



Linear guide hand Double acting/single acting

LHA Series

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

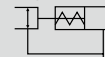
Double acting



Single acting (normally open)



Single acting (normally closed)



Specifications

Descriptions		LHA					
Size		006CS	01CS	03CS	04CS	05CS	06CS
Bore size	mm	φ6	φ12	φ16	φ20	φ25	φ32
Actuation		Double acting/single acting					
Working fluid		Compressed air					
Max. working pressure	MPa	0.7 (≈100 psi, 7 bar)					
Min. working pressure	Double acting	0.15 (≈22 psi, 1.5 bar)		0.1 (≈15 psi, 1 bar)			
	Single acting	0.3 (≈44 psi, 3 bar)					
Ambient temperature	°C	5 (41°F) to 60 (140°F)					
Port size		M3			M5		
Operating stroke length	mm	4	5	9	11	15	20
Rod diameter	mm	φ3	φ6	φ8	φ10	φ12	φ16
Volumetric capacity (reciprocating)	cm ³	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 (use turbine oil class 1 ISO VG32 if necessary for lubrication)					

Switch specifications

Descriptions	Proximity 2-wire	Proximity 3-wire	Proximity 2-wire	Proximity 3-wire	
	T2H, T2V	T3H, T3V	F2H, F2V	F3H, F3V	F3PH, F3PV
Applications	Dedicated for programmable controller	For programmable controller, relay	Dedicated for programmable controller	For programmable controller, relay	
Output method	-	NPN output	-	NPN output	PNP output
Power supply voltage	-	10 to 28 VDC	-	10 to 28 VDC	
Load voltage/current	10 to 30 VDC, 5 to 20 mA (*1)	30 VDC or less, 100 mA or less	10 to 30 VDC, 5 to 20 mA	30 VDC, 50 mA or less	
Indicator lamp	LED (Lit when ON)			Yellow LED (Lit when ON)	
Leakage current	1 mA or less	10 μA or less	1 mA or less	10 μA or less	
Weight	1 m:18 g 3 m:49 g 5 m:80 g			1 m:10 g 3 m:29 g	

*1 : The above max. load current is 20 mA at 25°C.

The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

*2 : Refer to Ending Page 1 for other switch specifications.

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH
FH100
HAP
BSA2
BHA/BHG
LHA
LHAG
HKP
HLA/HLB
HLAG/HLBG
HLD
HCP
HMF
HMFb
HFP
HLC
HGP
FH500
HBL
HDL
HMD
HJD
HJL
BHE

How to order

Without switch (built-in magnet for switch)

LHA - **03CS** - **○**

With switch (built-in magnet for switch)

LHA - **03CS** - **○** - **T2H** - **R**

A Size

B Option

C Switch model No.

* indicates the lead wire length. *1

*2

D Switch quantity

Code	Content					
A Size						
006CS						
01CS						
03CS						
04CS						
05CS						
06CS						
B Option						
Blank	Standard (double acting)					
O	Single acting (normally open)					
C	Single acting (normally closed)					
C Switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage		Display	Lead wire
			AC	DC		
F2H*	F2V*	Proximity		●	1-color display	2-wire
F3H*	F3V*			●		3-wire
F3PH*	F3PV*			●		3-wire
T2H*	T2V*			●		2-wire
T3H*	T3V*			●		3-wire
* Lead wire length						
Blank	1 m (standard)					
3	3 m (option)					
5	5 m (option)					
D Switch quantity						
R	1 on open side					
H	1 on closed side					
D	2					

⚠ Precautions for model No. selection

*1 : Only the LHA-006CS is provided with the F switch.

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

[Example of model No.]

LHA-03CS-O-T2H-R

Model: Linear guide hand

A Size : 03CS

B Option : Single acting, normally open

C Switch model No.: Proximity T2H switch, lead wire 1 m

D Switch quantity : 1 on open side

How to order switch

SW - **F2H***

Switch model No.
(Item **○** above)

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH
FH100
HAP
BSA2
BHA/BHG
LHA
LHAG
HKP
HLA/HLB
HLAG/HLBG
HLD
HCP
HMF
HMFB
HFP
HLC
HGP
FH500
HLB
HDL
HMD
HJD
HJL
BHE

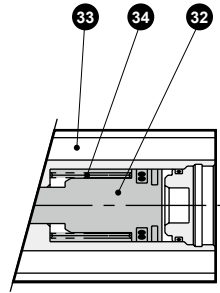
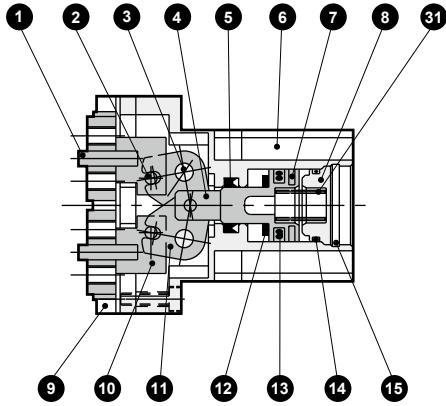
LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/USC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH
FH100
HAP
BSA2
BHA/BHG
LHA
LHAG
HKP
HLA/HLB
HLAG/HLBG
HLD
HCP
HMF
HMFB
HFP
HLC
HGP
FH500
HBL
HDL
HMD
HJD
HJL
BHE

Internal structure

● LHA-01CS to 05CS

Standard (double acting)/O (normally open)

C (normally closed)

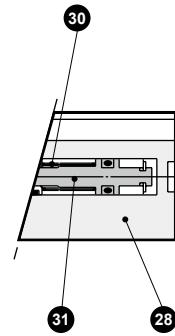
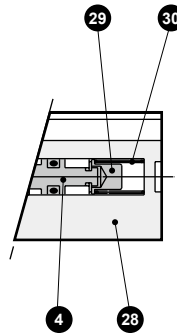
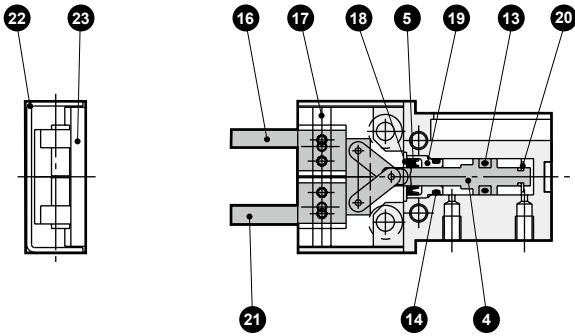


● LHA-006CS

Standard (double acting)

O (normally open)

C (normally closed)

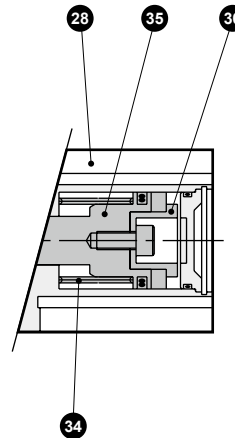
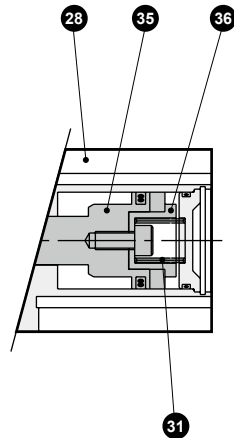
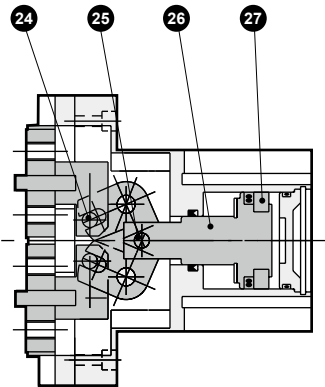


● LHA-06CS

Standard (double acting)

C (normally open)

C (normally closed)



Cannot be disassembled

Parts list

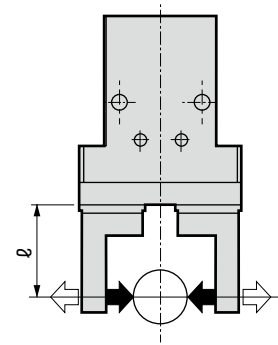
No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Positioning pin	Alloy steel		19	Piston guide	Stainless steel	
2	Operation shaft	Alloy steel		20	E type snap ring	Stainless steel	
3	Fulcrum axis	Alloy steel		21	Master key A	Stainless steel	
4	Piston	Stainless steel		22	Cover	Stainless steel	
5	Rod sealant	Nitrile rubber		23	Guide plate	Stainless steel	
6	Body	Aluminum alloy		24	Operation shaft B	Alloy steel	
7	Semicircle magnet			25	Operation shaft A	Steel	
8	Cylinder guard	Acetal resin		26	Piston	Stainless steel	
9	Linear guide			27	Magnet		
10	Master plate	Stainless steel		28	NO, NC Body	Aluminum alloy	
11	Arm	Stainless steel	06CS : Steel	29	Spring guide	Stainless steel	
12	Cushion	Urethane seat		30	NO, NC Spring	Stainless steel	
13	Piston seal	Nitrile rubber		31	NO Spring	Stainless steel	
14	Cylinder sealant	Nitrile rubber		32	NC Piston	Stainless steel	
15	C type snap ring	Stainless steel		33	NC Body	Aluminum alloy	
16	Master key B	Stainless steel		34	NC Spring	Stainless steel	
17	Linear guide			35	NO, NC Piston A	Stainless steel	
18	Piston guide holder	Stainless steel		36	Piston B	Acetal resin	

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
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LSH
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LHA
LHAG
HKP
HLA/HLB
HLAG/HLBG
HLD
HCP
HMF
HMFB
HFP
HLC
HGP
FH500
HBL
HDL
HMD
HJD
HJL
BHE

Gripping power performance data

The gripping power in the opening/closing directions with jaw length L of hand with a supply pressure of 0.3, 0.5 and 0.7 MPa is shown.

- Open direction (←) ----- (shown with broken line)
- Closed direction (→) ————— (shown with continuous line)

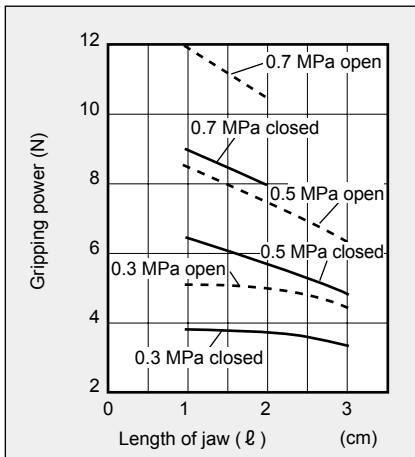


(Note) O type gripping power decreases approximately 20 to 30% in the closed direction compared to double acting.

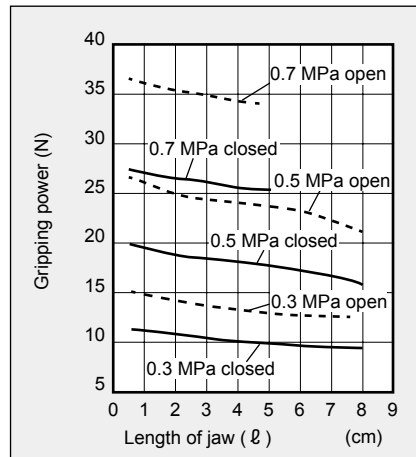
C type gripping power decreases approximately 10 to 20% in the open direction compared to the double acting.

When making a selection, read the precautions for design and selection on page 1636.

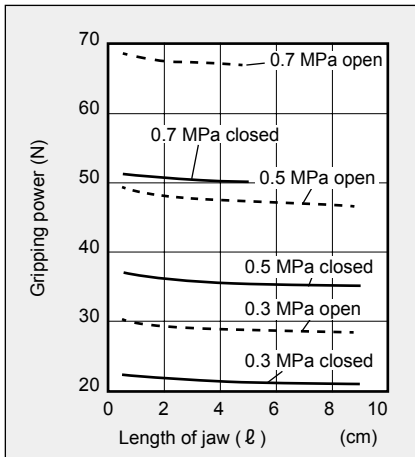
● LHA-006CS



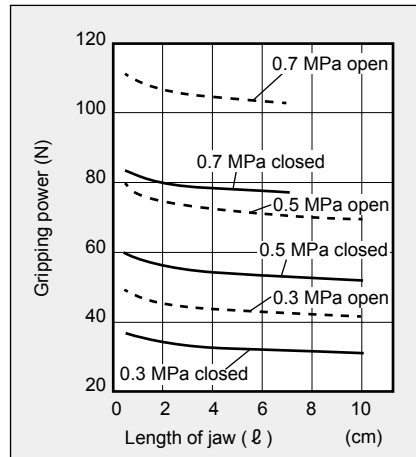
● LHA-01CS



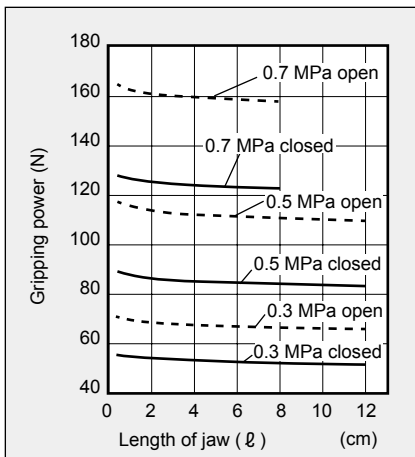
● LHA-03CS



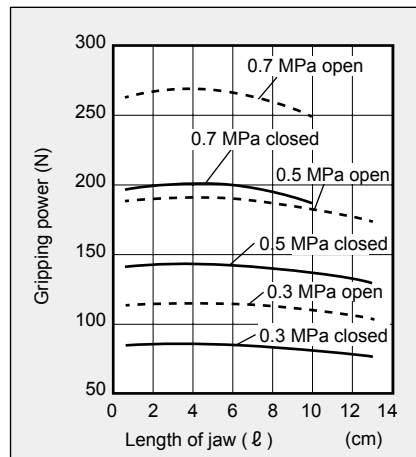
● LHA-04CS



● LHA-05CS



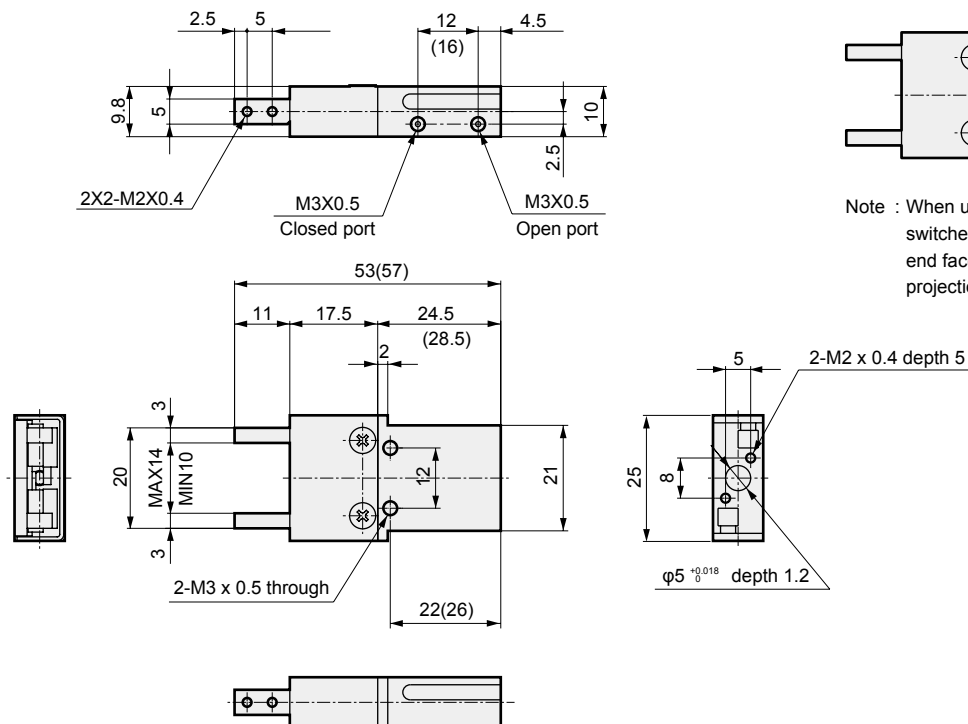
● LHA-06CS



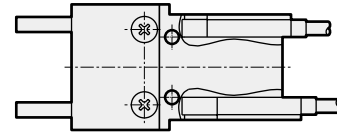
Dimensions

● LHA-006CS standard/O/C

· Dimensions in () are for O (normally open) and C (normally closed) specifications.



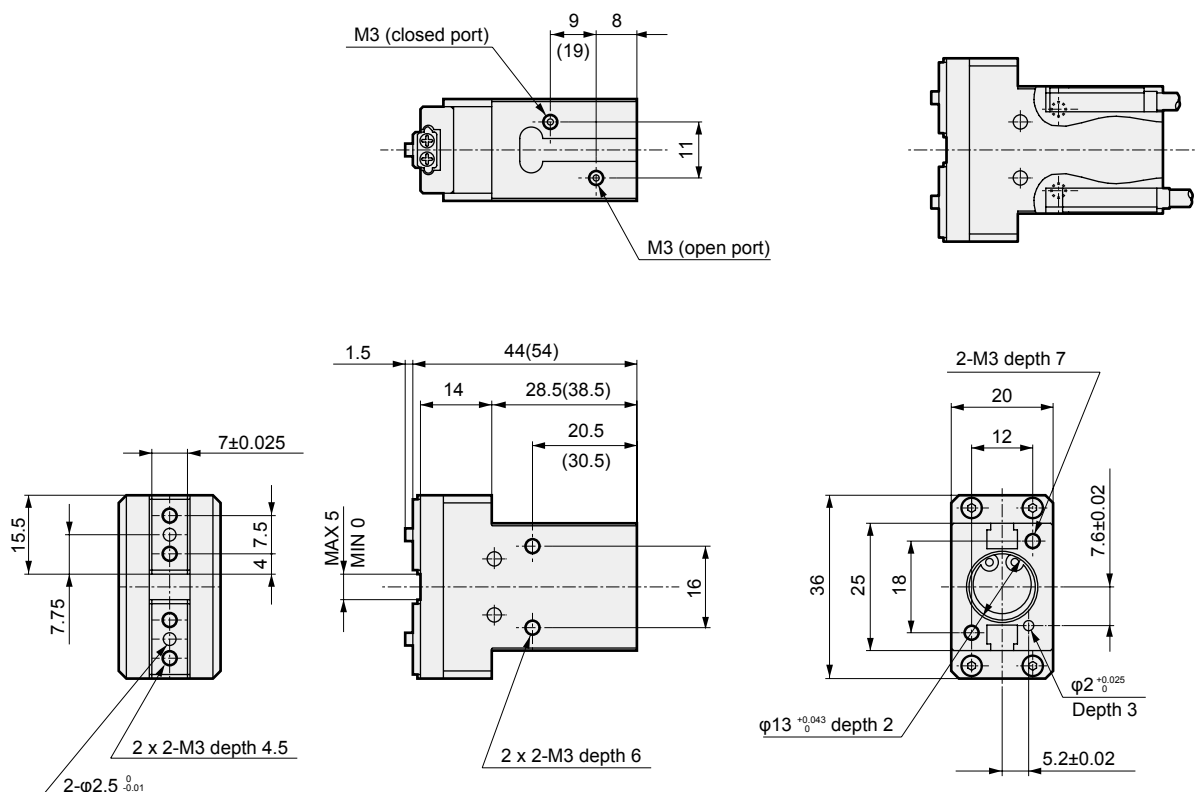
● With switch



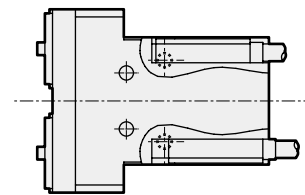
Note : When using F□H or F□V, the switches of both protrude from the end face of the body head side. If this projection is a problem, use F□S.

● LHA-01CS standard/O/C

· Dimensions in () are for C (normally closed) specifications.



● With switch



LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH
FH100
HAP
BSA2
BHA/BHG
LHA
LHAG
HKP
HLA/HLB
HLAG/HLBG
HLD
HCP
HMF
HMFB
HFP
HLC
HGP
FH500
HL
HDL
HMD
HJD
HJL
BHE

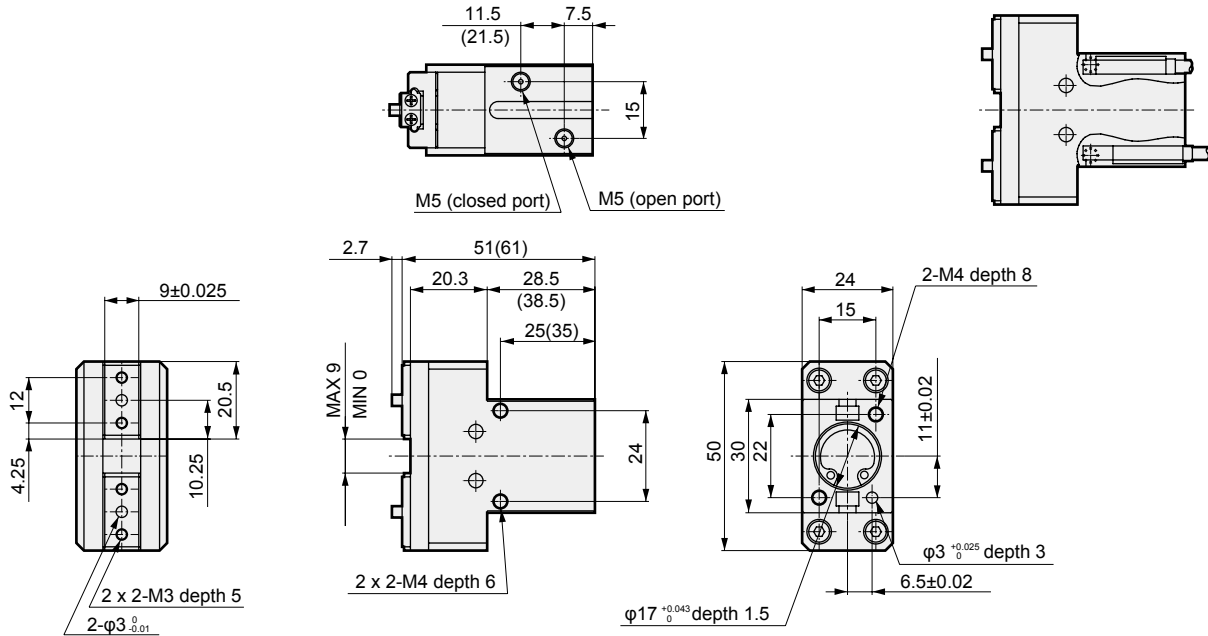
Dimensions



● LHA-03CS standard/O/C

· Dimensions in () are for C (normally closed) specifications.

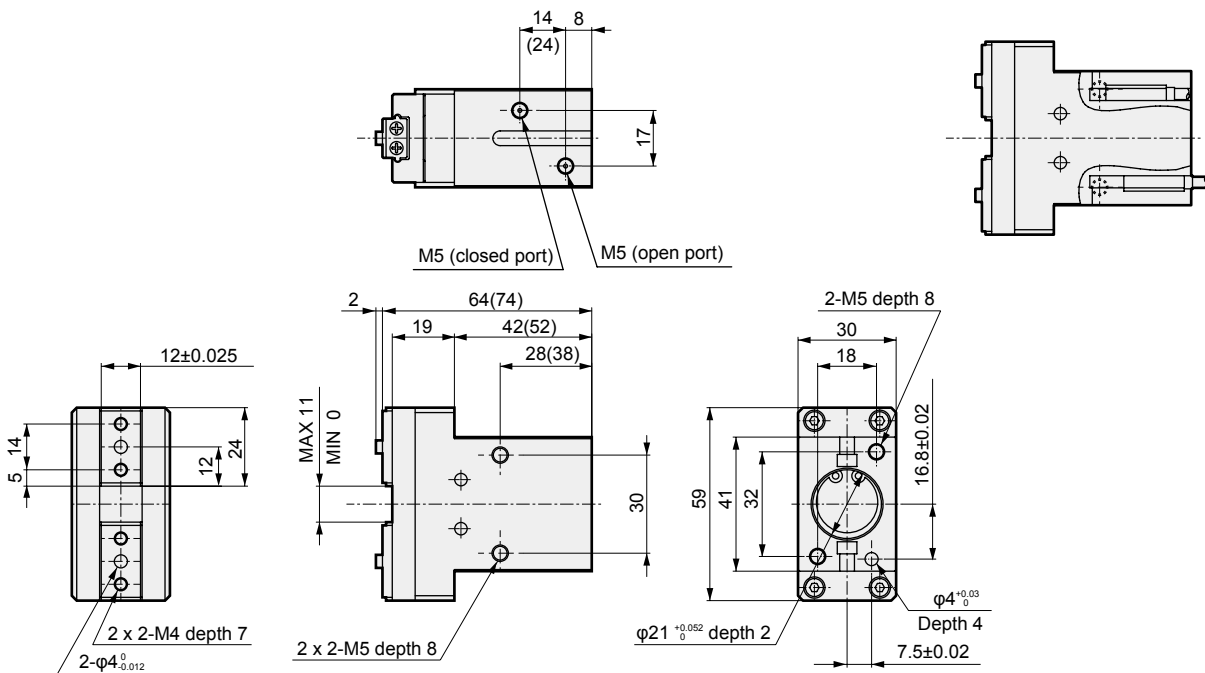
● With switch



● LHA-04CS standard/O/C

· Dimensions in () are for C (normally closed) specifications.

● With switch



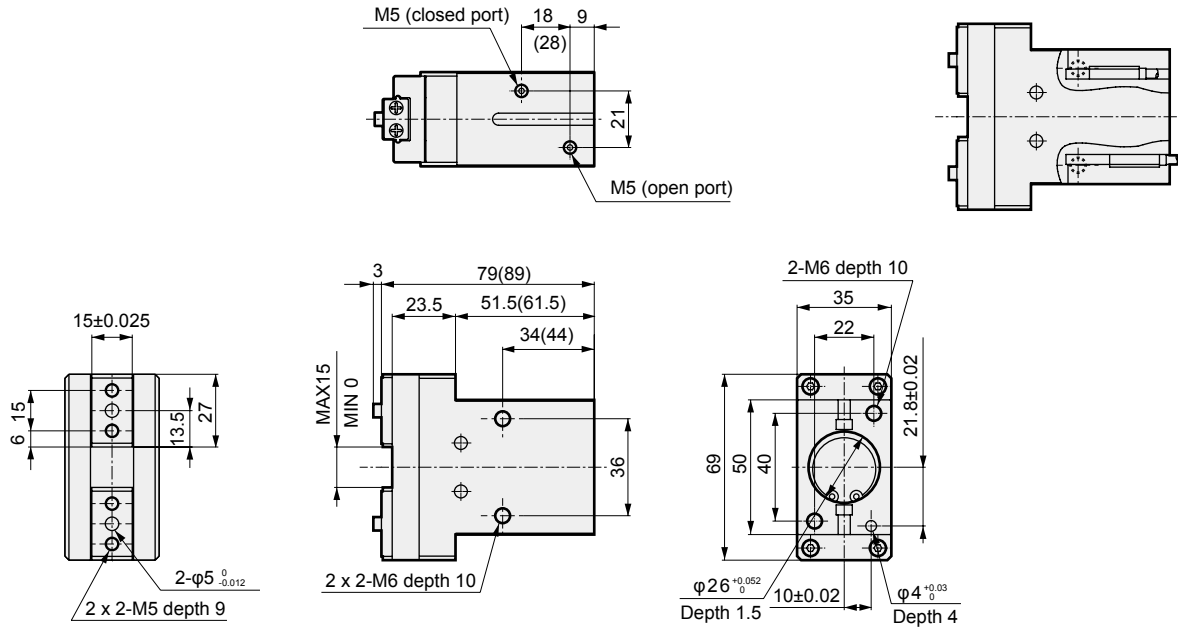
LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH
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BHA/BHG
LHA
LHAG
HKP
HLA/HLB
HLAG/HLBG
HLD
HCP
HMF
HMFB
HFP
HLC
HGP
FH500
HBL
HDL
HMD
HJD
HJL
BHE

Dimensions

● LHA-05CS standard/O/C

· Dimensions in () are for C (normally closed) specifications.

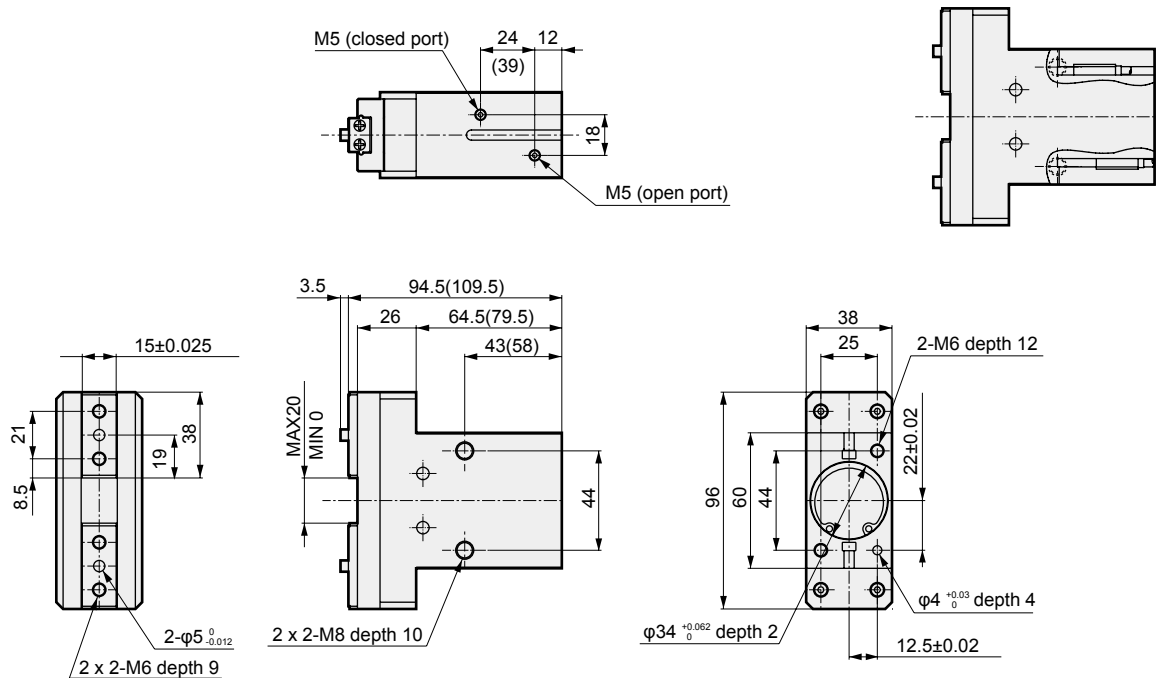
● With switch



● LHA-06CS standard/O/C

· Dimensions in () are for O (normally open) and C (normally closed) specifications.

● With switch



LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH
FH100
HAP
BSA2
BHA/BHG
LHA
LHAG
HKP
HLA/HLB
HLAG/HLBG
HLD
HCP
HMF
HMFB
HFP
HLC
HGP
FH500
HL
HDL
HMD
HJD
HJL
BHE



Linear guide hand with rubber cover Double acting/single acting

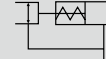
LHAG Series

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

Double acting

Single acting (normally open)

Single acting (normally closed)



Specifications

Descriptions	LHAG				
Size	01CS	03CS	04CS	05CS	06CS
Bore size mm	φ12	φ16	φ20	φ25	φ32
Actuation	Double acting/single acting				
Working fluid	Compressed air				
Max. working pressure MPa	0.7 (≈100 psi, 7 bar)				
Min. working pressure MPa	0.2 (≈29 psi, 2 bar)				
MPa	0.3 (≈44 psi, 3 bar)				
Ambient temperature °C	5 (41°F) to 60 (140°F)				
Port size	M3		M5		
Operating stroke length mm	5	9	11	15	20
Rod diameter mm	φ6	φ8	φ10	φ12	φ16
Volumetric capacity (reciprocating) cm ³	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 (use turbine oil class 1 ISO VG32 if necessary for lubrication)				

Switch specifications

Descriptions	Proximity 2-wire	Proximity 3-wire
	T2H/V	T3H/V
Applications	Dedicated for programmable controller	For programmable controller, relay
Output method	-	NPN output
Power supply voltage	-	10 to 28 VDC
Load voltage/current	10 to 30 VDC, 5 to 20 mA (*1)	30 VDC or less, 100 mA or less
Indicator lamp	LED (Lit when ON)	
Leakage current	1 mA or less	10 μA or less
Weight	1 m:18 g 3 m:49 g 5 m:80 g	

*1 : The above max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

*2 : Refer to Ending Page 1 for other switch specifications.

- LCW
- LCR
- LCG
- LCX
- LCM
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCC2
- RCS
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HR
- LN
- Hand
- Chuk
- MecHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending
- LSH
- FH100
- HAP
- BSA2
- BHA/BHG
- LHA
- LHAG**
- HKP
- HLA/HLB
- HLAG/HLBG
- HLD
- HCP
- HMF
- HMFB
- HFP
- HLC
- HGP
- FH500
- HBL
- HDL
- HMD
- HJD
- HJL
- BHE

How to order

Without switch (built-in magnet for switch)

LHAG - **03CS** - **○**

With switch (built-in magnet for switch)

LHAG - **03CS** - **○** - **T2H** - **R**

Model No.

A Size

B Option

C Switch model No.
* indicates the lead wire length.

D Switch quantity

Code	Content				
A Size					
01CS					
03CS					
04CS					
05CS					
06CS					
B Option					
Blank	Standard (double acting with nitrile rubber guard)				
O	Single acting (normally open)				
C	Single acting (normally closed)				
F	Fluoro rubber guard				
T	Silicone rubber guard				
C Switch model No.					
Axial lead wire	Radial lead wire	Contact	Voltage	Display	Lead wire
			AC	DC	
T2H*	T2V*	Proximity		●	1-color
T3H*	T3V*		●	display	3-wire
* Lead wire length					
Blank	1 m (standard)				
3	3 m (option)				
5	5 m (option)				
D Switch quantity					
R	1 on open side				
H	1 on closed side				
D	2				

[Example of model No.]

LHAG-03CS-O-T2H-R

Model : Linear guide hand with rubber cover

- A** Size : 03CS
- B** Option : Single acting, normally open type
- C** Switch model No.: Proximity T2H switch, lead wire 1 m
- D** Switch quantity : 1 on open side

How to order switch

SW - **T2H***

Switch model No.
(Item **C** above)

Specifications for rechargeable battery (Catalog No. CC-1226A)

LHAG - ... - **P4*** ● Design compatible with rechargeable battery manufacturing process.

* Contact CKD for details.

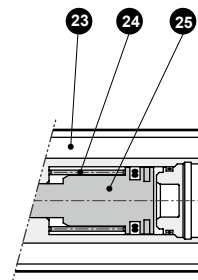
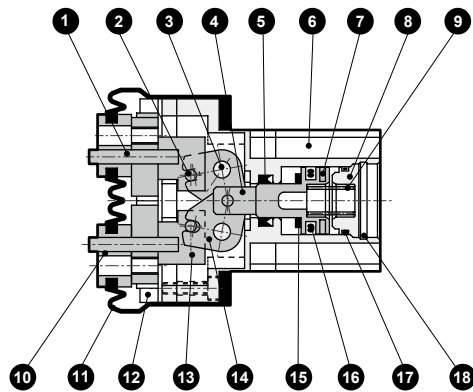
LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH
FH100
HAP
BSA2
BHA/BHG
LHA
LHAG
HKP
HLA/HLB
HLAG/HLBG
HLD
HCP
HMF
HMFB
HFP
HLC
HGP
FH500
HBL
HDL
HMD
HJD
HJL
BHE

Internal structure and parts list

● LHAG-01CS to 05CS

Standard (double acting)/O (normally open)

C (normally closed)

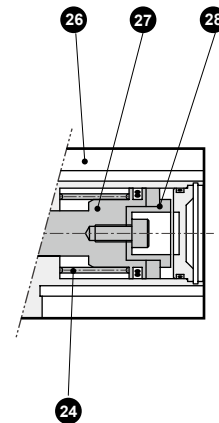
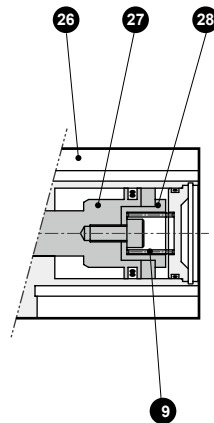
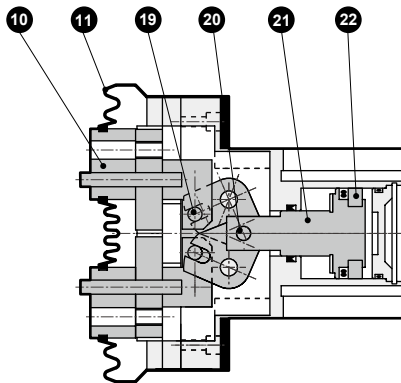


● LHAG-06CS

Standard (double acting)

O (normally open)

C (normally closed)



Cannot be disassembled

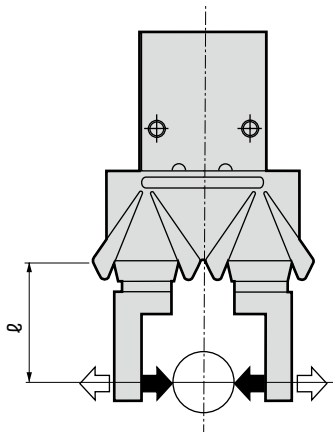
No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Positioning pin	Alloy steel		15	Cushion	Urethane seat	
2	Operation shaft	Alloy steel		16	Piston seal	Nitrile rubber	
3	Fulcrum axis	Alloy steel		17	Cylinder sealant	Nitrile rubber	
4	Piston	Stainless steel		18	C type snap ring	Stainless steel	
5	Rod sealant	Nitrile rubber		19	Operation shaft B	Alloy steel	
6	Body	Aluminum alloy		20	Operation shaft A	Steel	
7	Semicircle magnet			21	Piston	Stainless steel/aluminum alloy	
8	Cylinder guard	Acetal resin		22	Magnet		
9	NO Spring	Stainless steel		23	NC Body	Aluminum alloy	
10	Main jaw for rubber covers	Stainless steel		24	NC Spring	Stainless steel	
11	Rubber cover	Nitrile rubber		25	NC Piston	Stainless steel	
12	Linear guide			26	NO, NC Body	Aluminum alloy	
13	Master plate	Stainless steel		27	NO, NC Piston A	Stainless steel	
14	Arm	Stainless steel	06CS: Steel	28	Piston B	Acetal resin	

Gripping power performance data

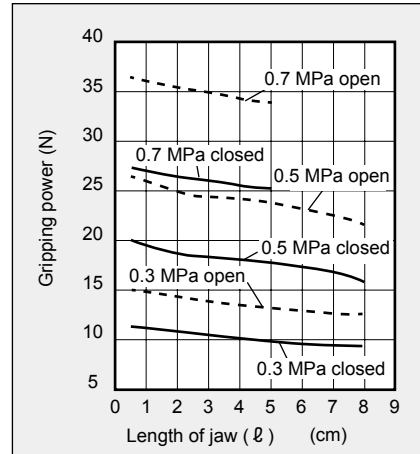
The gripping power in the opening/closing directions with jaw length L of hand with a supply pressure of 0.3, 0.5 and 0.7 MPa is shown.

- Open direction (↔) - - - - - (shown with broken line)
- Closed direction (→) ——— (shown with continuous line)

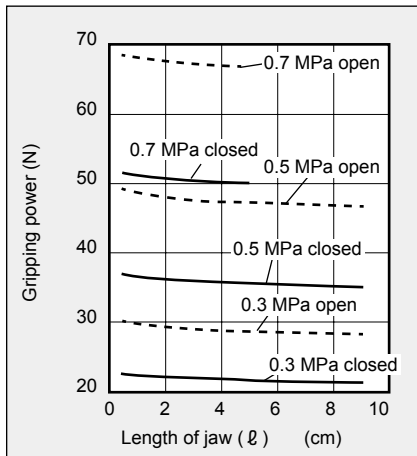
(Note) O type gripping power decreases approximately 20 to 30% in the closed direction compared to double acting.
 C type gripping power decreases approximately 10 to 20% in the open direction compared to the double acting.
 When making a selection, read the precautions for design and selection on page 1636.



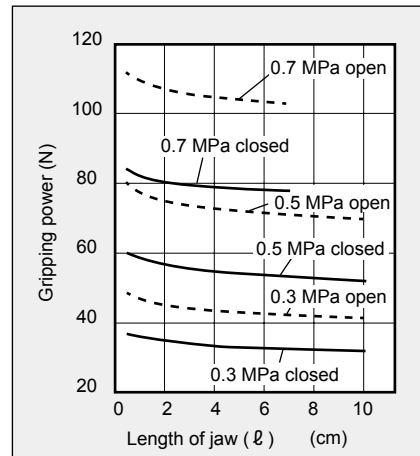
● LHAG-01CS



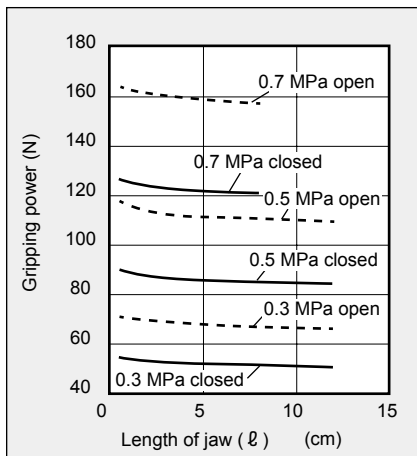
● LHAG-03CS



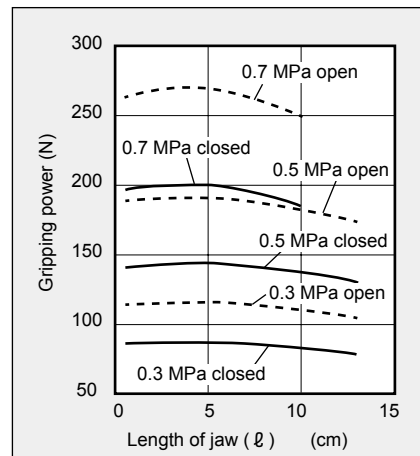
● LHAG-04CS



● LHAG-05CS



● LHAG-06CS



LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH
FH100
HAP
BSA2
BHA/BHG
LHA
LHAG
HKP
HLA/HLB
HLAG/HLBG
HLD
HCP
HMF
HMFB
HFP
HLC
HGP
FH500
HBL
HDL
HMD
HJD
HJL
BHE

LHAG Series

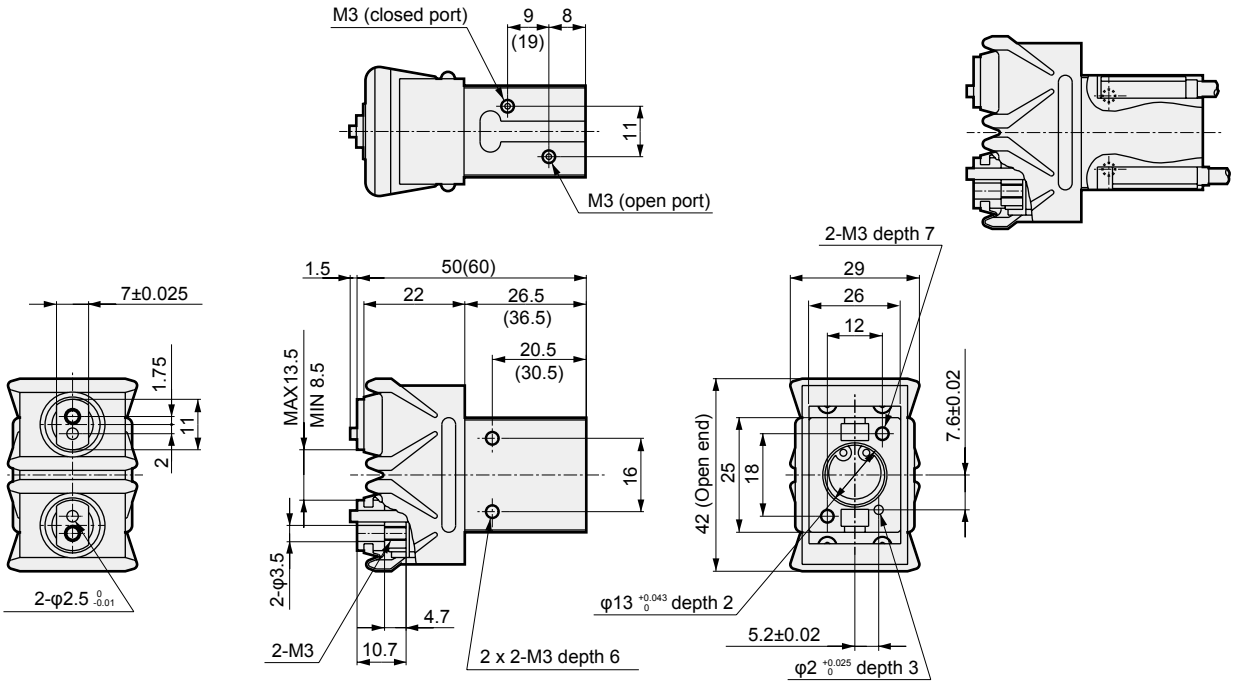
Dimensions



● LHAG-01CS standard/O/C

· Dimensions in () are for C (normally closed) specifications.

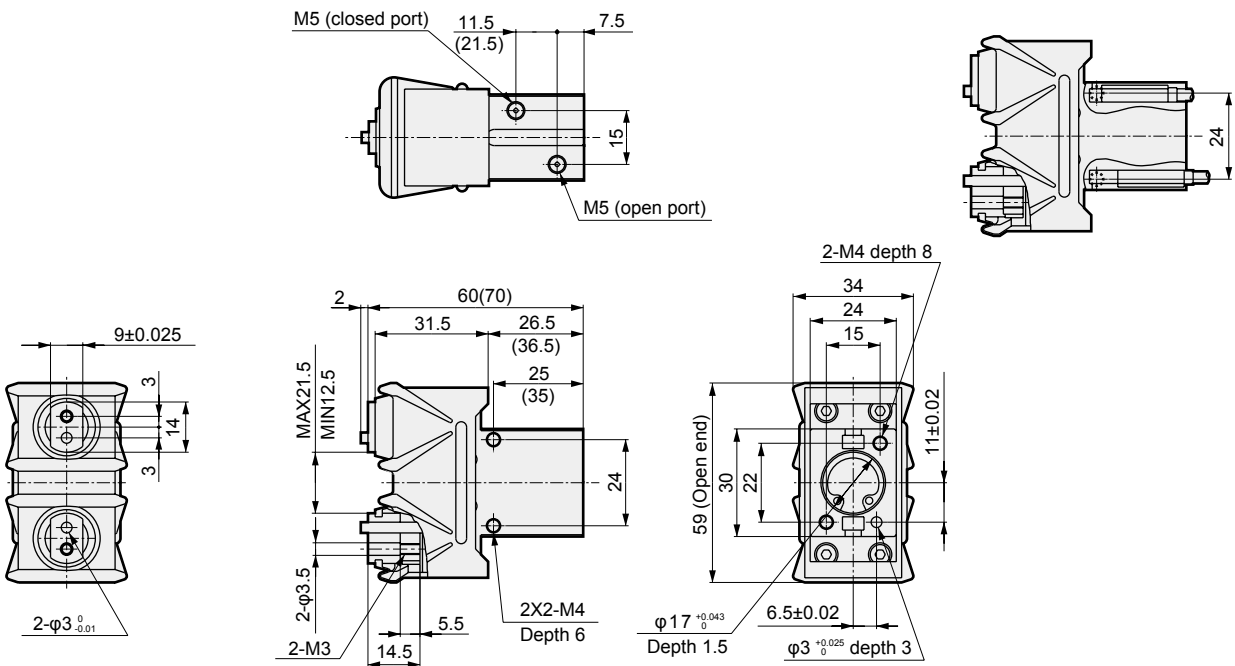
● With switch



● LHAG-03CS standard/O/C

· Dimensions in () are for C (normally closed) specifications.

● With switch



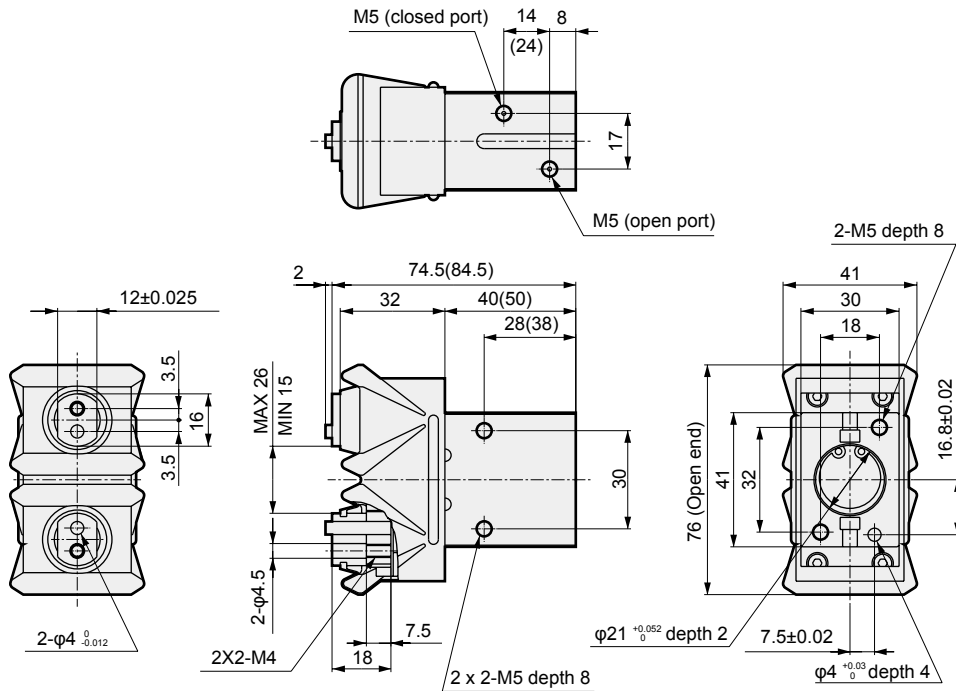
LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH
FH100
HAP
BSA2
BHA/BHG
LHA
LHAG
HKP
HLA/HLB
HLAG/HLBG
HLD
HCP
HMF
HMFB
HFP
HLC
HGP
FH500
HBL
HDL
HMD
HJD
HJL
BHE

Dimensions

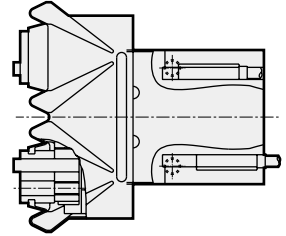


● LHAG-04CS standard/O/C

· Dimensions in () are for C (normally closed) specifications.

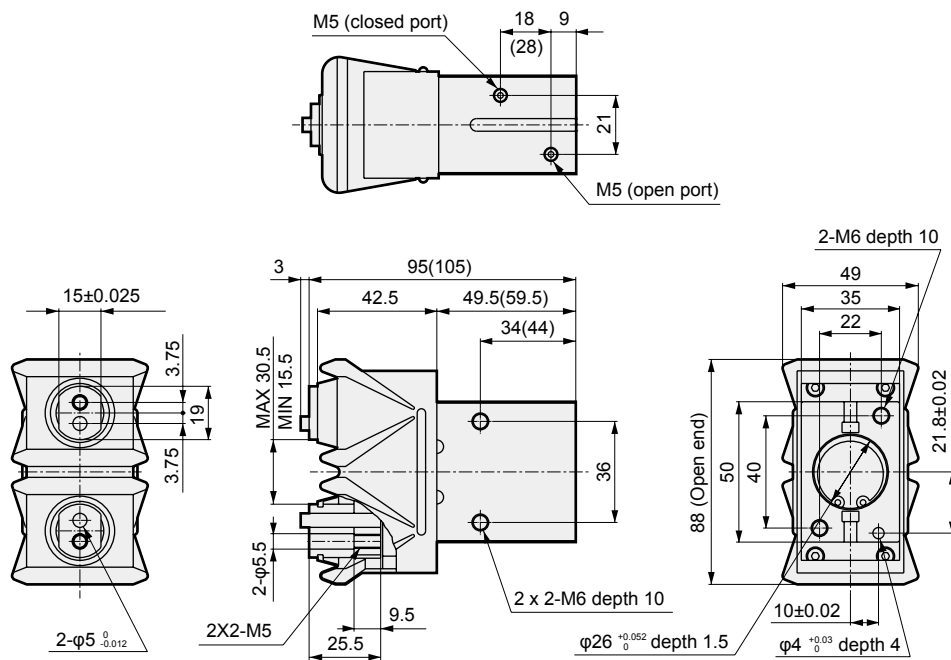


● With switch

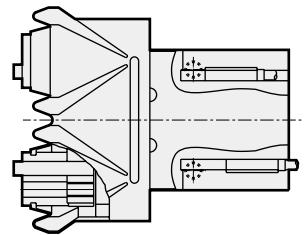


● LHAG-05CS standard/O/C

· Dimensions in () are for C (normally closed) specifications.



● With switch



LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
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Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
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BSA2
BHA/BHG
LHA
LHAG
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HLAG/HLBG
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HLC
HGP
FH500
HLB
HDL
HMD
HJD
HJL
BHE

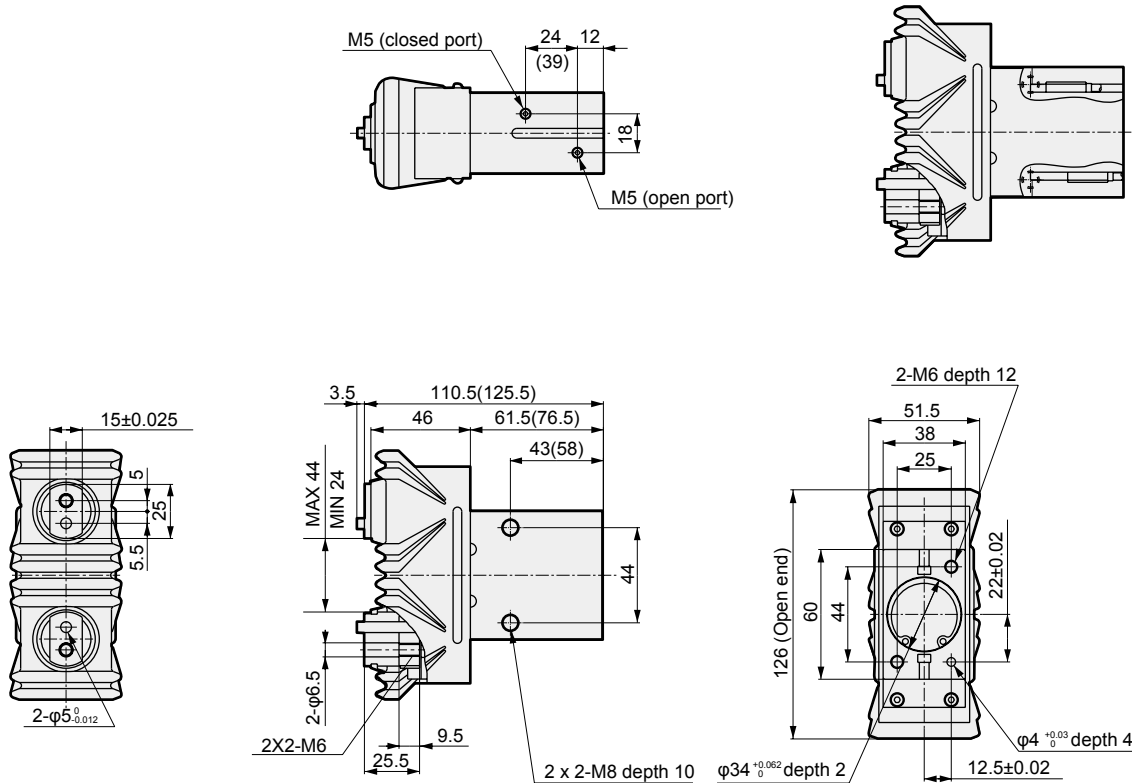
Dimensions



● LHAG-06CS standard/O/C

● With switch

· Dimensions in () are for O (normally open) and C (normally closed) specifications.



- LCW
- LCR
- LCG
- LCX
- LCM
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCC2
- RCS
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HR
- LN
- Hand**
- Chuk
- MecHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending
- LSH
- FH100
- HAP
- BSA2
- BHA/BHG
- LHA
- LHAG**
- HKP
- HLA/HLB
- HLAG/HLBG
- HLD
- HCP
- HMF
- HMFB
- HFP
- HLC
- HGP
- FH500
- HBL
- HDL
- HMD
- HJD
- HJL
- BHE