

# BHG Series Compact Cross Roller Parallel Hand

## Cross Roller Parallel Gripper with Rubber Cover

### Key Features

- **Protective rubber cover for use in dusty and harsh environments**

Rubber cover prevents substances and particulates such as mists and dusts from penetrating into the interior of the unit

- **High accuracy and smooth operation with cross roller guide**

Cross roller bearing retention structure used in the sliding material provides high accuracy and smooth motion

- **Compact body and high rigidity**

Telescopic slides and bearing retainers to provide high moments to size ratio

- **Clean room compliant types available**

Clean Room Class 10 and Class 1000 types available



BHG-05AS

### How To Order

Standard ----- **BHG-01AS**

Option ----- **BHG-01AS - ET3S2 - GH** ----- BHG-01AS-GH (BHG-01AS with oil-proof rubber cover) with 2 of ET3 non-contact reed switches

| Size   |  |
|--------|--|
| Symbol |  |
| 01AS   |  |
| 03AS   |  |
| 04AS   |  |
| 05AS   |  |
| 06AS   |  |

| Sensor, Quantity |                    |        |                |
|------------------|--------------------|--------|----------------|
| Symbol           | Name               | Symbol | Name           |
| ET3              | Non-Contact 3-Lead | E24L   | Contact 2-Lead |
| ET3L             | Non-Contact 3-Lead | E25    | Contact 2-Lead |
| ET2              | Non-Contact 2-Lead | E25L   | Contact 2-Lead |
| ET2L             | Non-Contact 2-Lead | S1     | 1 Sensor       |
| E24              | Contact 2-Lead     | S2     | 2 Sensors      |

| Option |                             |        |                          |
|--------|-----------------------------|--------|--------------------------|
| Symbol | Name                        | Symbol | Name                     |
| NO     | Normally Open               | GC2    | Clean Room Type          |
| NC     | Normally Closed             | PF     | Air Port Position Change |
| GH     | Oil (Fluororubber) Cover    |        |                          |
| GT     | Heat (Silicon Rubber) Cover |        |                          |
| GC1    | Clean Room Type             |        |                          |

\* 06AS only

For sensor detail ▶ 277P

\* Except 06AS

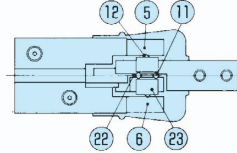
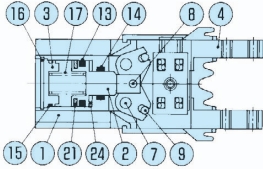
For option detail ▶ 36P

### Specification

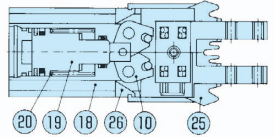
| Model   | BHG-01AS  | BHG-03AS                 | BHG-04AS                 | BHG-05AS                 | BHG-06AS                 |
|---|---|--------------------------|--------------------------|--------------------------|--------------------------|
|   | For Layout Drawing ▶ 57P                                    | For Layout Drawing ▶ 57P | For Layout Drawing ▶ 58P | For Layout Drawing ▶ 58P | For Layout Drawing ▶ 59P |
| Working Pressure  | Pneumatic: 0.1 to 0.7 MPa (0.3 to 0.7MPa for NO & NC types) |                          |                          |                          |                          |
| Lubrication   | Not Required or Turbine Oil Class 1 (ISOVG32)               |                          |                          |                          |                          |
| Ambient Temperature (°C)                                | 5 to 60   |                          |                          |                          |                          |
| Total Jaw Stroke (mm)                                   | 5   | 9                        | 11                       | 15                       | 20                       |
| Cylinder Diameter (mm)                                  | dia.12  | dia.16                   | dia.20                   | dia.25                   | dia.32                   |
| Rod Diameter (mm)                                       | dia.6   | dia.8                    | dia.10                   | dia.12                   | dia.16                   |
| Internal Volume [Reciprocation] (cm <sup>3</sup> /time) | 0.32  | 1.58                     | 2.89                     | 6.32                     | 14.07                    |
| Repeatability (mm)                                      | ±0.01   |                          |                          |                          |                          |
| Weight (g)  | 118   | 165                      | 283                      | 455                      | 1170                     |

## Internal Structure / Parts & Seals

### Standard (Double-Acting) & NO(Single Acting -Normally Open)



### NC(Single Acting - Normally Closed)



### Parts List

| No. | Name              | Material        | No. | Name           | Material             | No. | Name           | Material             |
|-----|-------------------|-----------------|-----|----------------|----------------------|-----|----------------|----------------------|
| 1   | Body              | Aluminum        | 10  | Arm            | Carbon Steel         | 19  | NC Piston      | Stainless Steel      |
| 2   | Piston            | Stainless Steel | 11  | Cross Roller A |                      | 20  | NC Spring      | Stainless Steel Wire |
| 3   | Cylinder Cover    | Resin           | 12  | Cross Roller B |                      | 21  | Magnet         |                      |
| 4   | Master(Base) Jaw  | Carbon Steel    | 13  | Piston Seal    |                      | 22  | Retainer A     |                      |
| 5   | Bearing Guide A   | Carbon Steel    | 14  | Rod Seal       |                      | 23  | Retainer B     |                      |
| 6   | Bearing Guide B   | Carbon Steel    | 15  | Cylinder Seal  |                      | 24  | Cushion        |                      |
| 7   | Fulcrum Shaft     | Carbon Steel    | 16  | Snap Ring      |                      | 25  | Rubber Cover   | Rubber               |
| 8   | Operating Shaft A | Bearing Steel   | 17  | NO Spring      | Stainless Steel Wire | 26  | Metal Fittings | Aluminum             |
| 9   | Operating Shaft B | Bearing Steel   | 18  | NC Body        | Aluminum             |     |                |                      |

### Seals List

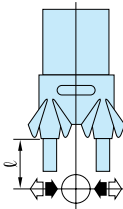
| No. | BHG-01AS     | BHG-03AS     | BHG-04AS     | BHG-05AS           | BHG-06AS |
|-----|--------------|--------------|--------------|--------------------|----------|
| 13  | PSD-12       | PSD-16       | PSD-20       | PSD-25             | PSD-32   |
| 14  | MYA-6        | MYA-8        | MYA-10       | MYA-12             | MYA-16   |
| 15  | dia.10×dia.1 | dia.14×dia.1 | dia.18×dia.1 | dia.22.33×dia.1.02 | S-29     |

## Performance Data

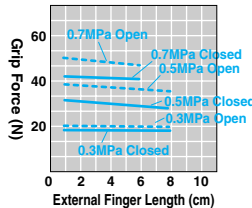
### Grip Force

The graph shows grip force in opening and closing with effective external finger lengths  $\ell$  from gripper cover surface under different air pressure (MPa)

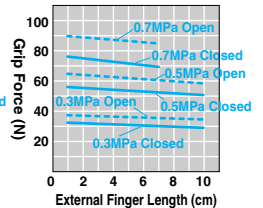
Open (⇐) ---  
Closed (⇒) —



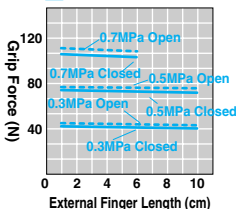
#### BHG-01AS



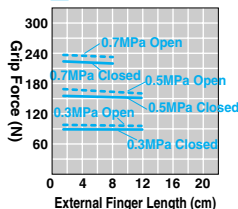
#### BHG-03AS



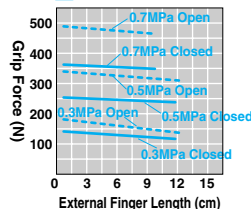
#### BHG-04AS



#### BHG-05AS



#### BHG-06AS



# BHG Series Compact Cross Roller Parallel Hand

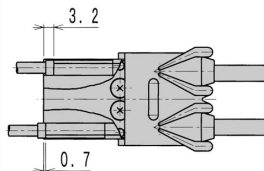
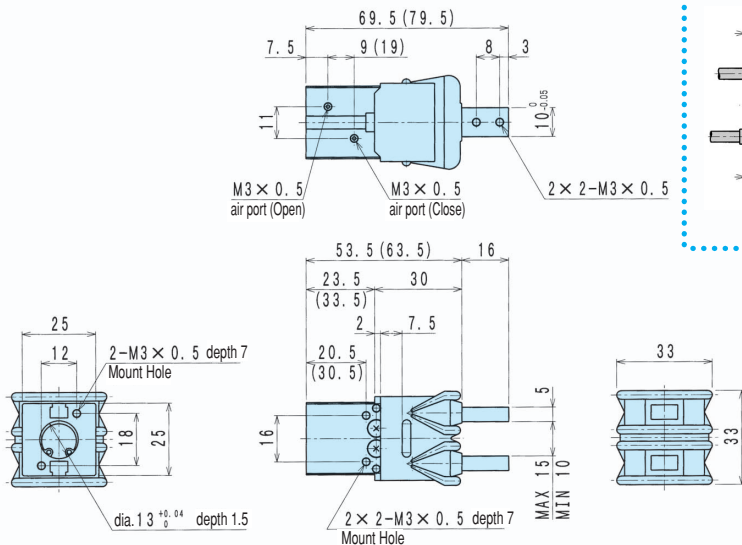
## Layout Drawing

### ■ BHG-01AS (Optimal Grip Force 15N to 30N)

BHG-01AS Standard • NO • NC

\*Values inside ( ) are for NC (Normally Closed) type

BHG-01AS-E □ S □



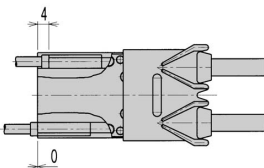
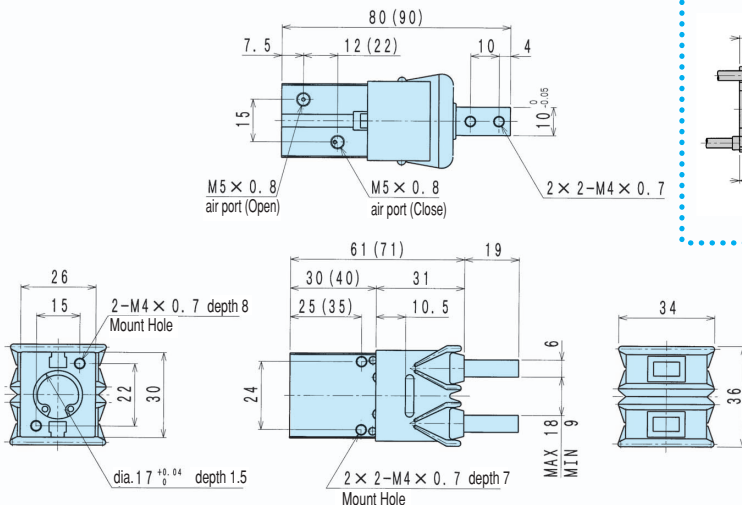
Hand  
(2-law)

### ■ BHG-03AS (Optimal Grip Force 30N to 50N)

BHG-03AS Standard • NO • NC

\*Values inside ( ) are for NC (Normally Closed) type

BHG-03AS-E □ S □



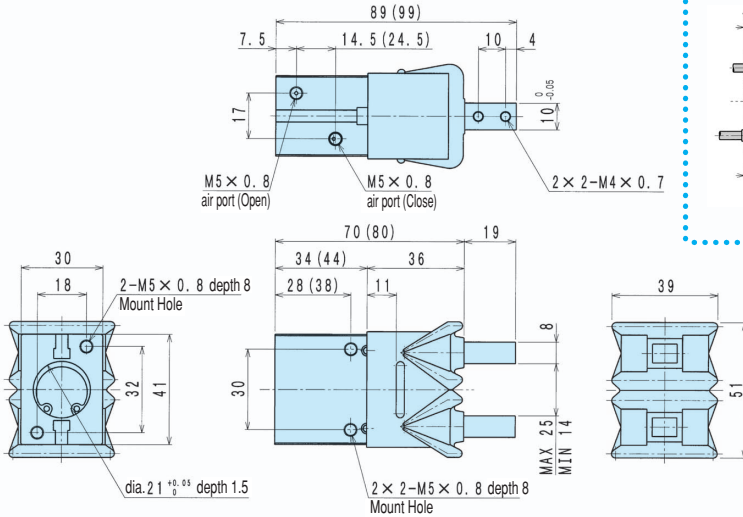
# BHG-01AS/03AS/04AS/05AS/06AS

For CAD data, please go to **▶518P**

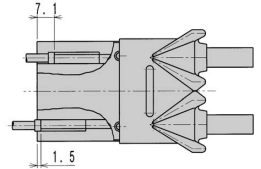
## ■BHG-04AS (Optimal Grip Force 40N to 80N)

**BHG-04AS Standard • NO • NC**

\*Values inside ( ) are for NC (Normally Closed) type



**BHG-04AS-E□□□**

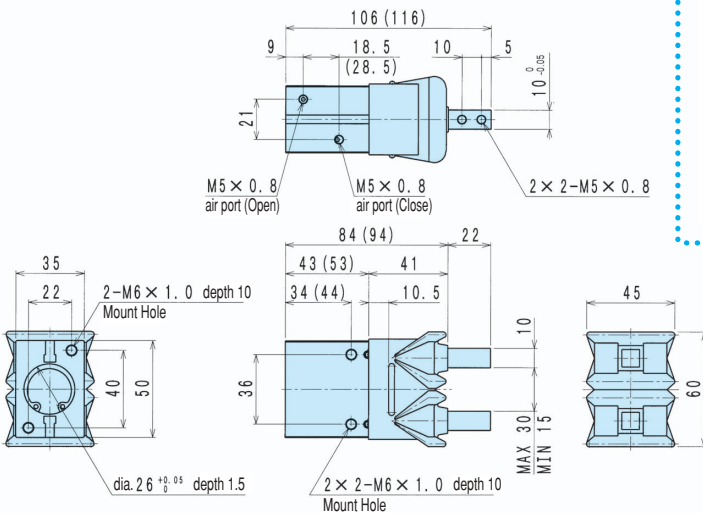


Hand  
(2-Jaw)

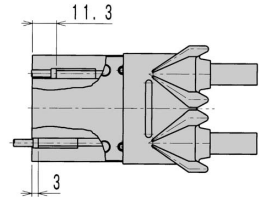
## ■BHG-05AS (Optimal Grip Force 80N to 150N)

**BHG-05AS Standard • NO • NC**

\*Values inside ( ) are for NC (Normally Closed) type



**BHG-05AS-E□□□**



# BHG Series Compact Cross Roller Parallel Hand

## Layout Drawing

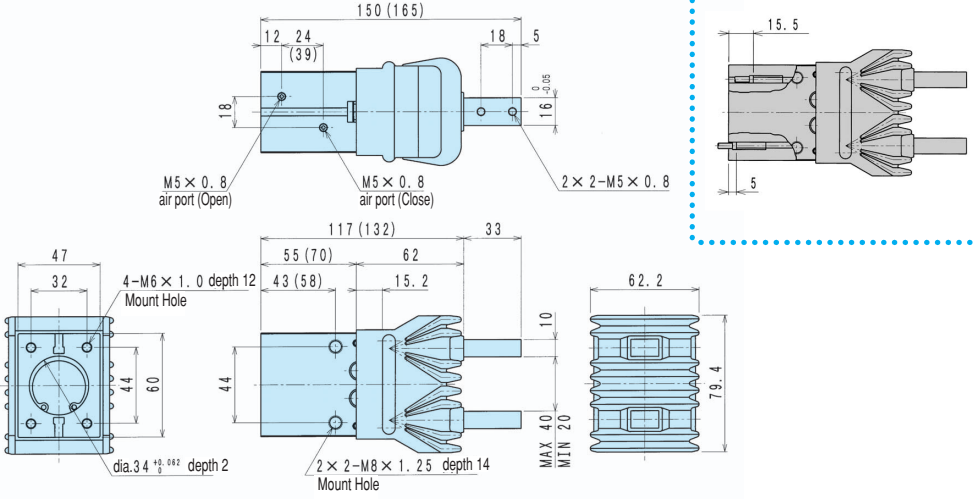
### ■ BHG-06AS (Optimal Grip Force 100N to 250N)

#### BHG-06AS Standard • NO • NC


#### BHG-06AS-E□S□

\*Values inside ( ) are for NO (Normally Open) and NC (Normally Closed) type

Hand  
(2-law)



# BHG-01AS/03AS/04AS/05AS/06AS

 For CAD data, please go to **▶518P**