

# Air Gripper with Finger Changer Function

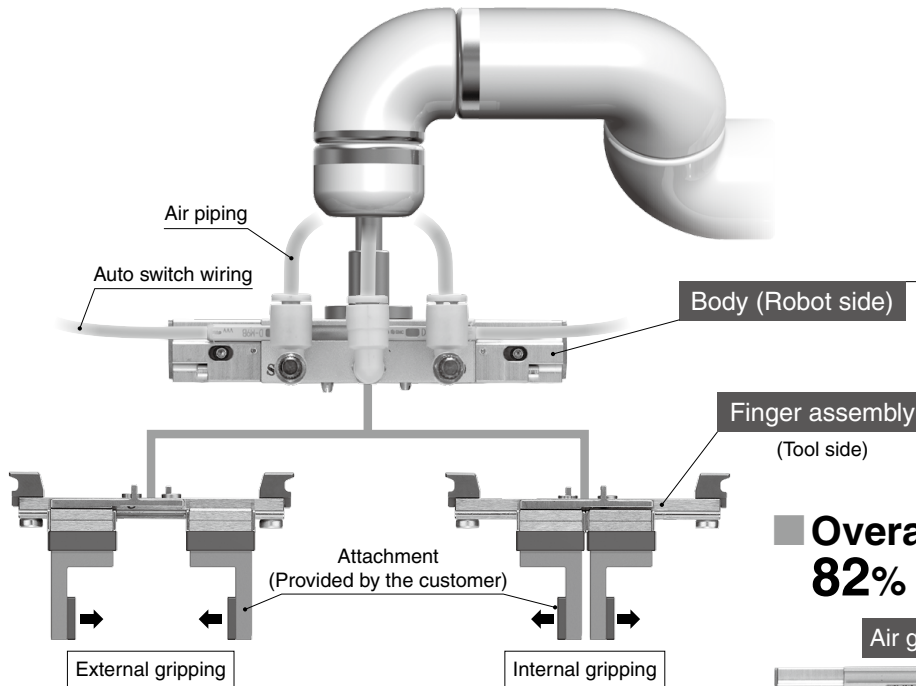
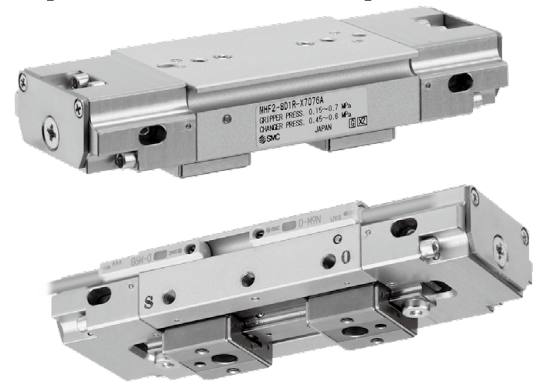
ø8

RoHS

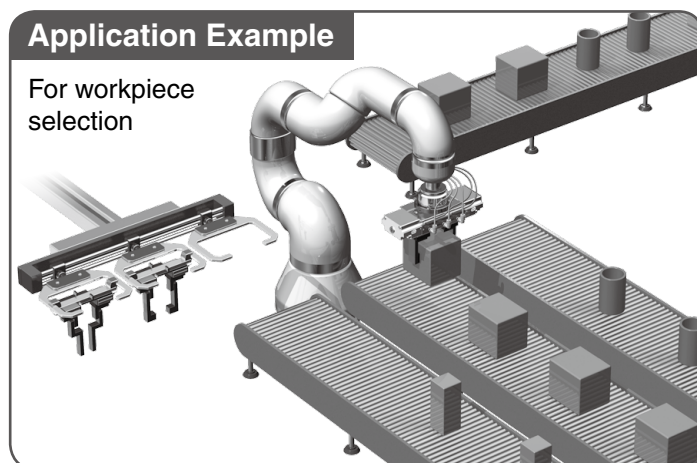
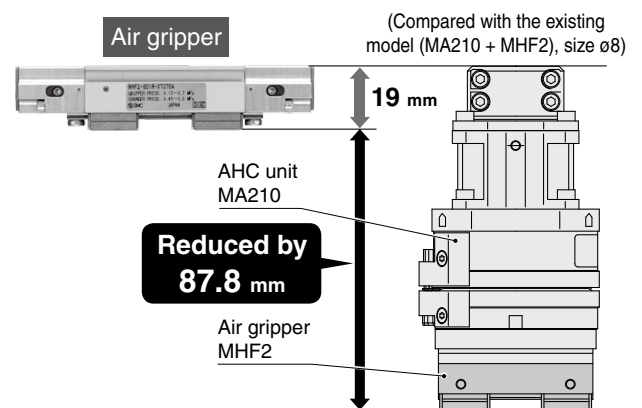
## Automatic tool changer unit for robots

The wiring and piping are bundled together in the body of the air gripper (robot side).

- Improves electric contact during tool changes, reduces air leakage due to defective piping connections, etc.
- Various workpieces can be handled by a single robot.  
Increased productivity due to reduced attachment replacement and positioning work



■ Overall length: Reduced by **82% or more**



■ Weight: Reduced by **69% or more**  
(485 g → **150 g**)  
(Compared with the existing model (MA210 + MHF2), size ø8)

**MHF2-X7076A**



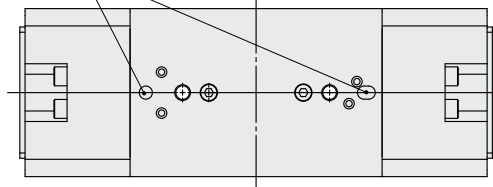
20-E754

# MHF2-X7076A

## Configured for improved function and easier maintenance

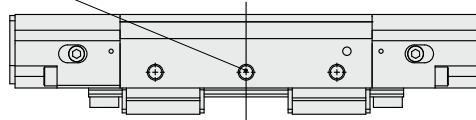
Improved mounting repeatability

With positioning pin holes

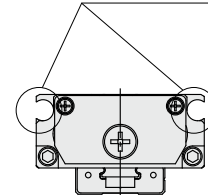


Finger assembly separation port

Separates when air pressure is supplied

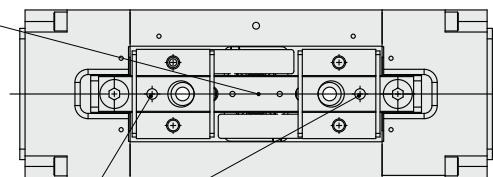


Auto switches can be mounted on both sides.



Linear guide provides:

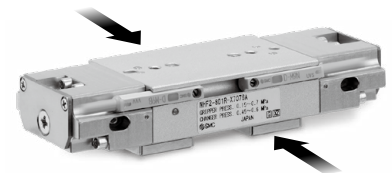
High precision and high rigidity with martensitic stainless steel



Easy positioning for mounting attachments

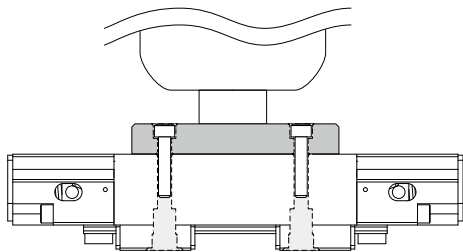
With positioning pin holes

Applicable auto switch: D-M9□

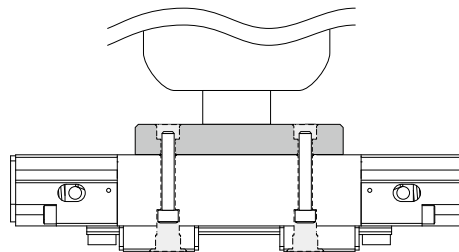


## ■ Mounting is possible from 2 directions.

Top mounting (Body tapped)

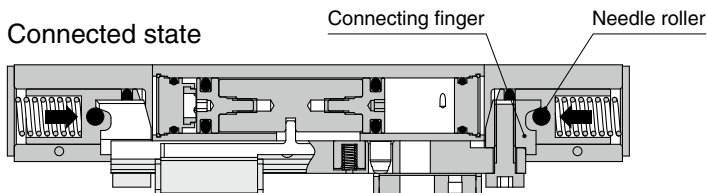


Body through-hole

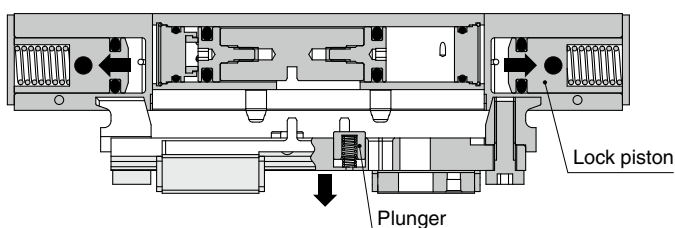


## Working Principle

Connected state

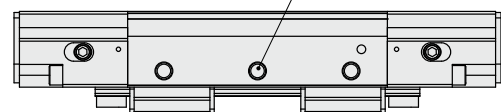


When pressurized from the finger assembly separation port



The needle roller pushes the taper of the connecting finger with a spring force when pressure is not supplied to the finger assembly separation port to generate an axial force when connected to make the connection.

Finger assembly separation port

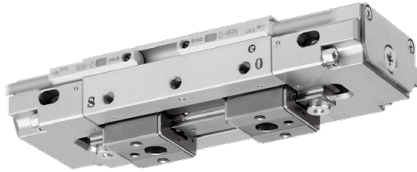


When pressure is supplied to the finger assembly separation port, while the lock piston moves outward, the finger assembly is separated by the spring force of the plunger.

# Automatic tool changer unit for robots **MHF2-X7076A** Air Gripper with Finger Changer Function

## How to Order

Air Gripper with  
Finger Changer Function



**MHF 2 - 8 D 1 R - M9BW - X7076A**

① ② ③ ④ ⑤ ⑥ ⑦

① Number of fingers

2 2

② Bore size [mm]

8 8

③ Action

D Double acting

④ Opening/Closing stroke (Both sides)

1 Medium stroke 16 mm

⑤ Body option

R Side piping type

⑥ Auto switch

Nil Without auto switch (Built-in magnet)

⑦ Number of auto switches

Nil	2
S	1
n	n

\* For applicable auto switches, refer to the table below.

Finger assembly



**MHF - A 08 02 - 1 - X7076A**

① ②

① Bore size [mm]

08 8

② Opening/Closing stroke (Both sides)

1 Medium stroke 16 mm

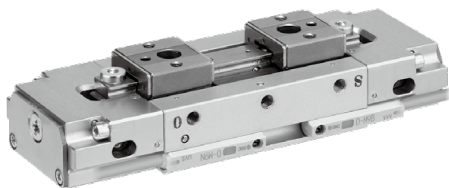
**Applicable Auto Switches**/Refer to the **Web Catalog** for further information on auto switches.

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)		IC circuit	Relay, PLC						
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	○	IC circuit	Relay, PLC					
				3-wire (PNP)				M9PV	M9P	●	●	●	○	○							
	Diagnostic indication (2-color indicator)			2-wire	5 V, 12 V	—	M9BV	M9B	●	●	●	○	○	○	○		—				
				3-wire (NPN)			M9NVV	M9NW	●	●	●	○	○	○	○		IC circuit				
				3-wire (PNP)	M9PWV	M9PW	●	●	●	○	○	○	○	IC circuit							
				2-wire	M9BWV	M9BW	●	●	●	○	○	○	○	—							
				Water resistant (2-color indicator)	3-wire (NPN)	5 V, 12 V	—	M9NAV*1	M9NA*1	○	○	●	○	○	○		○	IC circuit			
					3-wire (PNP)			M9PAV*1	M9PA*1	○	○	●	○	○	○		○	IC circuit			
							2-wire	12 V			M9BAV*1	M9BA*1	○	○	●		○	○	○	○	—

\*1 Water-resistant type auto switches can be mounted on the above models, but SMC cannot guarantee water resistance.

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

## Specifications



Bore size [mm]	8	
Fluid	Air	
Action	Gripper unit	Double acting
	Changer unit	Single acting (Normally connected)
Operating pressure [MPa]	Gripper unit	0.15 to 0.7
	Changer unit	0.45 to 0.6
Ambient temperature [°C]	-10 to 60	
Axial force when connected (Theoretical value) [N]	98	
Finger position holding force [N]*1	Position of fingers when fully open	4.3
	Position of fingers when not fully open	0.6
Gripping force per finger at 0.5 MPa (Effective value) [N]	19	
Opening/Closing stroke (Both sides) [mm]	16	
Max. operating frequency [c.p.m]	120	
Lubricant	Non-lube	
Weight [g]	150 (Finger assembly: 38)	

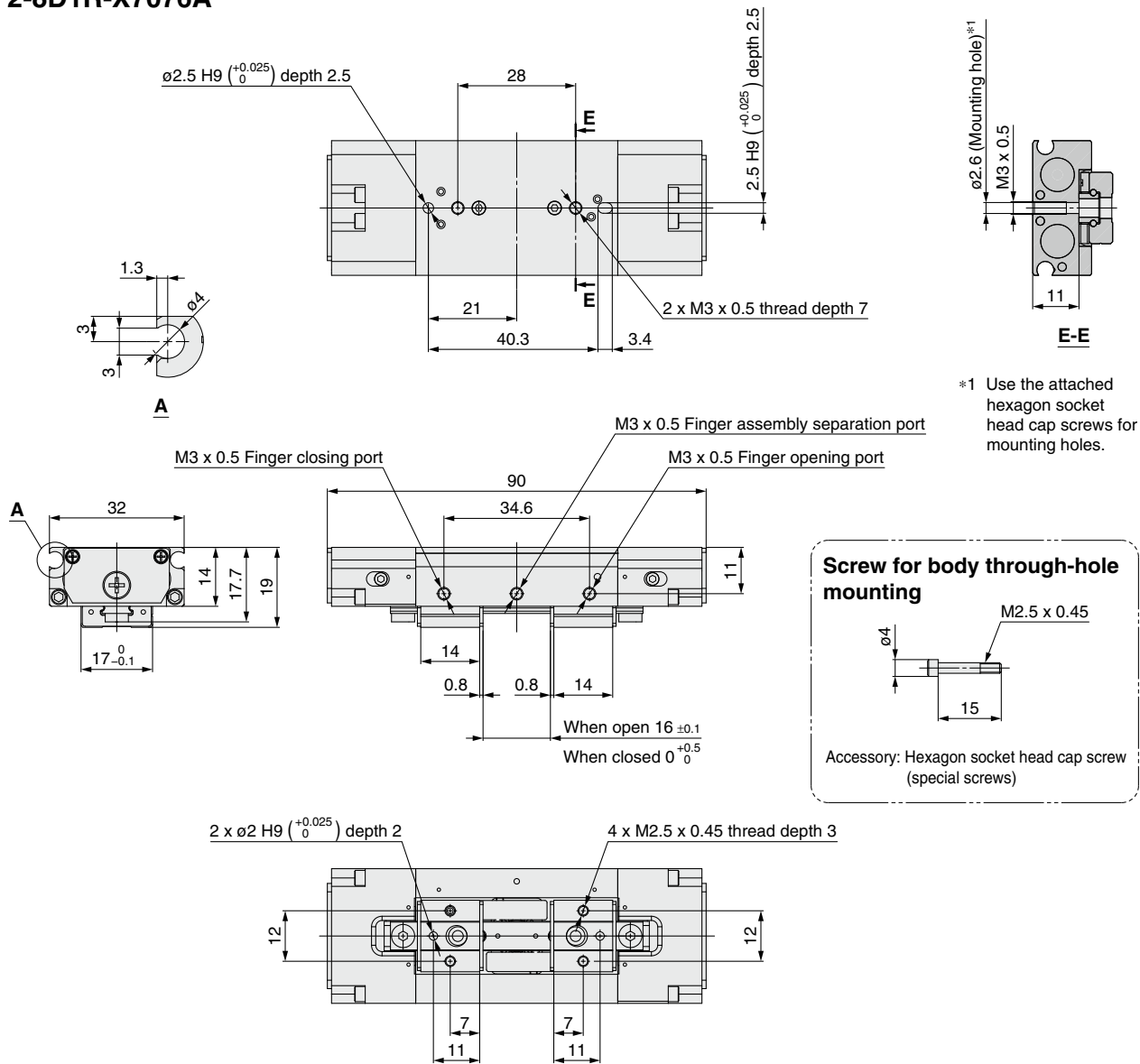
\*1 The theoretical holding force (reference value) which fixes the finger position when the finger assembly is separated

# MHF2-X7076A

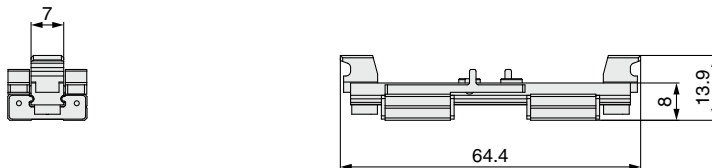


## Dimensions

### Air Gripper with Finger Changer Function MHF2-8D1R-X7076A



### Finger assembly MHF-A08021-X7076A





# MHF2-X7076A

## Specific Product Precautions

Be sure to read this before handling the products.

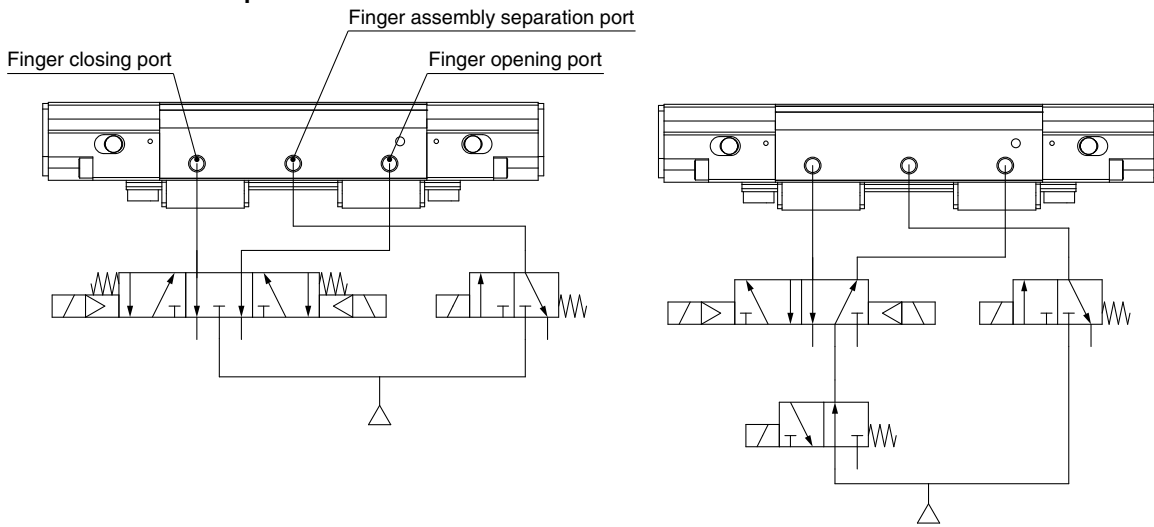
### Handling

#### ⚠ Caution

1. While pressure is being supplied to the finger opening/closing ports, the finger assembly may be difficult to separate.

Use the exhaust center solenoid valve or 3-port solenoid valve together to separate the finger assembly after the pressure from the finger opening/closing ports has been released.

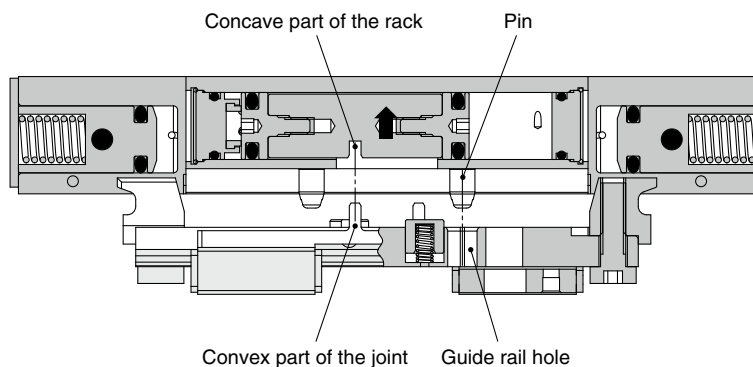
#### Recommended Circuit Examples



2. It is recommended that the finger assembly be separated while the fingers are in a fully open state.

(If the finger assembly is separated while the fingers are not in a fully open state, the force to fix the finger position will be reduced.)


3. When connecting, align the guide rail holes and pins (2 locations), and confirm that the convex part of each joint is aligned with the concave part of the rack. Then, tightly connect the body and guide rail.



#### Connection Method

4. If the separated state is not maintained, such as when the fingers or piston are operated while the finger assembly is separated, the pieces will no longer be able to connect as is.

Align the convex part of each joint and the concave part of the rack to make the connection.

 **Safety Instructions** Be sure to read the "Handling Precautions for SMC Products" (M-E03-3) and "Operation Manual" before use.