



Low-profile long stroke hand

# HLF2 Series

- Operating stroke length: Standard 12, 16, 20, 24 mm  
Long stroke 24, 32, 40, 48, 64, 80, 96 mm

Double acting



## Specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	HLF2-08CS			HLF2-12CS			HLF2-16CS			HLF2-20CS		
	Standard	L1	L2	Standard	L1	L2	Standard	L1	L2	Standard	L1	L2
Bore size mm	ø8 x 2			ø12 x 2			ø16 x 2			ø20 x 2		
Working fluid	Compressed air											
Max. working pressure MPa	0.7 (≈101 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	12	24	48	16	32	64	20	40	80	24	48	96
Volumetric capacity (reciprocating) cm <sup>3</sup>	1.2	2.4	4.8	3.6	7.2	14.4	8.0	16.0	32.0	15.1	30.1	60.2
Repeatability mm	±0.03											
Weight kg	0.09	0.12	0.17	0.17	0.24	0.37	0.34	0.48	0.75	0.62	0.84	1.33
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)											

## Switch specifications

Item	Proximity 2-wire	Proximity 3-wire
	T2H/V, T2HR3, T2VR3	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
Display 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 "Pneumatic Cylinders II" (CB-030SA) for other switch specifications.

LCM  
LCR  
LCG  
LCW  
LCX  
STM  
STG  
STS/STL  
STR2  
UCA2  
ULK\*  
JSK/M2  
JSG  
JSC3/JSC4  
USSD  
UFCD  
USC  
UB  
JSB3  
LMB  
LML  
HCM  
HCA  
LBC  
CAC4  
UCAC2  
CAC-N  
UCAC-N  
RCS2  
RCC2  
PCC  
SHC  
MCP  
GLC  
MFC  
BBS  
RRC  
GRC  
RV3\*  
NHS  
HRL  
LN  
Hand  
Chuk  
MecHnd/Chuk  
ShkAbs  
FJ  
FK  
SpdContr  
Ending

LSH-HP  
LSH  
FH100  
BSA2  
BHA/BHG  
LHA  
LHAG  
HAP  
HKP  
HCP  
HGP  
HLF2  
HLA/HLB  
HLAG/HLBG  
HLC  
HLD  
HMF  
HMF-G  
HMF-B  
HFP  
FH500  
HBL  
HJL  
HMD  
HDL  
HJD  
BHE

## How to order

Without switch (built-in magnet for switch)

**HLF2** - **12CS** - **L1**

With switch (built-in magnet for switch)

**HLF2** - **12CS** - **L1** - **T2H** - **R**

**A** Size

**B** Option

**C** Switch model No.

**D** Switch quantity

Code		Description				
<b>A Size</b>						
08CS						
12CS						
16CS						
20CS						
<b>B Option</b>						
Blank		Standard				
L1		Long stroke 1				
L2		Long stroke 2				
<b>C Switch model No.</b>						
Lead wire	Lead wire	Contact	Voltage		Display	Lead wire
			AC	DC		
Straight	Radial	Proximity		●	1-color display	2-wire
				●		3-wire
T2H*	T2V*			●	1-color display Bending resistant lead wire	2-wire
T3H*	T3V*			●		
T2HR3	T2VR3			●		
<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.]

**HLF2-12CS-L1-T2H-R**

- A** Size : 12CS
- 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**

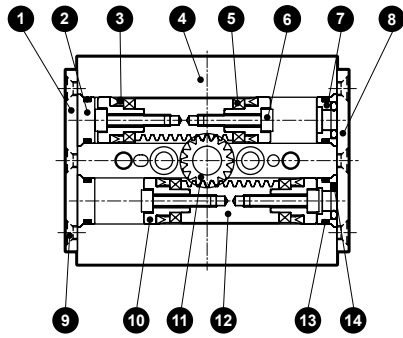
Switch model No.  
(Item **C** above)

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
<b>Hand</b>
Chuk
MechMod/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH-HP
LSH
FH100
BSA2
BHA/BHG
LHA
LHAG
HAP
HKP
HCP
HGP
<b>HLF2</b>
HLA/HLB
HLA/HLBG
HLC
HLD
HMF
HMF-G
HMFB
HFP
FH500
HBL
HJL
HMD
HDL
HJD
BHE

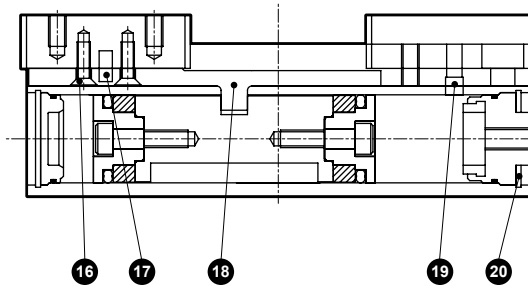
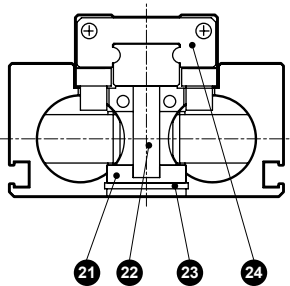
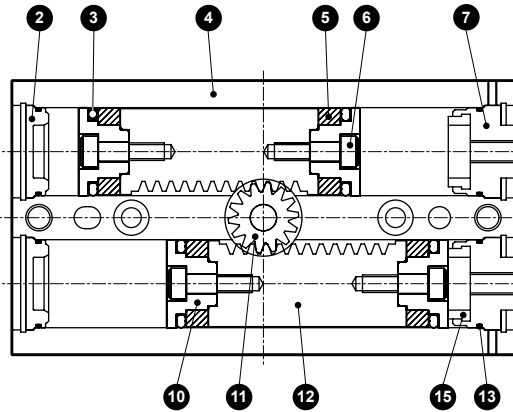
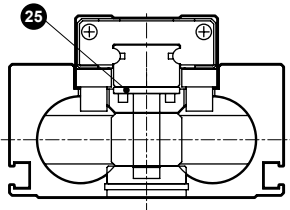
# HLF2 Series

## Internal structure and parts list

- HLF2-08CS (standard)
- HLF2-08CS-L1, L2 (Long stroke)



- HLF2-12CS to 20CS (Standard)
- HLF2-12CS to 20CS-L1, L2 (Long stroke)



**Cannot be disassembled**

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Side plate 2	Stainless steel		14	Cover gasket	Nitrile rubber	
2	Cylinder guard	Resin		15	Cushion	Resin	
3	Piston packing	Nitrile rubber		16	Cross-recessed flat head machine screw		
4	Body	Aluminum alloy		17	Positioning pin	Bearing steel	
5	Magnet			18	Rack joint	Stainless steel	
6	Hexagon socket head cap screw			19	Positioning pin	Bearing steel	
7	Cylinder cover port	Aluminum alloy		20	C snap ring for hole	Stainless steel	
8	Side plate 1	Stainless steel		21	Center plate	Aluminum alloy	
9	Cross-recessed flat head machine screw			22	Pinion shaft	Bearing steel	
10	Piston	Resin		23	C snap ring for hole	Stainless steel	
11	Pinion	Stainless steel		24	Linear guide		
12	Rack	Stainless steel		25	Seal plate	Aluminum alloy	
13	Cylinder gasket	Nitrile rubber					

LCM  
LCR  
LCG  
LCW  
LCX  
STM  
STG  
STS/STL  
STR2  
UCA2  
ULK\*  
JSK/M2  
JSG  
JSC3/JSC4  
USSD  
UFCD  
USC  
UB  
JSB3  
LMB  
LML  
HCM  
HCA  
LBC  
CAC4  
UCAC2  
CAC-N  
UCAC-N  
RCS2  
RCC2  
PCC  
SHC  
MCP  
GLC  
MFC  
BBS  
RRC  
GRC  
RV3\*  
NHS  
HRL  
LN  
**Hand**  
Chuk  
MecHnd/Chuk  
ShkAbs  
FJ  
FK  
SpdContr  
Ending

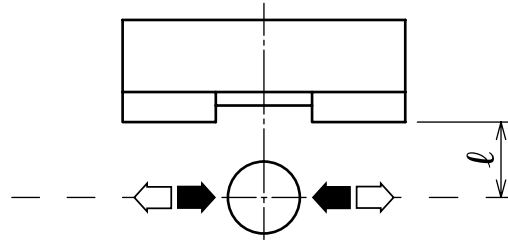
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LSH  
FH100  
BSA2  
BHA/BHG  
LHA  
LHAG  
HAP  
HKP  
HCP  
HGP  
**HLF2**  
HLA/HLB  
HLAG/HLBG  
HLC  
HLD  
HMF  
HMF-G  
HMFB  
HFP  
FH500  
HBL  
HJL  
HMD  
HDL  
HJD  
BHE

### Gripping power performance data

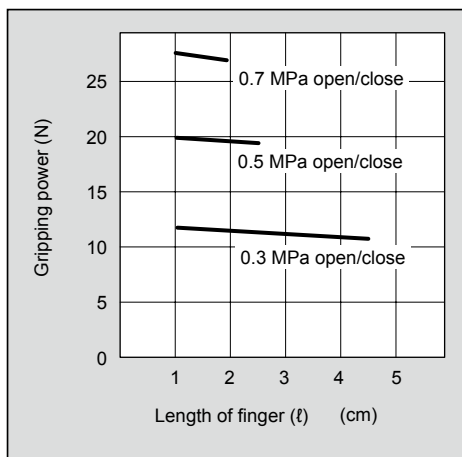
- Gripping power represents the thrust (per one finger) in the arrow direction shown in the figure.
- The gripping power with finger length L of the hand and supply pressure of 0.3, 0.5 and 0.7 MPa is shown.

- Common to open direction (⇐) and closed direction (⇒)
- (shown with continuous line)

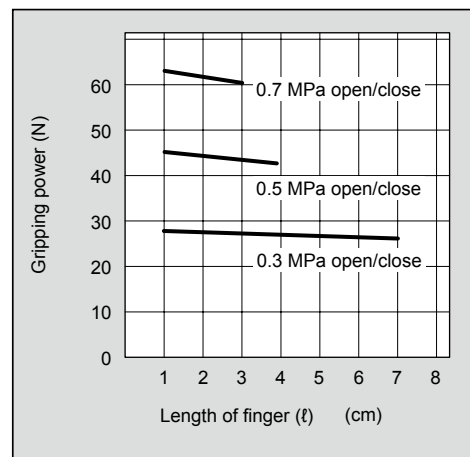
(Note) For selection, see page 1764 for design and selection precautions.



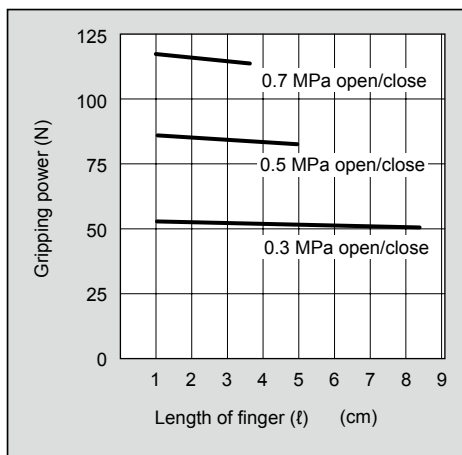
● HLF2-08CS



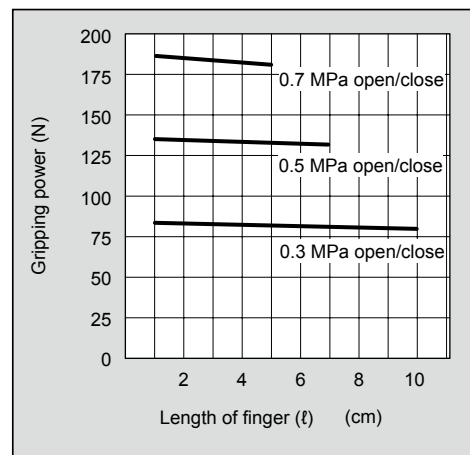
● HLF2-12CS



● HLF2-16CS



● HLF2-20CS



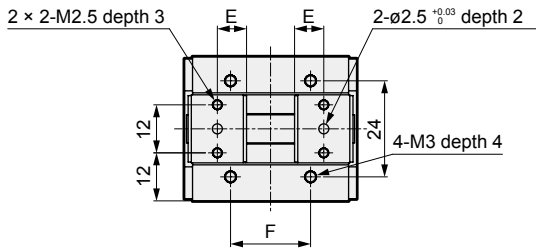
LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
<b>Hand</b>
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH-HP
LSH
FH100
BSA2
BHA/BHG
LHA
LHAG
HAP
HKP
HCP
HGP
<b>HLF2</b>
HLA/HLB
HLAG/HLBG
HLC
HLD
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HMF-G
HMFB
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HBL
HJL
HMD
HDL
HJD
BHE

# HLF2 Series

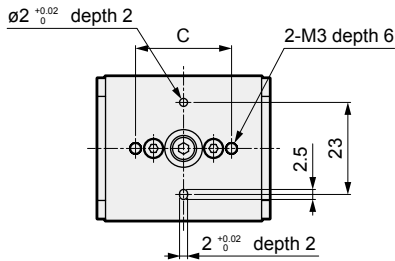
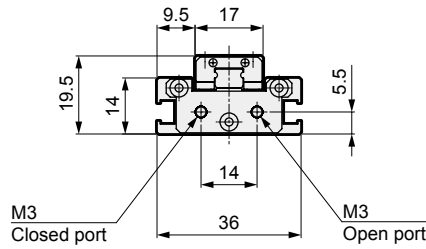
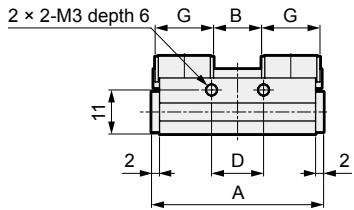
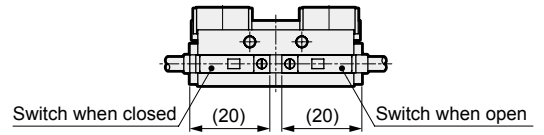
## Dimensions



### ● HLF2-08CS Standard/L1

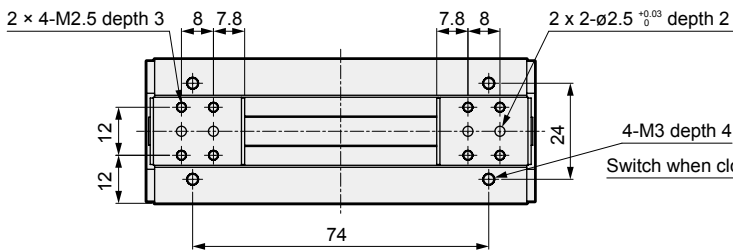


### ● With switch

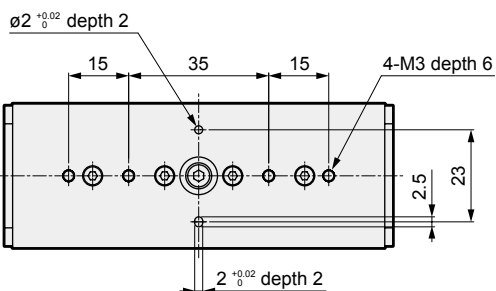
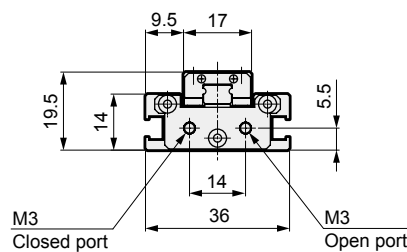
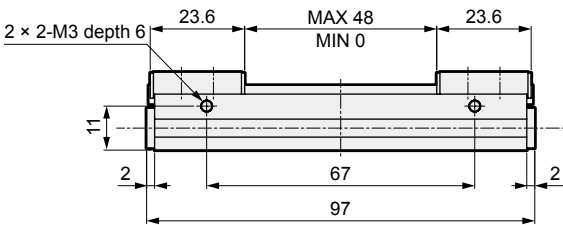
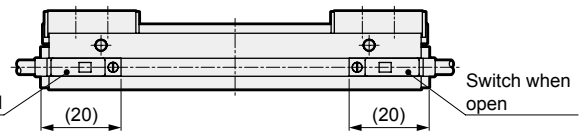


Code	A	B		C	D	E	F	G
		MAX	MIN					
Standard	43	12	0	24	13	7.3	20	14.6
L1	61	24	0	41	31	8.8	38	17.6

### ● HLF2-08CS-L2



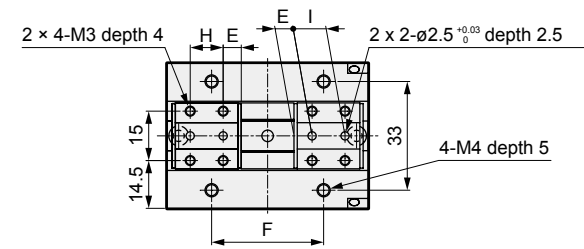
### ● With switch



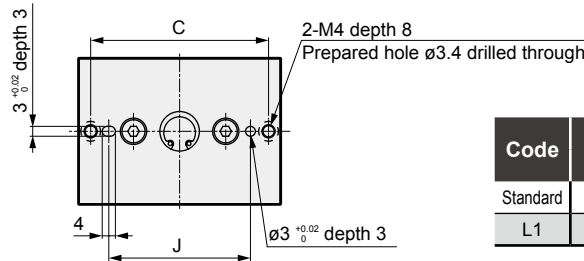
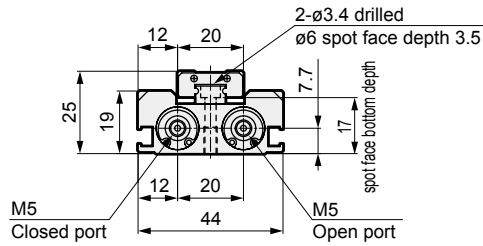
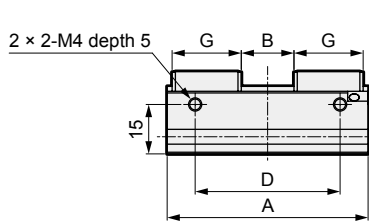
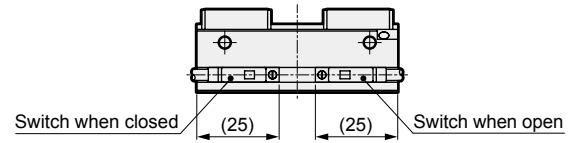
- LCM
- LCR
- LCG
- LCW
- LCX
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK\*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- UB
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCS2
- RCC2
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3\*
- NHS
- HRL
- LN
- Hand**
- Chuk
- MecHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending
- LSH-HP
- LSH
- FH100
- BSA2
- BHA/BHG
- LHA
- LHAG
- HAP
- HKP
- HCP
- HGP
- HLF2**
- HLA/HLB
- HLAG/HLBG
- HLC
- HLD
- HMF
- HMF-G
- HMFB
- HFP
- FH500
- HBL
- HJL
- HMD
- HDL
- HJD
- BHE

### Dimensions

#### ● HLF2-12CS Standard/L1

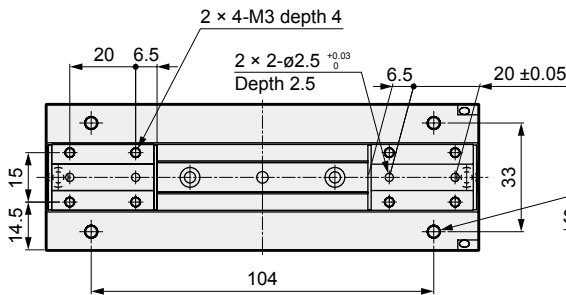


#### ● With switch

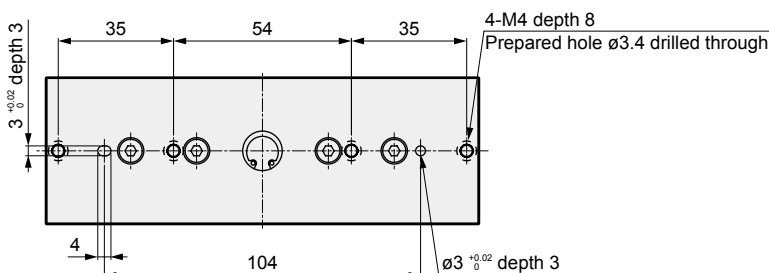
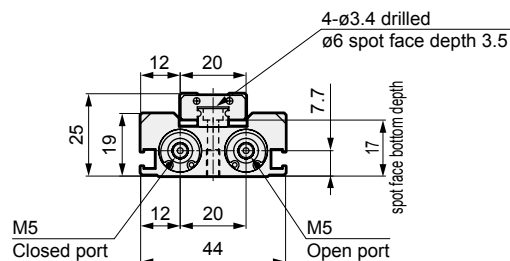
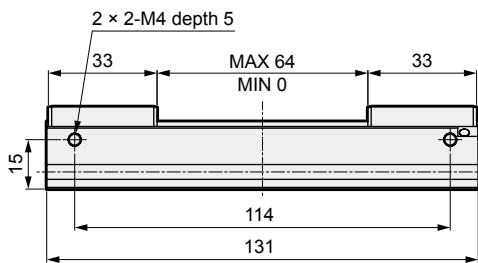
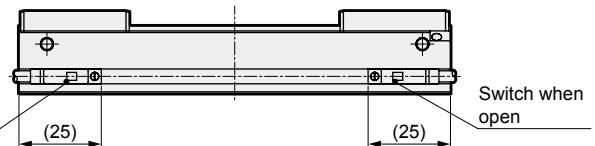


Code	A	B		C	D	E	F	G	H	I	J
		MAX	MIN								
Standard	61	16	0	54	44	5.5	34	21	10	10 ±0.05	43
L1	83	32	0	76	66	6.5	56	25	12	12 ±0.05	56

#### ● HLF2-12CS-L2



#### ● With switch



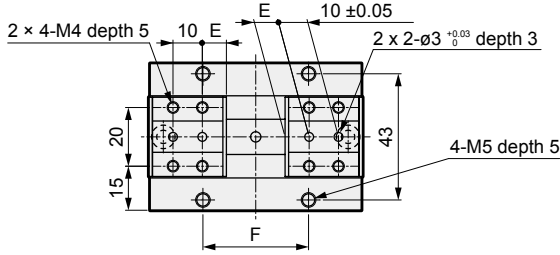
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- LCR
- LCG
- LCW
- LCX
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK\*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- UB
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCS2
- RCC2
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3\*
- NHS
- HRL
- LN
- Hand**
- Chuk
- MechHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending
- LSH-HP
- LSH
- FH100
- BSA2
- BHA/BHG
- LHA
- LHAG
- HAP
- HKP
- HCP
- HGP
- HLF2**
- HLA/HLB
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- HLC
- HLD
- HMF
- HMF-G
- HMFB
- HFP
- FH500
- HLB
- HJL
- HMD
- HDL
- HJD
- BHE

# HLF2 Series

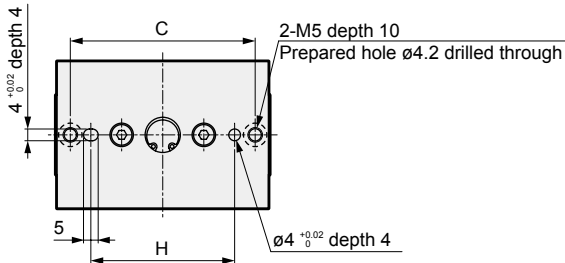
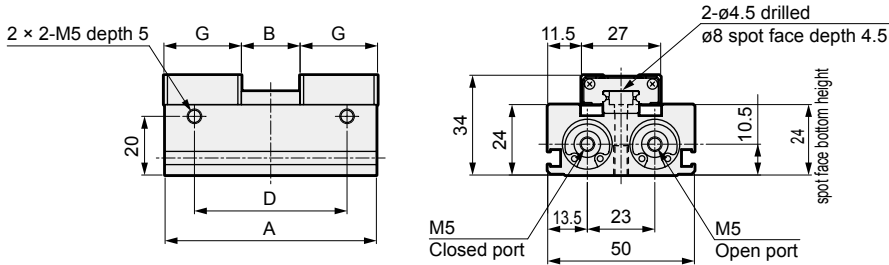
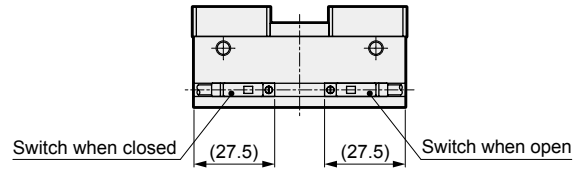
## Dimensions



### ● HLF2-16CS Standard/L1

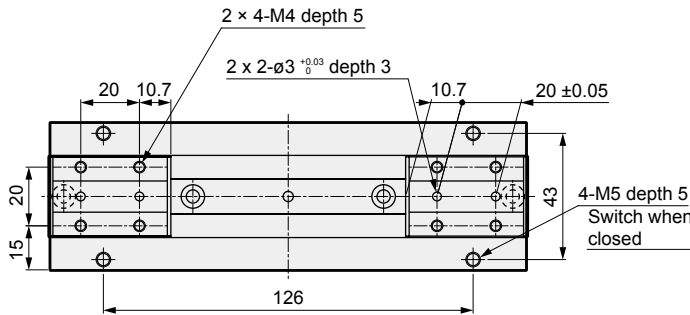


### ● With switch

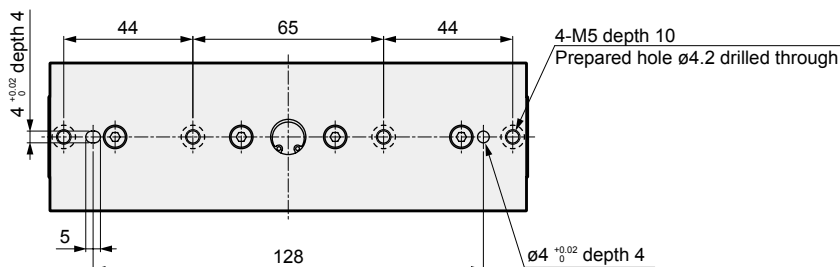
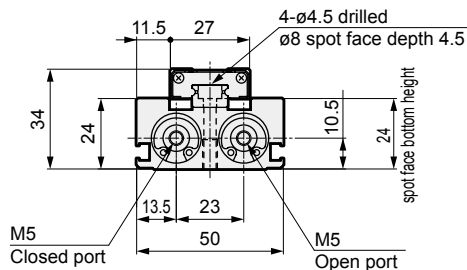
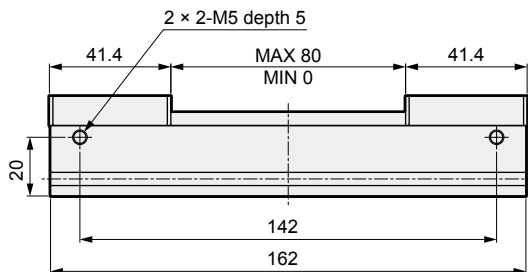
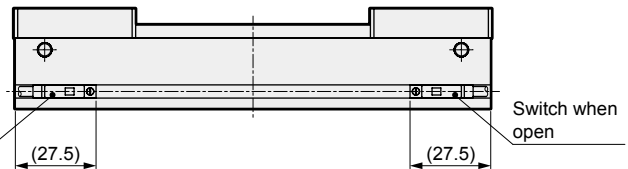


Code	A	B		C	D	E	F	G	H
		MAX	MIN						
Standard	72	20	0	63	52	8.2	36	26.4	46
L1	102	40	0	93	82	10.7	66	31.4	70

### ● HLF2-16CS-L2



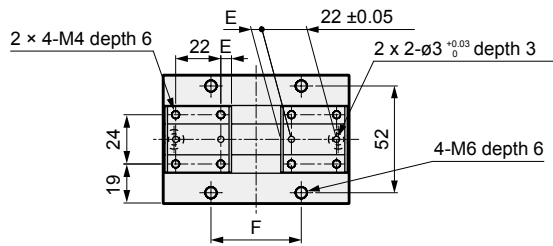
### ● With switch



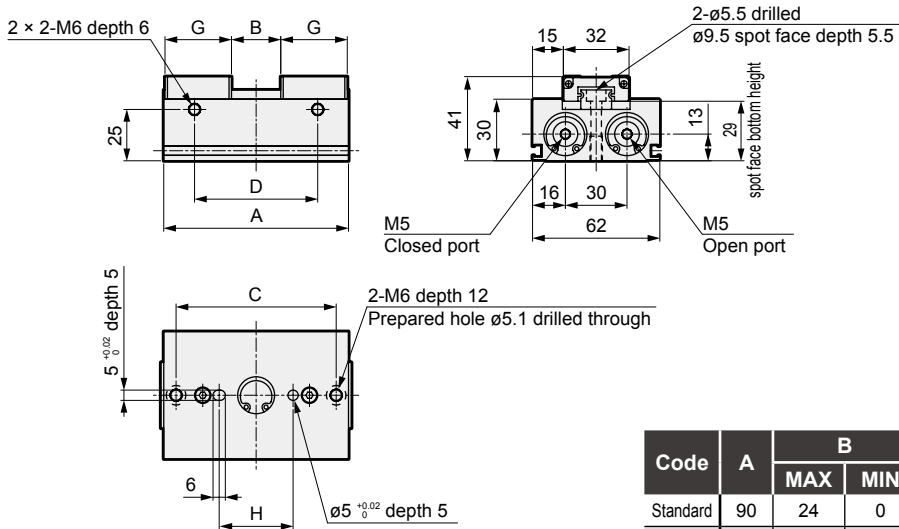
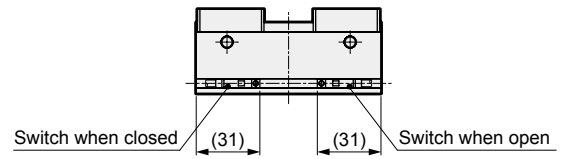
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- LCR
- LCG
- LCW
- LCX
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK\*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- UB
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCS2
- RCC2
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3\*
- NHS
- HRL
- LN
- Hand
- Chuk
- MechHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending
- LSH-HP
- LSH
- FH100
- BSA2
- BHA/BHG
- LHA
- LHAG
- HAP
- HKP
- HCP
- HGP
- HLF2
- HLA/HLB
- HLAG/HLBG
- HLC
- HLD
- HMF
- HMF-G
- HMFB
- HFP
- FH500
- HBL
- HJL
- HMD
- HDL
- HJD
- BHE

### Dimensions

#### ● HLF2-20CS Standard/L1

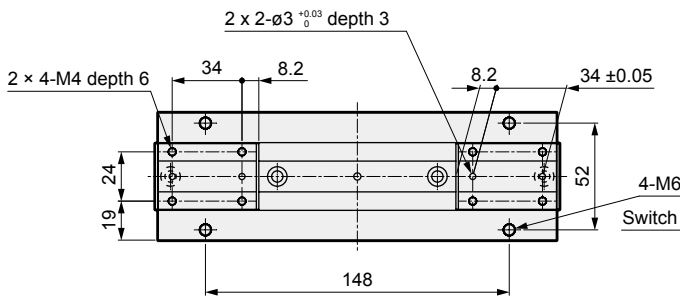


#### ● With switch

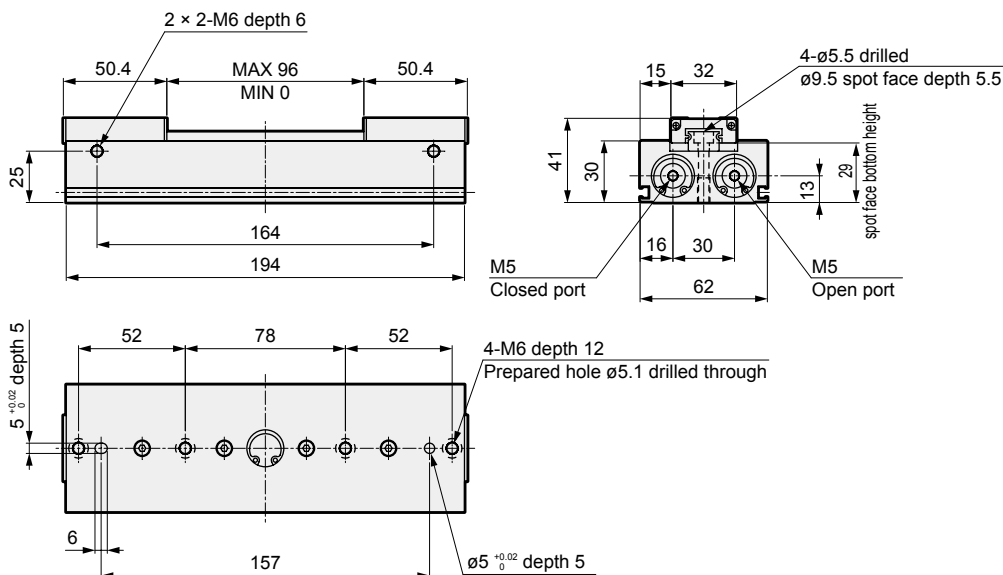
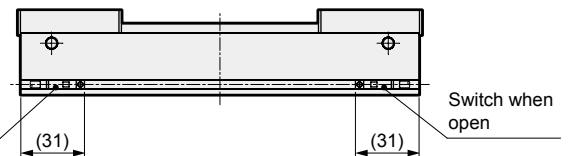


Code	A	B		C	D	E	F	G	H
		MAX	MIN						
Standard	90	24	0	78	60	5.2	44	32.4	36
L1	122	48	0	110	92	8.2	76	38.4	62

#### ● HLF2-20CS-L2



#### ● With switch



- LCM
- LCR
- LCG
- LCW
- LCX
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK\*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- UB
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCS2
- RCC2
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3\*
- NHS
- HRL
- LN
- Hand**
- Chuk
- MechHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending
- LSH-HP
- LSH
- FH100
- BSA2
- BHA/BHG
- LHA
- LHAG
- HAP
- HKP
- HCP
- HGP
- HLF2**
- HLA/HLB
- HLA/HLBG
- HLC
- HLD
- HMF
- HMF-G
- HMFB
- HFP
- FH500
- HLB
- HJL
- HMD
- HDL
- HJD
- BHE