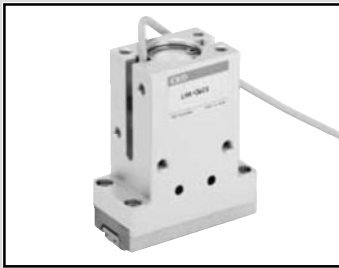


Linear guide hand Double acting/single acting

# LHA Series

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



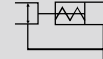
Double acting



Single acting (normally open)



Single acting (normally closed)



## Specifications

Descriptions	LHA					
	006CS	01CS	03CS	04CS	05CS	06CS
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 MPa	Double acting	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 <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 (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  
Mech/Ind/Chuk  
ShkAbs  
FJ  
FK  
SsdContr  
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** - **O**

With switch (built-in magnet for switch)

**LHA** - **03CS** - **O** - **T2H** - **R**

**A** Size

**B** Option

**C** Switch model No.

\* indicates the lead wire length. \*1

\*2

**D** Switch quantity

Code	Content				
<b>A Size</b>					
006CS					
01CS					
03CS					
04CS					
05CS					
06CS					
<b>B Option</b>					
Blank	Standard (double acting)				
O	Single acting (normally open)				
C	Single acting (normally closed)				
<b>C Switch model No.</b>					
Axial lead wire	Radial lead wire	Contact	Voltage AC DC	Display	Lead wire
F2H*	F2V*	Proximity		1-color display	2-wire
F3H*	F3V*				3-wire
F3PH*	F3PV*				3-wire
T2H*	T2V*				2-wire
T3H*	T3V*				3-wire
<b>* Lead wire length</b>					
Blank	1 m (standard)				
3	3 m (option)				
5	5 m (option)				
<b>D Switch quantity</b>					
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 **C** 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
<b>Hand</b>
Chuk
MecHrad/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH
FH100
HAP
BSA2
BHA/BHG
<b>LHA</b>
LHAG
HKP
HLA/HLB
HLAG/HLBG
HLD
HCP
HMF
HMFB
HFP
HLC
HGP
FH500
HBL
HDL
HMD
HJD
HJL
BHE

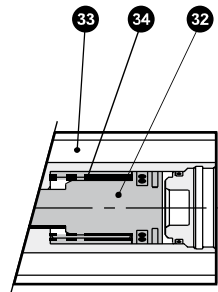
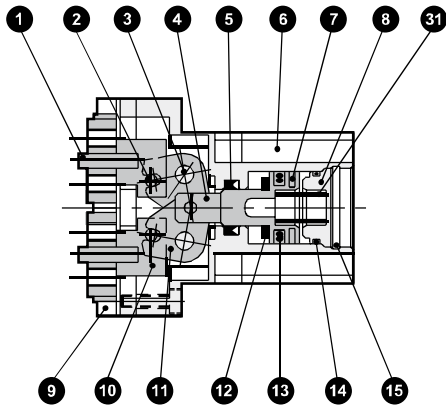
LCW
LCR
LCG
LCX
LCM
STM
STG
STP/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SsdContr
Ending
LSH
FH100
HAP
BSA2
BHA/BHG
<b>LHA</b>
LHAG
HKP
HLA/HLB
HLAG/HLBG
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)

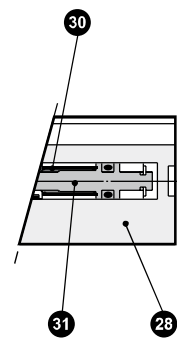
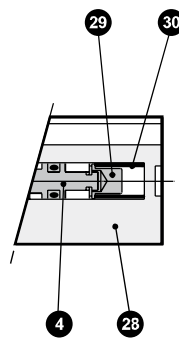
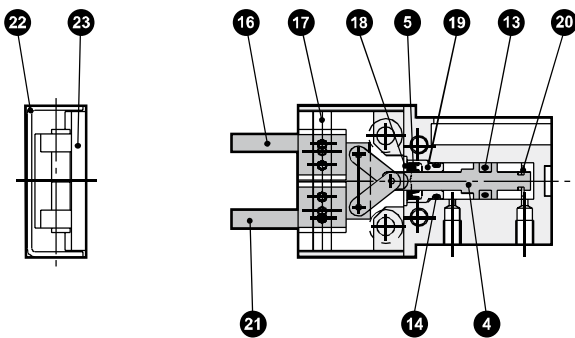


### ● LHA-006CS

Standard (double acting)

O (normally open)

C (normally closed)

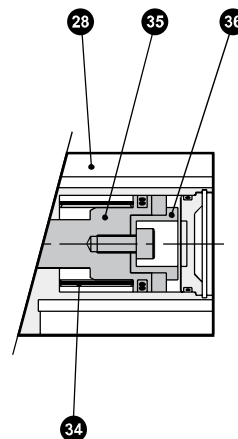
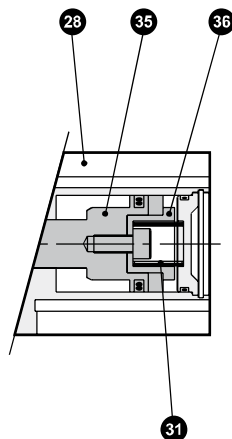
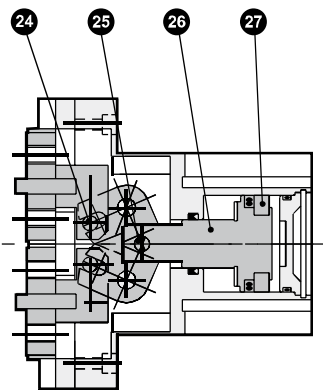


### ● LHA-06CS

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	

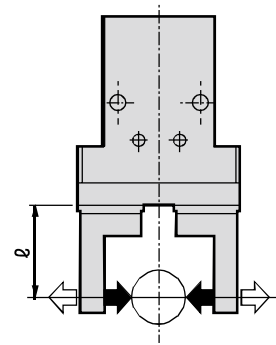
LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
<b>Hand</b>
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH
FH100
HAP
BSA2
BHA/BHG
<b>LHA</b>
LHAG
HKP
HLA/HLB
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)

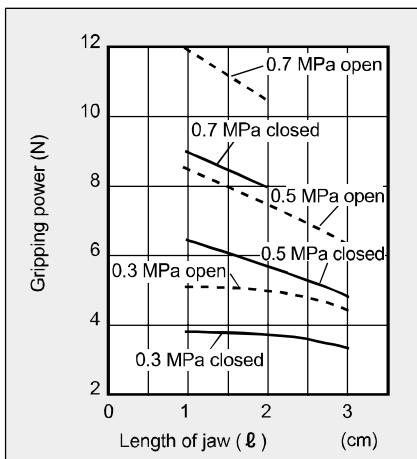


(Note) O type gripping power decreases approximately 20 to 30% in the closed direction compared to double acting.

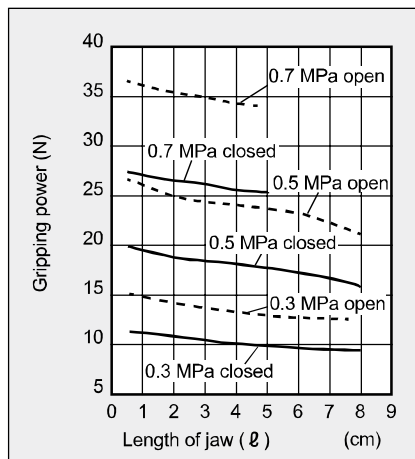
C type gripping power decreases approximately 10 to 20% in the open direction compared to the double acting.

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

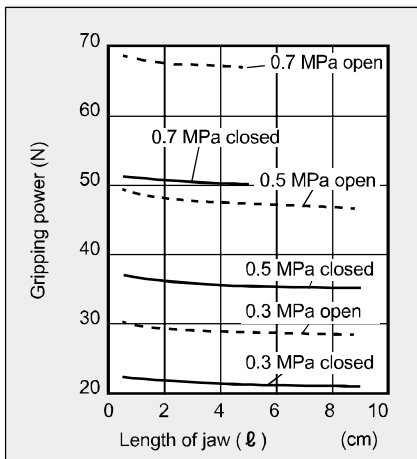
● LHA-006CS



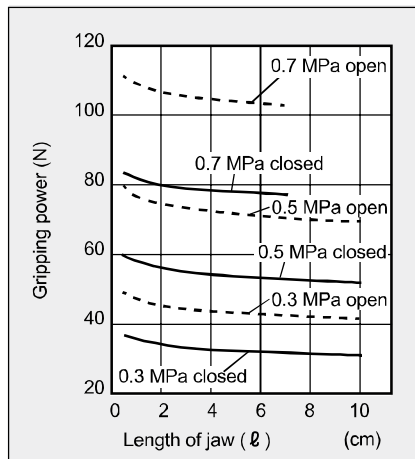
● LHA-01CS



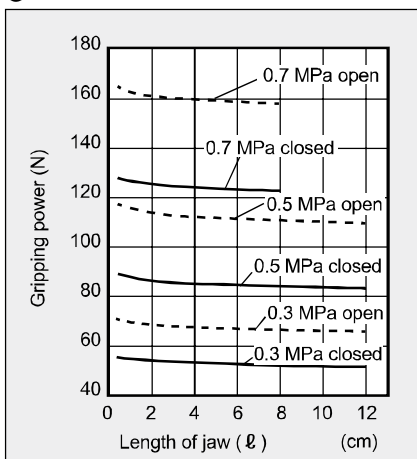
● LHA-03CS



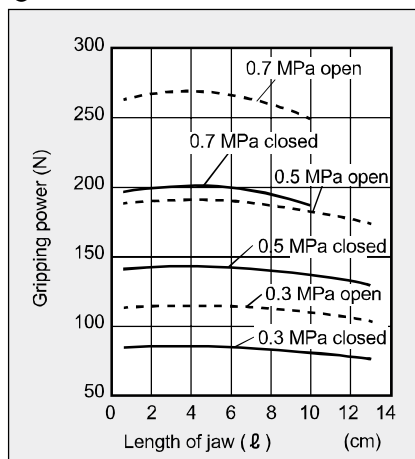
● LHA-04CS



● LHA-05CS



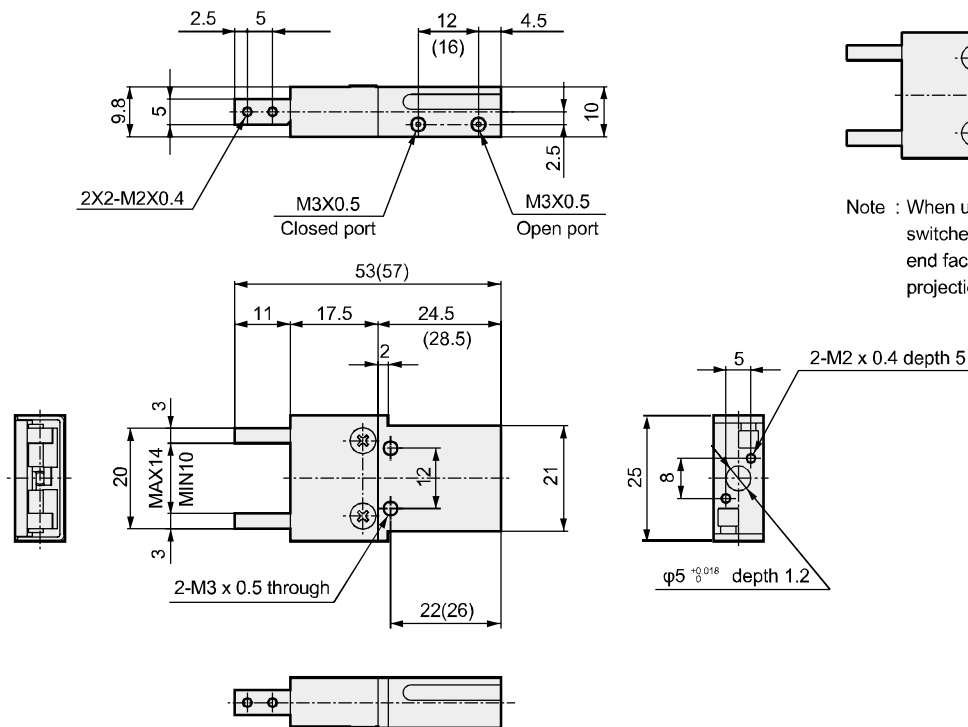
● LHA-06CS



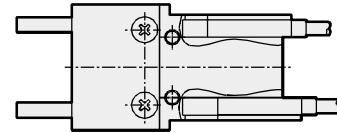
## Dimensions

### ● LHA-006CS standard/O/C

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



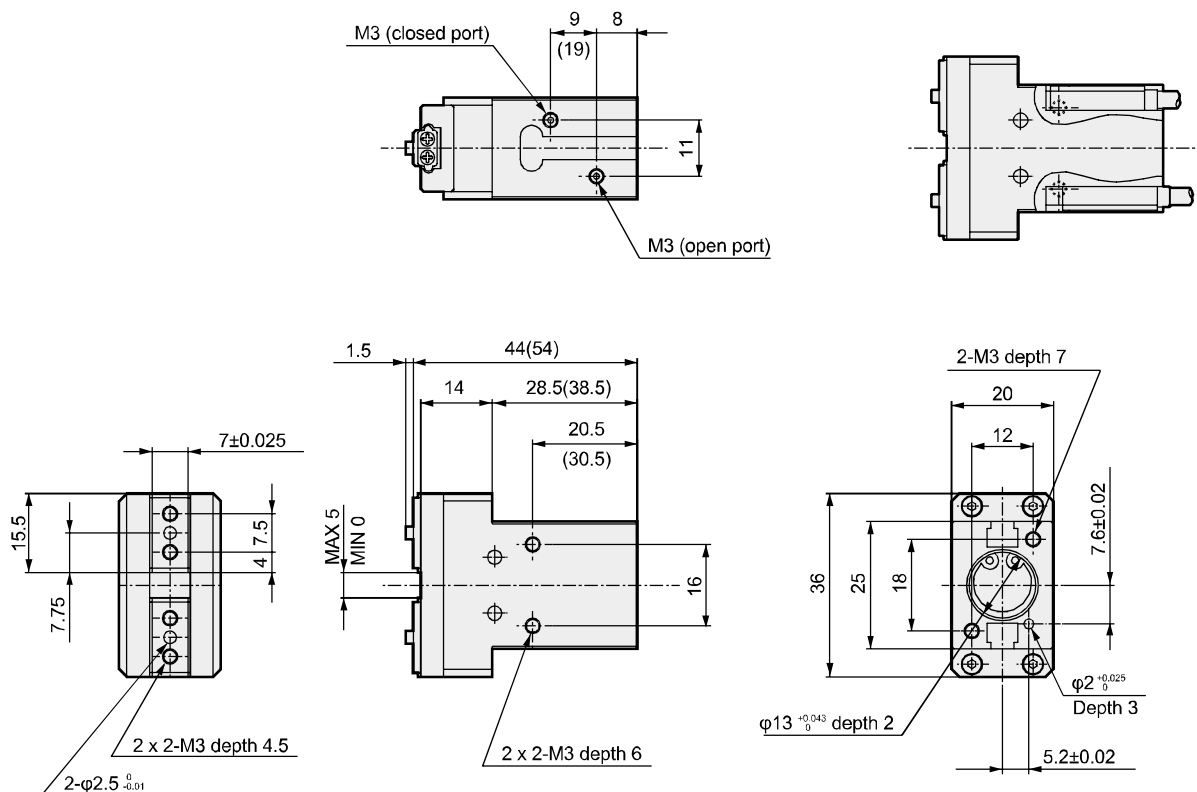
### ● With switch



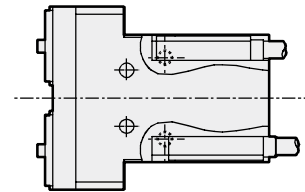
Note : When using F□H or F□V, the switches of both protrude from the end face of the body head side. If this projection is a problem, use F□S.

### ● 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
<b>Hand</b>
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH
FH100
HAP
BSA2
BHA/BHG
<b>LHA</b>
LHAG
HKP
HLA/HLB
HLAG/HLBG
HLD
HCP
HMF
HMFB
HFP
HLC
HGP
FH500
HLB
HDL
HMD
HJD
HJL
BHE

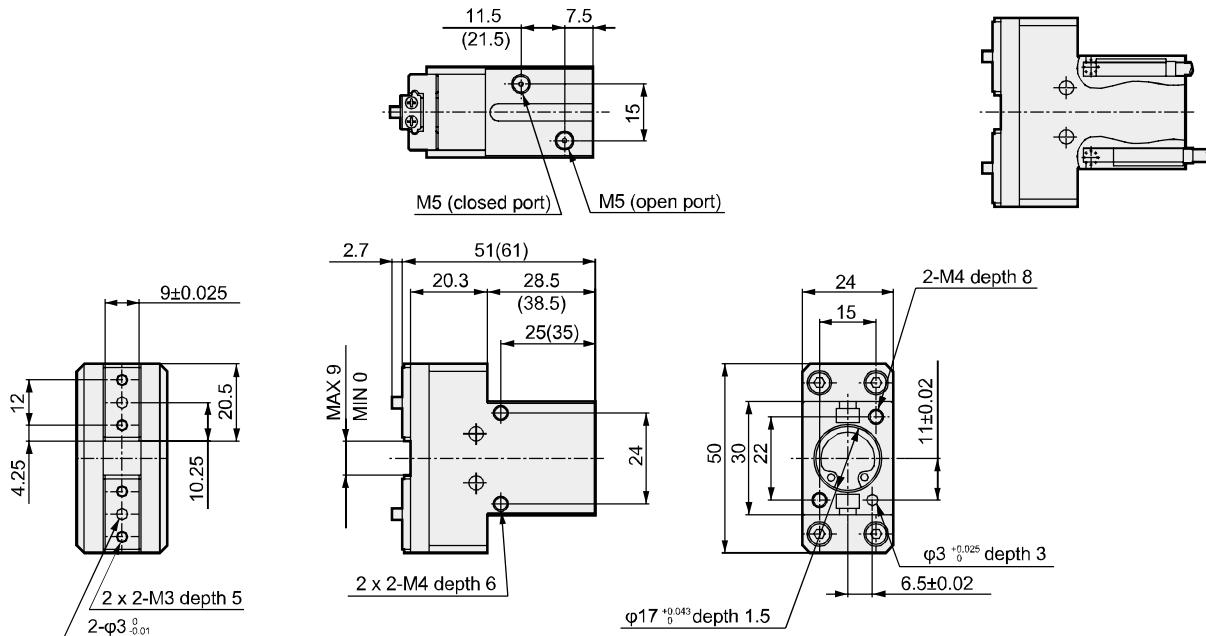
## Dimensions



### ● LHA-03CS standard/O/C

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

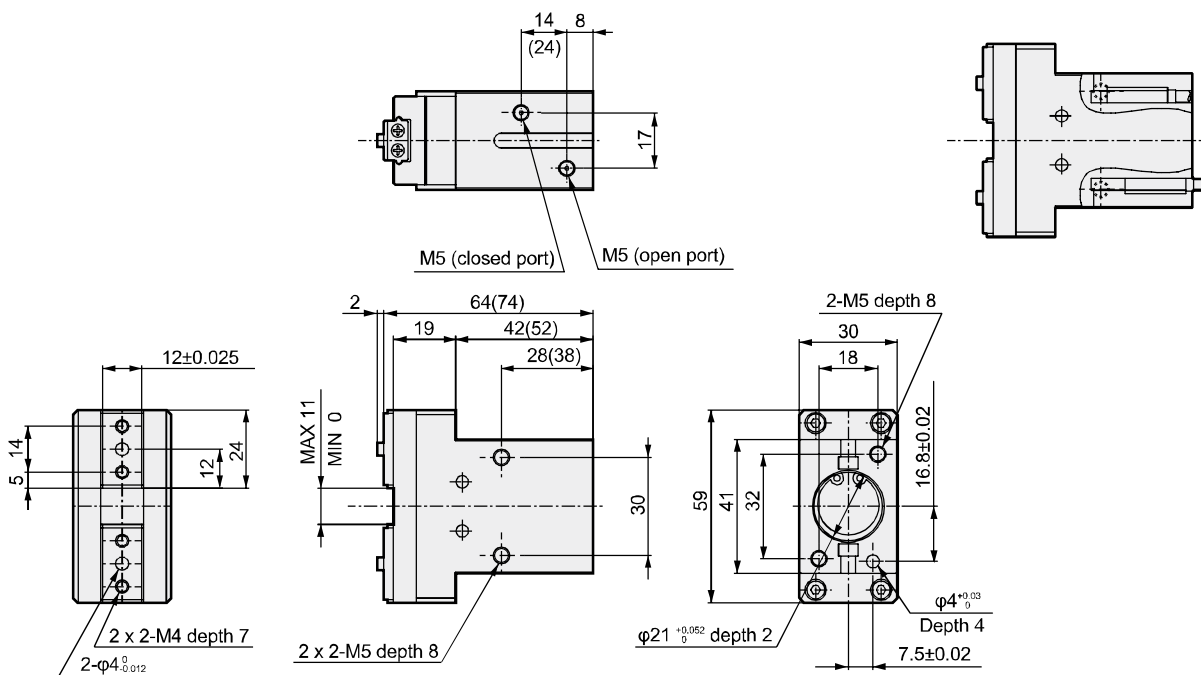
● With switch



### ● LHA-04CS standard/O/C

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

● With switch



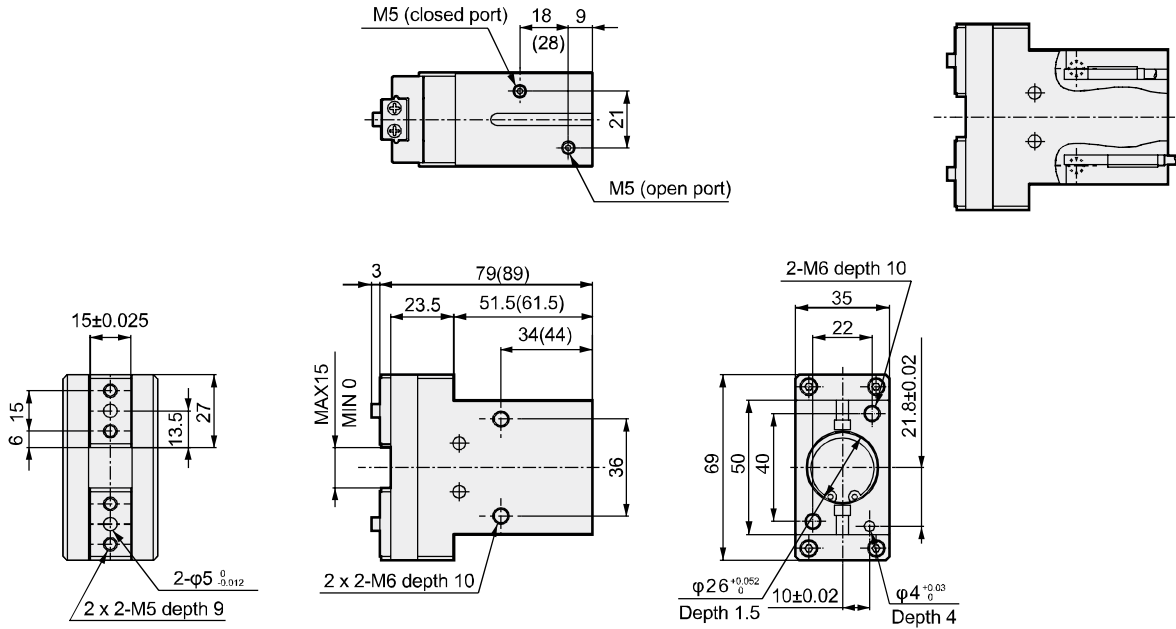
LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH
FH100
HAP
BSA2
BHA/BHG
LHA
LHAG
HKP
HLA/HLB
HLAG/HLBG
HLD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

## Dimensions

● LHA-05CS standard/O/C

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

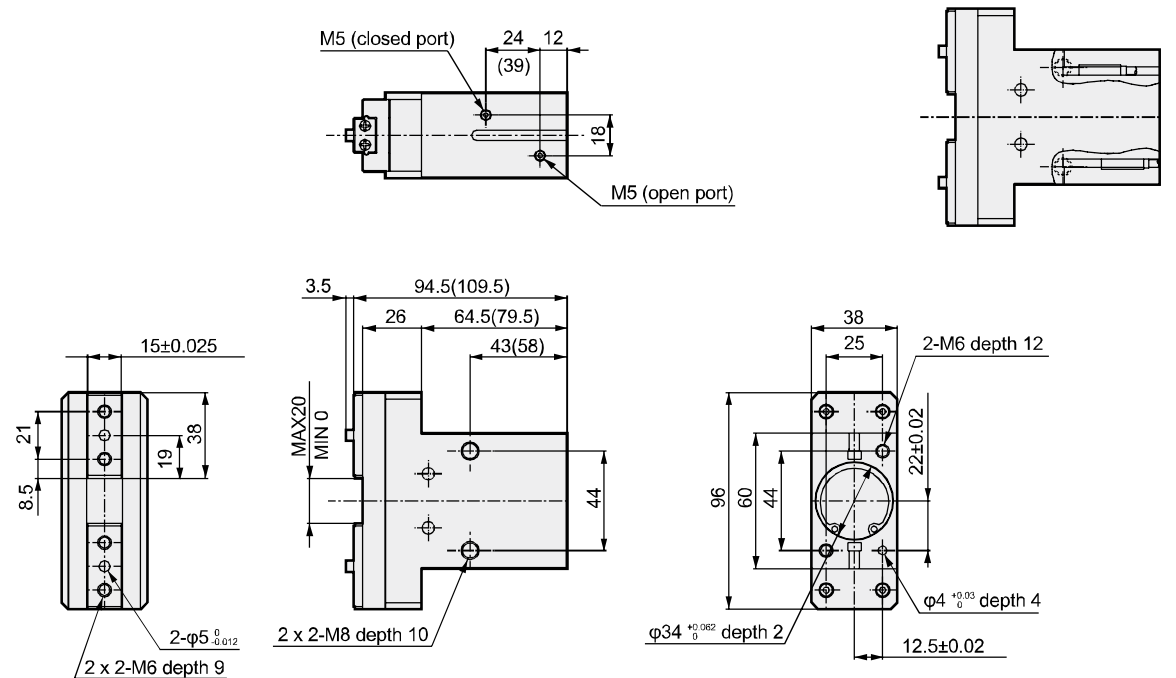
● With switch



● 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
<b>Hand</b>
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH
FH100
HAP
BSA2
BHA/BHG
<b>LHA</b>
LHAG
HKP
HLA/HLB
HLAG/HLBG
HLD
HCP
HMF
HMFB
HFP
HLC
HGP
FH500
HLB
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

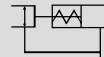
Double acting



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	Double acting	0.2 (≈29 psi, 2 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	5	9	11	15	20
Rod diameter mm	φ6	φ8	φ10	φ12	φ16
Volumetric capacity (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 (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  
Mech/Ind/Chuk  
ShkAbs  
FJ  
FK  
SsdContr  
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				
<b>A Size</b>					
01CS					
03CS					
04CS					
05CS					
06CS					
<b>B Option</b>					
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				
<b>C Switch model No.</b>					
<b>Axial lead wire</b>	<b>Radial lead wire</b>	<b>Contact</b>	<b>Voltage</b>	<b>Display</b>	<b>Lead wire</b>
			AC DC		
T2H*	T2V*	Proximity		● 1-color	2-wire
T3H*	T3V*		● display	3-wire	
<b>* Lead wire length</b>					
Blank	1 m (standard)				
3	3 m (option)				
5	5 m (option)				
<b>D Switch quantity</b>					
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.

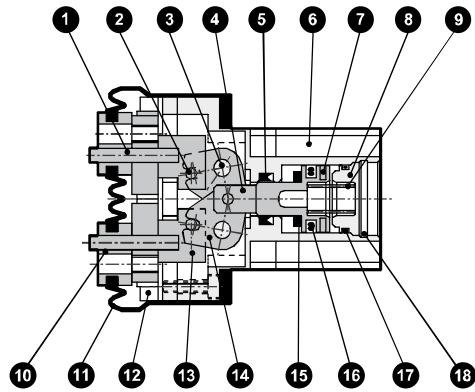
LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
<b>Hand</b>
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
<b>Ending</b>
LSH
FH100
HAP
BSA2
BHA/BHG
LHA
<b>LHAG</b>
HKP
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/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
SsdContr
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

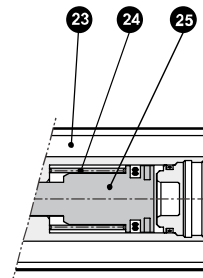
## Internal structure and parts list

### ● LHAG-01CS to 05CS

Standard (double acting)/O (normally open)

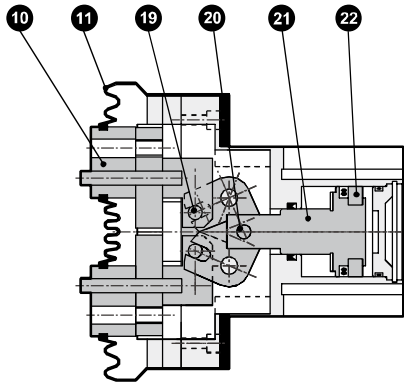


C (normally closed)

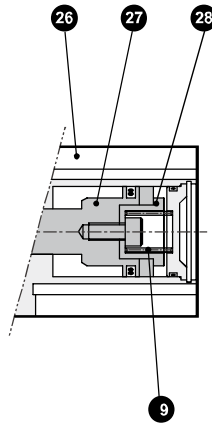


### ● LHAG-06CS

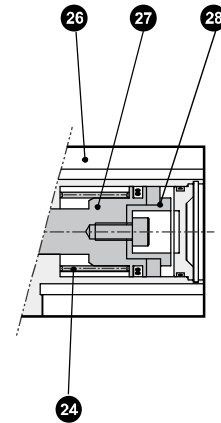
Standard (double acting)



O (normally open)



C (normally closed)



**Cannot be disassembled**

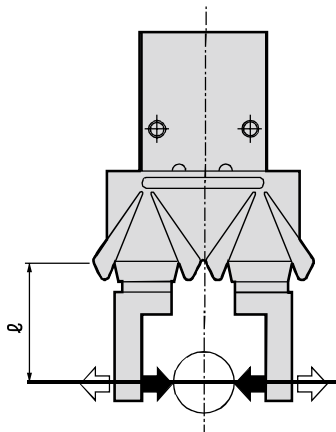
No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Positioning pin	Alloy steel		15	Cushion	Urethane seat	
2	Operation shaft	Alloy steel		16	Piston seal	Nitrile rubber	
3	Fulcrum axis	Alloy steel		17	Cylinder sealant	Nitrile rubber	
4	Piston	Stainless steel		18	C type snap ring	Stainless 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

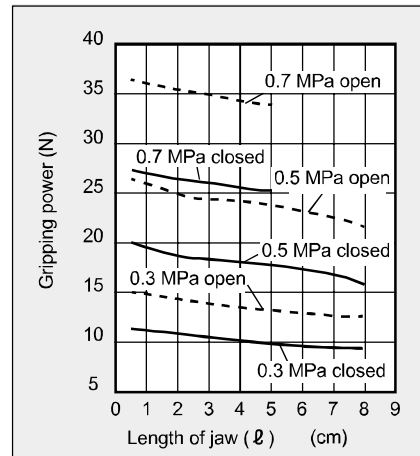
The gripping power in the opening/closing directions with jaw length  $L$  of hand with a supply pressure of 0.3, 0.5 and 0.7 MPa is shown.

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

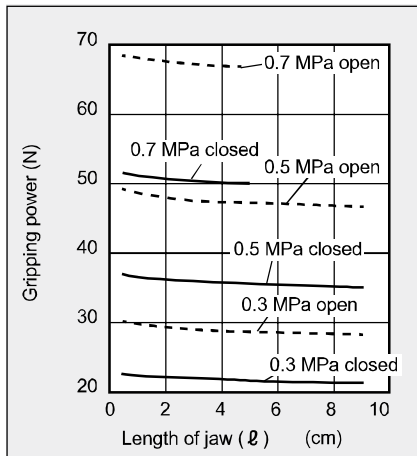
(Note) O type gripping power decreases approximately 20 to 30% in the closed direction compared to double acting.  
 C type gripping power decreases approximately 10 to 20% in the open direction compared to the double acting.  
 When making a selection, read the precautions for design and selection on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



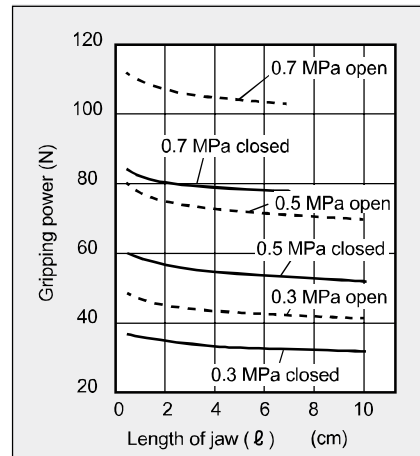
● LHAG-01CS



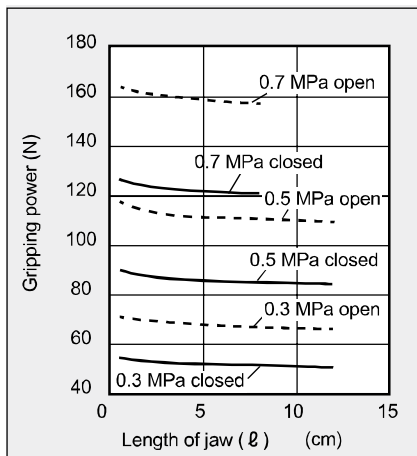
● LHAG-03CS



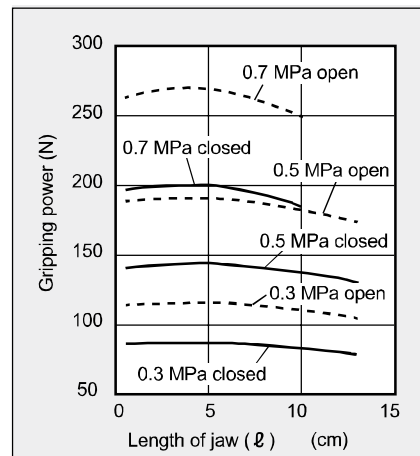
● LHAG-04CS



● 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
<b>Hand</b>
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH
FH100
HAP
BSA2
BHA/BHG
LHA
<b>LHAG</b>
HKP
HLA/HLB
HLAG/HLBG
HLD
HCP
HMF
HMFB
HFP
HLC
HGP
FH500
HBL
HDL
HMD
HJD
HJL
BHE



# LHAG Series

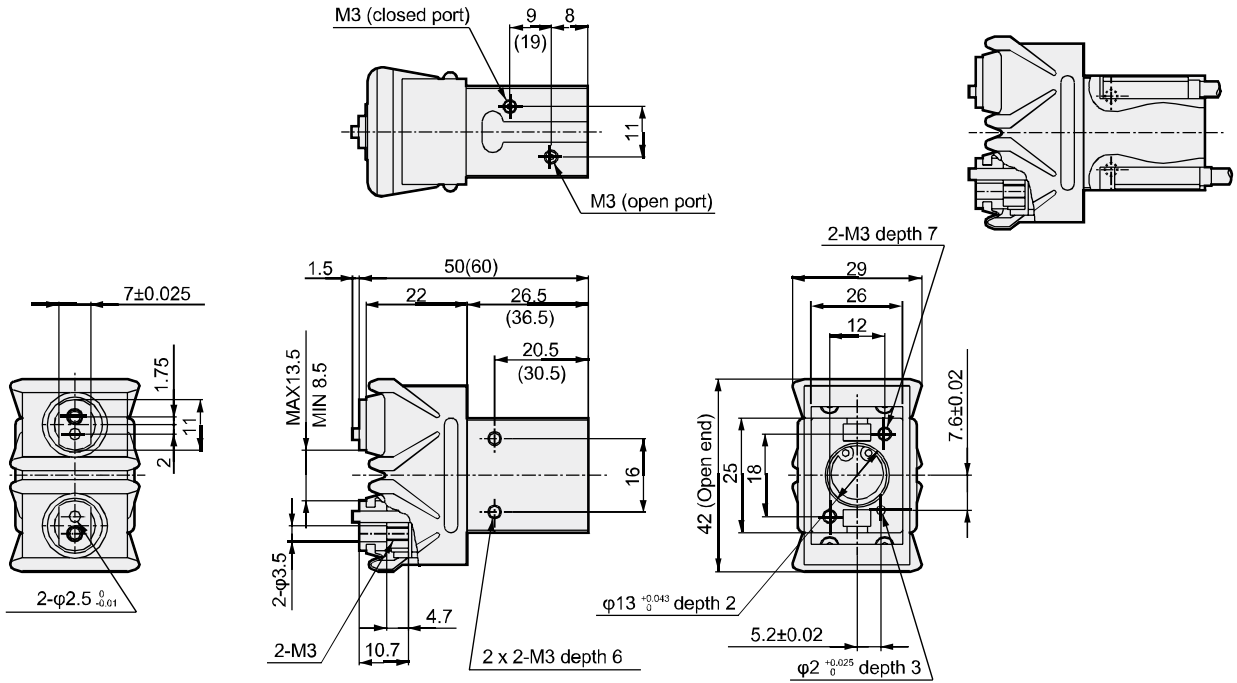
## Dimensions



### ● LHAG-01CS standard/O/C

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

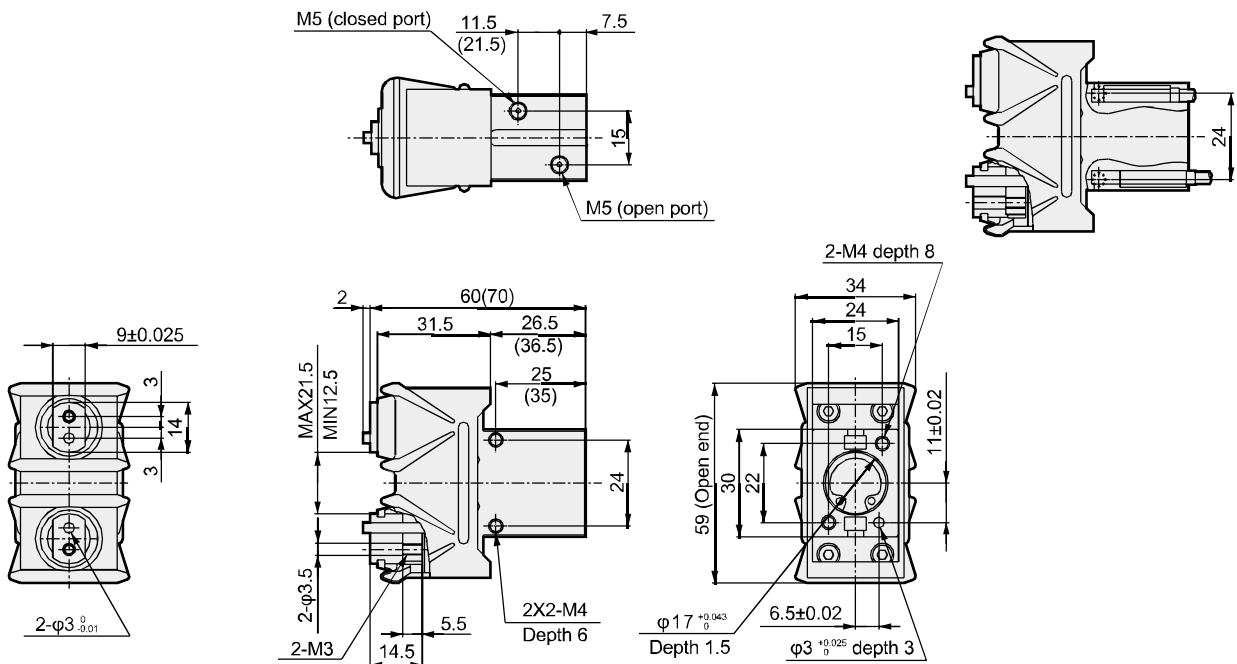
### ● With switch



### ● 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
MechHnd/Chuk
ShkAbs
FJ
FK
SsdContr
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

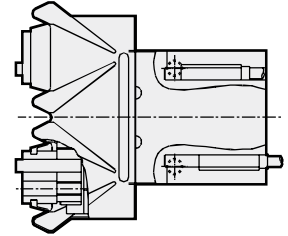
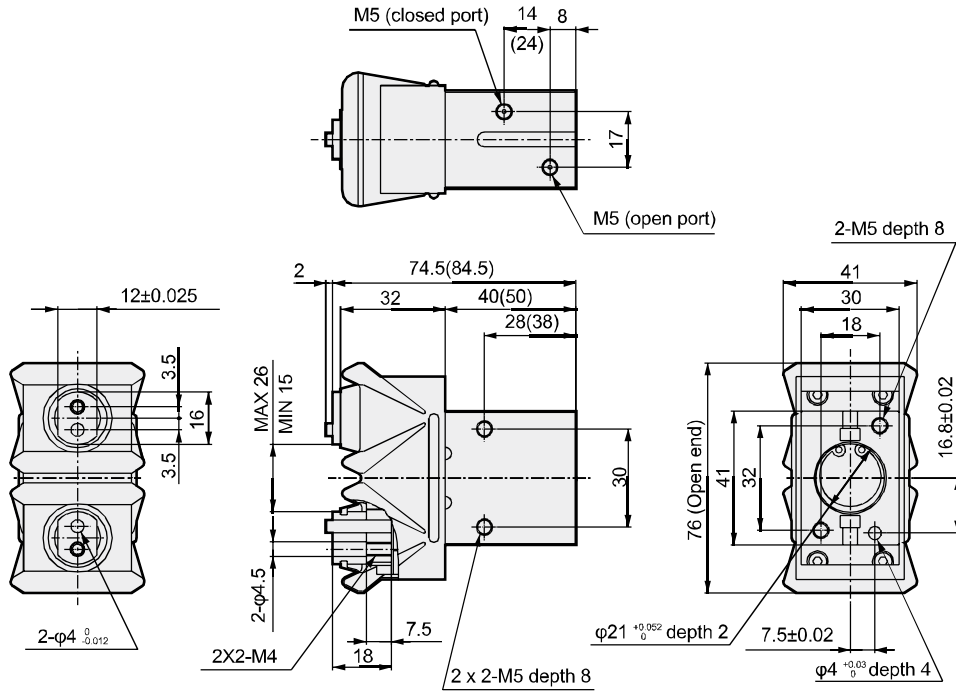
### Dimensions



● LHAG-04CS standard/O/C

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

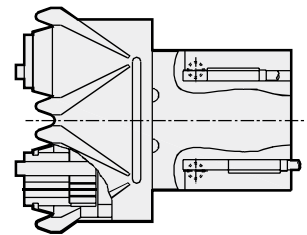
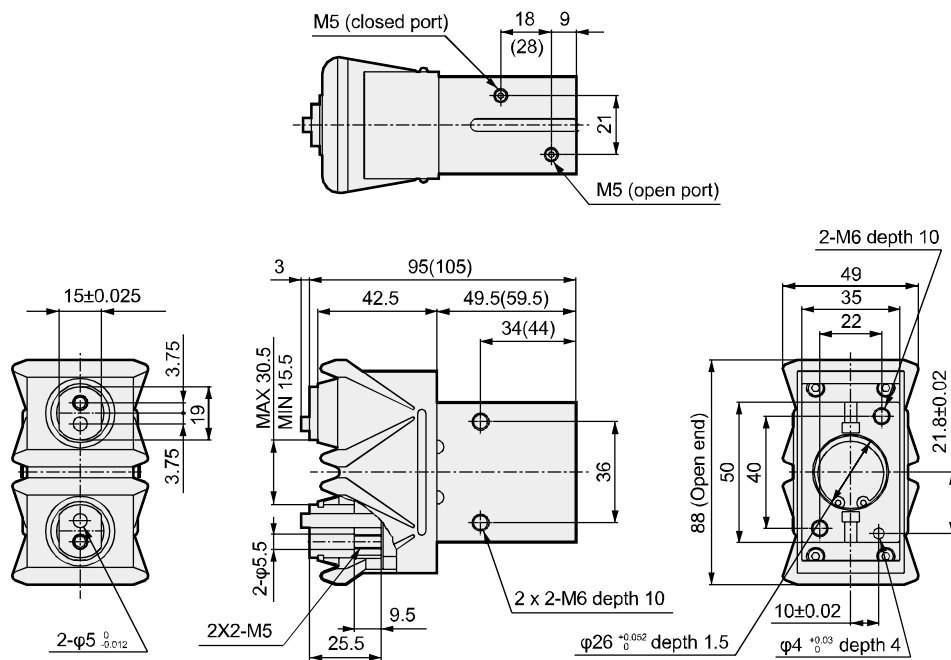
● With switch



● 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
HR
LN
<b>Hand</b>
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH
FH100
HAP
BSA2
BHA/BHG
LHA
<b>LHAG</b>
HKP
HLA/HLB
HLAG/HLBG
HLD
HCP
HMF
HMFB
HFP
HLC
HGP
FH500
HBL
HDL
HMD
HJD
HJL
BHE

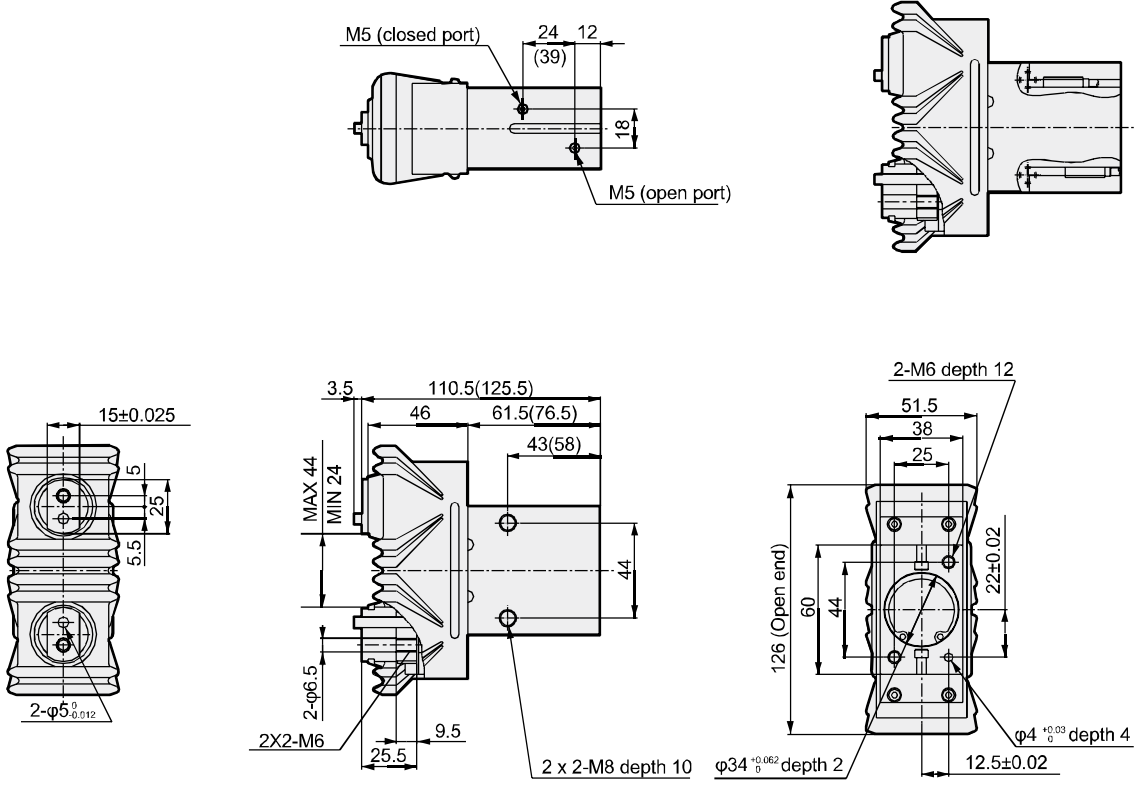
## Dimensions



● 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
- SsdContr
- Ending
- LSH
- FH100
- HAP
- BSA2
- BHA/BHG
- LHA
- LHAG**
- HKP
- HLA/HLB
- HLA/HLB
- HLA/HLB
- HLD
- HCP
- HMF
- HMFb
- HFP
- HLC
- HGP
- FH500
- HBL
- HDL
- HMD
- HJD
- HJL
- BHE



Thin parallel hand (bush/bearing guide) Double acting

# HLA/HLB Series

- Operational stroke length: HLA 15, 20, 25 mm  
HLB 13, 18, 23mm

Double acting



## Specifications

Descriptions	HLA			HLB		
	12CS	15CS	20CS	12CS	15CS	20CS
Size	12CS	15CS	20CS	12CS	15CS	20CS
Bore size mm	φ12	φ15	φ20	φ12	φ15	φ20
Actuation	Double acting					
Working fluid	Compressed air					
Max. working pressure MPa	0.7 (≈100 psi, 7 bar)					
Min. working pressure MPa	0.3 (≈44 psi, 3 bar)			0.1 (≈15 psi, 1 bar)		
Ambient temperature °C	5 (41°F) to 60 (140°F)					
Port size	M5					
Operating stroke length mm	15	20	25	13	18	23
Volumetric capacity (reciprocating) cm <sup>3</sup>	1.69	3.53	7.85	1.47	3.18	7.22
Repeatability mm	±0.03			±0.01		
Weight kg	0.152	0.276	0.504	0.214	0.402	0.678
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)					

## Switch specifications and variations

Descriptions	Proximity 2-wire	Proximity 3-wire
	K2H, K2V	K3H, K3V
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, 50 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	

Descriptions	Reed 2-wire	
	K0H/K0V	K5H/K5V
Applications	For programmable controller, relay	For programmable controller, relay, IC circuit (without indicator lamp), serial connection
Power supply voltage	—	
Load voltage/current	12/24 VDC, 5 to 50 mA 110 VAC, 7 to 20mA	5/12/24 VDC, 50 mA or less 110 VAC, 20 mA or less
Indicator lamp	LED (Lit when ON)	None
Leakage current	0 mA	
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  
LCC  
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  
SrdContr  
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)

**HLA - 12CS**

With switch (built-in magnet for switch)

**HLA - 12CS - K2H - R**

**A** Model No.

**B** Size

**C** Switch model No.  
\*1

**D** Switch quantity

### ⚠ Precautions for model No. selection

\*1: Switches other than ©Switch model No. are also available. (Custom order)  
Refer to Ending Page 1 for details.

[Example of model No.]

**HLB-12CS-K2H-R**

Model: Thin parallel hand

- A** Model No. : Bearing guide HLB
- B** Size : 12CS
- C** Switch model No. : Proximity K2H switch, lead wire 1 m
- D** Switch quantity : 1 on open side

### How to order switch

**SW - K2H**

Switch model No.  
(Item © above)

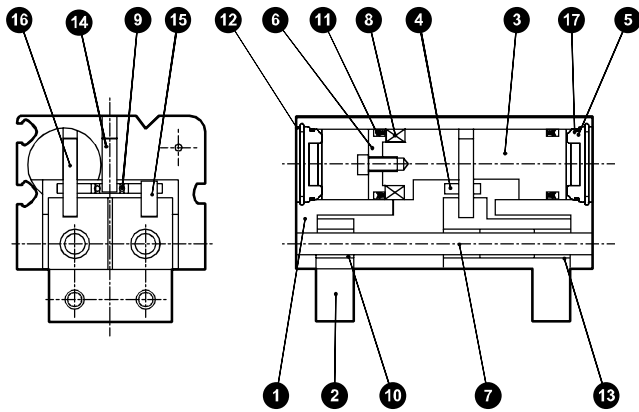
Code	Content					
<b>A Model No.</b>						
HLA	Bush guide					
HLB	Bearing guide					
<b>B Size</b>						
12CS						
15CS						
20CS						
<b>C Switch model No.</b>						
Axial lead wire	Radial lead wire	Contact	Voltage		Display	Lead wire
			AC	DC		
K0H*	K0V*	Reed	●	●	1-color display	2-wire
K5H*	K5V*		●	●	no indicator lamp	
K2H*	K2V*	Proximity		●	1-color display	2-wire
K3H*	K3V*			●	display	
<b>* Lead wire length</b>						
Blank	1 m (standard)					
3	3 m (option)					
5	5 m (option)					
<b>D Switch quantity</b>						
R	1 on open side					
H	1 on closed side					
D	2					

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
<b>Hand</b>
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
<b>Ending</b>
LSH
FH100
HAP
BSA2
BHA/BHG
LHA
LHAG
HKP
HLA/HLB
HLAG/HLBG
HLD
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HMF
HMFB
HFP
HLC
HGP
FH500
HBL
HDL
HMD
HJD
HJL
BHE

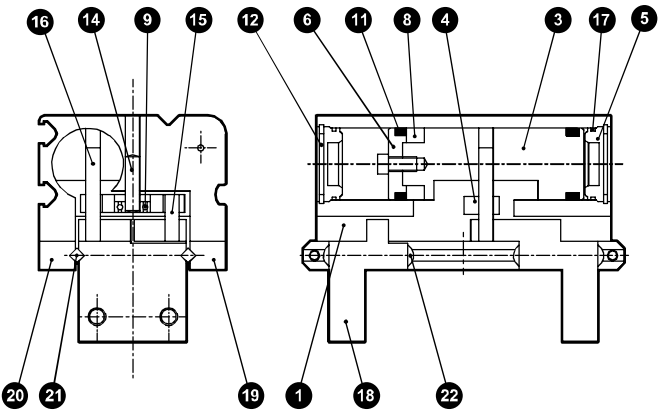
# HLA/HLB Series

## Internal structure and parts list

● HLA-12CS to 20CS



● HLB-12CS to 20CS



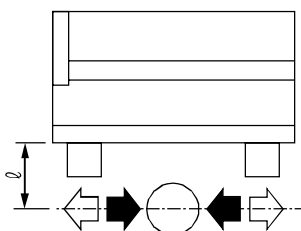
**Cannot be disassembled**

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Body	Aluminum alloy		12	Snap ring	Stainless steel	
2	Master key	Aluminum alloy		13	Bush	Sintering oil impregnated alloy	
3	Piston	Stainless steel		14	Parallel pin	Steel	
4	Cam	Stainless steel		15	Needle roller A	Alloy steel	
5	Cylinder guard	Acetal resin		16	Needle roller B	Alloy steel	
6	Magnet holder	Aluminum alloy		17	Cylinder gasket	Nitrile rubber	
7	Guide rod	Alloy steel		18	Master key	Steel	
8	Magnet			19	Bearing guide A	Steel	
9	Small diameter sphere bearing	Alloy steel		20	Bearing guide B	Steel	
10	Bush	Sintering oil impregnated alloy		21	Cross roller	Alloy steel	
11	Piston packing	Nitrile rubber		22	Truss machine screw	Stainless steel	

## Gripping power performance data

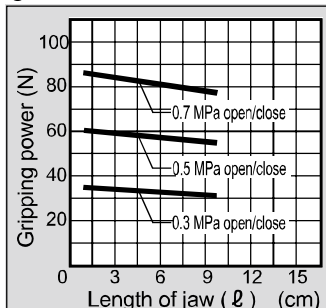
The gripping power in the opening/closing directions with jaw length L of hand with a supply pressure of 0.3, 0.5 and 0.7 MPa is shown.

● Both open direction (⇐) and closed direction (⇒) (shown with continuous line)

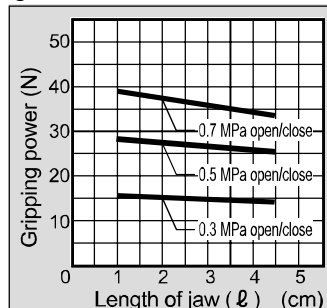


(Note) When making a selection, read the precautions for design and selection on page 1636.

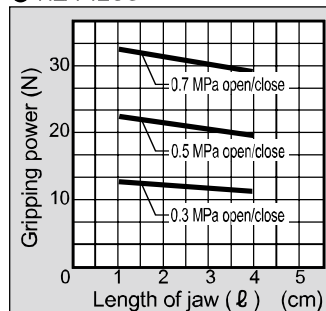
● HLA-20CS



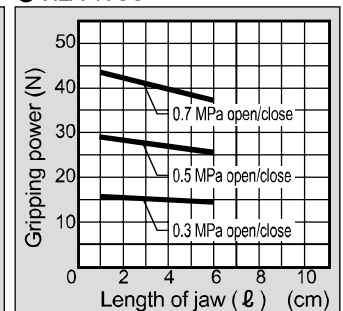
● HLB-12CS



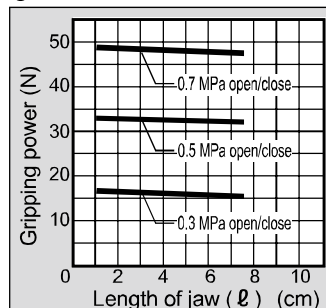
● HLA-12CS



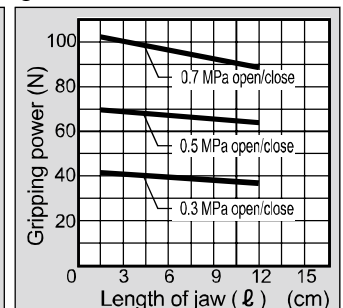
● HLA-15CS



● HLB-15CS



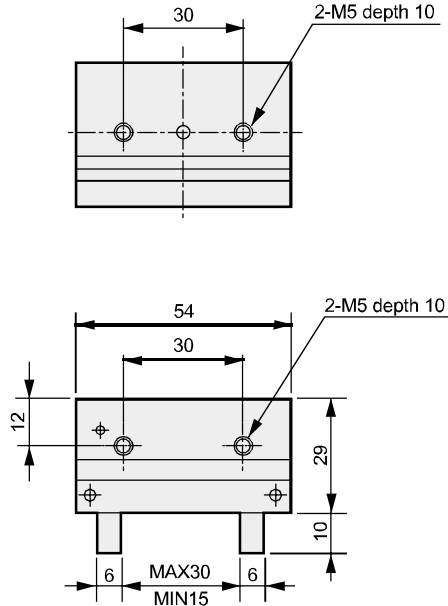
● HLB-20CS



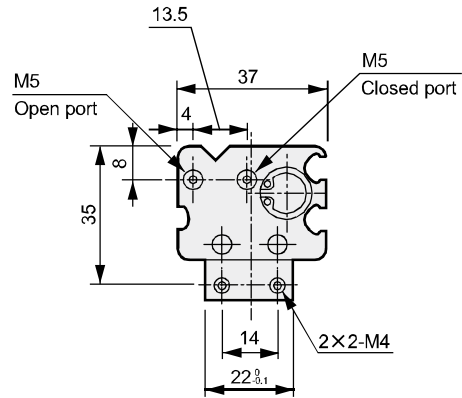
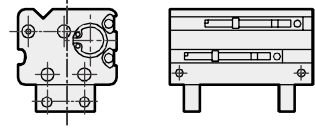
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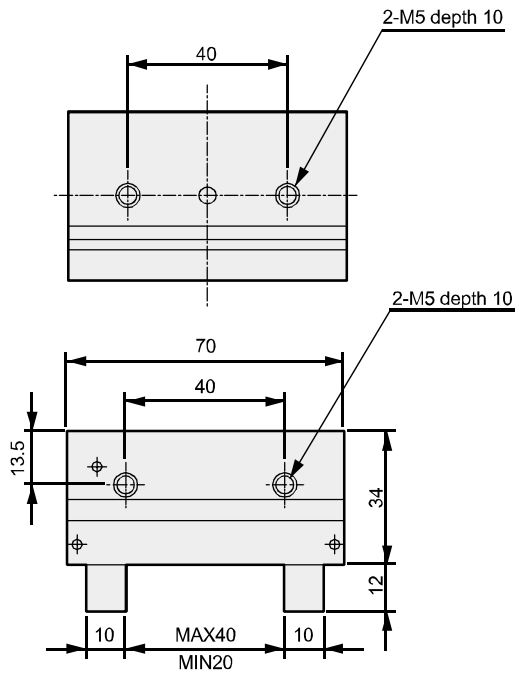
#### ● HLA-12CS Standard



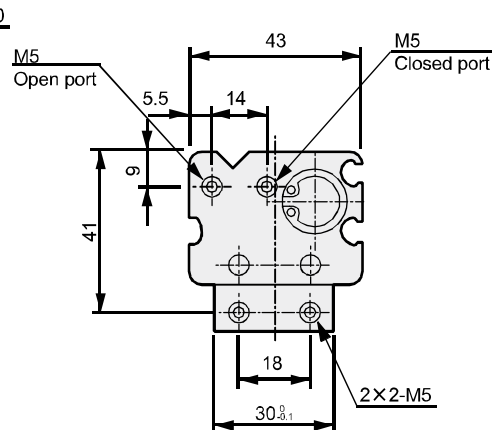
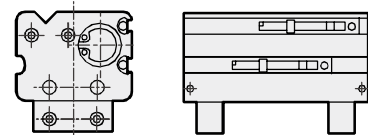
#### ● With switch



#### ● HLA-15CS Standard



#### ● With switch



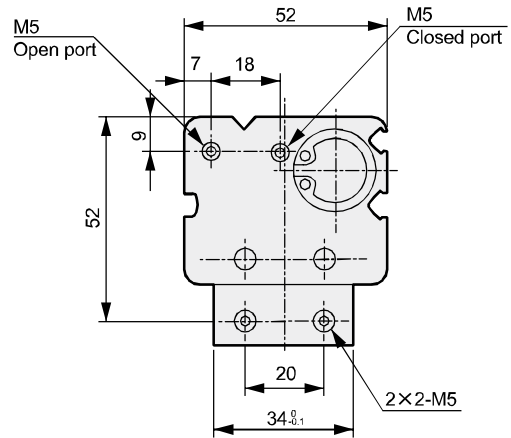
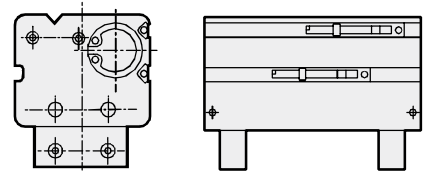
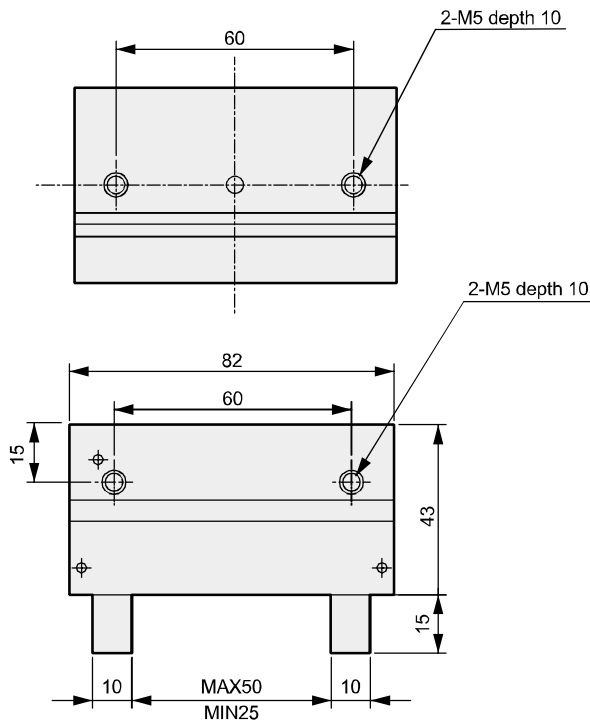
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LCX
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UCA2
ULK*
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JSG
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USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
<b>Hand</b>
Chuk
MecHand/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH
FH100
HAP
BSA2
BHA/BHG
LHA
LHAG
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HLA/HLB
HLAG/HLBG
HLD
HCP
HMF
HMFB
HFP
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HGP
FH500
HLB
HDL
HMD
HJD
HJL
BHE

## Dimensions



● HLA-20CS Standard

● With switch



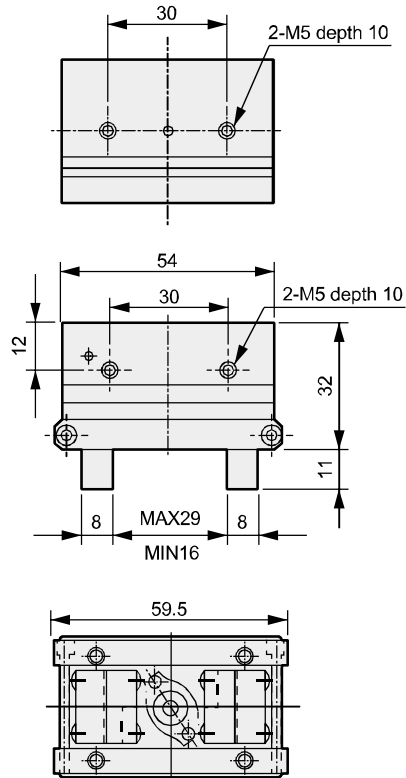
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JSG
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USSD
UFCD
USC
JSB3
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LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
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Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SsdContr
Ending
LSH
FH100
HAP
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BHA/BHG
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LHAG
HKP
<b>HLA/HLB</b>
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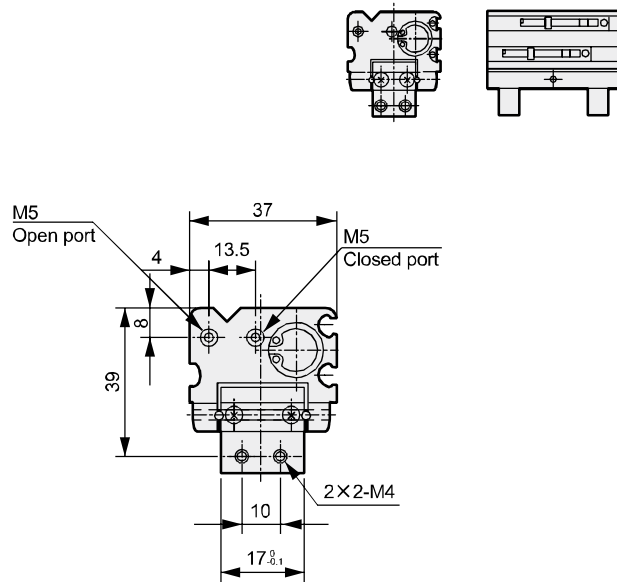
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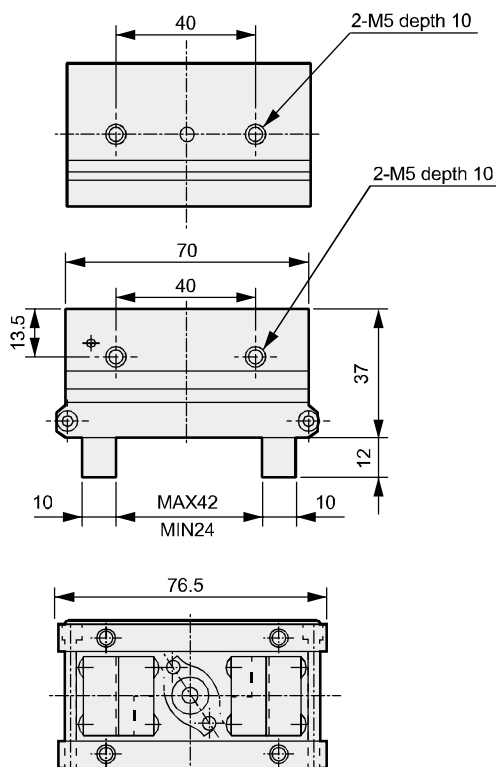
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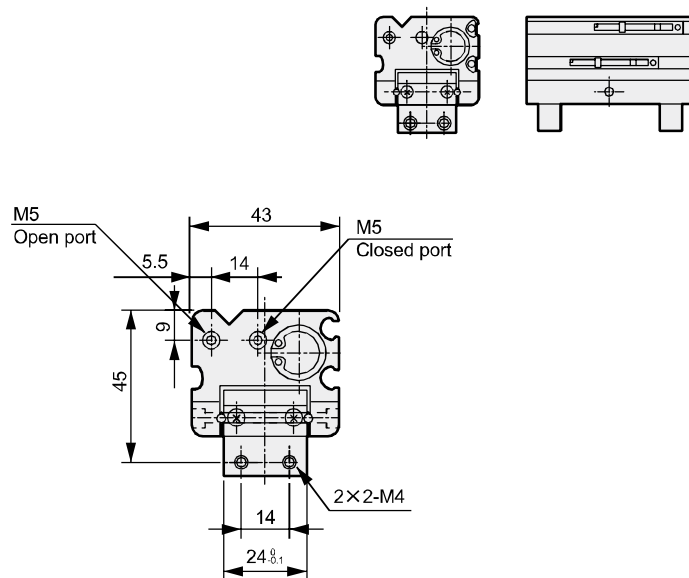
#### ● With switch



#### ● HLB-15CS Standard



#### ● With switch



LCW
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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
<b>Hand</b>
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH
FH100
HAP
BSA2
BHA/BHG
LHA
LHAG
HKP
HLA/HLB
HLAG/HLBG
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HCP
HMF
HMFB
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HLC
HGP
FH500
HLB
HDL
HMD
HJD
HJL
BHE

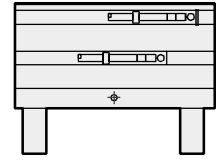
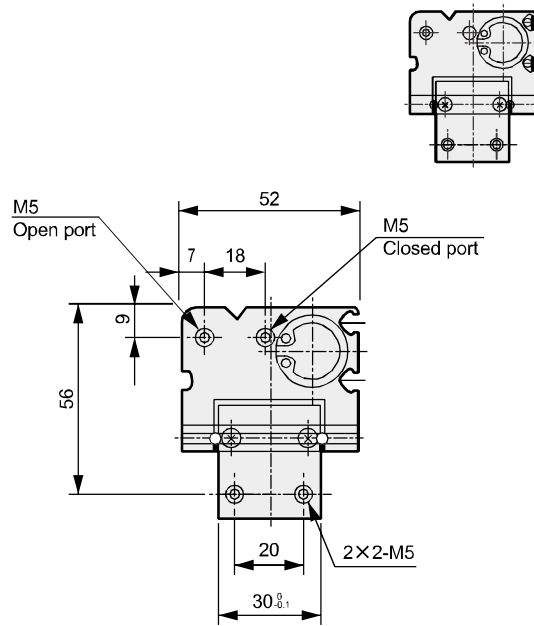
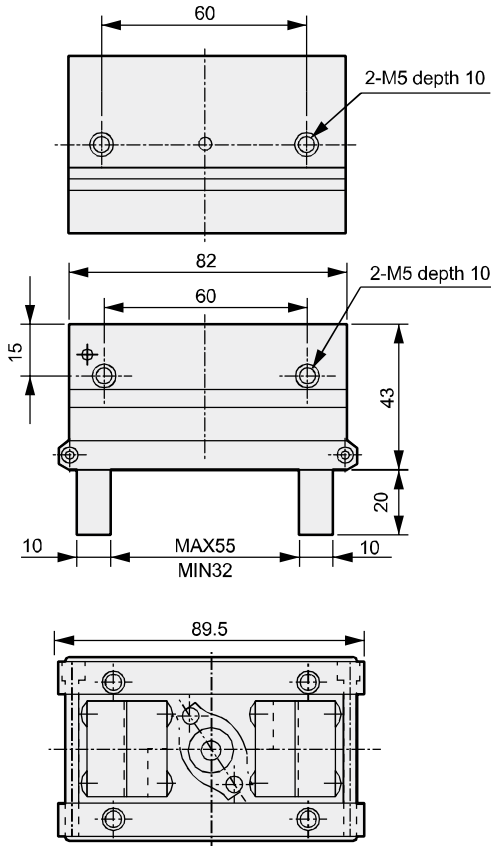
# HLB Series

## Dimensions



● HLB-20CS Standard

● With switch

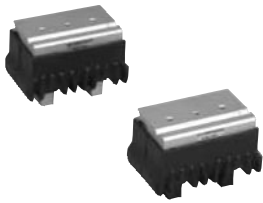


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- LCR
- LCG
- LCX
- LCM
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK\*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCC2
- RCS
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3\*
- NHS
- HR
- LN
- Hand**
- Chuk
- MecHnd/Chuk
- ShkAbs
- FJ
- FK
- SsdContr
- 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

# MEMO

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
<b>Hand</b>
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



Thin parallel hand with rubber cover (bush/bearing guide)  
Double acting

# HLAG/HLBG Series

- Operational stroke length: HLAG 15, 20, 25 mm  
HLBG 13, 18, 23 mm

Double acting



## Specifications

Descriptions	HLAG-12CS	HLAG-15CS	HLAG-20CS	HLBG-12CS	HLBG-15CS	HLBG-20CS
Bore size mm	φ12	φ15	φ20	φ12	φ15	φ20
Actuation	Double acting					
Working fluid	Compressed air					
Max. working pressure MPa	0.7 (≈100 psi, 7 bar)					
Min. working pressure MPa	0.3 (≈44 psi, 3 bar)			0.2 (≈29 psi, 2 bar)		
Ambient temperature °C	5 (41°F) to 60 (140°F)					
Port size	M5					
Operating stroke length mm	15	20	25	13	18	23
Volumetric capacity (reciprocating) cm <sup>3</sup>	1.69	3.53	7.85	1.47	3.18	7.22
Repeatability mm	±0.03			±0.01		
Weight kg	0.175	0.305	0.545	0.24	0.42	0.75
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)					

## Switch specifications

Descriptions	Proximity 2-wire	Proximity 3-wire
	K2H	K3H
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, 50 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	

Descriptions	Reed 2-wire	
	K0H	K5H
Applications	For programmable controller, relay	For programmable controller, relay, IC circuit (without indicator lamp), serial connection
Power supply voltage	—	
Load voltage/current	12/24 VDC, 5 to 50 mA 110 VAC, 7 to 20 mA	5/12/24 VDC, 50 mA or less 110 VAC, 20 mA or less
Indicator lamp	LED (Lit when ON)	None
Leakage current	0 mA	
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. If the operating ambient temperature around the switch is higher than 25°C, the current is lower than 20 mA. (5 to 10 mA at 60°C)

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

### How to order

Without switch (built-in magnet for switch)

**HLAG - 12CS**

With switch (built-in magnet for switch)

**HLAG - 12CS - K2H - R**

**A** Model No.

**B** Size

**C** Switch model No.

**D** Switch quantity

[Example of model No.]

**HLAG-12CS-K2H-R**

Model: Rubber covered thin parallel hand

- A** Model No. : Bush guide HLAG
- B** Size : 12CS
- C** Switch model No.: Proximity switch K2H, lead wire 1 m
- D** Switch quantity : 1 on open side

Code	Content				
<b>A Model No.</b>					
<b>HLAG</b>	Bush guide				
<b>HLBG</b>	Bearing guide				
<b>B Size</b>					
<b>12CS</b>					
<b>15CS</b>					
<b>20CS</b>					
<b>C Switch model No.</b>					
Axial lead wire	Contact	Voltage	Display	Lead wire	
		AC	DC		
<b>K0H*</b>	Reed	●	●	1-color display	2-wire
<b>K5H*</b>		●	●	no indicator lamp	
<b>K2H*</b>	Proximity		●	1-color display	2-wire
<b>K3H*</b>			●	display	
<b>* Lead wire length</b>					
<b>Blank</b>	1 m (standard)				
<b>3</b>	3 m (option)				
<b>5</b>	5 m (option)				
<b>D Switch quantity</b>					
<b>R</b>	1 on open side				
<b>H</b>	1 on closed side				
<b>D</b>	2				

### How to order switch

**SW - K2H**

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

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

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

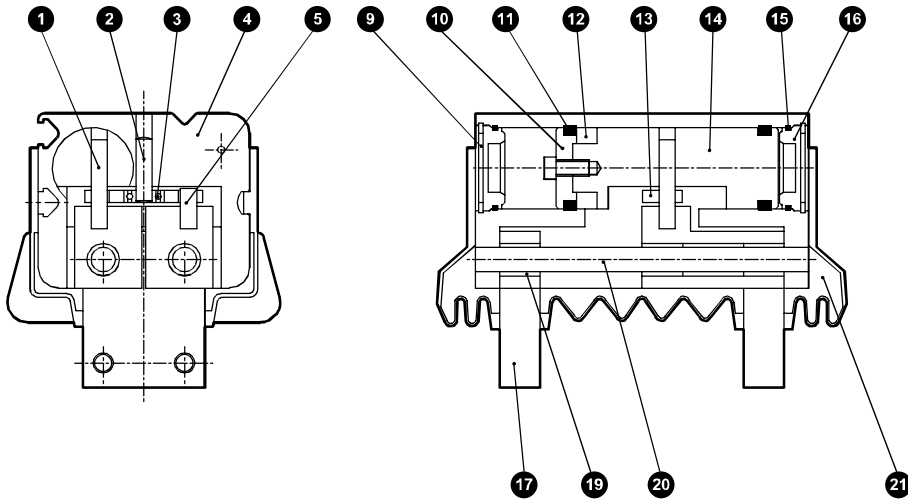
\* Contact CKD for details.

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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
<b>Hand</b>
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH
FH100
HAP
BSA2
BHA/BHG
LHA
LHAG
HKP
HLA/HLB
HLAG/HLBG
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HDL
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BHE

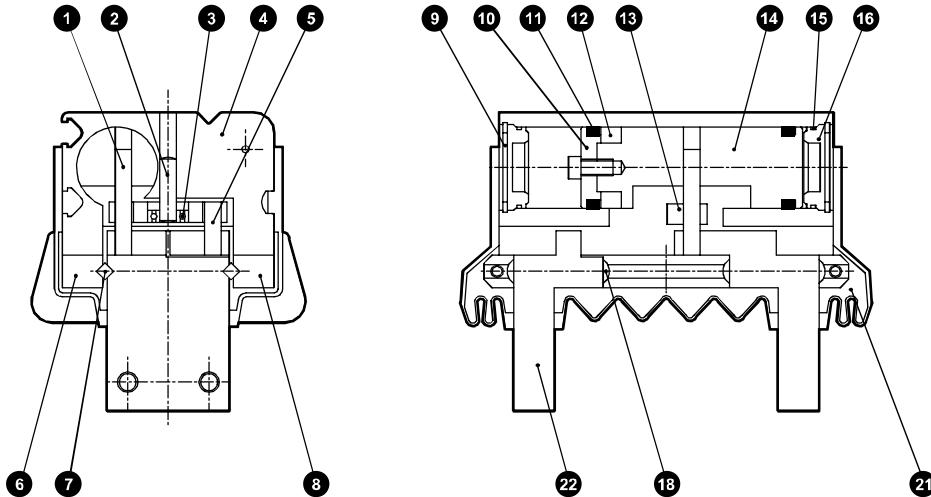
# HLAG/HLBG Series

## Internal structure and parts list

### ● HLAG-12CS to 20CS



### ● HLBG-12CS to 20CS



**Cannot be disassembled**

### Parts list

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Needle roller B	High carbon chrome bearing steel		12	Magnet		
2	Parallel pin	Steel		13	Cam	Stainless steel	
3	Small diameter sphere bearing	Alloy steel		14	Piston	Stainless steel	
4	Body	Aluminum alloy		15	Cylinder gasket	Nitrile rubber	
5	Needle roller A	High carbon chrome bearing steel		16	Cylinder guard	Resin	
6	Bearing guide B	Steel		17	Master key	Aluminum alloy	
7	Cross roller	High carbon chrome bearing steel		18	Truss machine screw	Stainless steel	
8	Bearing guide A	Steel		19	Bush	Sintering oil impregnated alloy	
9	Snap ring	Stainless steel		20	Guide rod	High carbon chrome bearing steel	
10	Magnet holder	Aluminum alloy		21	Rubber cover	Nitrile rubber	
11	Piston packing	Nitrile rubber		22	Master key	Steel	

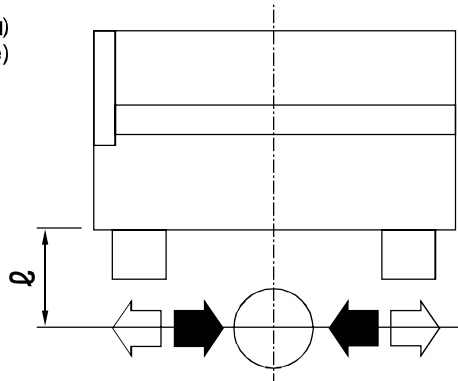
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- LCG
- LCX
- LCM
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK\*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCC2
- RCS
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3\*
-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

## Gripping power performance data

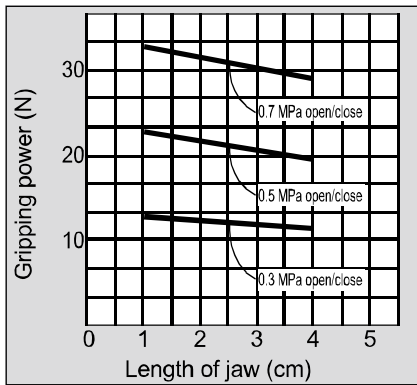
The gripping power in the opening/closing directions with jaw length L of hand with a supply pressure of 0.3, 0.5 and 0.7 MPa is shown.

- Both open direction (↔) and closed direction (◀▶) (shown with continuous line)

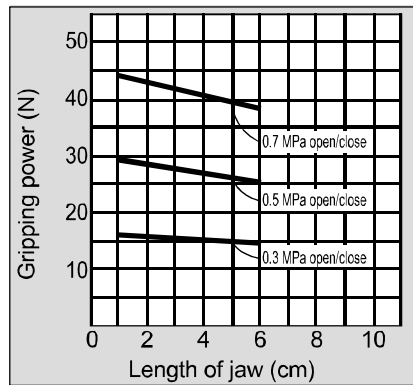
(Note) When making a selection, read the precautions for design and selection on page 1636.



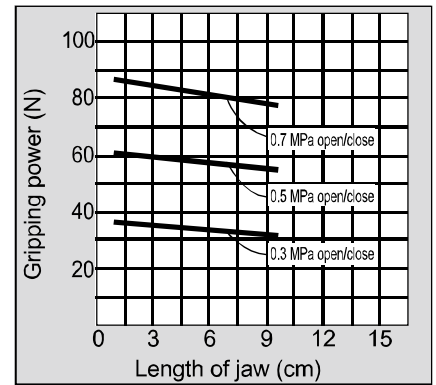
● HLAG-12CS



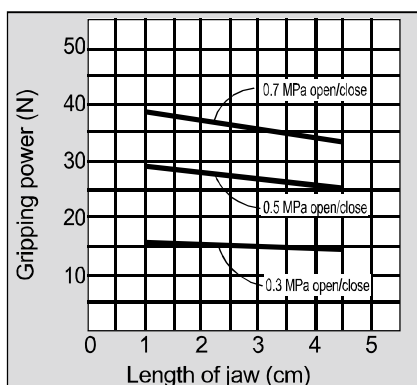
● HLAG-15CS



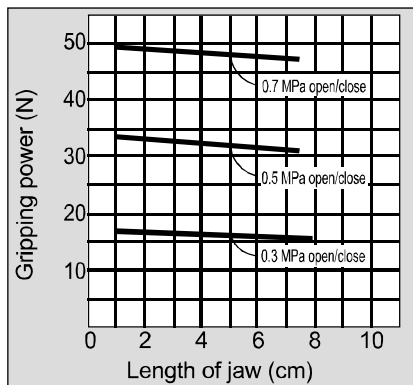
● HLAG-20CS



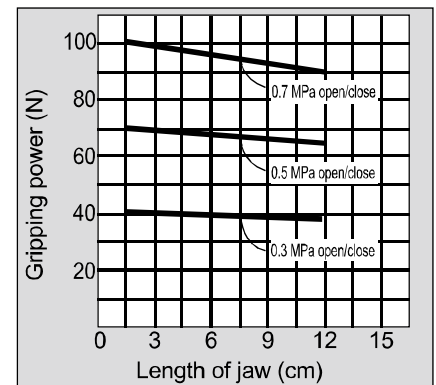
● HLBG-12CS



● HLBG-15CS



● HLBG-20CS



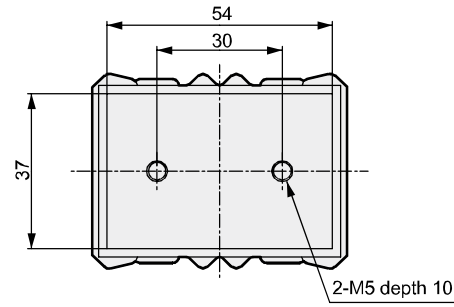
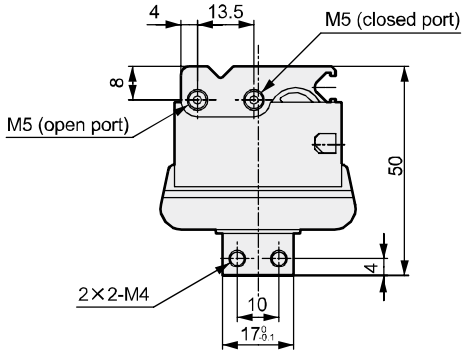
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UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
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PCC
SHC
MCP
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SpdContr
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BSA2
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HLAG/HLBG
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HGP
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HLB
HDL
HMD
HJD
HJL
BHE

# HLAG Series

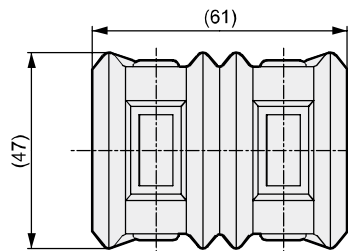
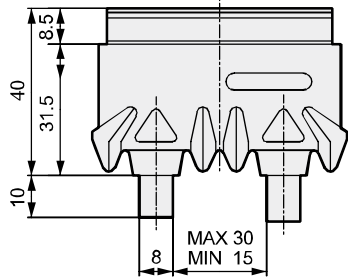
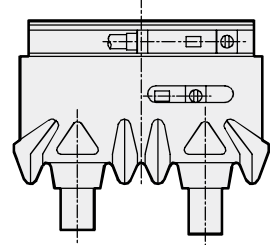
## Dimensions

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
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GRC
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MecHnd/Chuk
ShkAbs
FJ
FK
SsdContr
Ending
LSH
FH100
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BSA2
BHA/BHG
LHA
LHAG
HKP
HLA/HLB
<b>HLAG/HLBG</b>
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HDL
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BHE

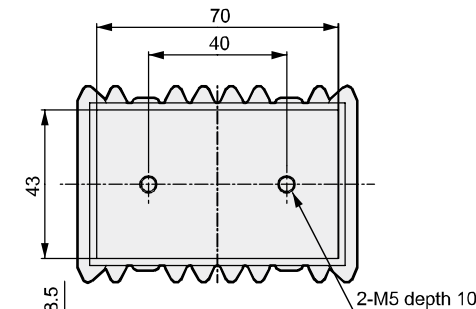
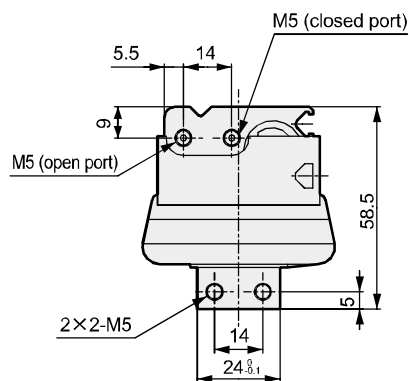
### ● HLAG-12CS Standard



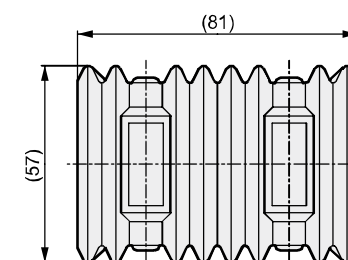
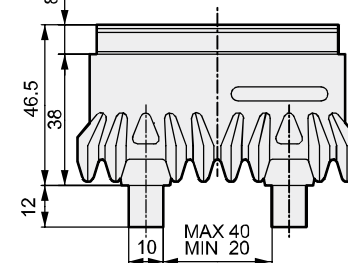
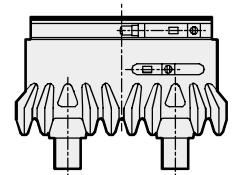
### ● With switch



### ● HLAG-15CS Standard



### ● With switch



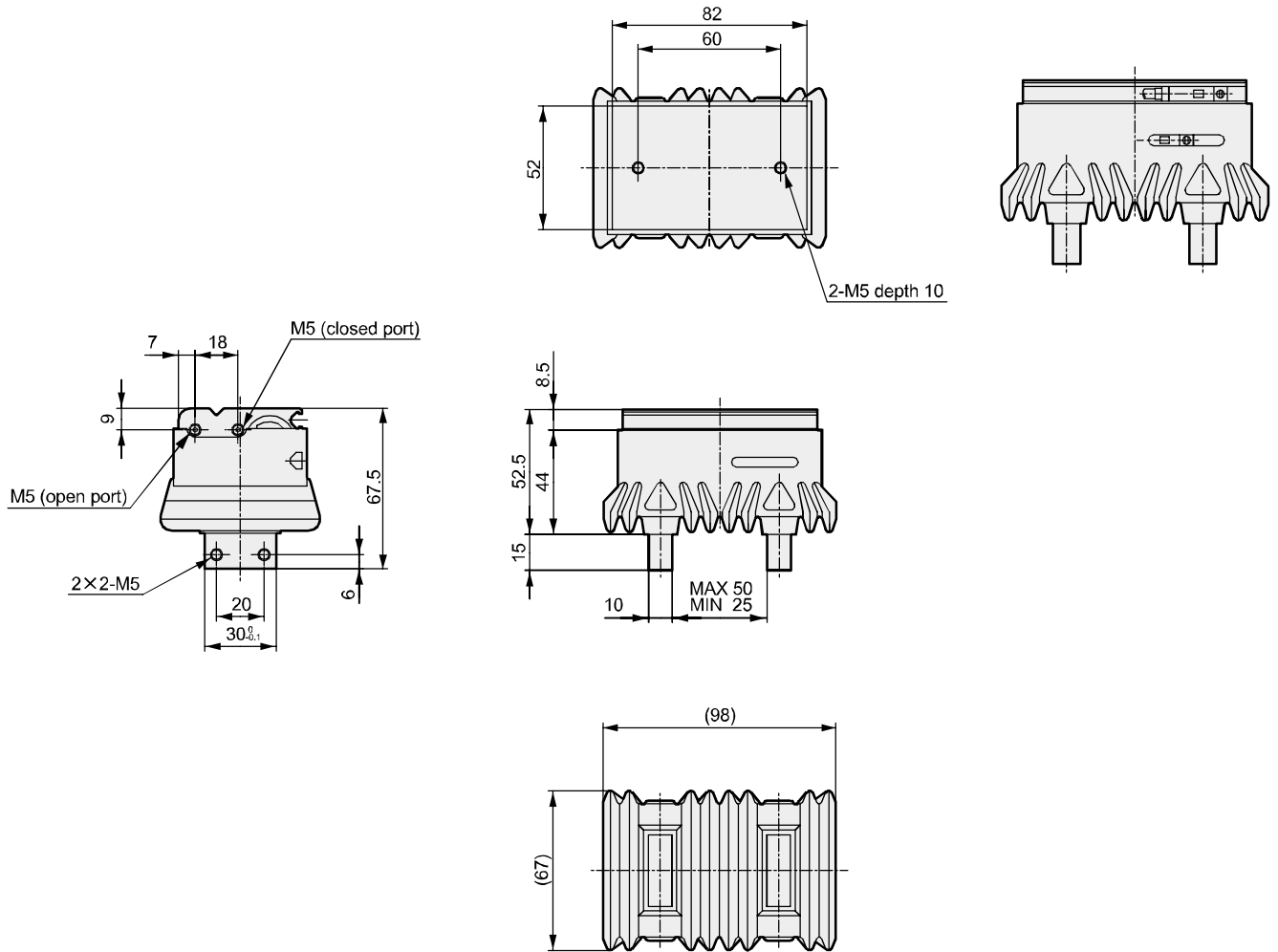


### Dimensions



● HLAG-20CS Standard

● 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
<b>Hand</b>
Chuk
MecHand/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

# HLBG Series

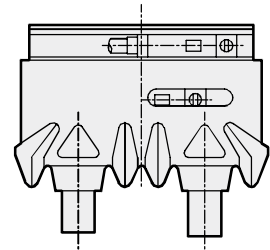
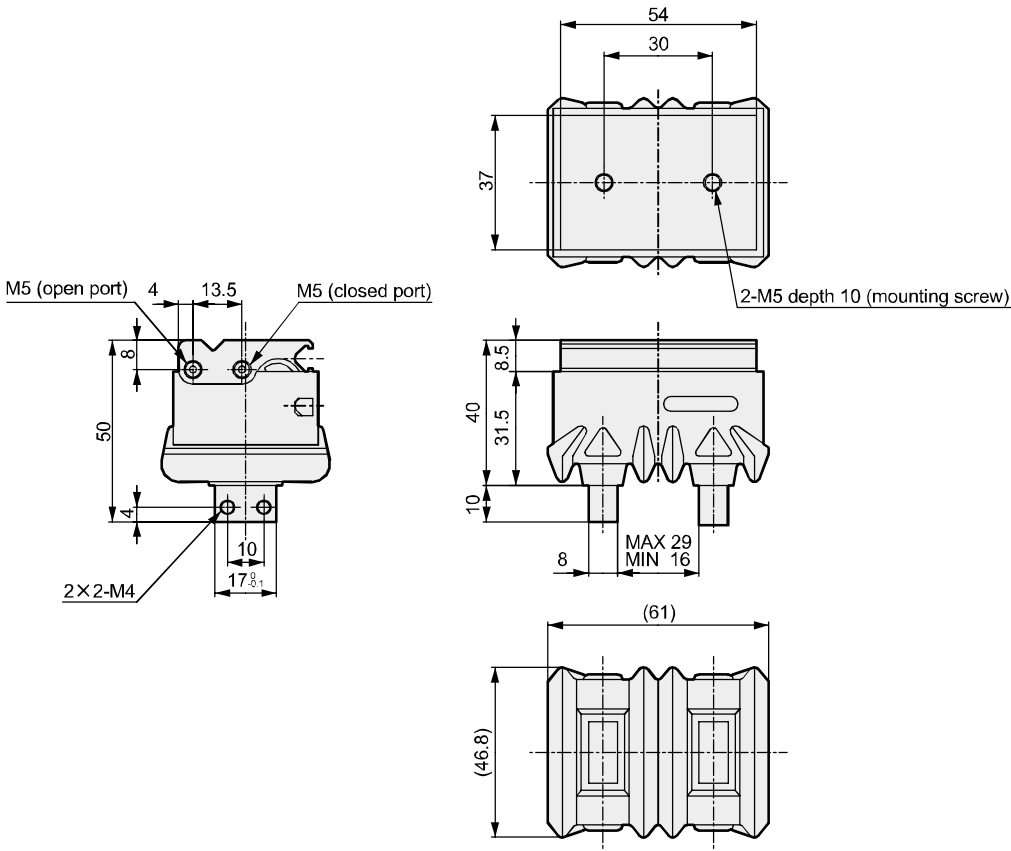
## Dimensions



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
SrdContr
Ending
LSH
FH100
HAP
BSA2
BHA/BHG
LHA
LHAG
HKP
HLA/HLB
HLA/HLBG
HLD
HCP
HMF
HMFB
HFP
HLC
HGP
FH500
HBL
HDL
HMD
HJD
HJL
BHE

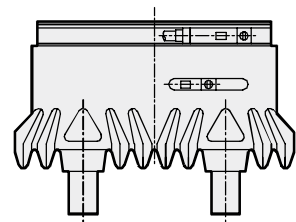
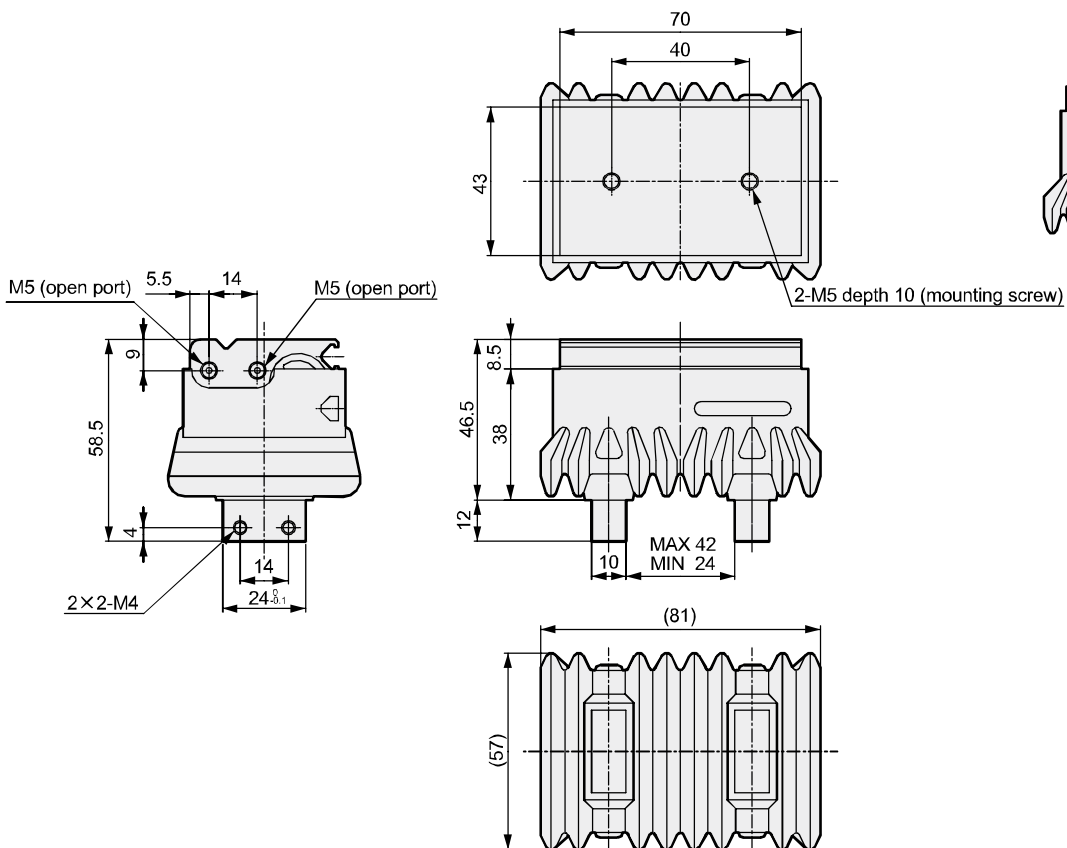
### ● HLBG-12CS Standard

### ● With switch



### ● HLBG-15CS Standard

### ● With switch

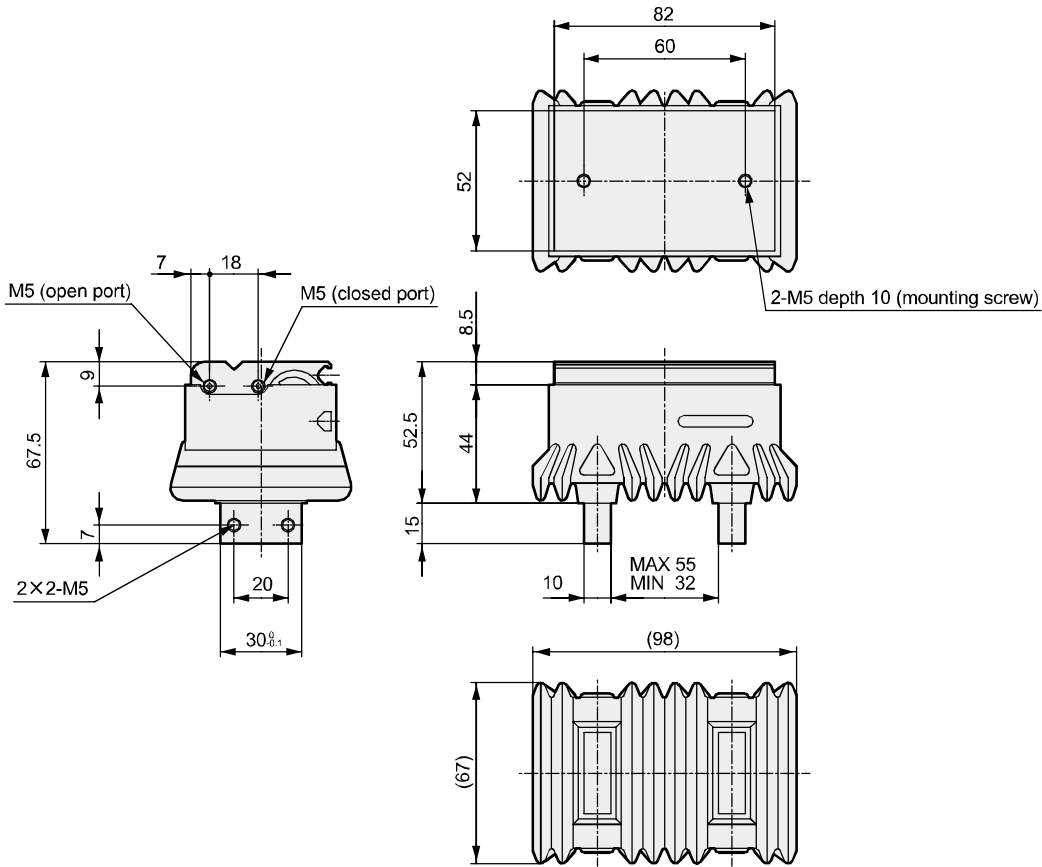


### Dimensions



● HLBG-20CS Standard

● With switch

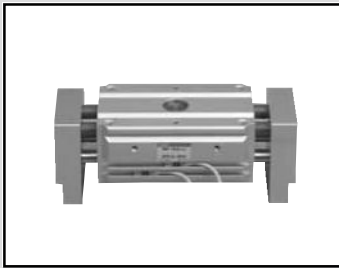


LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
<b>Hand</b>
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH
FH100
HAP
BSA2
BHA/BHG
LHA
LHAG
HKP
HLA/HLB
HLAG/HLBG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

Compact wide parallel hand (standard/long stroke)

# HMF Series

- Operational stroke length: Standard 30, 40, 50, 70, 100 mm  
: Long stroke 60, 80, 100, 120, 160, 200 mm



Double acting



## Specifications

Descriptions	HMF-12CS	HMF-16CS			HMF-20CS			HMF-25CS			HMF-32CS			HMF-40CS		
		Std.	L1	L2	Std.	L1	L2	Std.	L1	L2	Std.	L1	L2	Std.	L1	L2
Bore size mm	φ12×2	φ16×2			φ20×2			φ25×2			φ32×2			φ40×2		
Working fluid	Compressed air															
Max. working pressure MPa	0.7 (≈100 psi, 7 bar)															
Min. working pressure MPa	0.3 (≈44 psi, 3 bar)															
Ambient temperature °C	5 (41°F) to 60 (140°F)															
Port size	M5									Rc1/8						
Operating stroke length mm	20	30	60	80	40	80	100	50	100	120	70	120	160	100	160	200
Rod diameter mm	φ6	φ8			φ10			φ12			φ16			φ20		
Volumetric capacity (reciprocating) cm <sup>3</sup>	3.4	9.1	18.1	24.1	18.8	37.6	47.0	37.7	75.4	90.5	84.4	145	193	226	301	377
Repeatability mm	±0.1															
Weight kg	0.31	0.54	0.95	1.12	0.90	1.58	1.77	1.7	2.16	2.3	2.8	3.8	4.8	5.7	7.8	8.8
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
- LCC
- 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
- SsdContr
- 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)

**HMF - 32CS - L1**

With switch (built-in magnet for switch)

**HMF - 32CS - L1 - T2H - R**

**A** Size

**B** Option  
\*1

**C** Switch model No.

**D** Switch quantity

Code	Content				
<b>A Size</b>					
12CS					
16CS					
20CS					
25CS					
32CS					
40CS					
<b>B Option</b>					
Blank	Standard				
L1	Long stroke 1				
L2	Long stroke 2				
<b>C Switch model No.</b>					
Axial lead wire	Radial lead wire	Contact	Voltage	Display	Lead wire
			AC	DC	
T2H*	T2V*	Proximity		●	1-color
T3H*	T3V*			●	display
					2-wire
					3-wire
<b>* Lead wire length</b>					
Blank	1 m (standard)				
3	3 m (option)				
5	5 m (option)				
<b>D Switch quantity</b>					
R	1 on open side				
H	1 on closed side				
D	2				

## ⚠ Precautions for model No. selection

\*1: 12CS is not available for long stroke "L1", "L2".

[Example of model No.]

**HMF-32CS-L1-T2H-R**

- A** Size : 32CS
- B** Option : Long stroke 1
- 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)

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

\* Contact CKD for details.

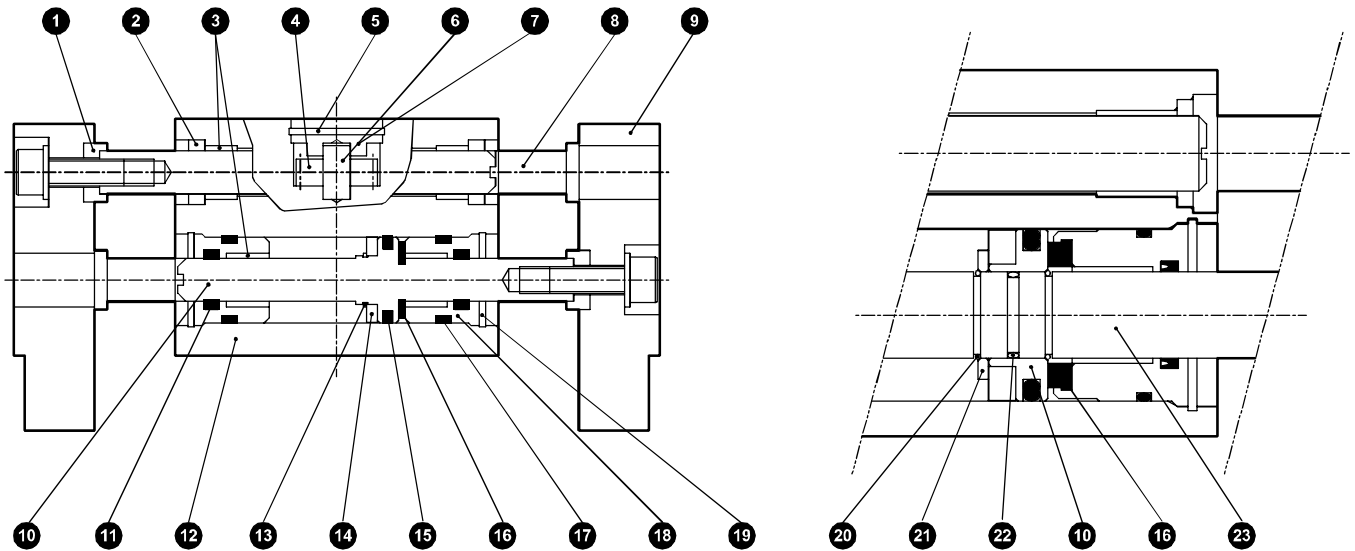
LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
<b>Hand</b>
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
<b>Ending</b>
LSH
FH100
HAP
BSA2
BHA/BHG
LHA
LHAG
HKP
HLA/HLB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

## Internal structure and parts list

● HMF-12CS to 25CS (Standard stroke length)

● HMF-32CS, 40CS (Standard)

● HMF-16CS to 40CS-L1, L2 (Long stroke)



**Cannot be disassembled**

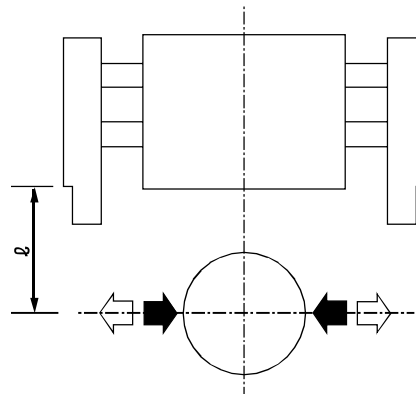
No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Washer	Carbon steel	12CS and 16CS only	13	Snap ring	Stainless steel	
2	Needle bearing sealant	Resin + steel		14	Magnet		
3	Bush	Sintering oil impregnated alloy		15	Piston packing	Nitrile rubber	
4	Pinion gear	Carbon steel		16	Cushion	Urethane rubber	
5	Snap ring	Stainless steel		17	Cylinder gasket	Nitrile rubber	
6	Pinion gear shaft	Stainless steel		18	Cylinder guard	Aluminum alloy	
7	Pinion cover	Stainless steel		19	Snap ring	Stainless steel	
8	Guide rod	Stainless steel		20	Piston fixing spring	Stainless steel	
9	Master key	Aluminum alloy		21	Magnet holder	Stainless steel	
10	Piston	Stainless steel		22	O-ring	Nitrile rubber	
11	Rod packing	Nitrile rubber		23	Piston rod	Stainless steel	
12	Body	Aluminum alloy					

### Gripping power performance data

The gripping power with jaw length  $L$  of hand and a supply pressure of 0.3, 0.5 and 0.7 MPa is shown.

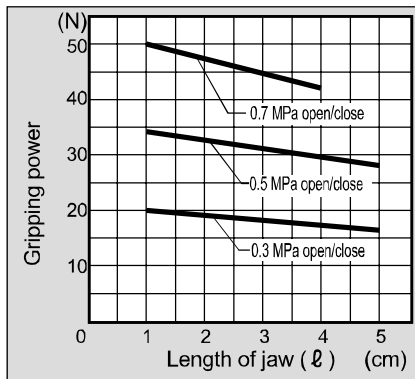
- Both open direction (◀) closed direction (▶)
- (shown with continuous line)

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

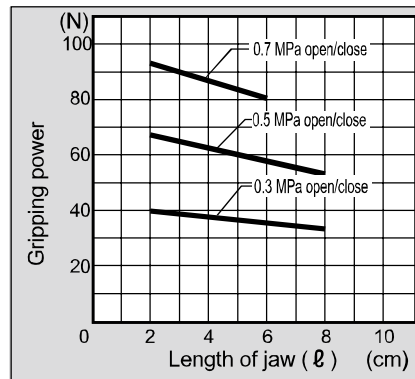


LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
<b>Hand</b>
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
<b>Ending</b>
LSH
FH100
HAP
BSA2
BHA/BHG
LHA
LHAG
HKP
HLA/HLB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

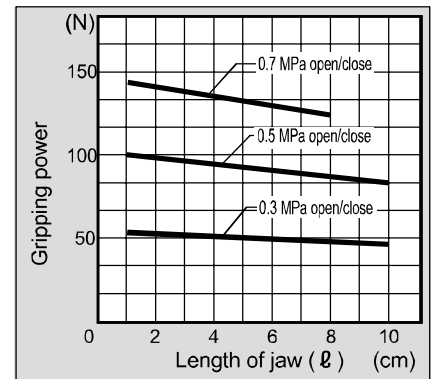
● HMF-12CS



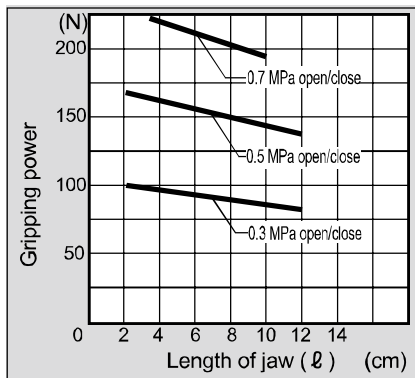
● HMF-16CS



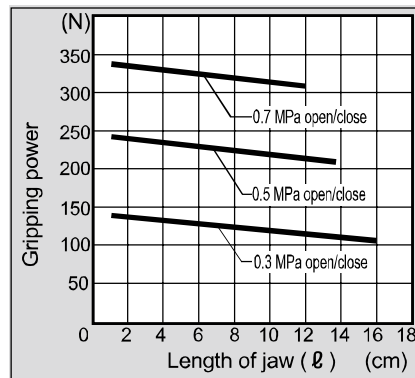
● HMF-20CS



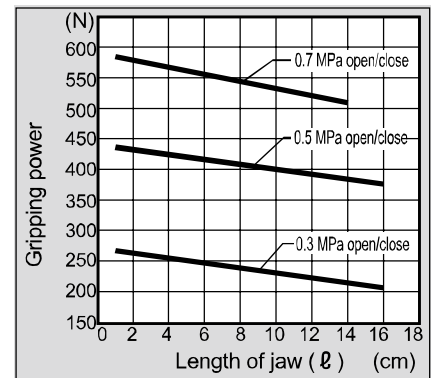
● HMF-25CS



● HMF-32CS



● HMF-40CS



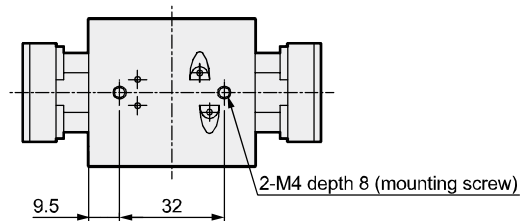
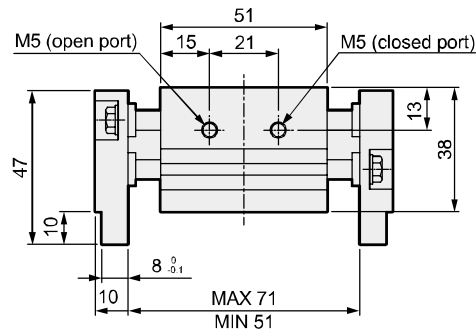
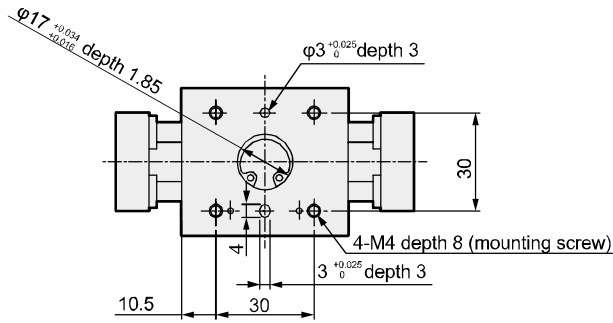
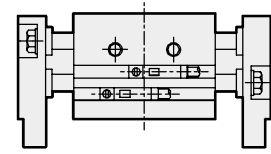
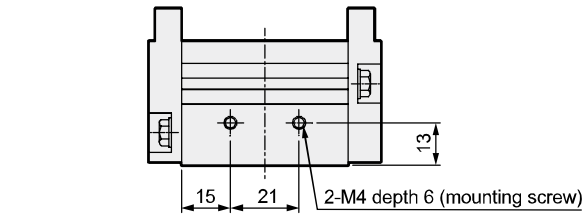
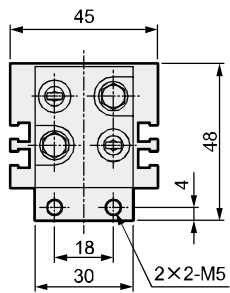
## Dimensions



● HMF-12CS Standard

● 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
<b>Hand</b>
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SsdContr
Ending



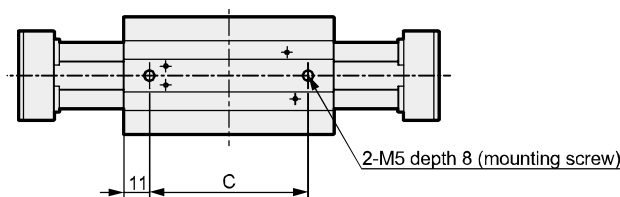
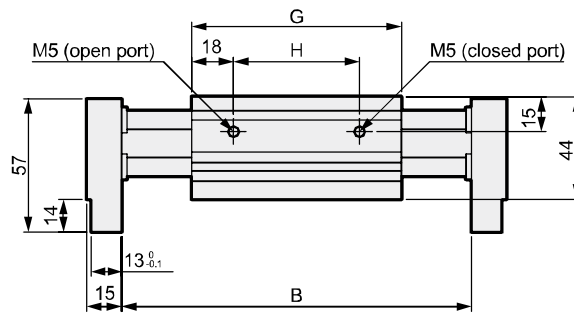
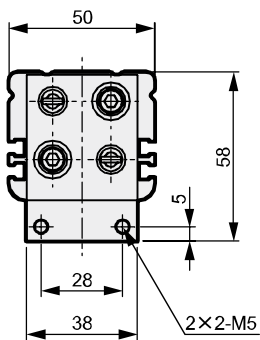
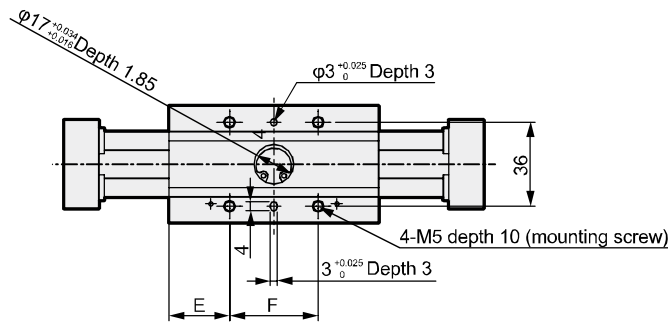
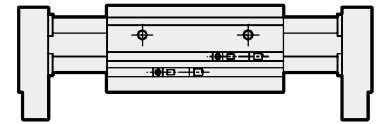
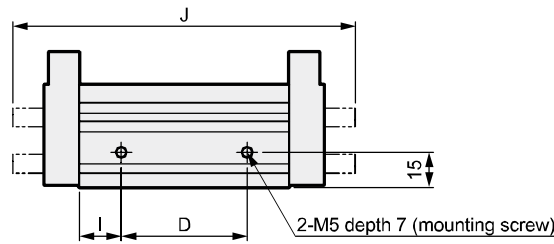


### Dimensions



● HMF-16CS Standard/L1/L2

● With switch



Code	B		C	D	E	F	G	H	I	J
	MAX	MIN								
Standard (blank)	90	60	38	28	11	38	60	24	16	-
L1	150	90	68	54	26	38	90	54	18	147
L2	186	106	84	70	26	54	106	70	18	183

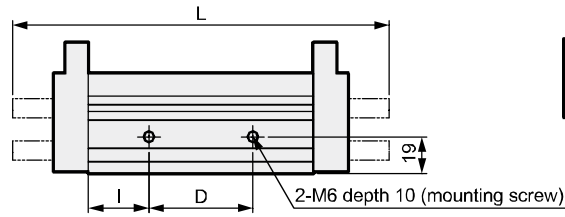
LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
<b>Hand</b>
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH
FH100
HAP
BSA2
BHA/BHG
LHA
LHAG
HKP
HLA/HLB
HLAG/HLBG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

## Dimensions

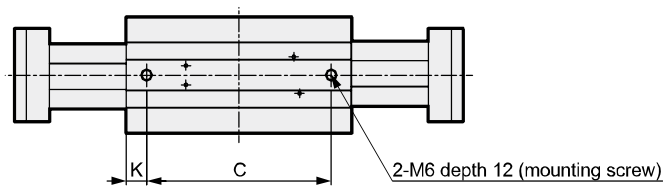
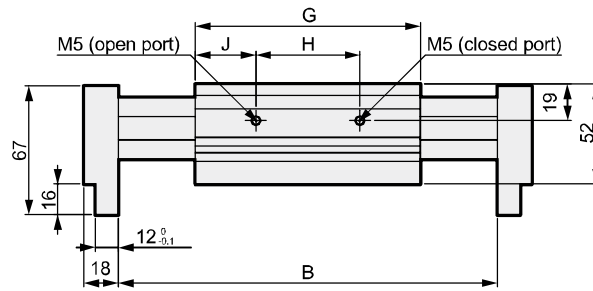
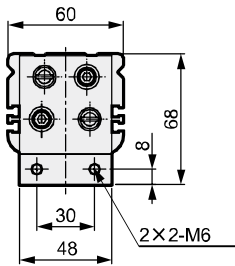
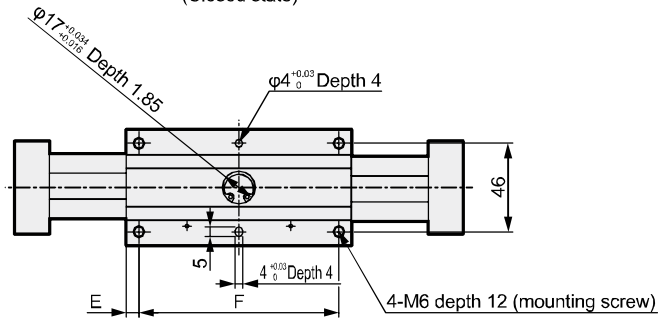
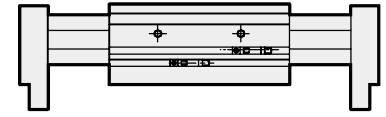


● HMF-20CS Standard/L1/L2

● With switch



(Closed state)



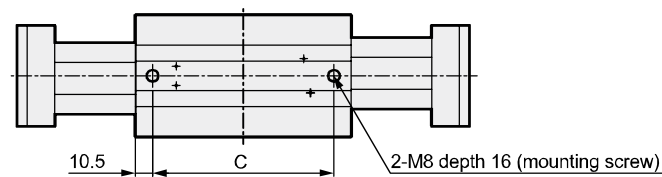
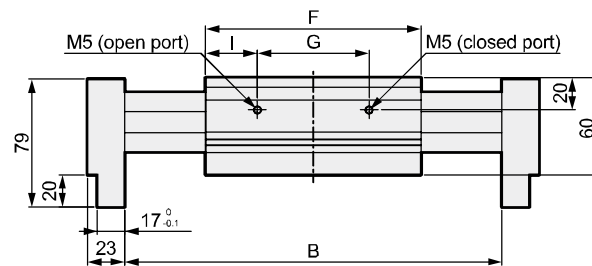
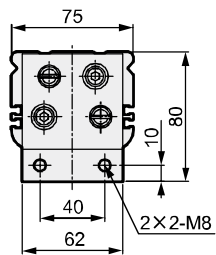
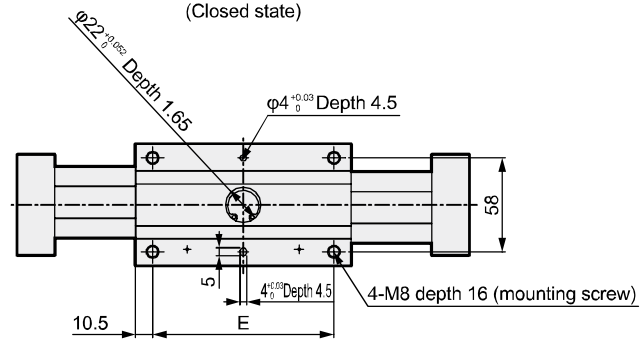
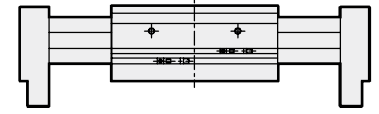
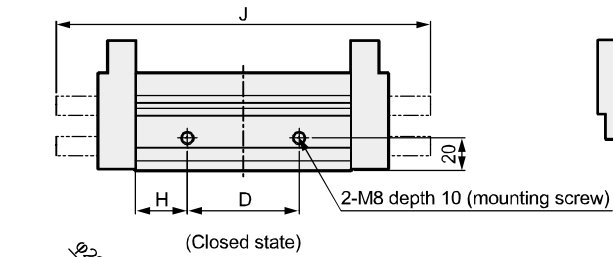
Code	B		C	D	E	F	G	H	I	J	K	L
	MAX	MIN										
Standard (blank)	114	74	56	38	9	56	74	34	18	20	9	-
HMF L1	197	117	96	54	6.5	104	117	54	31.5	31.5	10.5	196
HMF L2	233	133	112	70	6.5	120	133	70	31.5	31.5	10.5	232

- 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
- SsdContr
- Ending
- LSH
- FH100
- HAP
- BSA2
- BHA/BHG
- LHA
- LHAG
- HKP
- HLA/HLB
- HLAG/HLBC
- HLD
- HCP
- HMF**
- HMF B
- HFP
- HLC
- HGP
- FH500
- HBL
- HDL
- HMD
- HJD
- HJL
- BHE

### Dimensions

● HMF-25CS Standard/L1/L2

● With switch



Code	B		C	D	E	F	G	H	I	J
	MAX	MIN								
Standard (blank)	141	91	70	48	70	91	41	21.5	25	-
L1	233	133	112	69	112	133	69	32	32	231
L2	271	151	130	87	130	151	87	32	32	269

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
<b>Hand</b>
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH
FH100
HAP
BSA2
BHA/BHG
LHA
LHAG
HKP
HLA/HLB
HLAG/HLBG
HLD
HCP
<b>HMF</b>
HMFB
HFP
HLC
HGP
FH500
HBL
HDL
HMD
HJD
HJL
BHE

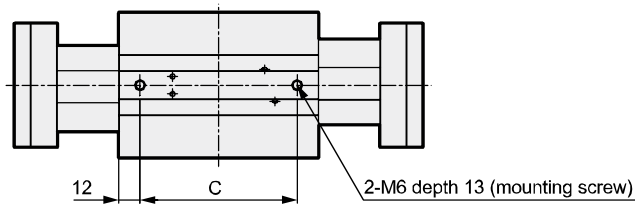
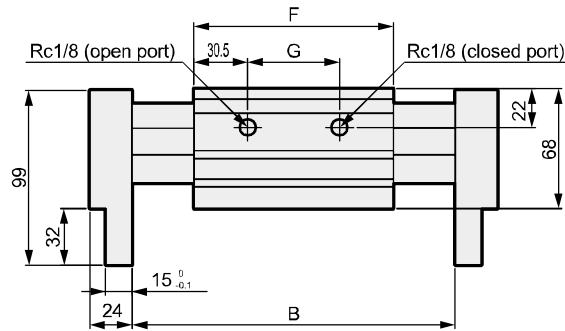
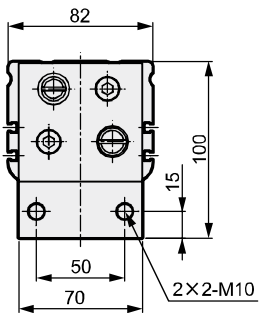
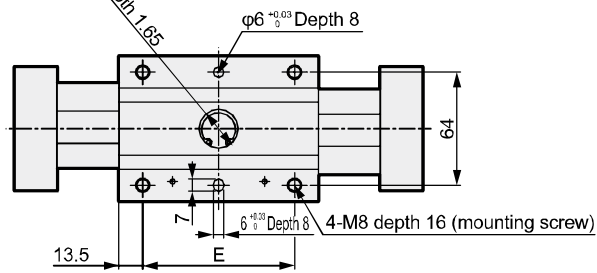
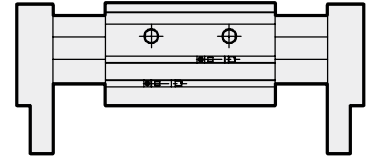
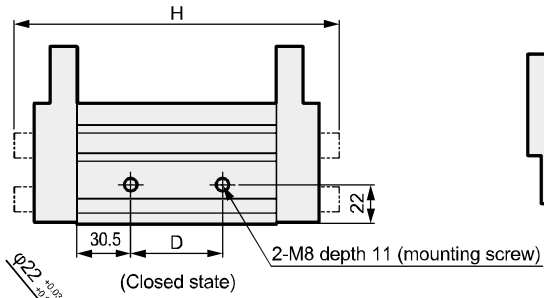
## Dimensions



● HMF-32CS Standard/L1/L2

● With switch

- LCW
- LCR
- LCG
- LCX
- LCM
- STM
- STG
- ST5/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
- SsdContr
- Ending
- LSH
- FH100
- HAP
- BSA2
- BHA/BHG
- LHA
- LHAG
- HKP
- HLA/HLB
- HLAG/HLBC
- HLD
- HCP
- HMF**
- HMFB
- HFP
- HLC
- HGP
- FH500
- HBL
- HDL
- HMD
- HJD
- HJL
- BHE

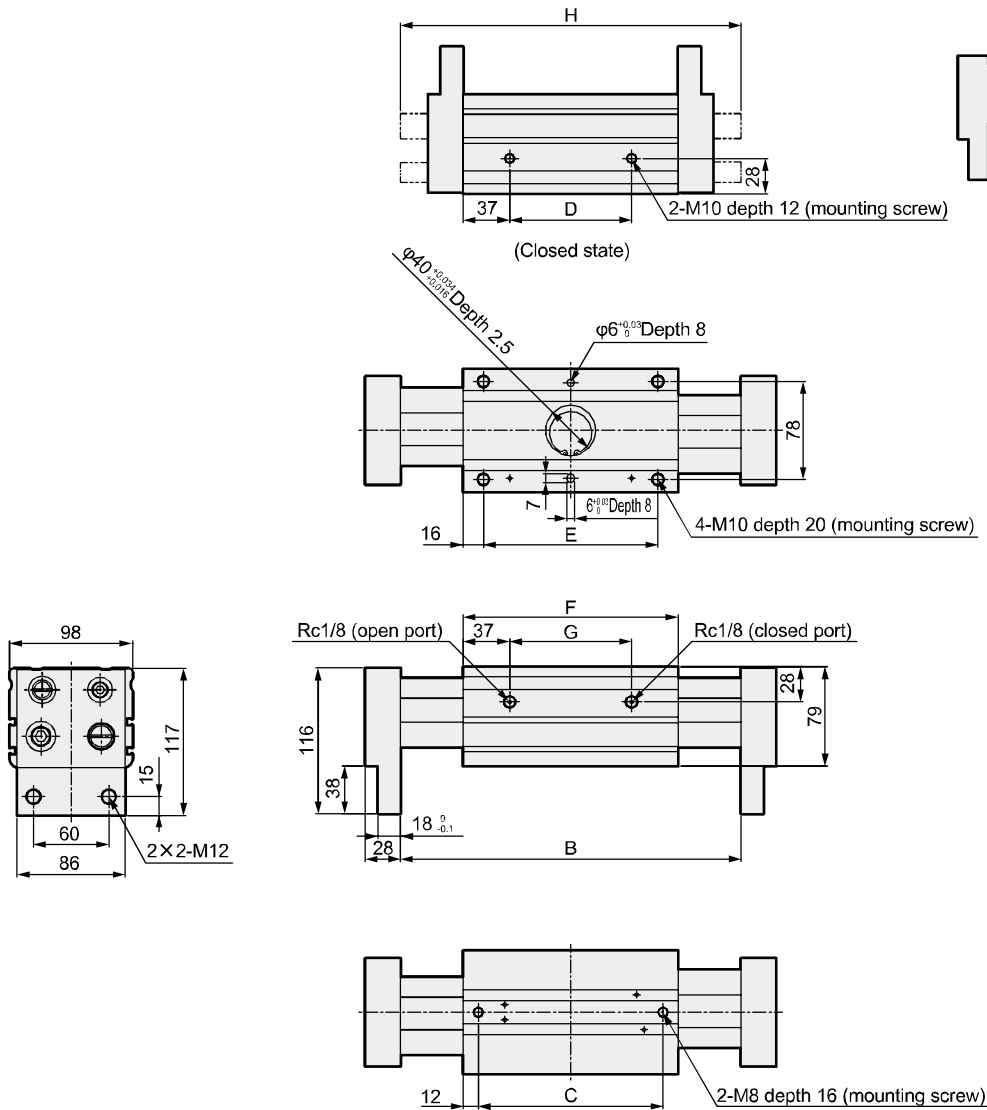


Code	B		C	D	E	F	G	H
	MAX	MIN						
Standard (blank)	183	113	89	52	86	113	52	179
L1	274	154	130	93	127	154	93	270
L2	354	194	170	133	167	194	133	350

### Dimensions

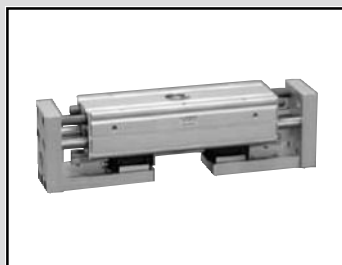
● HMF-40CS Standard/L1/L2

● With switch



Code	B		C	D	E	F	G	H
	MAX	MIN						
Standard (blank)	271	171	147	97	139	171	97	271
L1	361	201	177	127	169	201	127	361
L2	434	234	210	160	202	234	160	434

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
<b>Hand</b>
Chuk
MecHand/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH
FH100
HAP
BSA2
BHA/BHG
LHA
LHAG
HKP
HLA/HLB
HLAG/HLBG
HLD
HCP
<b>HMF</b>
HMFB
HFP
HLC
HGP
FH500
HBL
HDL
HMD
HJD
HJL
BHE



LM guided large wide parallel hand  
(Long stroke 1/long stroke 2)

# HMFB Series

- Operational stroke length: Long stroke 1 100, 120, 160  
Long stroke 2 120, 160, 200

Double acting



## Specifications

Descriptions	HMFB					
	25CS		32CS		40CS	
Size	L1	L2	L1	L2	L1	L2
Bore size mm	φ25×2		φ32×2		φ40×2	
Working fluid	Compressed air					
Max. working pressure MPa	0.7 (≈100 psi, 7 bar)					
Min. working pressure MPa	0.3 (≈44 psi, 3 bar)					
Ambient temperature °C	5 (41°F) to 60 (140°F)					
Port size	M5			Rc1/8		
Operating stroke length mm	100	120	120	160	160	200
Rod diameter mm	φ12		φ16		φ20	
Volumetric capacity (reciprocating) cm <sup>3</sup>	75.4	90.5	145	193	301	377
Repeatability mm	±0.1					
Weight kg	4.06	4.13	5.97	7.2	10.05	11.8
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)					

## Switch specifications

Descriptions	Proximity 2-wire	Proximity 3-wire
	T2H/T2V	T3H/T3V
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, 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
- LCC
- 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
- SsdContr
- 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)

**HMFB - 25CS - L1**

With switch (built-in magnet for switch)

**HMFB - 25CS - L1 - T2H - R**

**A** Size

**B** Stroke length

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

**D** Switch quantity

Code	Content					
<b>A Size</b>						
25CS						
32CS						
40CS						
<b>B Option</b>						
L1	Long stroke 1					
L2	Long stroke 2					
<b>C Switch model No.</b>						
Axial lead wire	Radial lead wire	Contact	Voltage		Display	Lead wire
			AC	DC		
T2H*	T2V*	Proximity		●	1-color	2-wire
T3H*	T3V*			●	display	3-wire
<b>* Lead wire length</b>						
Blank	1 m (standard)					
3	3 m (option)					
5	5 m (option)					
<b>D Switch quantity</b>						
R	1 on open side					
H	1 on closed side					
D	2					

[Example of model No.]

**HMFB-25CS-L1-T2H-R**

Model: LM guided large wide parallel hand

- A** Size : 25CS
- B** Stroke length : Long stroke 1
- 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)

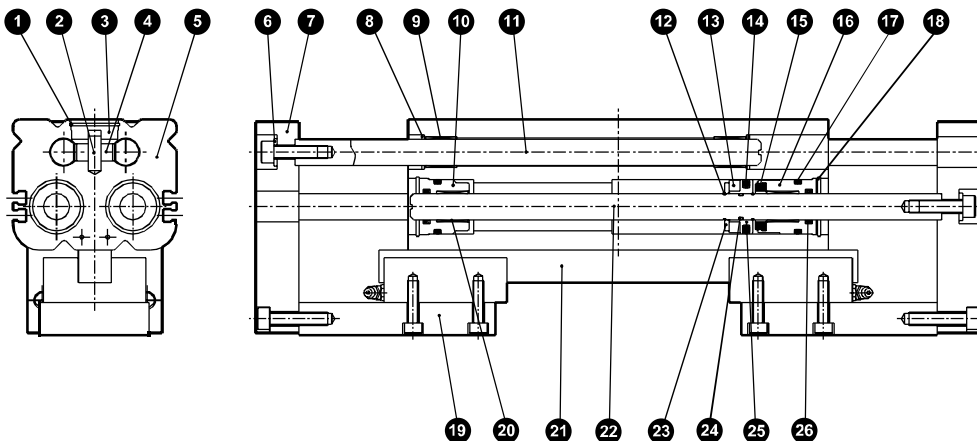
LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
<b>Hand</b>
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH
FH100
HAP
BSA2
BHA/BHG
LHA
LHAG
HKP
HLA/HLB
HLAG/HLBG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

# HMFB Series

- 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
- SrdContr
- Ending
- LSH
- FH100
- HAP
- BSA2
- BHA/BHG
- LHA
- LHAG
- HKP
- HLA/HLB
- HLAG/HLBG
- HLD
- HCP
- HMFB
- HFP
- HLC
- HGP
- FH500
- HBL
- HDL
- HMD
- HJD
- HJL
- BHE

## Internal structure and parts list

- HMFB-25CS to 40CS-L1
- HMFB-25CS to 40CS-L2



## Parts list

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	C type snap ring	Stainless steel		14	Packing	Nitrile rubber	
2	Pinion gear axis	Stainless steel		15	Cushion	Urethane rubber	
3	Pinion cover	Stainless steel		16	Cylinder guard A	Aluminum alloy	
4	Pinion gear	Carbon steel		17	O-ring	Nitrile rubber	
5	Body	Aluminum alloy		18	C type snap ring	Stainless steel	
6	Plain washer	Stainless steel	32CS-L1, L2 are not available	19	Connection plate	Aluminum alloy	
7	Master key	Aluminum alloy		20	Bush	Sintering oil impregnated alloy	
8	Needle bearing sealant			21	LM guide		
9	Bush	Sintering oil impregnated alloy		22	Piston rod	Stainless steel	
10	Cylinder guard B	Aluminum alloy		23	Magnet holder	Stainless steel	
11	Guide rod	Stainless steel		24	O-ring	Nitrile rubber	
12	Piston fixing spring	Stainless steel		25	Piston	Stainless steel	
13	Magnet			26	Packing	Nitrile rubber	

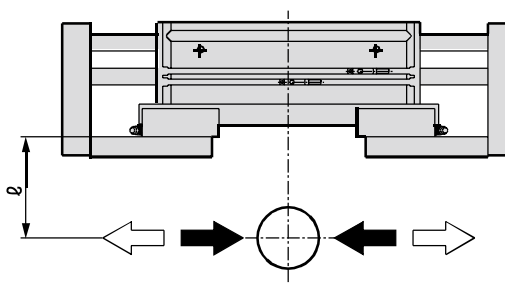
Cannot be disassembled

## Gripping power performance data

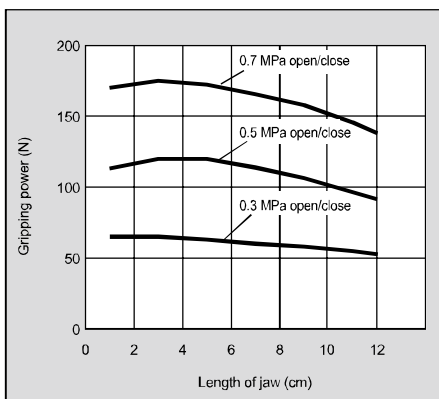
The gripping power at a supply pressure 0.3, 0.5, and 0.7 MPa with jaw length  $\ell$  of hand is shown.

- Both open direction (◀) and closed direction (▶)
- (shown with continuous line)

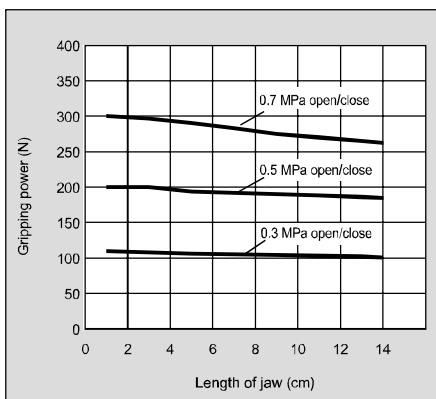
(Note) When making a selection, read the precautions for design and selection on page 1636.



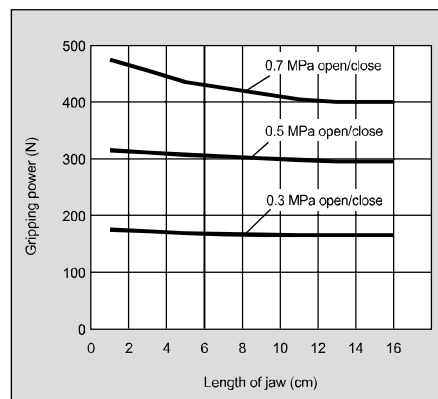
### ● HMFB-25CS



### ● HMFB-32CS



### ● HMFB-40CS



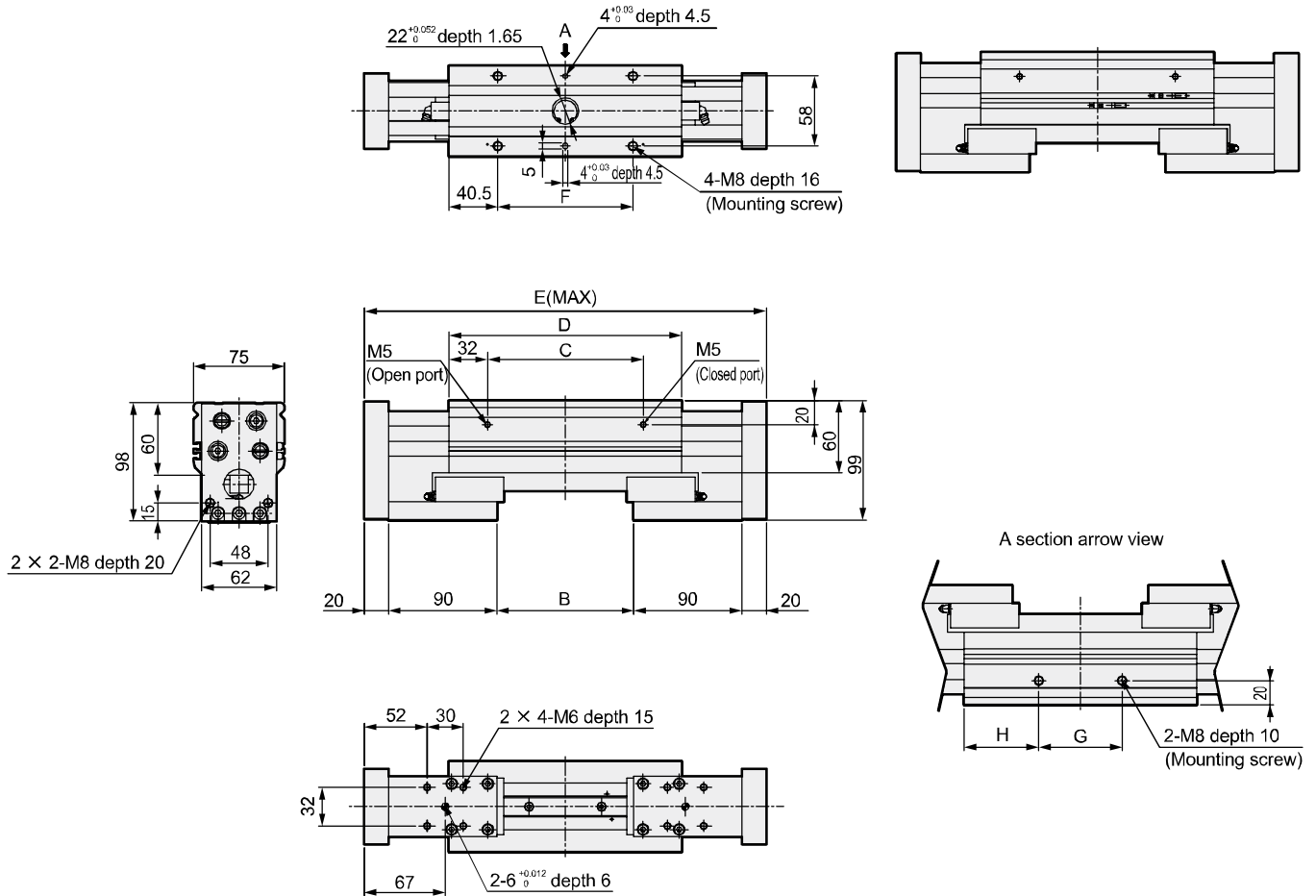


### Dimensions



● HMFB-25CS-L1/L2

● With switch



Code	B		C	D	E	F	G	H
	MAX	MIN						
L1	113	13	129	193	333	112	69	62
L2	131	11	127	191	351	110	87	52

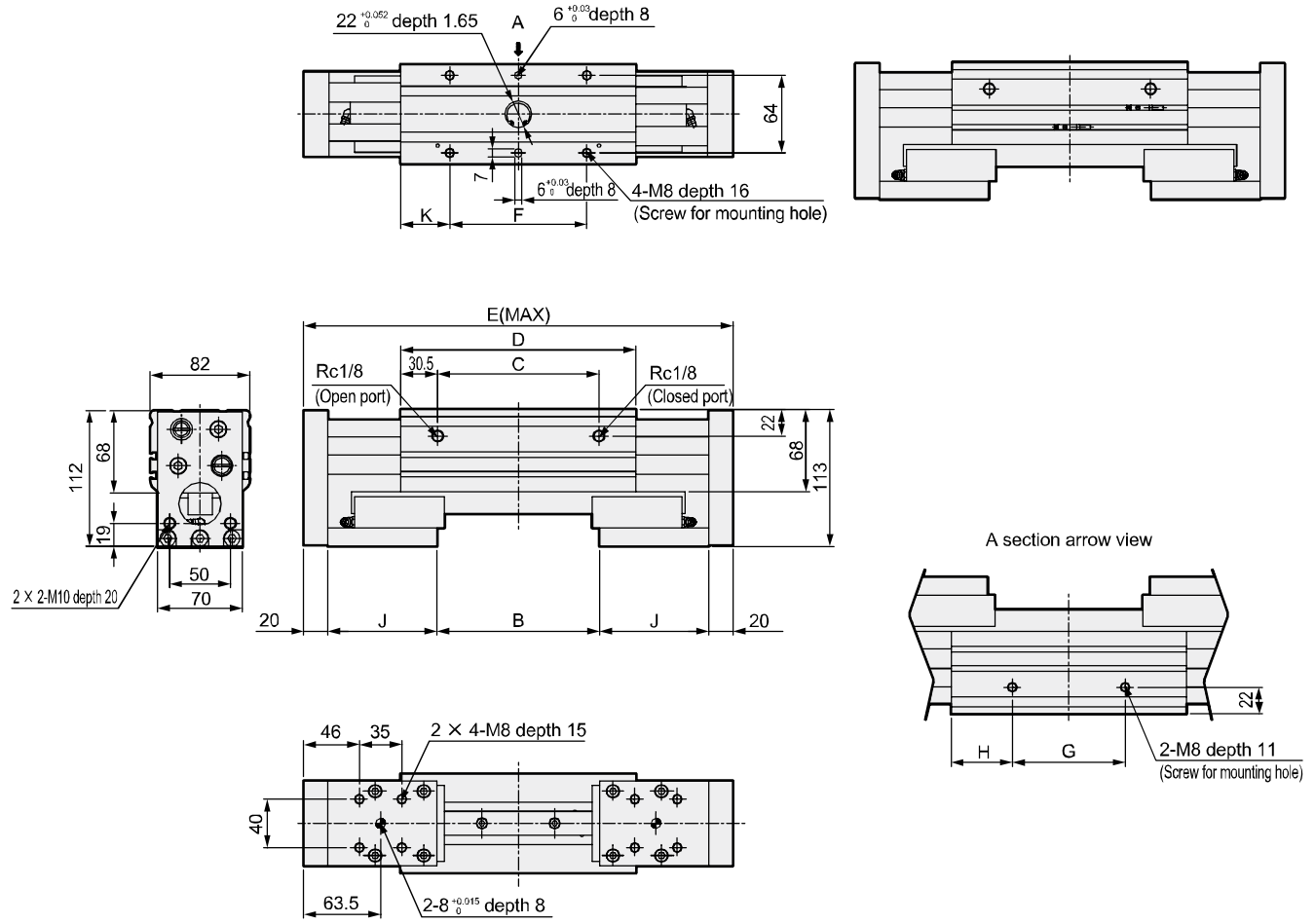
LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
<b>Hand</b>
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH
FH100
HAP
BSA2
BHA/BHG
LHA
LHAG
HKP
HLA/HLB
HLAG/HLBG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

## Dimensions



### ● HMFB-32CS-L1/L2

### ● With switch



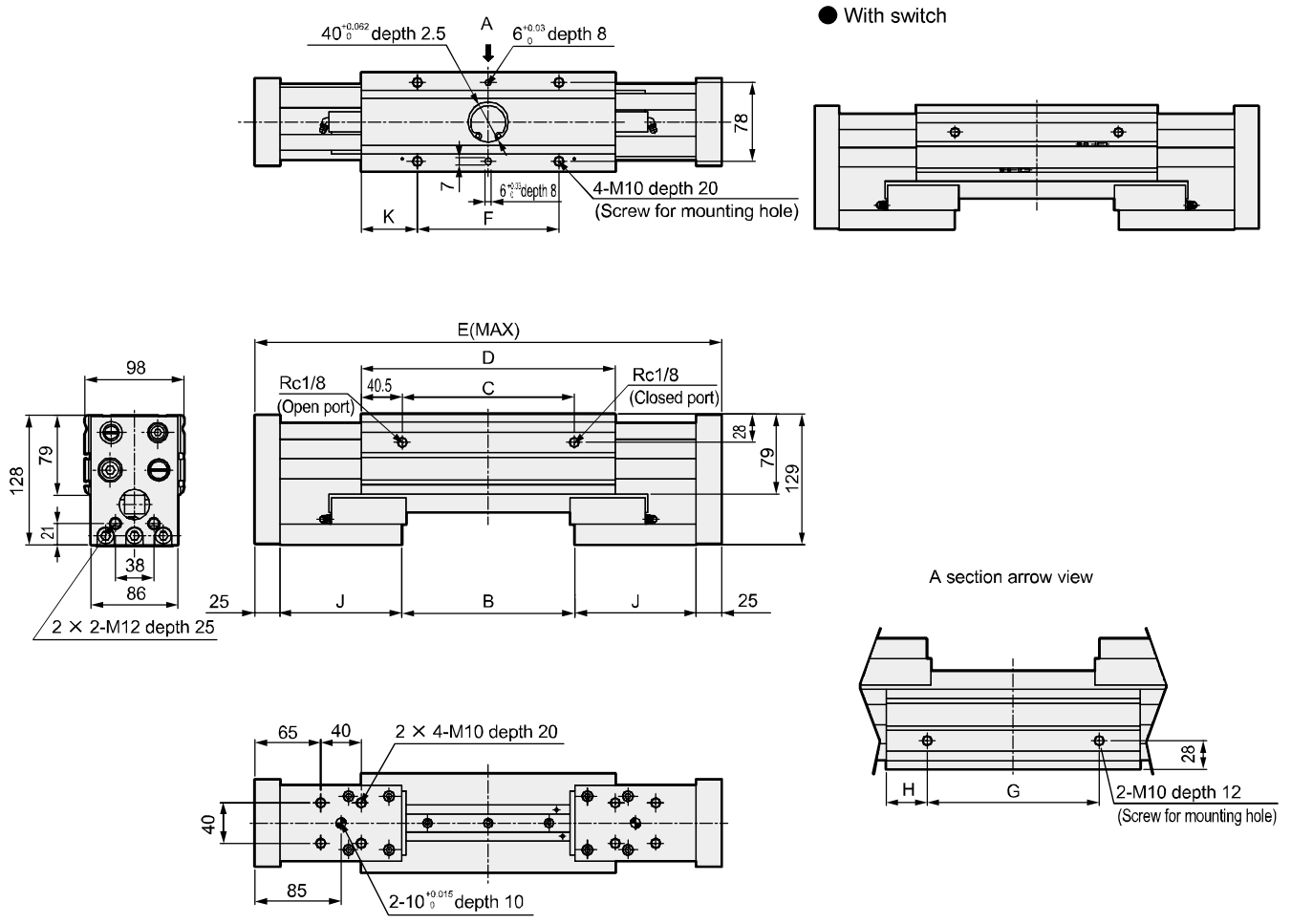
Code	B		C	D	E	F	G	H	J	K
	MAX	MIN								
L1	134	14	133	194	354	113	93	50.5	90	40.5
L2	174	14	193	254	454	167	133	60.5	120	43.5

- 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
- SsdContr
- 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



● HMFB-40CS-L1/L2

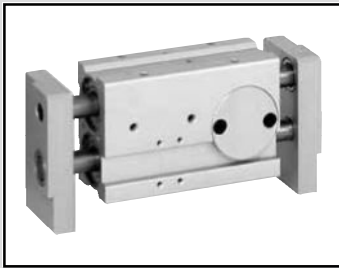


Code	B		C	D	E	F	G	H	J	K
	MAX	MIN								
L1	171	11	170	251	461	140	170	40.5	120	55.5
L2	214	14	233	314	564	202	160	77	150	56

- 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
- HMFB
- HFP
- HLC
- HGP
- FH500
- HLB
- HDL
- HMD
- HJD
- HJL
- BHE

Wide parallel hand Double acting

# HFP Series



● Operating stroke length: 20, 30, 40, 60 mm  
Double acting



## Specifications

Descriptions	HFP			
	2CS	3CS	4CS	5CS
Size				
Bore size mm	φ16×2	φ25×2	φ32×2	φ40×2
Actuation	Double acting			
Working fluid	Compressed air			
Max. working pressure MPa	0.7 (≈100 psi, 7 bar)			
Min. working pressure MPa	0.3 (≈44 psi, 3 bar)			
Ambient temperature °C	5 (41°F) to 60 (140°F)			
Port size	M5			Rc1/8
Operating stroke length mm	20	30	40	60
Rod diameter mm	φ10	φ12	φ15	φ18
Volumetric capacity (reciprocating) cm <sup>3</sup>	4.90	22.70	50.2	120.3
Repeatability mm	±0.03			
Weight kg	0.59	1.10	2.07	3.90
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 *3	

\*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.

\*3 : The weight of switch mounting bracket is 1.5 g.

- 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/HLBC
- HLD
- HCP
- HMF
- HMFB
- HFP
- HLC
- HGP
- FH500
- HBL
- HDL
- HMD
- HJD
- HJL
- BHE

## How to order

Without switch (built-in magnet for switch)

**HFP - 2CS**

With switch (built-in magnet for switch)

**HFP - 2CS - T2H - R**

**A** Size

**B** Switch model No.

**C** Switch quantity

[Example of model No.]

**HFP-2CS-T2H-R**

Model: Wide parallel hand

- A** Size : 2CS
- B** Switch model No. : Proximity T2H switch, lead wire 1 m
- C** Switch quantity : 1 on open side

Code	Content
<b>A Size</b>	
2CS	
3CS	
4CS	
5CS	
<b>B Switch model No.</b>	
Axial lead wire	Radial lead wire
T2H*	T2V*
T3H*	T3V*
	Proximity
	Voltage
	AC
	DC
	Display
	Lead wire
	● 1-color
	● display
	2-wire
	3-wire
<b>* Lead wire length</b>	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)
<b>C Switch quantity</b>	
R	1 on open side
H	1 on closed side
D	2

## How to order switch

- For switch T\*H\*
  - Switch body + mounting bracket set

**HFP - T2H**

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

- Switch body

**SW - T2H**

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

- Mounting bracket set

**HFP - T**

- For switch T\*V\*
  - Switch body + mounting bracket set

**HFP - T2V - \***

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

- Switch body

**SW - T2V**

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

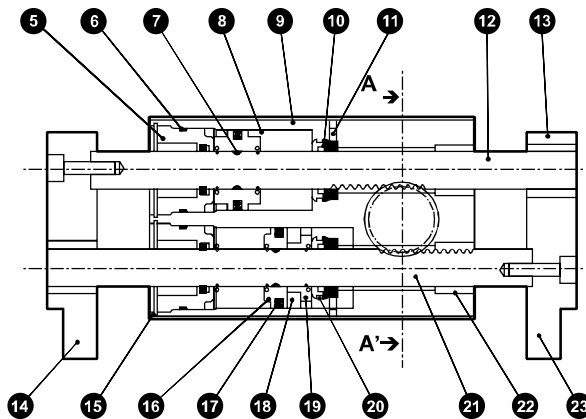
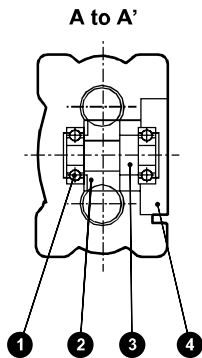
- Mounting bracket set

**HFP - TV - \***

(Select either R (open side) or H (closed side) for sections marked with an asterisk (\*).)

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
LN
<b>Hand</b>
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
<b>HFP</b>
HLC
HGP
FH500
HBL
HDL
HMD
HJD
HJL
BHE

## Internal structure and parts list



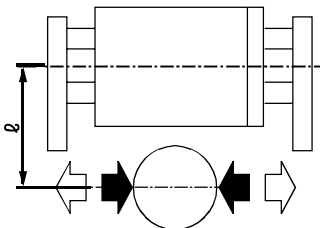
**Cannot be disassembled**

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Bearing	Alloy steel		13	Bush	Copper alloy casting	
2	Pinion gear	Steel		14	Master key A	Aluminum alloy	
3	Pinion gear shaft	Steel		15	Snap ring	Stainless steel	
4	Bearing cover	Aluminum alloy		16	Piston A	Aluminum alloy	
5	Packing seal housing A	Aluminum alloy		17	Piston packing	Nitrile rubber	
6	Gasket A	Nitrile rubber		18	Magnet	Plastic magnet	
7	Piston gasket	Nitrile rubber		19	Piston B	Aluminum alloy	
8	Piston fixing spring	Stainless steel		20	Gasket B	Nitrile rubber	
9	Body	Aluminum alloy		21	Piston rod B	Stainless steel	
10	Rod packing	Nitrile rubber		22	Bush	Copper alloy casting	
11	Packing seal housing B	Aluminum alloy		23	Master key B	Aluminum alloy	
12	Piston rod A	Stainless steel					

## Gripping power performance data

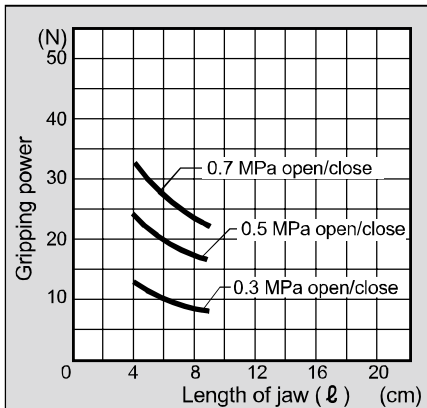
The gripping power in the opening/closing directions with jaw length  $L$  of hand with a supply pressure of 0.3, 0.5 and 0.7 MPa is shown.

● Both open direction (◀) and closed direction (▶) (shown with continuous line)

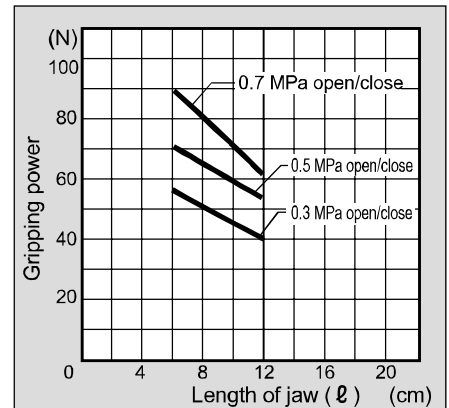


(Note) When making a selection, read the precautions for design and selection on page 1636.

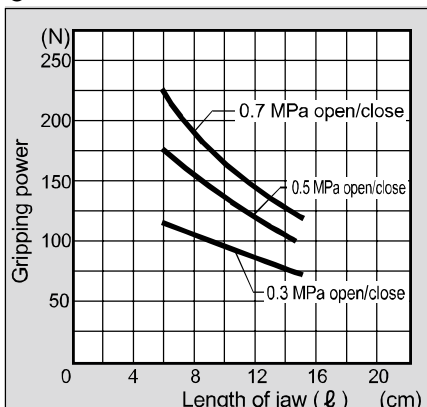
### ● HFP-2CS



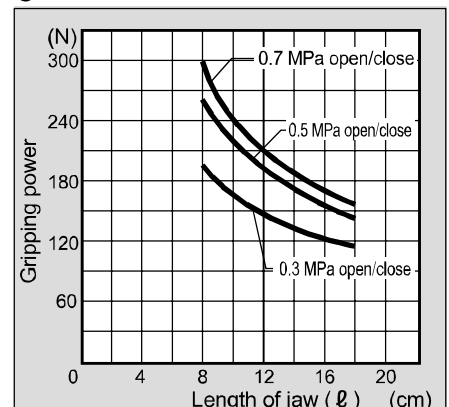
### ● HFP-3CS



### ● HFP-4CS



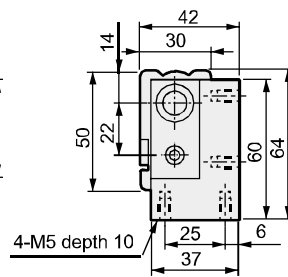
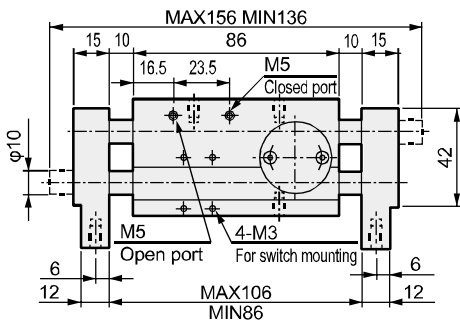
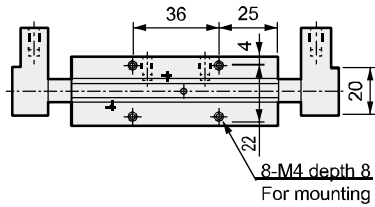
### ● HFP-5CS



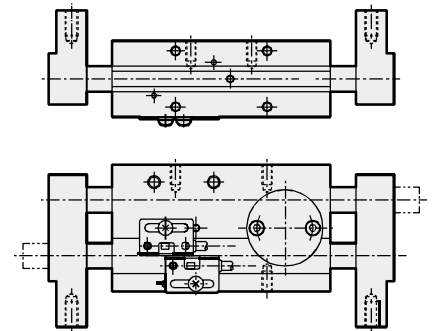
## Dimensions



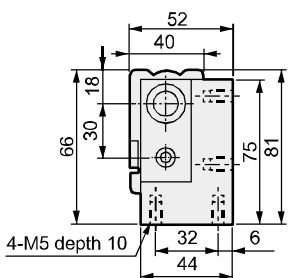
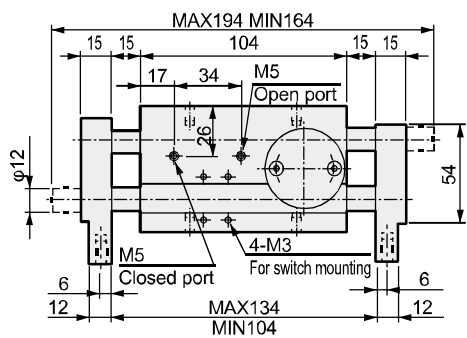
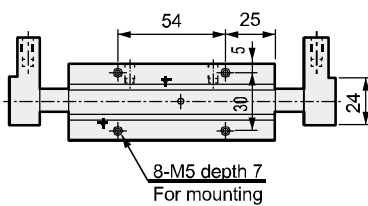
### ● HFP-2CS Standard



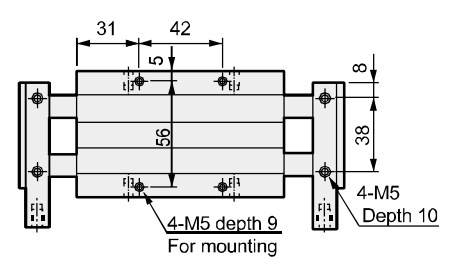
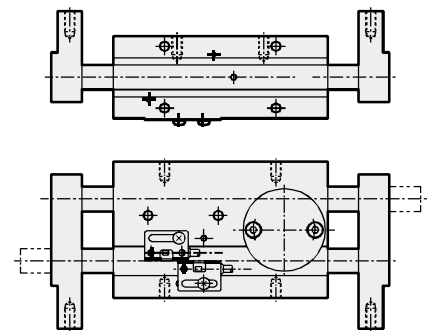
### ● With switch



### ● HFP-3CS Standard



### ● 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
<b>Hand</b>
Chuk
MecHrad/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH
FH100
HAP
BSA2
BHA/BHG
LHA
LHAG
HKP
HLA/HLB
HLAG/HLBG
HLD
HCP
HMF
HMFB
<b>HFP</b>
HLC
HGP
FH500
HLB
HDL
HMD
HJD
HJL
BHE

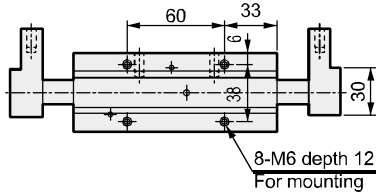
# HFP Series

## Dimensions

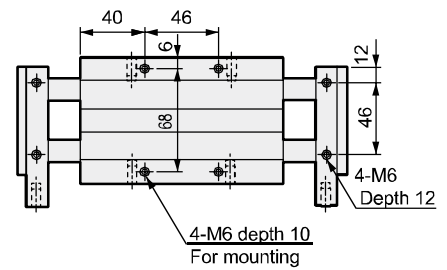
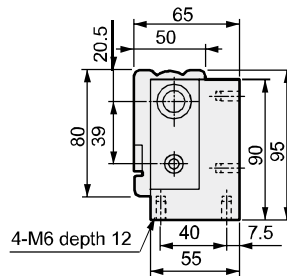
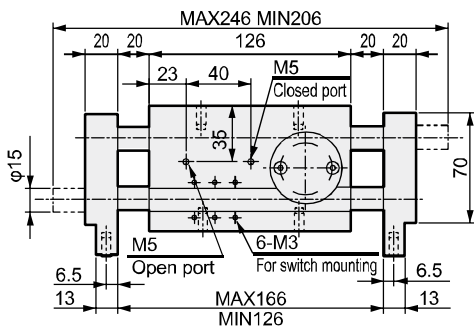
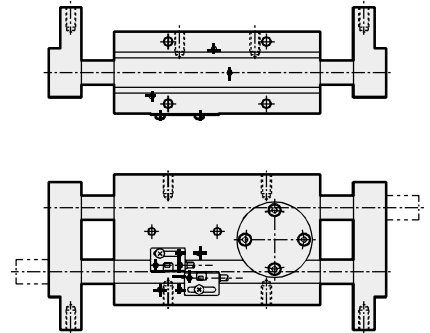


LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SsdContr
Ending
LSH
FH100
HAP
BSA2
BHA/BHG
LHA
LHAG
HKP
HLA/HLB
HLAG/HLBG
HLD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

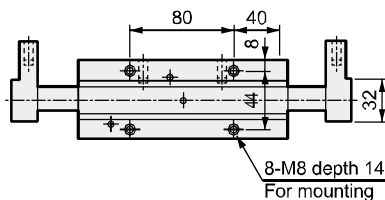
### ● HFP-4CS Standard



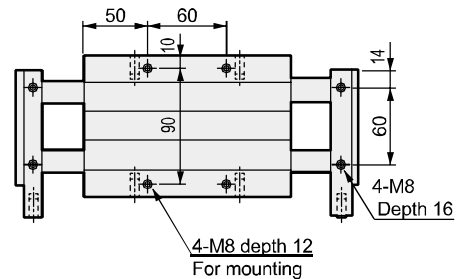
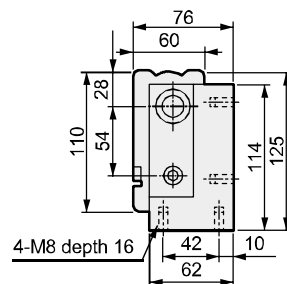
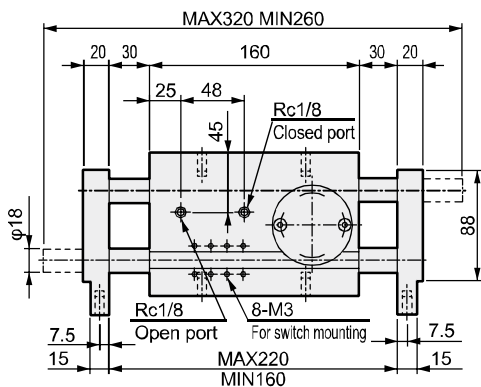
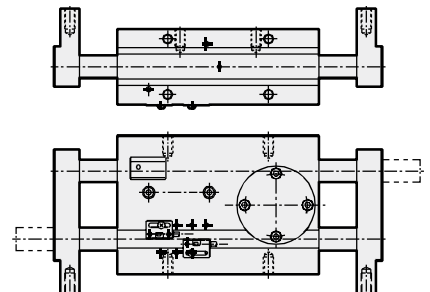
### ● With switch



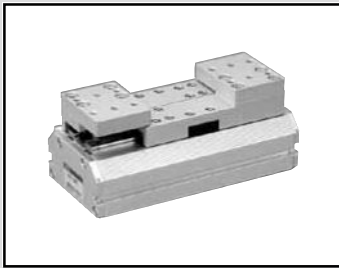
### ● HFP-5CS Standard



### ● With switch







Thin long stroke parallel hand Double acting  
(Standard/long stroke 1)

# HLC Series

- Operating stroke length: Standard 20, 30, 40, 50, 60, 70  
Long stroke 1 60, 80, 100, 120, 140

Double acting



## Specifications

Descriptions	HLC													
	08CS			12CS			16CS		20CS		25CS		30CS	
Size	Standard			Standard L1			Standard L1		Standard L1		Standard L1		Standard L1	
Bore size mm	φ8×2			φ12×2			φ16×2		φ20×2		φ25×2		φ30×2	
Working fluid	Compressed air													
Max. working pressure MPa	0.7 (≈100 psi, 7 bar)													
Min. working pressure MPa	0.2 (≈29 psi, 2 bar)													
Ambient temperature °C	5 (41°F) to 60 (140°F)													
Port size	M3						M5							
Operating stroke length mm	20	30	60	40	80	50	100	60	120	70	140			
Volumetric capacity (reciprocating) cm <sup>3</sup>	2.0	6.8	13.6	16.1	32.2	31.4	62.8	58.9	117.8	99	198			
Repeatability mm	±0.01						±0.03							
Weight kg	0.14	0.29	0.44	0.71	0.85	1.03	1.4	1.62	2.23	2.74	3.69			
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	

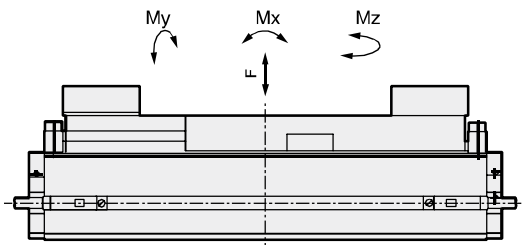
\*1 : The above max. load current is 20 mA at 25°C.

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.

## HLC allowable load and allowable moment

Max load / moment	F	Mx	Mz	My
Model No.	N	N·m	N·m	N·m
HLC-08CS	102	10	8.5	1.6
HLC-12CS	151	11.9	8.2	4.68
HLC-12CS-L1	151	11.9	8.2	4.68
HLC-16CS	325	27.5	25.6	7.96
HLC-16CS-L1	325	27.5	25.6	10.6
HLC-20CS	306	29.9	27	10.6
HLC-20CS-L1	306	29.9	27	11.2
HLC-25CS	423	105.1	96.4	19.7
HLC-25CS-L1	423	105.1	96.4	19.7
HLC-30CS	694	109.3	116.5	33.3
HLC-30CS-L1	694	109.3	116.5	43.1

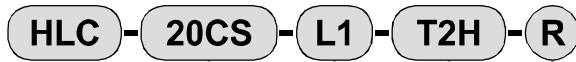


## How to order

Without switch (built-in magnet for switch)



With switch (built-in magnet for switch)



**A** Size

**B** Option

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

**D** Switch quantity

[Example of model No.]

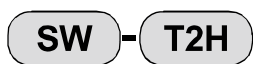
**HLC-20CS-L1-T2H-R**

Model: Thin long stroke parallel hand

- A** Size : 20CS
- B** Option : Long stroke 1
- C** Switch model No.: Proximity T2H switch, lead wire 1 m
- D** Switch quantity : 1 on open side

Code	Content						
<b>A Size</b>							
08CS							
12CS							
16CS							
20CS							
25CS							
30CS							
<b>B Option</b>							
	Size	08CS	12CS	16CS	20CS	25CS	30CS
Blank	Standard	●	●	●	●	●	●
L1	Long stroke 1		●	●	●	●	●
<b>C Switch model No.</b>							
Axial lead wire	Radial lead wire	Contact	Voltage		Display	Lead wire	
			AC	DC			
T2H*	T2V*	Proximity		●	1-color	2-wire	
T3H*	T3V*			●	display	3-wire	
<b>* Lead wire length</b>							
Blank	1 m (standard)						
3	3 m (option)						
5	5 m (option)						
<b>D Switch quantity</b>							
R	1 on open side						
H	1 on closed side						
D	2						

## How to order switch



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

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

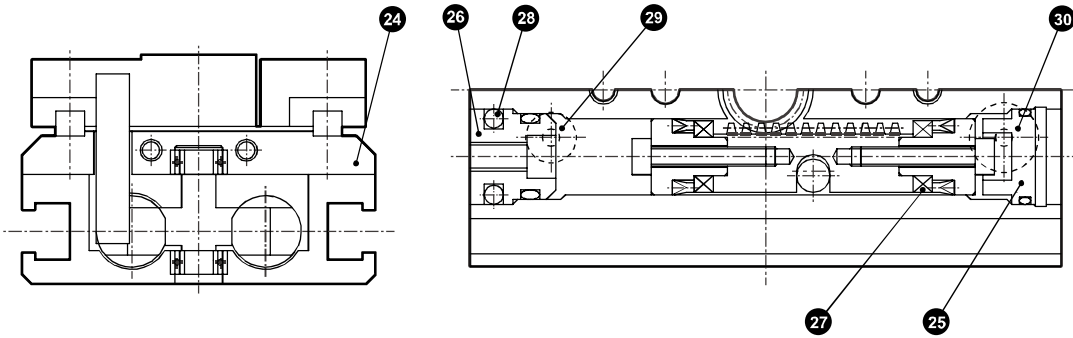
**HLC - ... - P4\*** ● Design compatible with rechargeable battery manufacturing process.

\* 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
<b>Hand</b>
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
<b>HLC</b>
HGP
FH500
HBL
HDL
HMD
HJD
HJL
BHE

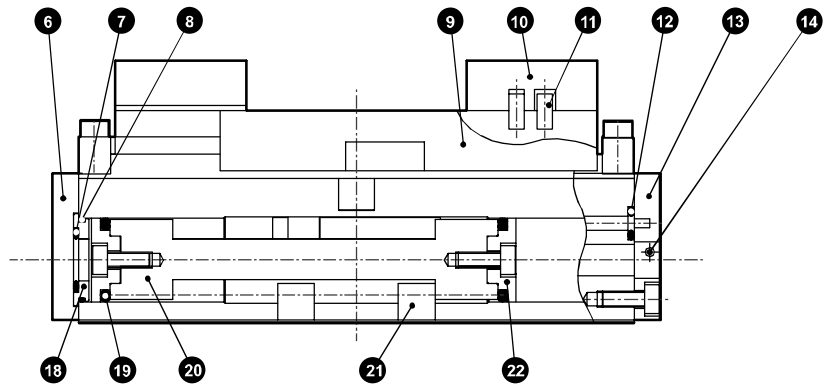
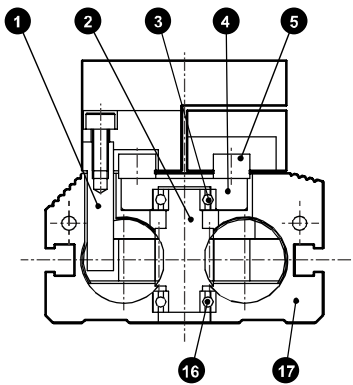
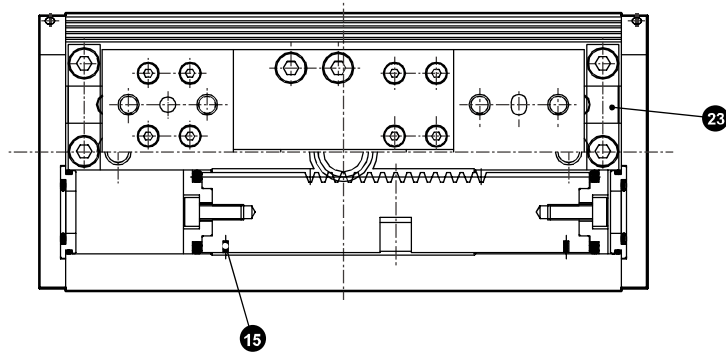
## Internal structure and parts list

● HLC-08CS (Standard)



● HLC-12CS to 30CS (Standard)

● HLC-12CS to 30CS-L 1



**Cannot be disassembled**

### Parts list

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Rack joint	Carbon steel		16	Single row deep groove ball bearing		20CS only
2	Pinion	Stainless steel		17	Body	Aluminum alloy	
3	Single row deep groove ball bearing			18	Cylinder guard 1	Aluminum alloy	
4	Bearing holder *1	Aluminum alloy		19	Piston seal	Nitrile rubber	
5	LM guide			20	Rack	Stainless steel	
6	Side plate 2 *1	Aluminum alloy		21	Key *2	16CS to 25CS are carbon steel and 30CS is stainless steel	
7	Cylinder sealant 1	Nitrile rubber		22	Piston	Acetal resin	
8	Cylinder sealant 2	Nitrile rubber		23	Stiffening plate	Stainless steel	16CS, 20CS only
9	LM plate *2	Aluminum alloy		24	Linear guide mounting base	Aluminum alloy	
10	Master key	Aluminum alloy		25	Cylinder guard 2	Acetal resin	
11	Positioning pin			26	Cylinder guard 3	Aluminum alloy	
12	Gasket 1	Nitrile rubber		27	Magnet		
13	Side plate 1 *1	Aluminum alloy		28	Rotation-stop pin	Stainless steel	
14	Steel ball	Stainless steel		29	Gasket 2	Nitrile rubber	
15	Semicircle magnet			30	Gasket 3	Nitrile rubber	

\*1: Not supplied with 08CS.

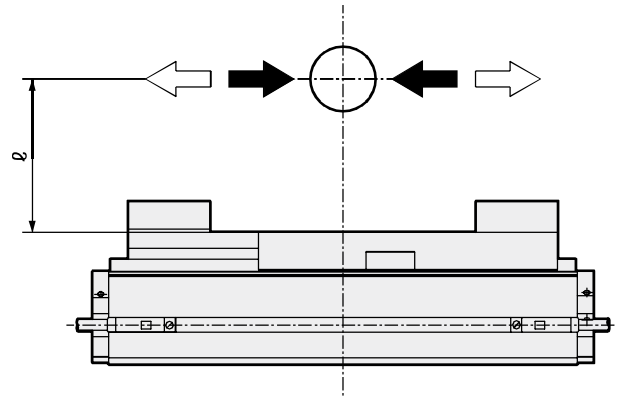
\*2: Not supplied with 08CS and 12CS.

### Gripping power performance data

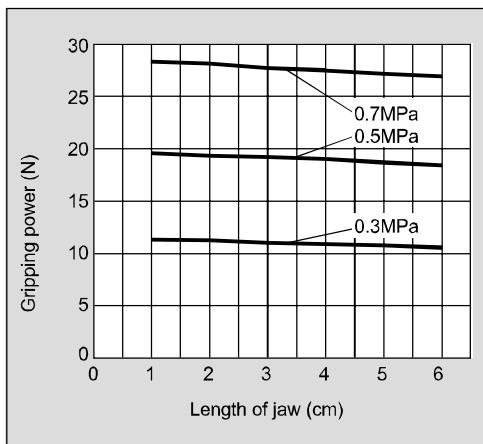
The gripping power with jaw length L of hand and a supply pressure of 0.3, 0.5 and 0.7 MPa is shown.

- Both open direction (◁) and closed direction (▷) (shown with continuous line)

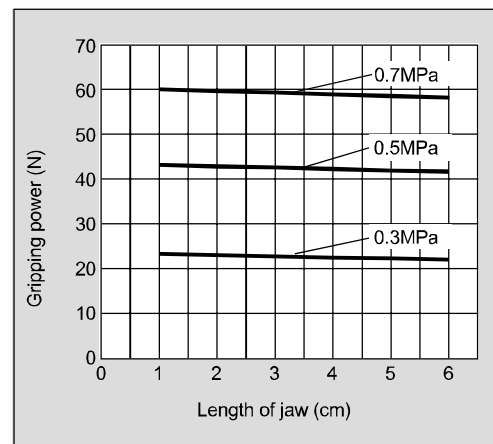
(Note) When making a selection, read the precautions for design and selection on page 1636.



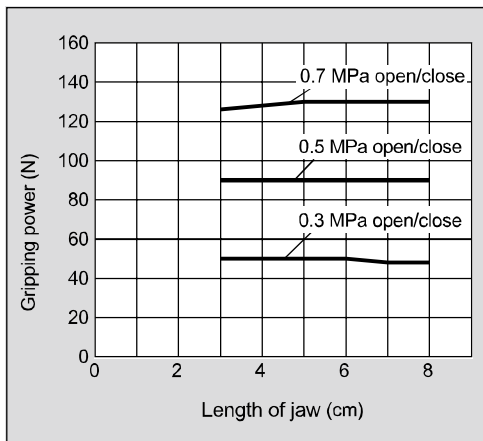
#### ● HLC-08CS



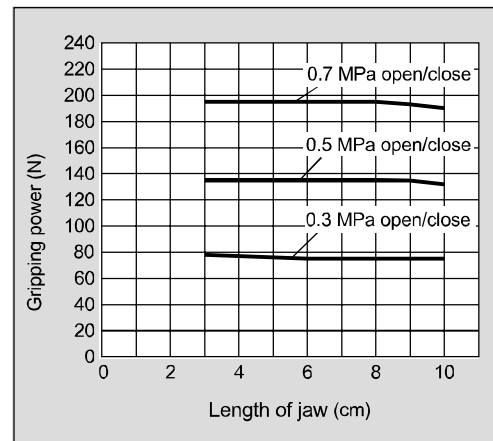
#### ● HLC-12CS



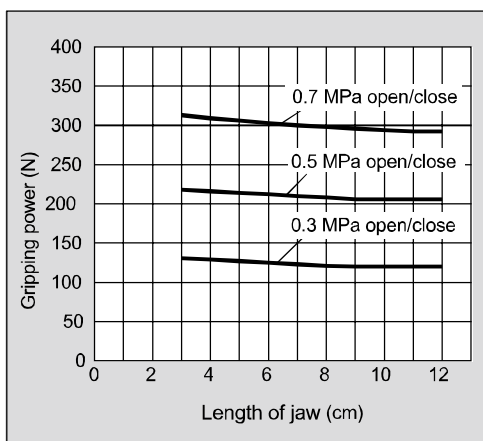
#### ● HLC-16CS



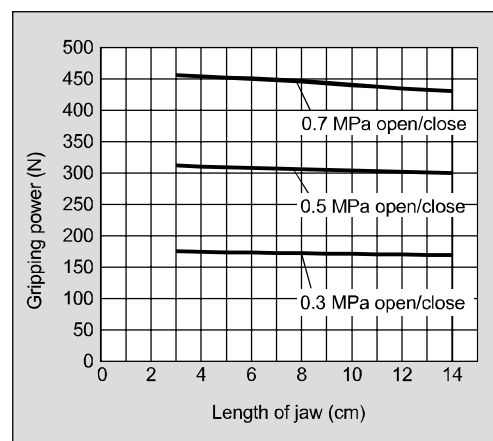
#### ● HLC-20CS



#### ● HLC-25CS



#### ● HLC-30CS

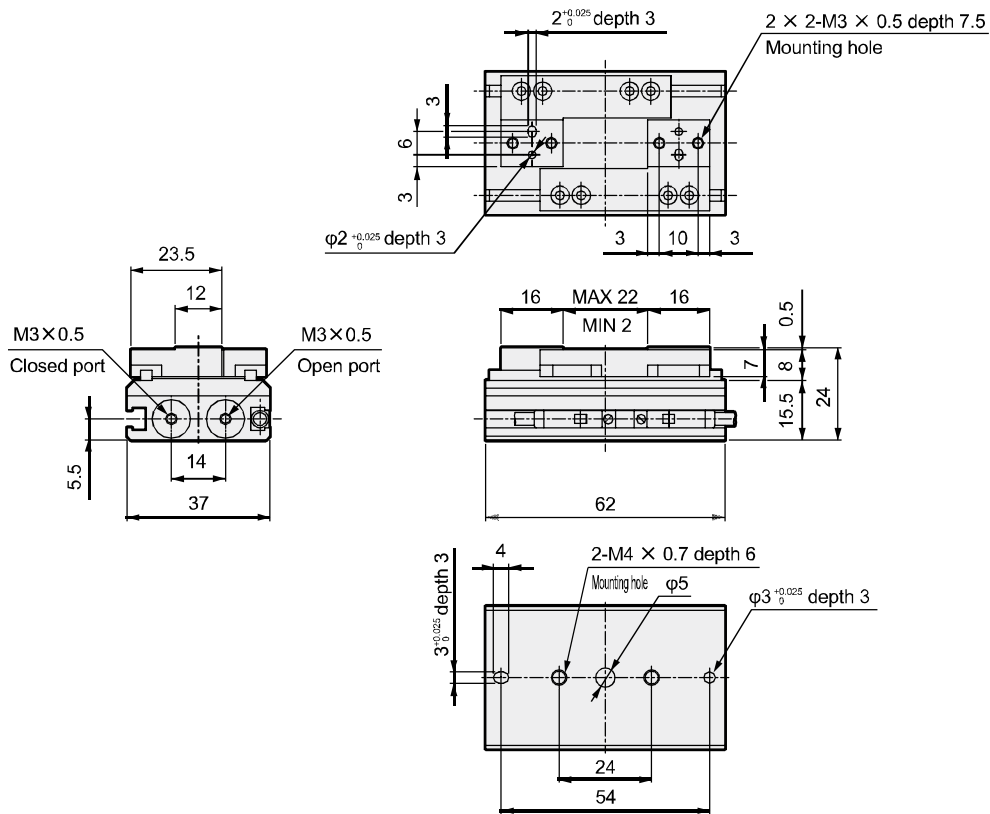


LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
<b>Hand</b>
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH
FH100
HAP
BSA2
BHA/BHG
LHA
LHAG
HKP
HLA/HLB
HLA/HLBG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

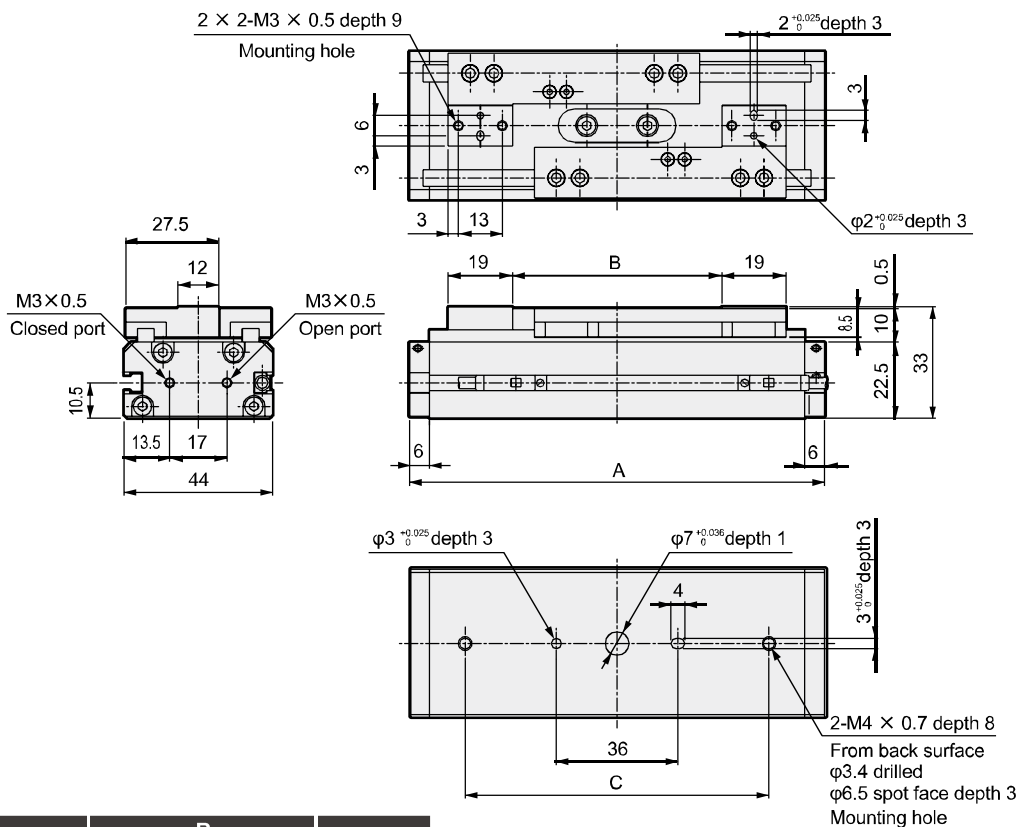
## Dimensions



### ● HLC-08CS Standard



### ● HLC-12CS Standard/L1

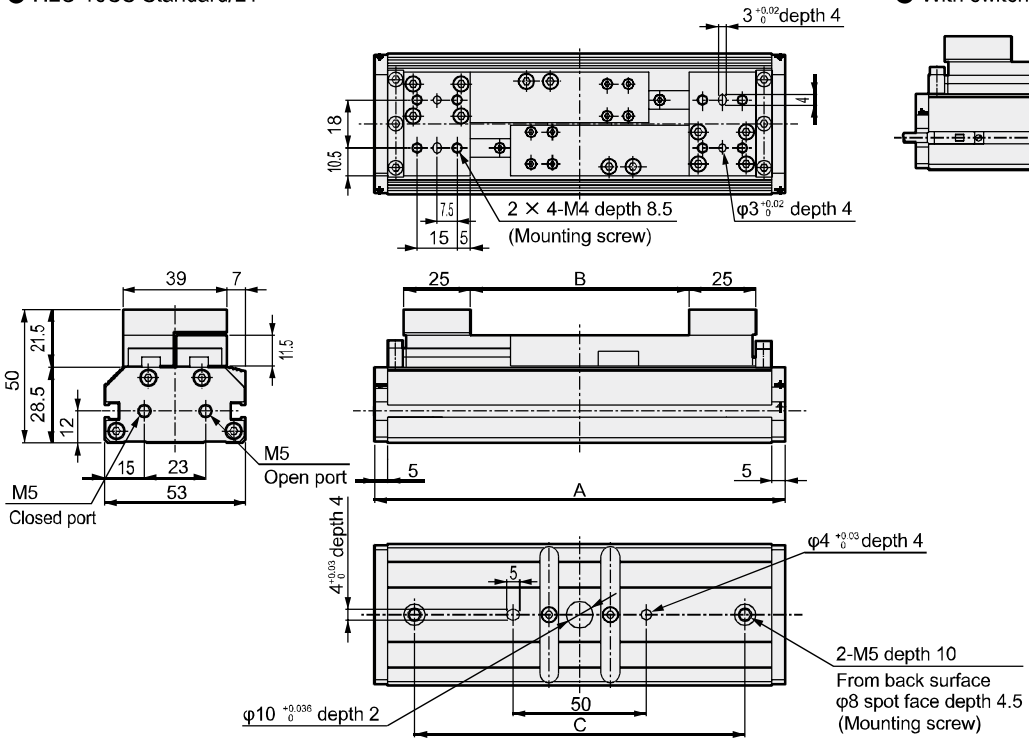


Code	A	B		C
		MAX	MIN	
Standard	78	32	2	54
L1	123	62	2	90

- LCW
- LCR
- LCG
- LCX
- LCM
- STM
- STG
- STG/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
- SsdContr
- 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

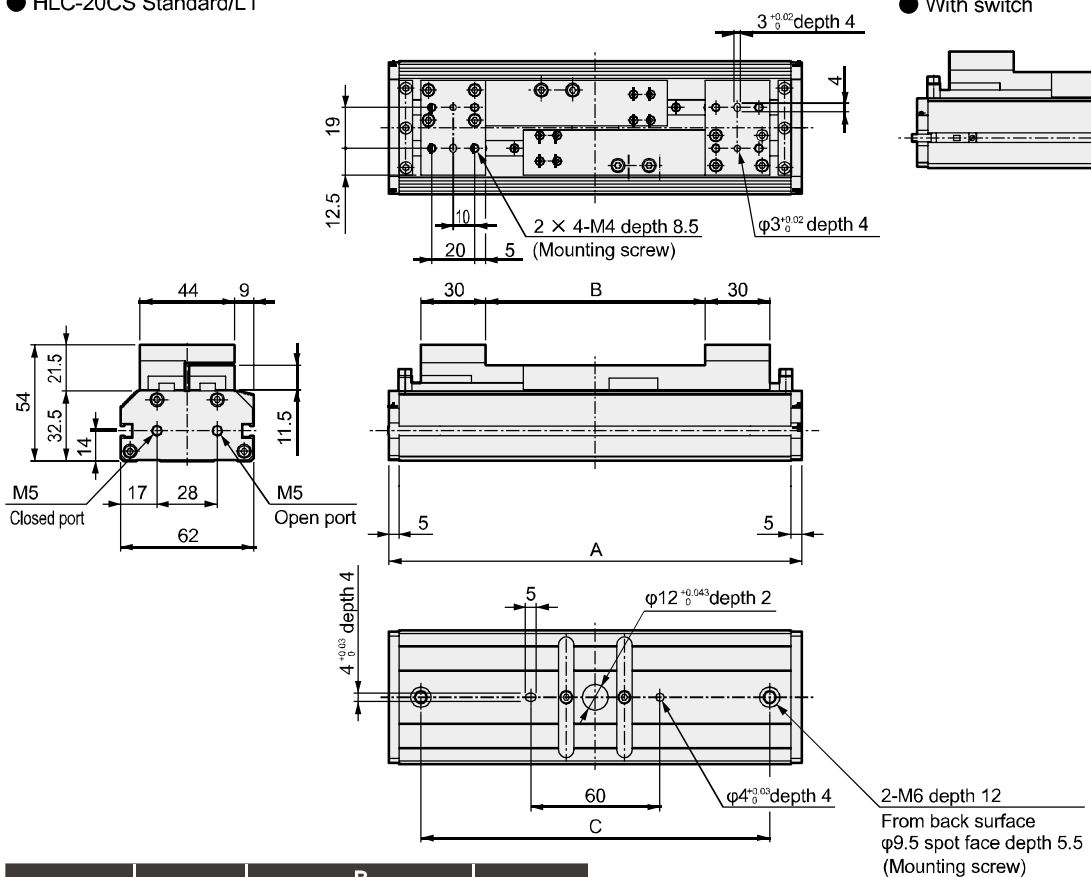
## Dimensions

### ● HLC-16CS Standard/L1



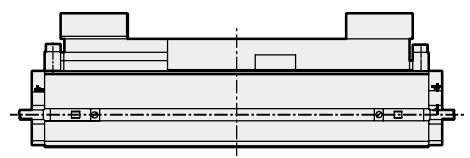
Code	A	B		C
		MAX	MIN	
Standard	116	42	2	86
L1	154	82	2	124

### ● HLC-20CS Standard/L1

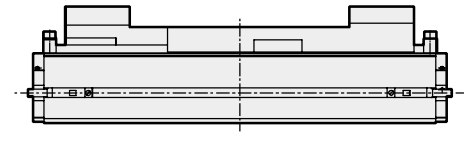


Code	A	B		C
		MAX	MIN	
Standard	132	52	2	102
L1	192	102	2	162

### ● With switch



### ● With switch



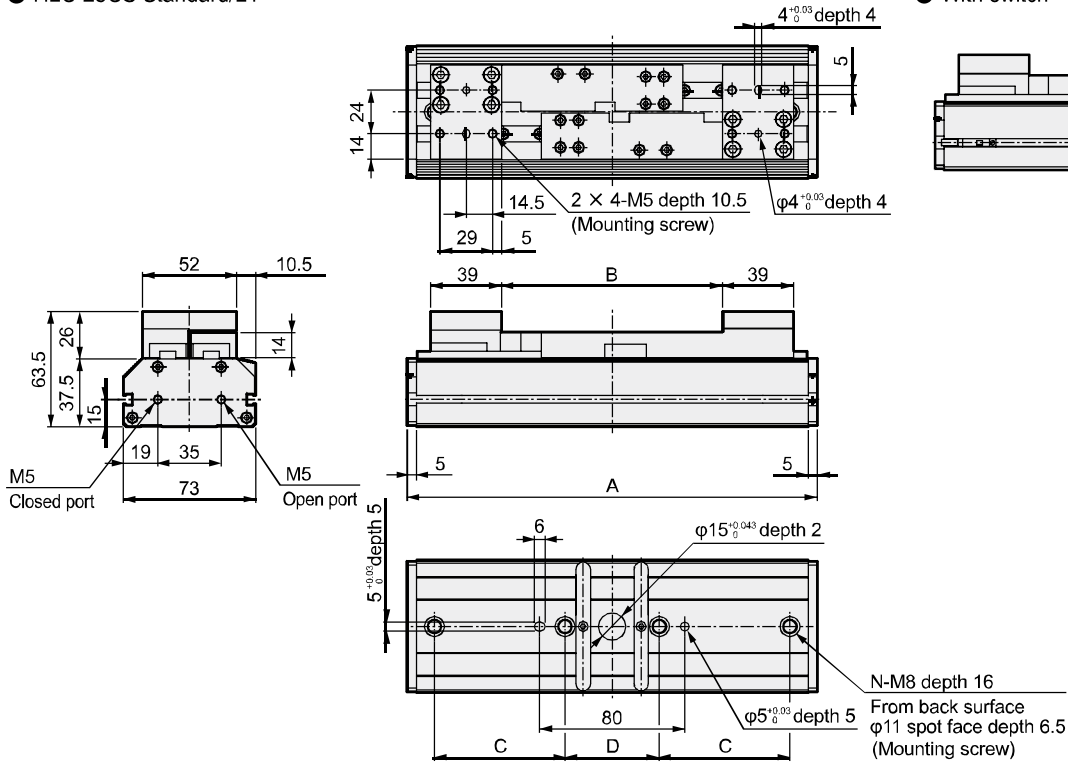
LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
<b>Hand</b>
Chuk
MecHrad/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH
FH100
HAP
BSA2
BHA/BHG
LHA
LHAG
HKP
HLA/HLB
HLAG/HLBG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

# HLC Series

## Dimensions

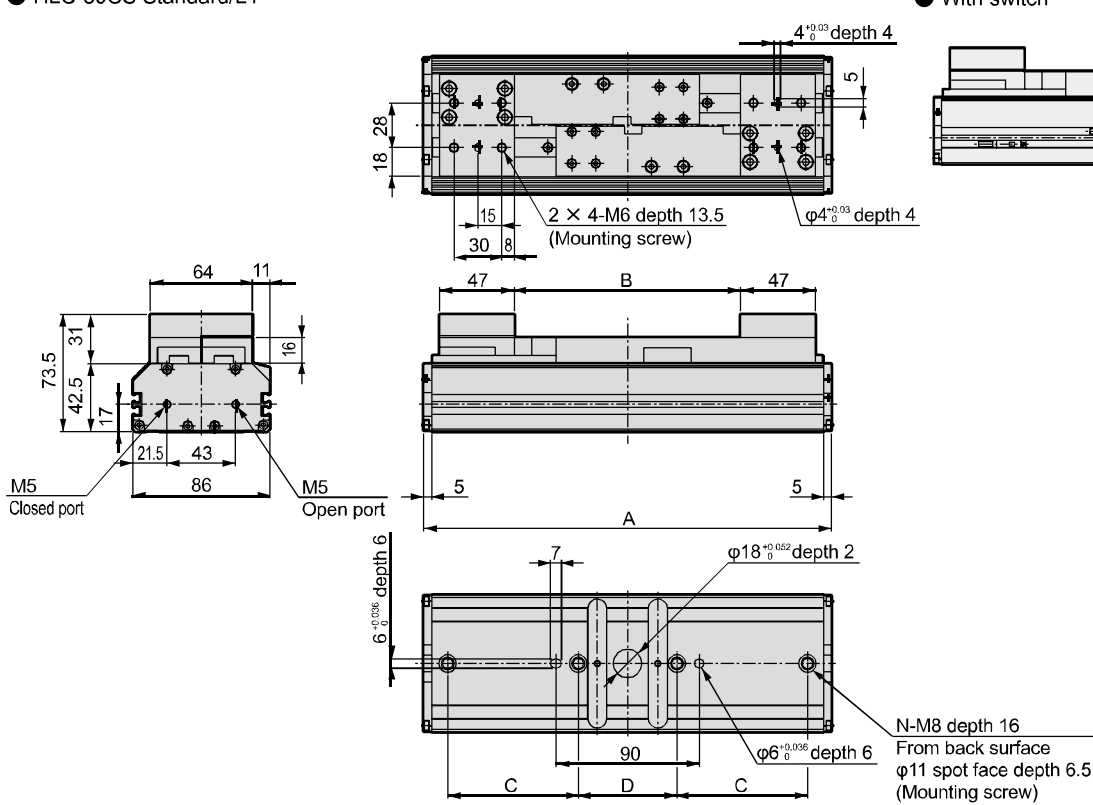


### ● HLC-25CS Standard/L1



Code	A	B		C	D	N
		MAX	MIN			
Standard	152	62	2	0	122	2
L1	226	122	2	72	52	4

### ● HLC-30CS Standard/L1



Code	A	B		C	D	N
		MAX	MIN			
Standard	174	72	2	0	144	2
L1	256	142	2	82	62	4

- 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
- SrdContr
- 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



# Safety Precautions

Be sure to read this section before use.

Refer to Intro Page 73 for general information of the cylinder, and to Intro Page 80 for general information of the cylinder switch.

## Product-specific cautions: Hand Series

### Design/selection

#### 1. Common

#### WARNING

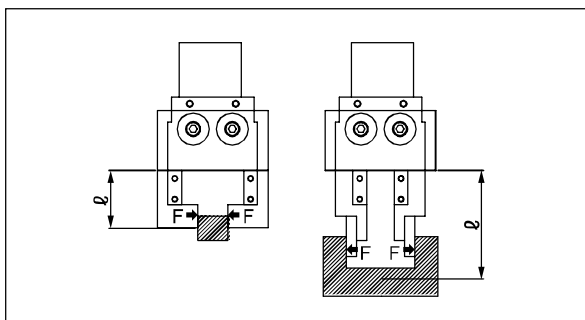
■ If the moving workpiece poses a possible risk to personnel or if fingers could be caught in the master key, etc., install a protective cover, etc.

■ If the circuit pressure drops due to power failure or air source trouble, the gripping power may decrease and the workpiece may fall. Provide position locking measures, etc., so that personnel are not injured or machines damaged.

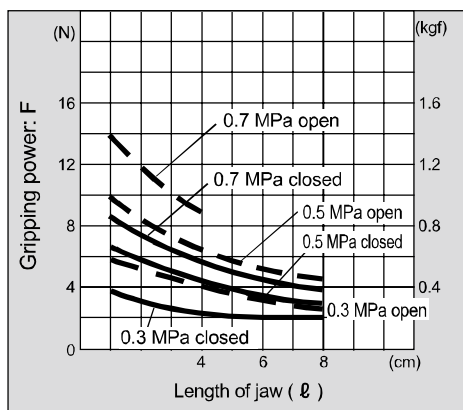
#### CAUTION

■ Precautions for gripping power

- Gripping power represents the force holding the workpiece, as shown in the figure below.



- Performance data indicates the gripping power at hand jaw length  $l$  at a supply pressure of 0.15 to 0.7 MPa.



- To find the gripping power from performance data, if the distance from the small jaw to the workpiece center of gravity when manufactured is  $l$ , gripping power  $F$   
 When  $l = l_1$   $F = F_1$   
 When  $l = l_2$   $F = F_2$  Refer to the upper right figure is expressed as above.

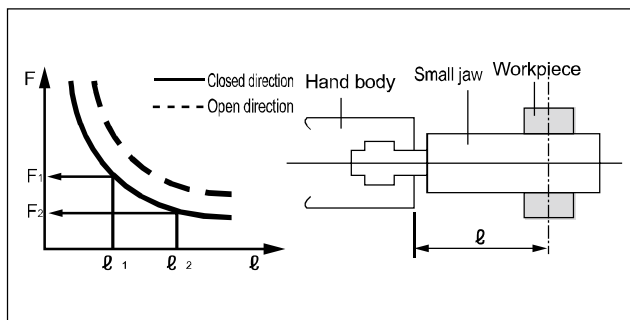
- When mounting an L-shaped jaw, select length as shown below.  
 Example: If the L-shape is 30 mm in the master key direction and 30 mm at a 90° angle, assume the small jaw length is 60 mm.
- Length of jaw should be within the numerical value given in the gripping power performance data table of each model.
- Max. working length of jaw should be within the performance data.  
 When transferring workpiece (weight  $W_L$ ), the reference is as below.

$$W_L \times 9.8 \times 5 < (F \times N) \text{ [holding only]}$$

$$W_L \times 9.8 \times 10 < (F \times N) \text{ [normal transport]}$$

$$W_L \times 9.8 \times 20 < (F \times N) \text{ [sudden accelerated transport]}$$

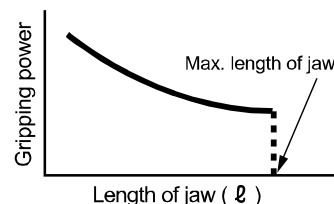
$W_L$ : Weight of workpiece [kg]  
 $F$ : Gripping power [N]  
 $N$ : Number of jaws [pcs.]



■ Use small jaws as short and lightweight as possible.

If the small jaw is long and heavy, inertia increases when opening and closing. This may cause play in the master key, and adversely affect durability.

- Length of small jaw should be within the numerical values of performance data.
- The weight of the small jaw affects durability, so check that the weight is less than the following value:  
 $W < 1/4H$  (1 pc.)  $W$ : Weight of small jaw  
 $H$ : Product weight of Hand



- Single acting has minimum gripping power near the stroke end (open end for NO, closed end for NC). Due to the spring structure, it may not return when operating with a short stroke; therefore, consider a jaw shape that clamps the workpiece with a sufficient stroke.

LCW
LCR
LCC
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
SrdContr
Ending
LSH
FH100
HAP
BSA2
BHA/BHG
LHA
LHAG
HKP
HLA/HLB
HLA/HLBG
HLD
HCP
HMF
HMFB
HFP
HLC
HGP
FH500
HBL
HDL
HMD
HJD
HJL
BHE



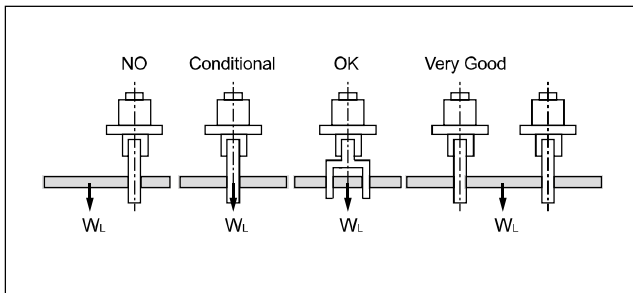
### ■ Working environment

At cutting, casting, or welding plants, there is a risk of foreign matter, such as cutting fluid, chips, powder and dust, entering the equipment. Use covers and such to prevent this as much as possible.

Do not use the equipment under the following environments.

- Exposed to cutting oil (because the sliding section is abraded by abrasive or polishing debris in the liquid)
- When the atmosphere contains organic solvents, chemicals, acids, alkalis, kerosene, etc.
- Exposed to water

- When gripping long or large workpieces, stable gripping requires a grip on the center of gravity. Stability is a must when using larger or multiple workpieces as well.



- Select a model that has sufficient power to grip the workpiece weight.

- Select a model that has sufficient opening/closing width for the workpiece size.

- If directly inserting the workpiece into the jig with the hand, consider clearance during design. The hand could be damaged.

Hand

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

● Push-in jig with ejector

● When using push cylinder

Note) Since the workpiece slides over the top of the small jaw, it may significantly shorten the service life of the chuck. The shape of the small jaw should be sufficiently considered.

- If the small jaw is not rigid enough, the resulting sag could cause the master key to twist or adversely affect operation.

- Adjust the chuck open/close speed with the speed controller (optional).  
When used at high speed, backlash may occur sooner.

## 2. Linear slide cylinder LSH Series

- When mounting an L-shaped jaw, use within the range on page 1480.

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
<b>Hand</b>
Chuk
MechHand/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

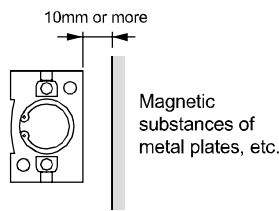
## Mounting, installation and adjustment

### 1. Common

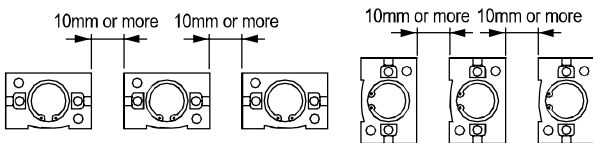
#### CAUTION

■ If a lateral load or load with a large impact is applied to the master key, play or damage could occur. Adjust and check that external force is not applied to the master key.

■ The cylinder switch may malfunction if there is a magnetic substance such as a metal plate installed adjacently. Check that a distance of 10 mm is provided from the surface of the cylinders.



■ The cylinder switch may malfunction if cylinders are installed adjacently. Check that the following distances are provided between cylinders.

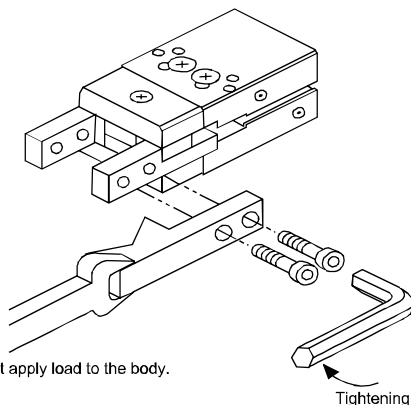


■ Clamping operation is accurate when performed as softly as possible at a low speed. Repeatability is also stable.

■ Regularly grease the sliding section of the master key. Regular replenishment can extend service life further.

#### Installing the jaw

When mounting the jaw to the master key, to prevent any effect on the hand, support with a wrench, etc., when tightening so that the master key is not twisted.

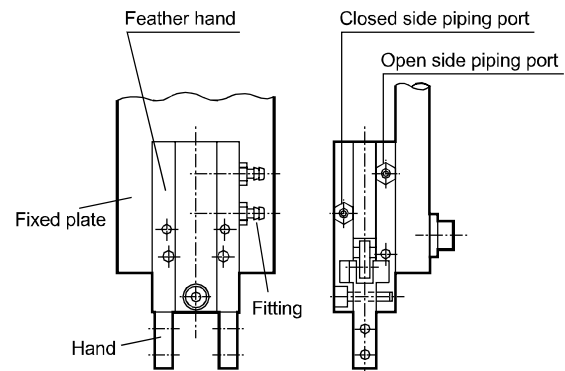


■ Do not retighten or disassemble, other than the screws used for fixing the body and jaw. This could lead to malfunction.

### 2. Installation

■ Do not cause dents or scratches that may damage flatness or perpendicularity on the body mounting surface or master key.

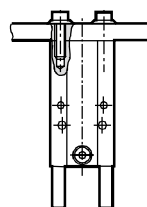
■ If there is a limit to the thickness direction of the FH Series body, the available piping fitting will be limited. Refer to the following fittings.



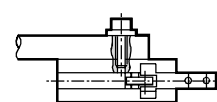
Model	FH*10	FH*12	FH*16	FH*20	FH*25
Bore size	M3			M5	
Fitting	Model No.	Applicable O.D. (mm)	Eff. X-sectional area (mm <sup>2</sup> )	Model No.	Applicable O.D. (mm)
	Model No.	Applicable O.D. (mm)	Eff. X-sectional area (mm <sup>2</sup> )	Model No.	Applicable O.D. (mm)
Barbed fitting	Straight FTS			Barbed fitting	
	FTS4-M3	φ3.2/ φ4	0.4	FTS4-M5	φ3.2/φ4
	-	-	-	FTS6-M5	φ6
					4.1

■ Refer to the following section for FH Series body mounting.

#### ● Top mounting

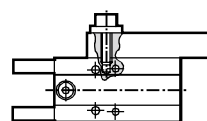


#### ● Front mounting



Note) For types with switch, ensure that the screw insertion depth is less than that in the table below, so that the bolt tip does not press the switch.

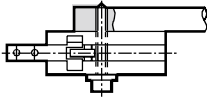
#### ● Side mounting



Note) Ensure that the fixed plate does not contact the master key fulcrum.

Model	Working bolt size	Max. screw insertion depth (mm)	Recommended tightening torque (N·cm)
FH*10	M3×0.5	4.5	70
FH*12	M3×0.5	4.5	70
FH*16	M4×0.7	6	160
FH*20	M5×0.8	7.5	330
FH*25	M5×0.8	12	330

● Use of through hole

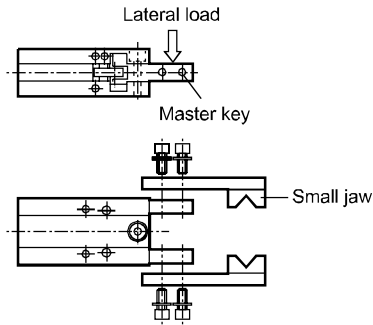


Note) Through hole cannot be used when switch is provided.

Note) Ensure that the fixed plate does not contact the master key fulcrum.

Model	Working bolt size	Recommended tightening torque (N·cm)
FH*10	M3×0.5	32
FH*12	M2.5×0.45	32
FH*16	M3×0.5	90
FH*20	M4×0.7	210
FH*25	M4×0.7	210

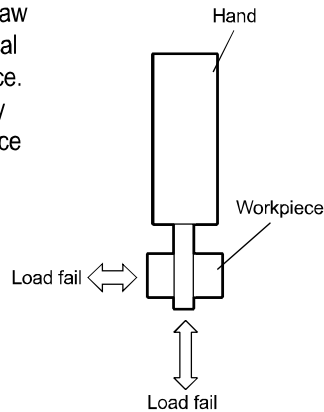
■ When installing the small jaw, check that a lateral load is not applied to the master key.



■ Tighten with the following tightening torque when mounting.

Thread nominal	M3	M4	M5	M6	M8
Recommended tightening torque (N·m)	0.59	1.4	2.8	4.8	12.0

■ Do not apply load to the jaw during attachment/removal and transport of workpiece. Scratches and dents may occur on the rolling surface of the master key linear guide, possibly causing malfunction.

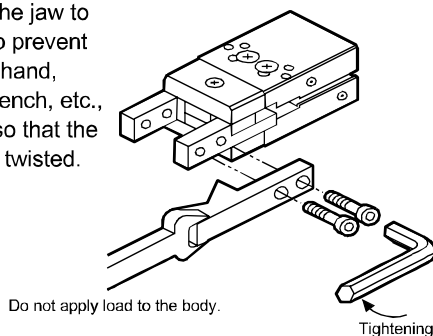


### 3. Linear Slide Hand LSH Series

**CAUTION**

■ Installing the jaw

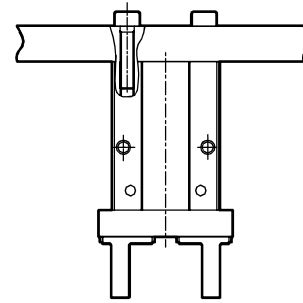
When mounting the jaw to the master key, to prevent any effect on the hand, support with a wrench, etc., when tightening so that the master key is not twisted.



Descriptions	Bolt used	Tightening torque (N·m)
LSH-10	M2.5×0.45	0.32
LSH-16	M3×0.5	0.59
LSH-20	M4×0.7	1.4
LSH-25	M5×0.8	2.8

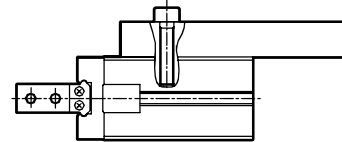
■ Refer to the following section for body mounting.

● Top mounting



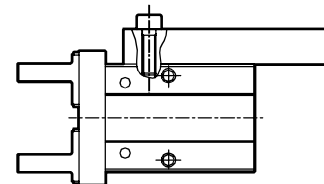
Descriptions	Bolt used	Tightening torque (N·m)	Max. insertion depth L (mm)
LSH-10	M3×0.5	0.88	6
LSH-16	M4×0.7	2.1	8
LSH-20	M5×0.8	4.3	10
LSH-25	M6×1.0	7.3	12

● Front mounting



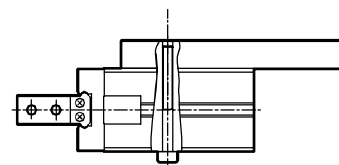
Descriptions	Bolt used	Tightening torque (N·m)	Max. insertion depth L (mm)
LSH-10	M3×0.5	0.69	5
LSH-16	M4×0.7	2.1	8
LSH-20	M5×0.8	4.3	10
LSH-25	M6×1.0	7.3	12

● Side mounting



Descriptions	Bolt used	Tightening torque (N·m)	Max. insertion depth L (mm)
LSH-10	M3×0.5	0.88	6
LSH-16	M4×0.7	1.6	4.5
LSH-20	M5×0.8	3.3	8
LSH-25	M6×1.0	5.9	10

● Use of through hole



Descriptions	Bolt used	Tightening torque (N·m)
LSH-10	M2.5×0.45	0.32
LSH-16	M3×0.5	0.88
LSH-20	M4×0.7	2.1
LSH-25	M5×0.8	4.3

Note) Through hole cannot be used when switch is provided.

■ Do not retighten or disassemble, other than the screws used for fixing the body and jaw. This could lead to malfunction.

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
<b>Hand</b>
Chuk
MecHand/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH
FH100
HAP
BSA2
BHA/BHG
LHA
LHAG
HKP
HLA/HLB
HLAG/HLBG
HLD
HCP
HMFB
HMFB
HFP
HLC
HGP
FH500
HBL
HDL
HMD
HJD
HJL
BHE

### 1. Common

#### ⚠ CAUTION

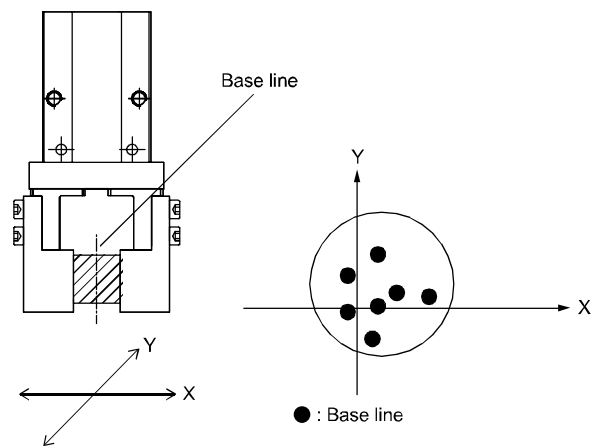
■ Do not disassemble or modify the body.  
(excluding LSH Series)

#### ■ Repeatability

The repeatability here indicates the displacement of the workpiece in the case of repeated clamping and unclamping in the same conditions (hand fixed, same workpiece used: see below).

#### Conditions

- Workpiece dimensions, shape, weight
- Workpiece transfer position
- Clamp method, length
- Workpiece and workpiece receiving surface resistance
- Fluctuation of gripping power (air pressure), etc.



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
<b>Hand</b>
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SsdContr
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