



180 degree open/close wide angle hand Double acting/single acting

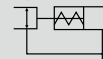
HDL Series

● Open/close angle: 0° to 180°

Double acting

Single acting (normally open)

Single acting (normally closed)



Specifications

Item	HDL	
Size	3CS	4CS
Bore size mm	ø25	ø40
Actuation	Double acting/single 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
Open and close angle °	0 to 180	
Rod diameter mm	ø14	ø16
Volumetric capacity (reciprocating) cm ³	7.8	53.2
Repeatability mm	±0.2	±0.1
Weight kg	0.6	2.40
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	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 detailed switch specifications and dimensions.

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

LCM
LCR
LCG
LCW
LCX
STM
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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)

HDL - **3CS** - **O**

With switch (built-in magnet for switch)

HDL - **3CS** - **O** - **T2H** - **R**

A Size

B Option

C Switch model No.

* indicates the lead wire length.

D Switch quantity

Code	Description				
A Size					
3CS					
4CS					
B Option					
Blank	Standard (double acting)				
O	Single acting (normally open)				
C	Single acting (normally closed)				
C Switch model No.					
Axial lead wire	Radial lead wire	Contact	Voltage	Display	Lead wire
			AC	DC	
T2H*	T2V*	Proximity		●	1-color
T3H*	T3V*			●	display
* Lead wire length					
Blank	1 m (standard)				
3	3 m (option)				
5	5 m (option)				
D Switch quantity					
R	1 on open side				
H	1 on closed side				
D	2				

[Example of model No.]

HDL-3CS-O-T2H-R

Model : 180 degree open/close wide angle hand

- A** Size : 3CS
- 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

● For switch T*H*

· Switch body + mounting bracket set

HDL - **T2H**

Switch model No.
(Item C above)

· Switch body

SW - **T2H**

Switch model No.
(Item C above)

· Mounting bracket set

HDL - **T**

● For switch T*V*

· Switch body + mounting bracket set

HDL - **T2V** - *

Switch model No.
(Item C above)

· Switch body

SW - **T2V**

Switch model No.
(Item C above)

· Mounting bracket set

HDL - **TV** - *

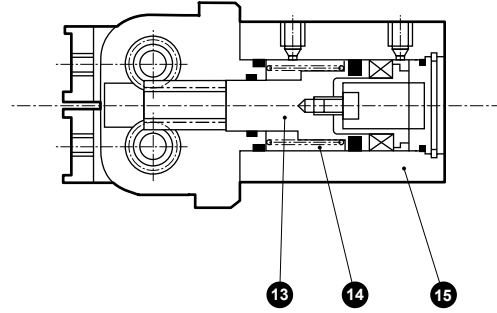
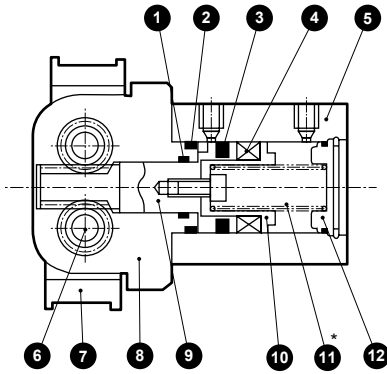
(Select either R (open side) or H (closed side) for sections marked with an asterisk (*).)

LCM
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LCC
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STM
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STS/STL
STR2
UCA2
ULK*
JSK/M2
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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
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HLD
HMF
HMF-G
HMFB
HFP
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HDL
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Internal structure and parts list

● Standard (double acting)/O (normally open)

● C (normally closed)



Cannot be disassembled

* Standard (double acting) does not contain 11 spring.

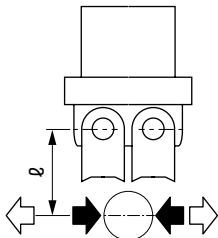
No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Rod packing	Nitrile rubber		9	Piston A	Stainless steel	
2	Cylinder gasket	Nitrile rubber		10	Piston B	Acetal resin	
3	Piston packing	Nitrile rubber		11	Spring	Stainless steel	O type only
4	Magnet			12	Cylinder guard	Acetal resin	
5	Cylinder	Aluminum alloy		13	Piston	Stainless steel	
6	Pinion gear	Steel		14	Spring	Stainless steel	
7	Finger	Steel		15	Cylinder	Aluminum alloy	
8	Body	Aluminum alloy					

Gripping power performance data

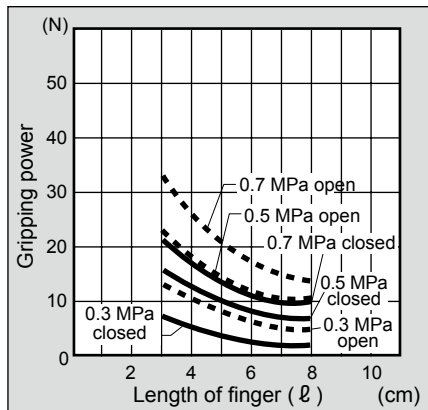
• Gripping power represents the thrust (per one finger) in the arrow direction shown in the figure.

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

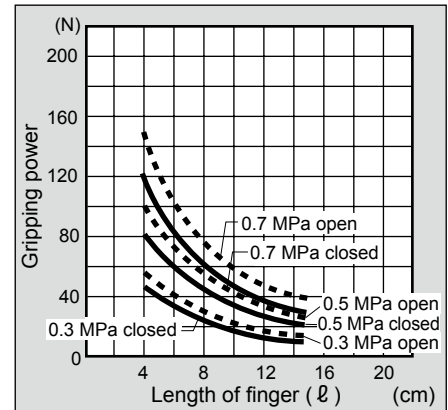
- Open direction (←) --- (shown with broken line)
- Closed direction (→) — (shown with continuous line)



● HDL-3CS



● HDL-4CS



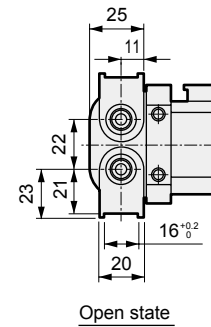
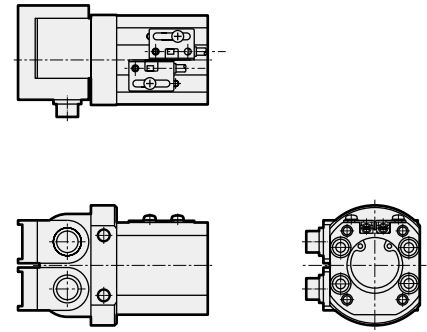
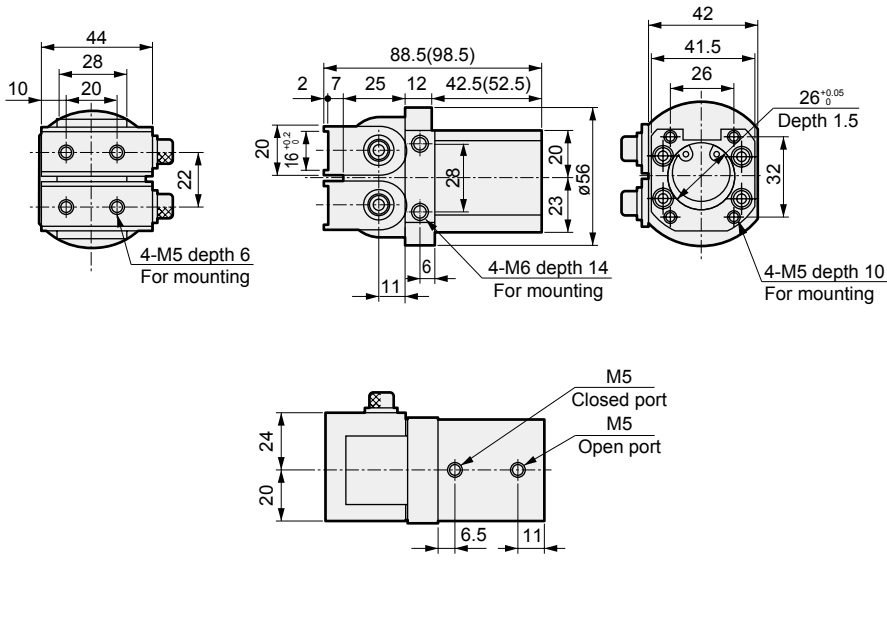
(Note) O type gripping power decreases approximately 20 to 30% in the closed direction compared to double acting.
C type gripping power decreases approximately 10 to 20% in the open direction compared to the double acting.
When making a selection, read the precautions for design and selection on page 1764.

Dimensions

● HDL-3CS Standard/O/C

● With switch

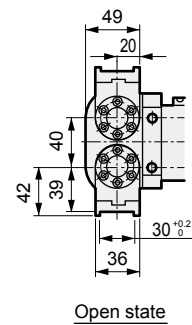
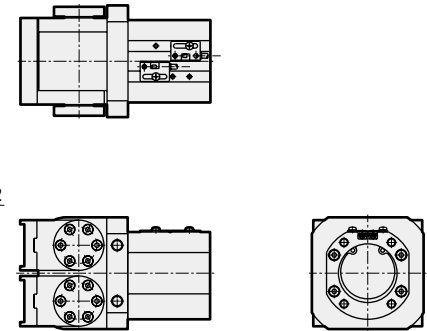
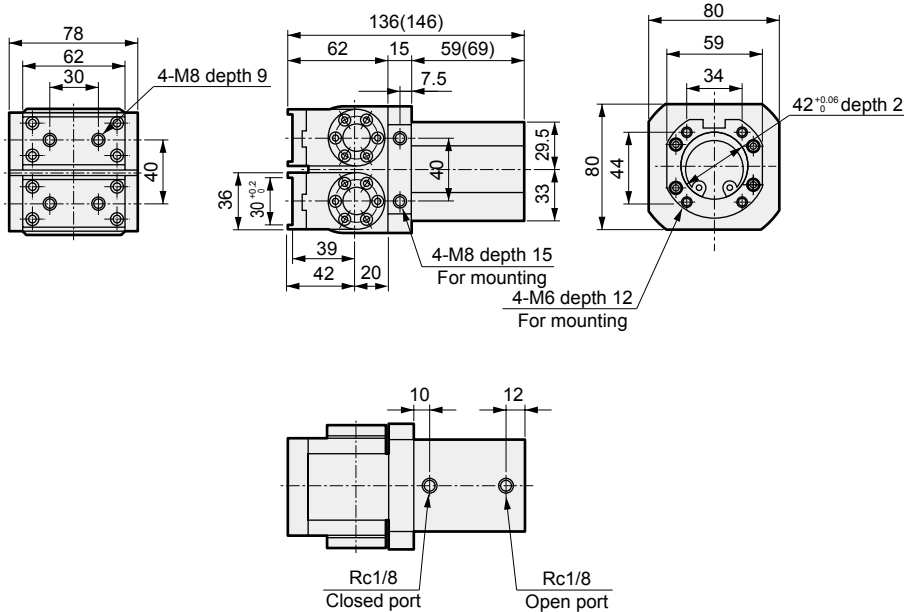
● Dimensions in () are for C [normally closed] specifications.



● HDL-4CS Standard/O/C

● With switch

● Dimensions in () are for C [normally closed] specifications.



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