

180° Angular Type Air Gripper Cam Type

MHY2 Series

∅10, ∅16, ∅20, ∅25

How to Order

MHY 2 - 16 D 2 - M9BW

Number of fingers

2	2 fingers
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Bore size

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

Action

D	Double acting
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Auto switch

Nil	Without auto switch (Built-in magnet)
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• **Made to Order**
Refer to page 705 for details.

• **Number of auto switches**

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

• **Finger option**

Nil: Standard tapped 2: Through-holes in opening/closing direction

Applicable Auto Switches / Refer to pages 797 to 850 for further information on auto switches.

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 auto switch	—	Grommet	Yes	3-wire(NPN)	5 V, 12 V	—	M9NV	M9N	●	●	●	○	○	Relay, PLC
				3-wire(PNP)			M9PV	M9P	●	●	●	○	○	
	2-wire			M9BV	M9B		●	●	●	○	○	—		
	3-wire(NPN)			M9NWV	M9NW		●	●	●	○	○	IC circuit		
	3-wire(PNP)			M9PWV	M9PW		●	●	●	○	○	IC circuit		
	2-wire			M9B WV	M9B W		●	●	●	○	○	—		
	3-wire(NPN)			M9NA V**	M9NA **		○	○	●	○	○	IC circuit		
	3-wire(PNP)			M9PA V**	M9PA **		○	○	●	○	○	IC circuit		
	2-wire			M9BA V**	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) M9NZ

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

Note 1) When using the 2-color indicator type, please make the setting so that the indicator is lit in red to ensure the detection at the proper position of the air gripper.

Specifications

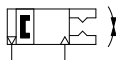


Fluid	Air
Operating pressure	0.1 to 0.6 MPa
Ambient and fluid temperature	-10 to 60°C
Repeatability	±0.2 mm
Max. operating frequency	60 c.p.m.
Lubrication	Not required
Action	Double acting
Auto switch (Option) ^{Note)}	Solid state auto switch (3-wire, 2-wire)

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

Symbol

Double acting: External grip



Model

Model	Bore size (mm)	Effective gripping force (1) (N·m)	Opening/Closing angle (Both sides)		Weight (2) (g)
			Opening side	Closing side	
MHY2-10D	10	0.16	180°	-3°	70
MHY2-16D	16	0.54			150
MHY2-20D	20	1.10			320
MHY2-25D	25	2.28			560

Note 1) At the pressure of 0.5 MPa

Note 2) Except auto switch

- Refer to "How to Select the Applicable Model" on page 700.
- Refer to pages 700 and 701 for the details on effective holding force and allowable overhanging distance.



Made to Order

[Click here for details](#)

Symbol	Specifications/Description
-X4	Heat resistance (100°C)
-X5	Fluororubber seal
-X50	Without magnet
-X53	EPDM for seals, Fluorine grease
-X63	Fluorine grease
-X79	Grease for food processing machines, Fluorine grease
-X79A	Grease for food processing machines
-X81A	Anti-corrosive treatment of finger

Moisture Control Tube IDK Series



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

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

MHZ

MHF

MHL

MHR

MHK

MHS

MHC

MHT

MHY

MHW

-X□

MRHQ

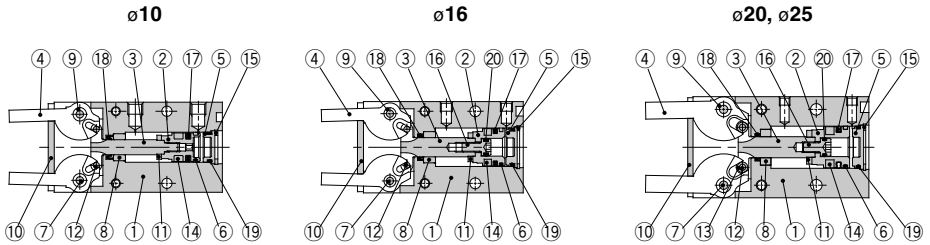
MA

D-□

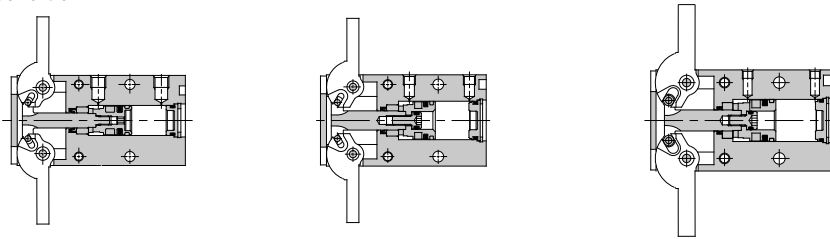
MHY2 Series

Construction

Closed condition



Open condition



Component Parts

No.	Description	Material	Note
1	Body	Aluminum alloy	Hard anodized
2	Piston	ø10: Stainless steel ø16 to 25: Aluminum alloy	ø16 to 25: Chromated
3	Joint	Stainless steel	Heat treated
4	Finger	Stainless steel	Heat treated
5	Cap	Resin	
6	Wear ring	Resin	
7	Shaft	Stainless steel	Nitriding
8	Bushing A	Sintered alloy steel	
9	Bushing B	Sintered alloy steel	
10	End plate	Stainless steel	

No.	Description	Material	Note
11	Bumper	Urethane rubber	
12	Needle roller	High carbon chrome bearing steel	
13	Joint roller	Carbon steel	Nitriding
14	Rubber magnet	Synthetic rubber	
15	Type C retaining ring	Carbon steel	Phosphate coated
16	Piston bolt	Stainless steel	
17	Piston seal	NBR	
18	Rod seal	NBR	
19	Gasket	NBR	
20	Gasket	NBR	

Replacement Parts

Description		MHY2-10	MHY2-16	MHY2-20	MHY2-25	Main parts
Seal kit		MHY10-PS	MHY16-PS	MHY20-PS	MHY25-PS	<ø10> 17 18 19 <ø16, ø20, ø25> 17 18 19 20
Finger assembly	MHY2-□D	MHY-A1001	MHY-A1601	MHY-A2001	MHY-A2501	4 9
	MHY2-□D2	MHY-A1001-2	MHY-A1601-2	MHY-A2001-2	MHY-A2501-2	
Joint assembly		MHY-A1002	MHY-A1602	MHY-A2002	MHY-A2502	<ø10, ø16> 3 12 <ø20, ø25> 3 12 13
Piston assembly		MHY-A1003	MHY-A1603	MHY-A2003	MHY-A2503	<ø10> 2 6 11 14 <ø16, ø20, ø25> 2 6 11 14 16

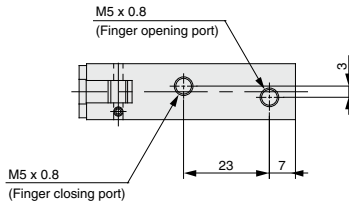
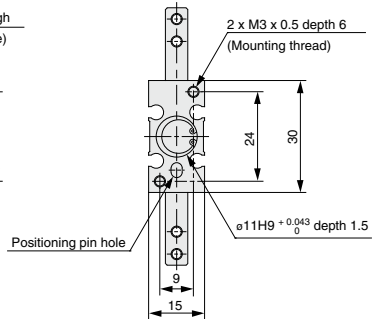
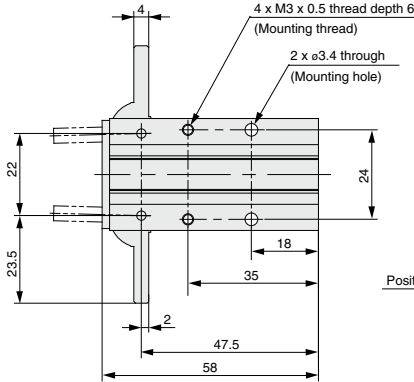
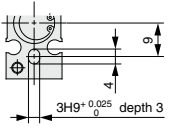
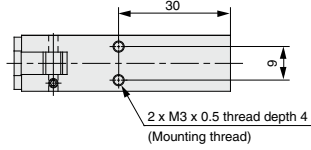
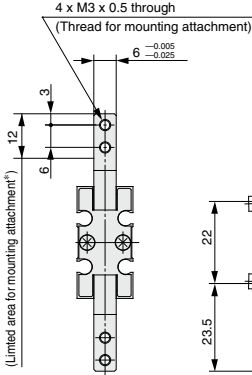
* Order 1 piece of finger assembly per one unit.

Replacement part/grease pack part no. : MH-G04 (30 g)

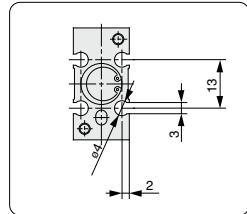
Dimensions

MHY2-10D

Pin hole positioning

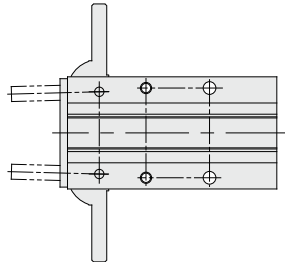
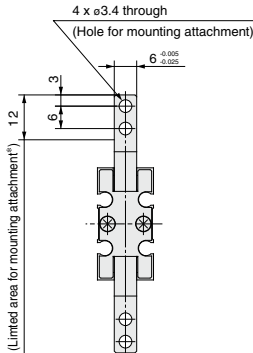


Auto Switch Mounting Groove Dimensions



MHY2-10D2

Opening/Closing direction through-hole type



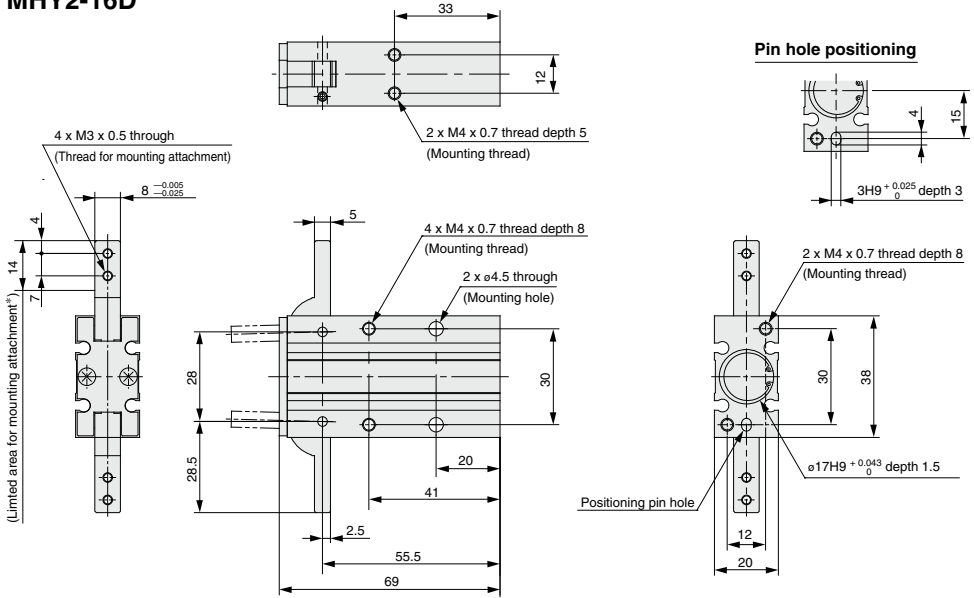
- MHZ
- MHF
- MHL
- MHR
- MHK
- MHS
- MHC
- MHT
- MHY**
- MHW
- X□
- MRHQ
- MA
- D-□

* Do not extend the attachment from limited area for mounting to avoid interference with the attachment or main body.

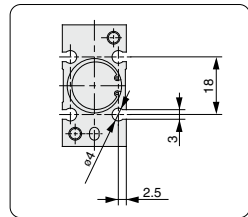
MHY2 Series

Dimensions

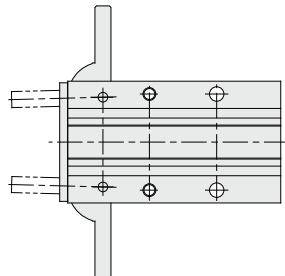
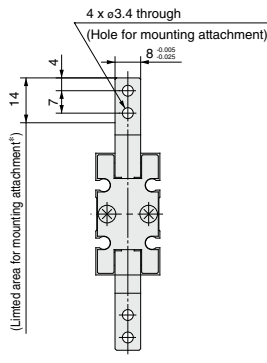
MHY2-16D



Auto Switch Mounting Groove Dimensions



MHY2-16D2 Opening/Closing direction through-hole type

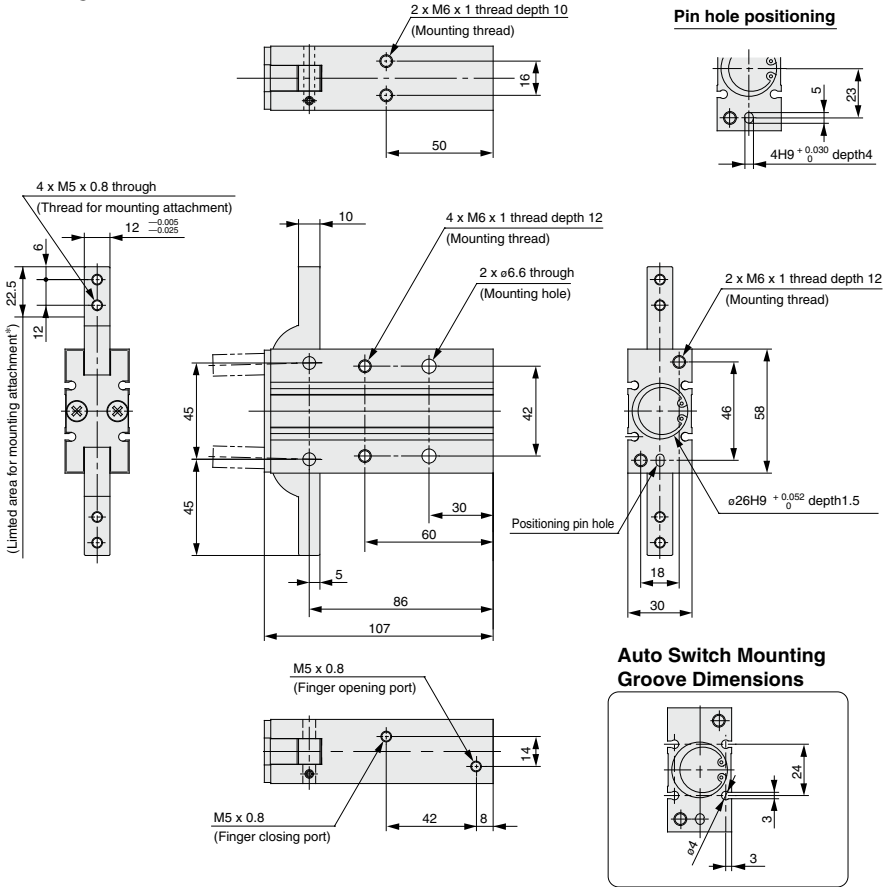


* Do not extend the attachment from limited area for mounting to avoid interference with the attachment or main body.

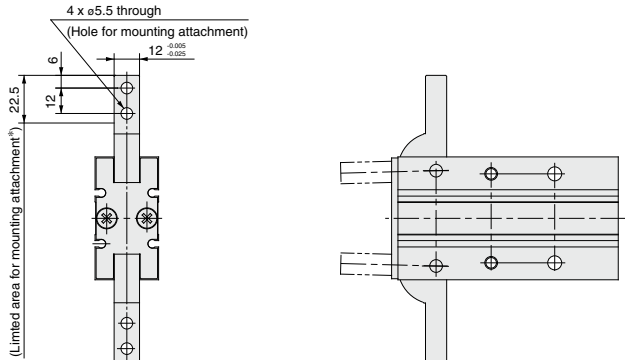
MHY2 Series

Dimensions

MHY2-25D



MHY2-25D2 Opening/Closing direction through-hole type



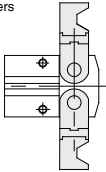
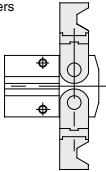
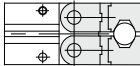
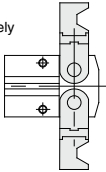
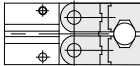
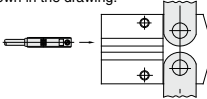
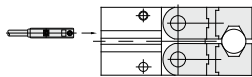
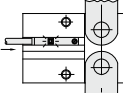
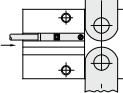

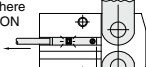
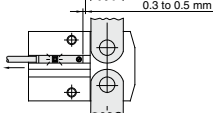

* Do not extend the attachment from limited area for mounting to avoid interference with the attachment or main body.

MHY2/MHW2 Series

Auto Switch Installation Examples and Mounting Positions

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

Detection when Gripping Exterior of Workpiece

Detection example	1. Confirmation of the fingers in reset position	2. Confirmation of work held
<p>Position to be detected</p> 	<p>1. Confirmation of the fingers in reset position</p> 	<p>2. Confirmation of work held</p> 
<p>Operation of auto switch</p>	<p>Auto Switch turned ON when fingers return. (Light ON)</p>	<p>Auto Switch turned ON when gripping a workpiece. (Light ON)</p>
<p>How to determine auto switch installation position</p> <p>At no pressure or low pressure, connect the auto switch to a power supply, and follow the directions.</p>	<p>Step 1) Completely open the fingers.</p> 	<p>Step 1) Position fingers for gripping a workpiece.</p> 
	<p>Step 2) Insert the auto switch into the switch groove in the direction shown in the drawing.</p> 	<p>Step 2) Insert the auto switch into the switch groove in the direction shown in the drawing.</p> 
	<p>Step 3) Slide the auto switch in the direction of the arrow until the indicator light illuminates.</p> 	<p>Step 3) Slide the auto switch in the direction of the arrow until the indicator light illuminates. Move the switch an additional 0.3 to 0.5 mm in the direction of the arrow and fasten it.</p>
	<p>Step 4) Slide the auto switch further in the direction of the arrow until the indicator light goes out.</p> 	<p>Position where light turns ON</p> 
	<p>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.</p> <p>Position where light turns ON</p>  <p>Position to be secured</p> 	<p>Position to be secured</p>  <p>0.3 to 0.5 mm</p>

MHZ

MHF

MHL

MHR

MHK

MHS

MHC

MHT

MHY

MHW

-X□

MRHQ

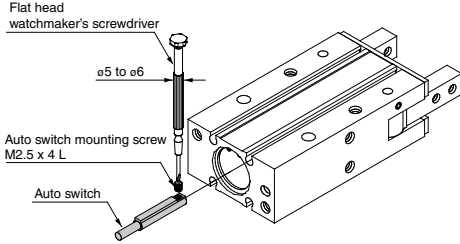
MA

D-□

MHY2 Series

Auto Switch Mounting

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

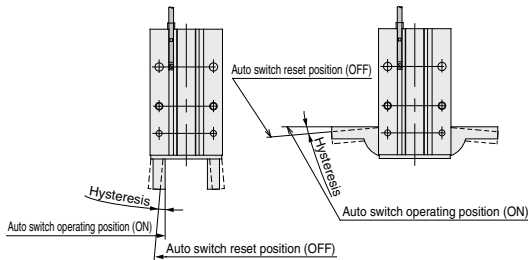


Note) Use a watchmaker's screwdriver with a grip diameter of 5 to 6 mm to tighten the auto switch mounting screw. The tightening torque should be about 0.05 to 0.15 N·m.

* Refer to the page 804 for the details on "Auto Switches Connection and Example".

Auto Switch Hysteresis

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

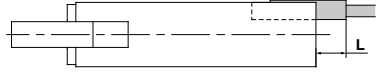


		D-M9□(V) D-M9□W(V)/M9A(V)
MHY2	Finger fully closed	2°
-10D	Finger fully open	4°
MHY2	Finger fully closed	2°
-16D	Finger fully open	3°
MHY2	Finger fully closed	2°
-20D	Finger fully open	3°
MHY2	Finger fully closed	1°
-25D	Finger fully open	2°

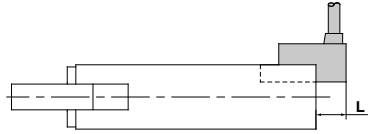
Protrusion of Auto Switch from Edge of Body

The projection of an auto switch from the edge of the body is shown in the table below. Use the table as a guideline for mounting.

Note) 2-color indicator type and perpendicular entry type protrude in the direction of the lead wire entry.



When auto switch D-M9□ is used



When auto switch D-M9□V is used

Max. Protrusion of Auto Switch from Edge of Body (L)

(mm)

Air gripper model	Auto switch model	Protrusion			
		In-line		Perpendicular	
Finger position	D-M9□ D-M9□W	D-M9□V D-M9□WV	D-M9□A	D-M9□AV	
MHY2-10D	Open	—	—	—	
	Closed	3	1	5 3	
MHY2-16D	Open	—	—	—	
	Closed	3	1	5 3	
MHY2-20D	Open	—	—	—	
	Closed	—	—	3 1	
MHY2-25D	Open	—	—	—	
	Closed	—	—	1 —	