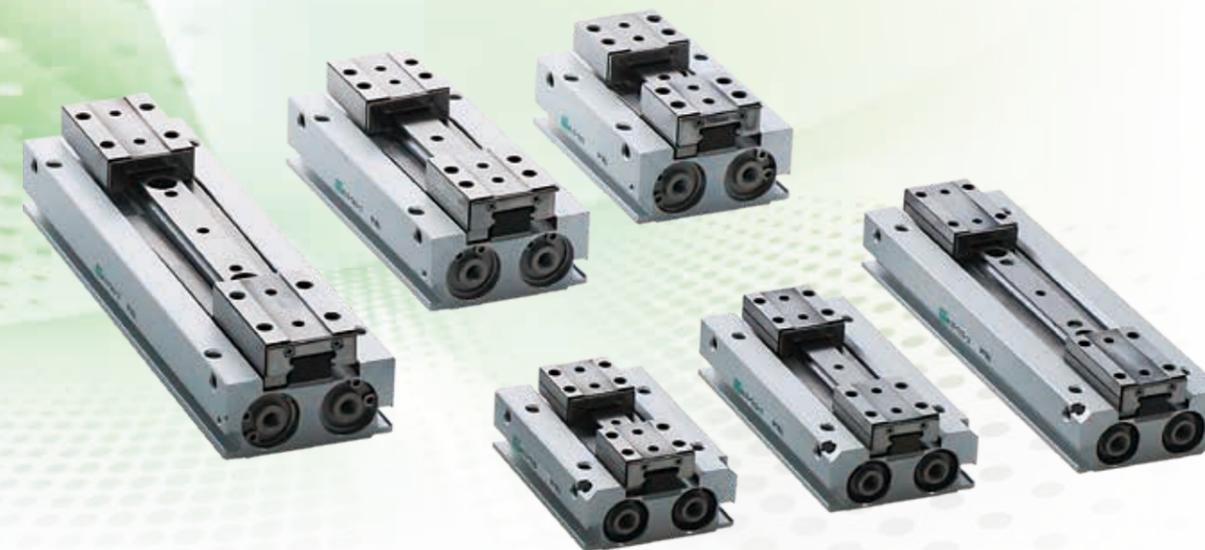


Manufacturing expands



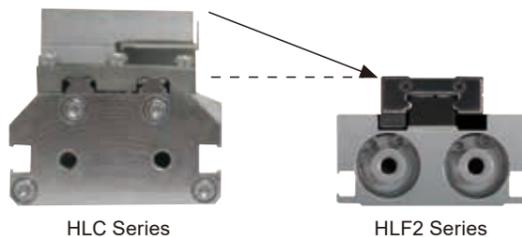
Low Profile, lightweight, high gripping force

Achieved high gripping force with a double piston system while realizing a compact size.

● Height: **Max. -32%**

● Height: **Max. -32%**

(Compared to our HLC series)

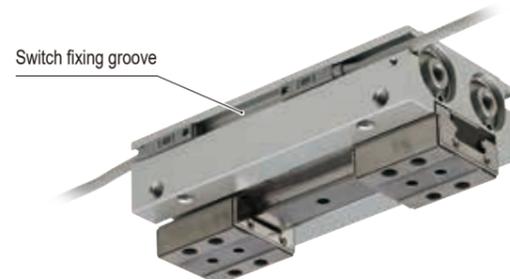


3 selectable strokes

Bore size (mm)	Standard Stroke (mm)	Long stroke 1 (mm)	Long stroke 2 (mm)
ø8 x 2	12	24	48
ø12 x 2	16	32	64
ø16 x 2	20	40	80
ø20 x 2	24	48	96

Flexible lead wire switch selectable

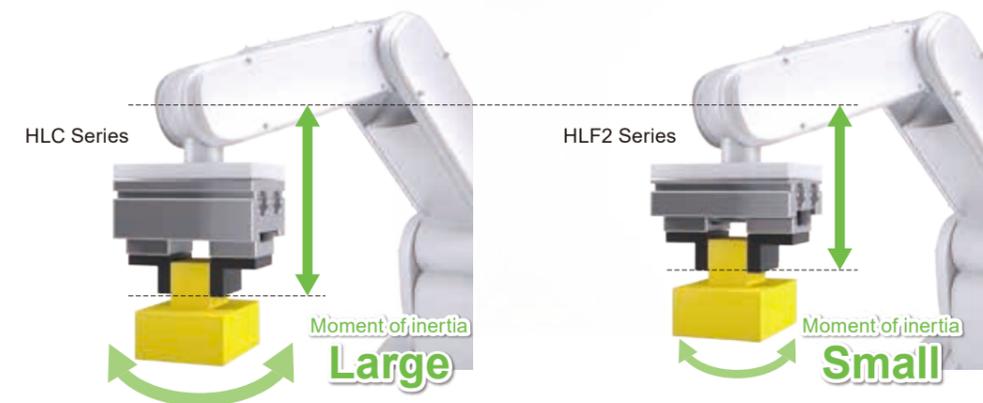
A switch using a highly flexible lead wire that is resistant to disconnection even when used in moving parts can be selected. (Switch model number T2HR3, T2VR3)



Ideal for robot grippers

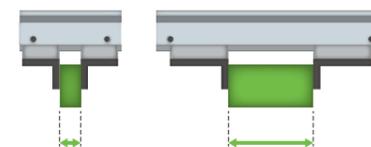
Reduced moment of inertia

Low profile and lightweight, reducing the moment of inertia and a robot's load.



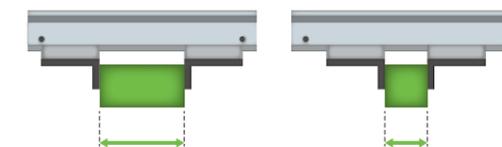
Space-saving

The optimal size can be selected according to the workpiece size.



No tool changer needed

With a long stroke, one gripper can handle a variety of workpieces.



Hand (Gripper)

LSH-HP

LSH

FH100

BSA2

BHA

BHG

BHE

LHA

LHAG

HAP-1C

HAP-2 to 4CS

HKP

HCP

HGP

LST-HP

HLF2

HLA/HLB

HLAG/HLBG

HLC

HLD

HMC-HP

HMF

HMF-G

HMF-B

HFP

FH500

HBL

HJL

HMD

HDL

HJD

Cylinder Switch

Ending

Hand (Gripper)

LSH-HP

LSH

FH100

BSA2

BHA

BHG

BHE

LHA

LHAG

HAP-1C

HAP-2 to 4CS

HKP

HCP

HGP

LST-HP

HLF2

HLA/HLB

HLAG/HLBG

HLC

HLD

HMC-HP

HMF

HMF-G

HMF-B

HFP

FH500

HBL

HJL

HMD

HDL

HJD

Cylinder Switch

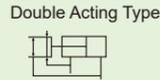
Ending



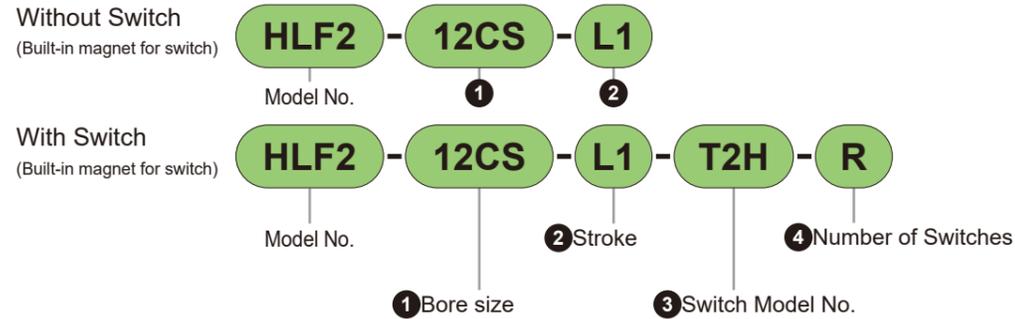
Low Profile Long Stroke Gripper

HLF2 Series

- Operating stroke: Standard 12, 16, 20, 24 mm
- Long stroke 1 24, 32, 40, 48 mm
- Long stroke 2 48, 64, 80, 96 mm



Model No. Notation Method



① Bore Size (mm)

Code	Content
08CS	ø8
12CS	ø12
16CS	ø16
20CS	ø20

② Stroke

Code	Content	Stroke (mm)			
		ø8	ø12	ø16	ø20
Blank	Standard	12	16	20	24
L1	Long stroke 1	24	32	40	48
L2	Long stroke 2	48	64	80	96

③ Switch Model No.

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

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

*Lead wire length

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

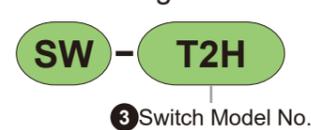
Example) Lead wire length
1 m T2H
3 m T2H③
3 m T2H⑤

*1: For "□" in the switch model number, enter the code selected from the "Lead wire length" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: Switches other than the model numbers listed above are also available. (Custom Product) For details, see P. 573.

④ Number of Switches

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

Switch Single Unit Model No. Notation Method



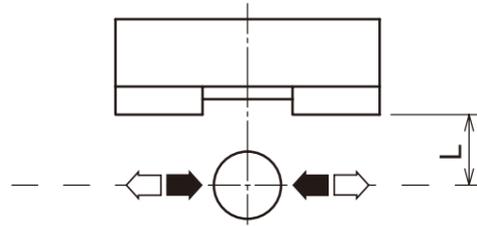
Specifications

Item	HLF2-08CS			HLF2-12CS			HLF2-16CS			HLF2-20CS		
	Blank	L1	L2	Blank	L1	L2	Blank	L1	L2	Blank	L1	L2
Bore size mm	ø8 x 2			ø12 x 2			ø16 x 2			ø20 x 2		
Operating Fluid	Compressed Air											
Max. Working Pressure MPa	0.7											
Min. Operating Pressure MPa	0.2											
Ambient Temperature °C	5 to 60											
Port Size	M3						M5					
Operating stroke mm	12	24	48	16	32	64	20	40	80	24	48	96
Internal volume (reciprocating) cm ³	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 (When lubricating, use turbine oil Class 1 ISO VG32)											

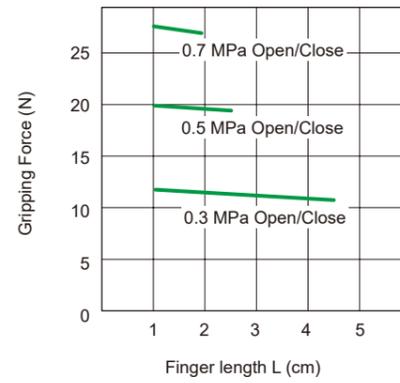
Gripping Force Performance Data

- Gripping force represents the thrust (for one finger) in the direction of the arrow shown in the figure.
- Indicates the gripping force at finger length L of the gripper when the supply pressure is 0.3, 0.5, and 0.7 MPa.
- Opening direction (◁) Closing direction (▷) Both

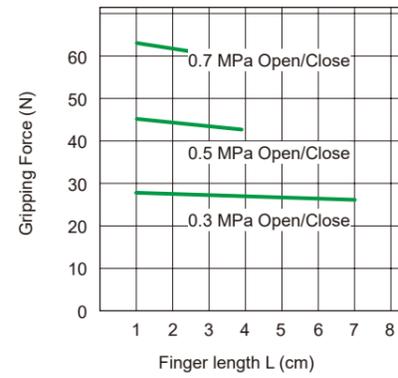
Note) When selecting, check the design and selection precautions on P. 336.



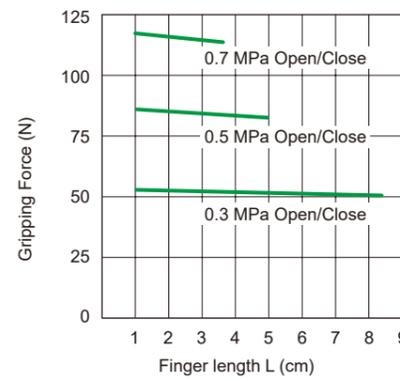
●HLF2-08CS



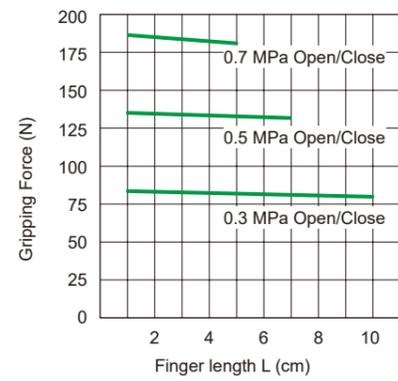
●HLF2-12CS



●HLF2-16CS

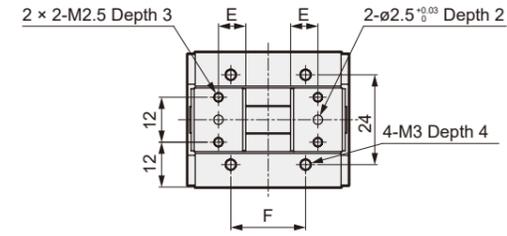


●HLF2-20CS

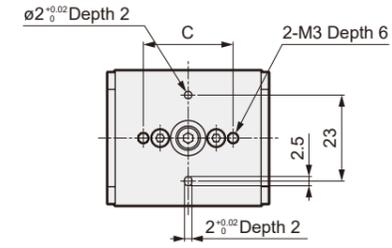
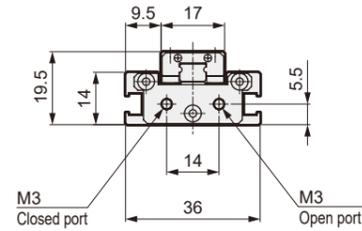
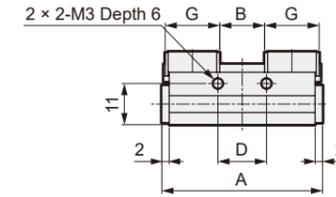
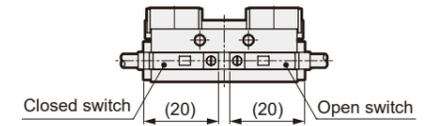


Outline Dimension Drawing

●HLF2-08CS Standard/L1

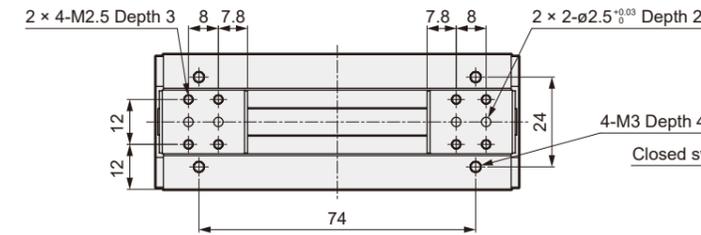


●With Switch

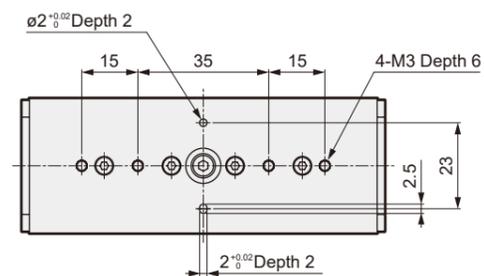
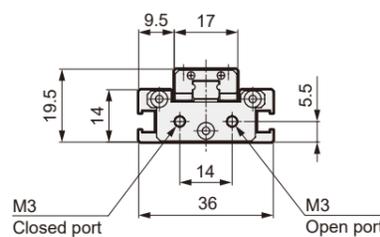
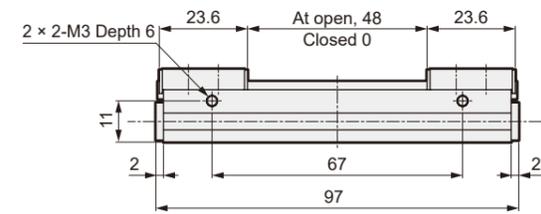
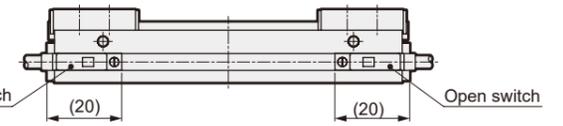


Code	A	B		C	D	E	F	G
		When Open	When Closed					
Standard	43	12	0	24	13	7.3	20	14.6
L1	61	24	0	41	31	8.8	38	17.6

●HLF2-08CS-L2



●With Switch



Hand (Gripper)

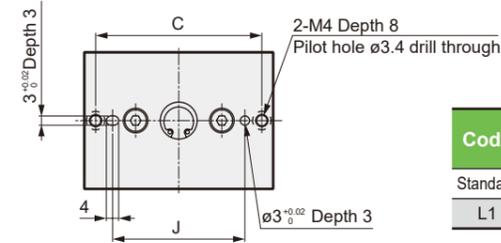
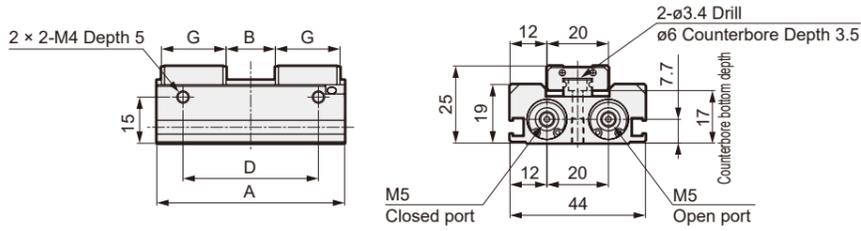
LSH-HP
LSH
FH100
BSA2
BHA
BHG
BHE
LHA
LHAG
HAP-1C
HAP-2 to 4CS
HKP
HCP
HGP
LST-HP
HLF2
HLA/HLB
HLAG/HLBG
HLC
HLD
HMC-HP
HMF
HMF-G
HMF-B
HFP
FH500
HBL
HJL
HMD
HDL
HJD
Cylinder Switch
Ending

Hand (Gripper)

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

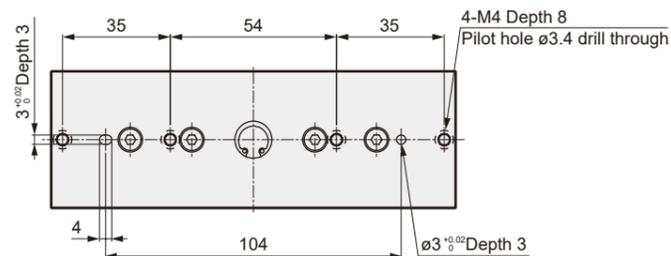
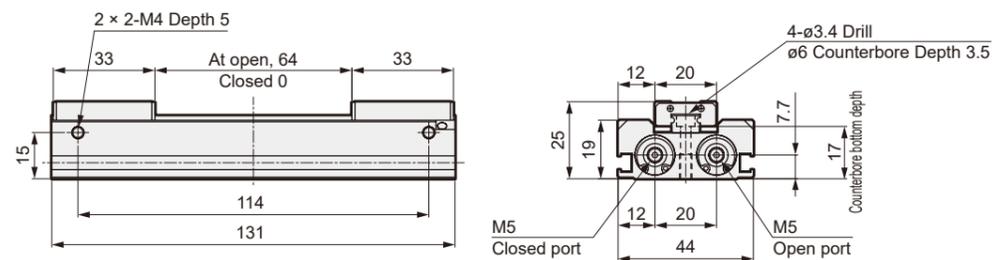
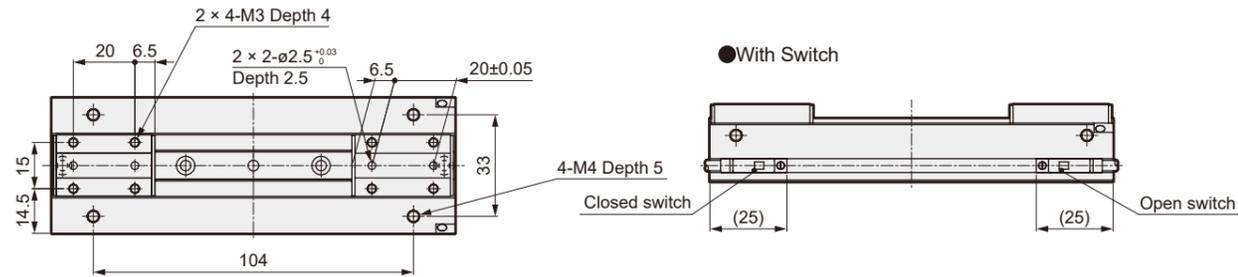
Outline Dimension Drawing

●HLF2-16CS Standard/L1



Code	A	B		C	D	E	F	G	H	I	J
		When Open	When Closed								
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

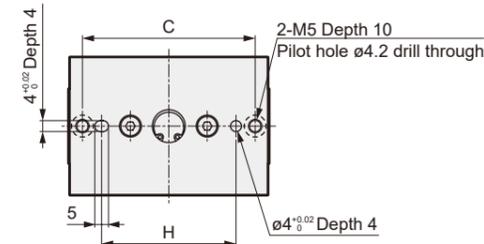
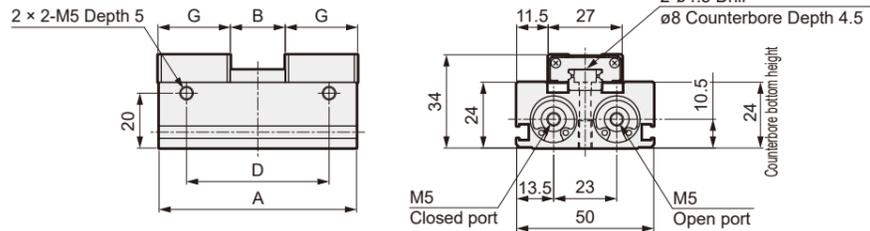
●HLF2-12CS-L2



Outline Dimension Drawing

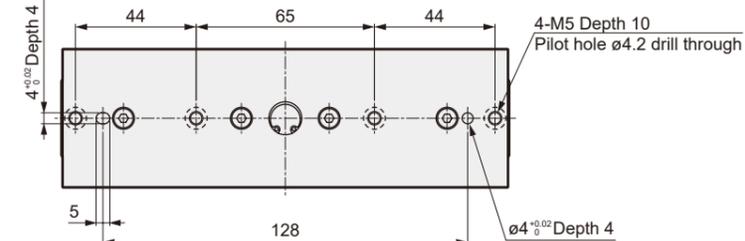
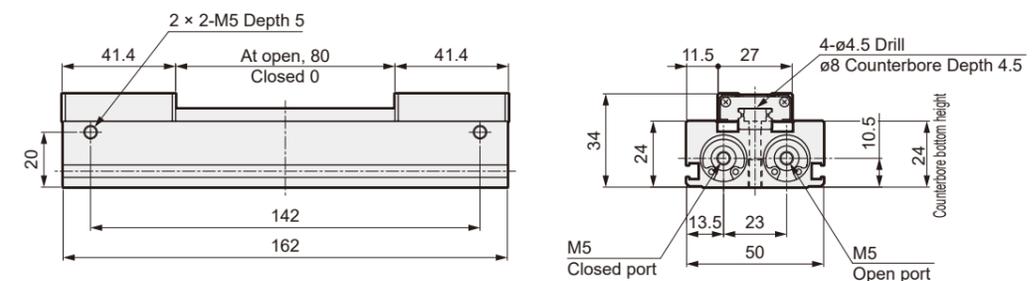
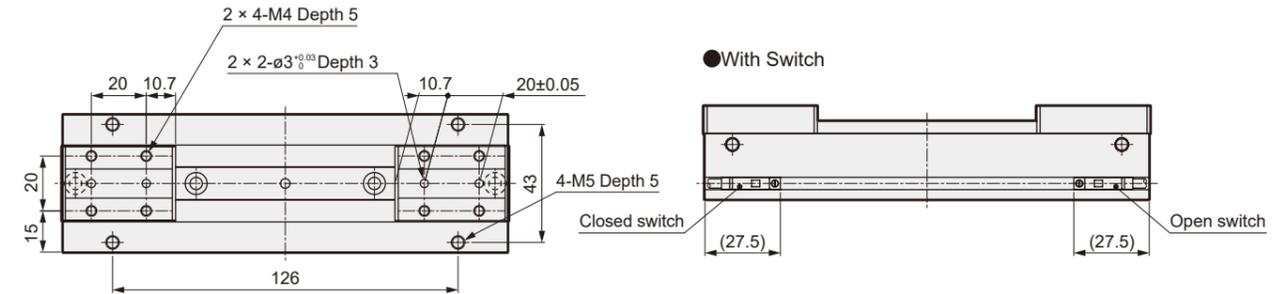
Outline Dimension Drawing

●HLF2-16CS Standard/L1



Code	A	B		C	D	E	F	G	H
		When Open	When Closed						
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



Hand (Gripper)

LSH-HP

LSH

FH100

BSA2

BHA

BHG

BHE

LHA

LHAG

HAP-1C

HAP-2 to 4CS

HKP

HCP

HGP

LST-HP

HLF2

HLA/HLB

HLAG/HLBG

HLC

HLD

HMC-HP

HMF

HMF-G

HMFB

HFP

FH500

HBL

HJL

HMD

HDL

HJD

Cylinder Switch

Ending

Hand (Gripper)

LSH-HP

LSH

FH100

BSA2

BHA

BHG

BHE

LHA

LHAG

HAP-1C

HAP-2 to 4CS

HKP

HCP

HGP

LST-HP

HLF2

HLA/HLB

HLAG/HLBG

HLC

HLD

HMC-HP

HMF

HMF-G

HMFB

HFP

FH500

HBL

HJL

HMD

HDL

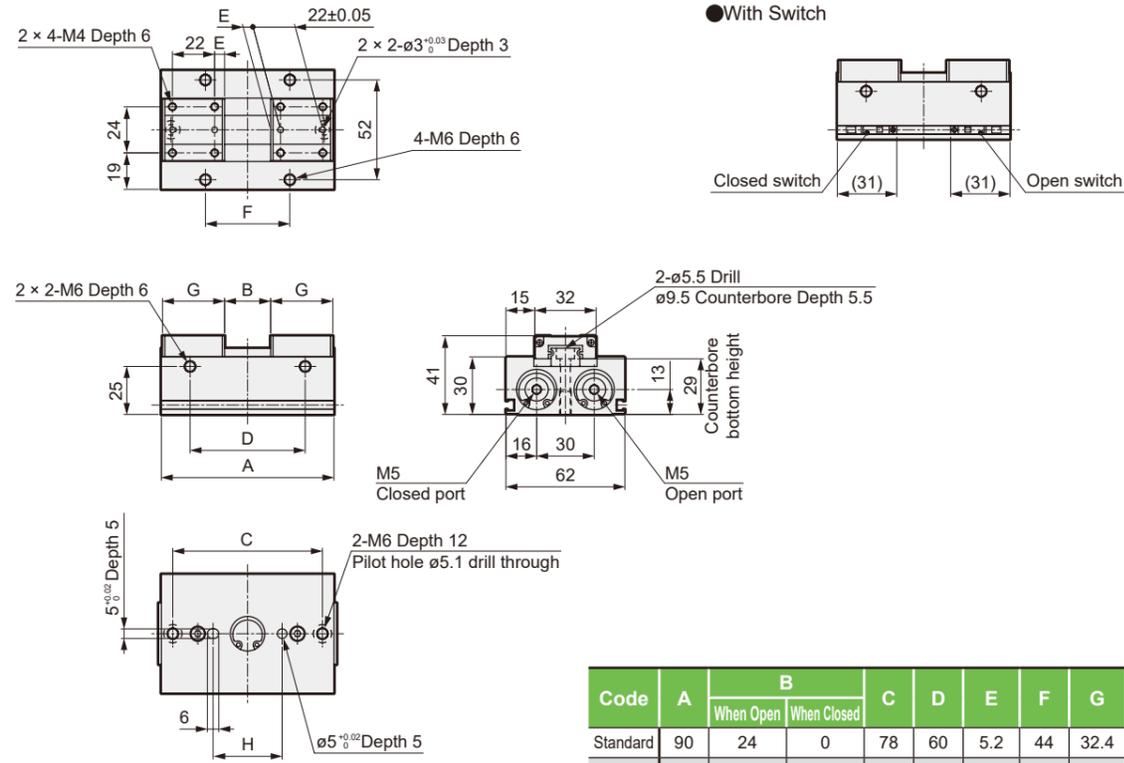
HJD

Cylinder Switch

Ending

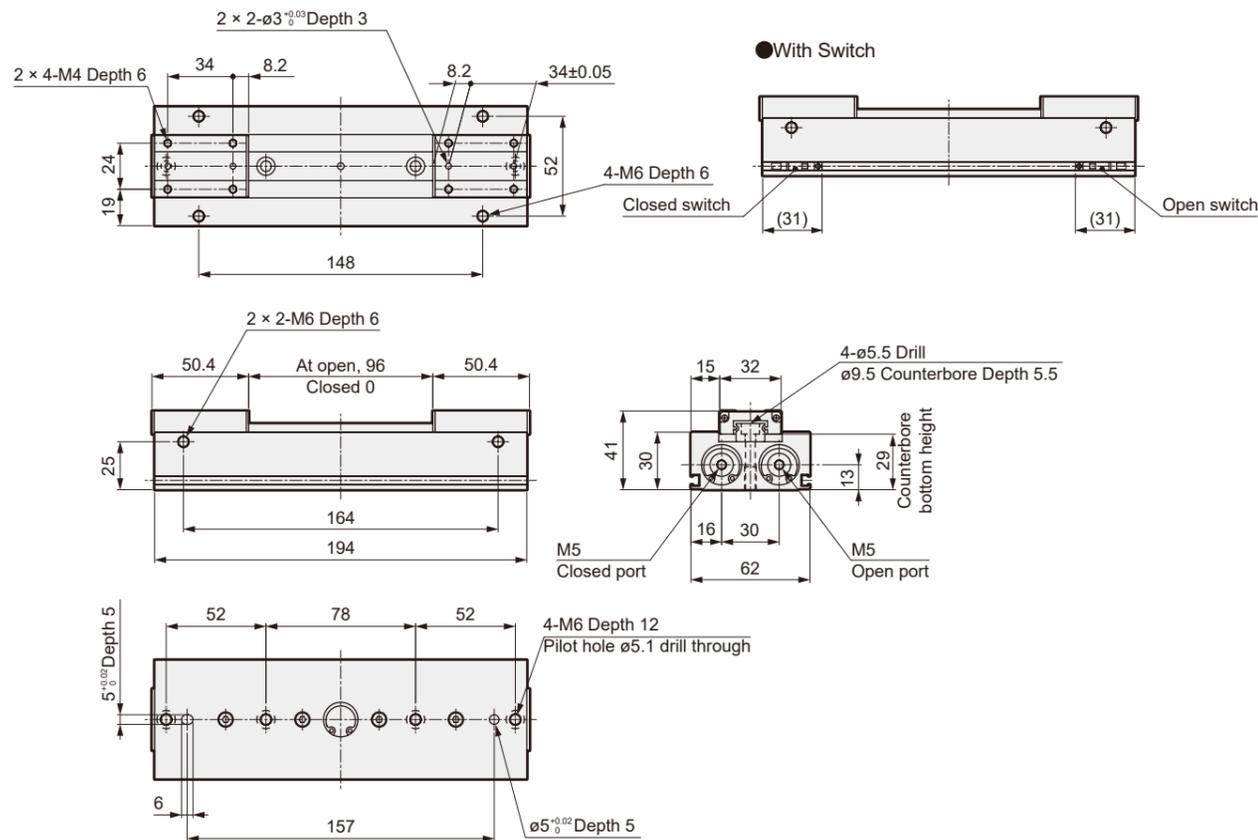
Outline Dimension Drawing

● HLF2-20CS Standard/L1



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

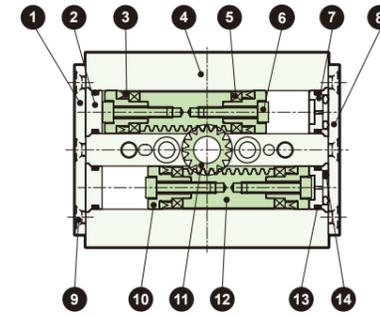
● HLF2-20CS-L2



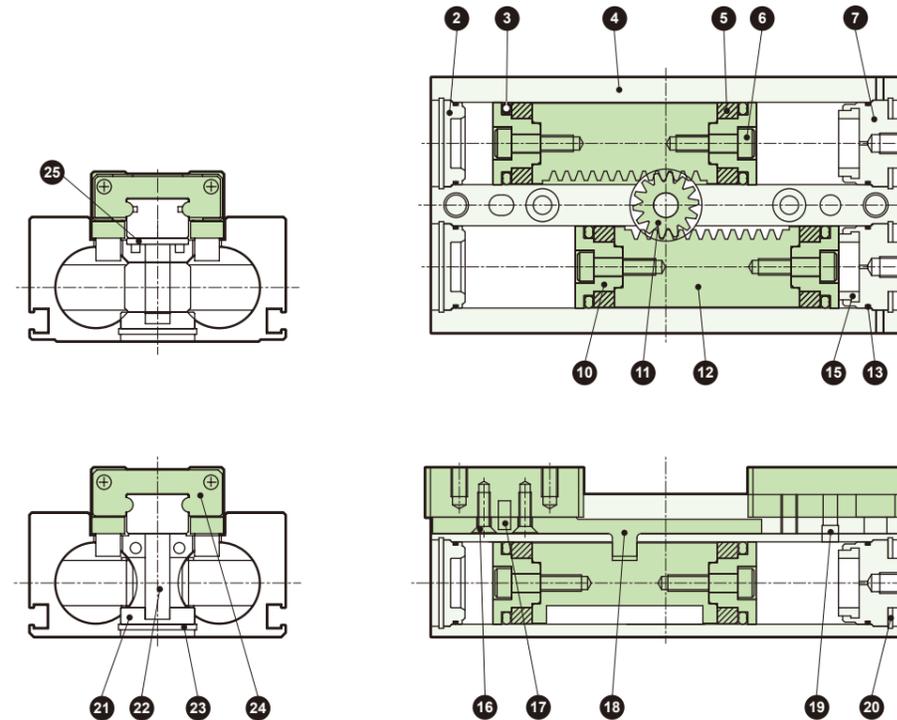
Internal Structure Diagram/Material

Internal Structure Diagram/Material

● HLF2-08CS (Standard)
● HLF2-08CS-L1, L2 (Long stroke)



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



Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Side plate 2	Stainless Steel		14	Cover gasket	Nitrile Rubber	
2	Cover	Resin		15	Cushion	Resin	
3	Piston Packing	Nitrile Rubber		16	Phillips flat head 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	Cover port	Aluminum Alloy		20	C-type retaining ring for hole	Stainless Steel	
8	Side plate 1	Stainless Steel		21	Center plate	Aluminum Alloy	
9	Phillips flat head screw			22	Pinion shaft	Bearing Steel	
10	Piston	Resin		23	C-type retaining ring for hole	Stainless Steel	
11	Pinion	Stainless Steel		24	Linear Guide		
12	Rack	Stainless Steel		25	Seal plate	Aluminum Alloy	
13	Gasket	Nitrile Rubber					

Hand (Gripper)

LSH-HP
LSH
FH100
BSA2
BHA
BHG
BHE
LHA
LHAG

HAP-1C
HAP-2 to 4CS
HKP

HCP
HGP
LST-HP

HLF2

HLA/
HLB
HLAG/
HLBG

HLC
HLD

HMC-HP
HMF
HMF-G

HMFB
HFP
FH500

HBL
HJL
HMD

HDL
HJD

Cylinder
Switch
Ending

Hand (Gripper)

LSH-HP
LSH
FH100
BSA2
BHA
BHG
BHE
LHA
LHAG

HAP-1C
HAP-2 to 4CS
HKP

HCP
HGP
LST-HP

HLF2

HLA/
HLB
HLAG/
HLBG

HLC
HLD

HMC-HP
HMF
HMF-G

HMFB
HFP
FH500

HBL
HJL
HMD

HDL
HJD

Cylinder
Switch
Ending