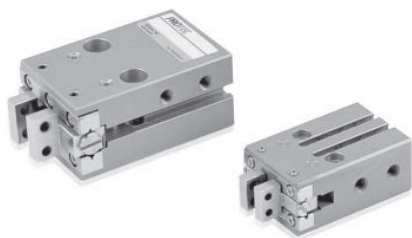


PH04 Series

Features



- Small-sized precision parallel open & close type by Crank Lever
- Suitable for small-size and lightweight deformed work pieces
- Precision open & close motion and high-speed action with the application of Cross Roller Guide at finger frictional surface
- Diversity of installation
- Action against moment with high-solidity type structure
- Auto Switch for the detection of position can be attached

Order form

PH04 - 16 - A2 S

① ② ③ ④

① Series

② Bore size & Stroke(mm)

Name	Bore size(mm)	Stroke(mm)
12	12	5
16	16	6
20	20	8

③ Auto Switch type

Symbol	Type	Length
A2	DSC PRO-A2	1m
A2L	(2-wire)	3m
B2	PLC PRO-B2	1m
B2L	(3-wire)	3m

④ Auto Switch quantity

Blank	2ea
S	1ea

Specification

Model	PH04-12	PH04-16	PH04-20
Bore size(mm)	12	16	20
Stroke(mm)	5	6	8
Gripping force(kgf) Air pressure(5kgf/cm ²) <small>Note 2)</small>	Close	2.1	9.4
	Open	3.2	11.2
Air port size	M5	M5	M5
Main body weight(kgf)	0.09	0.15	0.2
Allowable length of attachment L(mm)	30	40	50
Displacement of attachment H(mm) <small>Note 3)</small>	12	15	25
Fluid	Clean air <small>Note 1)</small>		
Air pressure(kgf/cm ²)	1.5 ~ 7 (General resistance pressure: 10.5) <small>Note 4)</small>		
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 μ m degree of filtering

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

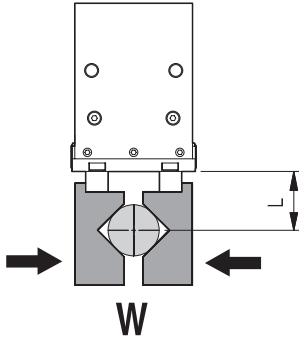
Note 3) For the base point of tolerable length and displacement in attachment, refer to page 48.(Tolerable value with 5kgf/cm² of Air pressure.)

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.

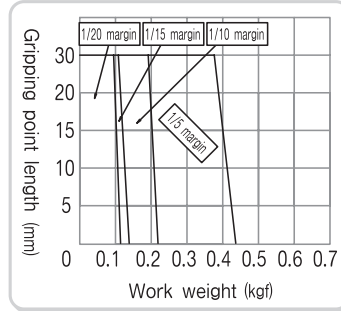
WORK outer diameter gripping force graph



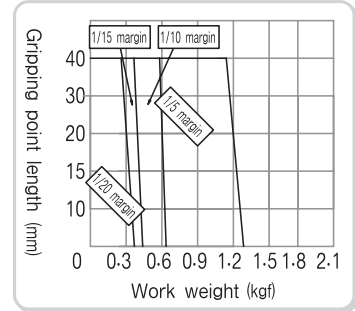
Outer diameter gripping state

W: Work weight
L: Gripping point length

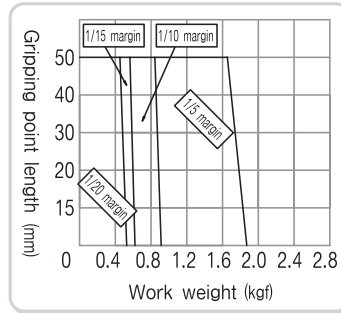
◆PH04-12



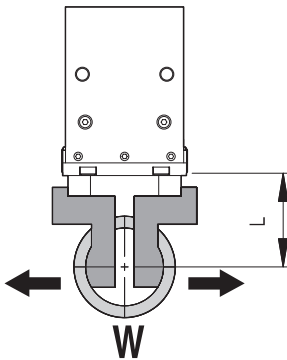
◆PH04-16



◆PH04-20



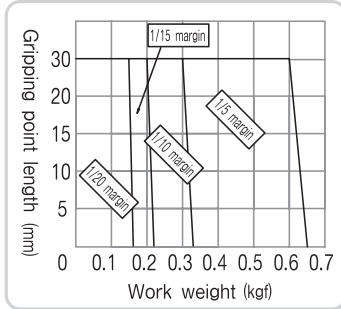
WORK inner diameter gripping force graph



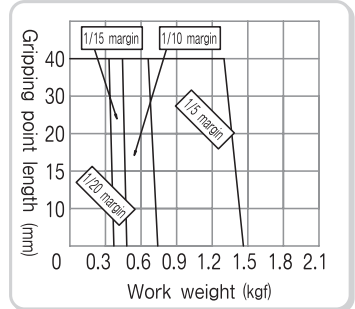
Inner diameter gripping state

W: Work weight
L: Gripping point length

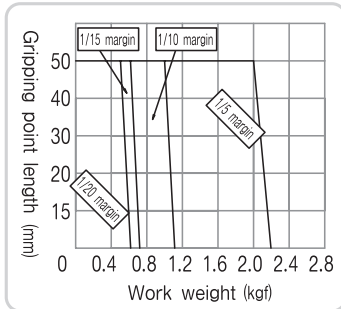
◆PH04-12



◆PH04-16



◆PH04-20



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

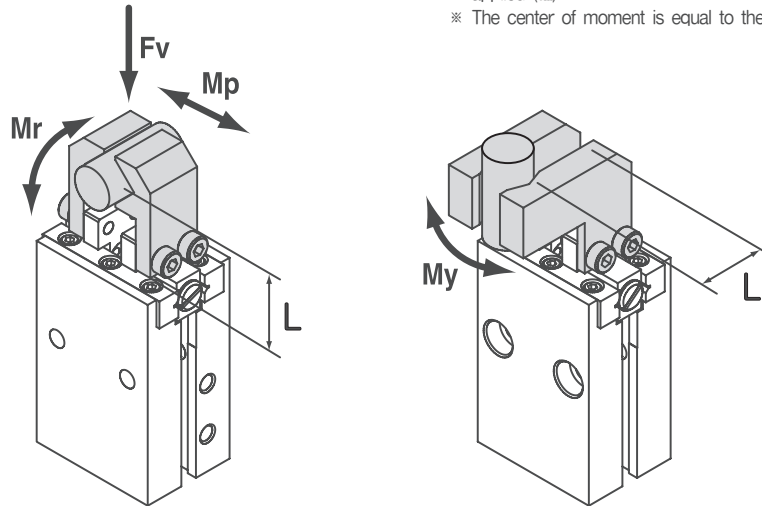
If using the attachment longer than allowable length as specified in the graph, it may have an adverse effect on the guide and cause problem to durability. Always use the gripping force within the specified length.



PH04 Series

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
PH04-12	9.3	3.3	3.3	7.2
PH04-16	14.8	6.7	6.7	16.4
PH04-20	16	8.1	8.1	21.2

※ Above allowable load and moment values represent static values.

Allowable load(when moment load is added) calculation

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

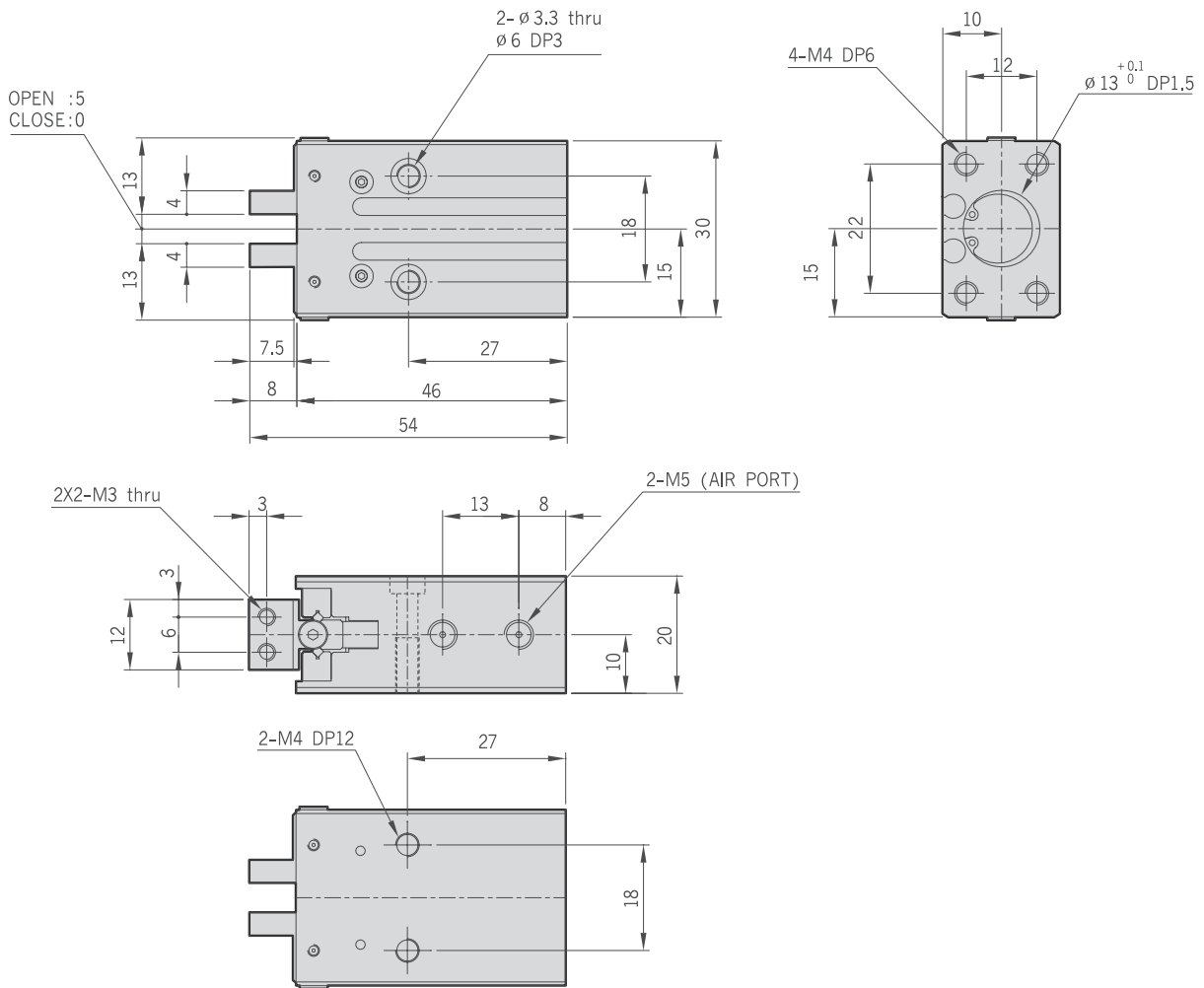
Calculation ex)

To check the availability if 0.5kgf of static load (F) is applied in the direction of pitching moment (Mp) at the 20mm point of attachment length (L) in PH04-12

$$\Rightarrow \text{Allowable load } F \text{ (kgf)} = \frac{\text{Maximum allowable moment } M \text{ (kgf} \cdot \text{cm)}}{\text{External force applied point } L \text{ (cm)}} = \frac{3.3}{2} = 1.65 \text{ kgf} > 0.5\text{kgf}$$

As tolerable load (1.65kgf) is greater than static load (0.5kgf), it is applicable.

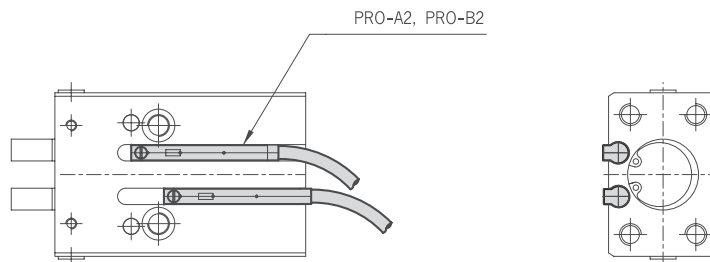
PH04-12



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

PH04-12-Auto Switch





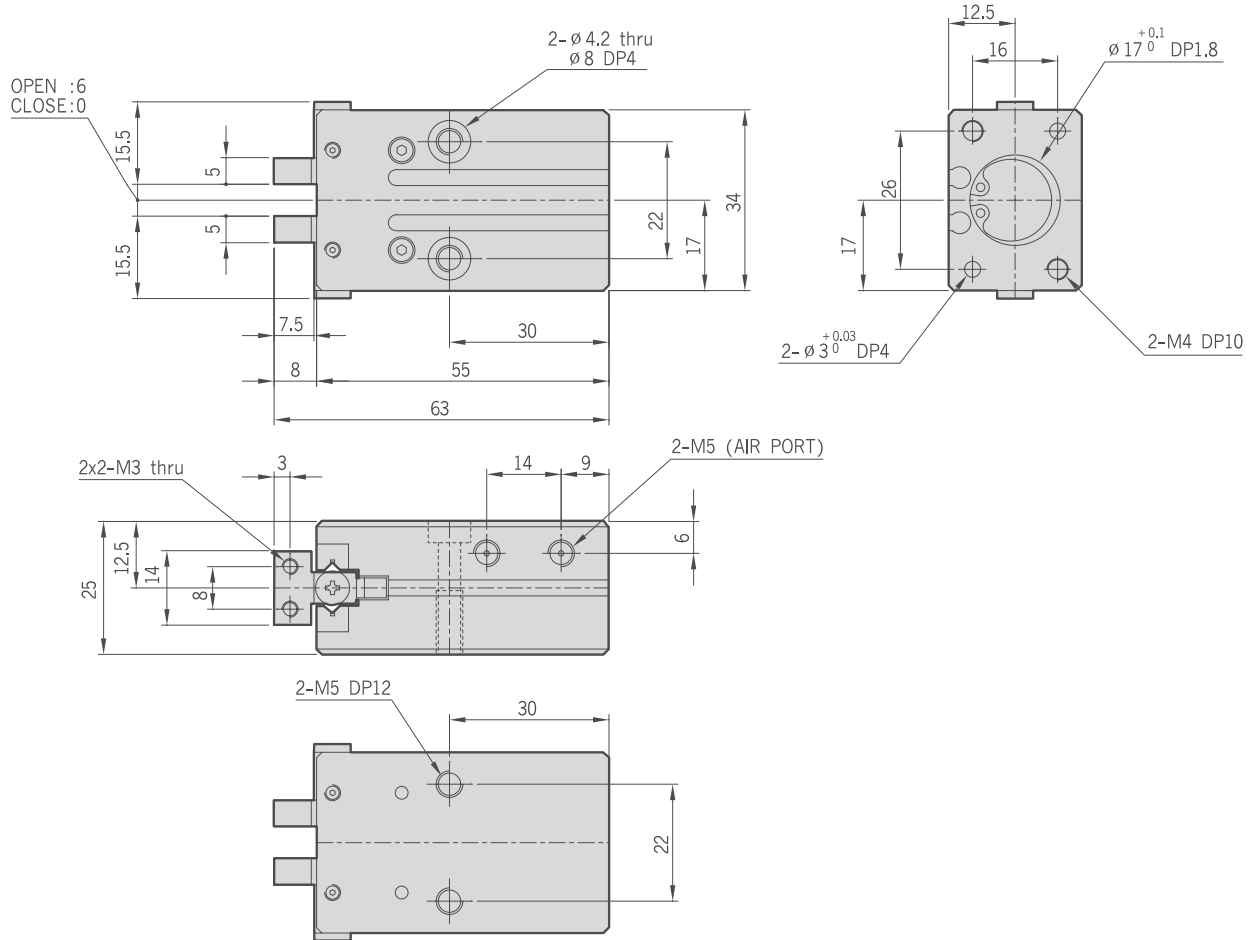
PH04 Series

12

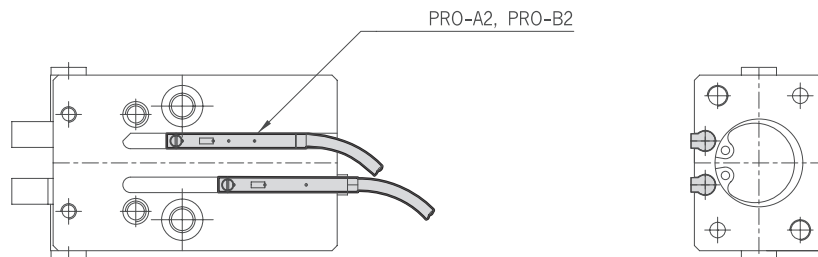
16

20

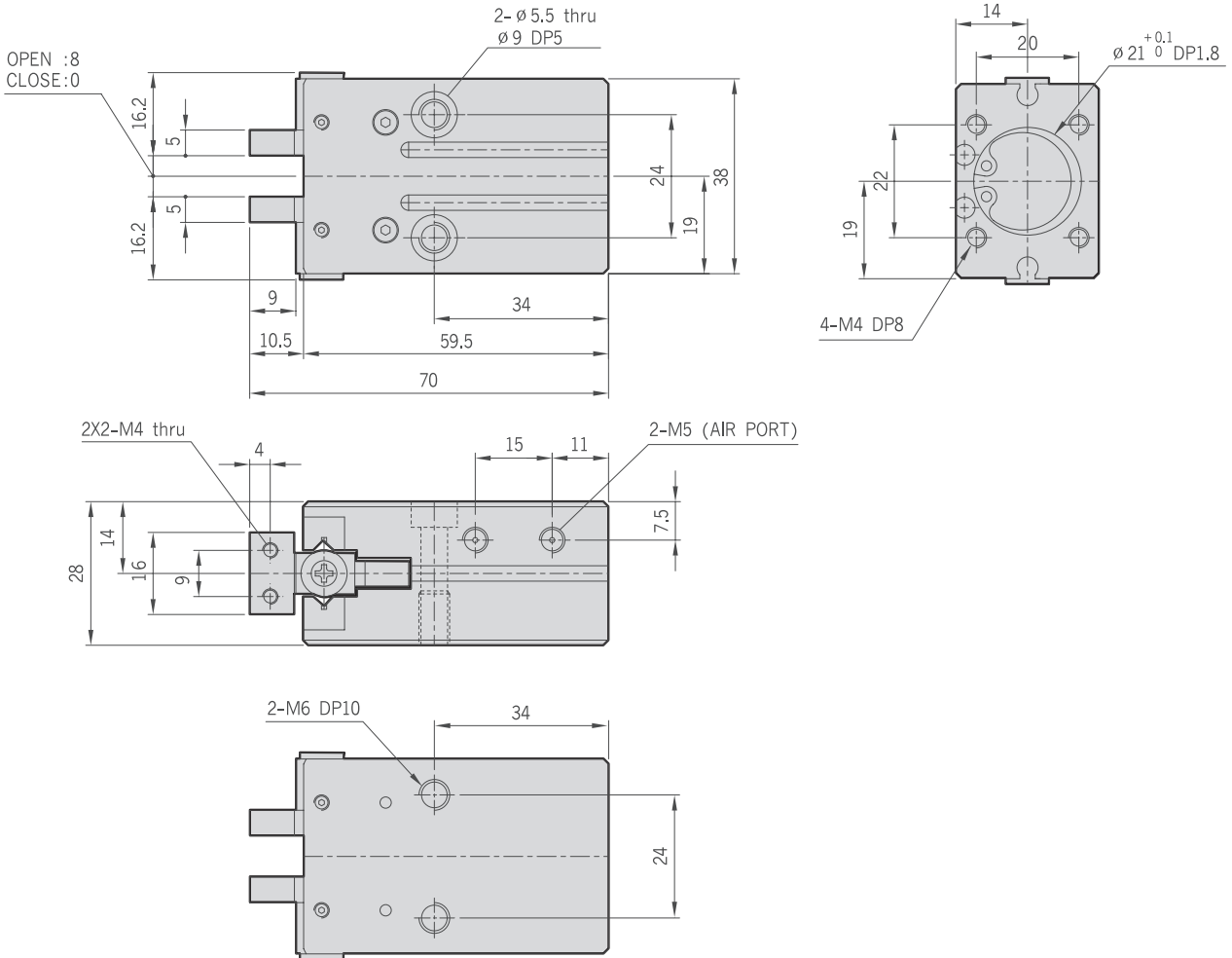
PH04-16



PH04-16-Auto Switch



PH04-20



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

PH04-20-Auto Switch

