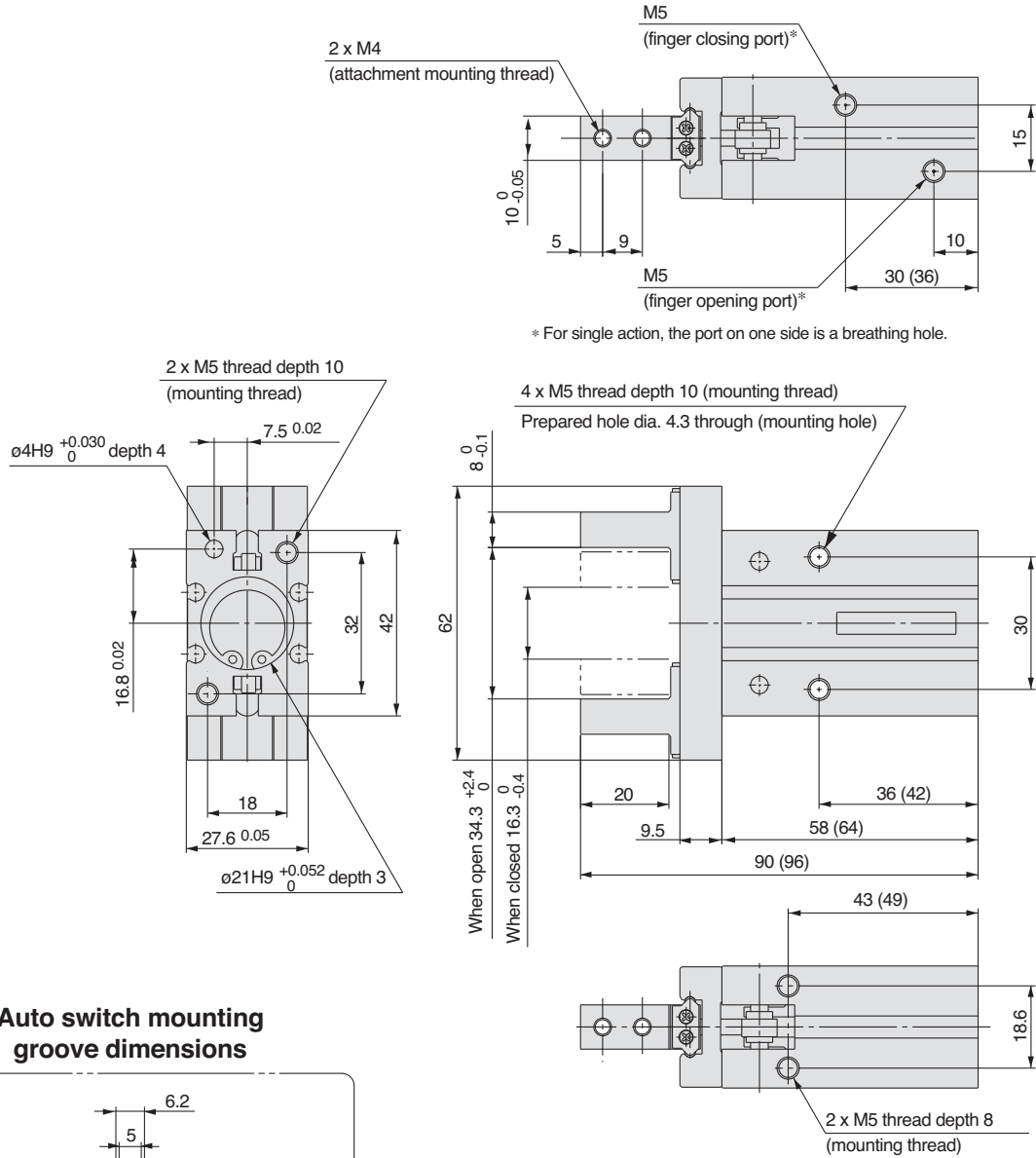


Note) When using auto switches, through hole mounting is not possible.

MHZL2-20□
Double acting/Single acting
Basic type

Scale: 60%

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



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

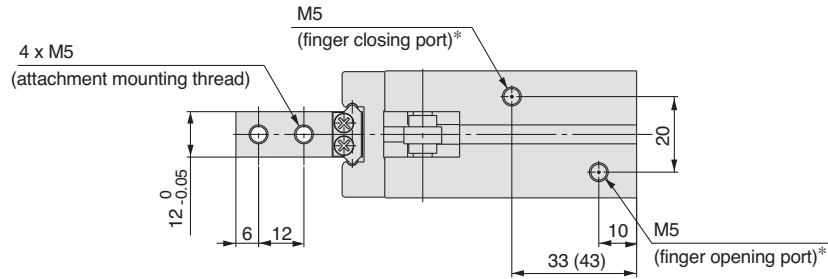
Series MHZL2

Dimensions

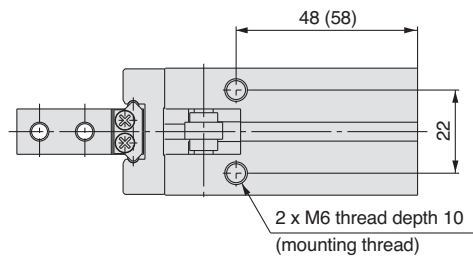
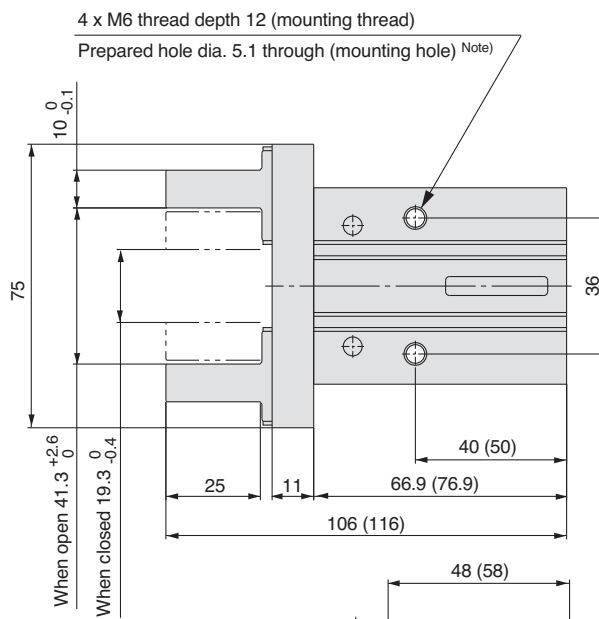
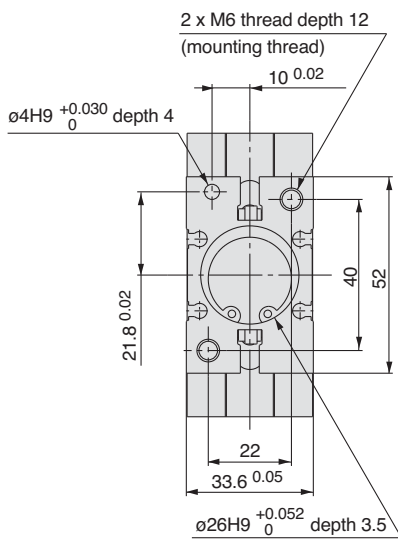
MHZL2-25
Double acting/Single acting
Basic type

Scale: 50%

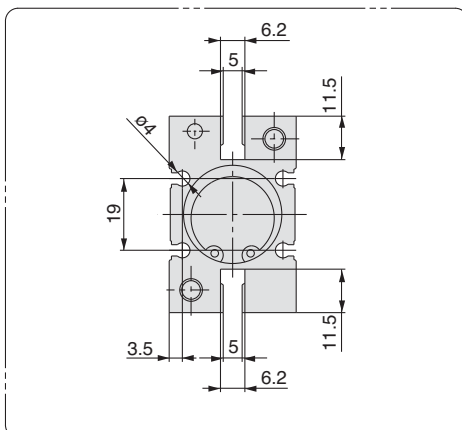
The values inside () are dimensions for the single acting type.



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



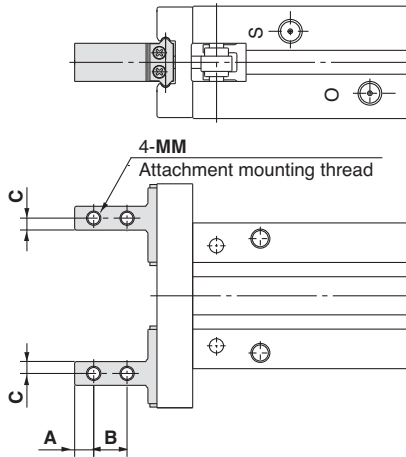
Auto switch mounting groove dimensions



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

Long Stroke/*Series MHZL2* Finger Options

Side Tapped Mounting [1]

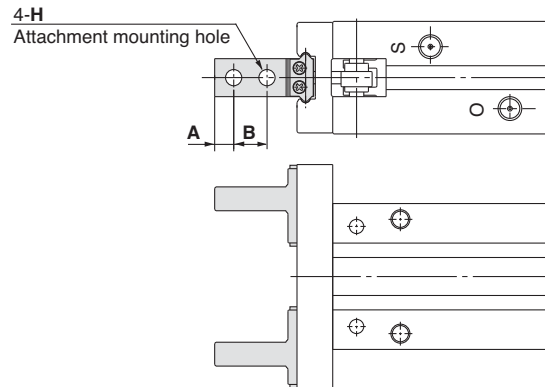


Unit: mm

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

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

Through Holes in Opening/Closing Direction [2]

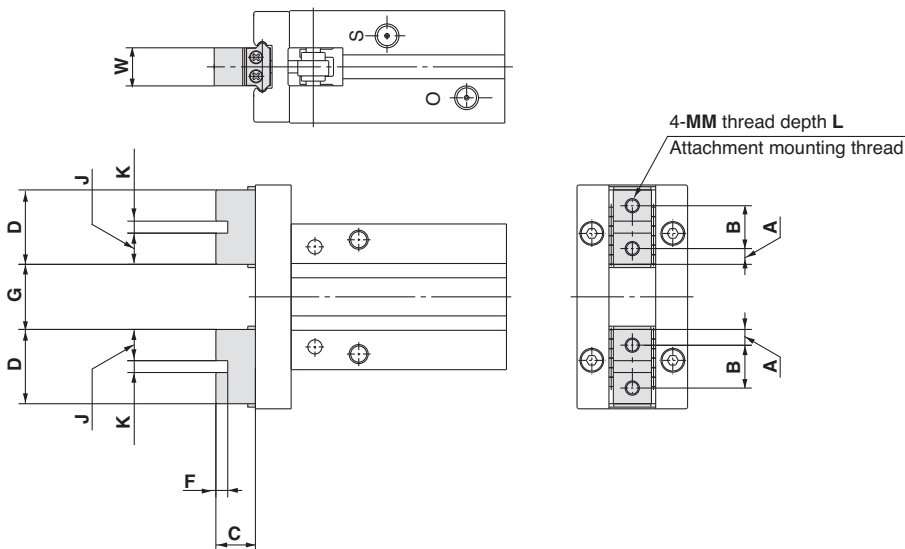


Unit: mm

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]



Unit: mm

Model	A	B	C	D	F	G		J	K	MM	L	W	Weight 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	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	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	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	10	12 ⁰ _{-0.05}	460	505

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