

3 Finger Parallel Style Air Gripper Through-hole Type

Series MSH3

Size: 16, 20, 25, 32, 40, 50, 63, 80



Refer to page 12-13-25 for solid state switch with pre-wire connector.

How to Order

MSH3 **3** **32** **D** **M9N**

Through-hole
Dust cover

Nil	None
J	With dust cover

Note) ø16, ø20 and ø25 are not available with dust cover.

Number of fingers
3 3 fingers

Bore size

16	16 mm	40	40 mm
20	20 mm	50	50 mm
25	25 mm	63	63 mm
32	32 mm	80	80 mm

Action
D Double acting

Dust cover type (with dust cover only)

Nil	Chloroprene rubber (CR)
F	Fluoro rubber (FKM)
S	Silicon rubber (Si)

Center pusher

Nil	Without center pusher
A	Cylinder type
B	Spring type

Number of auto switches

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

Note) Symbol entry examples when mounting auto switches on air gripper with cylinder type center pusher

1. Air gripper unit 1 pc.
Center pusher unit 1 pc. } Total of 2 pcs. → Nil
MSH3-32DA-F9N

2. Air gripper unit 2 pcs.
Center pusher unit 2 pcs. } Total of 4 pcs. → Enter "4"
MSH3-32DA-F9N4

Auto switch

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

Applicable Auto Switch

Note) ø16, ø20 and ø25 are not available with center pusher.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)*			Flexible lead wire (-61)	Applicable load		Applicable model		Pre-wire connector	
					DC	AC	Perpendicular	In-line	0.5 (Nil)	3 (L)	5 (Z)				ø16	ø20 to ø80		
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V 12 V	—	M9NV	M9N	●	●	○	Standard	IC circuit	Relay, PLC	●	●	○
				3-wire (PNP)				M9PV	M9P	●	●	○				●	●	○
				2-wire				M9BV	M9B	●	●	○				●	●	○
	3-wire (NPN)			5 V 12 V	F9NVW	F9NW		●	●	○	○	IC circuit	●	●		○		
	3-wire (PNP)				F9PWV	F9PW		●	●	○	○		●	●		○		
	2-wire				F9BWV	F9BW			●	○	○		●	●		○		
	Diagnostic (2-color indication)	Grommet	Yes	2-wire	5 V	—	—	F9BA				—	●	●		○		
	Water resistant (2-color indication)																	

* Lead wire length symbols: 0.5 m Nil (Example) M9N
3 m L (Example) M9NL
5 m Z (Example) Y59AZ

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

Note 1) Take note of hysteresis with 2-color indication type switches. Refer to "Auto Switch Hysteresis" on page 12-7-62.

Note 2) Refer to page 12-13-1 for further information on auto switches.

Center pusher assembly

MSH3 **3** **A** **50** **A** **M9N**

Through-hole
Center pusher assembly

Number of fingers
3 3 fingers

Bore size

32	32 mm	63	63 mm
40	40 mm	80	80 mm
50	50 mm		

Center pusher

A	Cylinder type
B	Spring type

Number of auto switches

Nil	2 pcs.
S	1 pc.

Auto switch (Cylinder type only)

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

Applicable Auto Switch

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)*			Flexible lead wire (-61)	Applicable load		Applicable model		Pre-wire connector	
					DC	AC	Perpendicular	In-line	0.5 (Nil)	3 (L)	5 (Z)				ø16	ø20 to ø80		
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V 12 V	—	M9NV	M9N	●	●	○	Standard	IC circuit	Relay, PLC	●	●	○
				3-wire (PNP)				M9PV	M9P	●	●	○				●	●	○
				2-wire				M9BV	M9B	●	●	○				●	●	○
	3-wire (NPN)			5 V 12 V		F9NVW		F9NW	●	●	○	○	IC circuit	●		●	○	
	3-wire (PNP)					F9PVW		F9PW	●	●	○	○		●		●	○	
	2-wire					F9BVW		F9BW	●	●	○	○		●		●	○	
	Diagnostic (2-color indication)	Grommet	Yes	2-wire	5 V	—	—	F9BA	—	●	○	○	—	●		●	○	
	Water resistant (2-color indication)						—	F9BA	—	●	○	○	—	●		●	○	

* Lead wire length symbols: 0.5 m Nil (Example) M9N
3 m L (Example) M9NL
5 m Z (Example) Y59AZ

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

Note 1) Take note of hysteresis with 2-color indication type switches. Refer to "Auto Switch Hysteresis" on page 12-7-62.

Note 2) Refer to page 12-13-1 for further information on auto switches.

3 Finger Parallel Style Air Gripper Through-hole Type Series **MHSH3**

Model/Specifications

Without center pusher



Center pusher/Cylinder type



Center pusher/Spring type



Air Gripper Specifications

Model		MHSH3-16D	MHSH3-20D	MHSH3-25D	MHSH3-32D	MHSH3-40D	MHSH3-50D	MHSH3-63D	MHSH3-80D	
Cylinder bore size (mm)		16	20	25	32	40	50	63	80	
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					30
Lubrication		Not required								
Action		Double acting								
Effective gripping force N ⁽¹⁾ at 0.5 MPa	External hold	9	21	36	62	97	155	280	400	
	Internal hold	15	26	45	77	118	187	329	490	
Through hole diameter (mm)		ø3H10 ^{+0.040} ₀	ø3H10 ^{+0.040} ₀	ø4H10 ^{+0.048} ₀	ø6H10 ^{+0.048} ₀	ø10H10 ^{+0.058} ₀	ø12H10 ^{+0.070} ₀	ø16H10 ^{+0.070} ₀	ø20H10 ^{+0.084} ₀	
Opening/Closing stroke (dia.) (mm)		4	4	6	8	8	12	16	20	
Weight (g)		90	140	220	410	570	970	1.650	2.920	

Note 1) Values for ø16 to ø25 are with gripping point L = 20 mm, for ø32 to ø63 with gripping point L = 30 mm, and for ø80 with gripping point L = 50 mm.
Refer to "Effective Gripping Force" data on pages 12-7-34 through 12-7-36 for the gripping force at each gripping position.

Center Pusher (Cylinder type) Specifications

Model		MHSH3-32DA	MHSH3-40DA	MHSH3-50DA	MHSH3-63DA	MHSH3-80DA
Pusher cylinder bore size (mm)		12	20	25	32	40
Fluid		Air				
Operating pressure (MPa)		0.2 to 0.6	0.1 to 0.6			
Ambient and fluid temperature (°C)		−10 to 60				
Pusher maximum operating frequency (c.p.m.)		60				30
Lubrication		Not required				
Action		Double acting				
Pusher stroke (mm)		5	5	10	10	15
Pusher thrust (N) at 0.5 MPa	Extention	45	130	204	335	524
Weight (g)		530	770	1,330	2,300	4,000

Center Pusher (Spring type) Specifications

Model	MHSH3-32DB	MHSH3-40DB	MHSH3-50DB	MHSH3-63DB	MHSH3-80DB
Pusher stroke (mm)	5	5	10	10	15
Pusher spring force (N)	6 to 10	11 to 15	20 to 25	29 to 34	49 to 59
Weight (g)	500	740	1,290	2,250	4,000

Weight

	ø32	ø40	ø50	ø63	ø80
Through-hole with dust cover MHSHJ3-□D	430	600	1,020	1,710	3,040
Center pusher (cylinder type) with dust cover MHSHJ3-□DA	550	800	1,380	2,360	4,120
Center pusher (spring type) with dust cover MHSHJ3-□DB	520	770	1,340	2,310	4,120

MHZ

MHF

MHL

MHR

MHK

MHS

MHC

MHT

MHY

MHW

MRHQ

Misc.

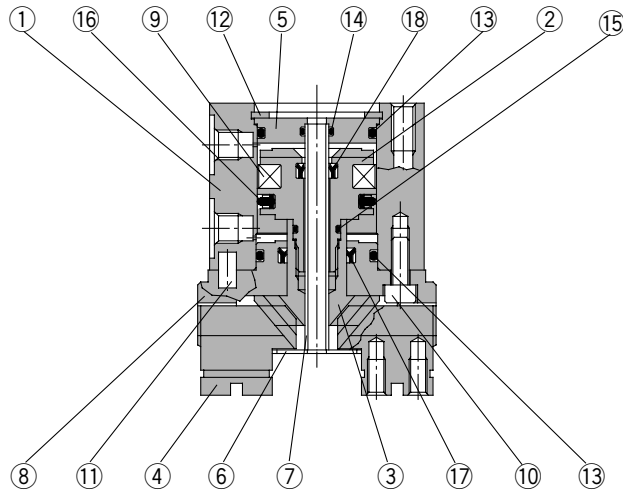
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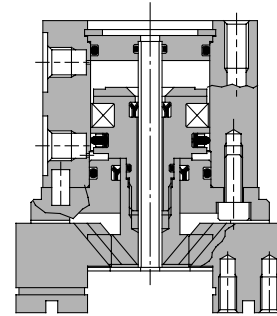
Series MSHH3

Construction

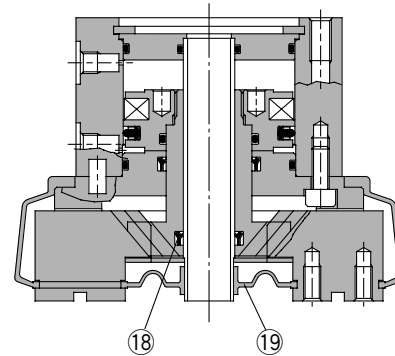
ø16 to ø25 Closed condition



Open condition



ø32 to ø80 Open condition



Component Parts

No.	Description	Material	Note
①	Body	Aluminum alloy	Hard anodized
②	Piston	ø16 to ø25: Stainless steel ø32 to ø80: Aluminum alloy	Hard anodized
③	Cam (A)	Carbon steel	Heat treated, Specially treated
④	Finger	Carbon steel	Heat treated, Specially treated
⑤	Cap (A)	Aluminum alloy	Hard anodized
⑥	End plate (A)	Stainless steel	
⑦	Tubing	Stainless steel	
⑧	Guide	Aluminum alloy	Hard anodized
⑨	Rubber magnet	Synthetic rubber	
⑩	Hexagon socket head bolt	Carbon steel	Nickel plated
⑪	Parallel pin	Stainless steel	
⑫	Type C snap ring	Carbon steel	Nickel plated

No.	Description	Material	Note
⑬	Gasket	NBR	
⑭	Gasket	NBR	
⑮	Gasket	NBR	
⑯	Piston seal	NBR	
⑰	Rod seal	NBR	
⑱	Rod seal	NBR	

Replacement Parts

Description			MHSH3-16D	MHSH3-20D	MHSH3-25D	MHSH3-32D	Main parts
						MHSHJ3-32D	
Seal kit			MHSH16-PS	MHSH20-PS	MHSH25-PS	MHSH32-PS	⑬⑭⑮⑯⑰⑱
Dust cover	Material	CR	—	—	—	MHSHJ3-J32	⑰
		FKM				MHSHJ3-J32F	
		Si				MHSHJ3-J32S	
Finger			P3316054	P3346154	P3316254	P3316354	④
Cam (A)			P3316053	P3316153	P3316253	P3316353	③
Piston assembly			MHS-A1603	MHS-A2003	MHS-A2503	MHS-A3203	②⑨

Description			MHSH3-40D	MHSH3-50D	MHSH3-63D	MHSH3-80D	Main parts
			MHSHJ3-40D	MHSHJ3-50D	MHSHJ3-63D	MHSHJ3-80D	
Seal kit			MHSH40-PS	MHSH50-PS	MHSH63-PS	MHSH80-PS	⑬⑭⑮⑯⑰⑱
Dust cover	Material	CR	MHSHJ3-J40	MHSHJ3-J50	MHSHJ3-J63	MHSHJ3-J80	⑰
		FKM	MHSHJ3-J40F	MHSHJ3-J50F	MHSHJ3-J63F	MHSHJ3-J80F	
		Si	MHSHJ3-J40S	MHSHJ3-J50S	MHSHJ3-J63S	MHSHJ3-J80S	
Finger			P3316454	P3316554	P3316654	P3316754	④
Cam (A)			P3316453	P3316553	P3316653	P3316753	③
Piston assembly			MHS-A4003	MHS-A5003	MHS-A6303	MHS-A8003	②⑨

* Order 3 pieces of fingers for one unit.