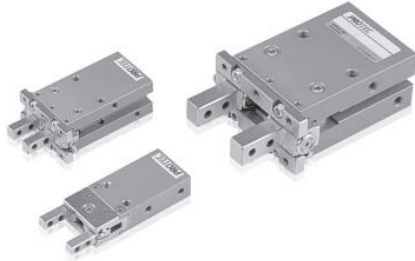


# PH01-A Series

## Features



- Parallel open & close type General Hand by Crank Lever
- Precise open & close operation with Cross Roller Bearing Guide
- Excellent durability with high-accuracy & high-solidity type structure
- Possible to move on condition of low pressure (1.5kgf/cm<sup>2</sup>)
- Diversity of installation
- Auto Switch for the detection of position can be attached

## Order form

**PH01 - 10A - A1 S**

①                      ②                      ③                      ④

③ Auto Switch type

Symbol	Type	Length	Applied cylinder
A1	DSC PRO-A1 (2-wire)	1m	∅ 10, ∅ 16
A1L		3m	
B1	PLC PRO-B1 (3-wire)	1m	∅ 20, ∅ 25 ∅ 30
B1L		3m	
A2	DSC PRO-A2 (2-wire)	1m	∅ 6
A2L		3m	
B2	PLC PRO-B2 (3-wire)	1m	
B2L		3m	

① Series

② Bore size & Stroke(mm)

Name	Bore size(mm)	Stroke(mm)
06A	6	4
10A	12	6
16A	16	8
20A	20	12
25A	25	16
30A	30	24

④ Auto Switch quantity

Blank	2ea
S	1ea

※ For PH01-06 and 10A, only one Auto Switch can be attached.(Close)

## Specification

Model	PH01-06A	PH01-10A	PH01-16A	PH01-20A	PH01-25A	PH01-30A
Bore size(mm)	6	12	16	20	25	30
Stroke(mm)	4	6	8	12	16	24
Gripping force(kgf) Air pressure(5kgf/cm <sup>2</sup> ) <sup>Note 2)</sup>	Close	0.84	3.42	8.16	12	20.1
	Open	1.12	4.57	9.49	14	24
Air port size	M3	M3	M5	M5	M5	M5
Main body weight(kgf)	0.027	0.059	0.14	0.27	0.5	0.7
Allowable length of attachment L(mm)	20	30	40	50	60	80
Displacement of attachment H(mm) <sup>Note 3)</sup>	10	12	15	25	35	40
Fluid	Clean air <sup>Note 1)</sup>					
Air pressure(kgf/cm <sup>2</sup> )	1.5 ~ 7 (General resistance pressure: 10.5) <sup>Note 4)</sup>					
Lubrication	No need (if need, use one sort of turbine oil: SPEC ISOVG 32)					
Temperature(°C)	5 ~ 60					
Accuracy(mm)	±0.01					
Max. Cycle Per Minute(C.P.M)	140					
Motion type	Double-acting type (Structure: Parallel open & close by Crank Lever) (Guide: Cross Roller Bearing Guide)					
Tolerance of open & close stroke(mm)	Open: -0.5 ~ +1, Close: -1 ~ +0.5					

Note 1) Clean air: Fresh air containing solid matters with 0.3% of supersaturated moisture and 99.9% of liquid oil that passed through the 3-10 $\mu$ m degree of filtering

Note 2) The position of gripping point for gripping force is the end point of the Finger.

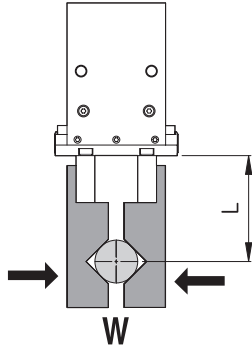
Note 3) For the base point of tolerable length and displacement in attachment, refer to page 48.(Tolerable value with 5kgf/cm<sup>2</sup> of Air pressure.)

Note 4) Guaranteed capacity of resist pressure: A pressure that does not cause an abnormality in parts when it is applied for 1 minute without any weight loaded.



▶ Refer to page 49 for how to read the graph.

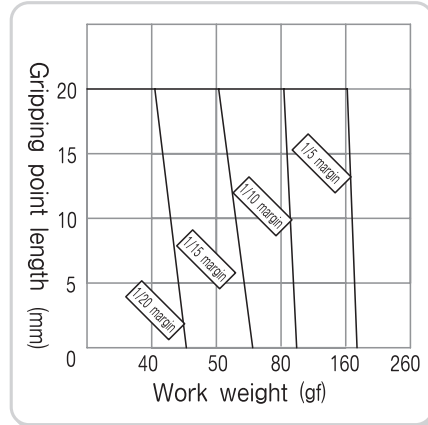
## WORK outer diameter gripping force graph



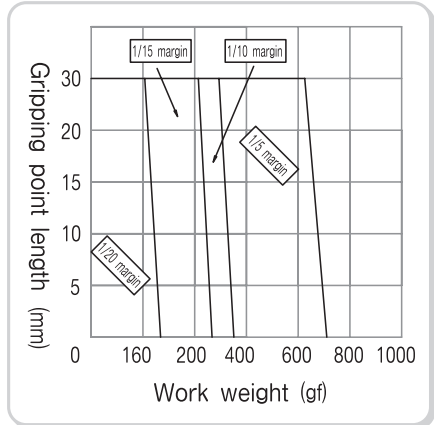
Outer diameter gripping state

W: Work weight  
L: Gripping point length

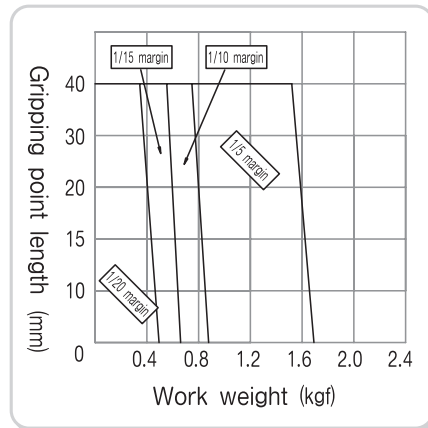
◆PH01-06A



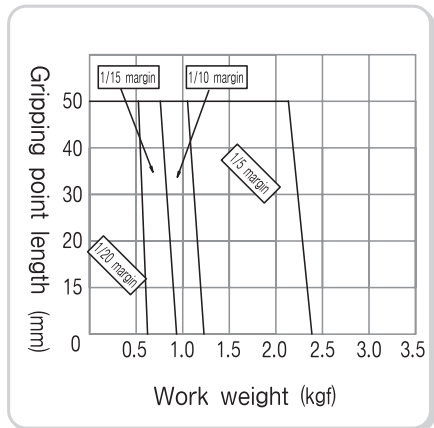
◆PH01-10A



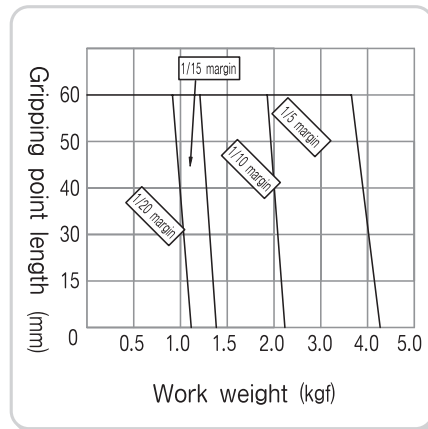
◆PH01-16A



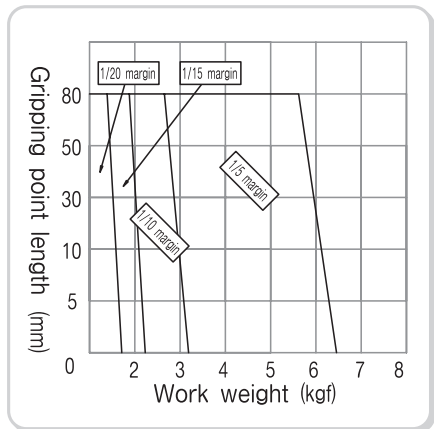
◆PH01-20A



◆PH01-25A



◆PH01-30A



HAND

- PH01-A
- PH01-D
- PH01-G
- PH01K
- PH01K-C
- PH02
- PH04
- PH05
- PH06
- PH06-L
- PH07
- PH08
- PH09
- PH12
- PH14-S
- PH15-S
- PH21
- PH22
- PH23

### ⚠ Caution

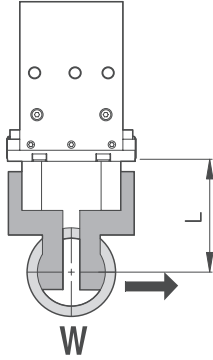
If using the attachment longer than allowable length as specified in the graph, it may have an adverse effect on the guide and cause problem to durability. Always use the gripping force within the specified length.



# PH01-A Series

▶ Refer to page 49 for how to read the graph.

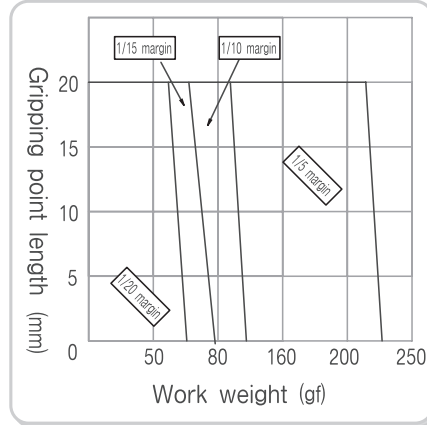
## WORK inner diameter gripping force graph



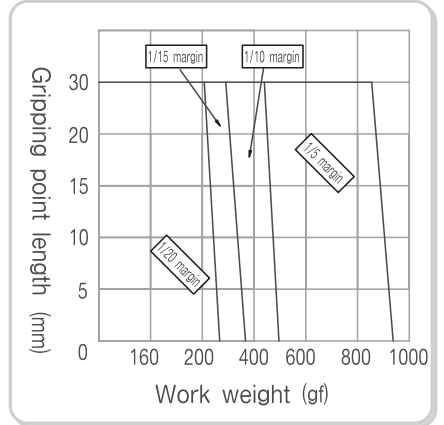
Inner diameter gripping state

W: Work weight  
L: Gripping point length

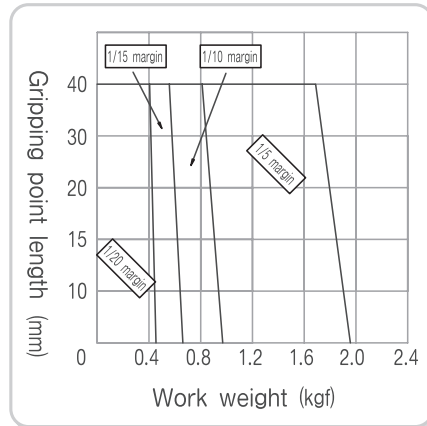
◆PH01-06A



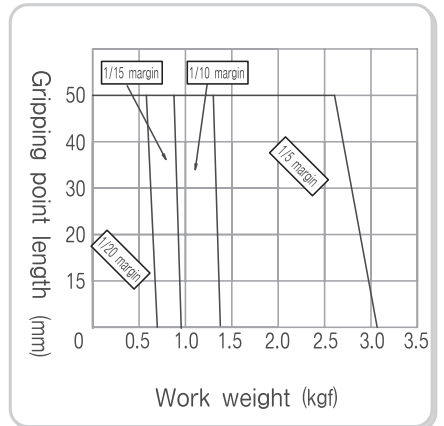
◆PH01-10A



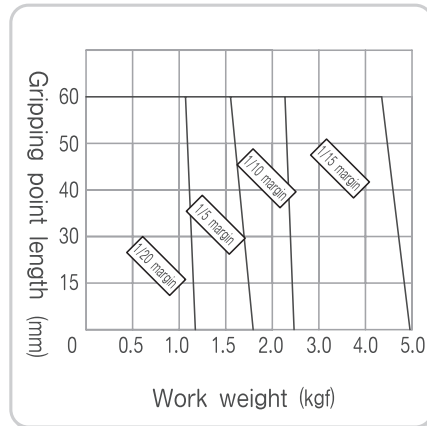
◆PH01-16A



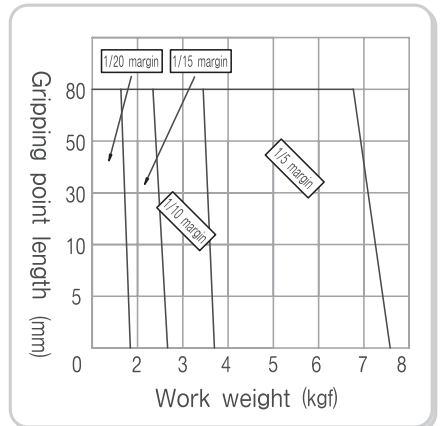
◆PH01-20A



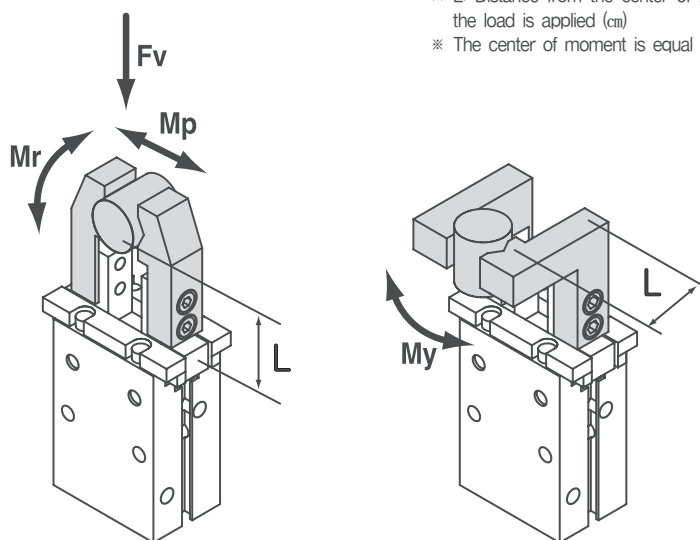
◆PH01-25A



◆PH01-30A



Allowable moment / Allowable load checking



※ L: Distance from the center of guide to the point at which the load is applied (cm)  
 ※ The center of moment is equal to the center of guide.

Item	Perpendicular direction allowable load Fv (kgf)	Maximum allowable moment (kgf · cm)		
		Pitching moment Mp	Yawing moment My	Rolling moment Mr
PH01-06A	5	1.69	1.69	3.19
PH01-10A	8.6	3.13	3.13	6.93
PH01-16A	16.9	8.12	8.12	21.2
PH01-20A	20.3	10.1	10.1	31.3
PH01-25A	32	20	20	59.7
PH01-30A	41	32	32	77.2

※ Above allowable load and moment values represent static values.

**Allowable load(when moment load is added) calculation**

$$\text{Allowable load } F \text{ (kgf)} = \frac{\text{Maximum allowable moment } M \text{ (kgf} \cdot \text{cm)}}{\text{External force applied point } L \text{ (cm)}}$$

**Calculation ex)**

To check the availability if 1kgf of static load (F) is applied in the direction of pitching moment (Mp) at the 30mm point of attachment length (L) in PH01-20A,

$$\Rightarrow \text{Allowable load } F \text{ (kgf)} = \frac{\text{Maximum allowable moment } M \text{ (kgf} \cdot \text{cm)}}{\text{External force applied point } L \text{ (cm)}} = \frac{10.1}{3} = 3.36 \text{ kgf} > 1\text{kgf}$$

As tolerable load (3.36kgf) is greater than static load (1kgf), it is applicable.

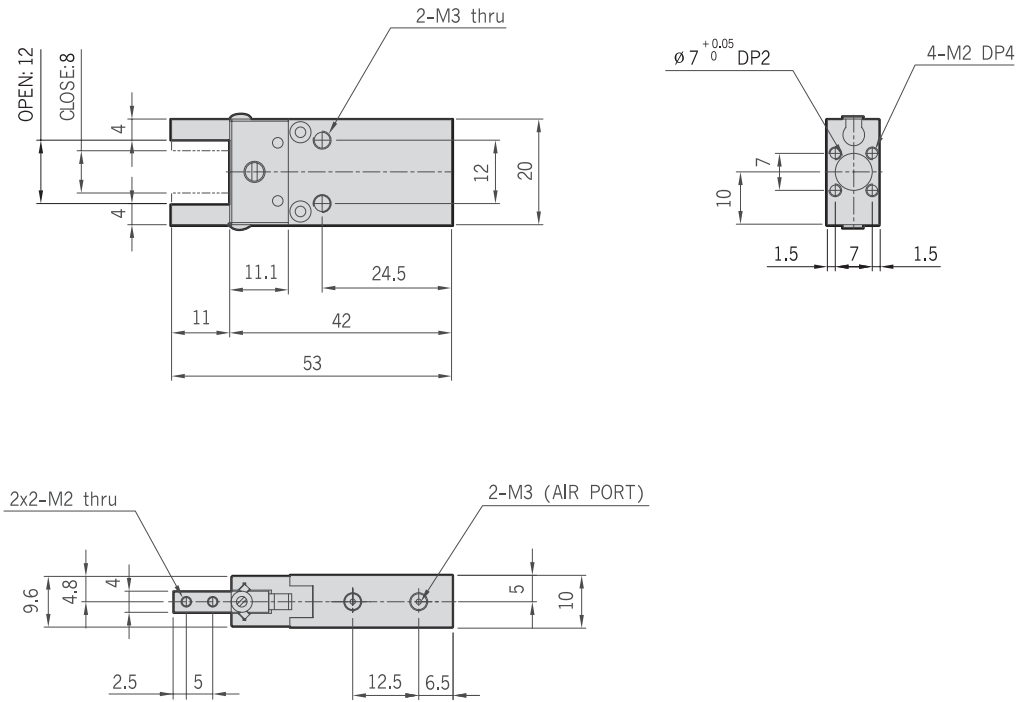
HAND

- PH01-A
- PH01-D
- PH01-G
- PH01K
- PH01K-C
- PH02
- PH04
- PH05
- PH06
- PH06-L
- PH07
- PH08
- PH09
- PH12
- PH14-S
- PH15-S
- PH21
- PH22
- PH23

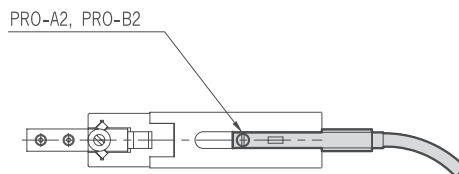
# PH01-A Series

06A 10A 16A 20A 25A 30A

## PH01-06A



## PH01-06A-Auto Switch



06A

10A

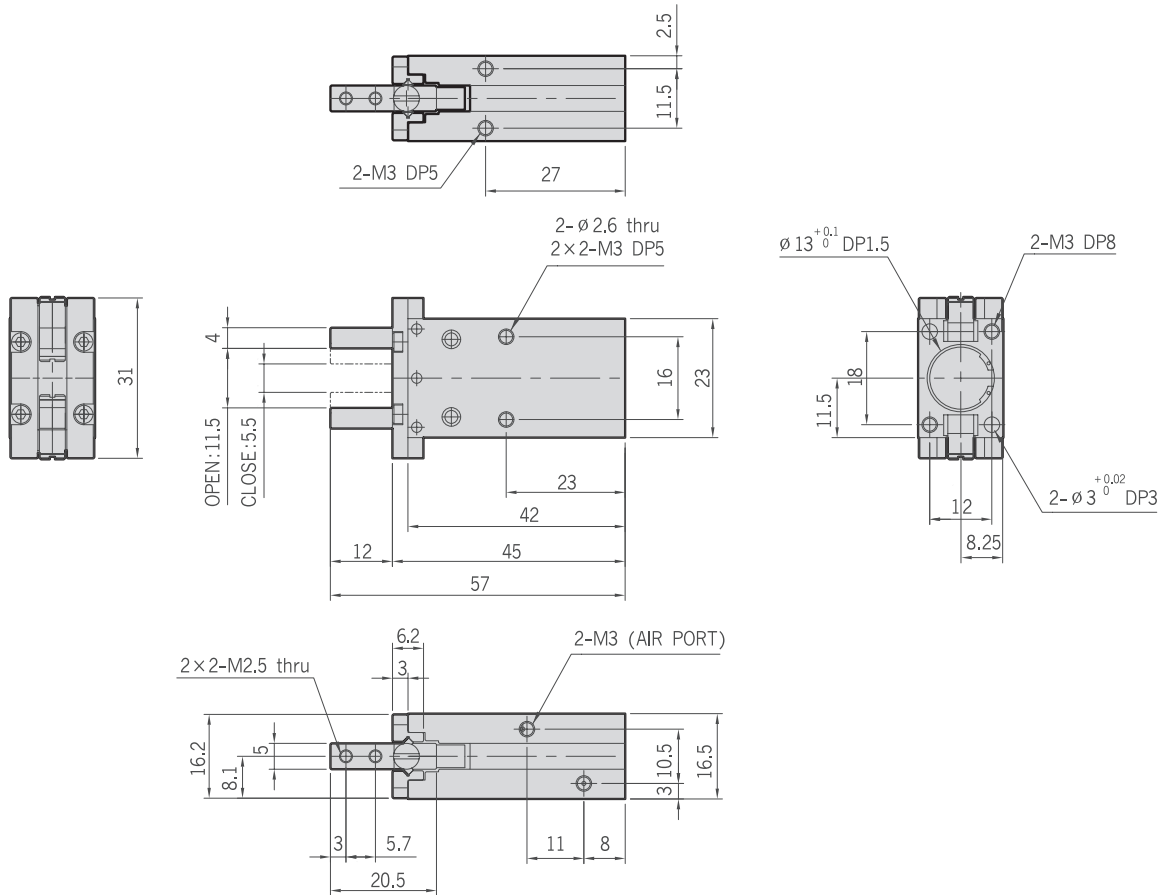
16A

20A

25A

30A

PH01-10A



HAND

PH01-A

PH01-D

PH01-G

PH01K

PH01K-C

PH02

PH04

PH05

PH06

PH06-L

PH07

PH08

PH09

PH12

PH14-S

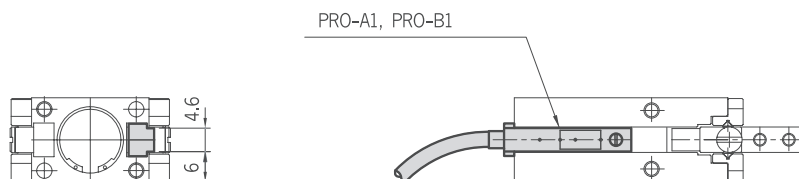
PH15-S

PH21

PH22

PH23

PH01-10A-Auto Switch





# PH01-A Series

06A

10A

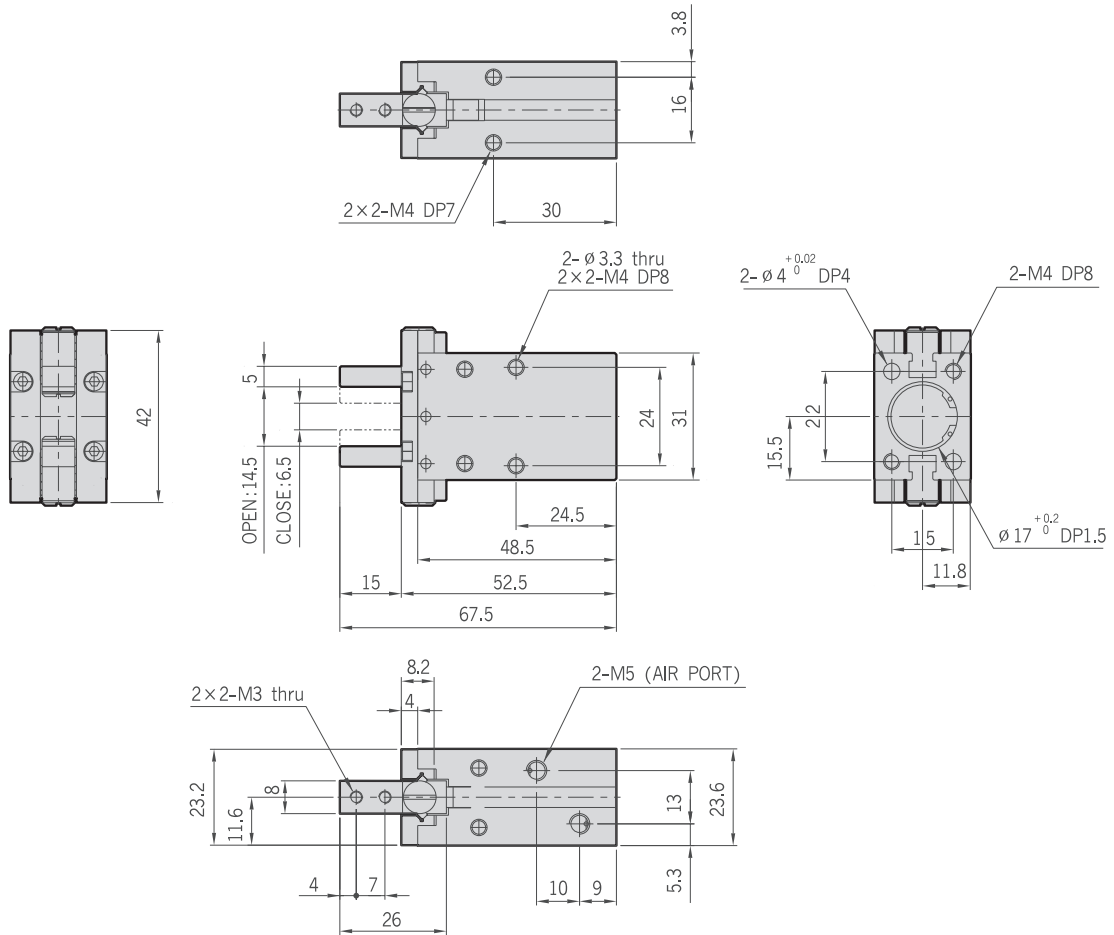
16A

20A

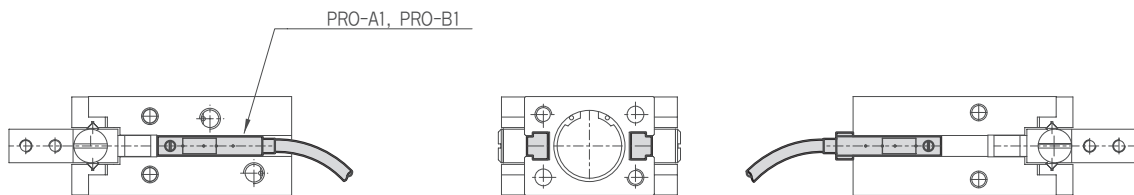
25A

30A

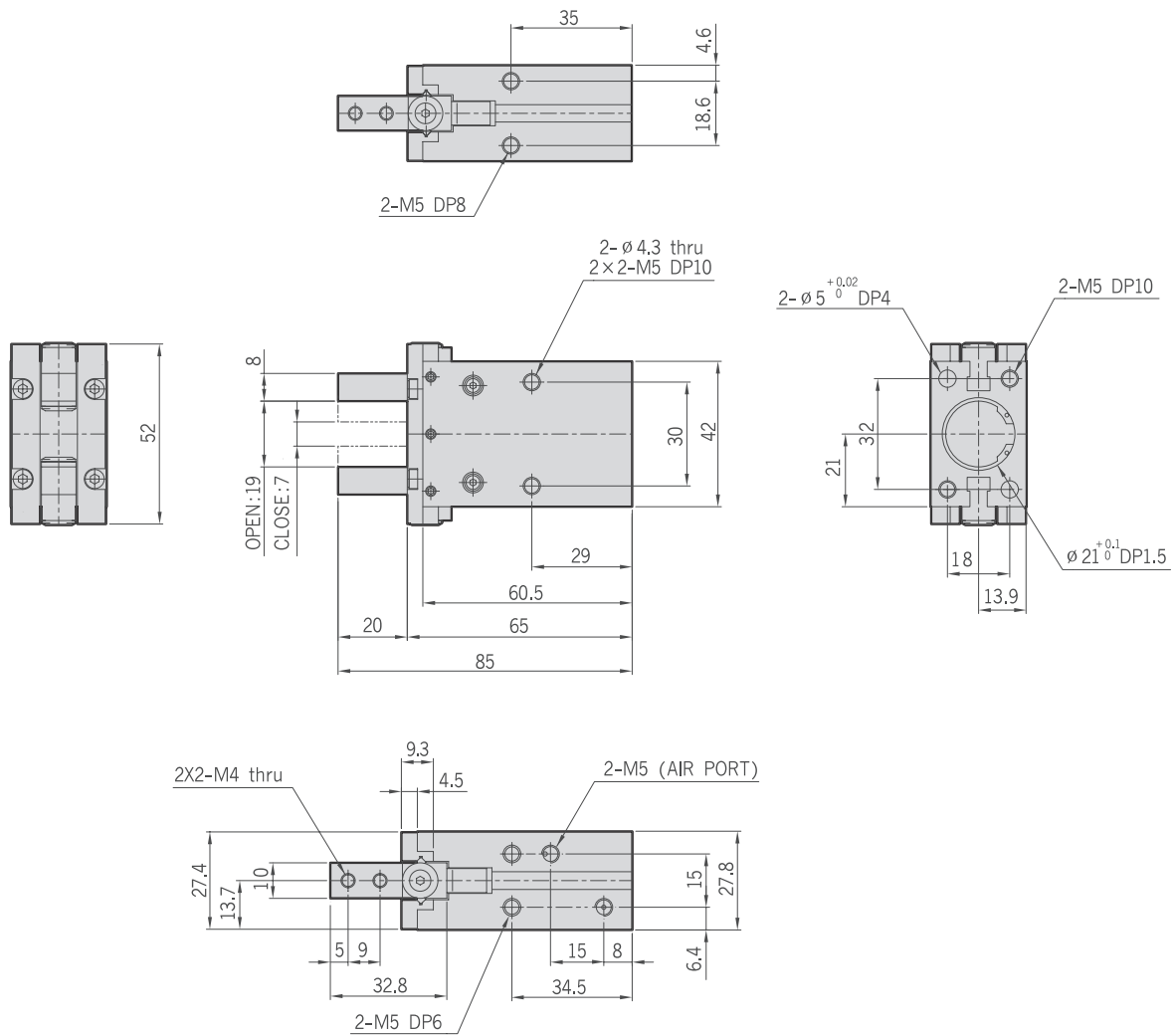
## PH01-16A



## PH01-16A-Auto Switch



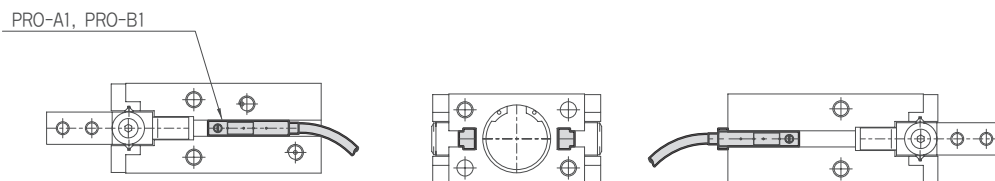
PH01-20A



HAND

- PH01-A
- PH01-D
- PH01-G
- PH01K
- PH01K-C
- PH02
- PH04
- PH05
- PH06
- PH06-L
- PH07
- PH08
- PH09
- PH12
- PH14-S
- PH15-S
- PH21
- PH22
- PH23

PH01-20A-Auto Switch







# PH01-A Series

06A

10A

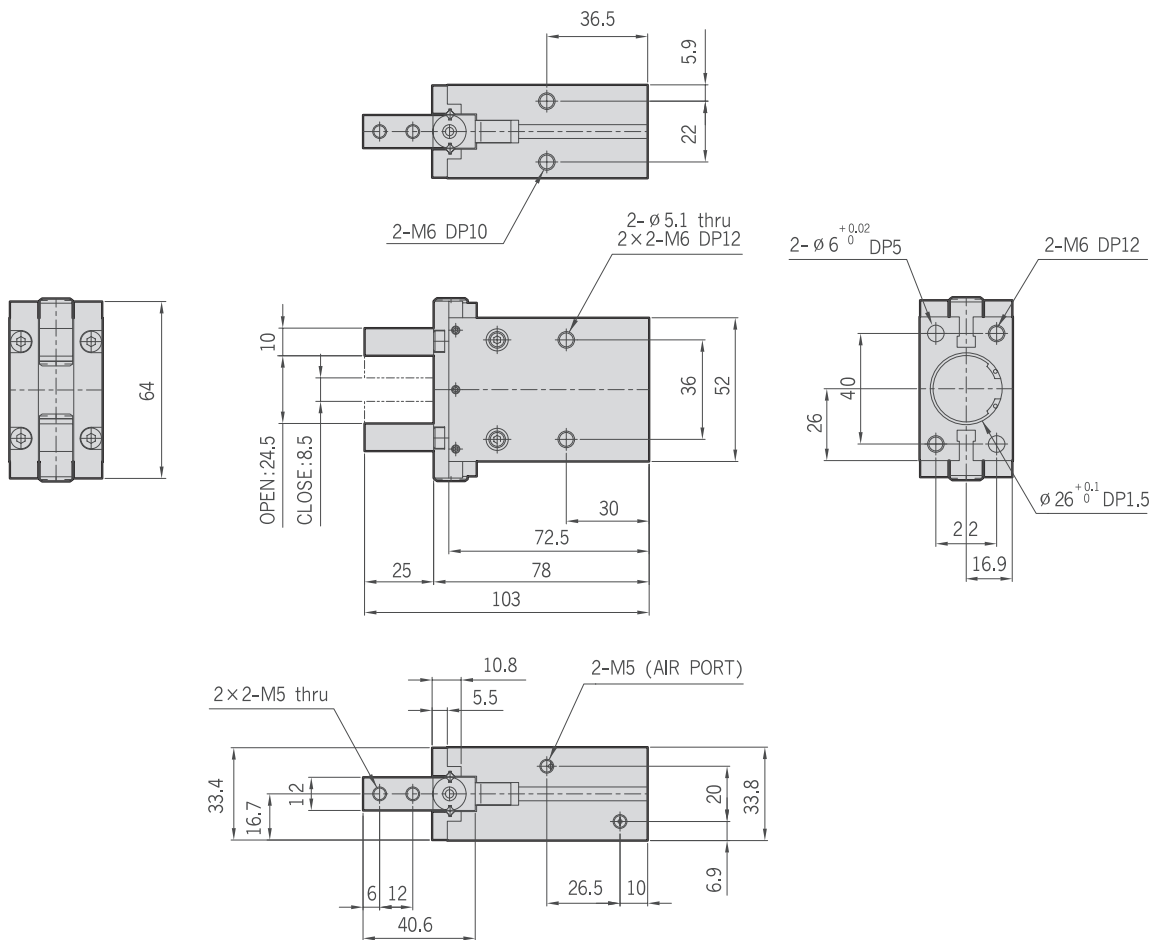
16A

20A

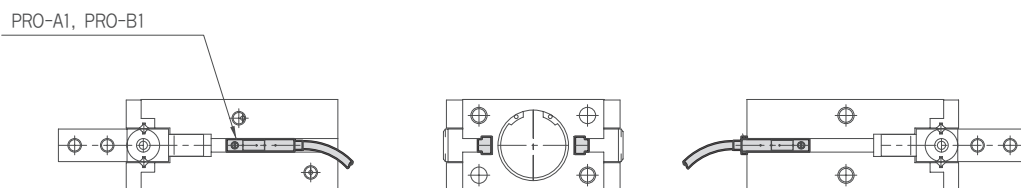
25A

30A

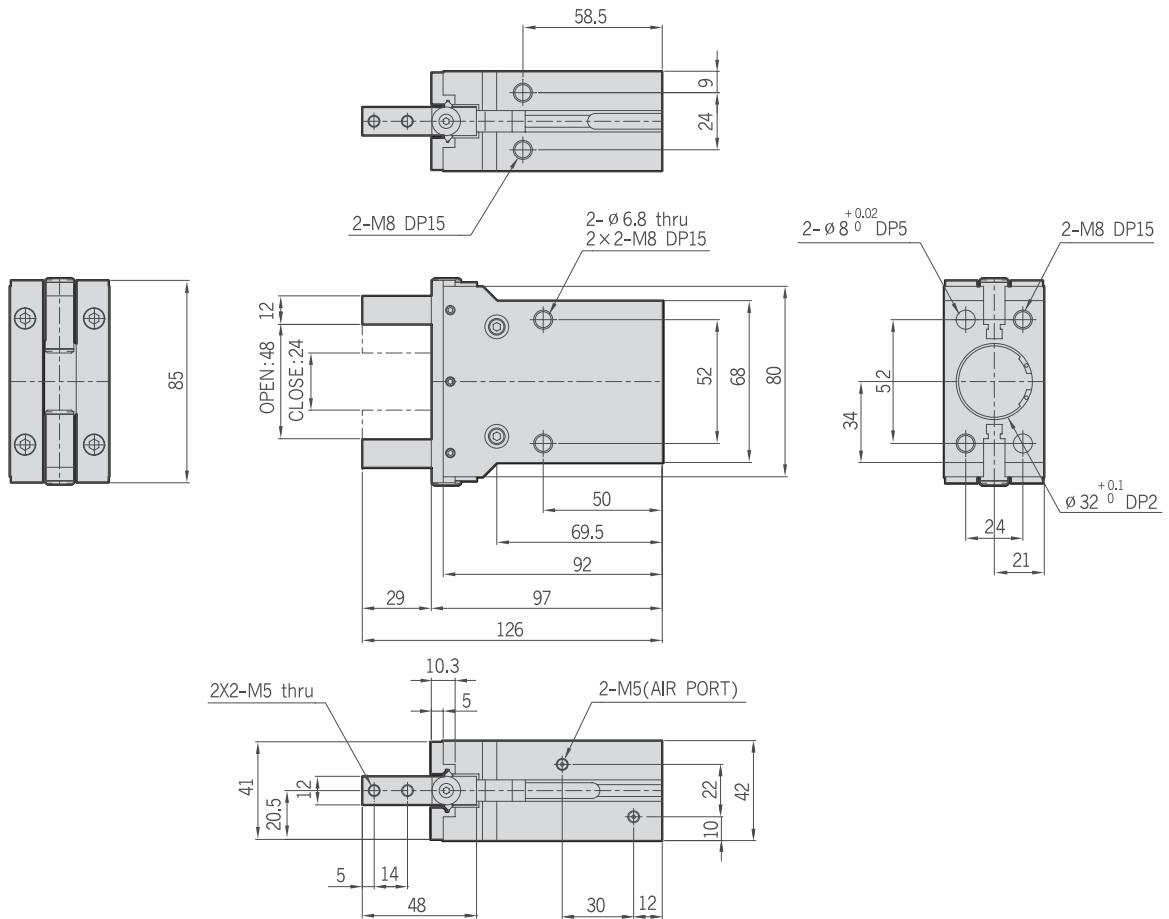
## PH01-25A



## PH01-25A-Auto Switch



PH01-30A



HAND

- PH01-A
- PH01-D
- PH01-G
- PH01K
- PH01K-C
- PH02
- PH04
- PH05
- PH06
- PH06-L
- PH07
- PH08
- PH09
- PH12
- PH14-S
- PH15-S
- PH21
- PH22
- PH23

PH01-30A-Auto Switch

PRO-A1, PRO-B1

