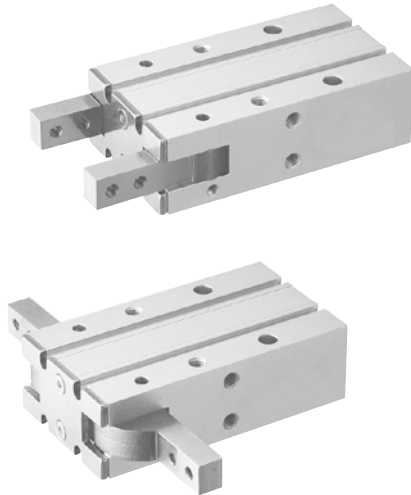


Pneuparts 180° gripper (Ø 10 - 25)



Order example

MAC - 10 = **MAC10**

PISTON Diameter

10
16
20
25

Features

- Compact design and lightweight construction.
- High gripping forces achieved via internal cams. Reduced required offset while moving gripper. (Fig1).
- Reference points on gripping fingers are standard.
- Sensors can be mounted in any one of four positions.
- Rod seal prevents foreign objects to enter piston.
- Magnetic as standard.

Specification

Model	MAC			
Acting Type	Double acting			
Tube I.D. (mm)	10	16	20	25
Medium	Air			
Operating pressure range	0.2~0.6 MPa			
Ambient temperature	-10~+60°C (No freezing)			
Repeatability	±0.2 mm			
Max. operating frequency (c.p.m)	60 (*1)			
Lubrication (*2)	Not required			
Effective force (Nm) at (0.5 MPa)	0.16	0.54	1.1	2.28
Operating angle (both sides)	Opened side	180°~182°		
	Closed side	-3°		
Sensor switch (*3)	2 wire	RSM switches RNFE(V): NPN, RPFE(V): PNP		
	3 wire			
Weight (g)	80	150	320	600

*1. Speed adjust components are required while in use.

*2. Sliding area of jaws need scheduled relubrication.

*3. R*FE(V) specification, please refer to page 5-11.

Installation of sensor switch & speed controller

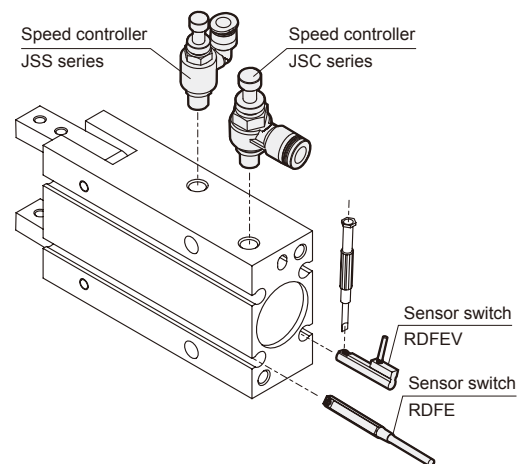
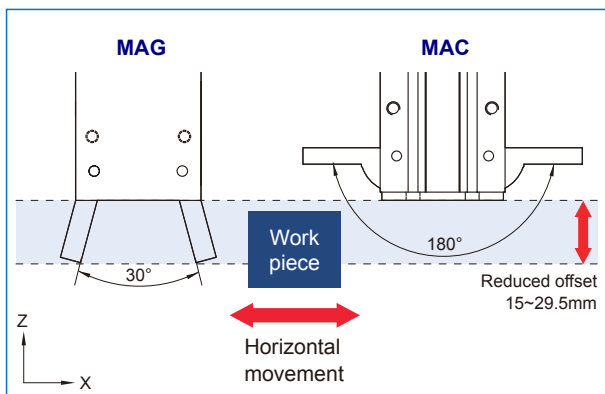


Fig1. Reduced required offset while moving gripper



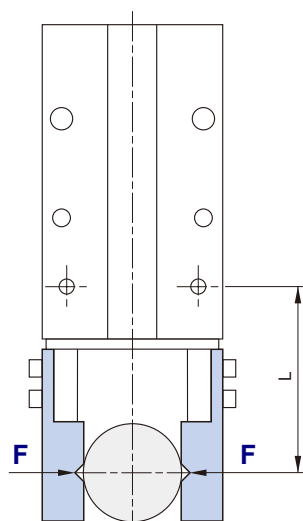
* Each gripper needs at least two speed control valves to operate.

* Speed controller specification, please refer to page 8-15~17 (Vol.1).

Effective gripping force

Indication of effective 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.

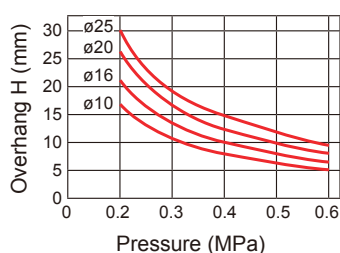
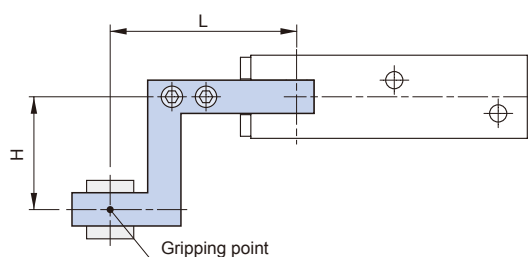


$$1\text{N}=0.102\text{ kgf}$$

$$1\text{MPa}=10.2\text{ kgf/cm}^2$$

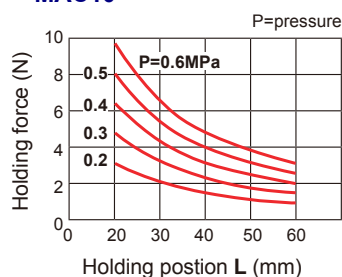
Confirmation of gripping point

- The air gripper should be operated so that the workpiece gripping point "L" and the amount of overhang "H" stay within the range shown for each operating pressure given in the graphs to the right.
- If the workpiece gripping point goes beyond the range limits, this will have an adverse effect on the life the air gripper.

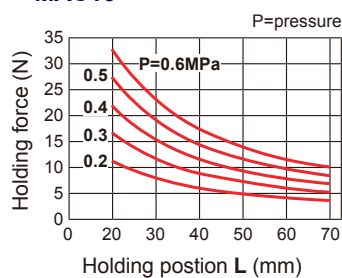


Gripping force

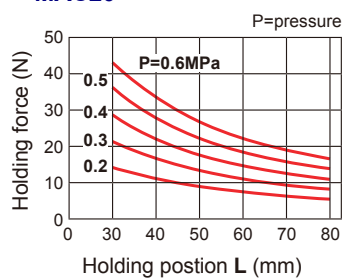
MAC10



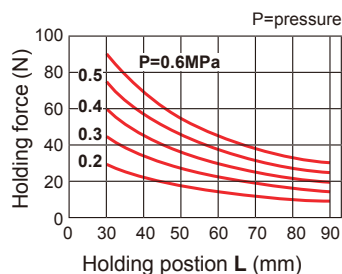
MAC16



MAC20

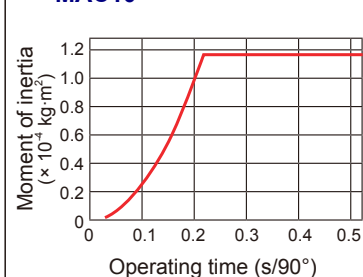


MAC25

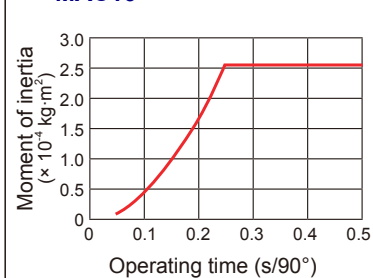


Moment of inertia

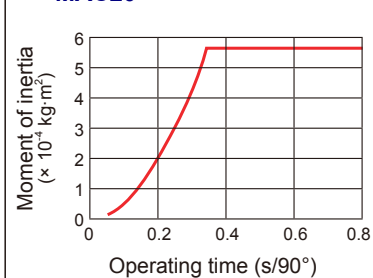
MAC10



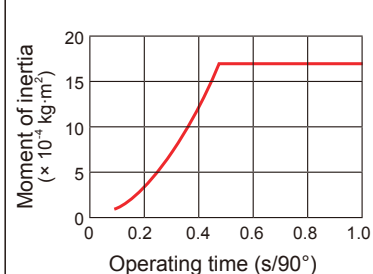
MAC16



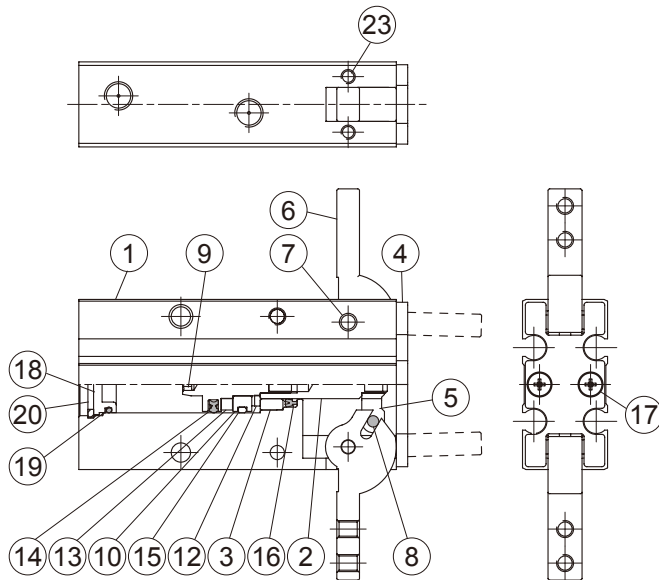
MAC20



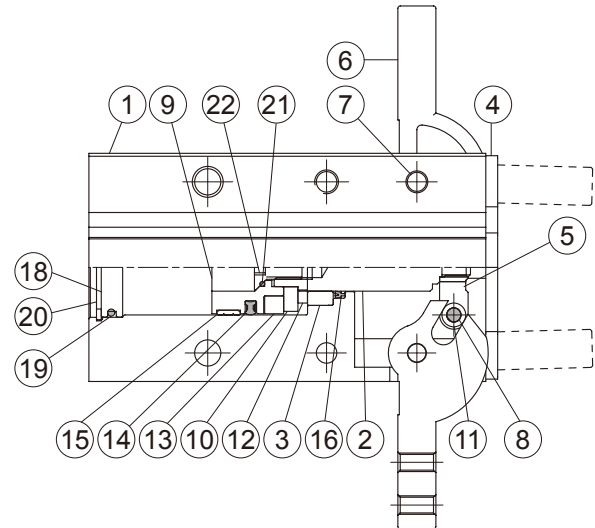
MAC25



ø10



ø16 - ø25

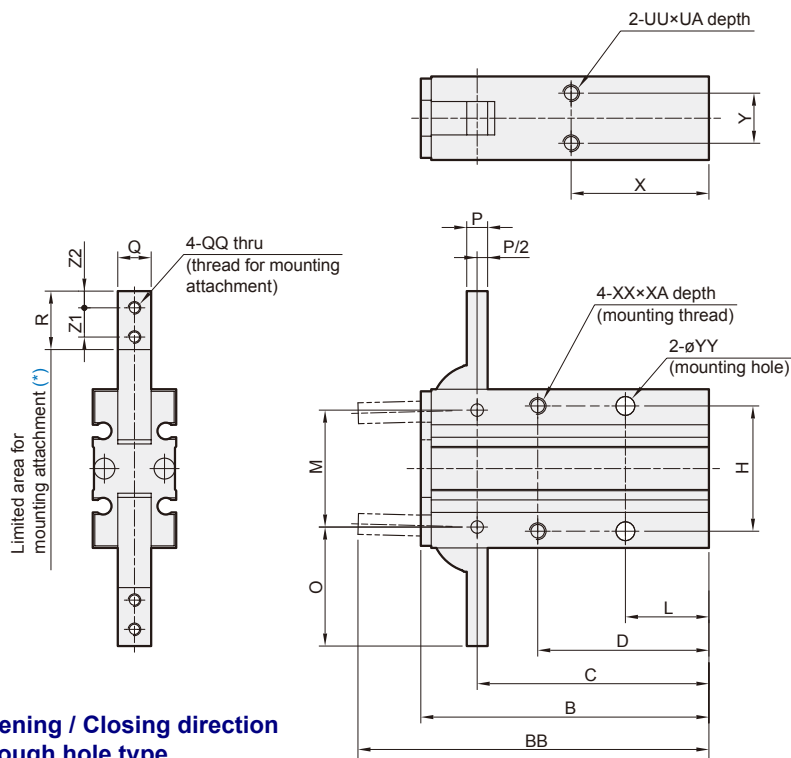


Material

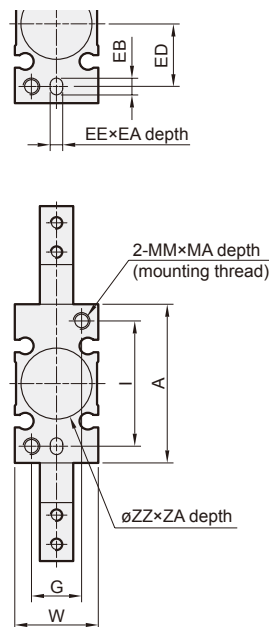
No.	Tube I.D. Part name	10	16	20	25	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy				1	
2	Piston rod	Stainless steel				1	
3	Bushing	Brass				1	
4	Head cover	Stainless steel				1	
5	Lever	Stainless steel				1	
6	Gripper	Stainless steel				2	
7	Grip rivet	Carbon steel				2	
8	Pin	Carbon steel				2	
9	Piston	*1	Aluminum alloy			1	
10	Magnet holder	Stainless steel				1	
11	Pin bushing	—		SCM		2	
12	Cushion pad	NBR	PU			1	●
13	Magnet ring	Magnet material				1	
14	Piston packing	NBR				1	●
15	Wear ring	Resin				1	
16	Rod packing	NBR				1	●

No.	Tube I.D. Part name	10	16	20	25	Q'y	Repair kits (inclusion)
17	Screw	Stainless steel				2	
18	Rod cover	Aluminum alloy				1	
19	O-ring	NBR				1	●
20	Snap ring	*2	Stainless steel			1	
21	O-ring	—	NBR			1	●
22	Hexagon Bolt	—	Stainless steel			1	
23	Scew	Stainless steel				4	

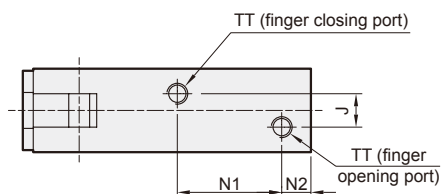
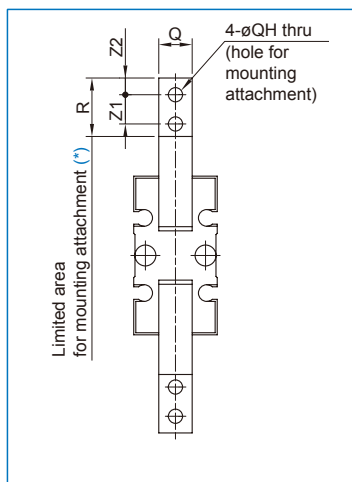
*1. Stainless steel *2. Carbon steel



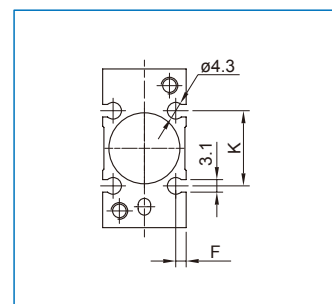
Pin hole positioning



Opening / Closing direction through hole type



Auto switch mounting groove position



* Do not extend the attachment from limited area for mounting to avoid interference with the attachment or main body.

Code Tube I.D.	A	B	BB	C	D	EE	EA	EB	ED	F	G	H	I	J	K	L	M	MA	MM	N1	N2	O	P	Q	QH	QQ
10	30	58	71	47.5	35	3H9 ^{+0.025} ₋₀	3	4	9	2	9	24	24	3	13	18	22	6	M3×0.5	23	7	23.5	4	6 ^{-0.005} _{-0.025}	3.4	M3×0.5
16	38	69	84	55.5	41	3H9 ^{+0.025} ₋₀	3	4	15	2.5	12	30	30	8	18	20	28	8	M4×0.7	25	7	28.5	5	8 ^{-0.005} _{-0.025}	3.4	M3×0.5
20	48	86	106	69	50	4H9 ^{+0.030} ₋₀	4	5	19	3	16	36	38	12	20	25	36	10	M5×0.8	32	8	37	8	10 ^{-0.005} _{-0.025}	4.5	M4×0.7
25	58	107	131	86	60	4H9 ^{+0.030} ₋₀	4	5	23	3	18	42	46	14	24	30	45	12	M6×1	42	8	45	10	12 ^{-0.005} _{-0.025}	5.5	M5×0.8

Code Tube I.D.	R	TT	UA	UU	W	X	XA	XX	Y	YY	ZA	ZZ	Z1	Z2
10	12	M5×0.8	4	M3×0.5	15	30	6	M3×0.5	9	3.4	1.5	11H9 ^{+0.043} ₋₀	6	3
16	14	M5×0.8	5	M4×0.7	20	33	8	M4×0.7	12	4.5	1.5	17H9 ^{+0.043} ₋₀	7	4
20	18	M5×0.8	8	M5×0.8	26	42	10	M5×0.8	14	5.5	1.5	21H9 ^{+0.052} ₋₀	9	5
25	22.5	M5×0.8	10	M6×1	30	50	12	M6×1	16	6.6	1.5	26H9 ^{+0.052} ₋₀	12	6