Rotor Gripper

RH01 Series

◆Complete integration of Rotary Actuator (2-position/3-position Stop Type) and various miniature grippers (Industry's first)

◆Free to operate the combination of gripper rotation and chucking

Model Code No.

RH01 - P 16 C - B 90 - JN - E3 A 2※ ZC253 A 3

Series Name

Gripper Type
G: Parallel (High Rigidity Type)
P: Parallel
O: 180° rotary Type } φ16 Only
V: 30° rotary Type }

Nominal Diameter of Gripper
16 : φ16
20 : φ20 (B Type only)

Gripper Action Type
A : Single Acting Normally Open: P·V Type (φ16 only)
C : Double Acting

Rotor Basic Structure
B: 2-position Stop Type
D: Multiposition Stop Type (φ16 only)
(3-position or 4-position Stop Type)

Rotor Rocking Angle
90 : 90° (2-position Stop Type)
180 : 180° (2-position Stop Type)
α : 3-position Stop Type
2α≦180°
α+β : 4-position Stop Type
2α+β≦180°

Dust-proof Cover Type (P Type only)
No Code: No Cover
JN: With NBR Rubber Cover
JS: With Silicon Rubber Cover
JF: With Fluorine Rubber Cover

Switch Type of Gripper
No code: Without switch
E3: ZE235 2 Wire System Solid State Switch, L type
E5: ZE255 3 Wire System Solid State Switch, L type

Switch Lead Wire Length
A : 1m } ZE Switch
B : 3m }

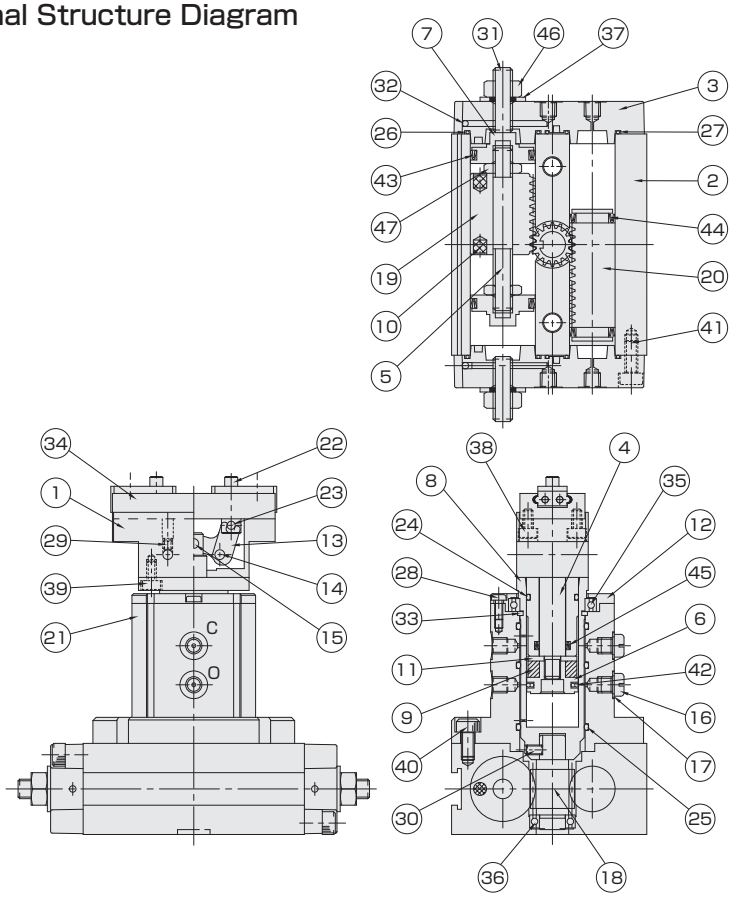
Number of Switches of Gripper
1:1 Switch
2:2 Switches

Rotor Switch Type	Switch Lead Wire Length	Number of Switches
ZC230: 2 Wire System Solid State ZC253: 3 Wire System Solid State EC22: 2 Wire System Solid State EC23: 3 Wire System Solid State	A: 1m B: 3m	1:1 Switch 2:2 Switches 3:3 Switches 4:4 Switches

Rotor Switch Type	Number of Switches	Switch Lead Wire Length
No Code: No Switch	—	—
RCA: 2 Wire System with Contact RCB: 2 Wire System with Contact RCM: 2 Wire System Solid State	1:1 Switch 2:2 Switches	No Code: 1.5m LA: 5m

●The RCA, RCB and RCM switches are mountable only on the rotor basic structure B type.
●Switch details→P.521～528
●Switch mounting→P.538～539

Internal Structure Diagram



Parts List

NO	Name	Material	NO	Name	Material	NO	Name	Material
1	Main Body(H)	Aluminum Alloy	17	Gasket	Soft Steel + NBR	33	Locating Snap Ring for Shaft	Carbon Tool Steel
2	Main Body(R)	Aluminum Alloy	18	Pinion Rod	Carbon Steel	34	Linear Guide	Bearing Steel
3	Head Cover	Aluminum Alloy	19	Rack	Stainless Steel	35	Bearing	Bearing Steel
4	Piston Rod(H)	Stainless Steel	20	Rack Piston	Carbon Steel	36	Bearing	Bearing Steel
5	Piston Rod(R)	Stainless Steel	21	Case	Aluminum Alloy	37	Fastener Seal	Soft Steel + NBR
6	Piston(H)	Aluminum Alloy	22	Knuckle	Stainless Steel	38	Hexagon Socket Head Bolt(H)	Stainless Steel
7	Piston(R)	Stainless Steel	23	Roller	Carbon Tool Steel	39	Hexagon Socket Head Bolt(H)	Stainless Steel
8	Cylinder Tube	Stainless Steel	24	O Ring(H)	NBR	40	Hexagon Socket Head Bolt(C)	Stainless Steel
9	Magnet(H)	Magnetic Body	25	O Ring(C)	NBR	41	Hexagon Socket Head Bolt(R)	Stainless Steel
10	Magnet(R)	Magnetic Body	26	O Ring(R)	NBR	42	Piston Packing(H)	NBR
11	Pressure Cover(H)	Aluminum Alloy	27	O Ring(R)	NBR	43	Piston Packing(R)	NBR
12	Pressure Cover(C)	Carbon Steel	28	Cross-recessed Round Head Screw	Stainless Steel	44	Piston Packing(R)	NBR
13	Action Lever	Carbon Steel	29	Hexagon Socket Head Setscrew(H)	Chrome Molybdenum Steel	45	Rod Packing	NBR
14	Fulcrum Pin	Carbon Tool Steel	30	Hexagon Socket Head Setscrew(H)	Chrome Molybdenum Steel	46	Hexagon Nut	Carbon Steel
15	Press Fit Pin	Carbon Tool Steel	31	Hexagon Socket Head Setscrew(R)	Stainless Steel	47	Hexagon Nut	Brass (hexavalent chrome-free)
16	Plug	Stainless Steel	32	Steel Ball	Carbon Tool Steel			

Each alphabet indicates as follows: (C): Casing, (H): Gripper and (R): Rotor.

Specifications

		Rotor		Gripper					
Model		D	B	G16C	P16C(A)	V16C(A)	O16C	G20C	P20C
Bore Size [mm]		φ14+φ20		16				20	
Number of Stop Positions		3 or 4	2						
Action Type		Double Acting		Double Acting	Double Acting (Single Acting Normally Open)		Double Acting		
Fluid		Air							
Operating Pressure [MPa]		0.3~0.7	0.2~0.7	0.12~0.7	0.12~0.7(0.25~0.7)	0.12~0.7(0.2~0.7)	0.2~0.7	0.12~0.7	
Proof Pressure [MPa]		1.05							
Operating Temperature [℃]		0~60℃							
Rocking Angle※3 [°]		40°≦2α≦180°	90°·180°	—					
Angle Adjustment (Both Sides) [°]		0°~−60°	+3°~−20°	—					
Theoretical Torque Note) 1 [N·m]		0.9×P	2.8×P	—					
Allowable Energy [J]		1×10⁻²	3×10⁻²	—					
Opening/Closing Stroke, Rocking Angle		—		10mm	8mm	+30°~−10°	+180°~−5°	14mm	12mm
Effective Gripping Force Air Pressure 0.5[MPa] Gripping Point L[mm] Note)2	N Open	—		39.0	34.0(3.9)	16(3)	21	60	60.9
	N Close	—		26.0	25.5(21)	12(10)	18	45	45.7
Cushion Structure		None	Air Cushion	None					
Lubrication		Not Required		Required (Turbine oil (ISO VG32) shall be used. However, lithium grease may be used as a substitute.) Note) 3					
Pipe Bore		M5×0.8							
Applicable Switch		RC, ZC Type		ZE Type					

Note 1): Theoretical torque P indicates the working pressure. Note 2): Grip point L is 30 mm. Note 3): Fueling is required for the rotary joint.
*1: β is 90° or 180° as a standard. Consult us if you need any other angle.
*2: Values in the parentheses indicate those for the single acting type. *3: For 4-position stop, 40° ≦2α+β≦180°

Product Mass [g]

Rotor	Gripper							
	G16C	P16A	P16C	V16A	V16C	O16C	G20C	P20C
B	747	723	722	760	760	735	846	736
D	739	715	714	752	752	727	None	None

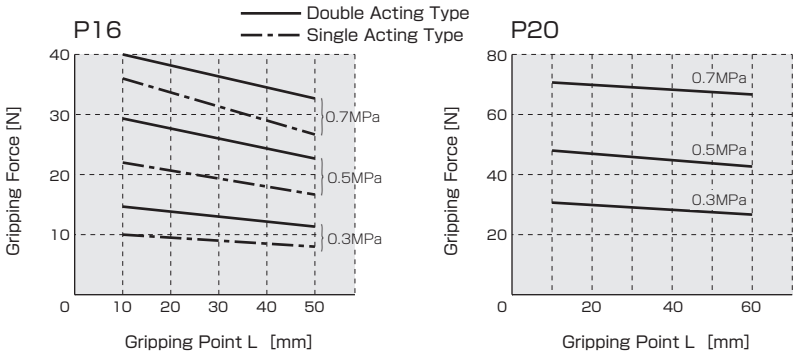
Mass of Dust-proof Cover (Additional mass) [g]

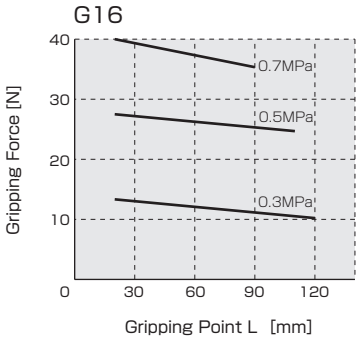
P16	JN=8 JS=8 JF=10
P20	JN=12 JS=12 JF=16

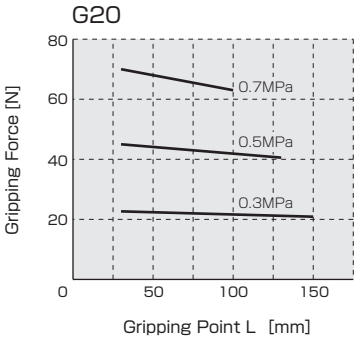
Advantages of Rotor Gripper

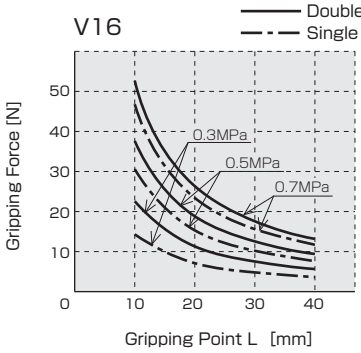
Item	Rotor Gripper	Adaptor Connection Type
Appearance	It is simple and compact because gripper sensor wiring and air piping are both fixed.	The gripper sensor wiring and air piping rotates together with the gripper, so this type requires long wiring/air piping, resulting in a larger size and complication.
Mounting Workability Maintenance	Gripper rotation is irrelevant to the wiring and piping when the gripper is fixed. Therefore, it can be mounted easily in the minimum space.	Wiring/piping twist and rotation range must be considered to secure the surrounding space. This type is inferior in durability than the integrated rotor gripper because of twist and bending.
Operation	Since the gripper's rotating part is only the end chuck, it does not interfere with the outside.	The whole gripper rotates, so wire breaking and air leak due to contact with other equipment must be considered. In addition, twist and bending of wiring and/or piping have an influence on the rotor motion.
Accuracy	The bearing is positioned at the upper and lower ends of the main body, so this type has good rotation accuracy at the long span and is good in durability.	Since this type is supported by the bearing inside the rotor, it is inferior in the rotation accuracy than the rotor gripper in the short span.

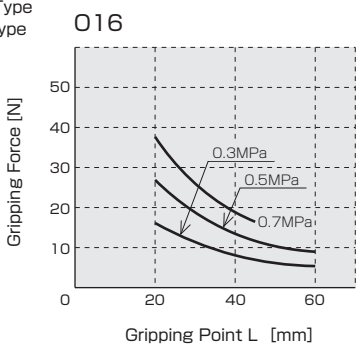
Effective Gripping Force (Closing Force)





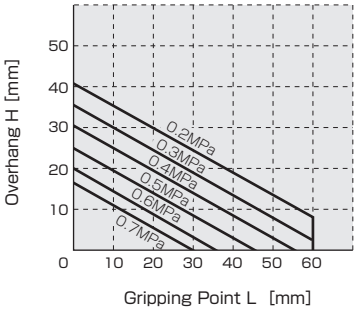






Gripping Point Limit Range

P16



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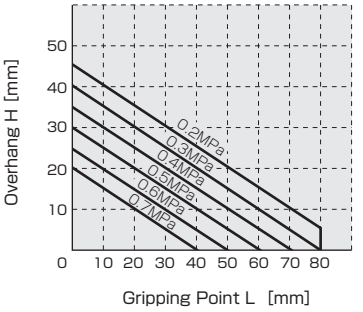
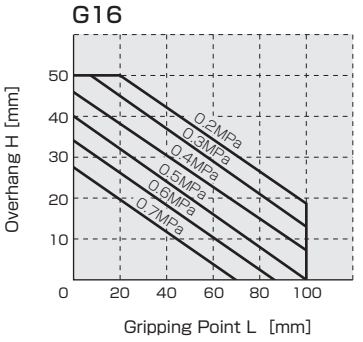
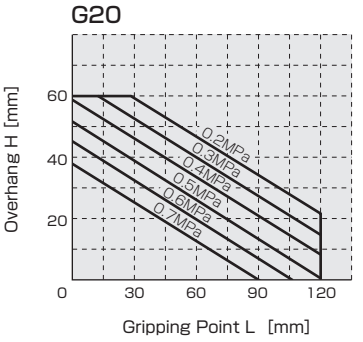


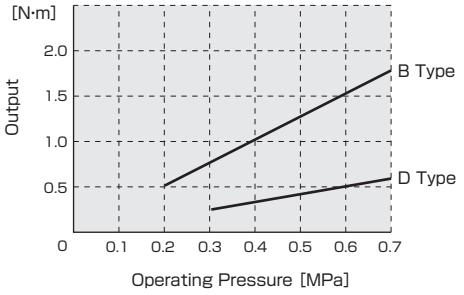
G16



G20



Effective Torque



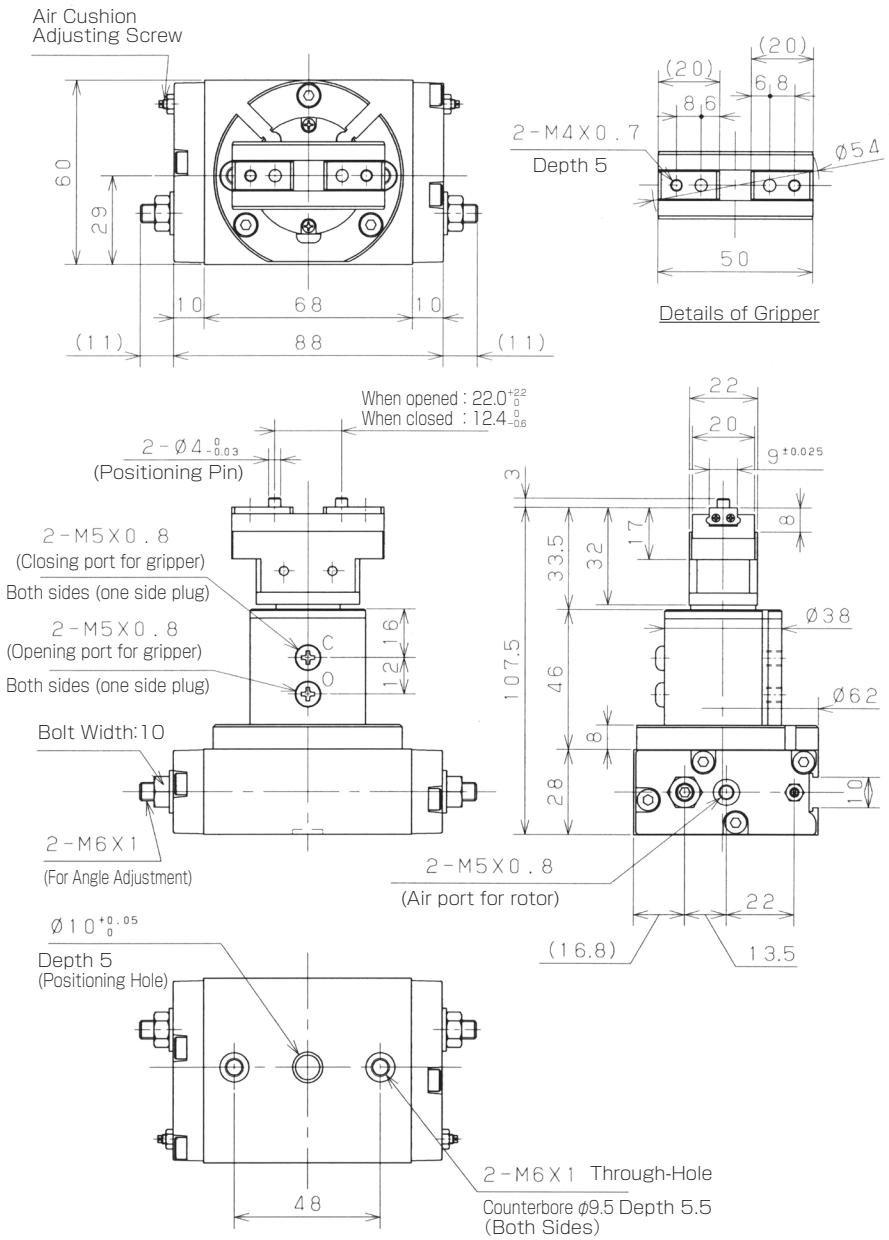
Stop Position Adjustment Method

☞ See P.540～541

Stop Position Control Method

☞ See P.542～543

■Dimensions RH01-G16C-B□



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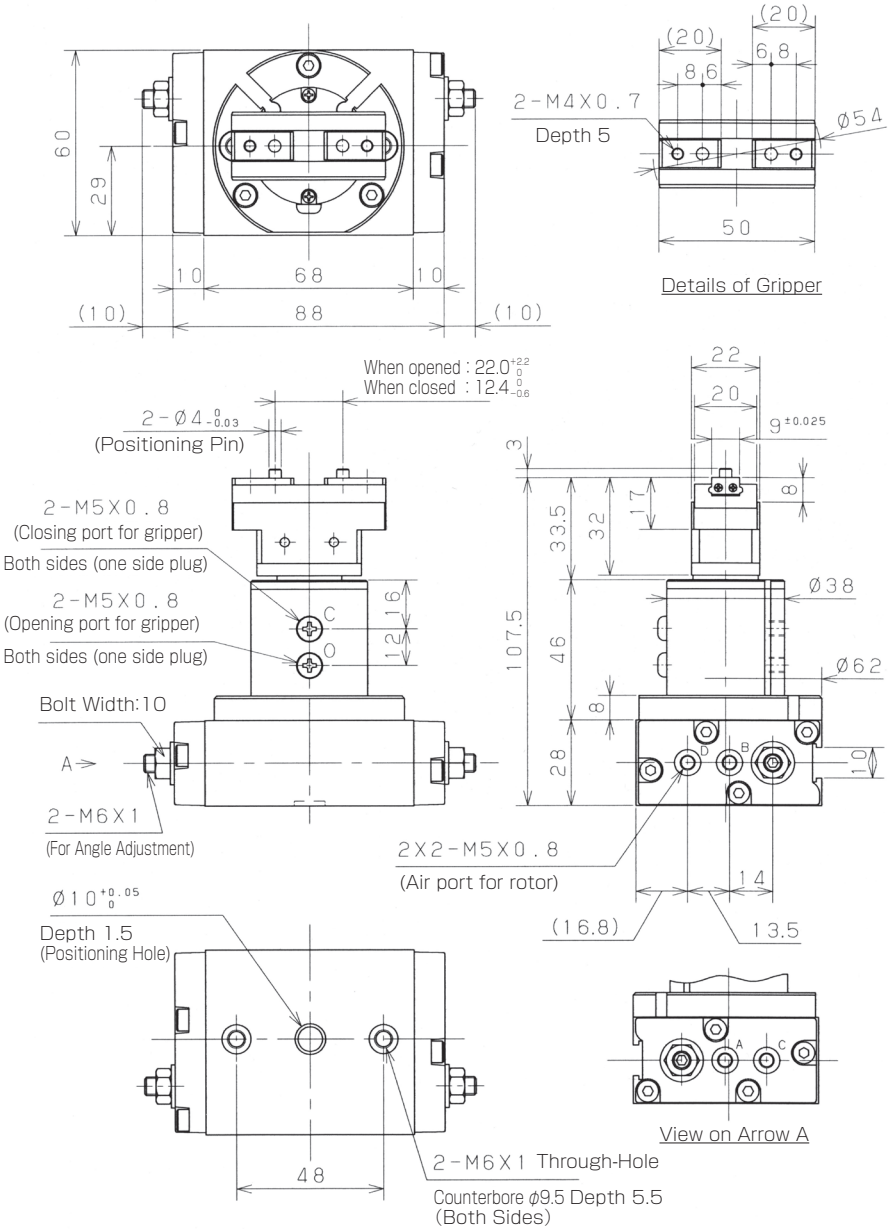

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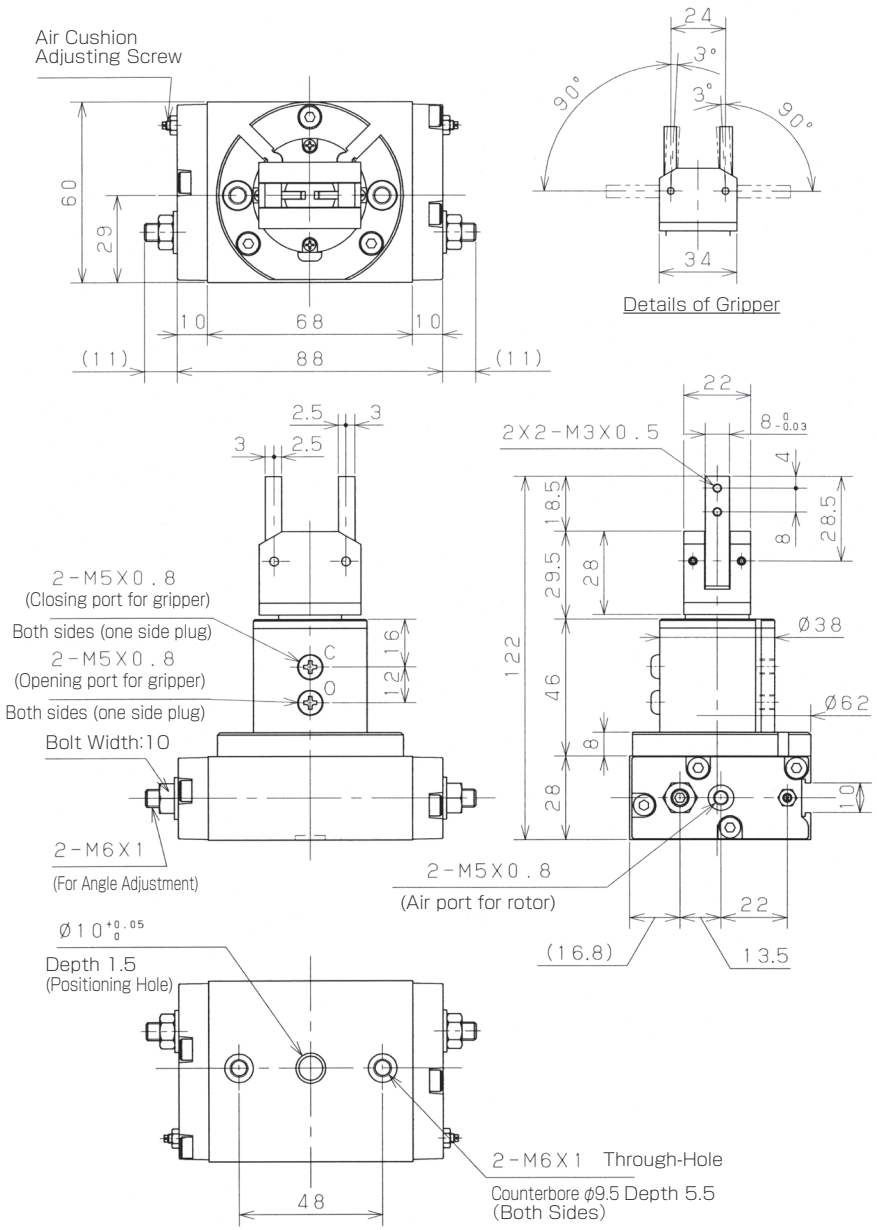

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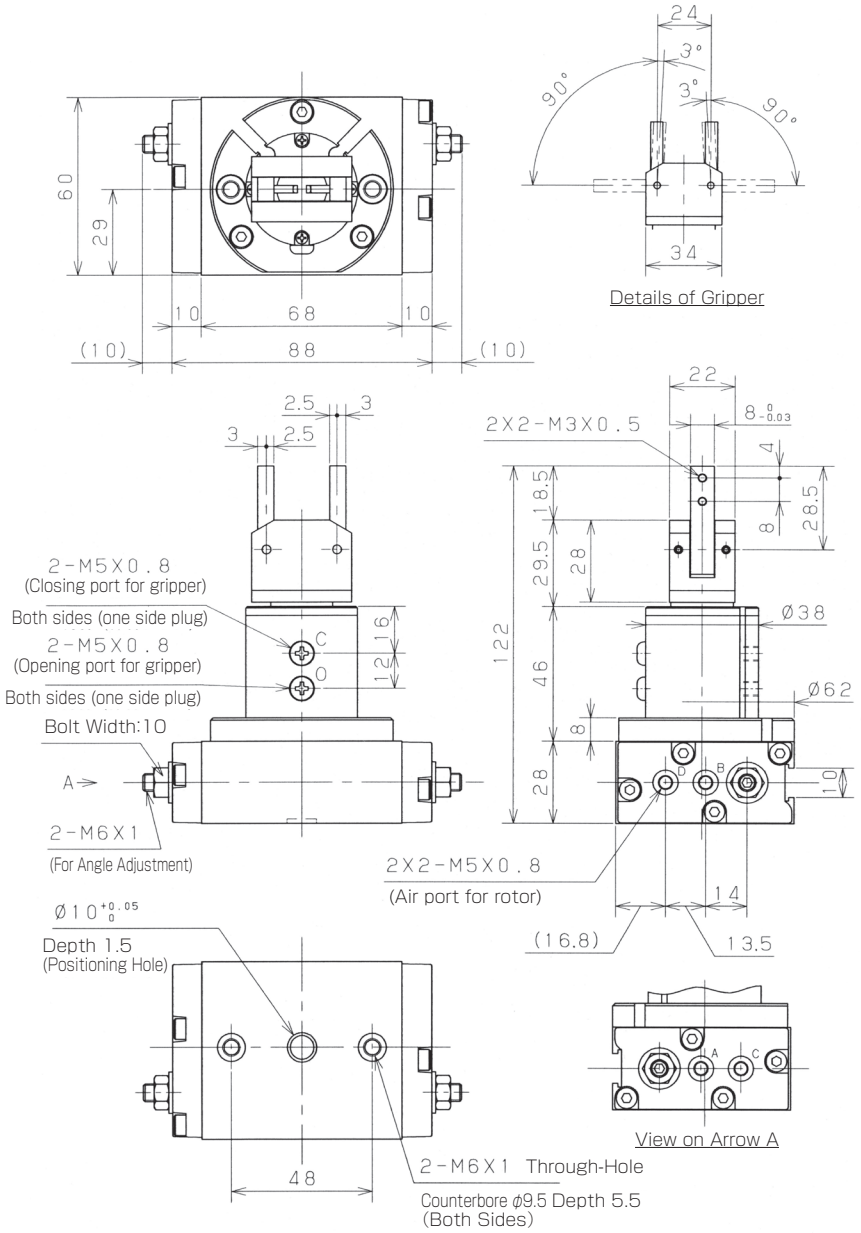

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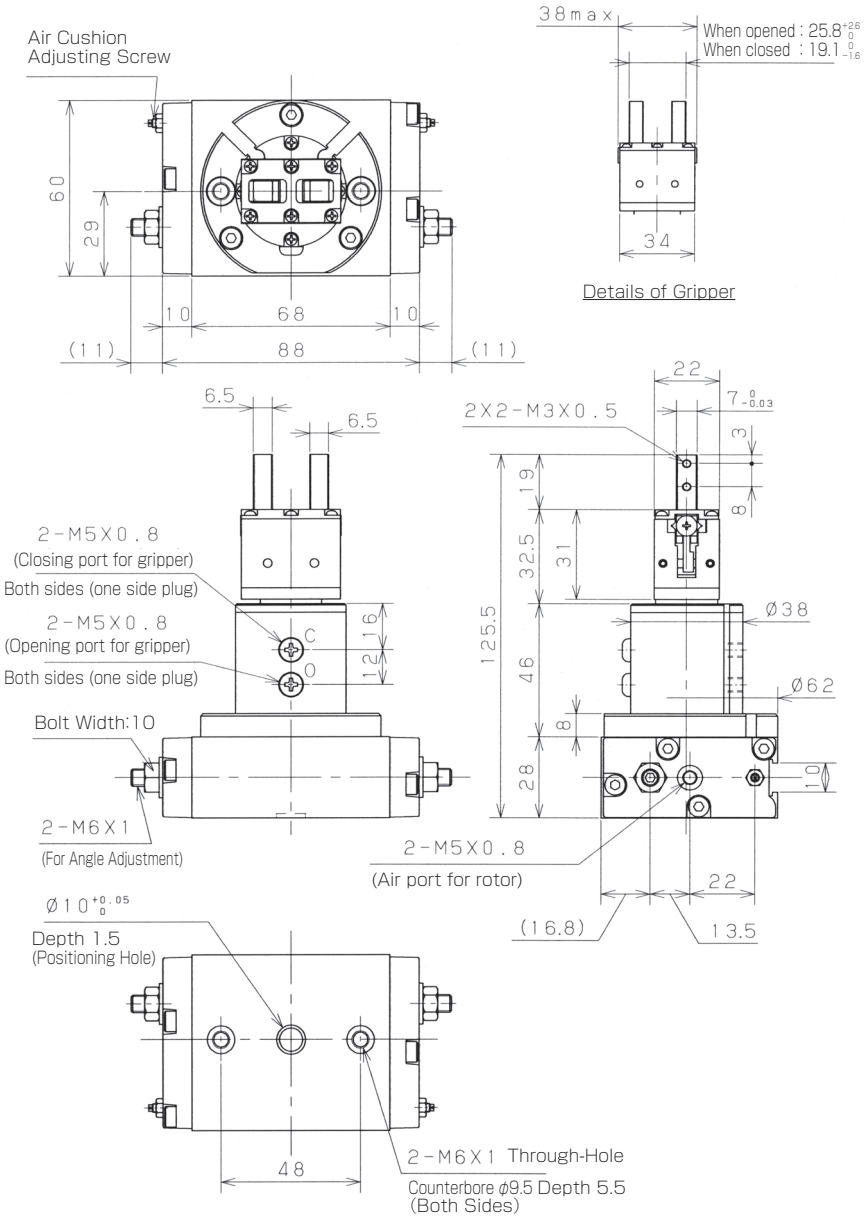
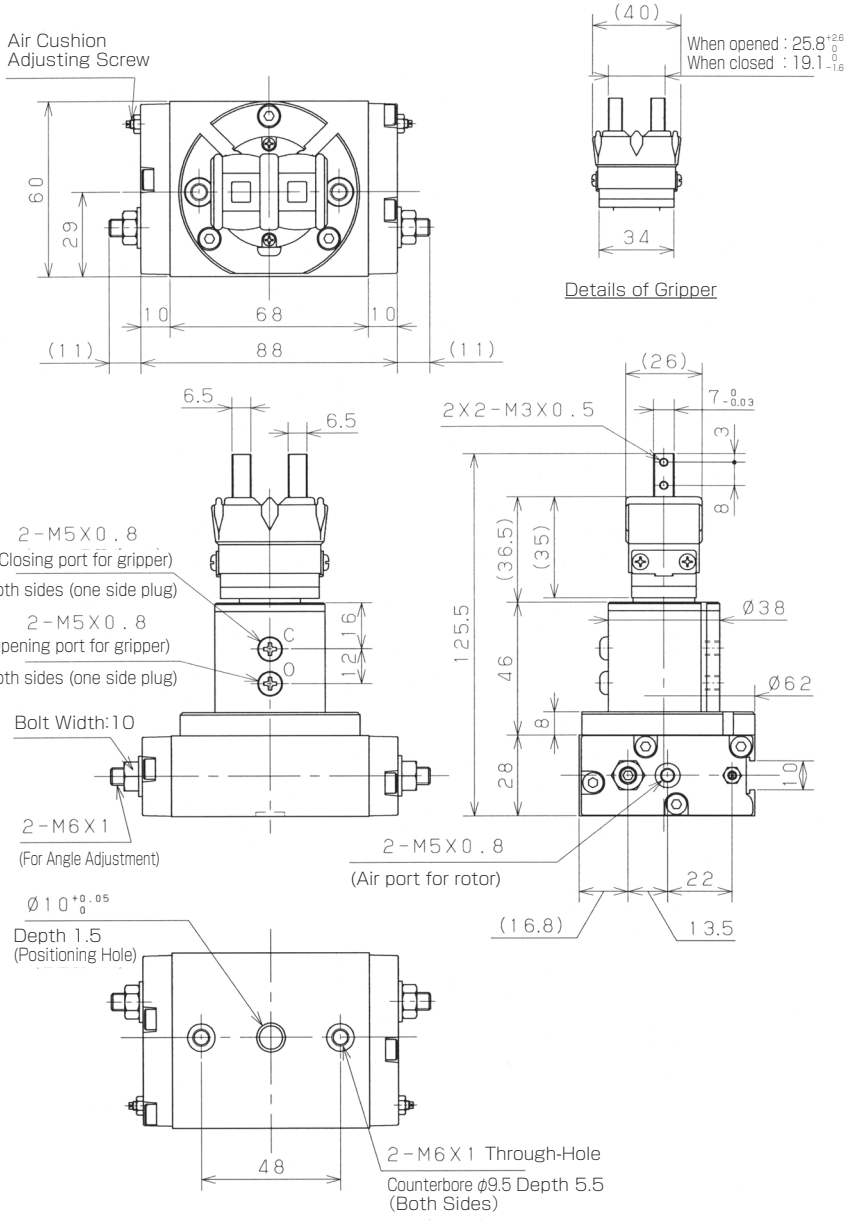
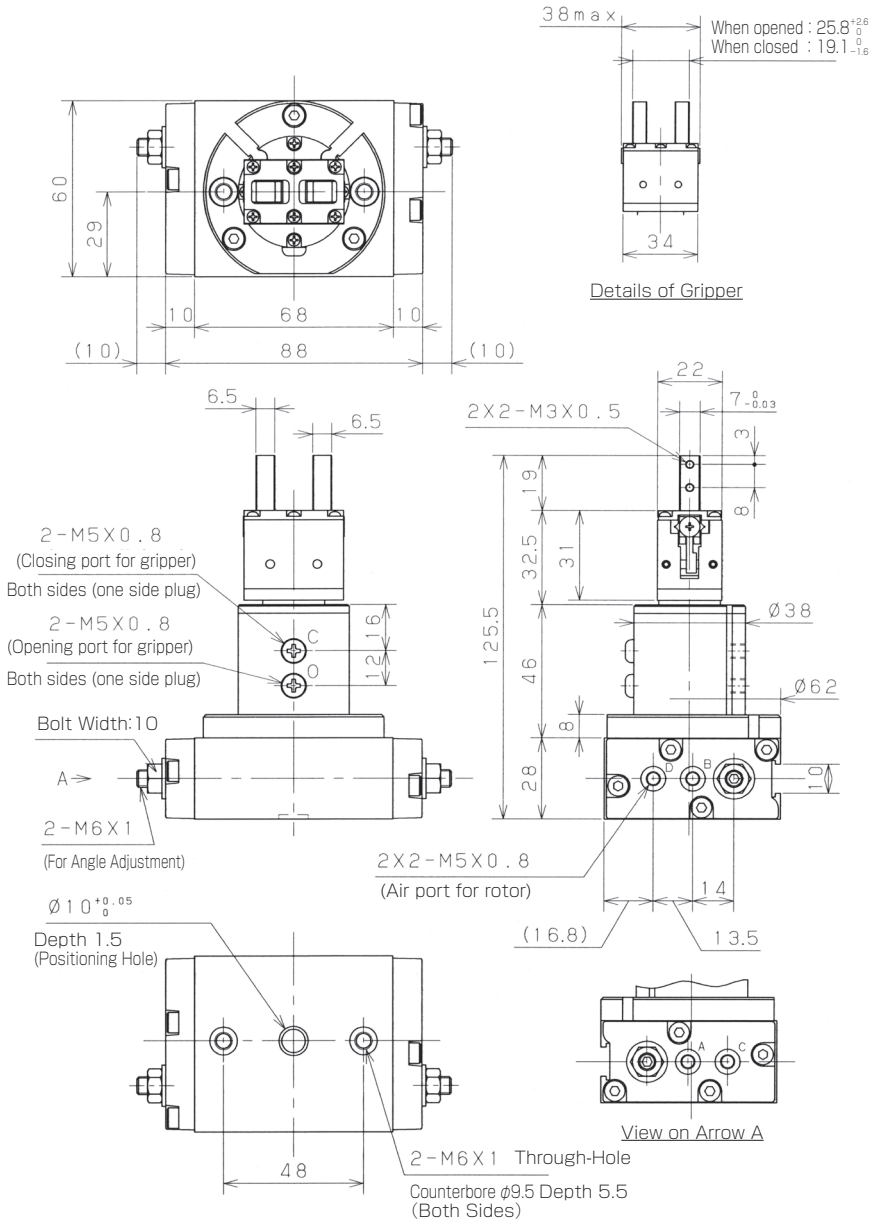


■Dimensions RH01-P16□-B□※J□



■Dimensions RH01-P16□-D90



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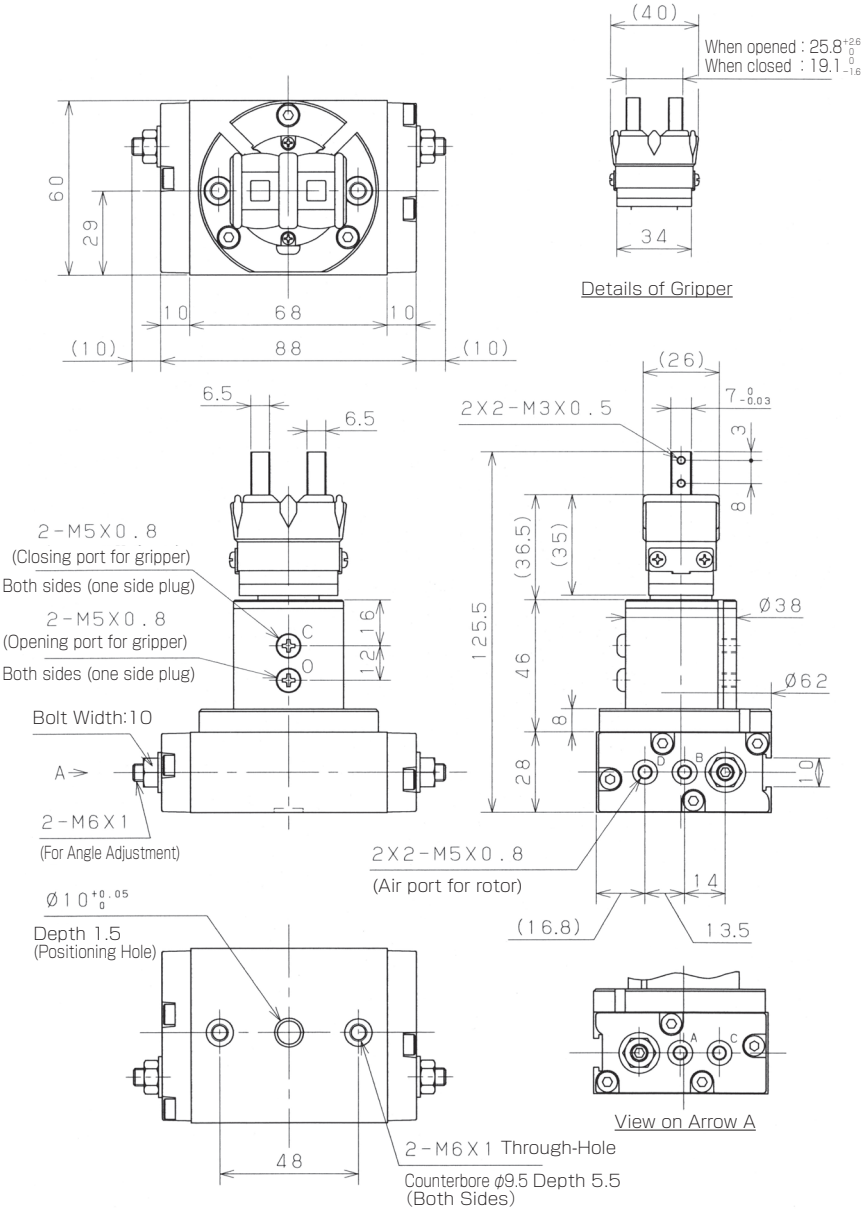

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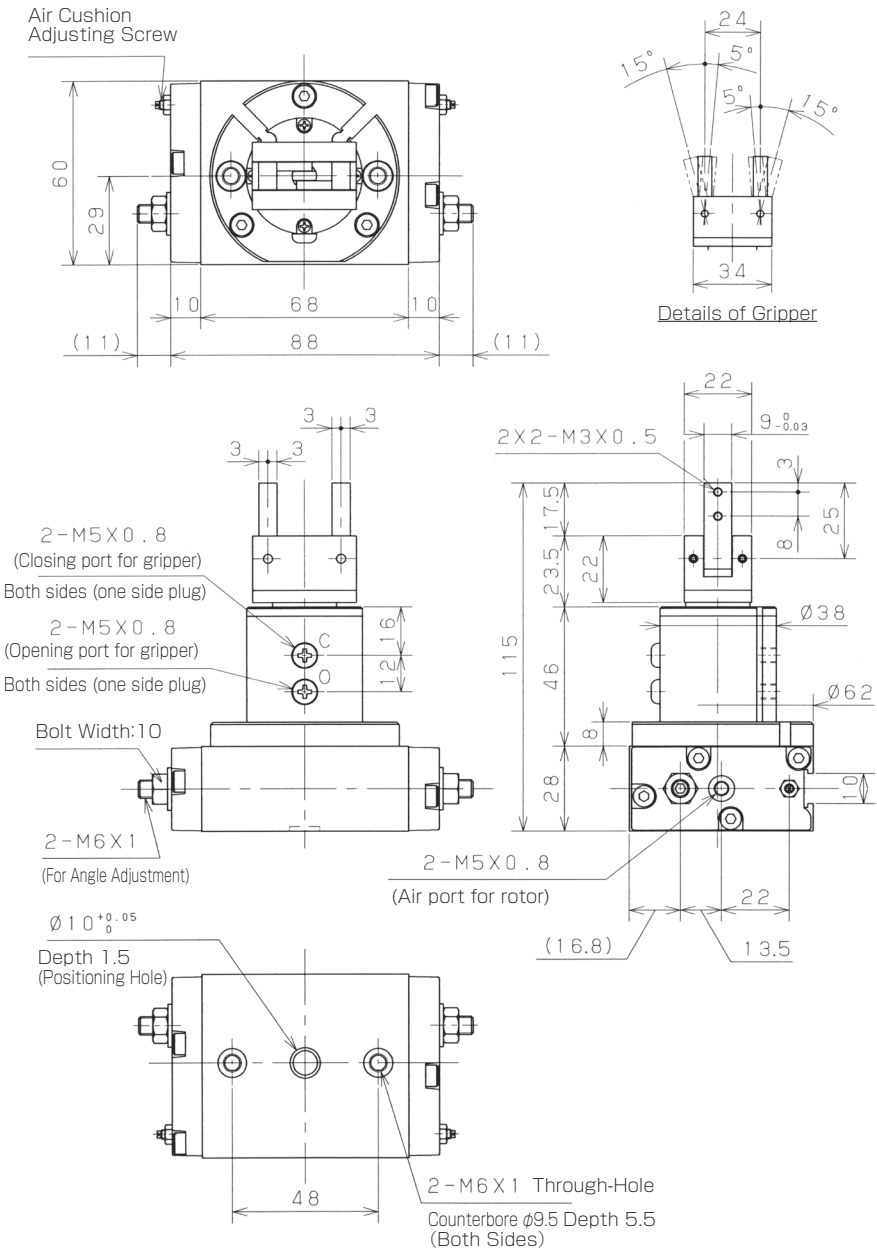

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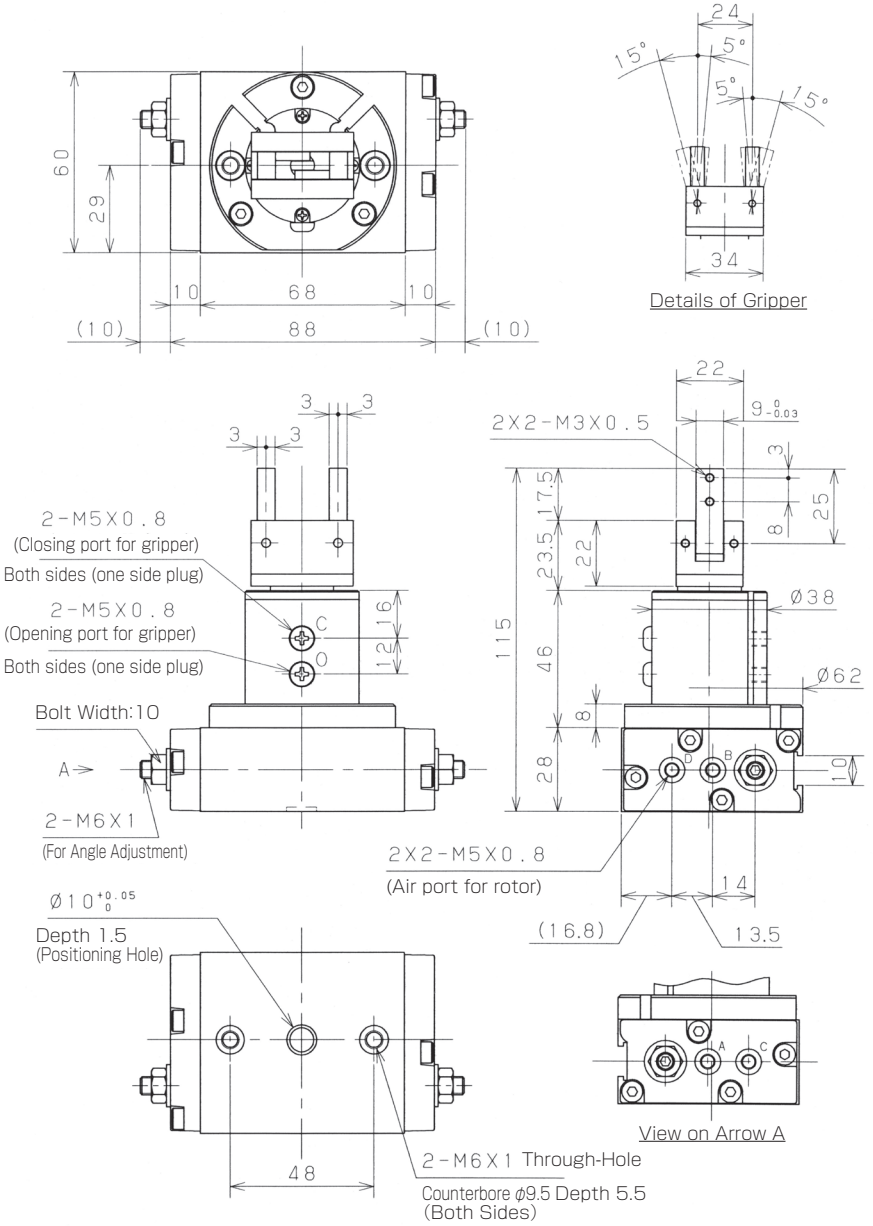

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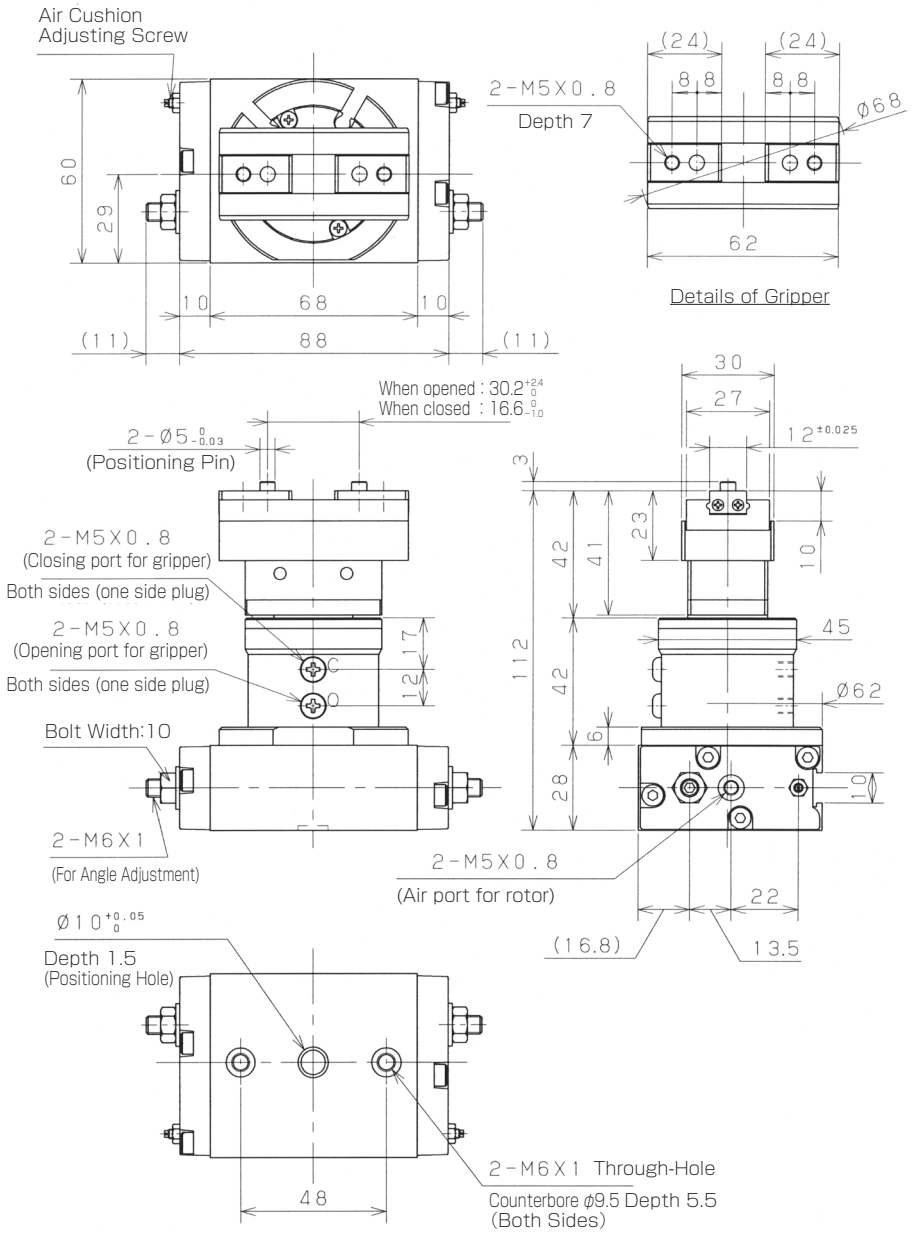

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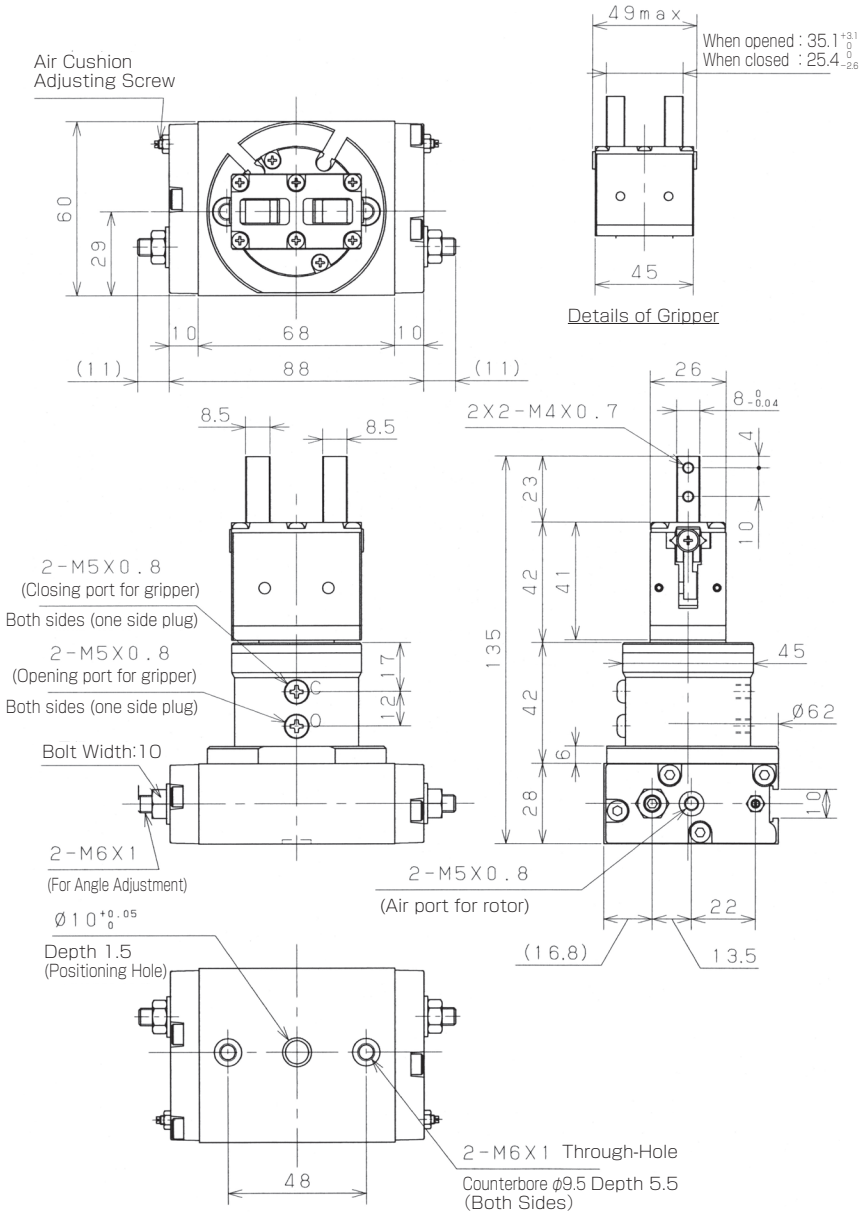

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