



Linear Guide Gripper Double Acting Type/Single Acting Type

# LHA Series

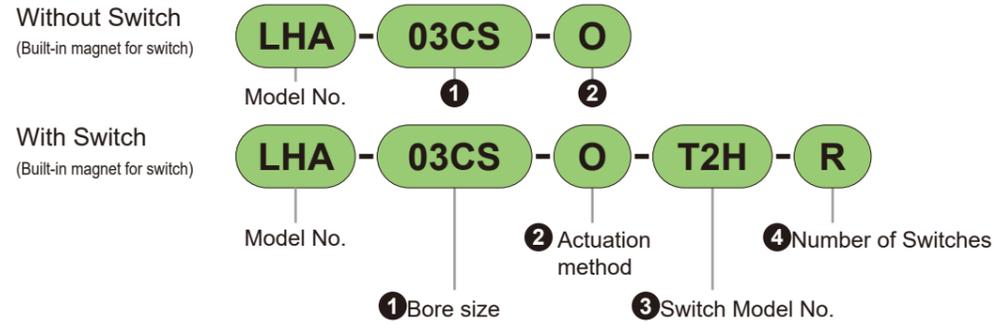
● Operating stroke: 4, 5, 9, 11, 15, 20 mm



## LHA Series

Model No. Notation Method

### Model No. Notation Method



#### 1 Bore Size (mm)

Code	Content
006CS	ø6
01CS	ø12
03CS	ø16
04CS	ø20
05CS	ø25
06CS	ø32

#### 2 Actuation method

Code	Content
Blank	Standard (Double Acting Type)
O	Single Acting (Normally Open)
C	Single Acting (Normally Closed)

#### 3 Switch Model No.

For switch details, please refer to P. 573. Switches are included with the product and shipped.

Contact	Indicator LED Special Function	Wiring (Output)	Load Voltage (V)		Load Current (mA)		Lead wire *1		
			AC	DC	AC	DC	Straight	L-shape	
Solid State		2-wire	-	10 to 30	-	5 to 20	-	F2S□	
		3-wire (NPN)	-	30 or less	-	50 or less	-	F3S□	
		2-wire	-	10 to 30	-	5 to 20 *2	F2H□	F2V□	
		3-wire (NPN)	-	30 or less	-	50 or less	F3H□	F3V□	
		3-wire (PNP)	-	30 or less	-	50 or less	F3PH□	F3PV□	
		1-Color	2-wire	-	10 to 30	-	5 to 20 *2	T2H□	T2V□
1-Color Flex-Resistant Lead Wire	2-wire	-	10 to 30	-	5 to 20 *2	T2HR3	T2VR3		
1-Color	3-wire (NPN)	-	30 or less	-	100 or less	T3H□	T3V□		
		3-wire (PNP)	-				T3PH□	T3PV□	

\*1: For "□" in the switch model No., enter the code selected from the "Lead wire length" table.  
 \*2: The maximum load current value above, 20 mA, is at 25 °C. If the switch operating ambient temperature is higher than 25 °C, it will be lower than 20 mA. (At 60 °C, it will be 5 to 10 mA.)  
 \*3: Only the LHA-006CS is provided with the F switch.  
 \*4: Switches other than the model No.s listed above are also available. (Custom Product) For details, see P. 573.

#### 4 Number of Switches

Code	Content
R	With 1 pc. on Open Side
H	With 1 pc. on Close Side
D	With 2 pcs

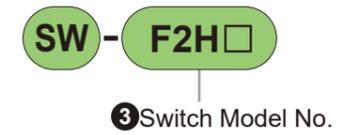
Rechargeable Battery Compatible Specification (Catalog No. CC-1226AA)

● Design compatible with rechargeable battery manufacturing process

LHA- ... - P4□

\*Please contact us for details.

### Switch Single Unit Model No. Notation Method



#### \*Lead wire length

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)

\*5: The 5 m lead wire cannot be selected for the F switch.

Example) Lead wire length  
 1 m F2S  
 3 m F2S<sup>3</sup>  
 5 m F2S<sup>5</sup>

Hand (Gripper)

- LSH-HP
- LSH
- FH100
- BSA2
- BHA
- BHG
- BHE
- LHA
- LHAG
- HAP-1C
- HAP-2 to 4CS
- HKP
- HCP
- HGP
- LST-HP
- HLF2
- HLA/HLB
- HLAG/HLBG
- HLC
- HLD
- HMC-HP
- HMF
- HMF-G
- HMF-B
- HFP
- FH500
- HBL
- HJL
- HMD
- HDL
- HJD
- Cylinder Switch
- Ending

Hand (Gripper)

- LSH-HP
- LSH
- FH100
- BSA2
- BHA
- BHG
- BHE
- LHA
- LHAG
- HAP-1C
- HAP-2 to 4CS
- HKP
- HCP
- HGP
- LST-HP
- HLF2
- HLA/HLB
- HLAG/HLBG
- HLC
- HLD
- HMC-HP
- HMF
- HMF-G
- HMF-B
- HFP
- FH500
- HBL
- HJL
- HMD
- HDL
- HJD
- Cylinder Switch
- Ending

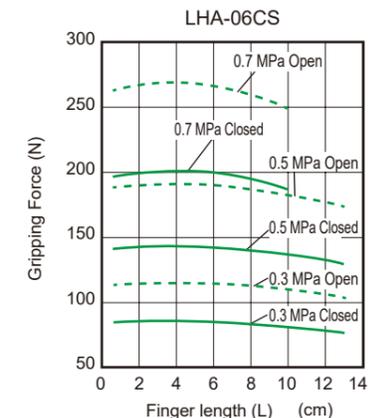
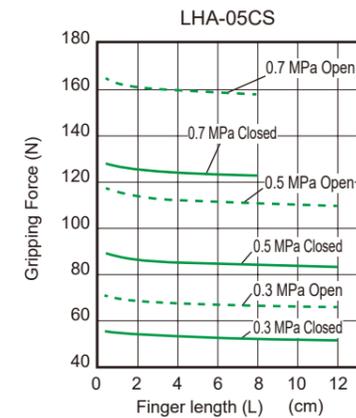
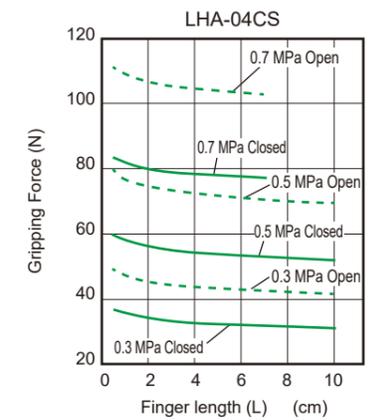
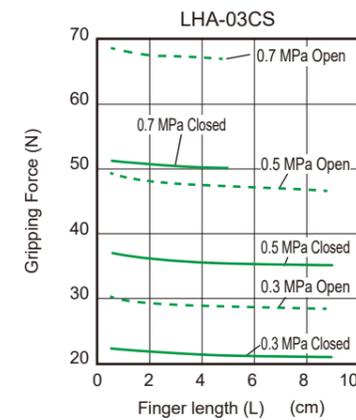
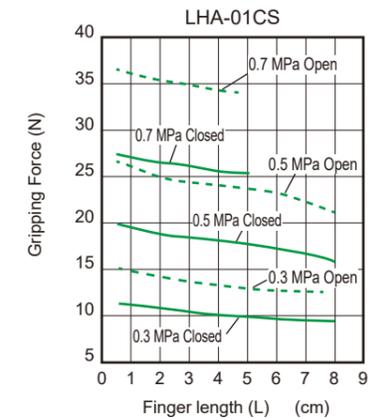
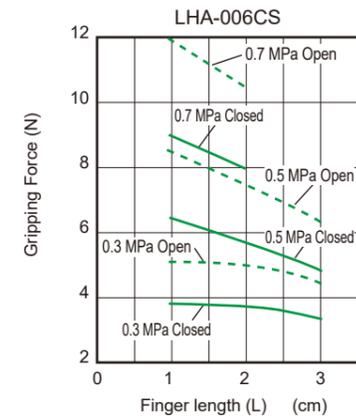
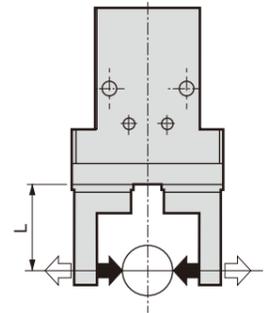
Specifications

Item	LHA-006CS	LHA-01CS	LHA-03CS	LHA-04CS	LHA-05CS	LHA-06CS
Bore size mm	ø6	ø12	ø16	ø20	ø25	ø32
Actuation method	Double Acting Type/Single Acting Type					
Operating Fluid	Compressed Air					
Max. Working Pressure MPa	0.7					
Min. Operating Pressure MPa	Double Acting Type	0.15		0.1		
	Single acting type	0.3				
Ambient Temperature °C	5 to 60					
Port Size	M3			M5		
Operating stroke mm	4	5	9	11	15	20
Rod diameter mm	ø3	ø6	ø8	ø10	ø12	ø16
Internal volume (reciprocating) cm <sup>3</sup>	0.10	0.32	1.58	2.89	6.32	14.07
Repeatability mm	±0.01					
Weight kg	0.04	0.085	0.15	0.36	0.52	0.82
Lubrication	Not required (When lubricating, use turbine oil Class 1 ISO VG32)					

Gripping Force Performance Data

- Gripping force represents the thrust (for one finger) in the direction of the arrow shown in the figure.
- The gripping force in the opening/closing directions with finger length L of hand with a supply pressure of 0.3, 0.5 and 0.7 MPa is shown.
  - Opening direction (←) (Dashed line)
  - Closing direction (→) (Solid line)

Note) O type gripping force is approx. 20 to 30 % lower in the closing direction compared to the double acting type. C type gripping force is approx. 10 to 20 % lower in the opening direction compared to the double acting type. When selecting, check the design and selection precautions on P. 336.



Hand (Gripper)  
LSH-HP  
LSH  
FH100  
BSA2  
BHA  
BHG  
BHE  
LHA  
LHAG  
HAP-1C  
HAP-2 to 4CS  
HKP  
HCP  
HGP  
LST-HP  
HLF2  
HLA/HLB  
HLAG/HLBG  
HLC  
HLD  
HMC-HP  
HMF  
HMF-G  
HMF-B  
HFP  
FH500  
HBL  
HJL  
HMD  
HDL  
HJD  
Cylinder Switch  
Ending

Hand (Gripper)  
LSH-HP  
LSH  
FH100  
BSA2  
BHA  
BHG  
BHE  
LHA  
LHAG  
HAP-1C  
HAP-2 to 4CS  
HKP  
HCP  
HGP  
LST-HP  
HLF2  
HLA/HLB  
HLAG/HLBG  
HLC  
HLD  
HMC-HP  
HMF  
HMF-G  
HMF-B  
HFP  
FH500  
HBL  
HJL  
HMD  
HDL  
HJD  
Cylinder Switch  
Ending

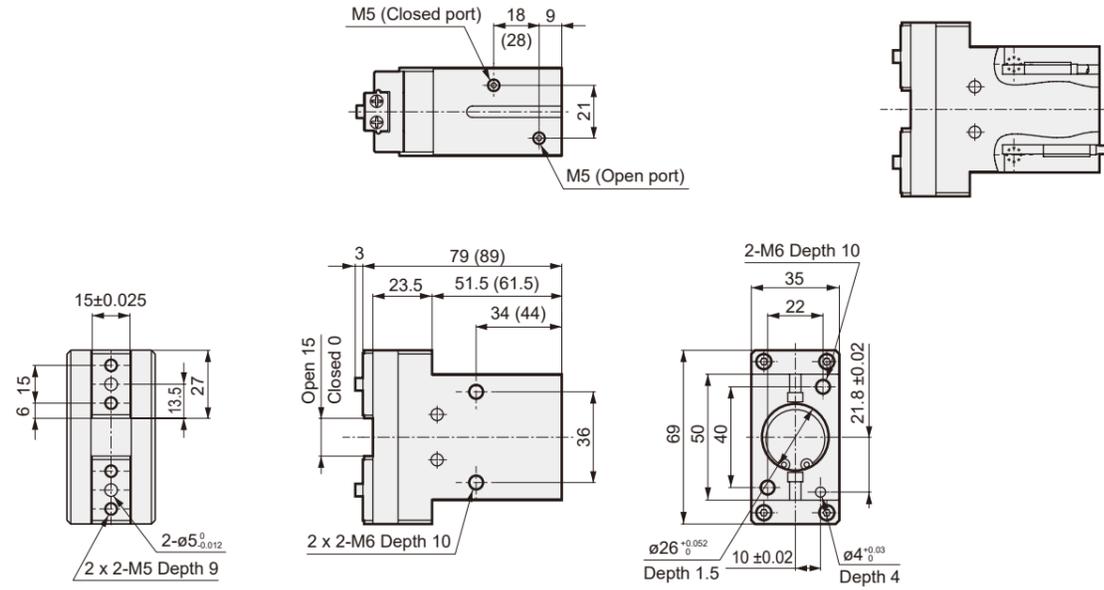


## Outline Dimension Drawing

●LHA-05CS Standard/O/C

●With Switch

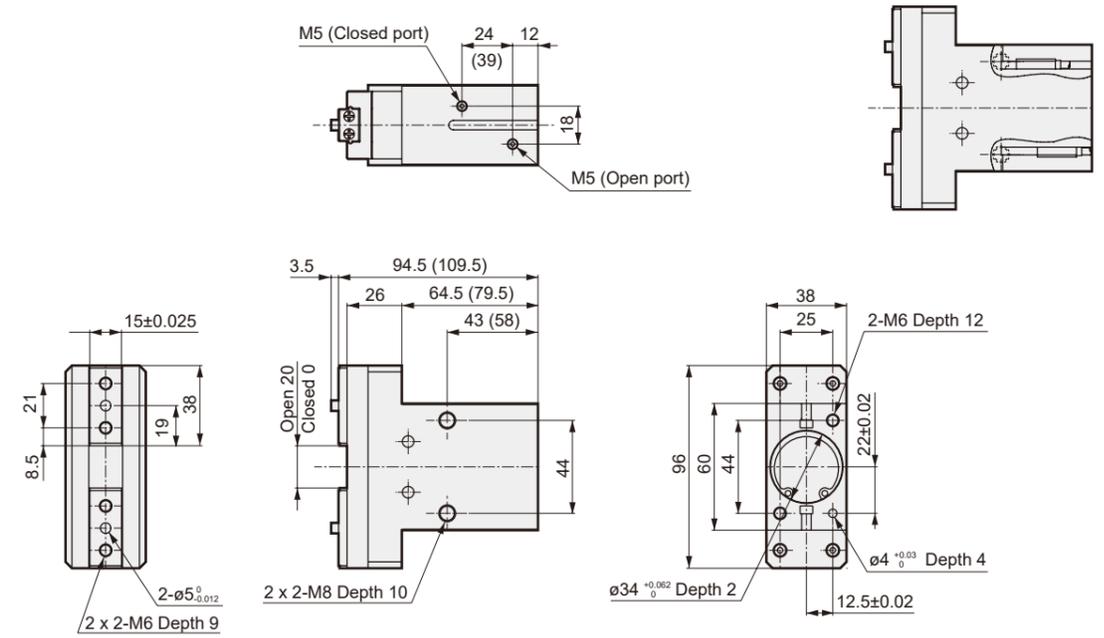
• Dimensions in ( ) are for C (Normally Closed) specification.



●LHA-06CS Standard/O/C

●With Switch

• Dimensions in ( ) are for O (Normally Open) and C (Normally Closed) specifications.



MEMO

Hand (Gripper)

LSH-HP  
LSH  
FH100  
BSA2  
BHA  
BHG  
BHE

LHA

LHAG

HAP-1C

HAP-2  
to 4CS

HKP

HCP

HGP

LST-HP

HLF2

HLA/  
HLB

HLAG/  
HLBG

HLC

HLD

HMC-HP

HMF

HMF-G

HMFB

HFP

FH500

HBL

HJL

HMD

HDL

HJD

Cylinder  
Switch

Ending

Hand (Gripper)

LSH-HP

LSH

FH100

BSA2

BHA

BHG

BHE

LHA

LHAG

HAP-1C

HAP-2  
to 4CS

HKP

HCP

HGP

LST-HP

HLF2

HLA/  
HLB

HLAG/  
HLBG

HLC

HLD

HMC-HP

HMF

HMF-G

HMFB

HFP

FH500

HBL

HJL

HMD

HDL

HJD

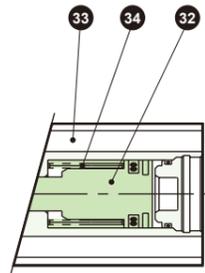
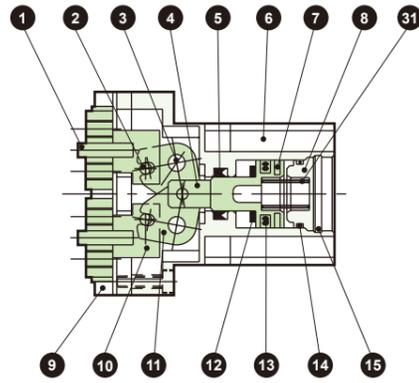
Cylinder  
Switch

Ending

Internal Structure Diagram/Material

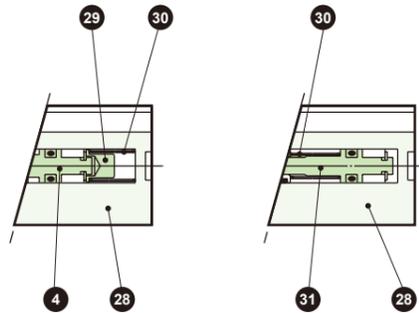
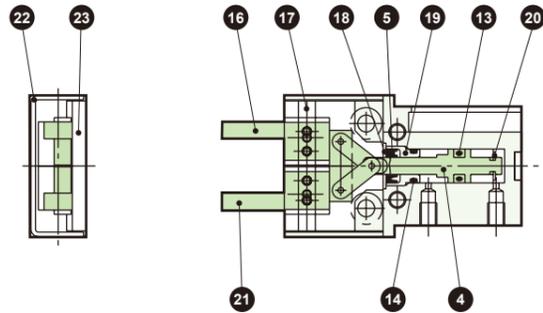
●LHA-01CS to 05CS  
Standard (Double Acting), O (Normally Open) Type

C (Normally Closed) Type



●LHA-006CS  
Standard (Double Acting)

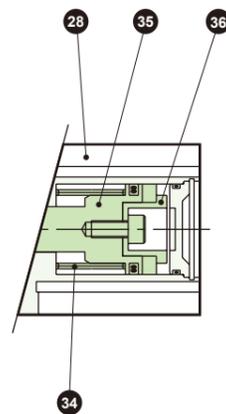
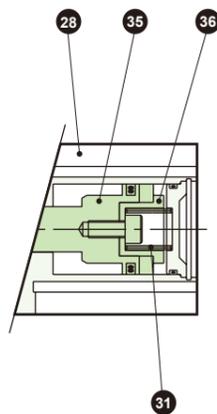
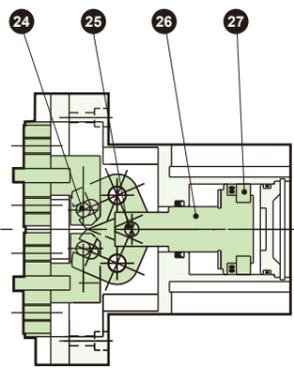
O (Normally Open) Type C (Normally Closed) Type



●LHA-06CS  
Standard (Double Acting)

C (Normally Open) Type

C (Normally Closed) Type



**Do not disassemble**

Material

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Positioning pin	Alloy Steel		19	Piston Guide	Stainless Steel	
2	Operating Shaft	Alloy Steel		20	E-type Retaining Ring	Stainless Steel	
3	Pivot Shaft	Alloy Steel		21	Finger A	Stainless Steel	
4	Piston	Stainless Steel		22	Cover	Stainless Steel	
5	Rod seal	Nitrile Rubber		23	Guide plate	Stainless Steel	
6	Body	Aluminum Alloy		24	Actuating shaft B	Alloy Steel	
7	Half-moon magnet			25	Actuating shaft A	Steel	
8	Cover	Polyacetal		26	Piston	Stainless Steel	
9	Linear Guide			27	Magnet		
10	Master plate	Stainless Steel		28	NO, NC main body	Aluminum Alloy	
11	Arm	Stainless Steel		29	Spring Guide	Stainless Steel	
12	Cushion	Urethane Rubber		30	NO, NC spring	Stainless Steel	
13	Piston seal	Nitrile Rubber		31	NO spring	Stainless Steel	
14	Seal	Nitrile Rubber		32	NC piston	Stainless Steel	
15	C-type retaining ring	Stainless Steel		33	NC main body	Aluminum Alloy	
16	Finger B	Stainless Steel		34	NC spring	Stainless Steel	
17	Linear Guide			35	NO, NC piston A	Stainless Steel	
18	Piston guide retainer	Stainless Steel		36	Piston B	Polyacetal	

Hand (Gripper)

LSH-HP  
LSH  
FH100  
BSA2  
BHA  
BHG  
BHE  
LHA  
LHAG  
HAP-1C  
HAP-2 to 4CS  
HKP  
HCP  
HGP  
LST-HP  
HLF2  
HLA/HLB  
HLAG/HLBG  
HLC  
HLD  
HMC-HP  
HMF  
HMF-G  
HMF-B  
HFP  
FH500  
HBL  
HJL  
HMD  
HDL  
HJD  
Cylinder Switch  
Ending

Hand (Gripper)

LSH-HP  
LSH  
FH100  
BSA2  
BHA  
BHG  
BHE  
LHA  
LHAG  
HAP-1C  
HAP-2 to 4CS  
HKP  
HCP  
HGP  
LST-HP  
HLF2  
HLA/HLB  
HLAG/HLBG  
HLC  
HLD  
HMC-HP  
HMF  
HMF-G  
HMF-B  
HFP  
FH500  
HBL  
HJL  
HMD  
HDL  
HJD  
Cylinder Switch  
Ending



Linear Guide Gripper with Rubber Cover Double Acting Type/Single Acting Type

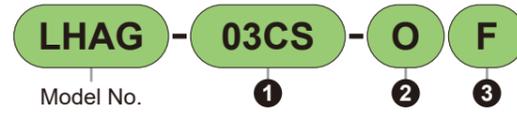
# LHAG Series

● Operating stroke: 5, 9, 11, 15, 20 mm

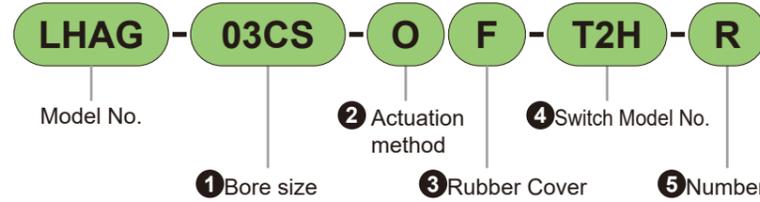


## Model No. Notation Method

Without Switch  
(Built-in magnet for switch)



With Switch  
(Built-in magnet for switch)



### ① Bore Size (mm)

Code	Content
01CS	ø12
03CS	ø16
04CS	ø20
05CS	ø25
06CS	ø32

### ② Actuation method

Code	Content
Blank	Standard (Double Acting Type)
O	Single Acting (Normally Open)
C	Single Acting (Normally Closed)

### ③ Rubber Cover

Code	Content
Blank	Nitrile rubber cover
F	Fluororubber cover
T	Silicone rubber cover

### ④ Switch Model No.

For switch details, please refer to P. 573.  
Switches are included with the product and shipped.

Contact	Indicator LED Special Function	Wiring (Output)	Load Voltage (V)		Load Current (mA)		Lead wire *1		
			AC	DC	AC	DC	Straight	L-shape	
Solid State	1-Color	2-wire	-	10 to 30	-	5 to 20 *2	T2H□	T2V□	
							T2HR3	T2VR3	
	1-Color	Flexible Lead Wire	2-wire	-	10 to 30	-	5 to 20 *2	T3H□	T3V□
								T3PH□	T3PV□
1-Color	-	3-wire (NPN)	-	30 or less	-	100 or less			
		3-wire (PNP)							

### \*Lead wire length

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)

Example) Lead wire length  
1 m T2H  
3 m T2H|3  
5 m T2H|5

\*1: For "□" in the switch model No., enter the code selected from the "\*Lead wire length" table.

\*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)

\*3: Switches other than the model No.s listed above are also available. (Custom Product) For details, see P. 573.

### ⑤ Number of Switches

Code	Content
R	With 1 pc. on Open Side
H	With 1 pc. on Close Side
D	With 2 pcs

Rechargeable Battery Compatible Specification (Catalog No. CC-1226AA)

● Design compatible with rechargeable battery manufacturing process

LHAG- .... - P4□

\*Please contact us for details.

## Switch Single Unit Model No. Notation Method



④ Switch Model No.

## Specifications

Item	LHAG-01CS	LHAG-03CS	LHAG-04CS	LHAG-05CS	LHAG-06CS
Bore size mm	ø12	ø16	ø20	ø25	ø32
Actuation method	Double Acting Type/Single Acting Type				
Operating Fluid	Compressed Air				
Max. Working Pressure MPa	0.7				
Min. Operating Pressure MPa	Double Acting Type	0.2			
	Single acting type	0.3			
Ambient Temperature °C	5 to 60				
Port Size	M3		M5		
Operating stroke mm	5	9	11	15	20
Rod diameter mm	ø6	ø8	ø10	ø12	ø16
Internal volume (reciprocating) cm <sup>3</sup>	0.32	1.58	2.89	6.32	14.07
Repeatability mm	±0.01				
Weight kg	0.09	0.17	0.37	0.57	0.9
Lubrication	Not required (When lubricating, use turbine oil Class 1 ISO VG32)				

Hand (Gripper)

LSH-HP

LSH

FH100

BSA2

BHA

BHG

BHE

LHA

LHAG

HAP-1C

HAP-2 to 4CS

HKP

HCP

HGP

LST-HP

HLF2

HLA/HLB

HLAG/HLBG

HLC

HLD

HMC-HP

HMF

HMF-G

HMF-B

HFP

FH500

HBL

HJL

HMD

HDL

HJD

Cylinder Switch

Ending

Hand (Gripper)

LSH-HP

LSH

FH100

BSA2

BHA

BHG

BHE

LHA

LHAG

HAP-1C

HAP-2 to 4CS

HKP

HCP

HGP

LST-HP

HLF2

HLA/HLB

HLAG/HLBG

HLC

HLD

HMC-HP

HMF

HMF-G

HMF-B

HFP

FH500

HBL

HJL

HMD

HDL

HJD

Cylinder Switch

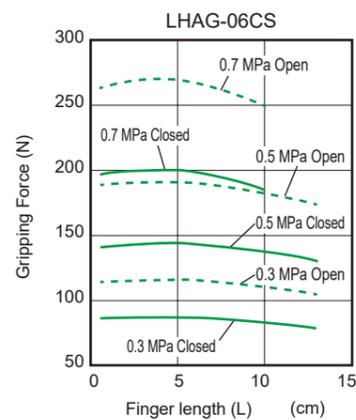
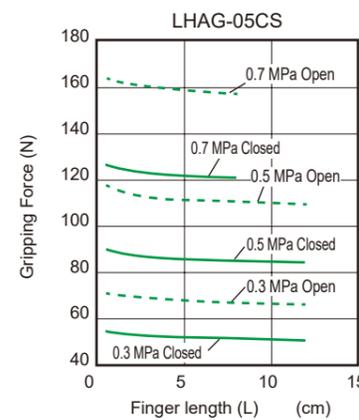
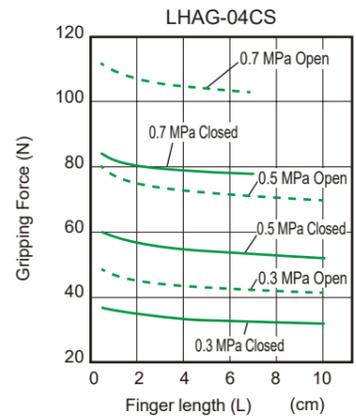
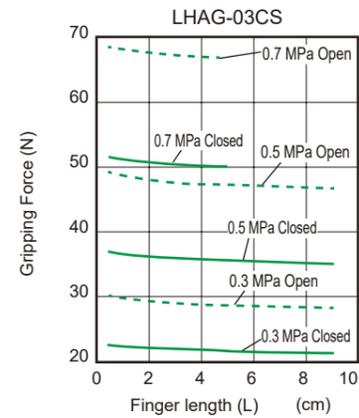
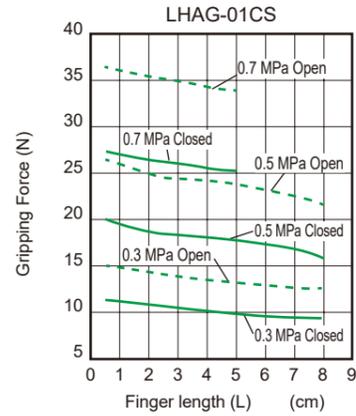
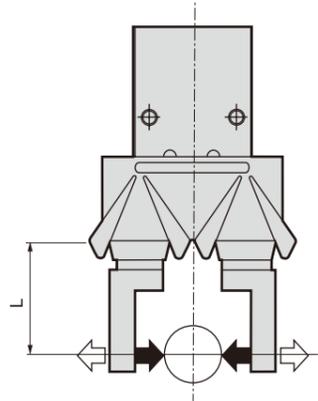
Ending

## Gripping Force Performance Data

- Gripping force represents the thrust (for one finger) in the direction of the arrow shown in the figure.
- This represents the gripping force acting in the opening and closing directions at a gripper's finger length L when the supply pressure is 0.3, 0.5, and 0.7 MPa.

- Open direction (←→) - - - (broken line)
- Closing direction (→) — (solid line)

Note) O type gripping force is approx. 20 to 30% lower in the closing direction compared to the double acting type.  
 C type gripping force is approx. 10 to 20% lower in the opening direction compared to the double acting type.  
 When selecting, check the design and selection precautions on P. 336.



Hand (Gripper)  
 LSH-HP  
 LSH  
 FH100  
 BSA2  
 BHA  
 BHG  
 BHE  
 LHA  
**LHAG**  
 HAP-1C  
 HAP-2 to 4CS  
 HKP  
 HCP  
 HGP  
 LST-HP  
 HLF2  
 HLA/HLB  
 HLAG/HLBG  
 HLC  
 HLD  
 HMC-HP  
 HMF  
 HMF-G  
 HMF-B  
 HFP  
 FH500  
 HBL  
 HJL  
 HMD  
 HDL  
 HJD  
 Cylinder Switch  
 Ending

Hand (Gripper)  
 LSH-HP  
 LSH  
 FH100  
 BSA2  
 BHA  
 BHG  
 BHE  
 LHA  
**LHAG**  
 HAP-1C  
 HAP-2 to 4CS  
 HKP  
 HCP  
 HGP  
 LST-HP  
 HLF2  
 HLA/HLB  
 HLAG/HLBG  
 HLC  
 HLD  
 HMC-HP  
 HMF  
 HMF-G  
 HMF-B  
 HFP  
 FH500  
 HBL  
 HJL  
 HMD  
 HDL  
 HJD  
 Cylinder Switch  
 Ending

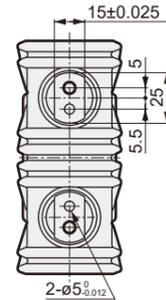
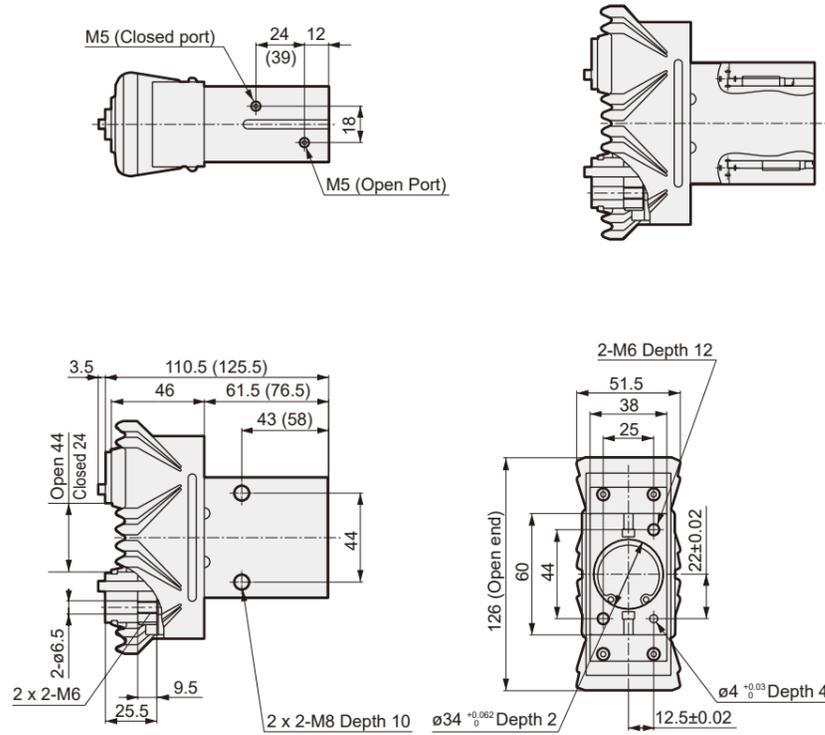


Outline Dimension Drawing

●LHAG-06CS Standard/O/C

●With Switch

• Dimensions in ( ) are for O (Normally Open) and C (Normally Closed) specifications.

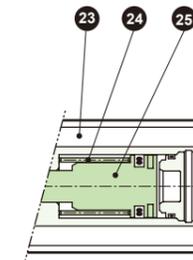
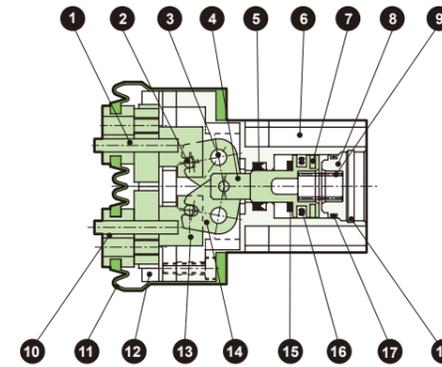


Internal Structure Diagram/Material

●LHAG-01CS to 05CS

Standard (Double Acting), O (Normally Open) Type

C (Normally Closed) Type

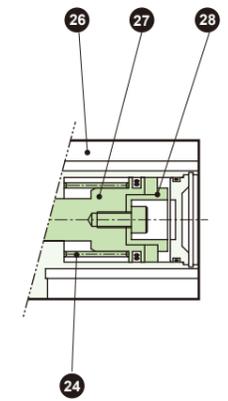
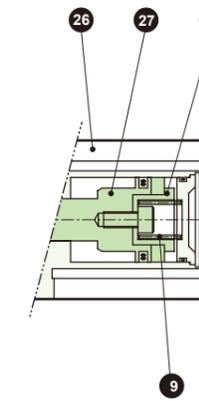
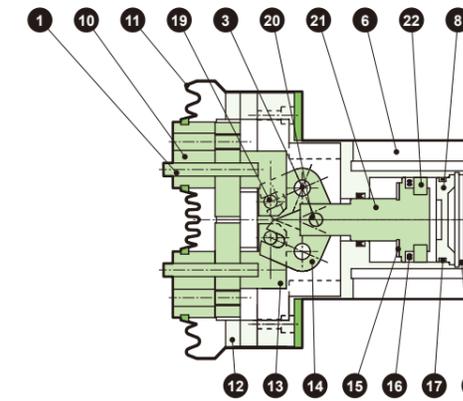


●LHAG-06CS

Standard (Double Acting)

O (Normally Open) Type

C (Normally Closed) Type



**Do not disassemble**

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Positioning pin	Alloy Steel		15	Cushion	Urethane Rubber	
2	Operating Shaft	Alloy Steel		16	Piston seal	Nitrile Rubber	
3	Pivot Shaft	Alloy Steel		17	Seal	Nitrile Rubber	
4	Piston	Stainless Steel		18	C-type retaining ring	Stainless Steel	
5	Rod seal	Nitrile Rubber		19	Actuating shaft B	Alloy Steel	
6	Body	Aluminum Alloy		20	Actuating shaft A	Steel	
7	Half-moon magnet			21	Piston	Stainless steel, Aluminum alloy	
8	Cover	Polyacetal		22	Magnet		
9	NO coil spring	Stainless Steel	O type only	23	NC main body	Aluminum Alloy	C type only
10	Master finger for rubber cover	Stainless Steel		24	NC coil spring	Stainless Steel	C type only
11	Rubber Cover	Nitrile Rubber		25	NC piston	Stainless Steel	C type only
12	Linear Guide			26	NO, NC body	Aluminum Alloy	O, C type only
13	Master plate	Stainless Steel		27	NO, NC piston A	Stainless Steel	O, C type only
14	Arm	Stainless Steel		28	Piston B	Polyacetal	O, C type only

Hand (Gripper)

- LSH-HP
- LSH
- FH100
- BSA2
- BHA
- BHG
- BHE
- LHA
- LHAG**
- HAP-1C
- HAP-2 to 4CS
- HKP
- HCP
- HGP
- LST-HP
- HLF2
- HLA/HLB
- HLAG/HLBG
- HLC
- HLD
- HMC-HP
- HMF
- HMF-G
- HMFB
- HFP
- FH500
- HBL
- HJL
- HMD
- HDL
- HJD
- Cylinder Switch
- Ending

Hand (Gripper)

- LSH-HP
- LSH
- FH100
- BSA2
- BHA
- BHG
- BHE
- LHA
- LHAG**
- HAP-1C
- HAP-2 to 4CS
- HKP
- HCP
- HGP
- LST-HP
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- HLC
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- HMC-HP
- HMF
- HMF-G
- HMFB
- HFP
- FH500
- HBL
- HJL
- HMD
- HDL
- HJD
- Cylinder Switch
- Ending