Parallel Gripper

HP04V

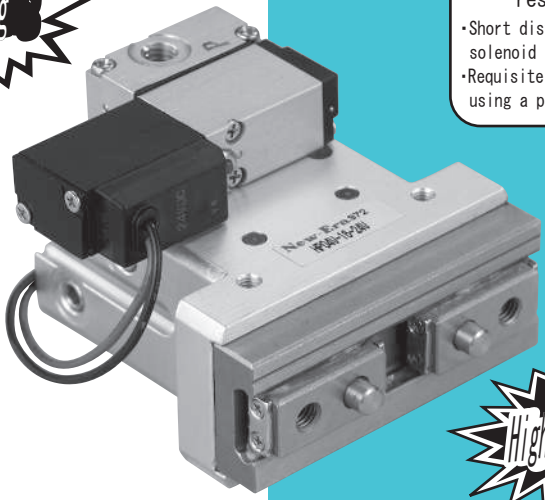
RoHS Compliant

Registered Design

With a Solenoid Valve

Series (Old Type HP13)

Pipe Saving



Earth-friendly

Consideration to resource saving

- Short distance between the solenoid valve and the actuator.
- Requisite minimum pressure using a pressure reducing valve.

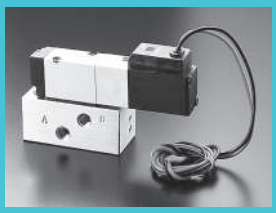
Highly Responsive

It is hard to do pipe work.

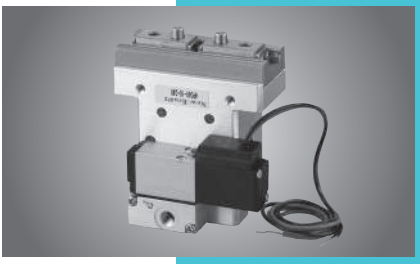
●Troublesome piping

●Joint and tubes required

●Easier work



If you have HP04V gripper, only thing you need to do is to make one connection.



HP04V Series (Old Type HP13)

Model Code No.

HP04V - 10 - PSL - 12V ※ HAE - ZE135 A 2

Series Name

Bore Size
10:10mm
16:16mm
20:20mm

Voltage
12V:DC12V
24V:DC24V

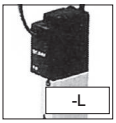
Number of Switches
1:1 Switch
2:2 Switches

Switch lead wire length
A:1m
B:3m

●Wiring method
Lead wire length: 300mm(standard)

Grommet type

Grommet type with LED indicator

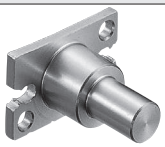


Straight connector with LED indicator

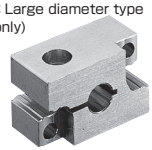
L connector with LED indicator

●Gripper adaptor type
No code: No Gripper adaptor

HAE



HFE
HFE-L : Large diameter type
(φ16 only)



●Detailed specifications→P.56

●Switch type No code: No switch

ZE135	ES13
2 Wire System Solid State Switch, Straight Type	
ZE155	ES(P)15
3 Wire System Solid State Switch, Straight Type	

ZE235	ES23
2 Wire System Solid State Switch, L-shaped	
ZE255	ES(P)25
3 Wire System Solid State Switch, L-shaped	

●Switch details→P.521～528

■ Specifications

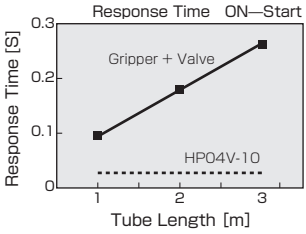
Action type		Double acting type (Closed when applying current)
Working Fluid		Air
Maximum operating pressure	[MPa]	0.7
Proof pressure	[MPa]	1.05
Operating Temperature	[℃]	5～50
Lubrication		Not required (Required for sliding parts of the machine)
Pipe Bore		M5×0.8
Maximum Operating Cycle		120
Centering Accuracy	[mm]	±0.07
Repeatability Accuracy	[mm]	±0.01
Applicable Switch	[mm]	ZE, ES Type (Solid State Switch)

Action type	Model	Bore Size [mm]	Minimum Operating Pressure [MPa]	Opening/ Closing Stroke [mm]	Grip Force [N]		Outside Dimensions (T x W x L) [mm]	Product Mass [g]
					Close	Open		
Double acting	HP04V-10	10	0.2	6.5	10	15.6	30.2×50.4×51	105
	HP04V-16	16	0.15	10	26	39	35.2×51.9×59	180
	HP04V-20	20	0.2	14	45	60	43×65×70	360

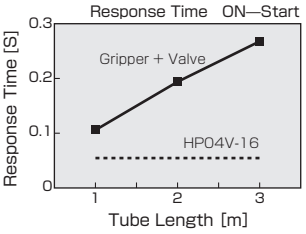
Note) The grip force is measured at the intermediate position of the opening/closing stroke. It is an effective value when the grip point L is 30 mm and the pressure is 0.5 MPa.

Response Speed

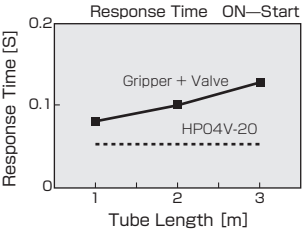
HP04V-10



HP04V-16



HP04V-20

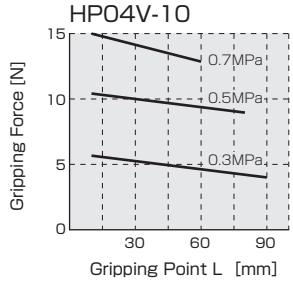


(Tube size Inner diameter 2.5mm)

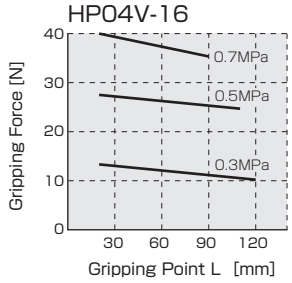
Effective Gripping Force

Closing Force (Double Acting Type)

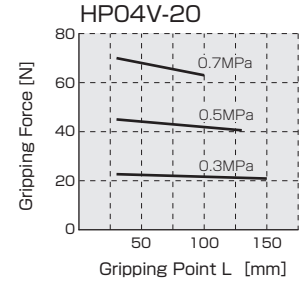
HP04V-10



HP04V-16

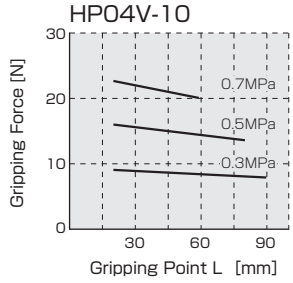


HP04V-20

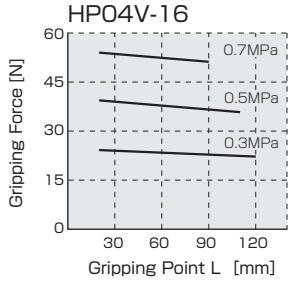


Opening Force (Double Acting Type)

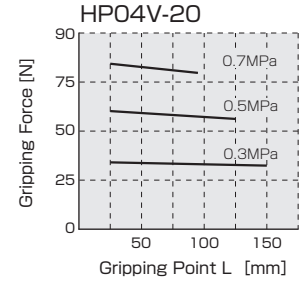
HP04V-10



HP04V-16

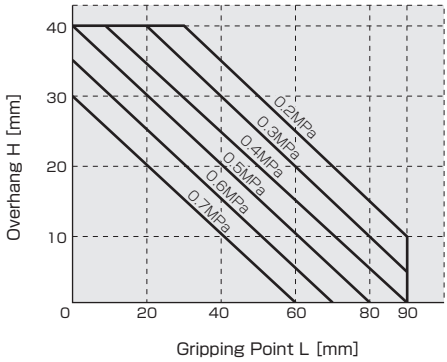


HP04V-20

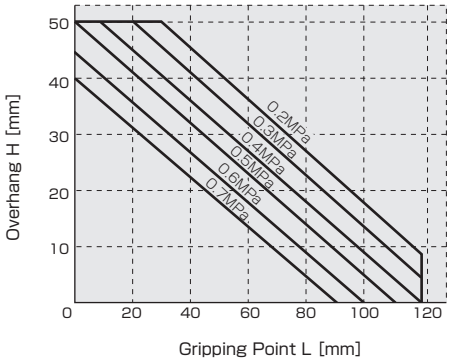


Gripping Point Limit Range

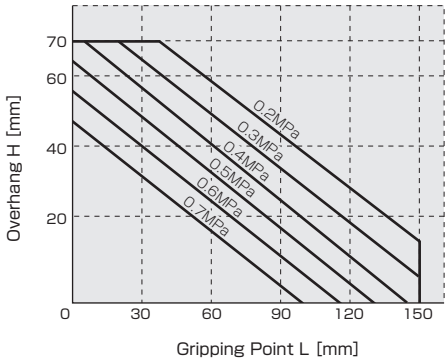
HP04V-10



HP04V-16

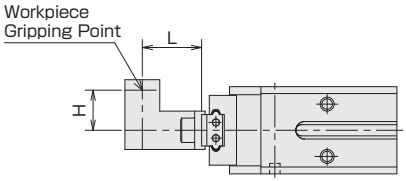


HP04V-20



●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.

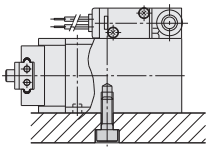


●Guide for selecting a model for the workpiece weight

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.

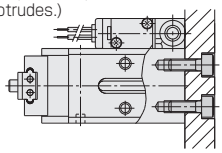
Main Body Mounting Method

1 When the through-hole of the main body is used

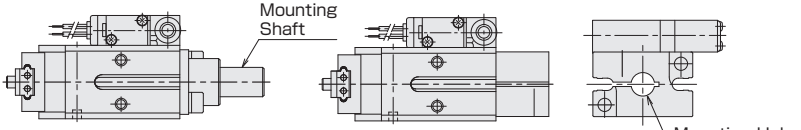


2 When the screw on the bottom face of the main body is used

(Only φ8 requires a space such as a relief because the switch protrudes.)



3 When a gripper adaptor is used for mounting

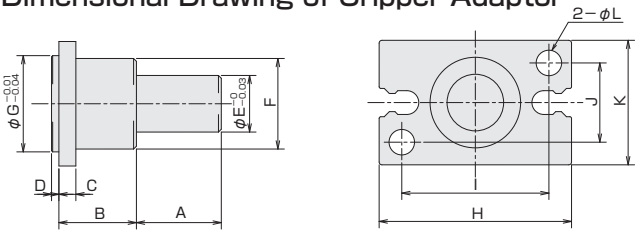


HAE Type

HFE, HFE-L Type

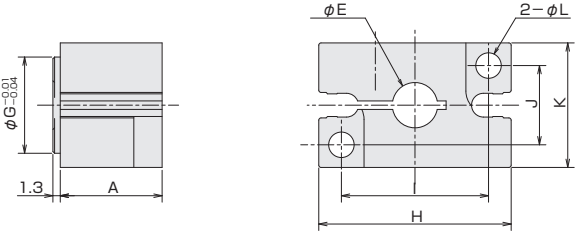
Outline Dimensional Drawing of Gripper Adaptor

HAE Type



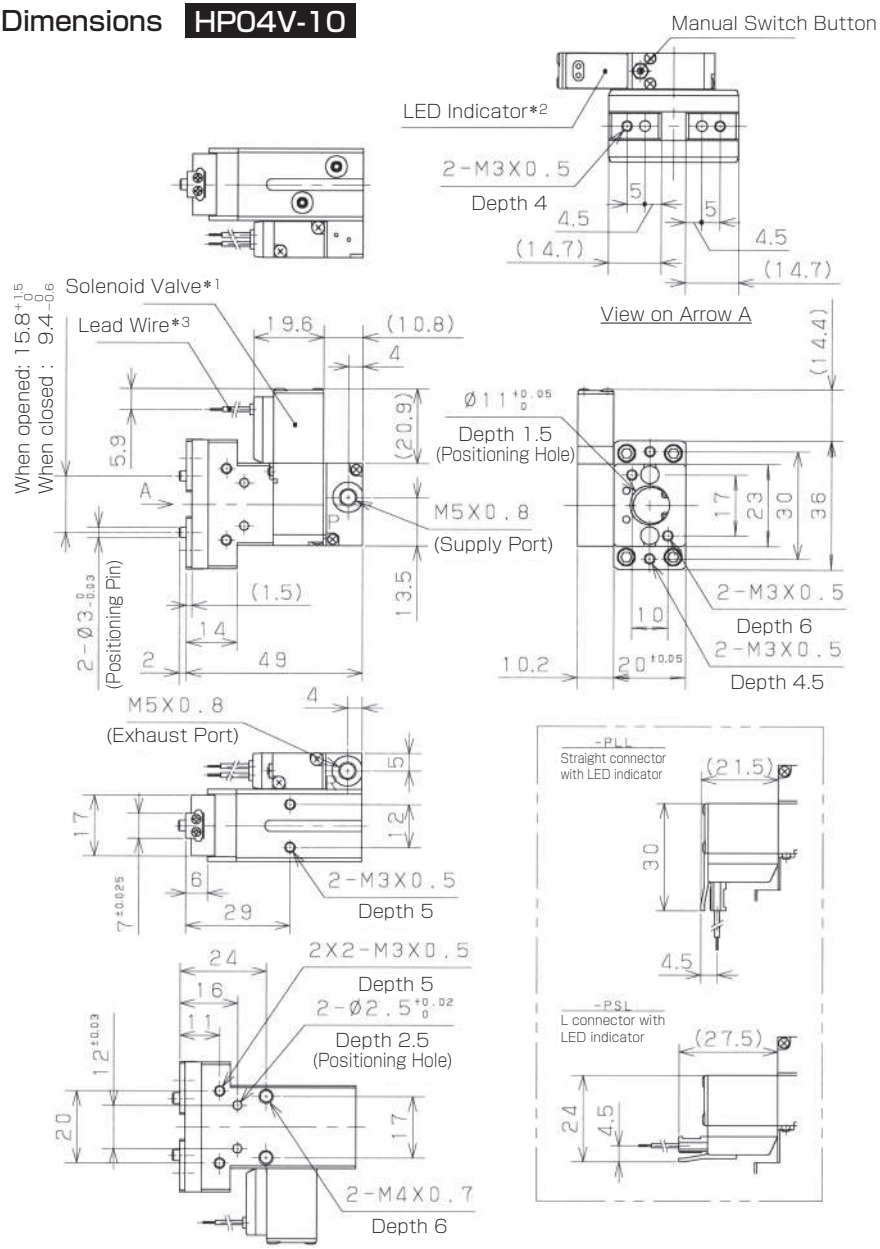
Type \ Code	A	B	C	D	E	F	G	H	I	J	K	L	Ancillary Bolt (x2)	Product Mass[g] (Including Bolts)
HAE-10	15	15	3	1.3	10	11	11	23	17	10	16	3.4	M3×0.5×8L	11
HAE-16	15	15	3	1.3	10	16	17	34	26	14	22	4.5	M4×0.7×10L	20
HAE-20	15	15	3	1.3	10	18	21	45	35	16	26	5.5	M5×0.8×10L	28

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	M3×0.5×16L	M3×0.5×12L	14
HFE-16	18	8	17	34	26	14	22	4.5	M4×0.7×20L	M4×0.7×16L	35
HFE-16L	18	10	17	34	26	14	22	4.5	M4×0.7×20L	M4×0.7×16L	33
HFE-20	19	13	21	45	35	16	26	5.5	M5×0.8×20L	M5×0.8×20L	55

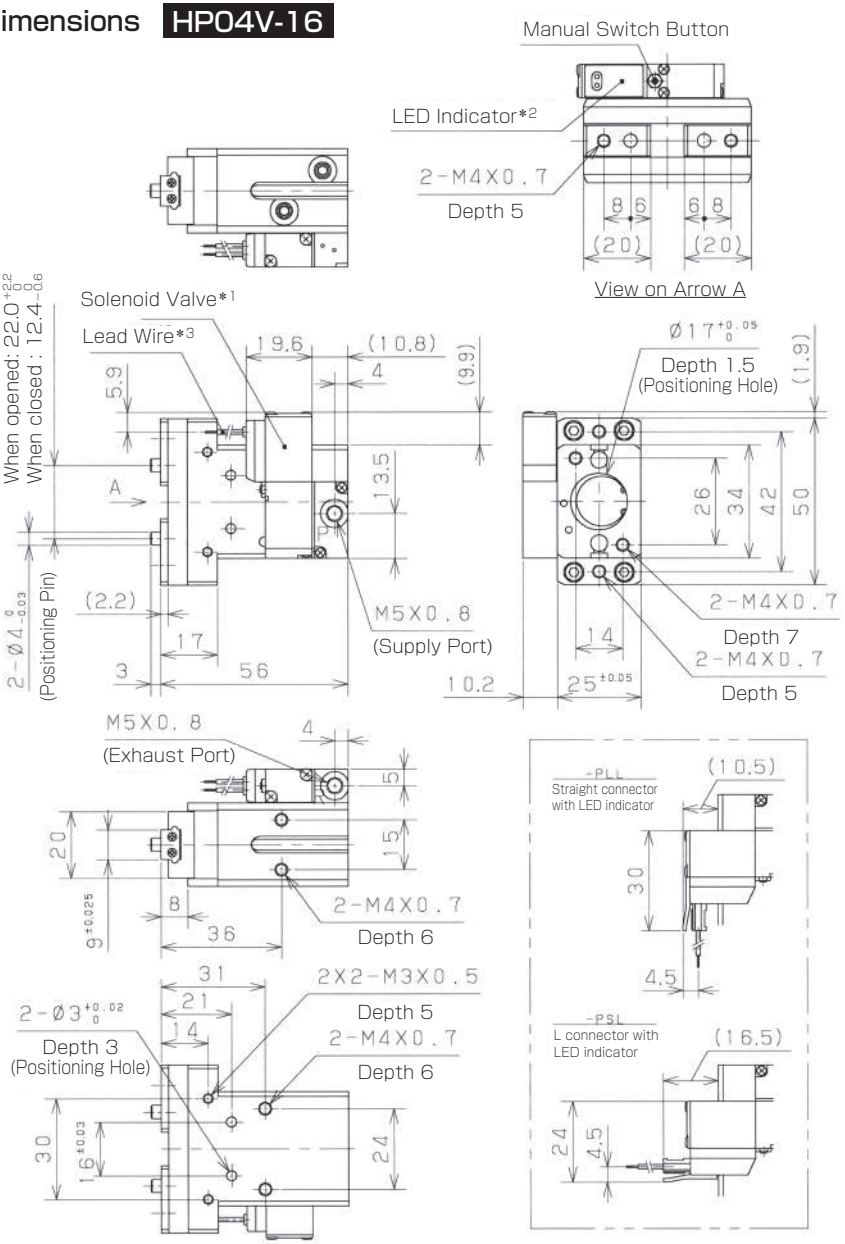
Dimensions HP04V-10



∗1) The wiring method of the solenoid valve in the drawing is the grommet type. See the lower right in the drawing for other wiring methods.
∗2) Types with a LED indicator are categorized into only L type, PLL type and PSL type.
∗3) The lead wire length shall be 300 mm. The black lead wire is "−" and the brown (red) lead wire is "+".
(When the brown lead wire is 12 V and the red lead wire is 24 V.)

CAD data provided

Dimensions HP04V-16



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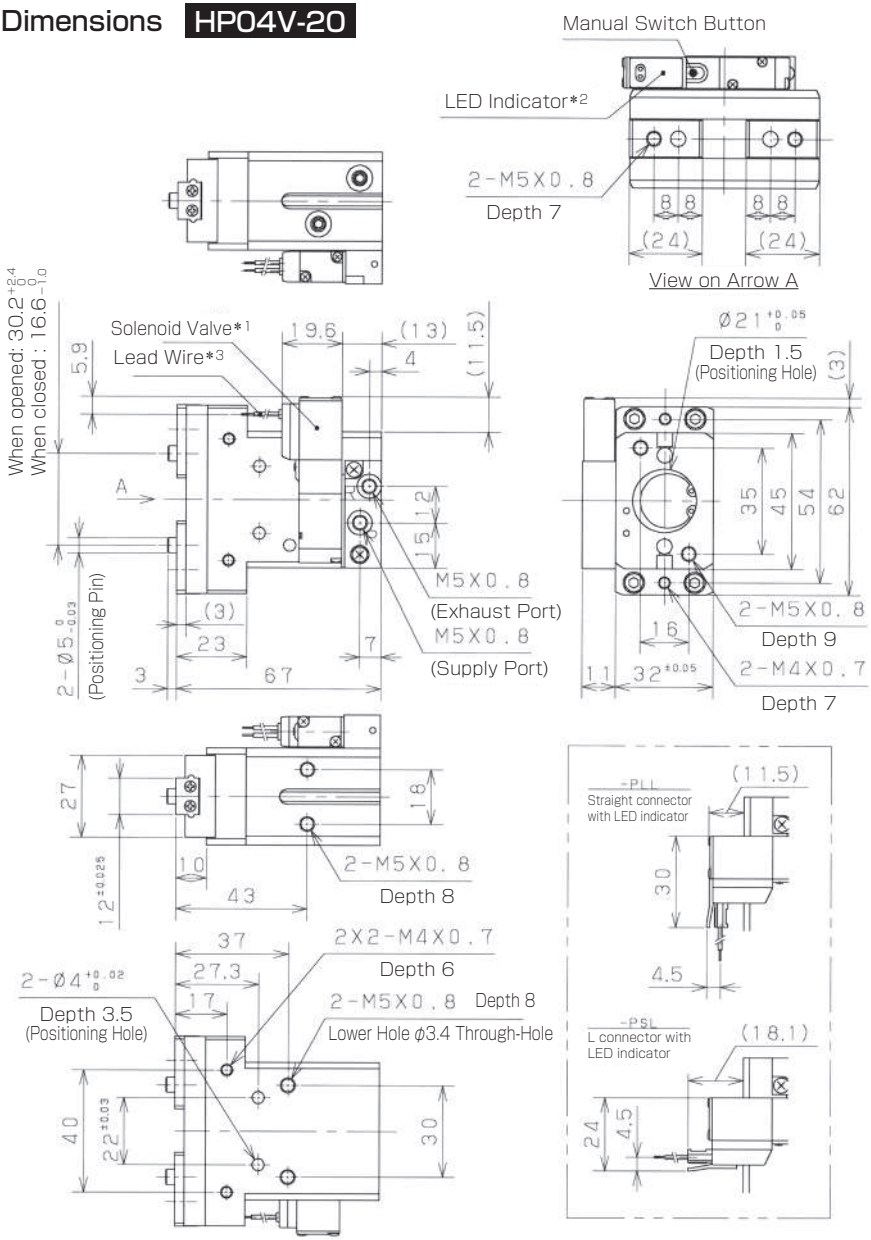
Dimensions HP04V-20



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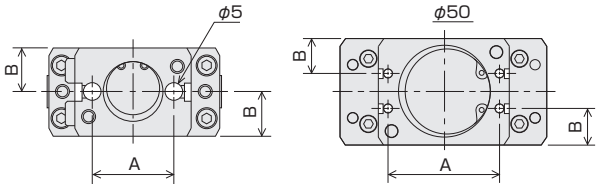
(When the brown lead wire is 12 V and the red lead wire is 24 V.)

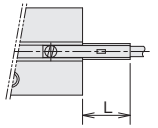
Switch Groove Dimensions



Code \ Size	10	16	20
A	17	24	30
B	10	12.5	16

Switch Protrusion Distance

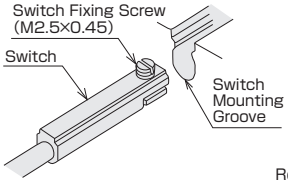
The maximum switch protrusion from the switch body end face (when the levers are full closed) is shown in the table below. Use it as a guide for mounting.



Cylinder Bore (mm)	ϕ10	ϕ16	ϕ20
Maximum Protrusion (mm)	0	0	0

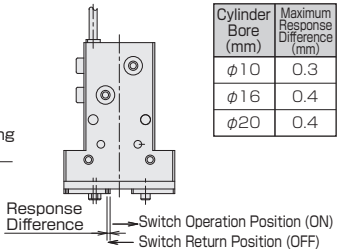
Switch Mounting

Insert the switch into the switch mounting groove. After setting the mounting position, tighten the switch fixing screw with a precision screwdriver.
The tightening torque shall be 0.1 N·m or less.



Switch Response Difference

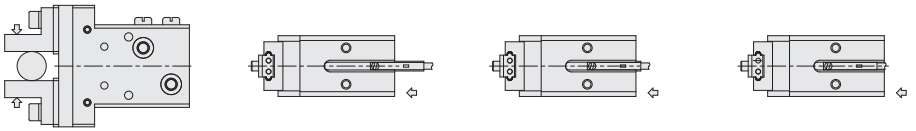
The distance from the position where the levers move and the switch turns on to the position where the levers move in the reverse direction and the switch turns off is called "response difference".



Cylinder Bore (mm)	Maximum Response Difference (mm)
ϕ10	0.3
ϕ16	0.4
ϕ20	0.4

Switch Mounting Position Adjustment Method

For external gripping



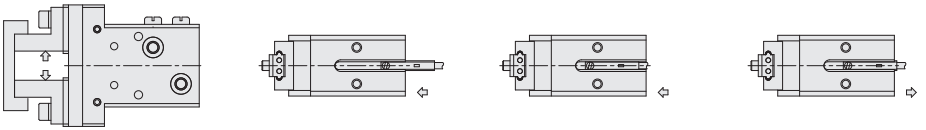
①Check the workpiece external gripping and full close.

②Insert the switch into the switch mounting groove of the main body in the arrow direction.

③The LED lamp lights up by turning on the switch in the arrow direction.

④Fix the switch by a switch fixing screw at the position where the switch is moved 0.6 mm in the arrow direction from the position where the lamp lights up in [3].

For internal gripping



①Check the workpiece internal gripping and full opening.

②Insert the switch into the switch mounting groove of the main body in the arrow direction.

③The LED lamp lights up by moving the switch in the arrow direction. It goes off by moving it further.

④Fix the switch at the position that is 0.6 mm moved from the position where the LED lamp lights up when it is returned in the arrow direction (reverse direction) in [3].

①Indicates the position where you need to check if the switch is ON. Mount the switch by adjusting it in the order from ① to ④.