

# BHA Series Compact Cross Roller Parallel Hand

## Smooth Motion and Powerful Grip Force

### Key Features

#### ■ High accuracy and smooth operation with cross roller guide

Cross roller guide used for sliding material provides high accuracy and smooth motion without backlash. The gripper can be operated at 0.1MPa

#### ■ Compact body and powerful grip force

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

#### ■ Switch slots available for sensing jaw position (open or closed)

2 reed switches can be mounted on all the gripper sizes



BHA-03AS

Hand  
(2-law)

### How To Order

Standard ----- **BHA-01AS**

Option ----- **BHA - 01AS - ET3S2 - PF** ----- BHA-01AS with air port location changed and 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		
NC	Normally Closed		
PF	Air Port Position Change		

\* 06AS only

For sensor detail ▶ 277P

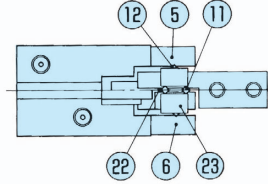
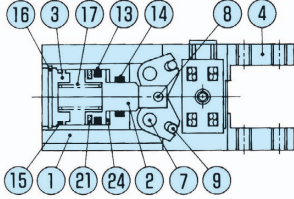
For option detail ▶ 36P

### Specification

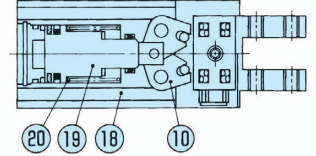
Model	BHA-01AS	BHA-03AS	BHA-04AS	BHA-05AS	BHA-06AS
	For Layout Drawing ▶ 51P	For Layout Drawing ▶ 51P	For Layout Drawing ▶ 52P	For Layout Drawing ▶ 52P	For Layout Drawing ▶ 53P
Working Pressure	Pneumatic: 0.1 to 0.7 MPa (0.3 to 0.7MPa for NO & NC types)				
Lubrication	Not Required or Turbine Oil Class 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)	100	145	253	420	1100

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

### Seals List

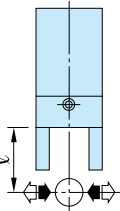
No.	BHA-01AS	BHA-03AS	BHA-04AS	BHA-05AS	BHA-06AS
13	PSD-12	PSD-16	PSD-20	PSD-25	PSD-32
14	MYA-6	MYA-8	MYA-10	MYA-12	MYA-16
15	dia.10×dia.1	dia.14×dia.1	dia.18×dia.1	dia.22.3×dia.1.02	S-29

## Performance Data

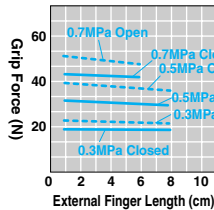
### Grip Force

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

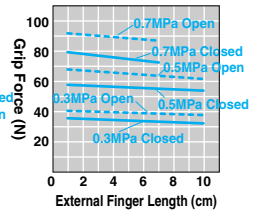
Open (⇐) ---  
 Closed (⇒) —



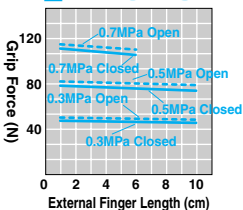
### BHA-01AS



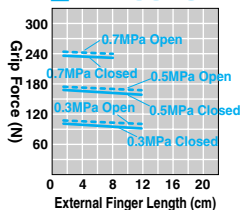
### BHA-03AS



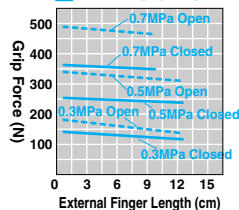
### BHA-04AS



### BHA-05AS



### BHA-06AS



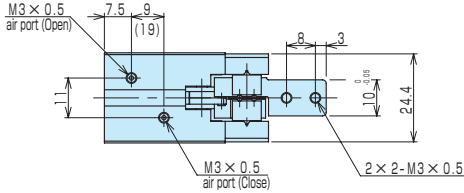
# BHA Series Compact Cross Roller Parallel Hand

## Layout Drawing

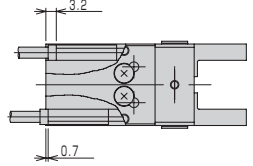
### ■ BHA-01AS (Optimal Grip Force 15N to 30N)

BHA-01AS Standard • NO • NC

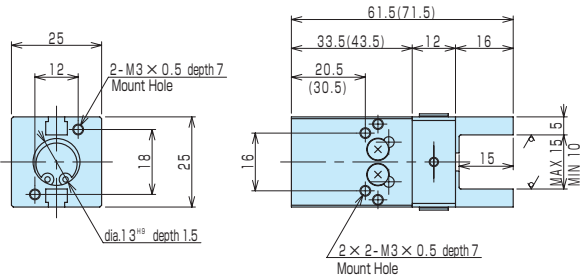
\*Values inside ( ) are for NC (Normally Closed) type



BHA-01AS-E □ S □



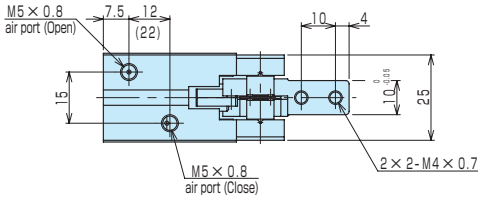
Hand  
(2-law)



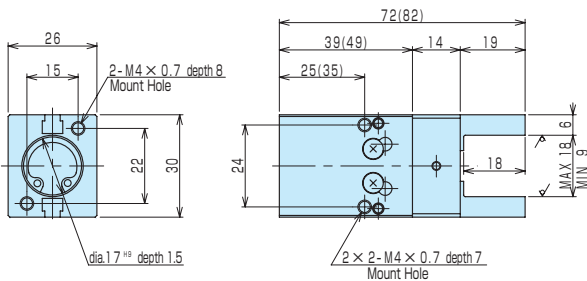
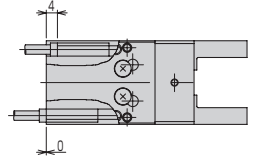
### ■ BHA-03AS (Optimal Grip Force 30N to 50N)

BHA-03AS Standard • NO • NC

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



BHA-03AS-E □ S □



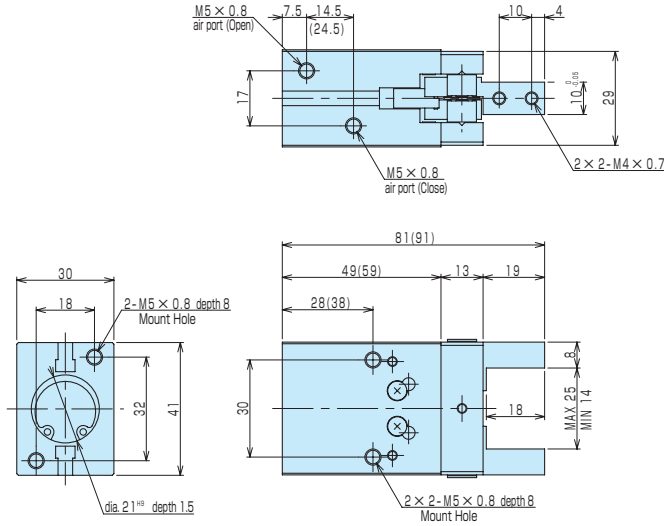
# BHA-01AS/03AS/04AS/05AS/06AS

For CAD data, please go to **▶518P**

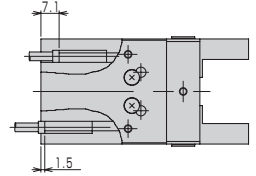
## ■BHA-04AS (Optimal Grip Force 40N to 80N)

**BHA-04AS Standard • NO • NC**

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



**BHA-04AS-E□S□**

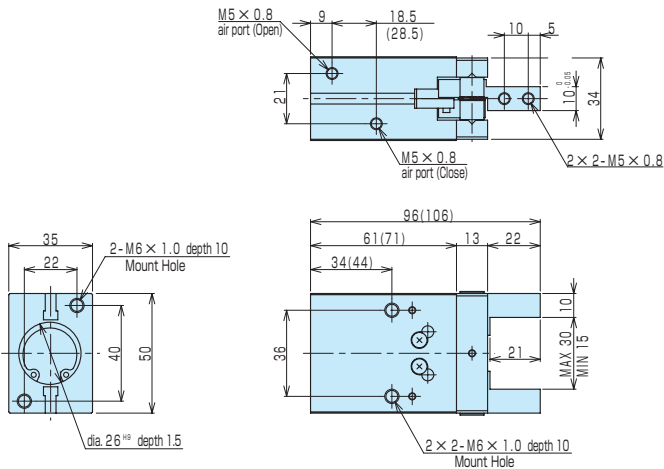


Hand  
(2-Jaw)

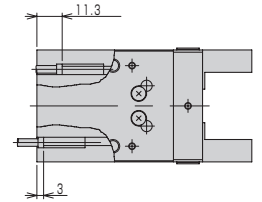
## ■BHA-05AS (Optimal Grip Force 80N to 150N)

**BHA-05AS Standard • NO • NC**

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



**BHA-05AS-E□S□**



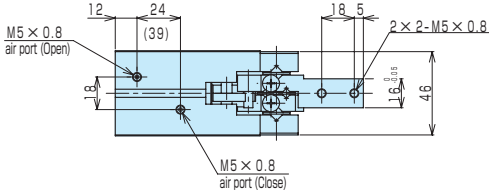
# BHA Series Compact Cross Roller Parallel Hand

## Layout Drawing

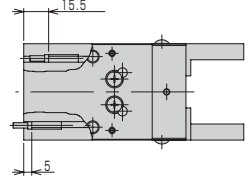
### ■ BHA-06AS (Optimal Grip Force 100N to 250N)

BHA-06AS Standard • NO • NC

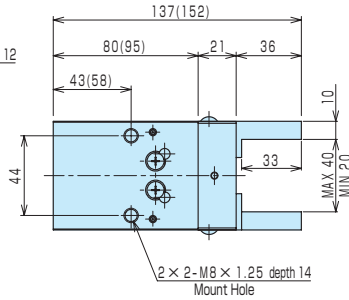
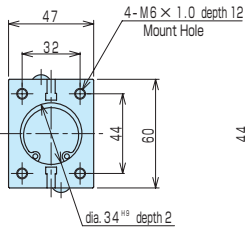
\*Values inside ( ) are for NC (Normally Closed) type




BHA-06AS-E□S□



Hand  
(2-law)



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

 For CAD data, please go to **▶518P**