

Parallel Linear Gripper Clean Type

HP04NL Series

Long Stroke Type

Perfect for clean rooms



Excellent CENTERING Accuracy

◆ ±0.07mm or less

Piping Port on 2 faces

◆ Excluding $\phi 8\text{mm}$

Fluorine Grease

◆ Internal cylinder

Positioning Hole

◆ Rear Face

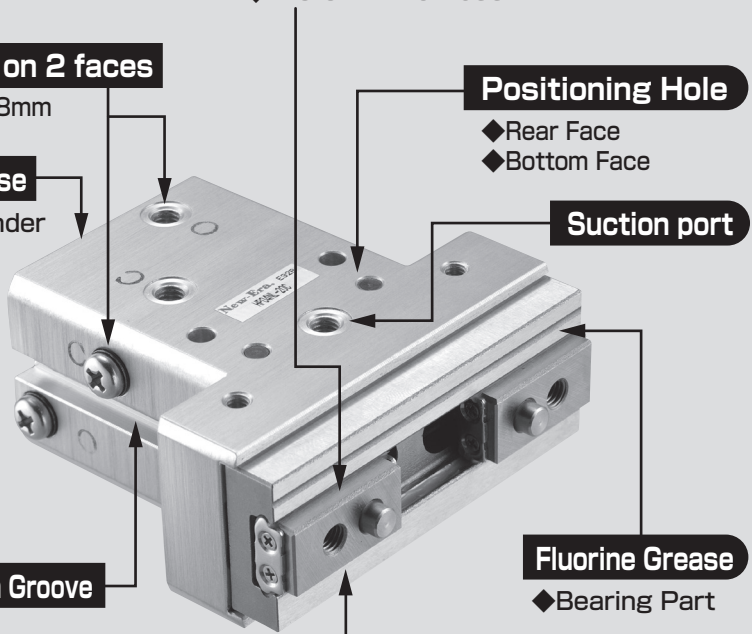
◆ Bottom Face

Suction port

Sensor Switch Groove

Fluorine Grease

◆ Bearing Part



Use of LINEAR GUIDE

- ◆ Withstand load, withstand moment (high rigidity)
- ◆ High accuracy (repeat accuracy: $\pm 0.01\text{ mm}$ or less)
- ◆ Gripping at a long point and overhang gripping are available.

HP04NL Series

Model Code No.

HP04NL - 10 C ※ HAE - ZE235 A 2

Series Name

Bore Size

8: 8mm
10: 10mm
16: 16mm
20: 20mm

Action Type

C : Double Acting

Number of Switches

1: 1 Switch
2: 2 Switches

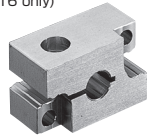
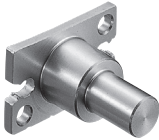
Switch Lead Wire Length

A: 1m
B: 3m

●Gripper Adaptor Type
No Code: No Gripper Adaptor

HAE (excluding $\phi 32$ and $\phi 50$)

HFE (excluding $\phi 8$, $\phi 32$ and $\phi 50$)
HFE-L : Large Diameter Type ($\phi 16$ only)



●Detailed specifications→P.76

●Switch Type No Code: No Switch

ZE135 ES13
2 Wire System Solid State Switch, Straight Type

ZE235 ES23
2 Wire System Solid State Switch, L-shaped

ZE155 ES(P)15
3 Wire System Solid State Switch, Straight Type

ZE255 ES(P)25
3 Wire System Solid State Switch, L-shaped

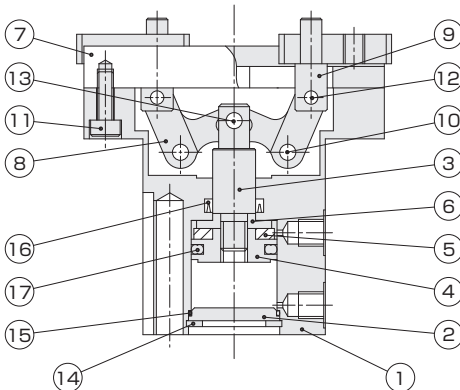


●Switch details→P.521~528

HP04NL Series

Parallel Linear Gripper Clean Type (Long Stroke Type)

Internal Structure Diagram



Parts List

NO	Name	Material
1	Main Body	Aluminum Alloy
2	Head Cover	Aluminum Alloy
3	Piston Rod	Stainless Steel
4	Piston	Aluminum Alloy
5	Magnet	Resin
6	Pressure Cover	Aluminum Alloy
7	Linear Bearing	Bearing Steel
8	Action Lever	Carbon Steel
9	Knuckle	Stainless Steel
10	Fulcrum Pin	Carbon Tool Steel
11	Hexagon Socket Head Bolt	Stainless Steel
12	Press Fit Pin	Carbon Tool Steel
13	Press Fit Pin	Carbon Tool Steel
14	Hole Locating Snap Ring	Carbon Tool Steel
15	O Ring	NBR
16	Rod Packing	NBR
17	Piston Packing	NBR

Specifications

Fluid	Air
Maximum Operating Pressure [MPa]	0.7
Proof Pressure [MPa]	1.05
Operating Temperature [°C]	0~60 (No Freezing)
Lubrication	Not Required (Required for sliding parts of the machine) Only φ8 required
Pipe Bore	M3×0.5 (HPO4NL-8, HPO4NL-10) M5×0.8 (HPO4NL-16, HPO4NL-20)
Maximum Operating Cycle [Cycle/min]	120
Centering Accuracy [mm]	±0.07
Repeat Accuracy [mm]	±0.01
Applicable Switch	ZE, ES Type (Solid State Switch)

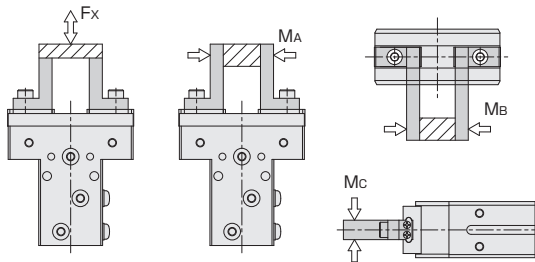
Action Type	Model	Bore Size [mm]	Minimum Operating Pressure [MPa]	Opening/Closing Stroke [mm]	Gripping Force [N]		Outside Dimensions (T x W x L) [mm]	Product Mass [g]
					Close	Open		
Double Acting	HPO4NL-8C	8	0.22	8	5.8	9.9	13×26×32	27
	HPO4NL-10C	10	0.2	12	10	15.6	20×45×49	90
	HPO4NL-16C	16	0.12	16	26	39	25×56×56	168
	HPO4NL-20C	20	0.1	22	45	60	32×73×73	368

Note) The grip force is measured at the intermediate position of the opening/closing stroke. It is an effective value when the grip point L is 30 mm and the pressure is 0.5 MPa.

The opening force of the single acting type indicates the spring force.

When this product is used with an extremely short stroke, it may work badly because of the lack of oil of the guide.

Allowable Load and Allowable Moment

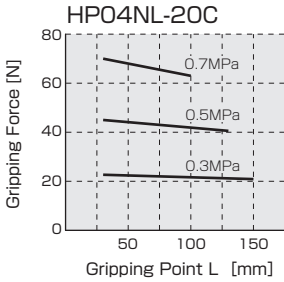
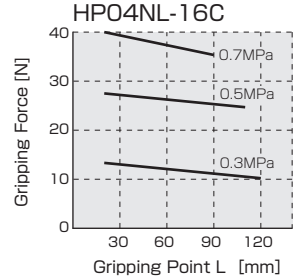
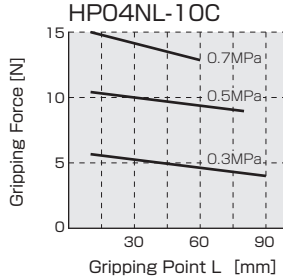
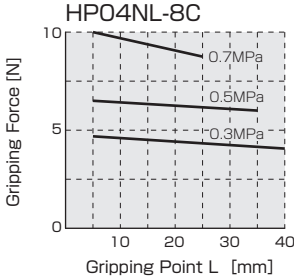


Model	Load and Moment	Fx [N]	MA [N·m]	MB [N·m]	Mc [N·m]
HPO4NL-8		12	0.04	0.04	0.08
HPO4NL-10		50	0.4	0.4	0.8
HPO4NL-16		120	1	1	2
HPO4NL-20		200	1.5	1.5	3

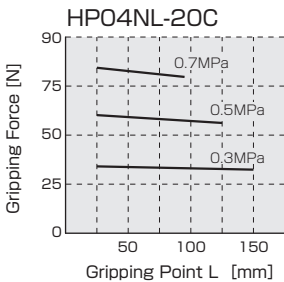
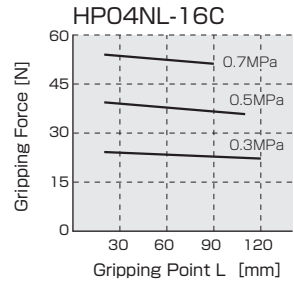
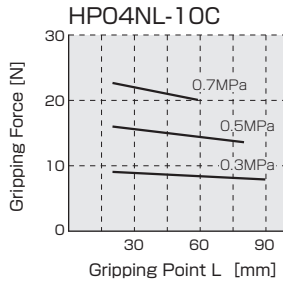
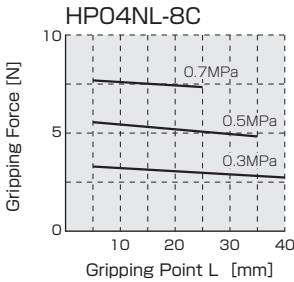
HP04NL Series

Effective Gripping Force

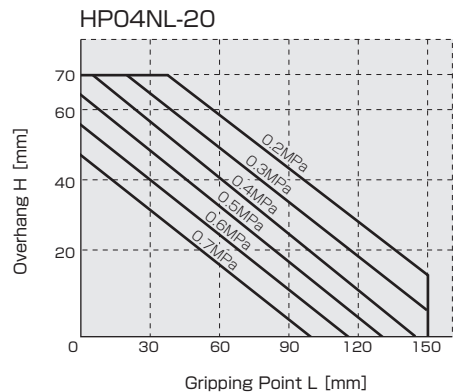
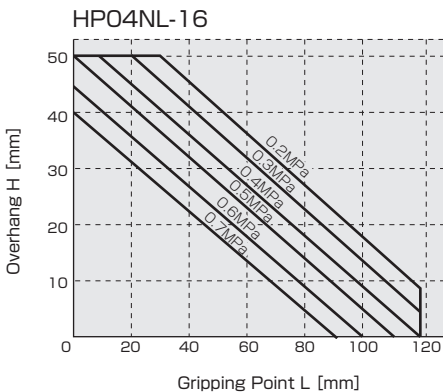
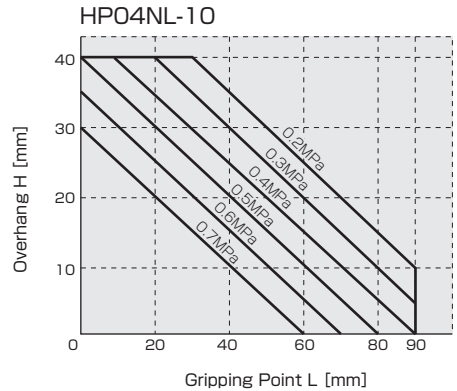
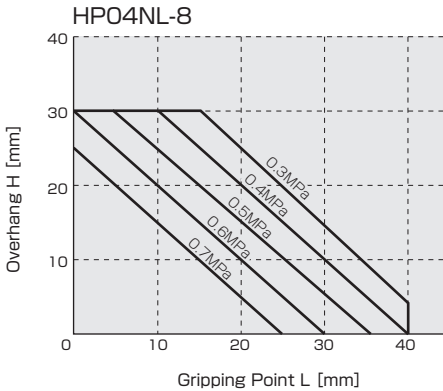
Closing Force (Double Acting Type)



Opening Force (Double Acting Type)



■ Gripping Point Limit Range

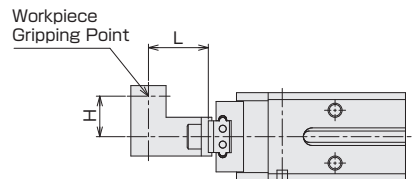


● Mounting of the attachment

L (distance gripping point) and H (overhang distance) of the attachment to be mounted to the lever shall be within the range specified in the above drawing (Gripping point limit range). If they exceed the limit range, excess moment will be applied to the guide, causing troubles that have a bad influence on the life and accuracy (e.g. finger backlash). Even if they are within the limit range, the attachment shall be as small and light as possible.

● Guide for selecting a model for the workpiece weight

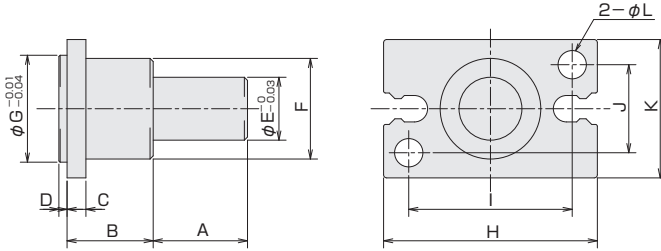
It shall be 5 to 10% of the effective gripping force or any value less than that although it differs depending on the coefficient of friction between the attachment and the workpiece and the shape. It shall be greater than that when great acceleration or impact is applied during workpiece transportation.



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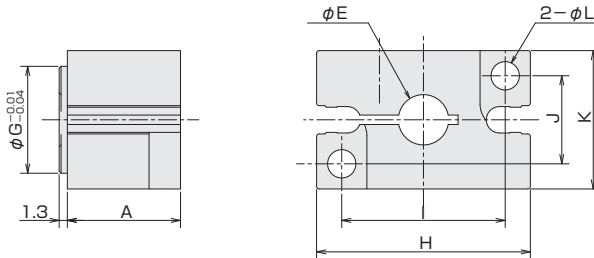
Outline Dimensional Drawing of Gripper Adaptor

HAE Type



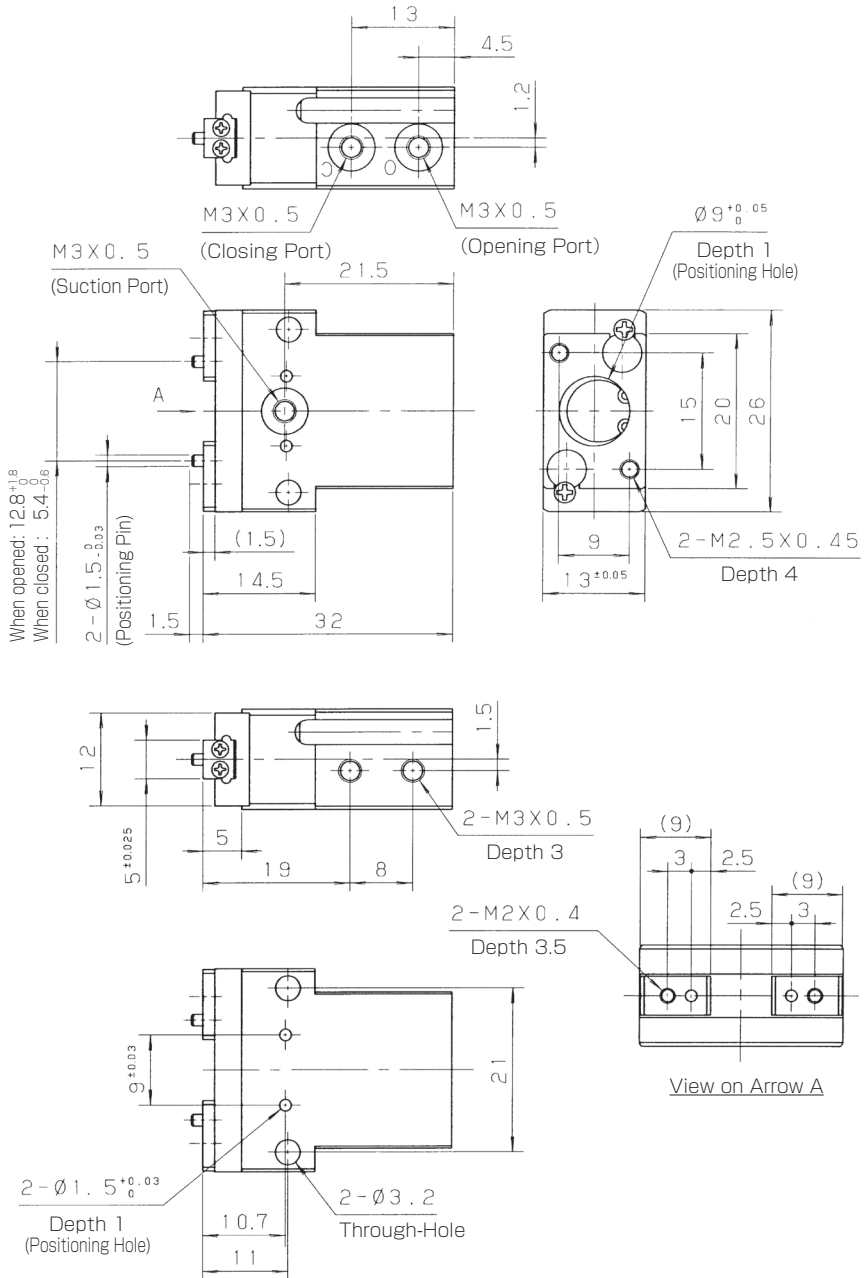
Type	Code	A	B	C	D	E	F	G	H	I	J	K	L	Ancillary Bolt (x2)	Product Mass [g] (Including Bolts)
HAE-8		10	10	3	0.8	8	10	9	20	15	9	13	2.8	M2.5×0.45×6 ^L	6
HAE-10		15	15	3	1.3	10	11	11	23	17	10	16	3.4	M3×0.5×8 ^L	11
HAE-16		15	15	3	1.3	10	16	17	34	26	14	22	4.5	M4×0.7×10 ^L	20
HAE-20		15	15	3	1.3	10	18	21	45	35	16	26	5.5	M5×0.8×10 ^L	28

HFE Type



Type	Code	A	E	G	H	I	J	K	L	Ancillary Bolt (x3)		Product Mass [g] (Including Bolts)
										Gripper Mounting (x2)	Adapter Fixing (x1)	
HFE-10		15	6	11	23	17	10	16	3.4	M3×0.5×16 ^L	M3×0.5×12 ^L	14
HFE-16		18	8	17	34	26	14	22	4.5	M4×0.7×20 ^L	M4×0.7×16 ^L	35
HFE-16L		18	10	17	34	26	14	22	4.5	M4×0.7×20 ^L	M4×0.7×16 ^L	33
HFE-20		19	13	21	45	35	16	26	5.5	M5×0.8×20 ^L	M5×0.8×20 ^L	55

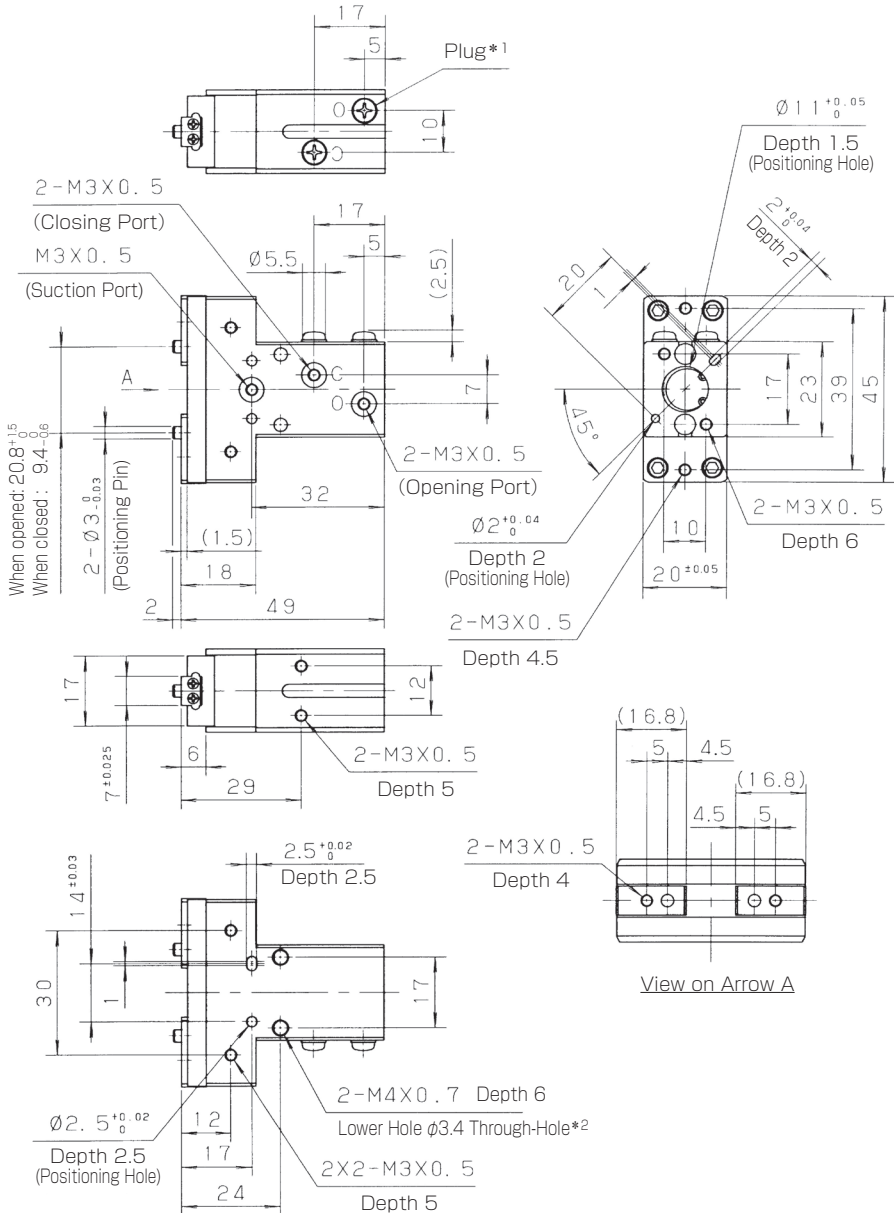
Dimensions **HP04NL-8C**



HP04NL Series

CAD data provided

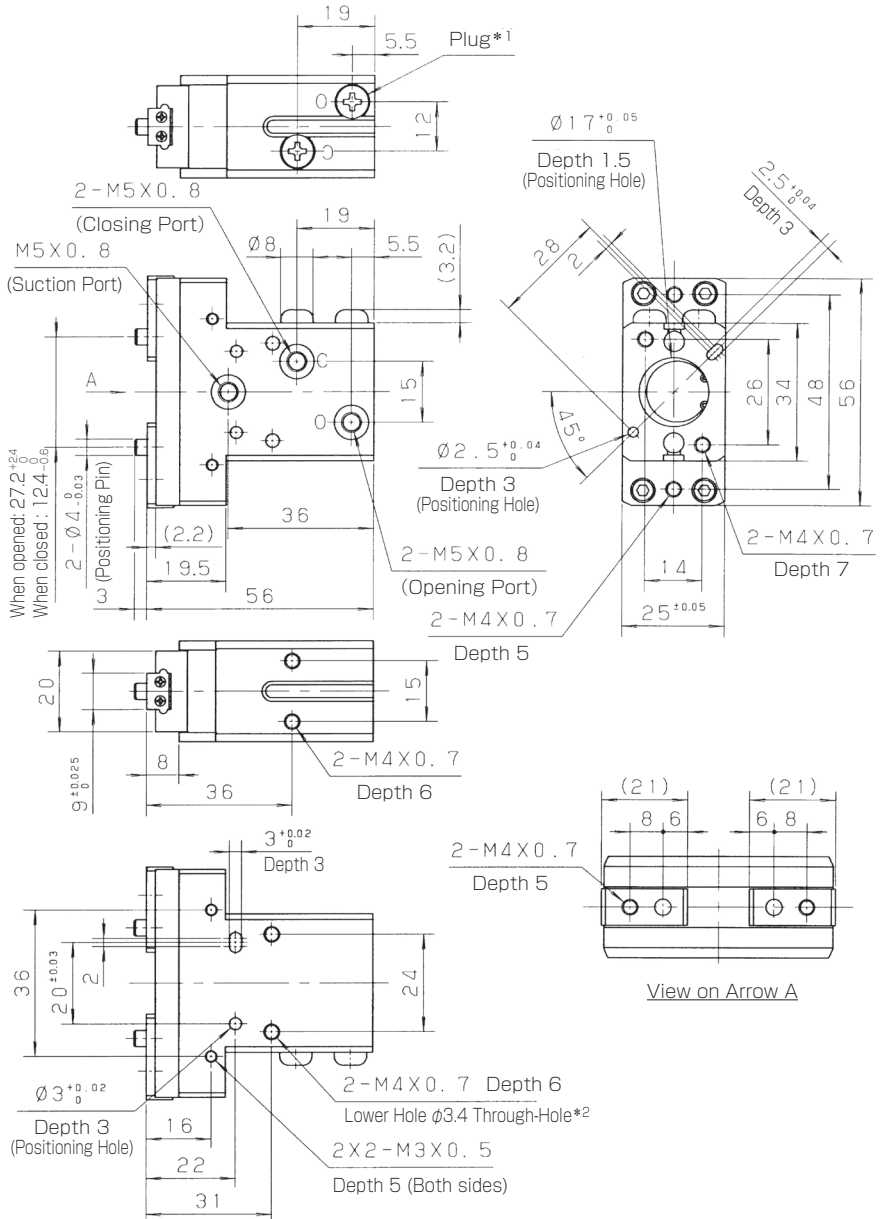
Dimensions HP04NL-10C



HP04NL Series

Parallel Linear Gripper Clean Type (Long Stroke Type)

Dimensions HP04NL-16C



HP04NL Series

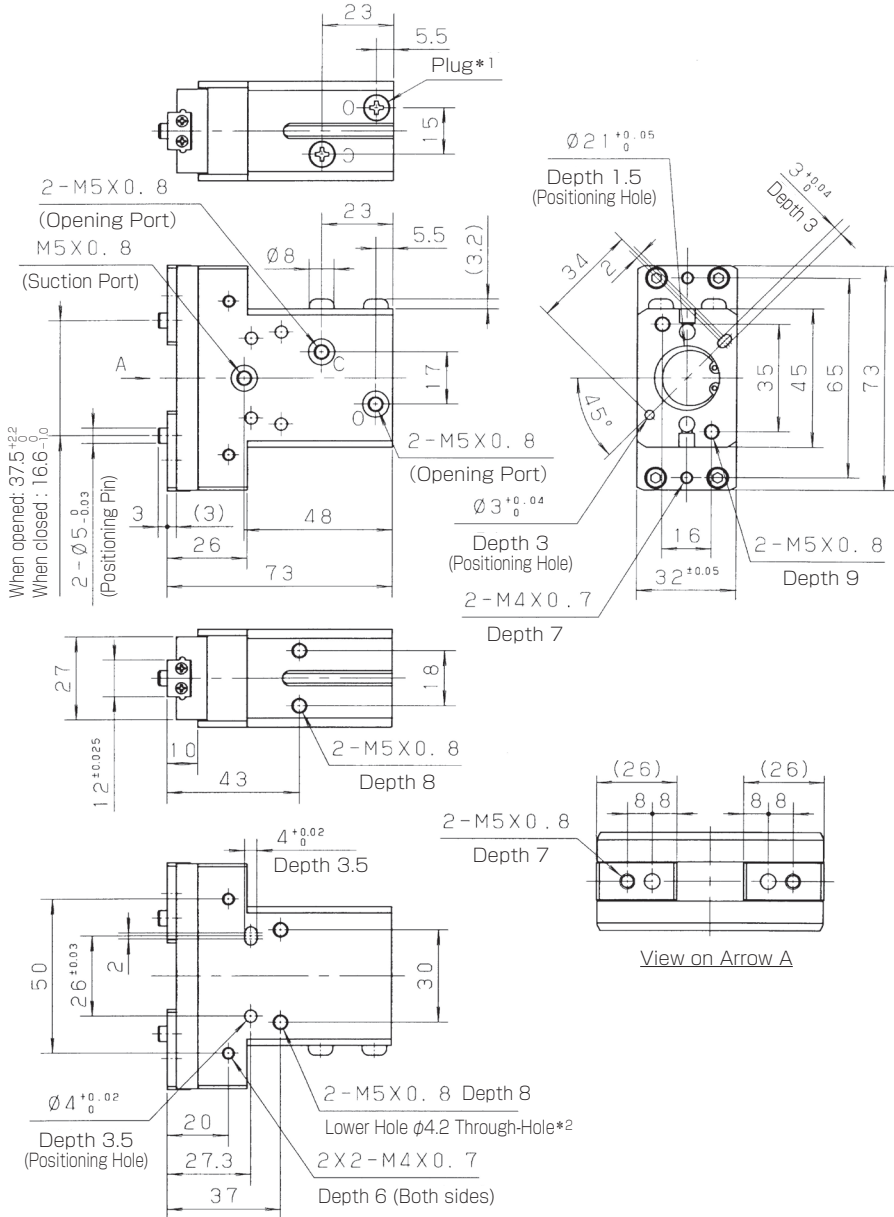
Parallel Linear Gripper Clean Type (Long Stroke Type)

*1) Two faces have an air port. Select the one you use according to the mounting condition.
 *2) Note that when the main body is mounted using the through-hole, you cannot mount the opening side sensor.

HP04NL Series

CAD data provided

Dimensions HP04NL-20C



*1) Two faces have an air port. Select the one you use according to the mounting condition.

*2) Note that when the main body is mounted using the through-hole, you cannot mount the opening side sensor.