

Wedge Cam Operation Slide Guide

Air Gripper/2-Finger Type

Series *MHK2*

ø12, ø16, ø20, ø25

How to Order

Standard type

MHK 2 - 20 D 1 F - M9B

Long stroke type

MHKL 2 - 20 D 1 F - M9B

Number of fingers

2	2 fingers
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Bore size

12	12 mm
16	16 mm
20	20 mm
25	25 mm

Action

D	Double acting
S	Single acting (Normally open)
C	Single acting (Normally closed)

Finger material

Nil	Carbon steel
1	Stainless steel

Auto switch

Nil	Without auto switch (Built-in magnet)
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Dust cover material

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

Made to Order
Refer to page 523 for details.

Number of auto switches

Nil	2 pcs.
S	1 pc.

Applicable Auto Switch/Refer to pages 761 to 809 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	
							Electrical entry direction			0.5 (Nil)	1 (M)	3 (L)	5 (Z)			
					DC	AC		Perpendicular	In-line							
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V,	—	M9NV	M9N	●	●	●	○	○	IC circuit	Relay, PLC
				12 V		M9PV		M9P	●	●	●	○	○			
	2-wire			12 V		M9BV		M9B	●	●	●	○	○	—		
	3-wire (NPN)			5 V,		M9NAV		M9NA	○	○	●	○	○	IC circuit		
	3-wire (PNP)			12 V		M9PAV		M9PA	○	○	●	○	○			
	2-wire			12 V		M9BAV		M9BA	○	○	●	○	○	—		

* 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) Take note of hysteresis with 2-color indication type switches.
 Refer to "Auto Switch Hysteresis" on page 536.

Note 2) Refer to pages 761 to 809 for further information on auto switches.

Specifications



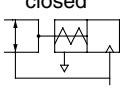
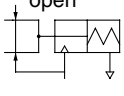
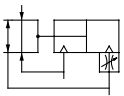
JIS Symbol

Double acting

Single acting

Normally open

Normally closed



Note) Refer to pages 761 to 809 for further information on auto switches.

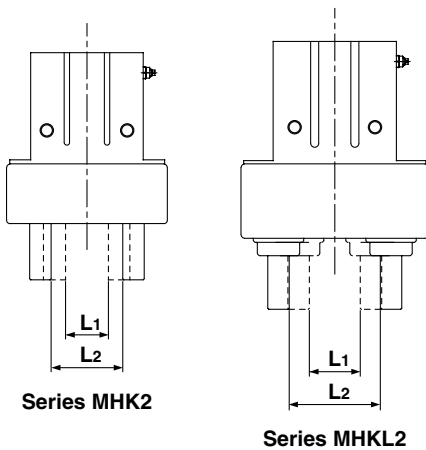
Option

Finger material	Carbon steel (Standard), Stainless steel
Dust cover material	Chloroprene rubber (CR) (Standard), Fluoro rubber (FKM), Silicon rubber (Si)

Model

Series MHK2/Standard Type

Action	Model	Bore size (mm)	Max. operating frequency (c.p.m)	Effective gripping force per finger (N) <small>Note)</small>	Opening/Closing stroke (mm) L2-L1	Width at closing (mm) L1	Width at opening (mm) L2	Mass (g)
Double acting	MHK2-12D	12	120	External grip: 15 Internal grip : 16	4	9	13	75
	MHK2-16D	16		External grip: 31 Internal grip : 36	6	14.6	20.6	113
	MHK2-20D	20		External grip: 46 Internal grip : 56	10	16	26	235
	MHK2-25D	25		External grip: 80 Internal grip : 86	14	19	33	440
Single acting	Normally open	MHK2-12S		9	4	9	13	76
		MHK2-16S		23	6	14.6	20.6	114
		MHK2-20S		34	10	16	26	237
		MHK2-25S		58	14	19	33	443
	Normally closed	MHK2-12C		12	4	9	13	76
		MHK2-16C		25	6	14.6	20.6	115
		MHK2-20C		44	10	16	26	237
		MHK2-25C		73	14	19	33	443



Made to Order

Refer to pages 683 to 713 for details.

Symbol	Specifications/Description
-X4	Heat resistance (100°C)
-X5	Fluororubber seal
-X7	Closing direction spring assist
-X12	Opening direction spring assist
-X39	With grease needle
-X41	Switch groove (Both-side type)
-X50	Without magnet
-X53	EPDM seal/Fluorine grease
-X63	Fluorine grease
-X64	Finger: Side tapped mounting
-X65	Finger: Through-hole mounting
-X77A	Dust cover adhesion
-X77B	Dust cover adhesion (Finger part only)
-X78A	Dust cover caulking
-X78B	Dust cover caulking (Finger part only)
-X79	Grease for food

Series MHKL2/Long Stroke Type

Action	Model	Bore size (mm)	Max. operating frequency (c.p.m)	Effective gripping force per finger (N) <small>Note)</small>	Opening/Closing stroke (mm) L2-L1	Width at closing (mm) L1	Width at opening (mm) L2	Mass (g)
Double acting	MHKL2-12D	12	90	External grip: 14 Internal grip : 16	11	9	20	104
	MHKL2-16D	16		External grip: 27 Internal grip : 30	14	14.6	28.6	164
	MHKL2-20D	20		External grip: 45 Internal grip : 53	18	16	34	312
	MHKL2-25D	25		External grip: 79 Internal grip : 90	22	19	41	562
Single acting	Normally open	MHKL2-12S		9	11	9	20	105
		MHKL2-16S		17	14	14.6	28.6	165
		MHKL2-20S		32	18	16	34	314
		MHKL2-25S		53	22	19	41	565
	Normally closed	MHKL2-12C		11	11	9	20	105
		MHKL2-16C		22	14	14.6	28.6	166
		MHKL2-20C		40	18	16	34	314
		MHKL2-25C		63	22	19	41	565



Note) At the pressure of 0.5 MPa, when gripping point L is 20 mm.

Single acting normally open: External holding force, Single acting normally closed:

Internal gripping force.

Refer to "Effective Gripping Force" for the gripping force at each gripping position on pages 525 to 529.

MHZ

MHF

MHL

MHR

MHK

MHS

MHC

MHT

MHY

MHW

-X□

MRHQ

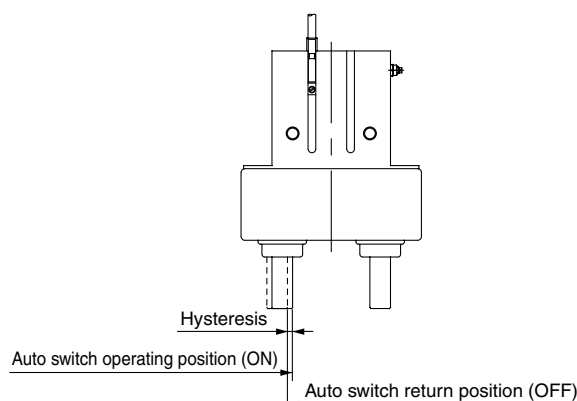
MA

D-□

Series MHK2

Auto Switch Hysteresis

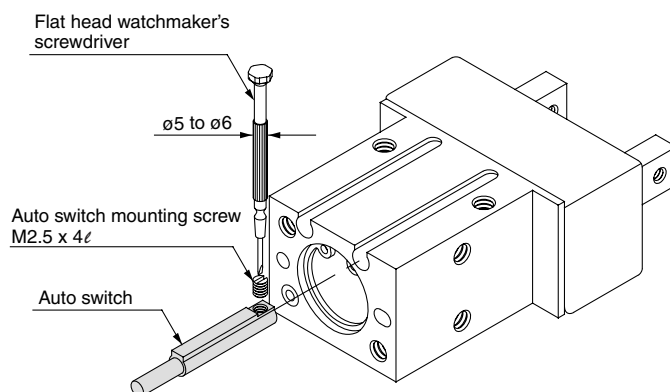
Auto switches have hysteresis similar to micro switches. Use the table below as a guide when adjusting auto switch positions, etc.



Auto switch Model	Max. hysteresis (mm)		
	D-M9□(V)	D-M9□A(V)L, M9□W(V)	
		Setting of ON position when red light is on.	Setting of ON position when green light is on.
MHK□2-12	0.1	0.1	0.3
MHK□2-16	0.1	0.1	0.3
MHK□2-20	0.3	0.3	0.8
MHK□2-25	0.2	0.2	0.6

Auto Switch Mounting

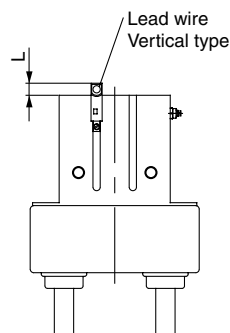
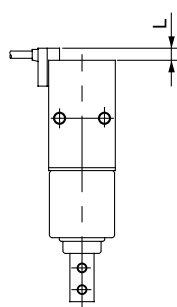
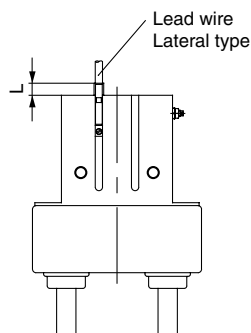
To set the auto switch, insert the auto switch into the installation groove of the gripper from the direction indicated in the following drawing. After setting the position, tighten the attached auto switch mounting set screw with a flat head watchmaker's screwdriver.



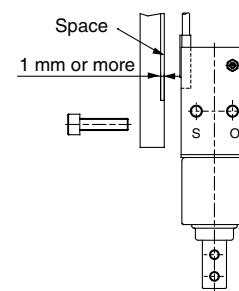
Note) Use a watchmaker's screwdriver with a grip diameter of 5 to 6 mm to tighten the auto switch mounting screw. The tightening torque should be about 0.05 to 0.15 N·m.

Protrusion of Auto Switch from Edge of Body

- The amount of auto switch protrusion from the body's end surface is as shown in the table below.
- Use the table as a guideline for mounting.



When auto switch for MHK2, MHKL2 is set on mounting side as figure below, allow for at least 1 mm on mounting plate since the auto switch is protruded from edge of gripper.



(mm)

Air gripper model	Auto switch model Finger position	In-line electrical entry type		Perpendicular electrical entry type	
		D-M9□ D-M9□W	D-M9□AL	D-M9□V D-M9□WV	D-M9□AVL
MHK2-12□	Open	—	—	—	—
	Closed	3	5	—	3
MHK2-16□	Open	—	—	—	—
	Closed	3	5	1	3
MHK2-20□	Open	—	—	—	—
	Closed	1	3	—	1
MHK2-25□	Open	—	—	—	—
	Closed	2	4	—	2
MHKL2-12□	Open	—	—	—	—
	Closed	3	5	—	3
MHKL2-16□	Open	—	—	—	—
	Closed	3	5	1	3
MHKL2-20□	Open	—	—	—	—
	Closed	1	3	—	1
MHKL2-25□	Open	—	—	—	—
	Closed	1	3	—	1

Note) There is no protrusion if no values are entered in the table.