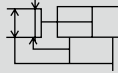


Linear Slide Hand Double acting

LSH Series

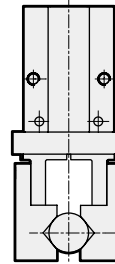
● Operating stroke length: 4, 6, 10, 14 mm



Specifications

Item	LSH				
	mm	ø10	ø16	ø20	ø25
Bore size	mm	ø10	ø16	ø20	ø25
Actuation		Double acting			
Working fluid		Compressed air			
Max. working pressure	MPa	0.7 (≈100 psi, 7 bar)			
Min. working pressure	Standard	0.2 (≈29 psi)	0.1 (≈15 psi, 1 bar)		
	MPa Shockless	0.3	0.2 (≈29 psi)		
Port size		M3	M5		
Ambient temperature	°C	-10 (14°F) to 60 (140°F) (no freezing)			
Operating stroke length	mm	4	6	10	14
Repeatability	mm	±0.01			
Weight	Standard	0.055	0.125	0.250	0.460
	kg Shockless	0.063	0.143	0.278	0.502
Lubrication		Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)			

Gripping power



Unit : N

Bore size (mm)	Open side	Closed side
ø10	17	11
ø16	45	34
ø20	66	42
ø25	104	65

* Values at 0.5 MPa supply pressure, L = 20 mm

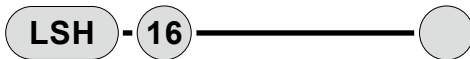
Switch specifications

Item	Proximity 2-wire	Proximity 3-wire	Proximity 2-wire	Proximity 3-wire	
	F2S	F3S	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	4.5 to 28 VDC
Load voltage/current	10 to 30 VDC 5 to 20 mA	30 VDC, 50 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	
Shock resistance	980 m/s ²				
Weight	g 1 m:10 3 m:29				

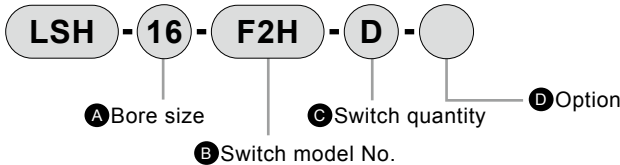
*1 : The switch uses a bend-resistant lead wire.

How to order

Without switch



With switch



⚠ Precautions for model No. selection

*1 : Shock absorbing option is enabled only for the closed side.

[Example of model No.]

LSH-16-F2H-D

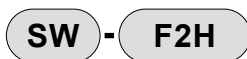
Model : Linear Slide Hand

Ⓐ Bore size : ø16

Ⓑ Switch model No. : Proximity switch F2H
Lead wire 1 m

Ⓒ Switch quantity : 2

How to order switch



Switch model No.
(Item Ⓑ above)

Code	Description
Ⓐ Bore size (mm)	
10	ø10
16	ø16
20	ø20
25	ø25

Ⓑ Switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage		Display	Lead wire
			AC	DC		
-	F2S*	Proximity	●	●	1-color display	2-wire
-	F3S*		●	●		3-wire
F2H*	F2V*		●	●		2-wire
F3H*	F3V*		●	●		3-wire
F3PH*	F3PV*		●	●		3-wire

* Lead wire length	
Blank	1 m (standard)
3	3 m (option)

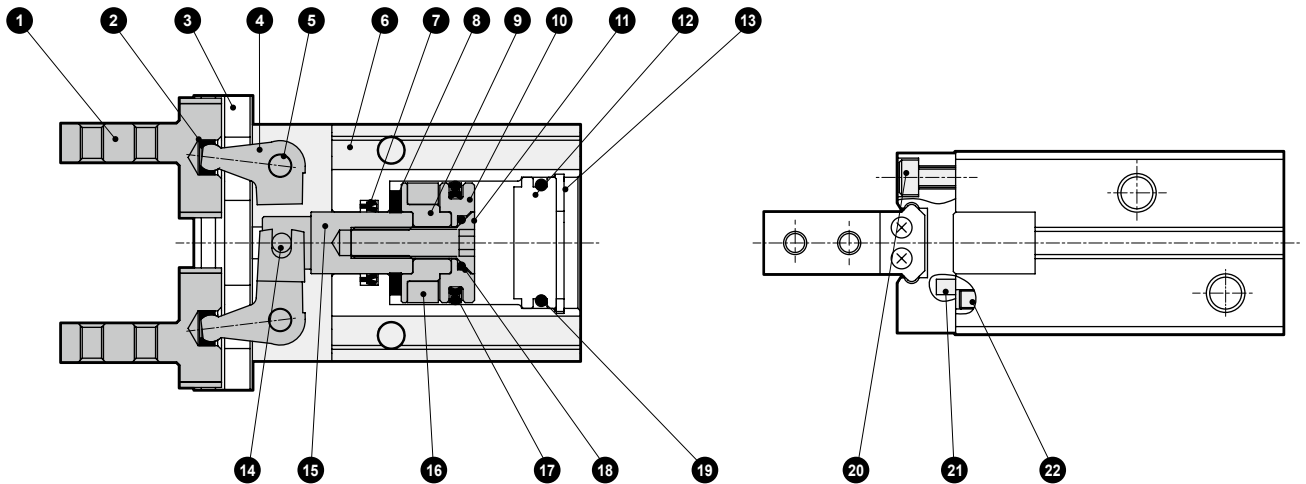
Ⓒ Switch quantity	
R	1 on open side
H	1 on closed side
D	2

Ⓓ Option	
Blank	Standard
C	Shock absorbing (closed side only)

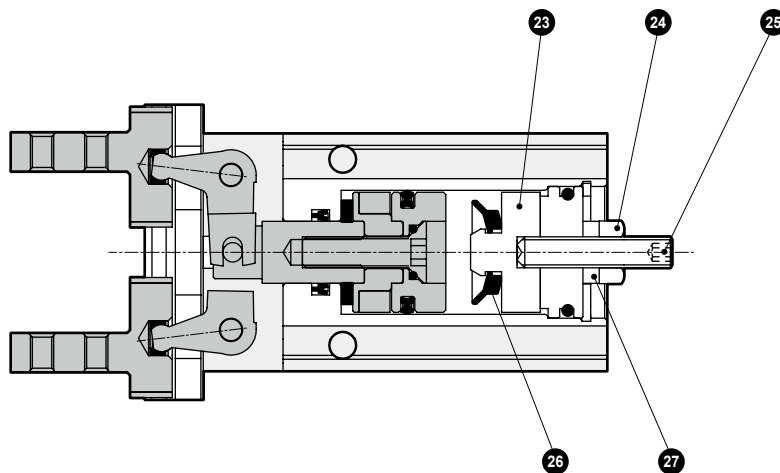
- LCM
- LCR
- LCG
- LCW
- LCX
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- UB
- JSB3
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCS2
- RCC2
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HRL
- LN
- Hand**
- Chuk
- MechHnd/Chuk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

Internal structure and parts list

● LSH (Standard type)



● LSH-*-C (Shockless (closed side only))

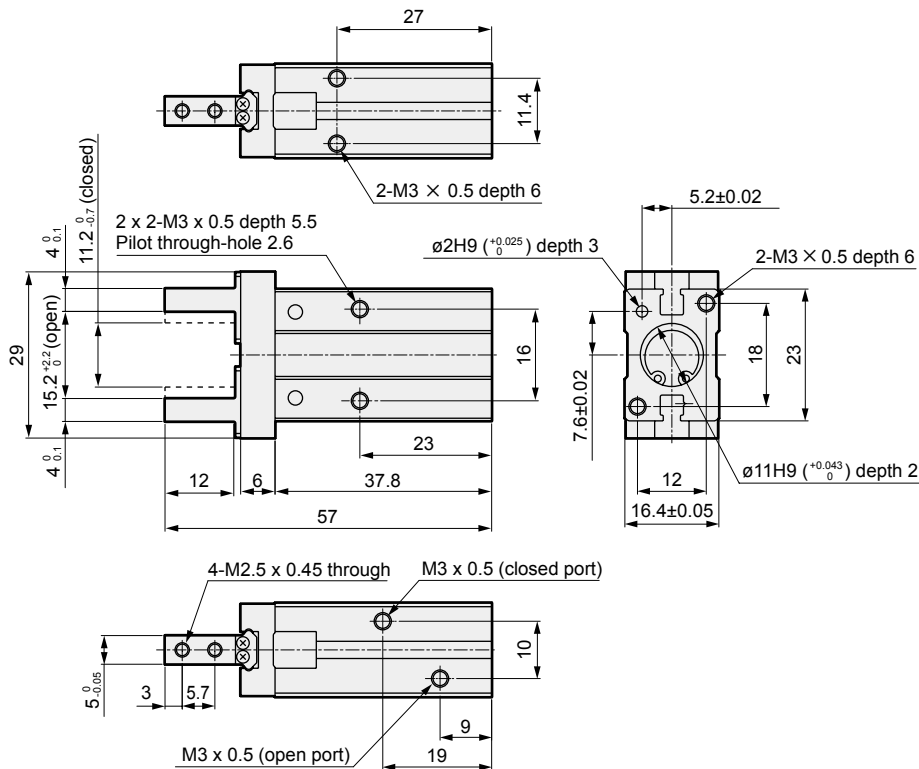


Parts list

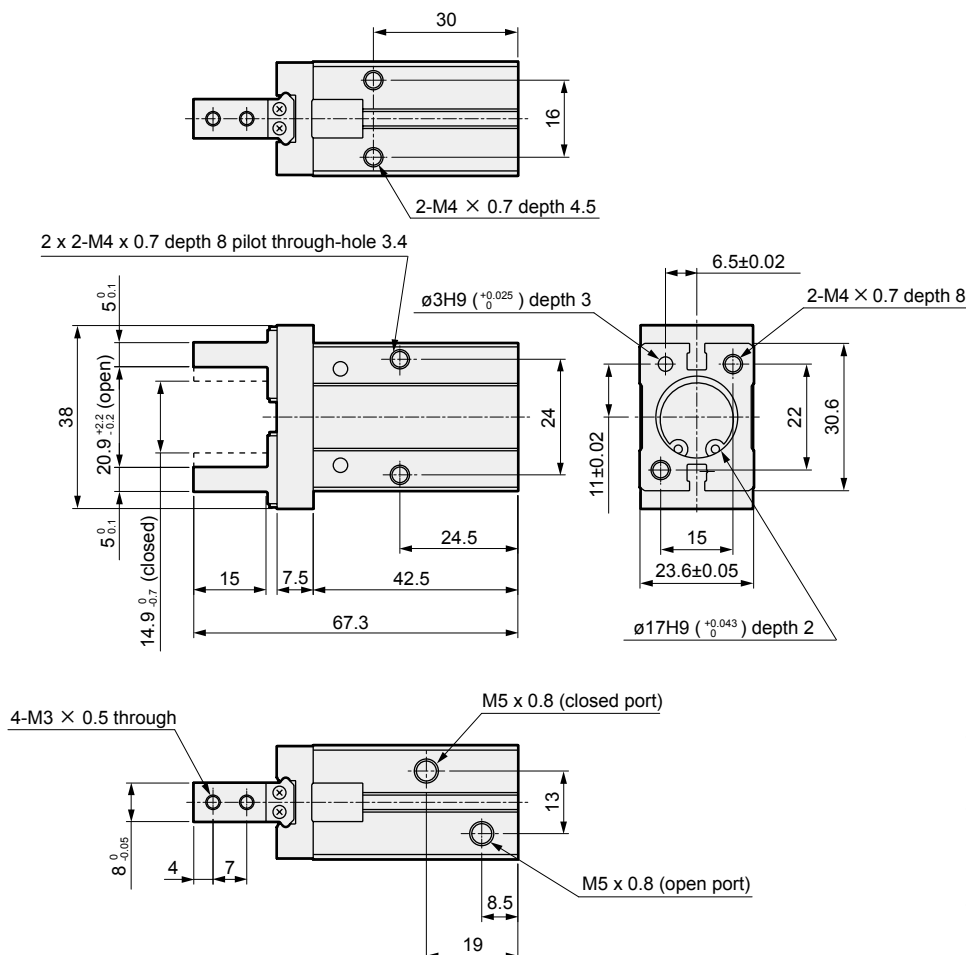
No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Finger	Stainless steel		15	Piston rod	Stainless steel	
2	Holder	Alloy steel		16	Magnet		
3	Linear guide	Stainless steel		17	Piston packing	Nitrile rubber	
4	Lever	Stainless steel		18	O-ring	Nitrile rubber	
5	Fulcrum axis	Alloy steel		19	O-ring	Nitrile rubber	
6	Body	Aluminum alloy		20	Hexagon socket head cap screw	Stainless steel	
7	Rod packing	Nitrile rubber		21	Pin	Alloy steel	
8	Cushion rubber	Urethane rubber		22	Hexagon socket set screw	Alloy steel	
9	Spacer	Aluminum alloy		23	Stopper	Aluminum alloy	Hard alumite
10	Piston	Aluminum alloy		24	Hexagon nut	Alloy steel	
11	Hexagon socket head cap screw	Stainless steel		25	Hexagon socket set screw	Alloy steel	
12	Head cover	Aluminum alloy		26	Rubber-air cushion	Special rubber	
13	C type snap ring	Stainless steel		27	Sealing washer	Stainless steel+Nitrile rubber	
14	Operation shaft	Alloy steel					

Dimensions (bore size: $\phi 10$, $\phi 16$)

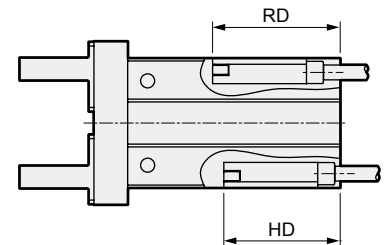
● LSH-10 (Standard type)



● LSH-16 (Standard type)



● With switch



F2/3*	RD	22.5
	HD	20.5
F2S/F3S	RD	23.5
	HD	21.5

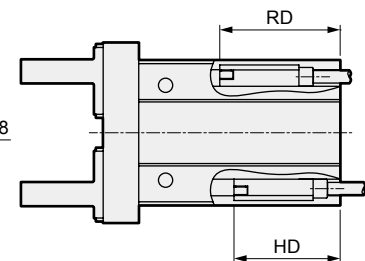
*1 : RD dimension is the max. sensitivity position at open side end position and HD dimension at closed side end position.
The actual mounting position should be adjusted after confirming the operational status of the switch.

*2 : Switch cannot be mounted when mounting the body with through holes. Refer to page 1768 for details.

*3 : When using F□H, the switch lead wire protrudes from the end face of the head side.
If this protrusion is a problem, use F□V or F□S.

*4 : Since the opening and closing stroke is short, only one side of the open or closed state is detected for each switch.

● With switch



F2/3*	RD	25.5
	HD	22.5
F2S/F3S	RD	26.5
	HD	23.5

*1 : RD dimension is the max. sensitivity position at open side end position and HD dimension at closed side end position.
The actual mounting position should be adjusted after confirming the operational status of the switch.

*2 : Switch cannot be mounted when mounting the body with through holes. Refer to page 1768 for details.

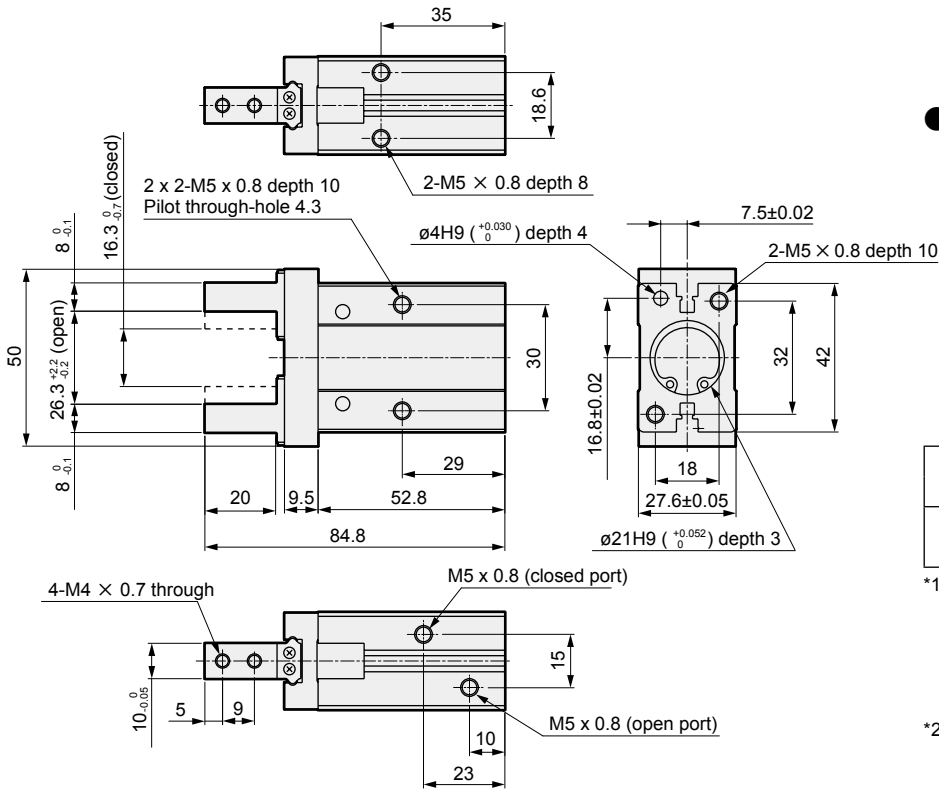
*3 : When using F□H, the switch lead wire protrudes from the end face of the head side.
If this protrusion is a problem, use F□V or F□S.

*4 : Since the opening and closing stroke is short, only one side of the open or closed state is detected for each switch.

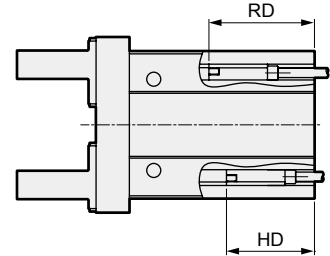
LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH-HP
LSH
FH100
BSA2
BHA/BHG
LHA
LHAG
HAP
HKP
HCP
HGP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

Dimensions (bore size: $\phi 20$, $\phi 25$)

● LSH-20 (Standard type)



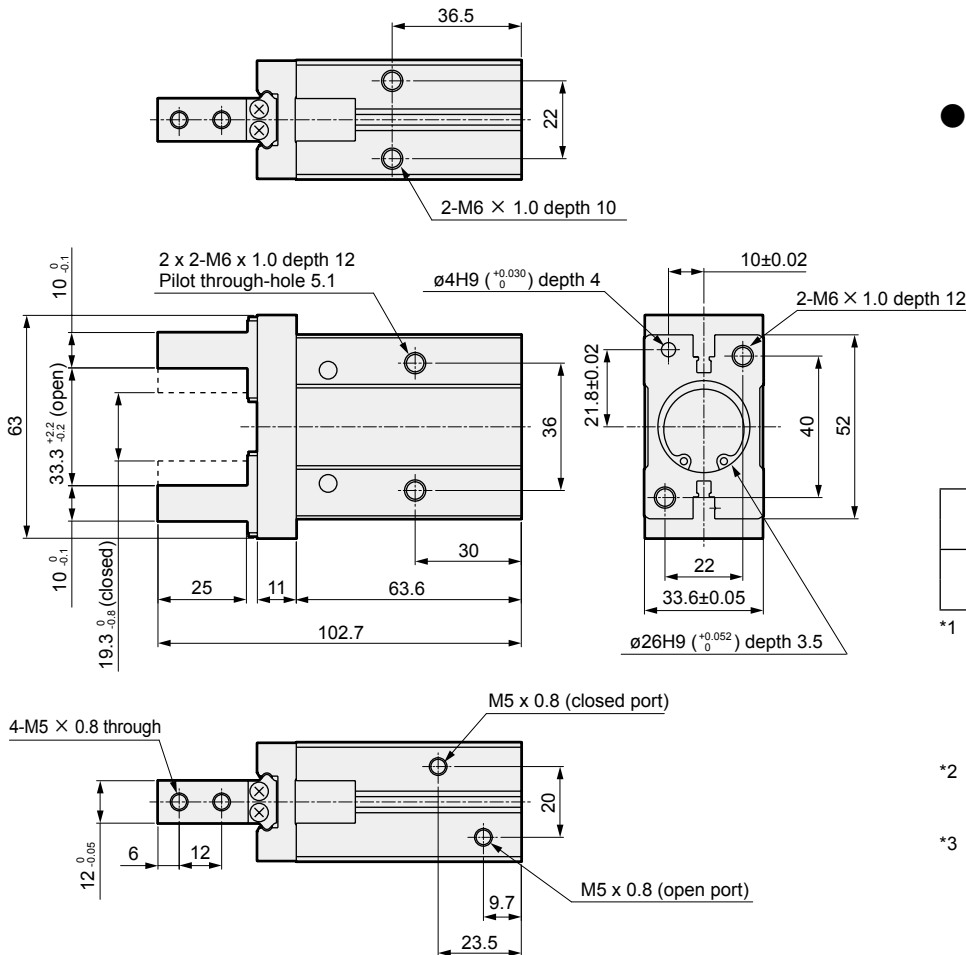
● With switch



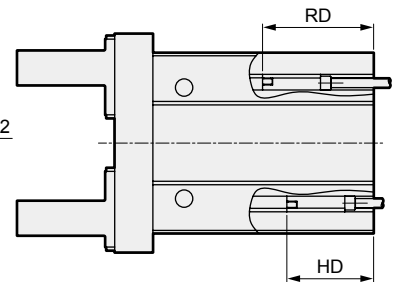
F2/3*	RD	30
	HD	25
F2S/F3S	RD	31
	HD	26

- *1 : RD dimension is the max. sensitivity position at open side end position and HD dimension at closed side end position. The actual mounting position should be adjusted after confirming the operational status of the switch.
- *2 : Switch cannot be mounted when mounting the body with through holes. Refer to page 1768 for details.
- *3 : When using F□H, the switch lead wire protrudes from the end face of the head side. If this protrusion is a problem, use F□V or F□S.

● LSH-25 (Standard type)



● With switch



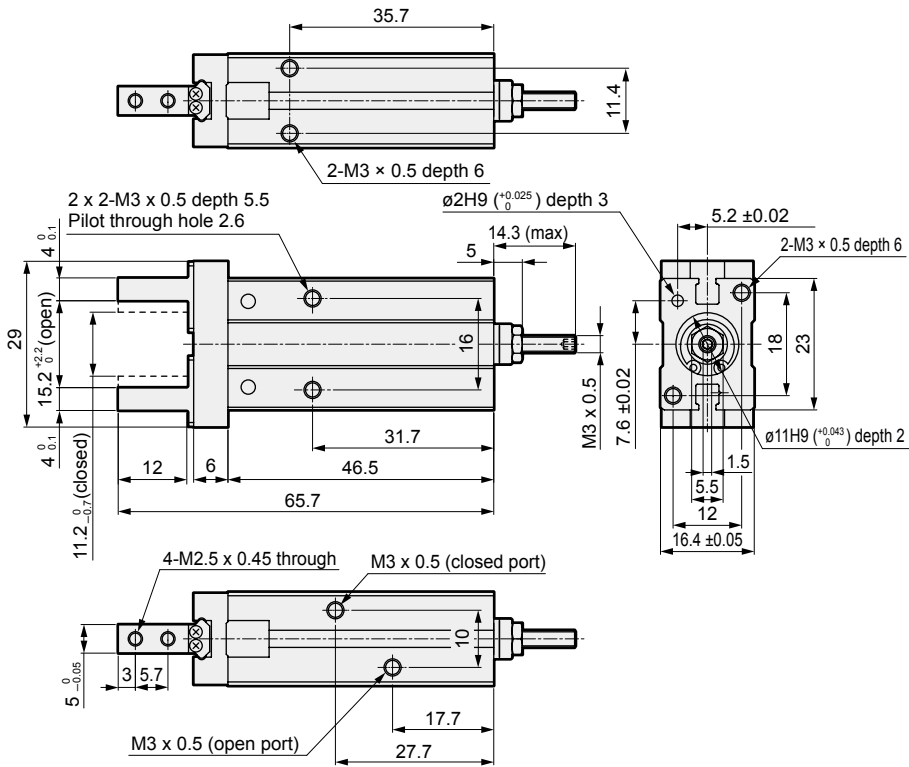
F2/3*	RD	32
	HD	25
F2S/F3S	RD	33
	HD	26

- *1 : RD dimension is the max. sensitivity position at open side end position and HD dimension at closed side end position. The actual mounting position should be adjusted after confirming the operational status of the switch.
- *2 : Switch cannot be mounted when mounting the body with through holes. Refer to page 1768 for details.
- *3 : When using F□H, the switch lead wire protrudes from the end face of the head side. If this protrusion is a problem, use F□V or F□S.

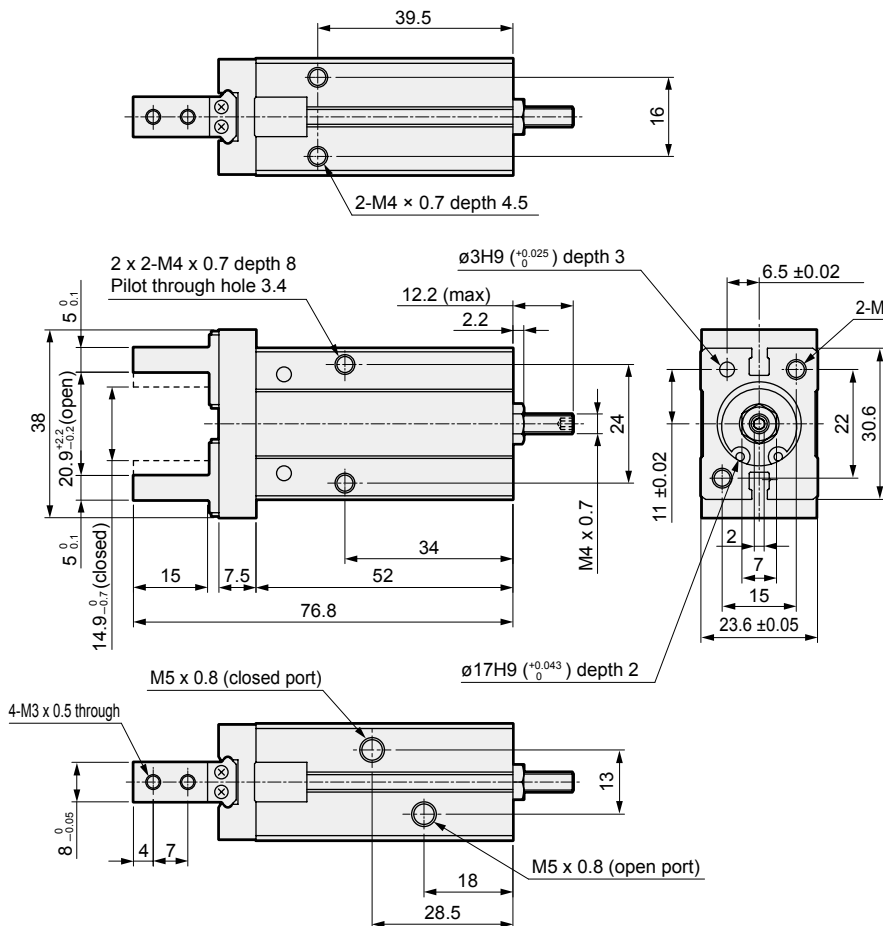
LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH-HP
LSH
FH100
BSA2
BHA/BHG
LHA
LHAG
HAP
HKP
HCP
HGP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

Dimensions (bore size: $\varnothing 10, \varnothing 16$)

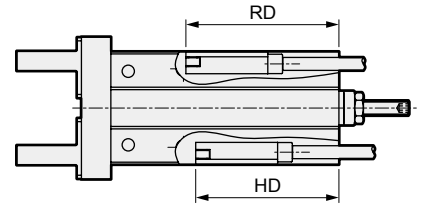
● LSH-10-C (Shockless (closed side only))



● LSH-16-C (Shockless (closed side only))



● With switch



F2/3*	RD	31
	HD	29
F2S/F3S	RD	32
	HD	30

*1: RD dimension is the max. sensitivity position at open side end position and HD dimension at closed side end position.

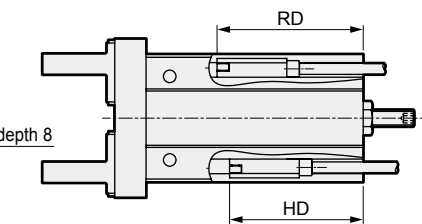
The actual mounting position should be adjusted after confirming the operational status of the switch.

*2: Switch cannot be mounted when mounting the body with through holes. For details, refer to page 1768.

*3: When using F□H, the switch lead wire protrudes from the end face of the head side. If this projection is a problem, use F□V or F□S.

*4: Since the opening and closing stroke is short, only one side of the open or closed state is detected for each switch.

● With switch



F2/3*	RD	35
	HD	32
F2S/F3S	RD	36
	HD	33

*1: RD dimension is the max. sensitivity position at open side end position and HD dimension at closed side end position.

The actual mounting position should be adjusted after confirming the operational status of the switch.

*2: Switch cannot be mounted when mounting the body with through holes. For details, refer to page 1768.

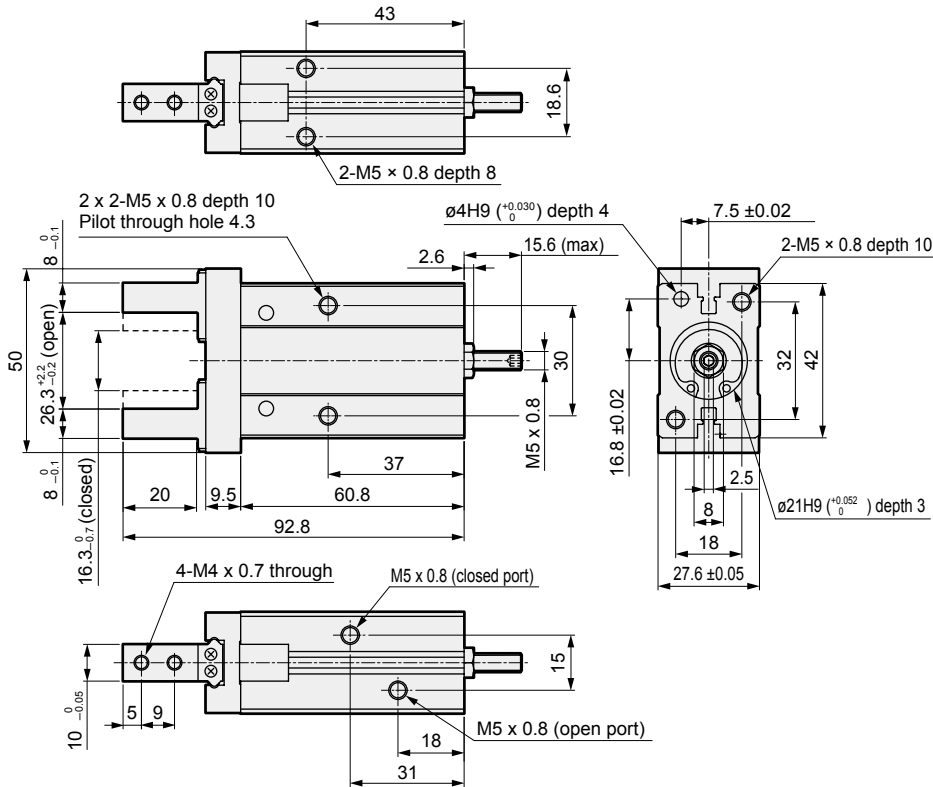
*3: When using F□H, the switch lead wire protrudes from the end face of the head side. If this projection is a problem, use F□V or F□S.

*4: Since the opening and closing stroke is short, only one side of the open or closed state is detected for each switch.

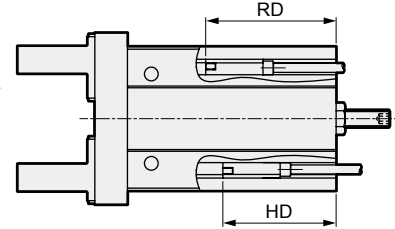
LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH-HP
LSH
FH100
BSA2
BHA/BHG
LHA
LHAG
HAP
HKP
HCP
HGP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

Dimensions (bore size: $\varnothing 20$, $\varnothing 25$)

● LSH-20-C (Shockless (closed side only))



● With switch



F2/3*	RD	38
	HD	33
F2S/F3S	RD	39
	HD	34

*1: RD dimension is the max. sensitivity position at open side end position and HD dimension at closed side end position.

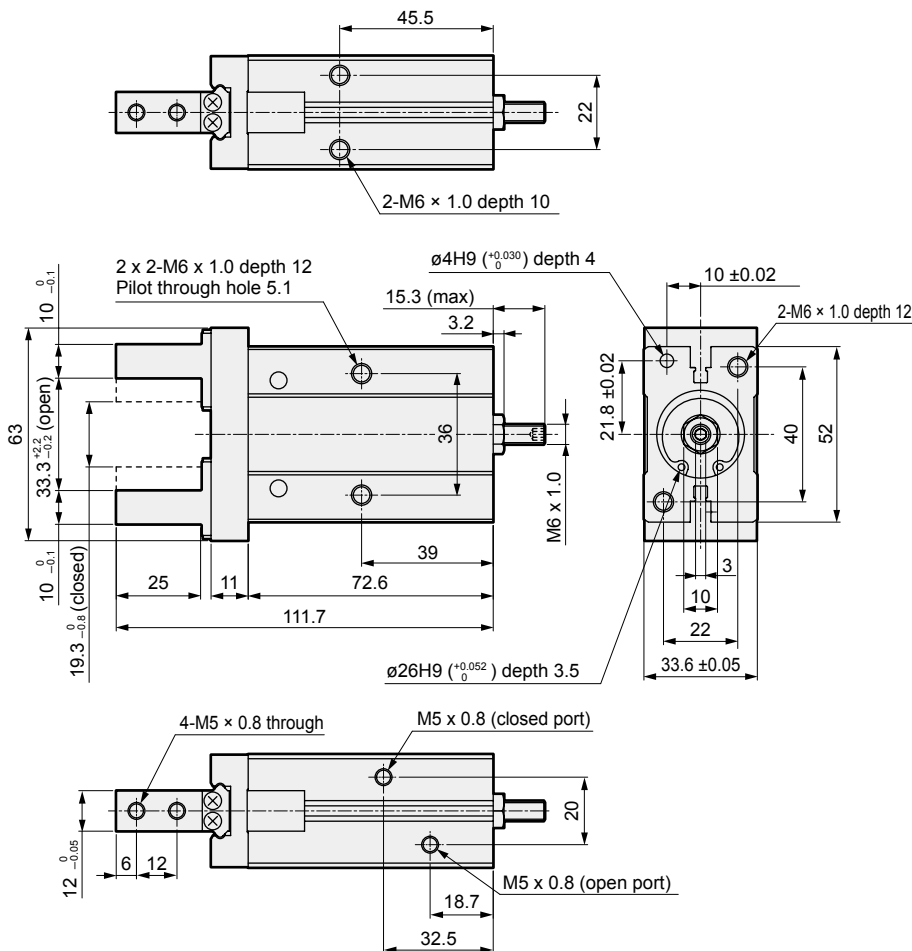
The actual mounting position should be adjusted after confirming the operational status of the switch.

*2: Switch cannot be mounted when mounting the body with through holes. For details, refer to page 1768.

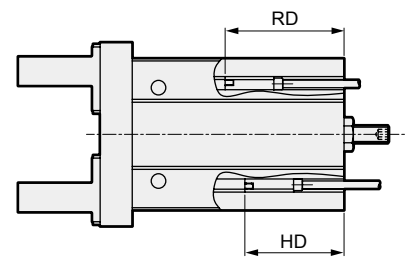
*3: When using F□H, the switch lead wire protrudes from the end face of the head side.

If this projection is a problem, use F□V or F□S.

● LSH-25-C (Shockless (closed side only))



● With switch



F2/3*	RD	41
	HD	34
F2S/F3S	RD	42
	HD	35

*1: RD dimension is the max. sensitivity position at open side end position and HD dimension at closed side end position.

The actual mounting position should be adjusted after confirming the operational status of the switch.

*2: Switch cannot be mounted when mounting the body with through holes. For details, refer to page 1768.

*3: When using F□H, the switch lead wire protrudes from the end face of the head side.

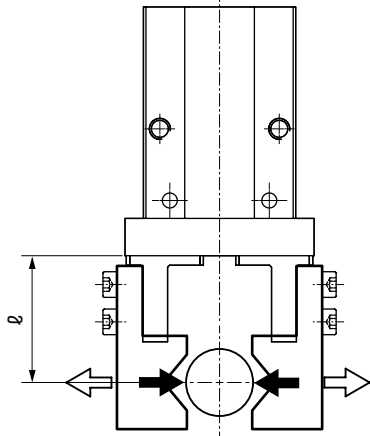
If this projection is a problem, use F□V or F□S.

- LCM
- LCR
- LCG
- LCW
- L CX
- 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

Gripping power performance data

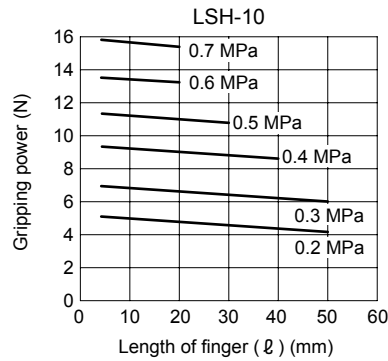
- Gripping power represents the thrust (per one finger) in the arrow direction shown in the figure.
- The gripping power in the opening/closing directions with finger length ℓ with a supply pressure of 0.2 to 0.7 MPa is shown.

- Open direction (←)
- Closed direction (→)

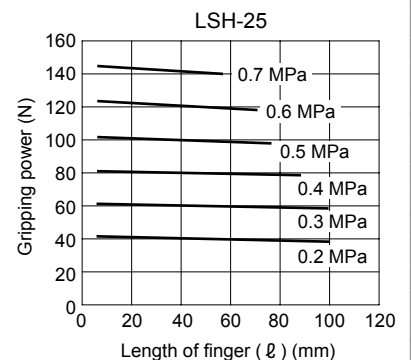
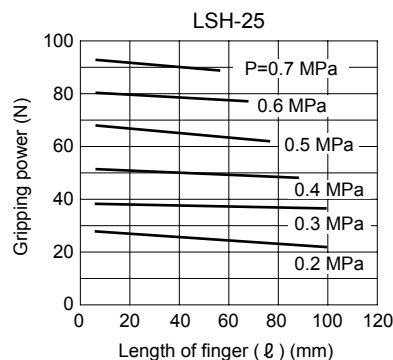
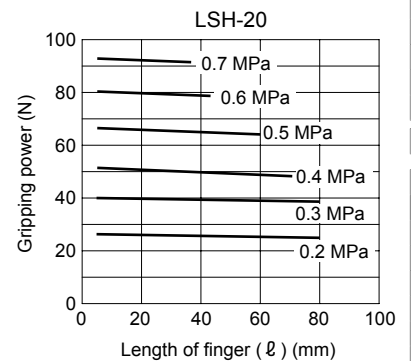
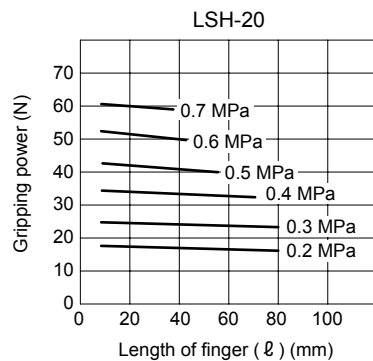
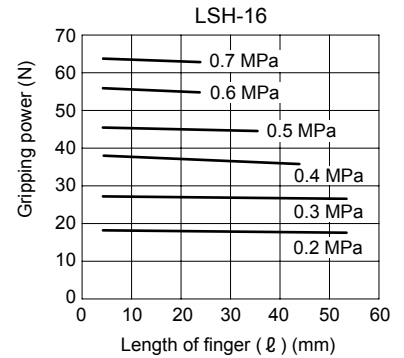
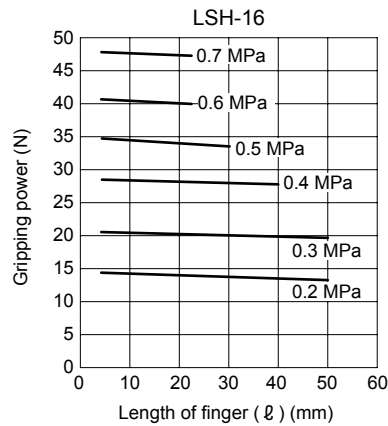
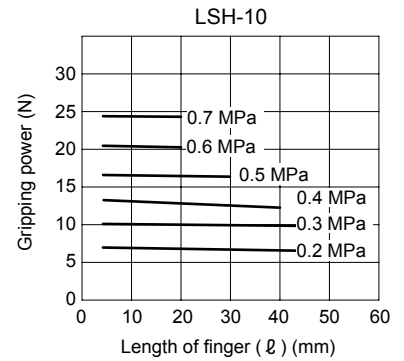


(Note) When making a selection, read the precautions for design and selection on page 1764.

Closed direction



Open direction

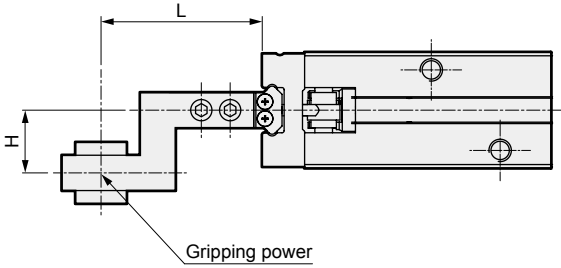


LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechMdl/Chuk
ShkAbs
FJ
FK
SpdContr
Ending
LSH-HP
LSH
FH100
BSA2
BHA/BHG
LHA
LHAG
HAP
HKP
HCP
HGP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

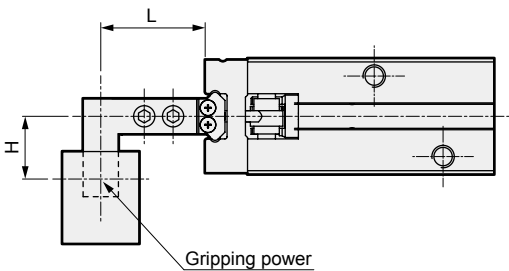
Finger length

When mounting an L-shaped attachment, use within the range given in the figure at right.

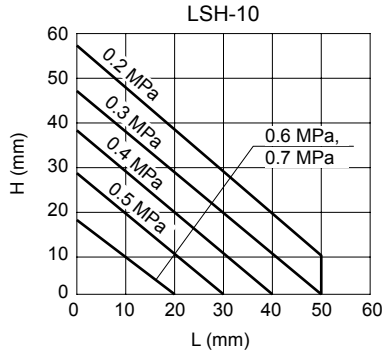
Closed direction



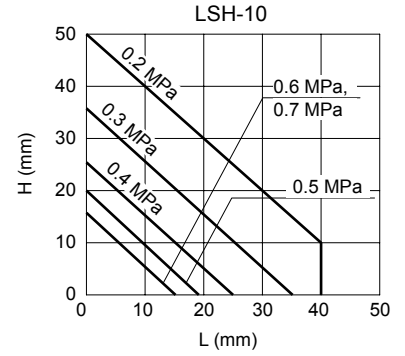
Open direction



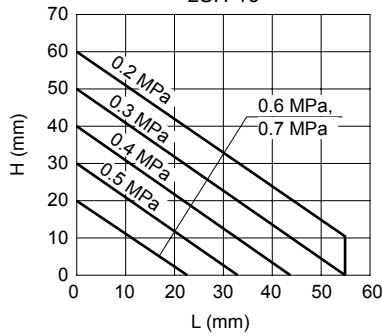
Closed direction



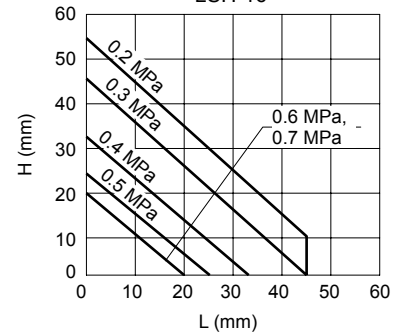
Open direction



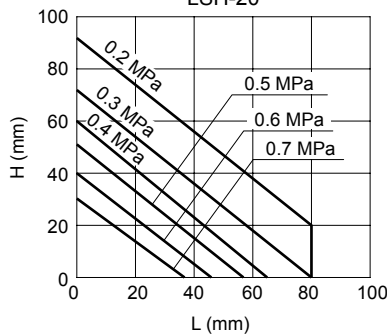
LSH-16



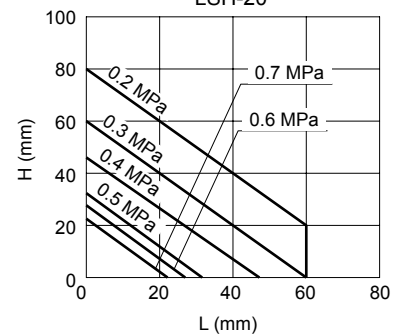
LSH-16



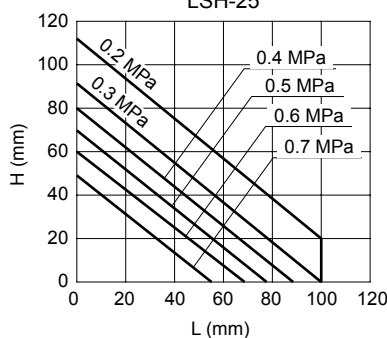
LSH-20



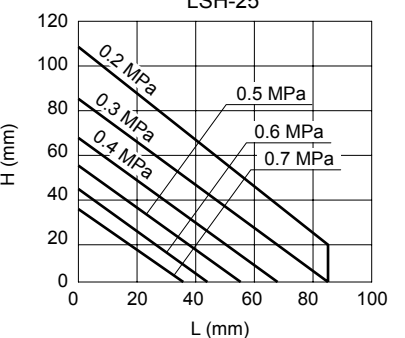
LSH-20



LSH-25



LSH-25



LCM
LCR
LCC
LCW
LCC
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