

Series MHW2

ø20, ø25, ø32, ø40, ø50

How to Order

MHW 2-20 □ D 1-M9NL S

Number of fingers

2	2 fingers
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Bore size

20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm

Port thread type

Symbol	Type	Size
Nil	M thread	ø20, ø25
	Rc	ø32
TN	NPT	ø40
TF	G	ø50

Action

D	Double acting
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Number of auto switches

-	2
S	1

Auto switch

-	Without auto switch
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*Refer to the table below for the applicable auto switch symbol.

Finger option

-: Flat finger (Standard) 1: Right angle finger tap mounting

Applicable 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)		IC circuit	Relay, PLC	
							Perpendicular	In-line								
Solid state auto switch	—	Grommet	Yes	3-wire(NPN)	5 V, 12 V	—	M9NV	M9N	●	●	●	○	○	IC circuit	Relay, PLC	
				3-wire(PNP)			M9PV	M9P	●	●	●	○				
				2-wire			●	●	●	○	○					
				3-wire(NPN)	5 V, 12 V	—	M9NVV	M9NV	●	●	●	○	○			IC circuit
				3-wire(PNP)			M9PVV	M9PV	●	●	●	○	○			
				2-wire			●	●	●	○	○					
	Water resistant (2-colour indication)	Grommet	Yes	3-wire(NPN)	5 V, 12 V	—	M9NAV**	M9NA**	○	○	●	○	○	IC circuit	Relay, PLC	
				3-wire(PNP)			M9PAV**	M9PA**	○	○	●	○	○			
				2-wire			○	○	●	○	○					
					12 V	—	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) M9NWZ

* Auto switches marked with a "○" symbol 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) When ordering the air gripper with the auto switch, the auto switch mounting bracket is included.

When ordering the auto switch separately, the auto switch mounting bracket (BMG2-012) is required.

Specifications



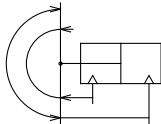
Fluid	Air
Operating pressure	0.15 to 0.7MPa
Ambient and fluid temperature	-10 to 60 °C
Repeatability	±0.2mm
Max. operating frequency	ø20-25: 60c.p.m ø32 to 50: 30c.p.m
Lubrication	Not required
Action	Double acting
Auto switch (Optional) ^{Note}	Solid state switch (3 wire, 2wire)



Note) Refer to p.6-15 for details of auto switch specifications.

Symbol

Double acting



Model

Model	Bore size (mm)	Effective force (Nm) ⁽¹⁾	Opening angle (Both sides)		Weight ⁽²⁾ (g)
			Opening side	Closing side	
MHW2-20D	20	0.30	180°	-5°	300
MHW2-25D	25	0.73		-6°	510
MHW2-32D	32	1.61		-5°	910
MHW2-40D	40	3.70		-5°	2140
MHW2-50D	50	8.27		-4°	5100

Note 1) At the pressure of 0.5MPa

Note 2) Not including auto switch



- Refer to the "How to Select the Applicable Model" on p.5-244
- Refer to p.5-244 and 5-245 for the details of effective holding force and allowable overhanging distance.

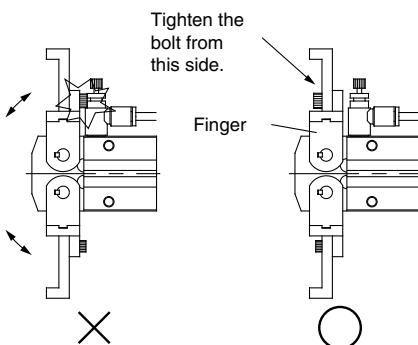
Precaution

Installation

MHW

Warning

When using right angle finger tap mounting type, pay attention the interference of bolt and speed controller.

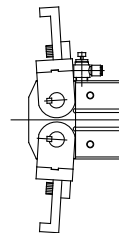


Bolt interferes with speed controller

MHW2-50⁰₀₁

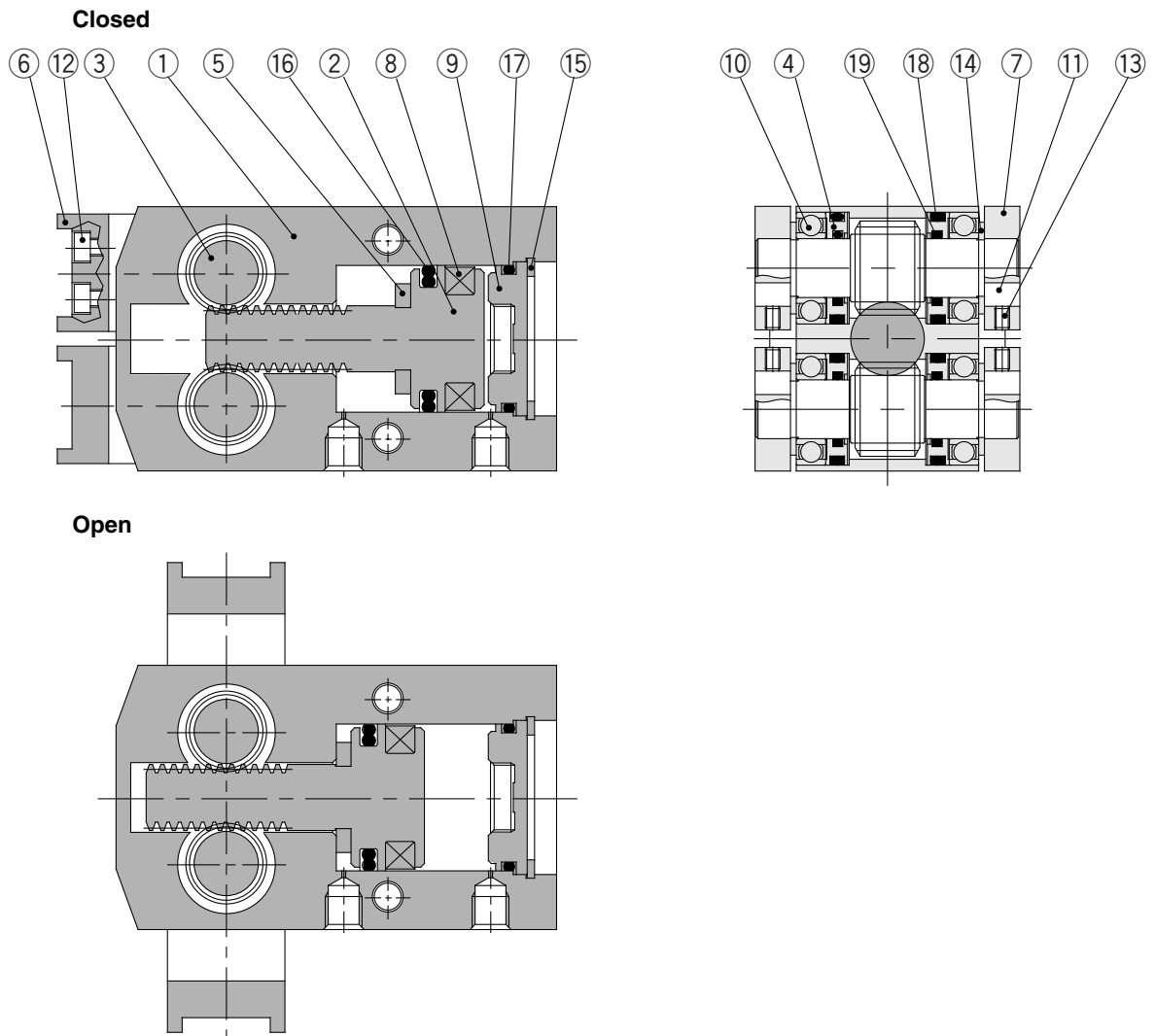
Warning

When using speed controller with One-touch fitting, use AS22 or AS23. If AS32 or AS33 is used, the finger interferes with speed controller as figure shown below. It causes malfunction.



Series MHW2

Construction



Component Parts

No.	Description	Material	Note
①	Body	Aluminum alloy	Hard anodized
②	Piston	Stainless steel	Nitriding
③	Pinion gear	Carbon steel	Heat treatment
④	Seal cover	Brass	
⑤	Bumper	Urethane rubber	
⑥	Finger (A)	Carbon steel	
⑦	Finger (B)	Carbon steel	
⑧	Rubber magnet	Synthetic rubber	

Component Parts

No.	Description	Material	Note
⑨	Cap	ø20, 25: Resin	
		ø32 to 50: Aluminum alloy	Hard anodized
⑩	Ball bearing	Carbon steel	Shield type
⑪	Key	Carbon steel	
⑫	Hexagon socket head screw	Carbon steel	
⑬	Hexagon socket cap screw	Carbon steel	
⑭	C-shape snap ring	Carbon steel	
⑮	C-shape snap ring	Carbon steel	

Replacement Parts: Seal Kits

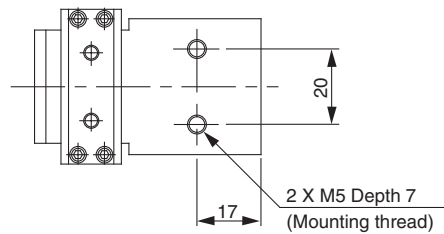
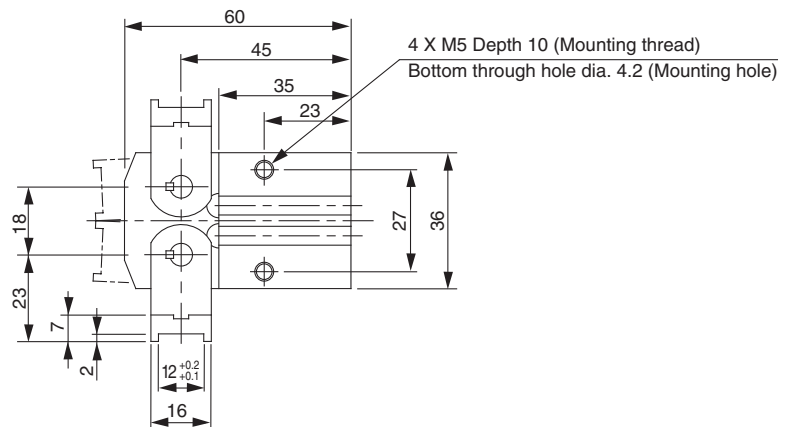
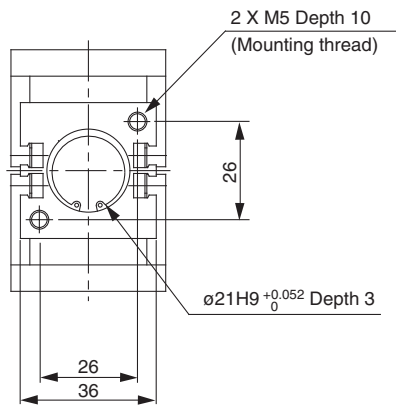
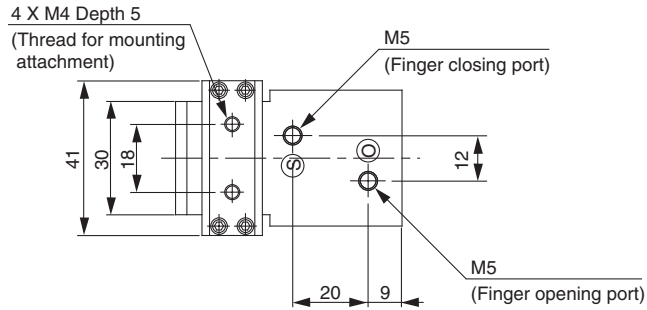
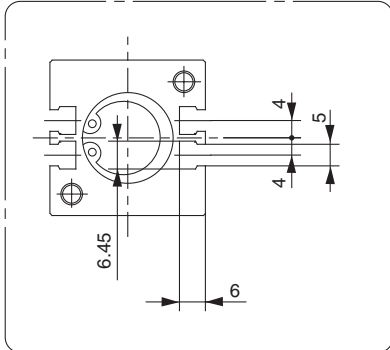
No.	Description	Material	Kit No.				
			MHW2-20D	MHW2-25D	MHW2-32D	MHW2-40D	MHW2-50D
⑬	Seal Kit	NBR	MHW20-PS	MHW25-PS	MHW32-PS	MHW40-PS	MHW50-PS
⑭							
⑮							
⑯							

Dimensions

MHW2-20D

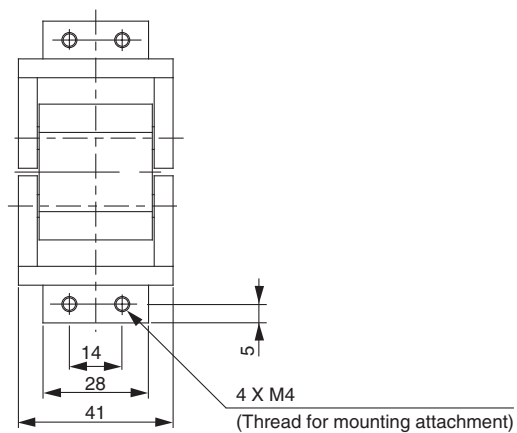
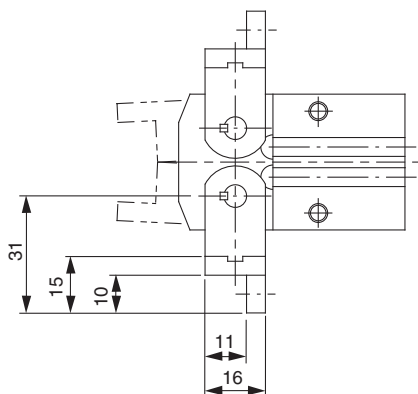
Flat finger (Standard)

Auto switch mounting groove position



MHW2-20D1

Right angle finger



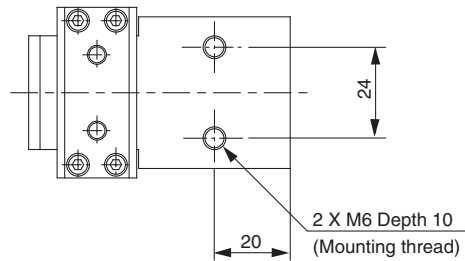
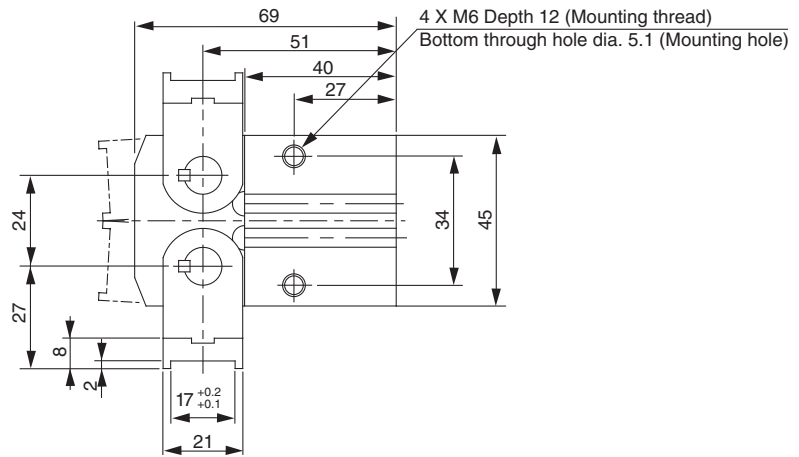
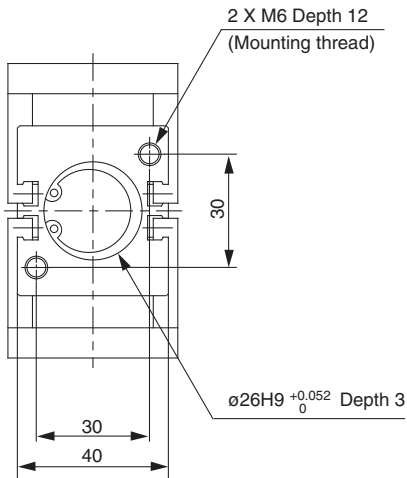
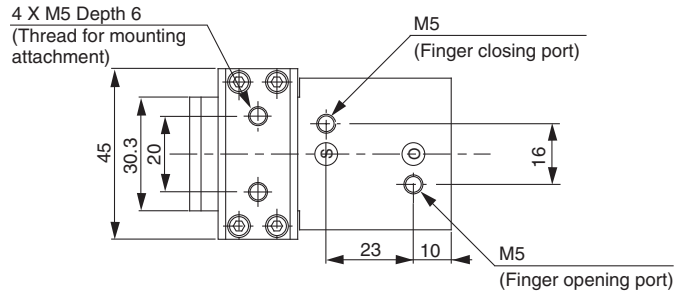
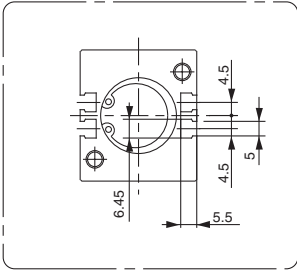
Series MHW2

Dimensions

MHW2-25D

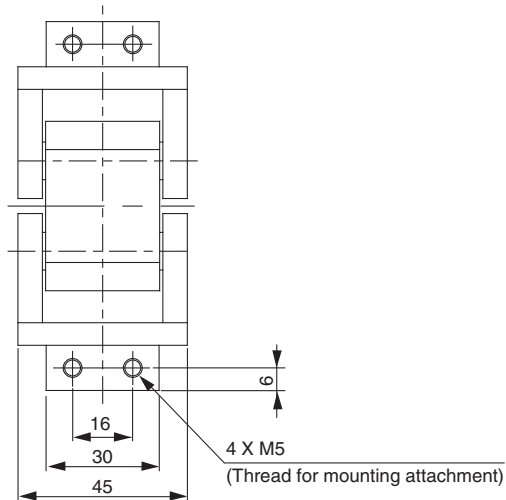
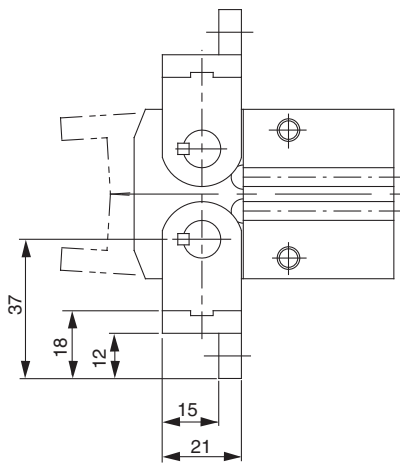
Flat finger (Standard)

Auto switch mounting groove position



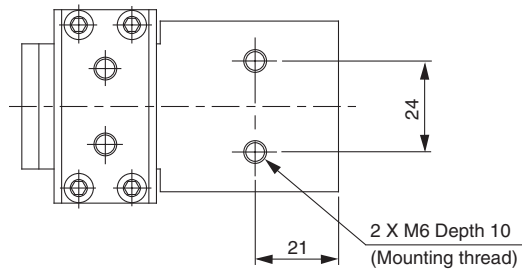
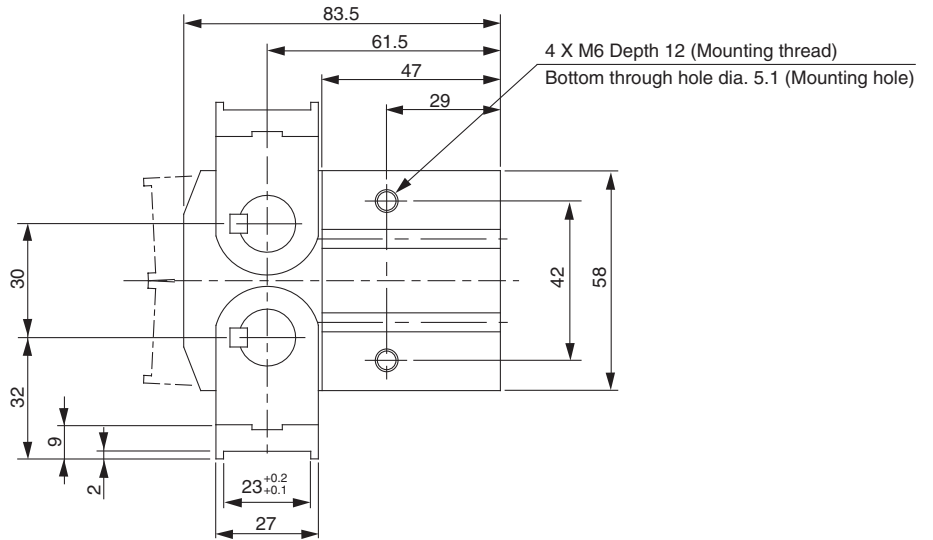
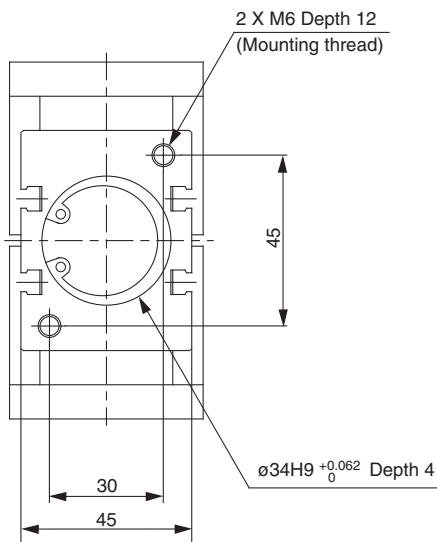
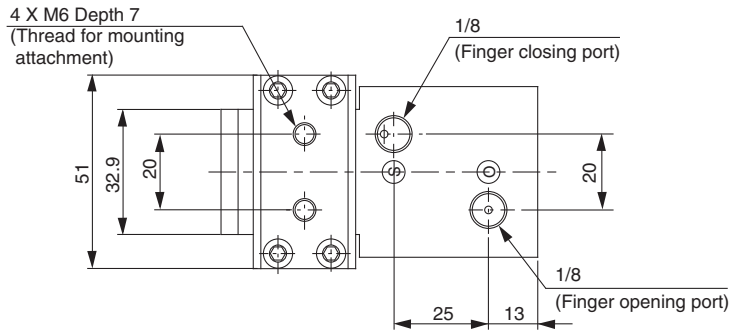
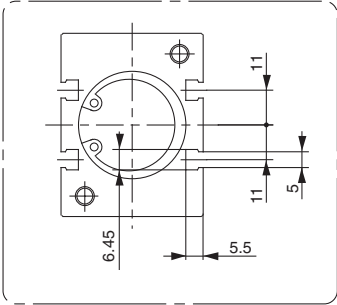
MHW2-25D1

Right angle finger

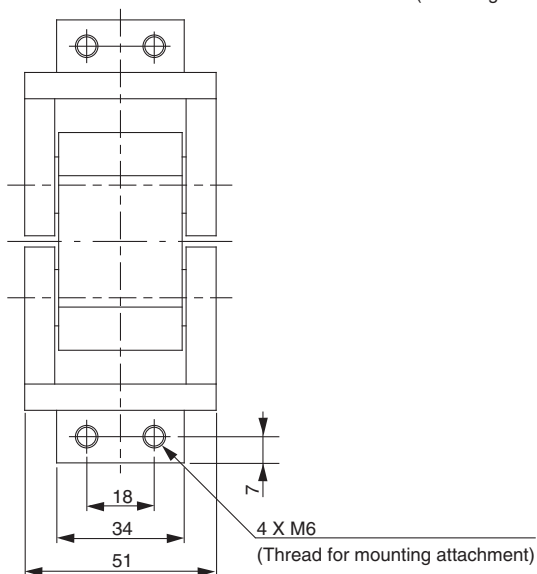
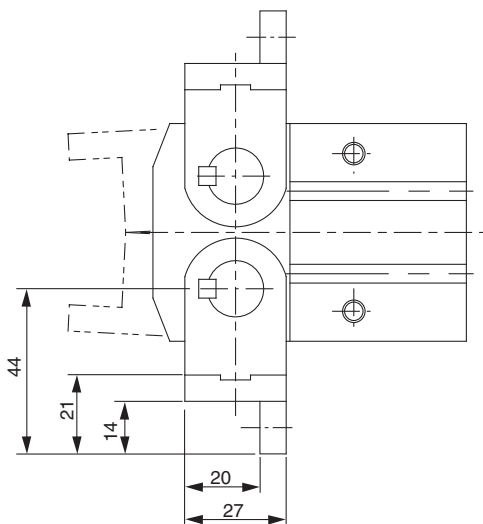


MHW2-32D
Flat finger (Standard)

Auto switch mounting groove position



MHW2-32D1
Right angle finger



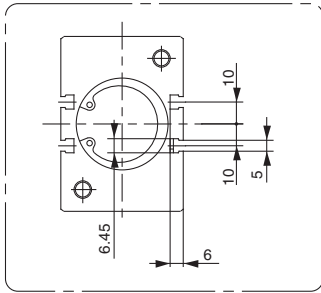
Series MHW2

Dimensions

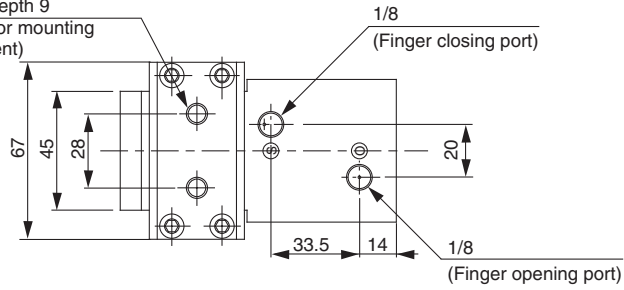
MHW2-40D

Flat finger (Standard)

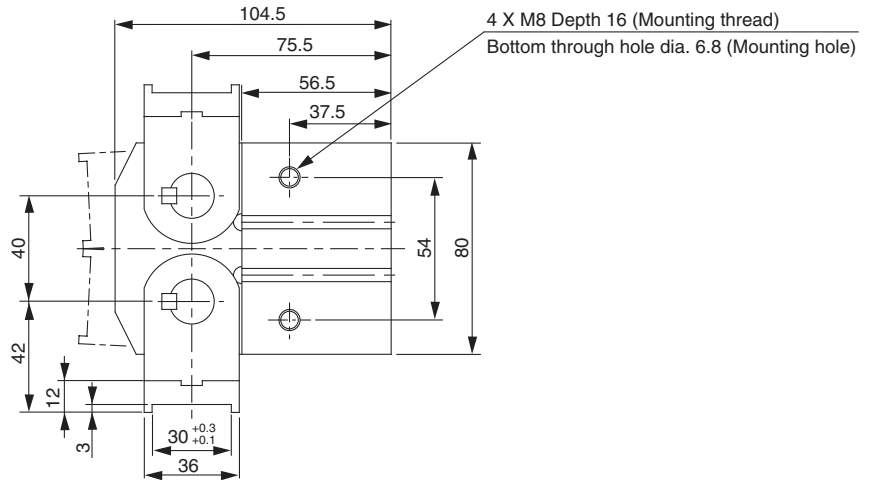
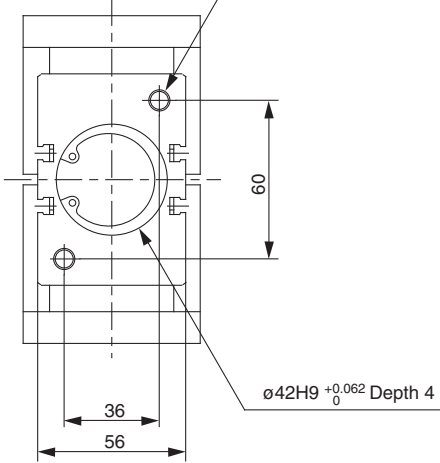
Auto switch mounting groove position



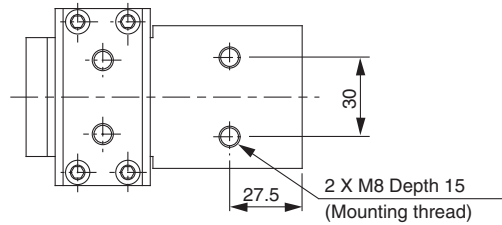
4 X M8 Depth 9
(Thread for mounting attachment)



2 X M8 Depth 15
(Mounting thread)

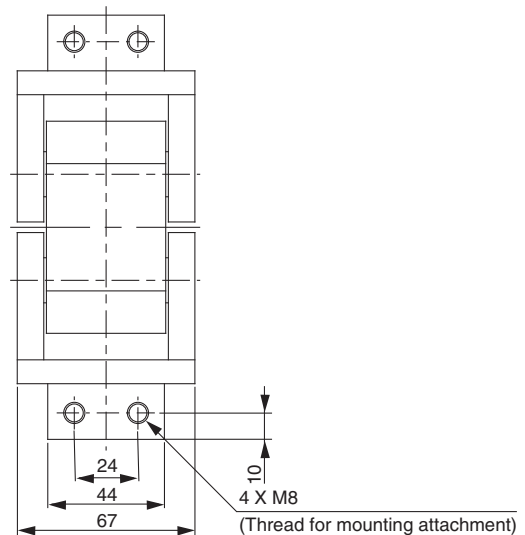
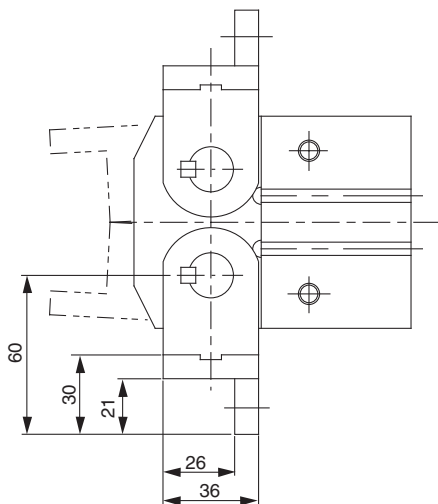


4 X M8 Depth 16 (Mounting thread)
Bottom through hole dia. 6.8 (Mounting hole)



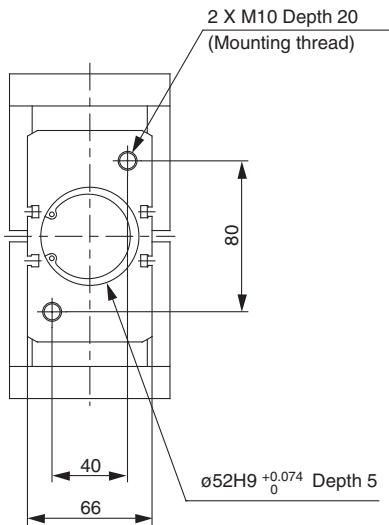
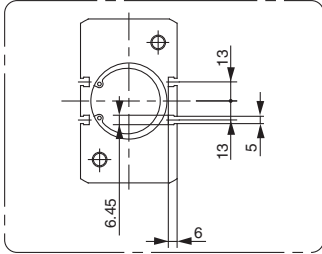
MHW2-40D1

Right angle finger

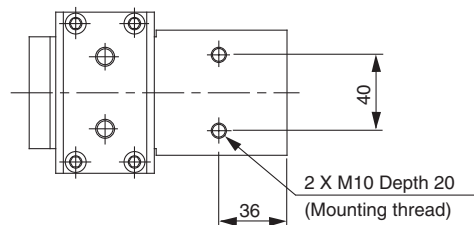
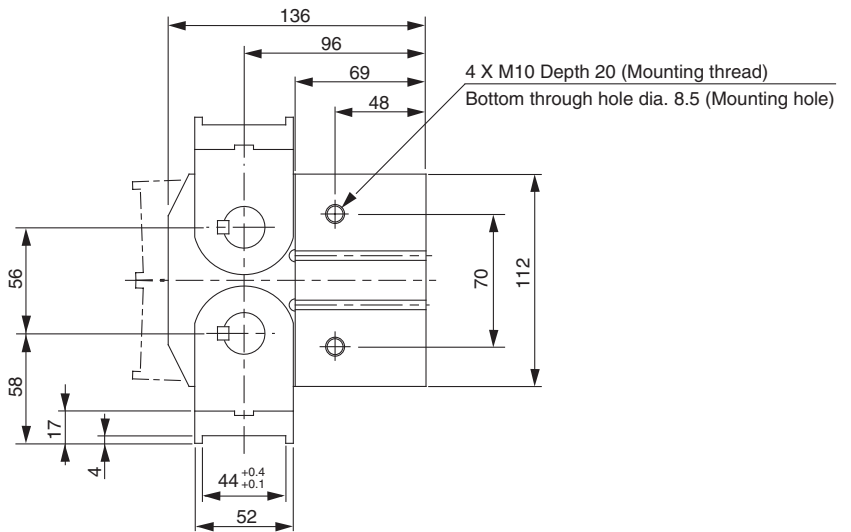
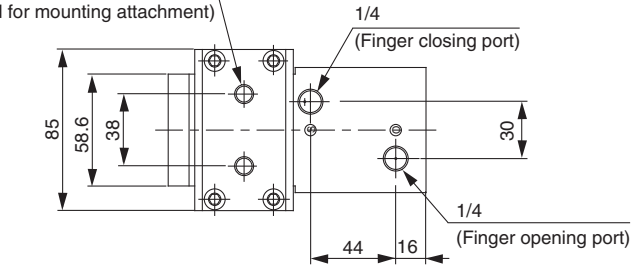


MHW2-50D
Flat finger (Standard)

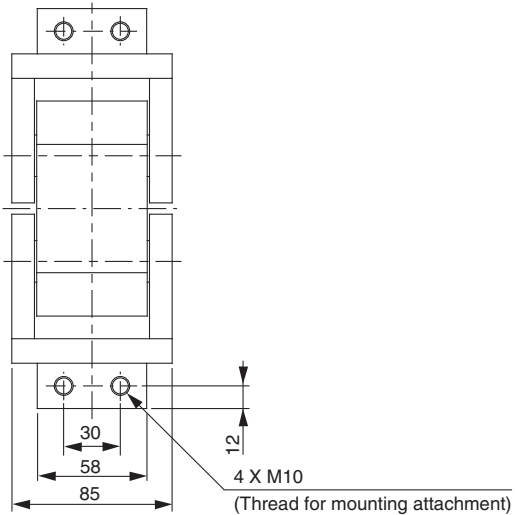
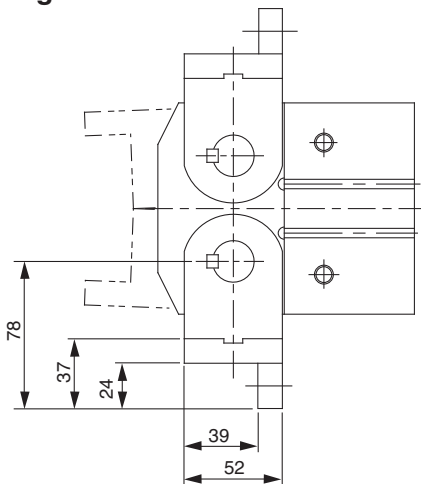
Auto switch mounting groove position



4 X M10 Depth 13
(Thread for mounting attachment)



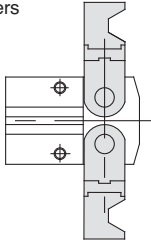
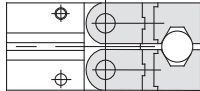
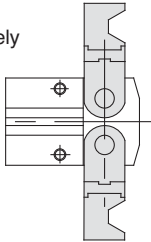
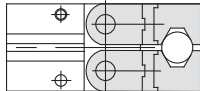
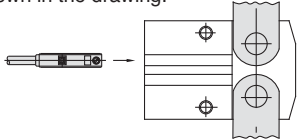
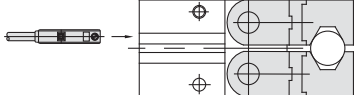
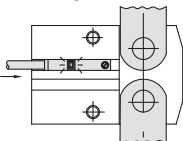
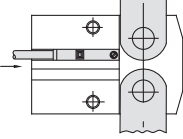
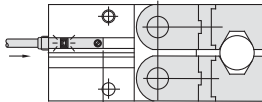
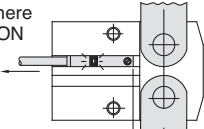
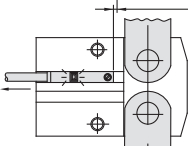
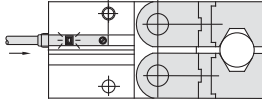
MHW2-50D1
Right angle finger



Series *MHY2/MHW2* Auto Switch Installation Examples and Mounting Positions

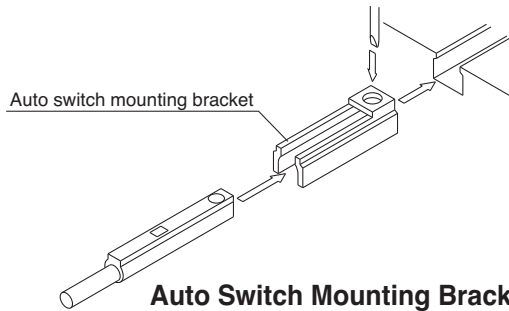
Various auto switch applications are possible through different combinations of auto switch quantities and detecting positions.

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>Position when gripping a workpiece</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>0.3 to 0.5 mm</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>0.3 to 0.5 mm</p> <p>Position to be secured</p> 	<p>Position to be secured</p> 

Auto Switch Mounting

- (1) Insert the auto switch bracket into the installation groove of the gripper as shown below and roughly set it.
- (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).



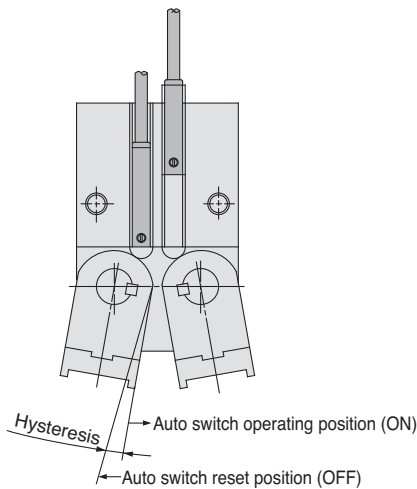
Auto Switch Mounting Bracket: Part No.

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

Note) Use a screwdriver with a grip diameter of 5 to 6 mm to tighten the set screws (M2.5). The tightening torque should be 0.5 to 1 N·m. As a rule, it should be turned about 90° beyond the point at which tightening can be felt.

Auto Switch Hysteresis

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

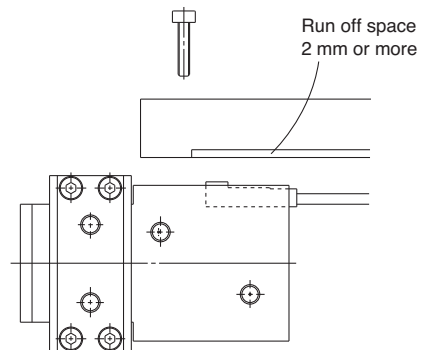


Auto switch model	Auto switch model
D-Y59□/Y69□	D-Y7P(V)/Y7□W(V)
MHW2-20D	4°
MHW2-25D	4°
MHW2-32D	2°
MHW2-40D	2°
MHW2-50D	2°

Auto switch model	Max. hysteresis (Max. value)
D-M9□(V)	4°
D-M9□W(V)	
D-M9□A(V)	
MHW2-20D	4°
MHW2-25D	4°
MHW2-32D	2°
MHW2-40D	2°
MHW2-50D	2°

Handling of Mounting Brackets

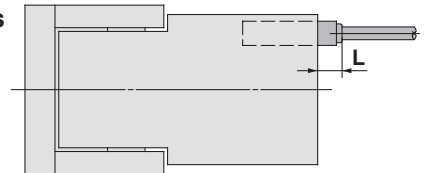
When auto switch is set on mounting side as shown below, allow at least 2 mm run off space on mounting late since the auto switch is protruded from the gripper edge.



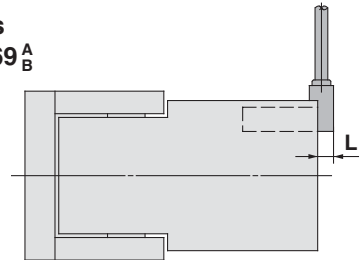
Protrusion of Auto Switch from Edge of Body

The maximum protrusion of an auto switch (when fingers are fully closed) from the edge of the body is shown in the table below. Use the table as a guideline for mounting.

When auto switches
D-M9□/M9□W/Y59^A_B
D-M9□A
D-Y7□, Y7□W
are used



When auto switches
D-M9□V/M9□WV/Y69^A_B
D-M9□AV
D-Y7□V, Y7□WV
are used



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

Air gripper model	Auto switch model Finger position	Protrusion (mm)	
		In-line electrical entry type	Perpendicular electrical entry type
		D-Y59□/Y7P/Y7□W	D-Y69□/Y7PV/Y7□WV
MHW2-20D	Open	—	—
	Closed	7	5
MHW2-25D	Open	—	—
	Closed	7	5
MHW2-32D	Open	—	—
	Closed	4	2
MHW2-40D	Open	—	—
	Closed	3	1
MHW2-50D	Open	—	—
	Closed	1	—

Air gripper model	Auto switch model Finger position	Protrusion (mm)			
		In-line electrical entry type		Perpendicular electrical entry type	
		D-M9□/M9□W	M9□A	D-M9□V/M9□WV	M9□AV
MHW2-20D	Open	—	—	—	—
	Closed	7	9	5	7
MHW2-25D	Open	—	—	—	—
	Closed	7	9	5	7
MHW2-32D	Open	—	—	—	—
	Closed	4	6	2	4
MHW2-40D	Open	—	—	—	—
	Closed	3	5	1	3
MHW2-50D	Open	—	—	—	—
	Closed	1	3	—	1