

# PH22 Series

## Features



- Linear guide type 2-Jaw wide parallel open & close type Hand
- Realized small-size, light weight, generalized with ultra slim type
- Various work grip with wide stroke
- Excellent gripping force with double thrust
- Auto Switch for the detection of position can be attached

## Order form

**PH22 - 30 - A3 S**

①                  ②                  ③                  ④

① Series

② Bore size & Stroke

| Name | Bore size(mm) | Stroke(mm) |
|------|---------------|------------|
| 20   | 20            | 50         |
| 30   | 30            | 100        |
| 40   | 40            | 150        |

③ Auto Switch specification

| Symbol | Type       | Length | Applied cylinder |
|--------|------------|--------|------------------|
| A2     | DSC PRO-A2 | 1m     | ø 20             |
| A2L    | (2-wire)   | 3m     |                  |
| B2     | PLC PRO-B2 | 1m     |                  |
| B2L    | (3-wire)   | 3m     |                  |
| A3     | DSC APC    | 1m     | ø 30,<br>ø 40    |
| A3L    | (2-wire)   | 3m     |                  |

④ Auto Switch quantity

|       |     |
|-------|-----|
| Blank | 2ea |
| S     | 1ea |

## Specification

| Model                                    |                  | PH22-20                                                                                         | PH22-30 | PH22-40 |
|------------------------------------------|------------------|-------------------------------------------------------------------------------------------------|---------|---------|
| Bore size(mm)                            |                  | 20×2                                                                                            | 30×2    | 40×2    |
| Stroke(mm)                               |                  | 50                                                                                              | 100     | 150     |
| Gripping force(kgf)                      | Close<br>Note 2) | 23.5                                                                                            | 53      | 94      |
| Air pressure(5kgf/cm <sup>2</sup> )      |                  |                                                                                                 |         |         |
| Air port size                            |                  | M5                                                                                              | PT1/8   |         |
| Main body weight(kgf)                    |                  | 1.38                                                                                            | 4.6     | 10.5    |
| Allowable length of attachment L(mm)     |                  | 60                                                                                              | 120     | 160     |
| Displacement of attachment H(mm) Note 3) |                  |                                                                                                 |         |         |
| Fluid                                    |                  | Clean air Note 1)                                                                               |         |         |
| Air pressure(kgf/cm <sup>2</sup> )       |                  | 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 Rack & Pinion)<br>(Guide: Linear Guide) |         |         |
| Tolerance of open & close stroke(mm)     |                  | Open: ±2, Close: ±2                                                                             |         |         |

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

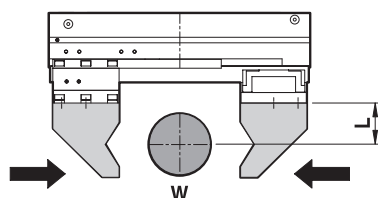
Note 2) The position of gripping point for gripping force is the end point of the Finger.

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.)



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

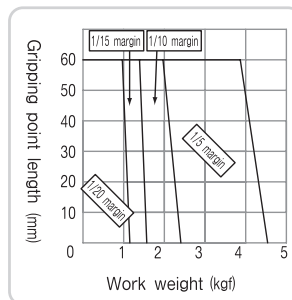
## WORK outer diameter gripping force graph



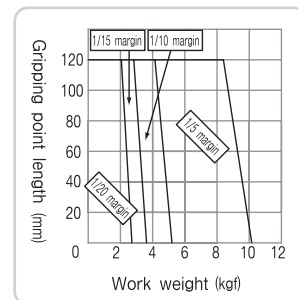
### Outer diameter gripping state

W: Work weight  
L : Gripping point length

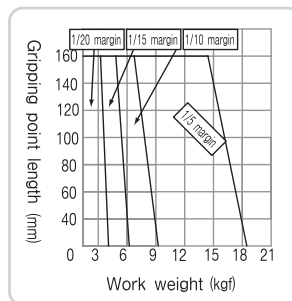
#### ◆PH22-20



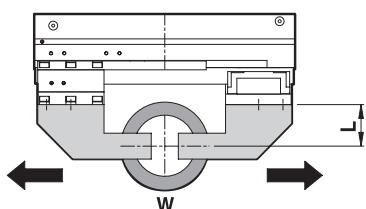
#### ◆PH22-30



#### ◆PH22-40



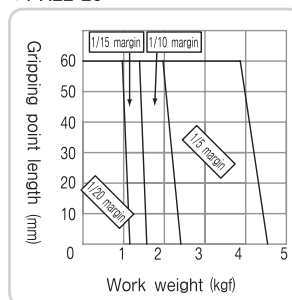
## WORK inner diameter gripping force graph



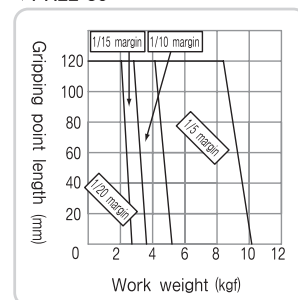
### Inner diameter gripping state

W: Work weight  
L : Gripping point length

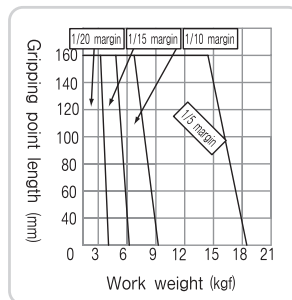
#### ◆PH22-20



#### ◆PH22-30



#### ◆PH22-40



### ⚠ 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.

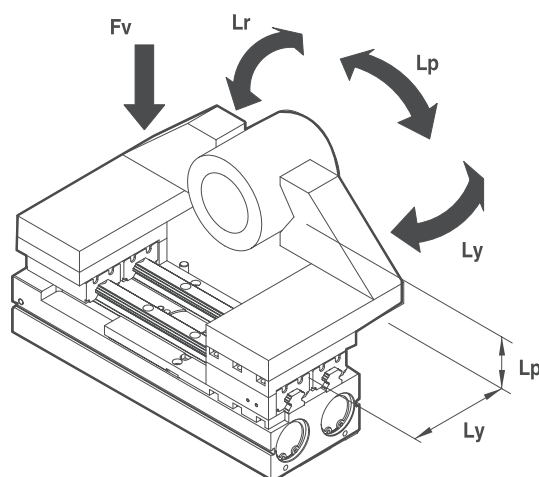
## HAND

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



# PH22 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<br>allowable load Fv (kgf) | Maximum allowable moment (kgf · cm) |                  |                   |
|---------|----------------------------------------------------|-------------------------------------|------------------|-------------------|
|         |                                                    | Pitching moment Mp                  | Yawing moment My | Rolling moment Mr |
| PH22-20 | 81                                                 | 30                                  | 30               | 50                |
| PH22-30 | 413                                                | 236                                 | 236              | 330               |
| PH22-40 | 703                                                | 519                                 | 519              | 732               |

※ Above allowable load and moment values represent static values.

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

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

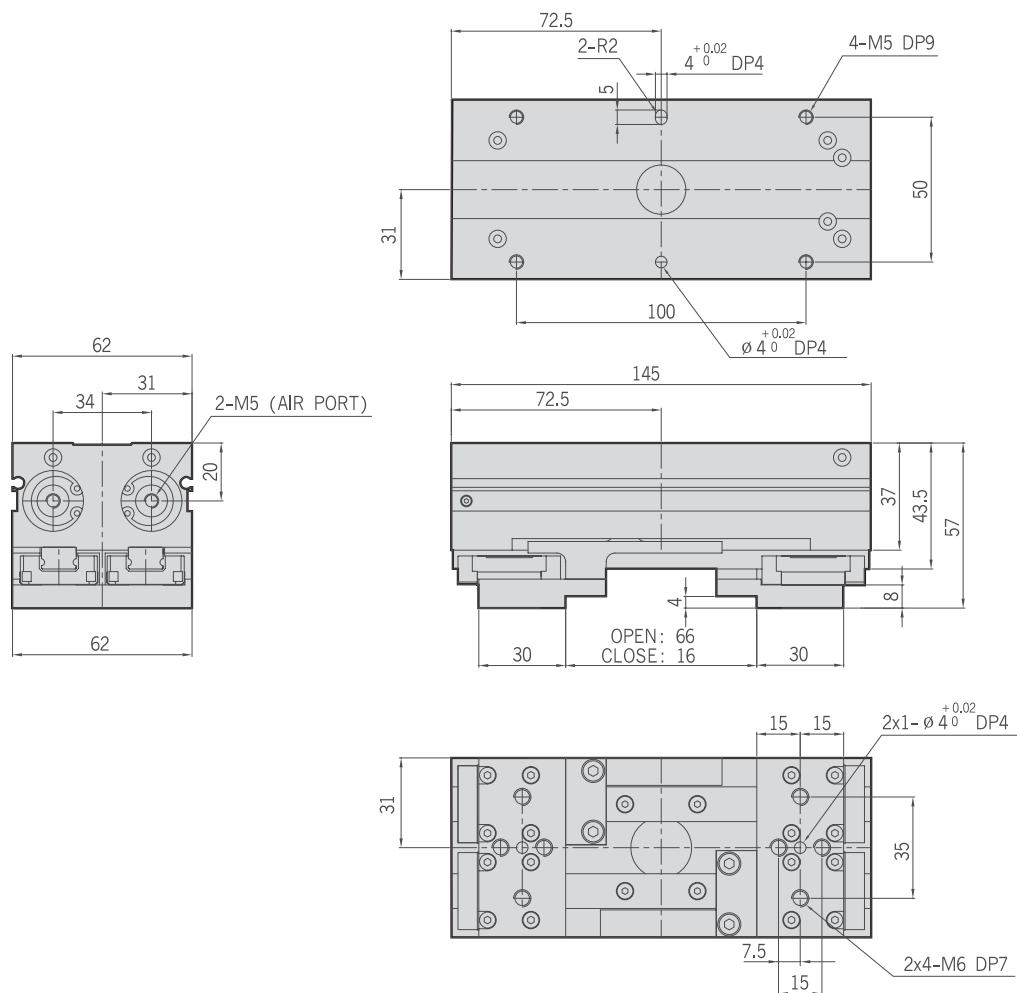
### Calculation ex)

To check the availability if 5kgf of static load (F) is applied in the direction of pitching moment (Mp) at the 100mm point of attachment length (L) in PH22-30,

$$\Rightarrow \text{Allowable load } F \text{ (kgf)} = \frac{\text{Maximum allowable moment } M \text{ (kgf} \cdot \text{cm)}}{\text{External force applied point } L \text{ (cm)}} = \frac{236}{10} = 23.6 \text{ kgf} > 5 \text{ kgf}$$

As tolerable load (23.6kgf) is greater than static load (5kgf), it is applicable.

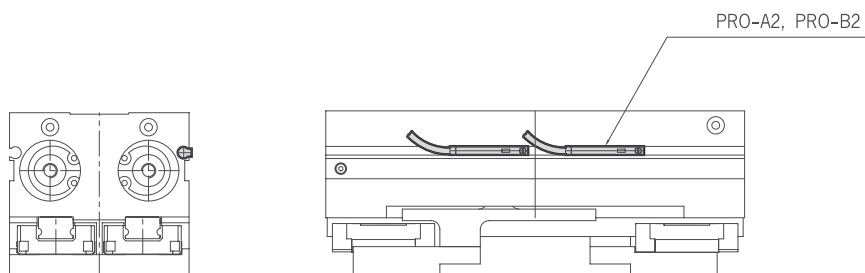
## PH22-20



## 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

## PH22-20-Auto Switch



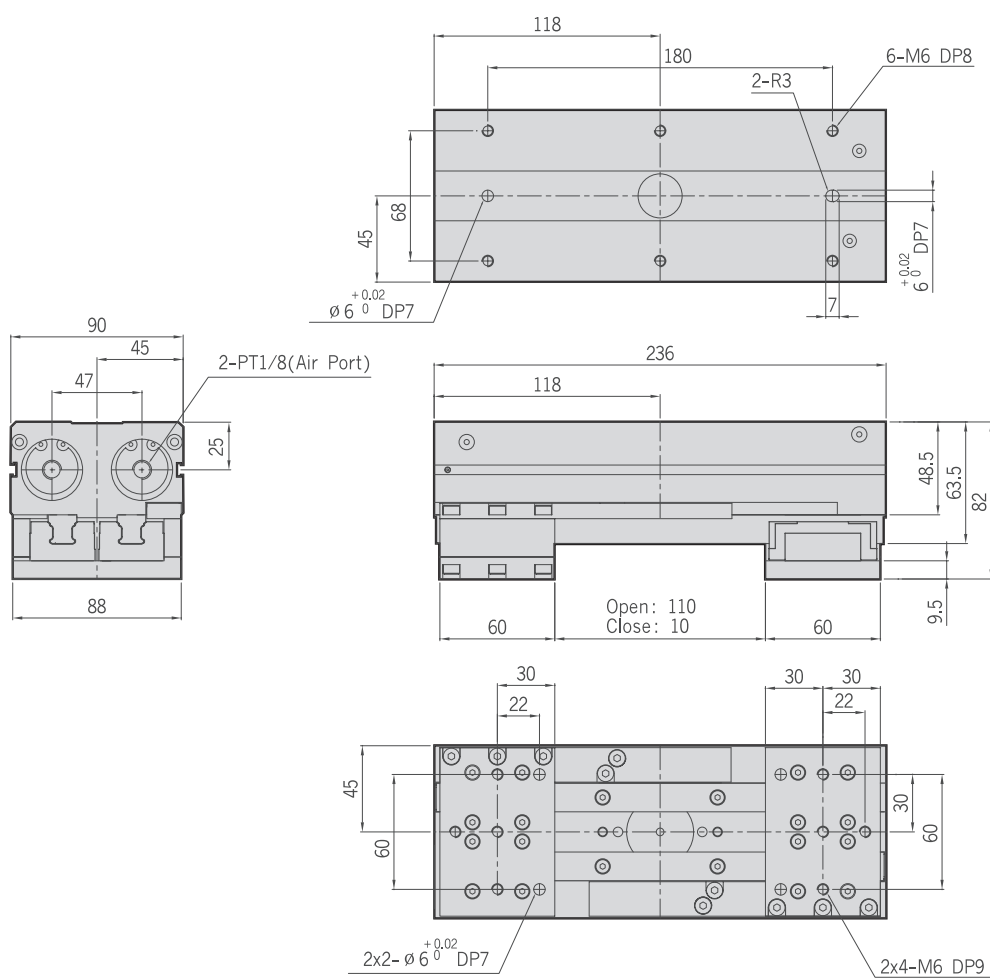
# PH22 Series

20

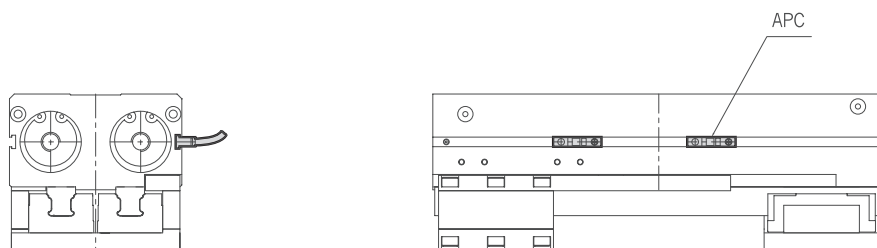
30

40

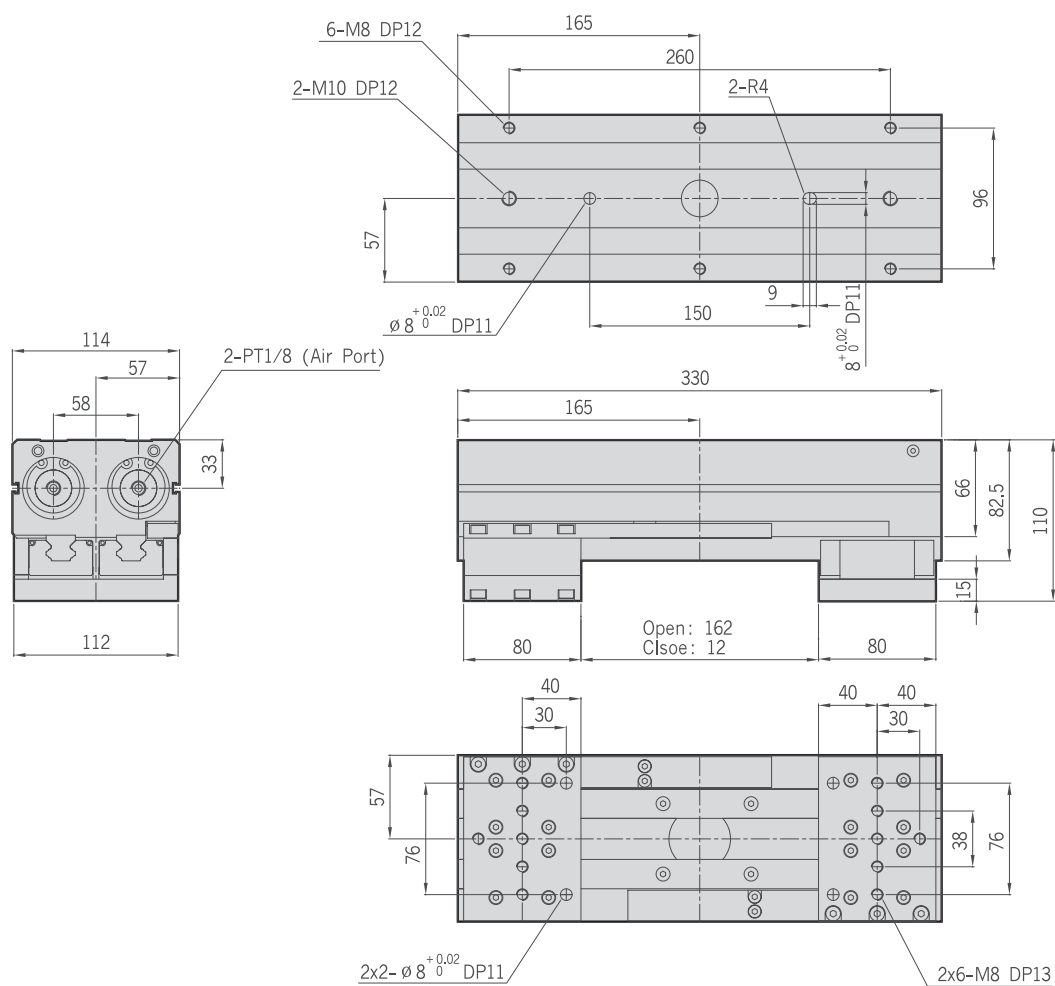
## PH22-30



## PH22-30-Auto Switch



## PH22-40



## PH22-40-Auto Switch

