

# Parallel Type Air Gripper/2-Finger Type

# MHS2 Series

ø16, ø20, ø25, ø32, ø40, ø50, ø63

## How to Order

### Bore size

ø16 to ø25 **MHS2 - 20D - M9BW** [ ] - [ ]

Number of fingers: 2 | 2 fingers

Bore size: 16 | 16 mm, 20 | 20 mm, 25 | 25 mm

Action: D | Double acting

Auto switch: Nil | Without auto switch (Built-in magnet), S | For the applicable auto switch model, refer to the table below.

Number of auto switches: Nil | 2 pcs., S | 1 pc.

Made to Order: Refer to page 577 for details.

### 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	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)			5 (Z)						
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	5 V,	24 V	—	M9NV	M9N	●	●	○	○	Relay, PLC						
				3-wire (PNP)	12 V			M9PV	M9P	●	●	○	○							
				2-wire	12 V			M9BV	M9B	●	●	○	○							
				3-wire (NPN)	5 V,			M9NWX	M9NX	●	●	○	○							
				3-wire (PNP)	12 V			M9PWX	M9PW	●	●	○	○							
				2-wire	12 V			M9BWX	M9BW	●	●	○	○							
	Diagnosis (2-color indicator)			—	Grommet			Yes	3-wire (NPN)	5 V,	24 V	—	M9NAV**		M9NA**	○	○	●	○	Relay, PLC
									3-wire (PNP)	12 V			M9PAV**		M9PA**	○	○	○	●	
									2-wire	12 V			M9BAV**		M9BA**	○	○	○	○	
									3-wire (NPN)	5 V,			M9NAV**		M9NA**	○	○	●	○	
									3-wire (PNP)	12 V			M9PAV**		M9PA**	○	○	○	●	
									2-wire	12 V			M9BAV**		M9BA**	○	○	○	○	
Water resistant (2-color indicator)	—	Grommet	Yes	3-wire (NPN)	5 V,	24 V	—	M9NAV**	M9NA**	○	○	●	○	Relay, PLC						
				3-wire (PNP)	12 V			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) M9N  
 1 m ..... M (Example) M9NWX  
 3 m ..... L (Example) M9NL  
 5 m ..... Z (Example) M9NZ
- \* Auto switches marked with a "O" symbol are produced upon receipt of order.

Note) 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.

### Bore size

ø32 to ø63 **MHS2 - 50D - M9BW** [ ] - [ ]

Number of fingers: 2 | 2 fingers

Bore size: 32 | 32 mm, 40 | 40 mm, 50 | 50 mm, 63 | 63 mm

Action: D | Double acting

Auto switch: Nil | Without auto switch (Built-in magnet), S | For the applicable auto switch model, refer to the table below.

Number of auto switches: Nil | 2 pcs., S | 1 pc.

Made to Order: Refer to page 577 for details.

### 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	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)			5 (Z)						
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	5 V,	24 V	—	M9NV	M9N	●	●	○	○	Relay, PLC						
				3-wire (PNP)	12 V			M9PV	M9P	●	●	○	○							
				2-wire	12 V			M9BV	M9B	●	●	○	○							
				3-wire (NPN)	5 V,			M9NWX	M9NX	●	●	○	○							
				3-wire (PNP)	12 V			M9PWX	M9PW	●	●	○	○							
				2-wire	12 V			M9BWX	M9BW	●	●	○	○							
	Diagnosis (2-color indicator)			—	Grommet			Yes	3-wire (NPN)	5 V,	24 V	—	M9NAV**		M9NA**	○	○	●	○	Relay, PLC
									3-wire (PNP)	12 V			M9PAV**		M9PA**	○	○	○	●	
									2-wire	12 V			M9BAV**		M9BA**	○	○	○	○	
									3-wire (NPN)	5 V,			M9NAV**		M9NA**	○	○	●	○	
									3-wire (PNP)	12 V			M9PAV**		M9PA**	○	○	○	●	
									2-wire	12 V			M9BAV**		M9BA**	○	○	○	○	
Water resistant (2-color indicator)	—	Grommet	Yes	3-wire (NPN)	5 V,	24 V	—	M9NAV**	M9NA**	○	○	●	○	Relay, PLC						
				3-wire (PNP)	12 V			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) M9N  
 1 m ..... M (Example) M9NWX  
 3 m ..... L (Example) M9NL  
 5 m ..... Z (Example) M9NZ
- \* Auto switches marked with a "O" 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.  
 Note 2) When ordering the air gripper with auto switch, auto switch mounting brackets are supplied with the air gripper having a bore size of ø32 to ø63.  
 Note 3) When ordering the auto switch separately, auto switch mounting brackets (BMG2-012) are required.

**Model/Specifications**

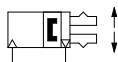


Model		MHS2-16D	MHS2-20D	MHS2-25D	MHS2-32D	MHS2-40D	MHS2-50D	MHS2-63D
Bore size (mm)		16	20	25	32	40	50	63
Fluid		Air						
Operating pressure (MPa)		0.2 to 0.6			0.1 to 0.6			
Ambient and fluid temperature (°C)		-10 to 60						
Repeatability (mm)		±0.01						
Max. operating frequency (c.p.m.)		120			60			
Lubrication		Not required						
Action		Double acting						
Effective gripping force (N) at 0.5 MPa <small>(Note)</small>	External grip	21	37	63	111	177	280	502
	Internal grip	23	42	71	123	195	306	537
Opening/Closing stroke (Both sides) (mm)		4	4	6	8	8	12	16
Weight (g)		58	96	134	265	345	515	952

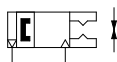
(Note) Values for ø16 to ø25 are with gripping point L = 20 mm, and for ø32 to ø63 with gripping point L = 30 mm. Refer to "Effective Gripping Force" data on pages 579 and 580 for the gripping force at each gripping position.

**Symbol**

Double acting:  
Internal grip



Double acting:  
External grip



**Made to Order**  
[Click here for details](#)

Symbol	Specifications/Description
-X4	Heat resistance (100°C)
-X5	Fluororubber seal
-X50	Without magnet
-X53	EPDM seal/Fluorine grease
-X56	Axial ported
-X63	Fluorine grease
-X79	Grease for food processing machines, Fluorine grease
-X79A	Grease for food processing machines

Refer to pages 636 to 643 for the specifications of products with auto switches.

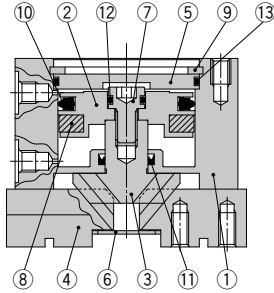
- Auto switch installation examples and mounting positions
- Auto switch hysteresis
- Auto switch mounting
- Protrusion of auto switch from edge of body

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

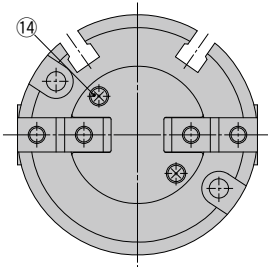
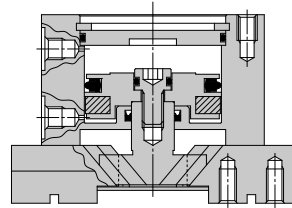
# MHS2 Series

## Construction

Closed condition



Open condition



### Component Parts

No.	Description	Material	Note
1	Body	Aluminum alloy	Hard anodized
2	Piston	Aluminum alloy	Hard anodized
3	Cam	Carbon steel	Heat treated, Specially treated
4	Finger	Carbon steel	Heat treated, Specially treated
5	Cap	Aluminum alloy	Hard anodized
6	End plate	Stainless steel	
7	Piston bolt	Stainless steel	

No.	Description	Material	Note
8	Magnet	—	
9	Type C retaining ring	Carbon steel	Phosphate coated
10	Piston seal	NBR	
11	Rod seal	NBR	
12	Gasket	NBR	
13	Gasket	NBR	
14	Cross recessed flat head screw	Carbon steel	Zinc chromated

### Replacement Parts

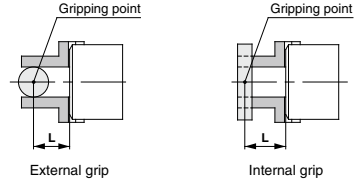
Description	MHS2-16D	MHS2-20D	MHS2-25D	MHS2-32D	MHS2-40D	MHS2-50D	MHS2-63D	Main parts
Seal kit	MHS16-PS	MHS20-PS	MHS25-PS	MHS32-PS	MHS40-PS	MHS50-PS	MHS63-PS	⑩⑪⑫⑬
Finger	P3316004	P3346104	P3316204	P3316304	P3316404	P3316504	P3316604	④
Cam	P3316023	P3316123	P3316223	P3316323	P3316423	P3316523	P3316623	③
Piston assembly	MHS-A1601	MHS-A2001	MHS-A2501	MHS-A3201	MHS-A4001	MHS-A5001	MHS-A6301	②⑦⑧
End plate assembly	MHS-A1613-2	MHS-A2013-2	MHS-A2513-2	MHS-A3213-2	MHS-A4013-2	MHS-A5013-2	MHS-A6313-2	⑥⑭
Cap	MHS-A1614	MHS-A2014	MHS-A2514	MHS-A3214	MHS-A4014	MHS-A5014	MHS-A6314	⑤

\* Order 2 pieces of fingers for one unit.

Replacement part/Grease pack part no.: MH-G01 (30 g)

## Gripping Point

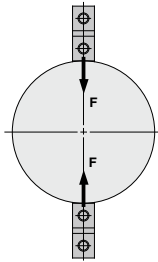
- The workpiece gripping point distance should be within the gripping force ranges given for each pressure in the effective gripping force graphs below.
- If operated with the workpiece gripping point beyond the indicated ranges, an excessive offset load will be applied to the sliding section of the fingers, which can have an adverse effect on the service life of the product.
- If there is an overhang, please consult with SMC.



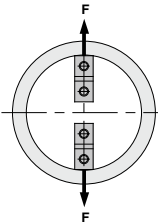
L: Gripping point distance

## Effective Gripping Force

- Indication of effective gripping force  
The effective gripping force shown in the graphs to the right is expressed as F, which is the thrust of one finger, when both fingers and attachments are in full contact with the workpiece as shown in the figure below.



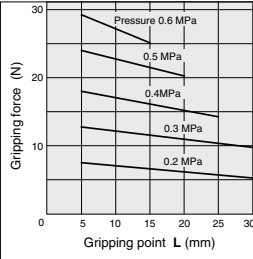
External grip



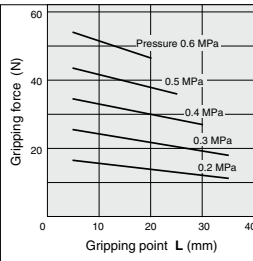
Internal grip

### External Grip

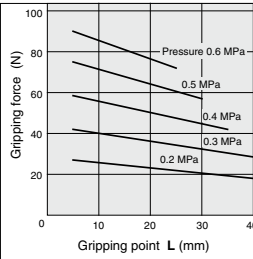
#### MHS2-16D



#### MHS2-20D

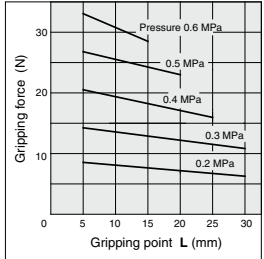


#### MHS2-25D

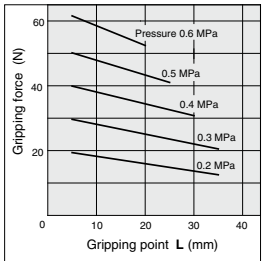


### Internal Grip

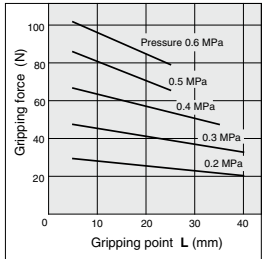
#### MHS2-16D



#### MHS2-20D



#### MHS2-25D



MHZ

MHF

MHL

MHR

MHK

MHS

MHC

MHT

MHY

MHW

-X

MRHQ

MA

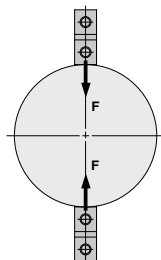
D-

# MHS2 Series

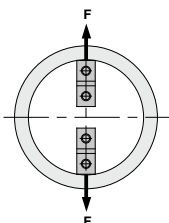
## Effective Gripping Force

### • Indication of effective gripping force

The effective gripping force shown in the graphs to the right is expressed as  $F$ , which is the thrust of one finger, when both fingers and attachments are in full contact with the workpiece as shown in the figure below.



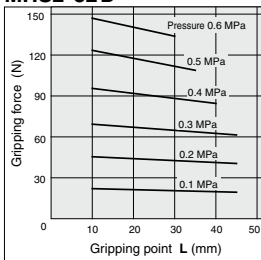
External grip



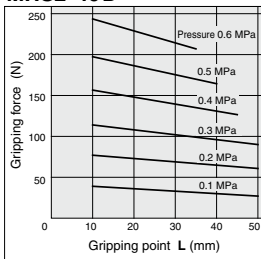
Internal grip

### External Grip

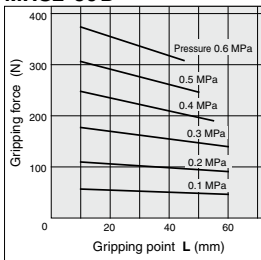
#### MHS2-32D



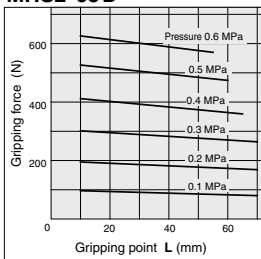
#### MHS2-40D



#### MHS2-50D

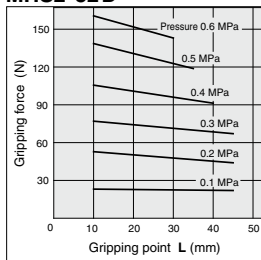


#### MHS2-63D

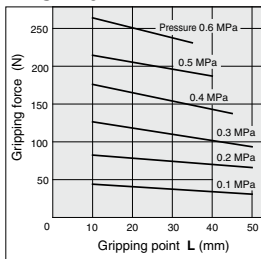


### Internal Grip

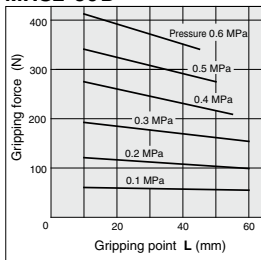
#### MHS2-32D



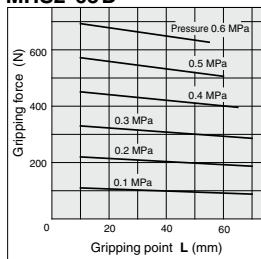
#### MHS2-40D



#### MHS2-50D

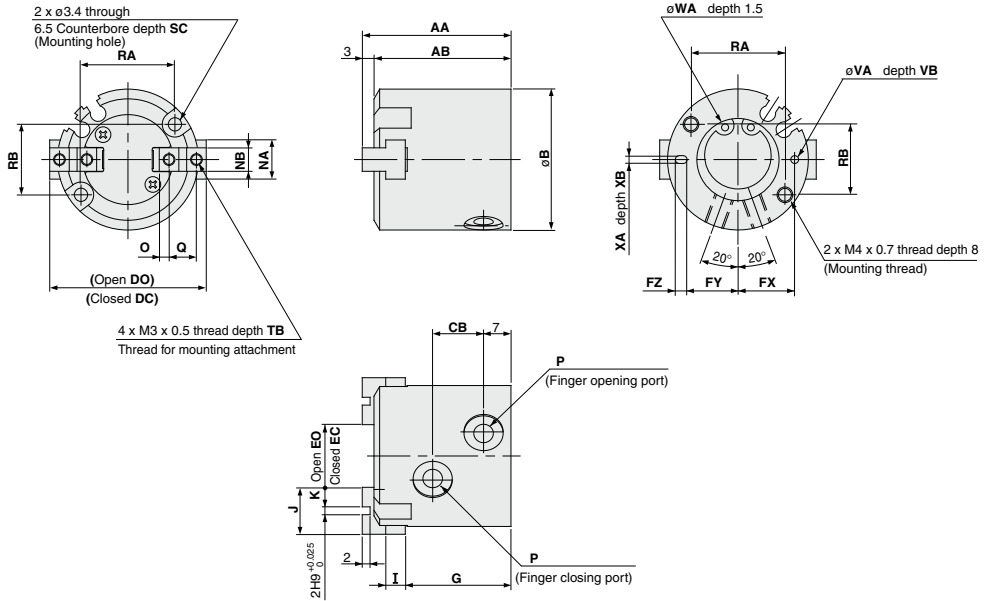


#### MHS2-63D



**Dimensions**

**MHS2-16D to 25D**

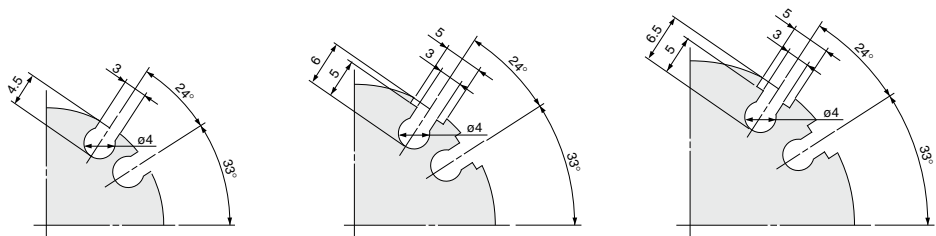


**Auto switch mounting groove dimensions (2 locations)**

**MHS2-16D**

**MHS2-20D**

**MHS2-25D**



Model	AA	AB	B	CB	DC	DO	EC	EO	FX	FY	FZ	G	I	J	K	NA	NB	O	P	Q
<b>MHS2-16D</b>	35	32	30	11	30	34	10	14	12.5	11	3	25	4	10	4	8	5h9 $^{+0.030}_0$	2	M3 x 0.5	6
<b>MHS2-20D</b>	38	35	36	13	36	40	12	16	14.5	13	3	27	5	12	5	10	6h9 $^{+0.030}_0$	2.5	M5 x 0.8	7
<b>MHS2-25D</b>	40	37	42	15	42	48	14	20	17	14.5	5	28	5	14	6	12	6h9 $^{+0.030}_0$	3	M5 x 0.8	8

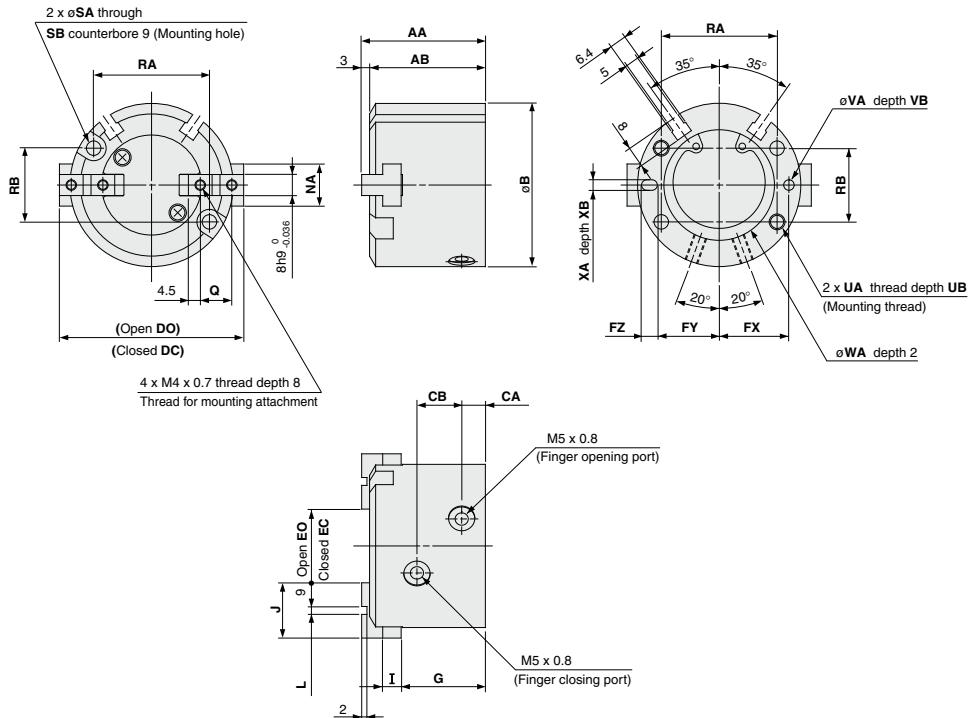
Model	RA	RB	SC	TB	VA	VB	WA	XA	XB
<b>MHS2-16D</b>	18	16	8	5	2H9 $^{+0.025}_0$	2	17H9 $^{+0.043}_0$	2H9 $^{+0.025}_0$	2
<b>MHS2-20D</b>	24	18	9.5	6	2H9 $^{+0.025}_0$	2	21H9 $^{+0.052}_0$	2H9 $^{+0.025}_0$	2
<b>MHS2-25D</b>	26	22	10	6	3H9 $^{+0.025}_0$	3	26H9 $^{+0.052}_0$	3H9 $^{+0.025}_0$	3

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

# MHS2 Series

## Dimensions

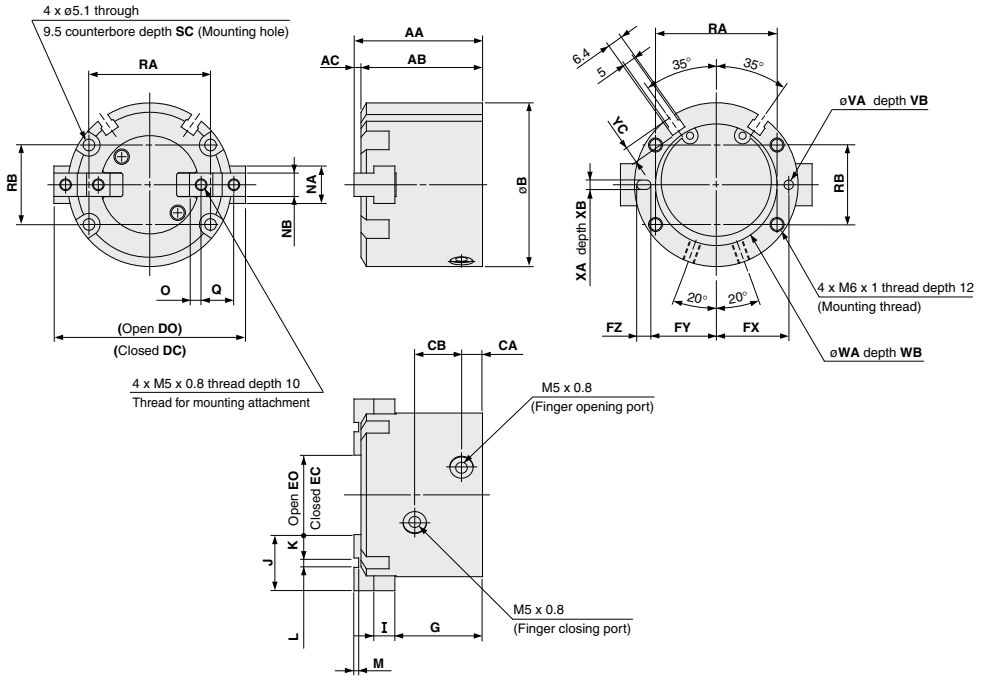
### MHS2-32D/40D



(mm)

Model	AA	AB	B	CA	CB	DC	DO	EC	EO	FX	FY	FZ	G	I	J	L	NA	Q	RA	RB	SA	
MHS2-32D	44	41	56	8	16	56	64	16	24	23	20.5	5	30.5	6	20	2H9 $\begin{smallmatrix} +0.025 \\ 0 \end{smallmatrix}$	14	11	38	25	4.5	
MHS2-40D	47	44	62	9	17	62	70	20	28	26.5	23.5	6	32	7	21	3H9 $\begin{smallmatrix} +0.025 \\ 0 \end{smallmatrix}$	16	12	44	28	5.5	
Model	SB	UA	UB	VA	VB	WA	XA	XB														
MHS2-32D	8	M5 x 0.8	10	3H9 $\begin{smallmatrix} +0.025 \\ 0 \end{smallmatrix}$	3	34H9 $\begin{smallmatrix} +0.062 \\ 0 \end{smallmatrix}$	3H9 $\begin{smallmatrix} +0.025 \\ 0 \end{smallmatrix}$	3														
MHS2-40D	9.5	M6 x 1	12	4H9 $\begin{smallmatrix} +0.030 \\ 0 \end{smallmatrix}$	4	42H9 $\begin{smallmatrix} +0.062 \\ 0 \end{smallmatrix}$	4H9 $\begin{smallmatrix} +0.030 \\ 0 \end{smallmatrix}$	4														

# MHS2-50D/63D

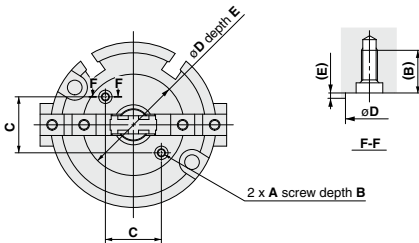


Model	AA	AB	AC	B	CA	CB	DC	DO	EC	EO	FX	FY	FZ	G	I	J	K	L	M	NA	NB
MHS2-50D	55	52	3	70	9	20	70	82	22	34	31	28	6	37.5	9	24	10	4H9 <sup>0</sup> / <sub>0</sub> ±0.030	2	18	10h9 <sup>0</sup> / <sub>0</sub> ±0.036
MHS2-63D	66	62	4	86	12	22	86	102	30	46	38	34.5	7	44	11	28	11	6H9 <sup>0</sup> / <sub>0</sub> ±0.030	3	24	12h9 <sup>0</sup> / <sub>0</sub> ±0.043

Model	O	Q	RA	RB	SC	VA	VB	WA	WB	XA	XB	YC
MHS2-50D	5	14	52	34	12	4H9 <sup>0</sup> / <sub>0</sub> ±0.030	4	52H9 <sup>+0.074</sup> / <sub>0</sub>	2	4H9 <sup>0</sup> / <sub>0</sub> ±0.030	4	7
MHS2-63D	5.5	17	66	38	14	5H9 <sup>0</sup> / <sub>0</sub> ±0.030	5	65H9 <sup>+0.074</sup> / <sub>0</sub>	2.5	5H9 <sup>0</sup> / <sub>0</sub> ±0.030	5	7.5

## MHS2 Series Detailed dimensions of mounting portion of end plate



Model	A	B	C	øD	E
MHS2-16D	M2 x 0.4	5.5	11	21 <sup>+0.1</sup> / <sub>0</sub>	0.5
MHS2-20D		5.4	13	24 <sup>+0.1</sup> / <sub>0</sub>	0.6
MHS2-25D		15	27 <sup>+0.1</sup> / <sub>0</sub>		
MHS2-32D	M3 x 0.5	5.2	18	32 <sup>+0.1</sup> / <sub>0</sub>	0.8
MHS2-40D		21	38 <sup>+0.1</sup> / <sub>0</sub>		
MHS2-50D		8	24	42 <sup>+0.1</sup> / <sub>0</sub>	1
MHS2-63D		32	54 <sup>+0.1</sup> / <sub>0</sub>		

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



# MHS Series

## Auto Switch Installation Examples and Mounting Positions

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

### 1) Detection when Gripping Exterior of Workpiece

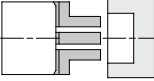
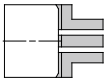
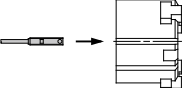
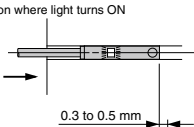
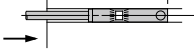
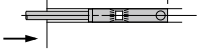

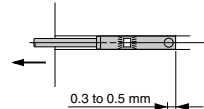
Detection example		1. Confirmation of fingers in reset position	2. Confirmation of workpiece held	3. Confirmation of workpiece released
Position to be detected		Position of fingers fully opened	Position when gripping a workpiece	Position of fingers fully closed
Operation of auto switch		Auto switch turned ON when fingers return. (Light ON)	Auto switch turned ON when gripping a workpiece. (Light ON)	When a workpiece is not held (Abnormal operation): Auto switch to turn ON (Light ON)
Detection combinations	One auto switch = One position, any of ①, ② and ③ can be detected.	●	●	●
	Two auto switches = Two positions of ①, ② and ③ can be detected.	A	●	—
		B	—	●
C	●	—	●	
How to determine auto switch installation position		Step 1) Fully open the fingers.	Step 1) Position fingers for gripping a workpiece.	Step 1) Fully close the fingers.
At no pressure or low pressure, connect the auto switch to a power supply, and follow the directions.		Step 2) Insert the auto switch into the auto switch installation groove in the direction shown in the following drawing.		
Step 3) Slide the auto switch in the direction of the arrow until the indicator light illuminates.		Step 3) Slide the auto switch in the direction of the arrow until the indicator light illuminates. Move the switch further 0.3 to 0.5 mm in the direction of the arrow and fasten it.		
Step 4) Slide the auto switch in the direction of the arrow until the indicator light goes out.		Position where light turns ON		
Step 5) Move the auto switch in the opposite direction until the indicator light illuminates. Move the switch further 0.3 to 0.5 mm beyond the position where the indicator light illuminates and fasten it.		0.3 to 0.5 mm		
Position where light turns ON		Position to be secured		
0.3 to 0.5 mm		0.3 to 0.5 mm		
Position to be secured		Position to be secured		

Note 1) It is recommended that gripping of a workpiece be performed close to the center of the finger stroke.

Note 2) When holding a workpiece close at the end of open/close stroke of fingers, detecting performance of the combinations listed in the above table may be limited, depending on the hysteresis of an auto switch, etc.

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

## 2) Detection when Gripping Interior of Workpiece

Detection example		1. Confirmation of fingers in reset position	2. Confirmation of workpiece held	3. Confirmation of workpiece released
Position to be detected	Position of fingers fully closed		Position when gripping a workpiece	Position of fingers fully opened
Operation of auto switch	Auto switch turned ON when fingers return. (Light ON)		Auto switch turned ON when gripping a workpiece. (Light ON)	When a workpiece is not held (Abnormal operation): Auto switch to turn ON (Light ON)
Detection combinations	One auto switch = One position, any of ①, ② and ③ can be detected.	●	●	●
	Two auto switches = Two positions of ①, ② and ③ can be detected.	●	●	—
		—	●	●
Pattern	●	—	●	
How to determine auto switch installation position	Step 1) Fully close the fingers.		Step 1) Position fingers for gripping a workpiece.	Step 1) Fully open the fingers.
At no pressure or low pressure, connect the auto switch to a power supply, and follow the directions.	Step 2) Insert the auto switch into the auto switch installation groove in the direction shown in the following drawing.			
	Step 3) Slide the auto switch in the direction of the arrow until the indicator light illuminates. Move the switch further 0.3 to 0.5 mm in the direction of the arrow and fasten it.		Step 3) Slide the auto switch in the direction of the arrow until the indicator light illuminates.	
	Position where light turns ON  0.3 to 0.5 mm Position to be secured 		Step 4) Slide the auto switch further in the direction of the arrow until the indicator light goes out. 	
			Step 5) Move an 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. Position where light turns ON  0.3 to 0.5 mm Position to be secured 	

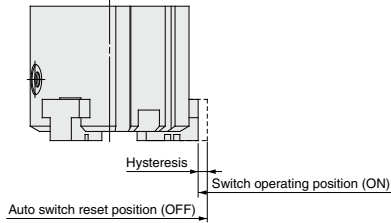
Note 1) It is recommended that gripping of a workpiece be performed close to the center of the finger stroke.

Note 2) When holding a workpiece close at the end of open/close stroke of fingers, detecting performance of the combinations listed in the above table may be limited, depending on the hysteresis of an auto switch, etc.

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

## Auto Switch Hysteresis

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



### MHS□/MHSL Series

(mm)

Auto switch model	Hysteresis (Max. value)	
	D-M9□(V)	D-M9□W(V) D-M9□A(V)
MHS□ - 16D MHSL3	0.5	
MHS□ - 20D MHSL3	0.5	
MHS□ - 25D MHSL3	0.5	
MHS□ - 32D MHSL3	0.6	
MHS□ - 40D MHSL3	0.6	
MHS□ - 50D MHSL3	0.6	
MHS□ - 63D MHSL3	0.6	
MHS□ - 80D MHSL3	0.6	
MHS□ -100D MHSL3	0.6	
MHS□ -125D MHSL3	0.6	

(mm)

Auto switch model	Hysteresis (Max. value)	
	D-Y59□/Y69□/Y7P(V)	D-Y7□W(V)/Y7BA
MHS□ - 32D MHSL3	0.7	
MHS□ - 40D MHSL3	0.5	
MHS□ - 50D MHSL3	0.5	
MHS□ - 63D MHSL3	0.5	
MHS□ - 80D MHSL3	0.5	
MHS□ -100D MHSL3	0.5	
MHS□ -125D MHSL3	0.5	

Note) The actual mounting position should be adjusted after confirming the auto switch performance.

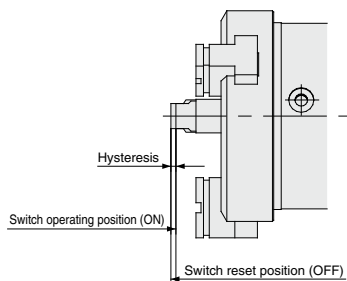
### MHSJ/MHSH Series

(mm)

Auto switch model	Hysteresis (Max. value)	
	D-M9□(V)	D-M9□W(V) D-M9□A(V)
MHSJ3 -16D MHSH3	0.5	
MHSJ3 -20D MHSH3	0.5	
MHSJ3 -25D MHSH3	0.5	
MHSJ3 -32D MHSH3	0.6	
MHSJ3 -40D MHSH3	0.6	
MHSJ3 -50D MHSH3	0.6	
MHSJ3 -63D MHSH3	0.6	
MHSJ3 -80D MHSH3	0.6	

## Auto Switch Hysteresis

### Center pusher/Cylinder type



Air gripper model	Auto switch model	Hysteresis (Max. value) (mm)	
		D-M9□(V)	D-M9□W(V) D-M9□A(V)
MHSH□3-32DA		0.3	
MHSH□3-40DA		0.3	
MHSH□3-50DA		0.2	
MHSH□3-63DA		0.4	
MHSH□3-80DA		0.3	

Note) The actual mounting position should be adjusted after confirming the auto switch performance.

MHZ

MHF

MHL

MHR

MHK

**MHS**

MHC

MHT

MHY

MHW

-X□

MRHQ

MA

D-□

## 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.  
The MHSJ3 and MHS3 series are described on another page.

(mm)

Auto switch model Air gripper model Finger position Lead wire type	Mounting with lead wire on side opposite the fingers				Mounting with lead wire on same side as the fingers				
	In-line entry		Perpendicular entry		In-line entry		Perpendicular entry		
	D-M9□ D-M9□W	D-M9□A	D-M9□V D-M9□WV	D-M9□AV	D-M9□ D-M9□W	D-M9□A	D-M9□V D-M9□WV	D-M9□AV	
MHS□-16D	Open	—	1	—	—	1	3	—	1
	Closed	5	7	3	5	—	—	—	—
MHS□-20D	Open	—	—	—	—	—	—	—	—
	Closed	5	7	3	5	—	—	—	—
MHS□-25D	Open	—	—	—	—	—	1	—	—
	Closed	3	5	1	3	—	—	—	—
MHSL3-16D	Open	—	1	—	—	—	—	—	—
	Closed	5	7	3	5	—	—	—	—
MHSL3-20D	Open	—	—	—	—	—	—	—	—
	Closed	5	7	3	5	—	—	—	—
MHSL3-25D	Open	—	—	—	—	—	—	—	—
	Closed	3	5	1	3	—	—	—	—
MHS□-32D	Open	—	—	—	—	—	—	—	—
	Closed	5.5	7.5	3.5	5.5	—	—	—	—
MHS□-40D	Open	—	—	—	—	—	—	—	—
	Closed	5	7	3.5	5	—	—	—	—
MHS□-50D	Open	—	—	—	—	—	—	—	—
	Closed	4.5	6.5	2.5	4.5	—	—	—	—
MHS□-63D	Open	—	—	—	—	—	—	—	—
	Closed	2.5	4.5	0.5	2.5	—	—	—	—
MHS□-80D	Open	—	—	—	—	—	—	—	—
	Closed	—	—	—	—	—	—	—	—
MHS□-100D	Open	—	—	—	—	—	—	—	—
	Closed	—	—	—	—	—	—	—	—
MHS□-125D	Open	—	—	—	—	—	—	—	—
	Closed	—	—	—	—	—	—	—	—
MHSL3-32D	Open	—	—	—	—	—	—	—	—
	Closed	5.5	7.5	3.5	5.5	—	—	—	—
MHSL3-40D	Open	—	—	—	—	—	—	—	—
	Closed	5	7	3.5	5	—	—	—	—
MHSL3-50D	Open	—	—	—	—	—	—	—	—
	Closed	4.5	6.5	2.5	4.5	—	—	—	—
MHSL3-63D	Open	—	—	—	—	—	—	—	—
	Closed	2.5	4.5	0.5	2.5	—	—	—	—
MHSL3-80D	Open	—	—	—	—	—	—	—	—
	Closed	—	—	—	—	—	—	—	—
MHSL3-100D	Open	—	—	—	—	—	—	—	—
	Closed	—	—	—	—	—	—	—	—
MHSL3-125D	Open	—	—	—	—	—	—	—	—
	Closed	—	—	—	—	—	—	—	—

Note 1) There is no protrusion for sections of the table with no values entered.

Note 2) When mounted with lead wires on the finger side, be sure that attachments and workpieces, etc., do not touch switch units or lead wires.

Note 3) The actual mounting position should be adjusted after confirming the auto switch performance.

### 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.

Direction of auto switch mounting on air gripper		Mounting with lead wire on side opposite the fingers			Mounting with lead wire on same side as the fingers		
		In-line entry		Perpendicular entry	In-line entry		Perpendicular entry
		D-Y59□ D-Y7P D-Y7□W	D-Y7BA	D-Y69□ D-Y7PV D-Y7□WV	D-Y59□ D-Y7P D-Y7□W	D-Y7BA	D-Y69□ D-Y7PV D-Y7□WV
Auto switch model	Open	—	—	—	—	5	—
	Closed	6	9	4	—	—	—
MHS□-32D	Open	—	—	—	—	2.5	—
	Closed	5.5	8	4	—	—	—
MHS□-40D	Open	—	—	—	—	—	—
	Closed	5	7.5	3	—	—	—
MHS□-50D	Open	—	—	—	—	—	—
	Closed	3	5	1	—	—	—
MHS□-63D	Open	—	—	—	—	—	—
	Closed	—	—	—	—	—	—
MHS□-80D	Open	—	—	—	—	—	—
	Closed	—	—	—	—	—	—
MHS□-100D	Open	—	—	—	—	—	—
	Closed	—	—	—	—	—	—
MHS□-125D	Open	—	—	—	—	—	—
	Closed	—	—	—	—	—	—
MHSL3-32D	Open	—	—	—	—	—	—
	Closed	6	9	4	—	—	—
MHSL3-40D	Open	—	—	—	—	—	—
	Closed	5.5	8	4	—	—	—
MHSL3-50D	Open	—	—	—	—	—	—
	Closed	5	7.5	3	—	—	—
MHSL3-63D	Open	—	—	—	—	—	—
	Closed	3	5	1	—	—	—
MHSL3-80D	Open	—	—	—	—	—	—
	Closed	—	—	—	—	—	—
MHSL3-100D	Open	—	—	—	—	—	—
	Closed	—	—	—	—	—	—
MHSL3-125D	Open	—	—	—	—	—	—
	Closed	—	—	—	—	—	—

Note 1) There is no protrusion for sections of the table with no values entered.

Note 2) When mounted with lead wires on the finger side, be sure that attachments and workpieces, etc., do not touch switch units or lead wires.

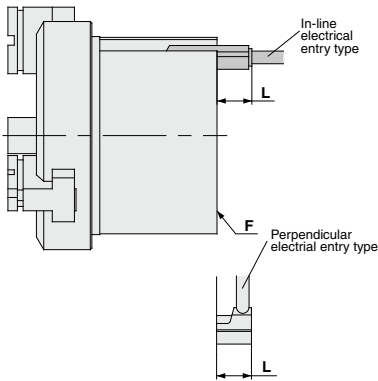
Note 3) The actual mounting position should be adjusted after confirming the auto switch performance.

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

# MHS Series

## 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.



Auto switch model		Lead wire type		In-line entry		Perpendicular entry	
		D-M9□ D-M9□W	D-M9□A	D-M9□V D-M9□WV	D-M9□AV		
Air gripper model	Finger position						
MHSJ3 MHSJ3	-16D	Open	2	4	—	2	
		Closed	5.5	7.5	3.5	5.5	
MHSJ3 MHSJ3	-20D	Open	2	4	—	2	
		Closed	5	7	3	5	
MHSJ3 MHSJ3	-25D	Open	—	3	—	—	
		Closed	5	7	3	5	
MHSJ3 MHSJ3	-32D	Open	—	1	—	—	
		Closed	4.5	6.5	2.5	4.5	
MHSJ3 MHSJ3	-40D	Open	—	—	—	—	
		Closed	3	5	1	3	
MHSJ3 MHSJ3	-50D	Open	—	—	—	—	
		Closed	1.5	3.5	—	1.5	
MHSJ3 MHSJ3	-63D	Open	—	—	—	—	
		Closed	—	2	—	—	
MHSJ3 MHSJ3	-80D	Open	—	—	—	—	
		Closed	—	1	—	—	

Note 1) Indicates the amount of protrusion from the mounting surface F. There is no protrusion from the finger side.

Note 2) There is no protrusion for sections of the table with no values entered.

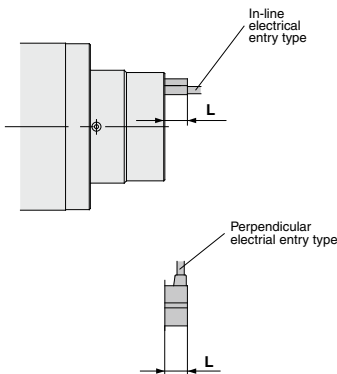
Note 3) When mounted with lead wires on the finger side, be sure that attachments and workpieces, etc., do not touch switch units or lead wires.

Note 4) The actual mounting position should be adjusted after confirming the auto switch performance.

## Protrusion from Edge of Push Holder (P)

The amount of auto switch protrusion from the push holder (P) end surface is shown in the table below. Use this as a standard when mounting, etc.

### Center Pusher/Cylinder Type



Auto switch model		Lead wire type		In-line entry		Perpendicular entry	
		D-M9□ D-M9□W	D-M9□A	D-M9□V D-M9□WV	D-M9□AV		
Air gripper model	Finger position						
MHS□-32DA	Extended	4	2	2	4		
	Retracted	9	7	7	9		
MHS□-40DA	Extended	3	—	1	3		
	Retracted	8	6	6	8		
MHS□-50DA	Extended	—	—	—	—		
	Retracted	7.5	5.5	5.5	7.5		
MHS□-63DA	Extended	—	—	—	—		
	Retracted	7	5	5	7		
MHS□-80DA	Extended	—	—	—	—		
	Retracted	4	2	2	4		

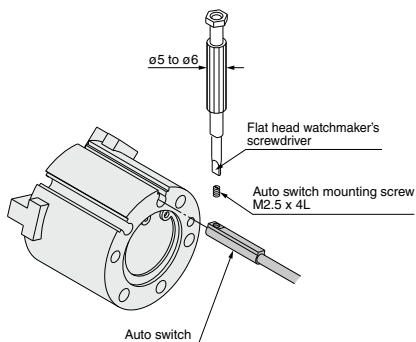
Note) The actual mounting position should be adjusted after confirming the auto switch performance.

## Auto Switch Mounting

### Applicable models:

MHS2-16, 20, 25  
 MHS3-16, 20, 25  
 MHSJ3-16, 20, 25, 32, 40, 50, 63, 80  
 MHSJ3-16, 20, 25, 32, 40, 50, 63, 80  
 MSHS3-A32, 40, 50, 63, 80  
 MHSJ3-16, 20, 25  
 MHS4-16, 20, 25

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.

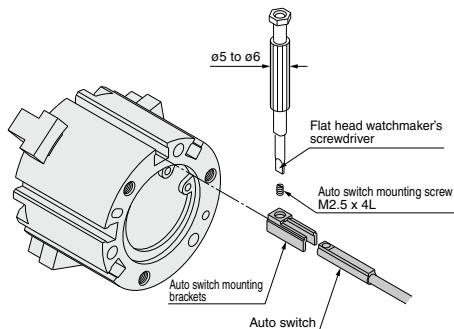


Note) Use a watchmaker's screwdriver with a grip diameter of 5 to 6 mm to tighten the auto switch mounting screw. Also, tighten with a torque of about 0.05 to 0.15 N-m, or about 0.05 to 0.10 N-m for D-M9□A(V).

### Applicable models:

MHS2-32, 40, 50, 63  
 MHS3-32, 40, 50, 63, 80, 100, 125  
 MHSJ3-32, 40, 50, 63, 80, 100, 125  
 MHS4-32, 40, 50, 63

- (1) To set the auto switch, insert the auto switch into the installation groove of the cylinder as shown below and set it roughly.
- (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 model	Auto switch mounting bracket part no.
D-M9□(V)	BMG2-012
D-M9□W(V)	
D-M9□A(V)	

Note) Use a watchmaker's screwdriver with a grip diameter of 5 to 6 mm to tighten the set screw (M2.5). The tightening torque should be 0.05 to 1 N-m. It should be turned about 90° beyond the point at which tightening can be felt.

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