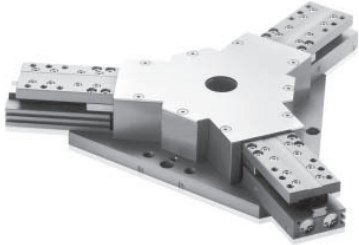


PH21 Series

Features



- Linear guide type 3-Jaw expanded parallel open & close type Hand
- Excellent small-size, light weight, generalized with ultra slim type
- Various work grip with wide stroke
- Excellent gripping force with 6 times thrust of cylinder bore
- Auto Switch for the detection of position can be attached

Order form

PH21 - 12 - A2 S

① ② ③ ④

③ Auto Switch specification

Symbol	Type	Length	Applied cylinder
A1	DSC PRO-A1 (2-wire)	1m	ø 20, ø 30
A1L		3m	
B1	PLC PRO-B1 (3-wire)	1m	
B1L		3m	
A2	DSC PRO-A2 (2-wire)	1m	ø 12
A2L		3m	
B2	PLC PRO-B2 (3-wire)	1m	
B2L		3m	

① Series

② Bore size & Stroke

Name	Bore size(mm)	Stroke(mm)
12	12	80
20	20	100
30	30	120

④ Auto Switch quantity

Blank	2ea
S	1ea

Specification

Model	PH21-12	PH21-20	PH21-30
Bore size(mm)	12×6	20×6	30×6
Rod(mm)	6	10	16
Stroke(mm)	80	100	120
Gripping force(kgf)	Close	25	70
	Open	19	53
Air pressure(5kgf/cm ²) <small>Note 2)</small>			133
Air port size	PT1/8		
Main body weight(kgf)	3.9	7.8	15.3
Allowable length of attachment L(mm)	60	100	120
Displacement of attachment H(mm) <small>Note 3)</small>			
Fluid	Clean air <small>Note 1)</small>		
Air pressure(kgf/cm ²)	3 ~ 7		
Lubrication	No need (if need, use one sort of turbine oil: SPEC ISOVG 32)		
Temperature(°C)	5 ~ 60		
Accuracy(mm)	±0.05		
Max. Cycle Per Minute(C.P.M)	40		
Motion type	Double-acting type (Structure: Parallel open & close by Link Lever) (Guide: Linear Guide)		
Tolerance of open & close stroke(mm)	Open: -1 ~ +1.5, Close: -1.5 ~ +1		

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

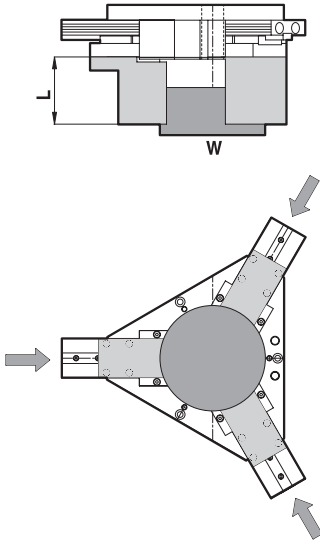
Note 2) The position of gripping point for gripping force is the end point of the Finger.

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.)



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

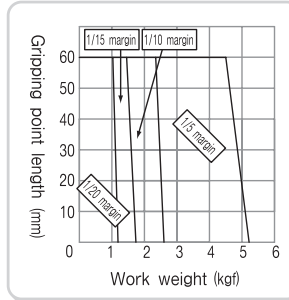
WORK outer diameter gripping force graph



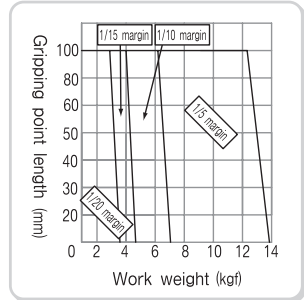
Outer diameter gripping state

W: Work weight
L : Gripping point length

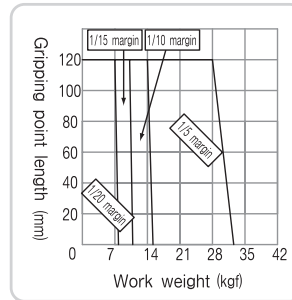
◆PH21-12



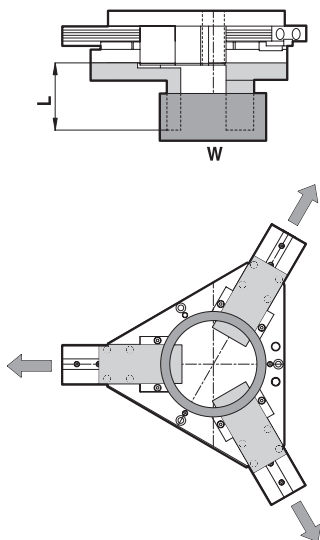
◆PH21-20



◆PH21-30



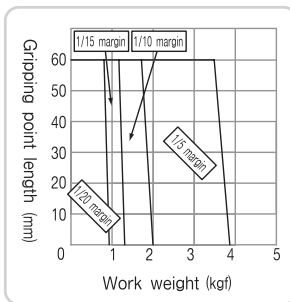
WORK inner diameter gripping force graph



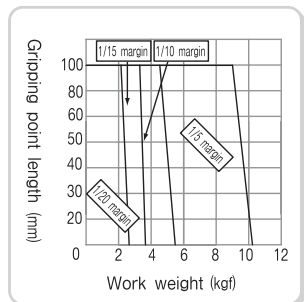
Inner diameter gripping state

W: Work weight
L : Gripping point length

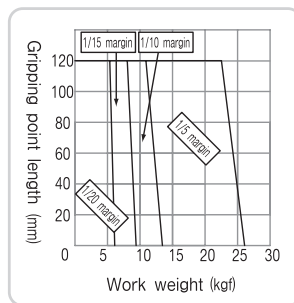
◆PH21-12



◆PH21-20



◆PH21-30



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

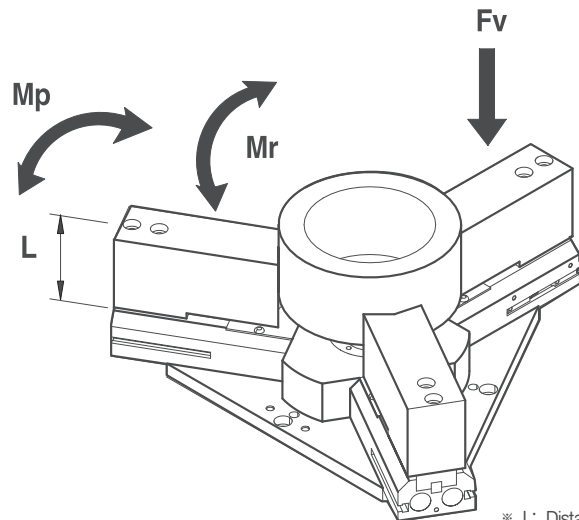
⚠ Caution

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.



PH21 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	Rolling moment Mr
PH21-12	81	30	50
PH21-20	255	94	188
PH21-30	384	188	401

※ Above allowable load and moment values represent static values.

Allowable load(when moment load is added) calculation

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

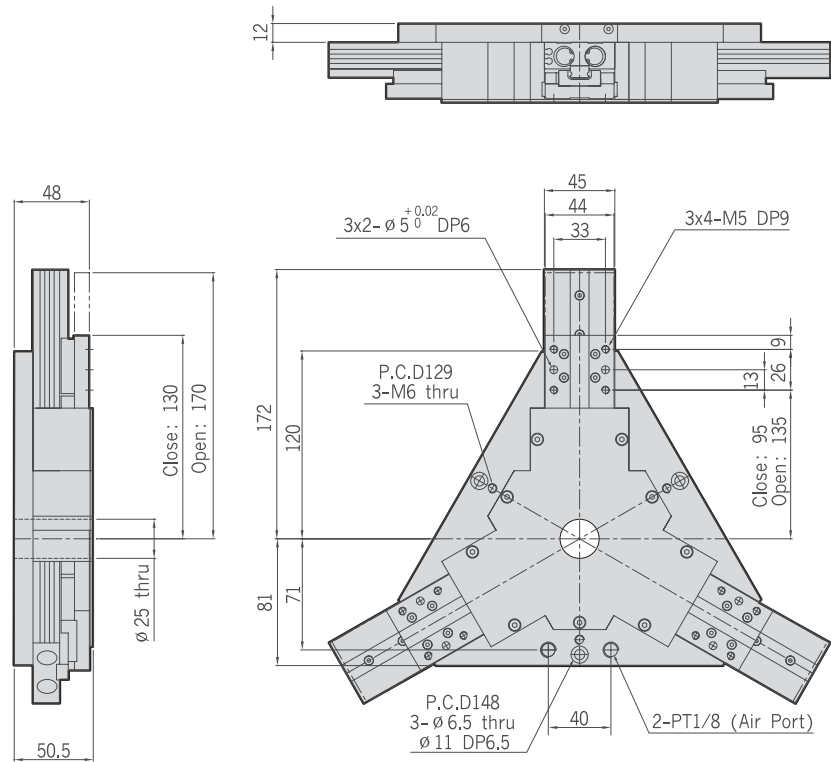
Calculation ex)

To check the availability if 3kgf of static load (F) is applied in the direction of pitching moment (Mp) at the 50mm point of attachment length (L) in PH21-12,

$$\Rightarrow \text{Allowable load F (kgf)} = \frac{\text{Maximum allowable moment M (kgf} \cdot \text{cm)}}{\text{External force applied point L (cm)}} = \frac{30}{5} = 6 \text{ kgf} > 3\text{kgf}$$

As tolerable load (6kgf) is greater than static load (3kgf), it is applicable.

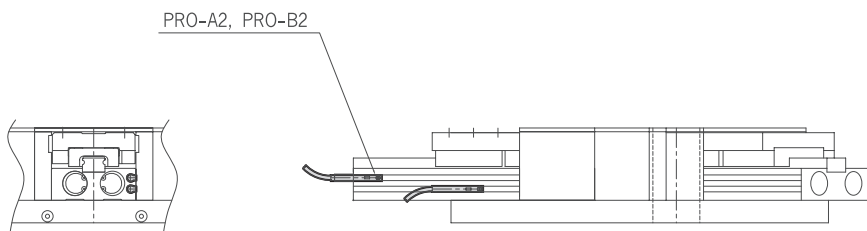
PH21-12



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

PH21-12-Auto Switch



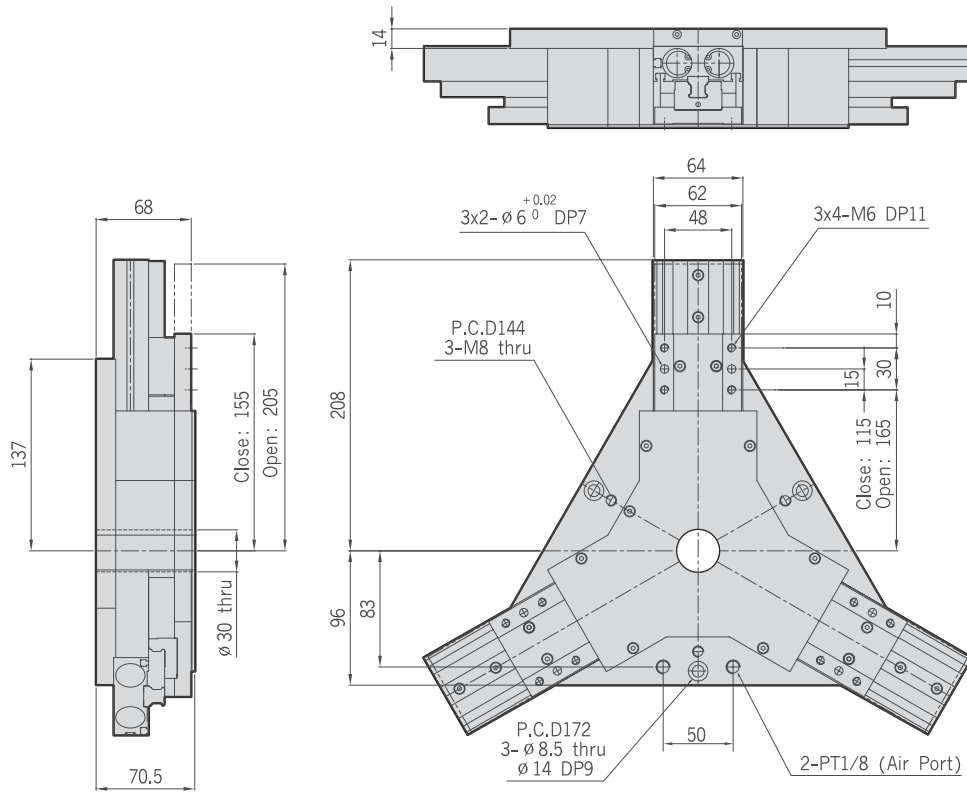
PH21 Series

12

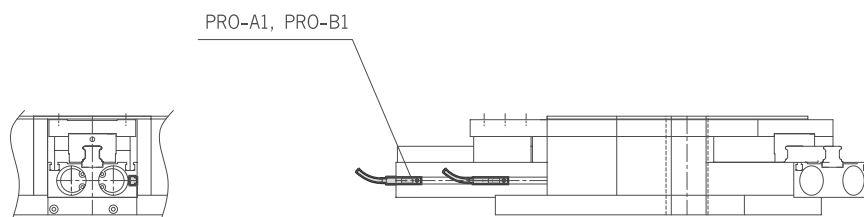
20

30

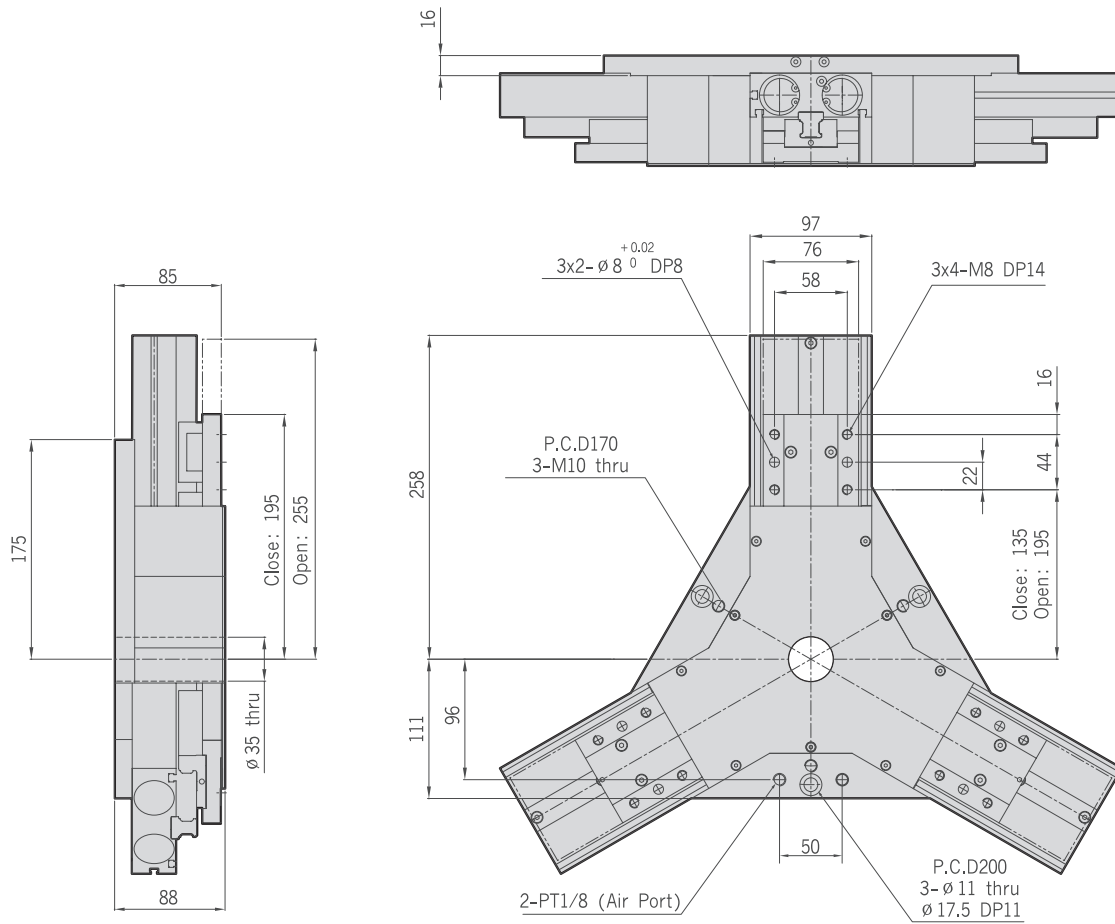
PH21-20



PH21-20-Auto Switch



PH21-30



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

PH21-30-Auto Switch

