CKD

New Products

Electric Actuator
2-Finger Gripper
FLSH Series

Added options to expand the "gripping" possibilities of the compact Electric Gripper with high gripping force

With case

Reduce disconnection risk of movable cables

Rubber cover option

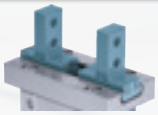
Improved environmental resistance (IP50 with case)

Long stroke

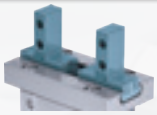
Size	Conventional stroke	Long stroke
FLSH-16G	6 mm	12 mm
FLSH-20G	10 mm	18 mm
FLSH-25G	14 mm	22 mm

Up to +8 mm compared to conventional

Finger shape option



Basic - tapered hole in the open/close direction



Tapered hole on side

Open/close direction thru hole

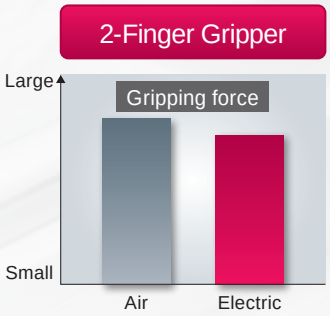
Flat

Freely design attachments

Features of FLSH Series

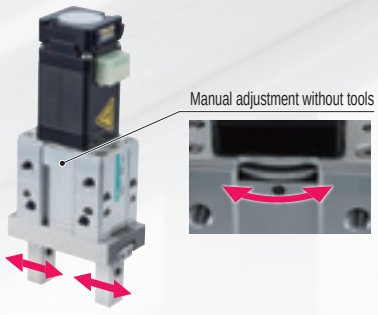
Realizes high gripping force

Equivalent dimensions and gripping force as Air Hand



Adjustments made easier

Manual operation mechanism is on the front surface



Compatible controllers ECG Series

Helps reduce inventory

Can be connected to different motor sizes

Space saving realized

No need for heat ventilation on side of controller

Supported network

IO-Link EtherCAT CC-Link EtherNet/IP

ROBODEX *Pulse*

CKD Corporation

CC-1564A

Electric actuator 2-Finger Gripper

FLSH-16

☐ 20 stepper motor

How to order

FLSH - 16 (A) G (B) H1 (C) 06 (D) N (E) C (F) N (G) - F (H) S03 (I)

A Size

16

B Applicable controller*1

G	ECG
Blank	ECR

C Screw lead

H1	1.5 mm

D Stroke

06	6 mm (Single side 3 mm)
12	12 mm (one side 6 mm)

E Rubber cover *2

N	None
G	Chloroprene rubber
F	Fluoro rubber

F Encoder

C	Incremental encoder

G Finger

N	Basic
2	Side tapered hole
3	Through hole
4	Flat

H Cable output type/direction *3*4

L	Case ejection	Left surface
R	Case ejection	Right surface
T	Case ejection	Top
F	Direct outlet	Front
S	Direct outlet	Side

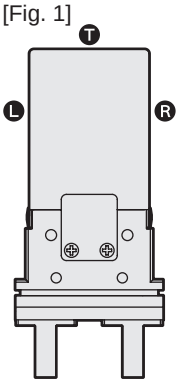
I Relay cable *5

N00	None
S01	Fixing cable 1 m
S03	Fixing cable 3 m
S05	Fixing cable 5 m
S10	Fixing cable 10 m
R01	Movable cable 1 m
R03	Movable cable 3 m
R05	Movable cable 5 m
R10	Movable cable 10 m

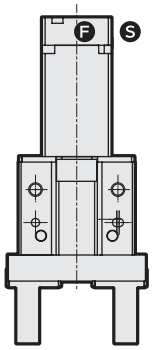
Option selection table

Option	Model No.	Applicable controller ECG	Applicable controller ECR
D Stroke	06	●	●
	12	●	
E Rubber cover	N	●	●
	G/F	●	
G Finger	N	●	●
	2/3/4	●	
H Cable output type/direction	L/R/T	●	
	F/S	●	●

[Fig. 1]



[Fig. 2]



*1 Select the controller from "Electric Actuator (Catalog No.CC-1444A)".
*2 When rubber cover "G, F" is selected, only finger "N" can be selected.
*3 Refer to Figure 1 or Figure 2.
*4 When the rubber cover "N" or finger "N" has been selected for the Stroke "06", only the cable outlet types and directions "F, S" can be selected.
*5 For the dimensions of the relay cable, refer to "Electric Actuator (Catalog No.CC-1444A)".

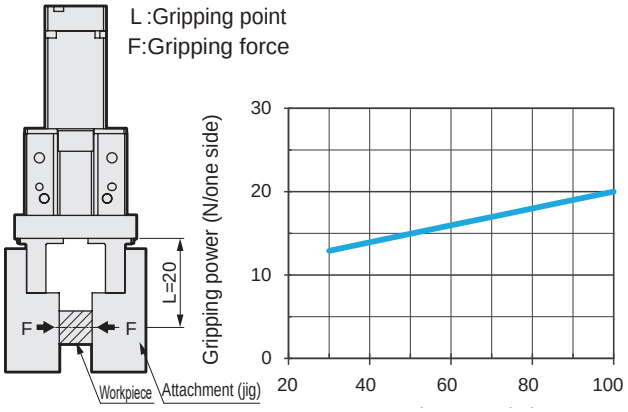
Specifications

Motor		☐ 20 stepper motor	
Encoder type		Incremental encoder	
Drive method		Sliding screw	
Stroke	mm	6 (3 per side)	12 (6 per side)
Screw lead	mm	1.5	
Max. gripping force *1	N	20 (per side)	
Open/close speed range	mm/s	5 to 50 (per side)	
Acceleration/deceleration range	G	0.1 to 0.3	
Gripping speed range *1	mm/s	5 to 15 (per side)	
Repeatability *2	mm	±0.02	
Positioning repeatability *3	mm	±0.05 (per side)	
Lost motion	mm	0.3 or less (per side)	
Static allowable moment	N·m	MP: 0.68, MY: 0.68, MR: 1.36	
Motor power supply voltage *4		24 VDC ±10% or 48 VDC ±10%	
Motor section max. instantaneous current	A	1.2	
Insulation resistance		10 MΩ, 500 VDC	
Withstand voltage		500 VAC for 1 minute	
Operating ambient temperature, humidity		0 to 40°C (no freezing) 35 to 80% RH (no condensation)	
Storage ambient temperature, humidity		-10 to 50°C (no freezing) 35 to 80% RH (no condensation)	
Atmosphere		No corrosive gas, explosive gas, or dust	
Degree of protection		IP40(IP50 *5)	
Weight	g ECG *6	200	220
	g ECR	250	-

*1 Gripping is done with pressing operation.
*2 Repeatability indicates variation when the same workpieces are gripped repeatedly with the same operating conditions.
*3 This may cause variation in the stop position when positioning is repeatedly performed to the same point.
*4 48 VDC is compatible only with controller ECR.
*5 When rubber cover (G/F), cable outlet type/direction: case outlet (L/R/T) is selected.

Gripping force and pressing rate

[At 24/48 VDC]



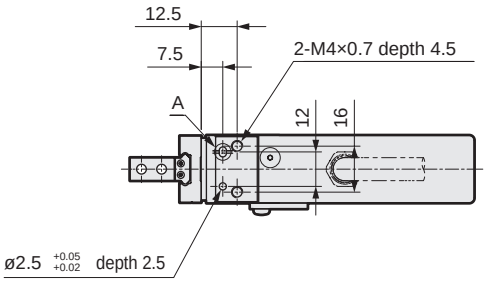
* The gripping force and pressing rate are a guide. Power supply voltages, individual motor differences and variations in mechanical efficiency may result in differing actual values, even at the same pressing ratio.
* Speed during gripping operation is for 15mm/s. (L=20)

Optional weight (*6) (g)

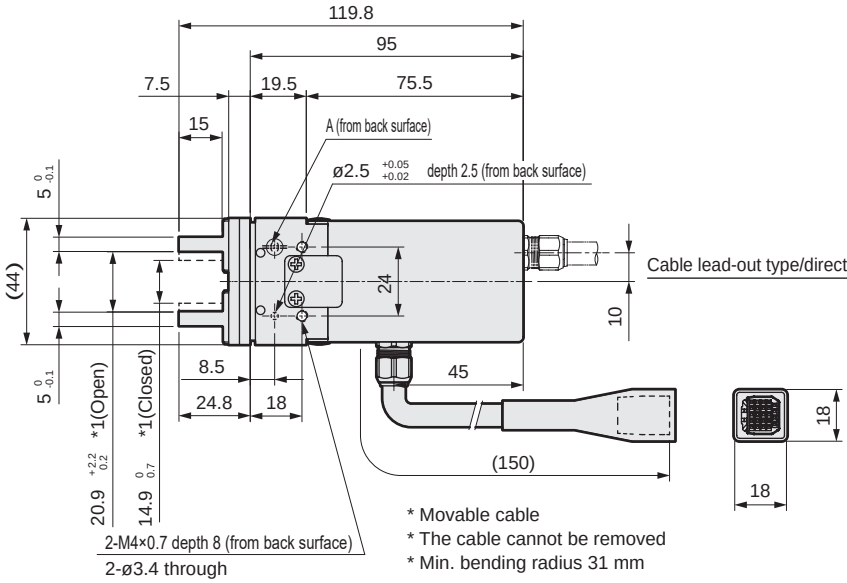
Option	Stroke 06	Stroke 12
Rubber cover	+0	+10
Case ejection	+100	+100

Dimensions

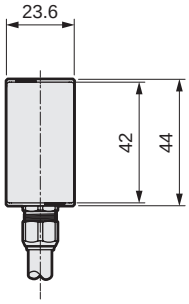
● FLSH-16GH106NC3-L/R/T*(Stroke: 6 mm, rubber cover: none, finger: through hole, cable outlet type/direction: case outlet)



Cable output type/direction: Case outlet left side (L)



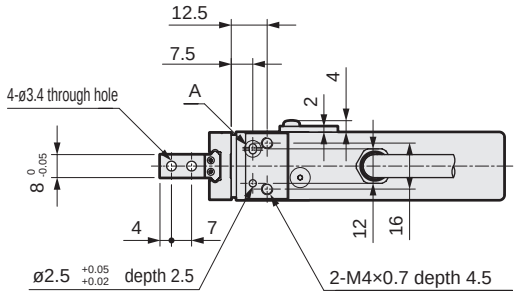
Cable lead-out type/direction: Case outlet top(T)

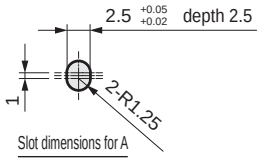


* Movable cable
* The cable cannot be removed
* Min. bending radius 31 mm

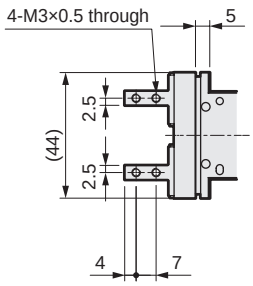
Cable outlet type/direction: Case outlet right side(R)

*1 Including the zero point return distance

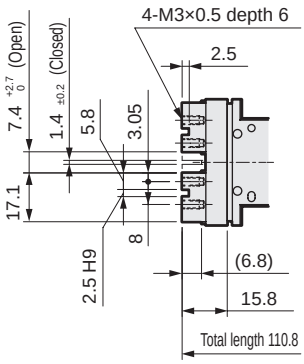




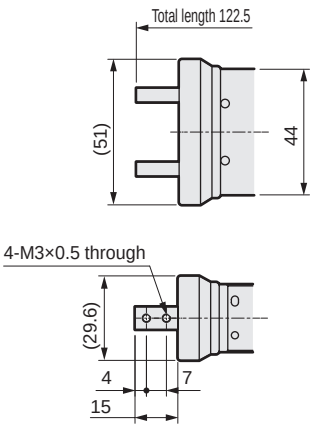
● Finger: Side tapered holeered hole(2)



● Finger: Flat(4)

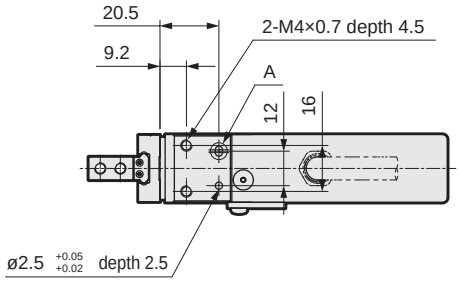


●Rubber cover(G/F) Finger: Basic(N)

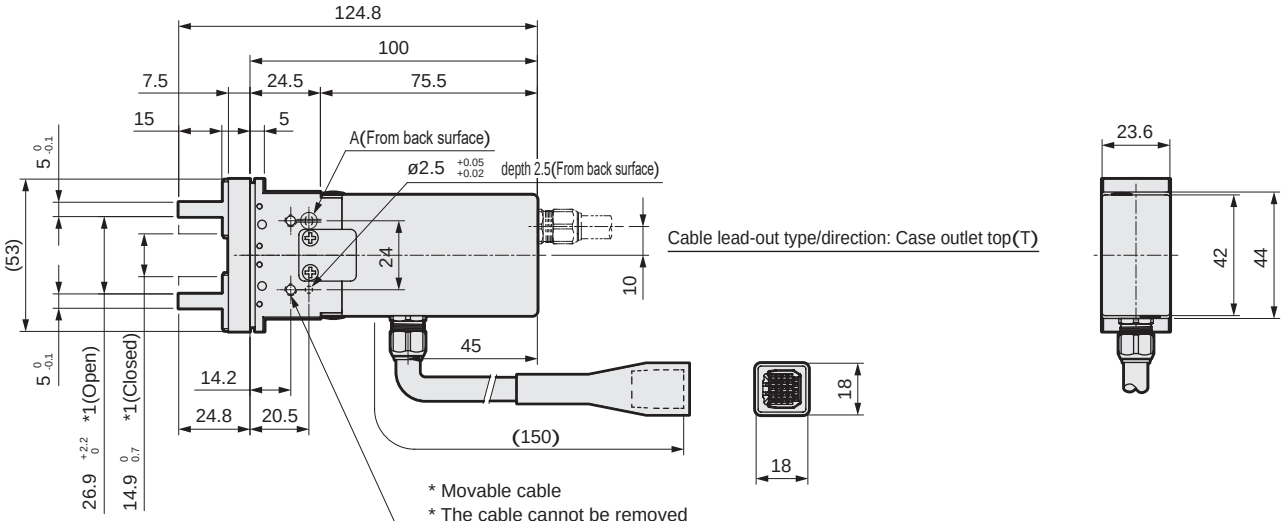


Dimensions

● FLSH-16GH112NCN-L/R/T*(Stroke: 12mm, rubber cover: none, finger: basic, cable outlet type/direction: case outlet)



Cable outlet type/direction: Case outlet left side(L)

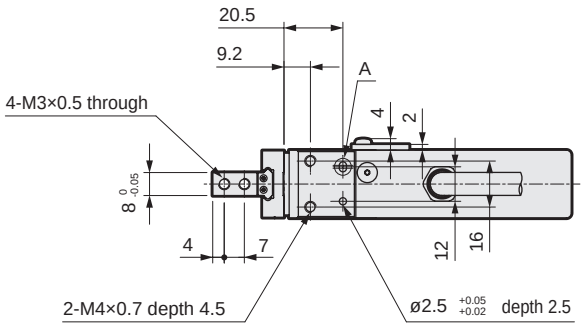


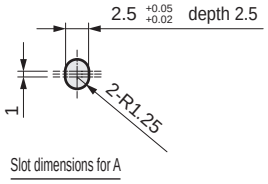
Cable lead-out type/direction: Case outlet top(T)

* Movable cable
* The cable cannot be removed
* Min. bending radius 31 mm

Cable outlet type/direction: Case outlet right side(R)

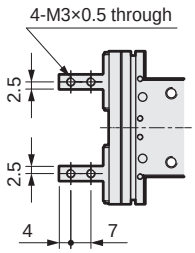
*1 Including the zero point return distance



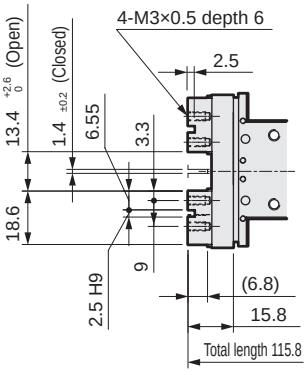


Slot dimensions for A

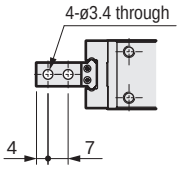
● Finger: Side tapered hole(2)



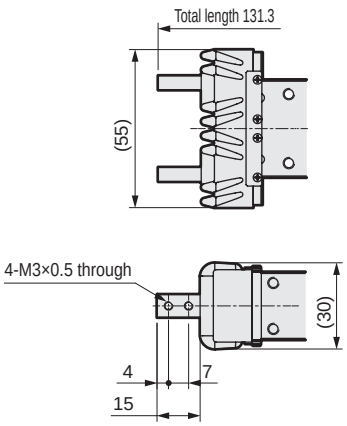
● Finger: Flat(4)



● Finger: Through hole(3)

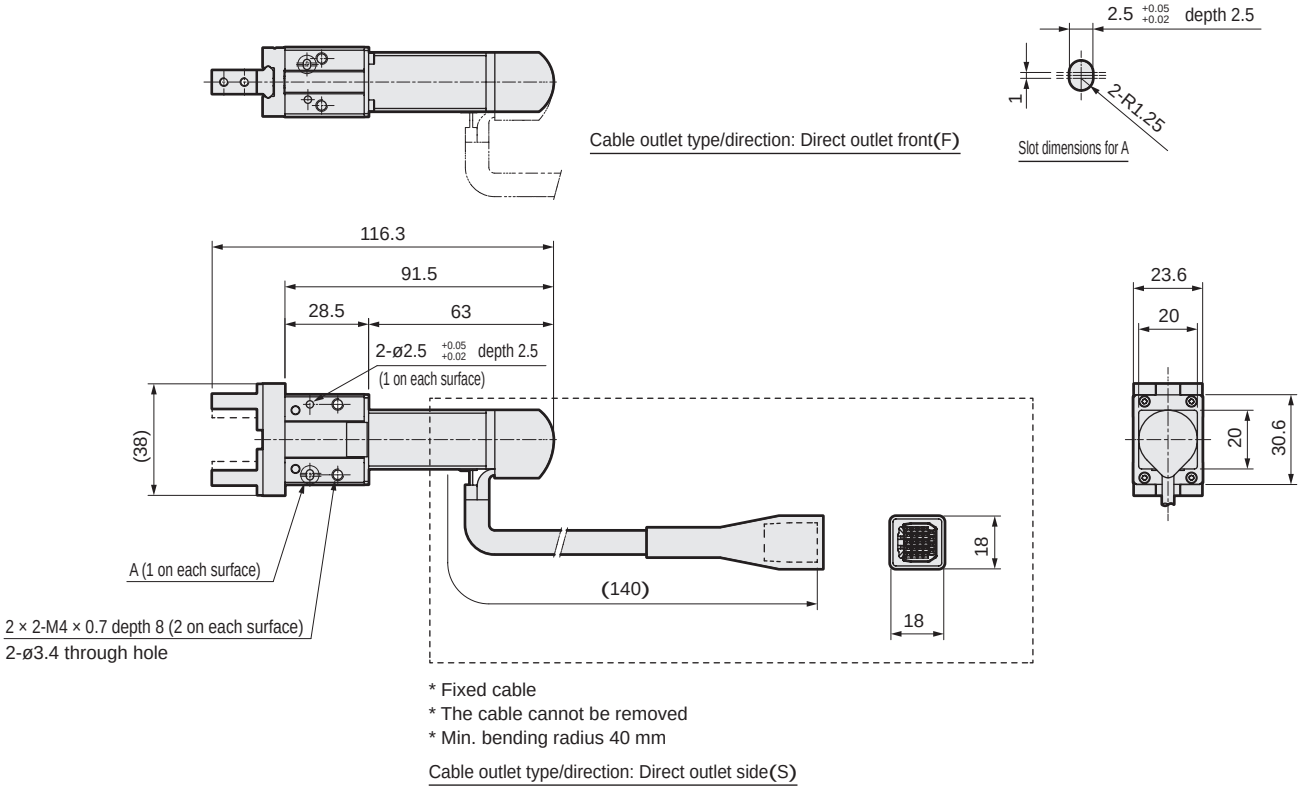


●Rubber cover(G/F) Finger: Basic(N)



Dimensions

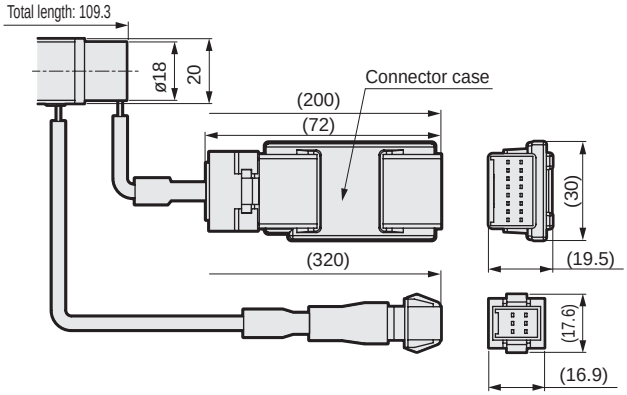
● FLSH-16GH106NCN-F/S*(Stroke: 6 mm, rubber cover: none, finger: basic, cable outlet type/direction:Direct outlet)



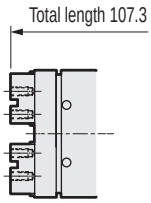
* Fixed cable
* The cable cannot be removed
* Min. bending radius 40 mm

Cable outlet type/direction: Direct outlet side(S)

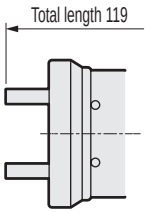
* The dotted line is as shown below when connecting ECR.



● Finger: Flat(4)



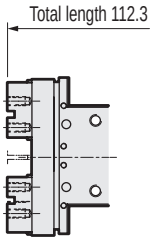
● Rubber cover(G/F)
Finger: Basic(N)



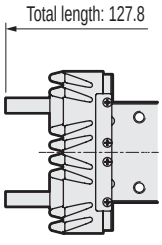
* The finger shape is the same as that of the case.

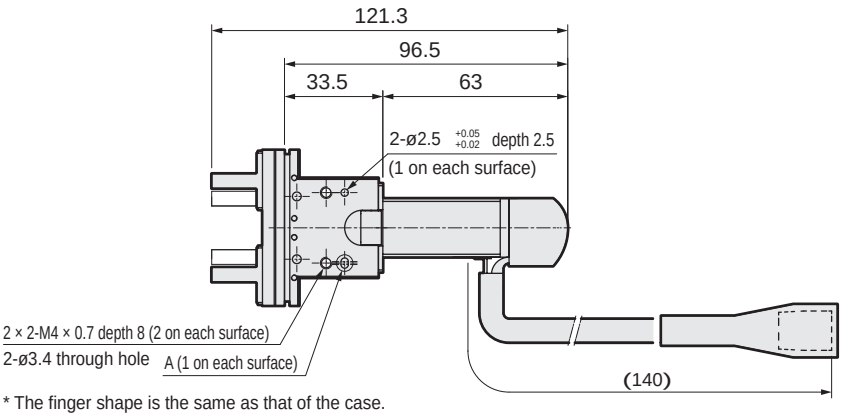
● FLSH-16GH112NCN-F/S*(Stroke: 12mm, rubber cover: none, finger: basic, cable outlet type/direction: direct outlet)

● Finger: Flat(4)

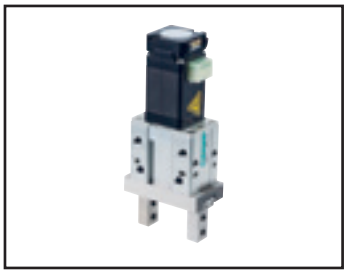


●Rubber cover(G/F) finger: Basic(N)





* The finger shape is the same as that of the case.



Electric Actuator 2-Finger Gripper

FLSH-20

☐ 25 stepper motor

How to order

FLSH - 20 G H1 10 N C N - F S03

(A) (B) (C) (D) (E) (F) (G) (H) (I)

(A) Size

20

(B) Applicable controller*1

G	ECG
Blank	ECR

(C) Screw lead

H1	1.5 mm

(D) Stroke

10	10 mm (5 mm on one side)
18	18 mm (9 mm per side)

(E) Rubber cover *2

N	None
G	Chloroprene rubber
F	Fluoro rubber

(F) Encoder

C	Incremental encoder

(G) Finger

N	Basic
2	Side tapered hole
3	Through hole
4	Flat

(H) Cable output type/direction *3*4

L	Case ejection	Left surface
R	Case ejection	Right surface
T	Case ejection	Top
F	Direct outlet	Front
S	Direct outlet	Side

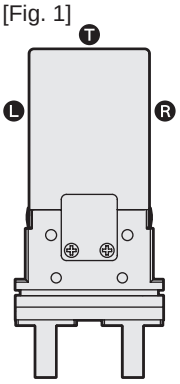
(I) Relay cable *5

N00	None
S01	Fixing cable 1 m
S03	Fixing cable 3 m
S05	Fixing cable 5 m
S10	Fixing cable 10 m
R01	Movable cable 1 m
R03	Movable cable 3 m
R05	Movable cable 5 m
R10	Movable cable 10 m

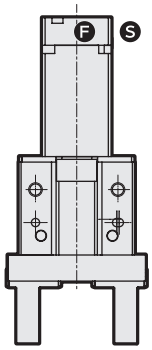
Option selection table

Option	Model No.	Applicable controller ECG	Applicable controller ECR
(D) Stroke	10	●	●
	18	●	
(E) Rubber cover	N	●	●
	G/F	●	
(G) Finger	N	●	●
	2/3/4	●	
(H) Cable output type/direction	L/R/T	●	
	F/S	●	●

[Fig. 1]



[Fig. 2]



*1 Select the controller from "Electric Actuator (Catalog No.CC-1444A)".
*2 When rubber cover "G, F" is selected, only finger "N" can be selected.
*3 Refer to Figure 1 or Figure 2.
*4 When the rubber cover "N" or finger "N" has been selected for the Stroke "10", only the cable outlet types and directions "F, S" can be selected.
*5 For the Dimensions of the relay cable, refer to "Electric Actuator (Catalog No.CC-1444A)".

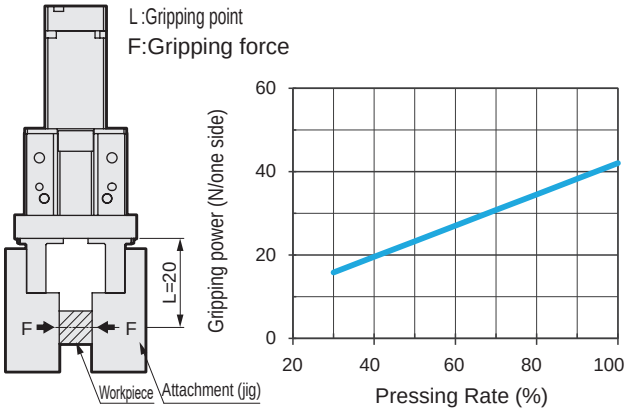
Specifications

Motor		☐ 25 stepper motor	
Encoder type		Incremental encoder	
Drive method		Sliding screw	
Stroke	mm	10 (5 per side)	18 (9 per side)
Screw lead	mm	1.5	
Max. gripping force *1	N	42 (per side)	
Open/close speed range	mm/s	5 to 50 (per side)	
Acceleration/deceleration range	G	0.1 to 0.3	
Gripping speed range *1	mm/s	5 to 15 (per side)	
Repeatability *2	mm	±0.02	
Positioning repeatability *3	mm	±0.05 (per side)	
Lost motion	mm	0.3 or less (per side)	
Static allowable moment	N·m	MP: 1.32, MY: 1.32, MR: 2.65	
Motor power supply voltage *4		24 VDC ±10% or 48 VDC ±10%	
Motor section max. instantaneous current	A	2.4	
Insulation resistance		10 MΩ, 500 VDC	
Withstand voltage		500 VAC for 1 minute	
Operating ambient temperature, humidity		0 to 40 °C (no freezing) 35 to 80% RH (no condensation)	
Storage ambient temperature, humidity		-10 to 50°C (no freezing) 35 to 80% RH (no condensation)	
Atmosphere		No corrosive gas, explosive gas, or dust	
Degree of protection		IP40(IP50 *5)	
Weight	g ECG *6	380	440
	g ECR	380	-

*1 Gripping is done with pressing operation.
*2 Repeatability indicates variation when the same workpieces are gripped repeatedly with the same operating conditions.
*3 This may cause variation in the stop position when positioning is repeatedly performed to the same point.
*4 48 VDC is compatible only with controller ECR.
*5 When rubber cover (G/F), cable outlet type/direction: case outlet (L/R/T) is selected.

Gripping force and pressing rate

[At 24/48 VDC]



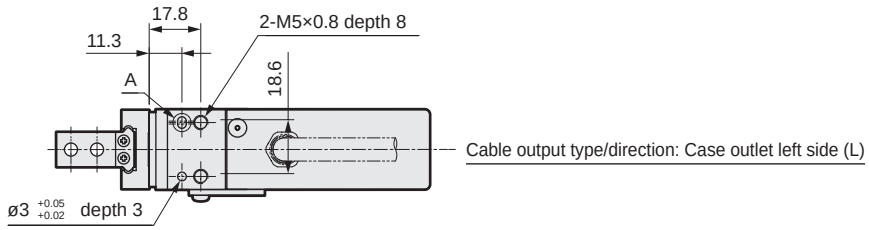
* The gripping force and pressing rate are a guide. Power supply voltages, individual motor differences and variations in mechanical efficiency may result in differing actual values, even at the same pressing ratio.
* Speed during gripping operation is for 15mm/s. (L=20)

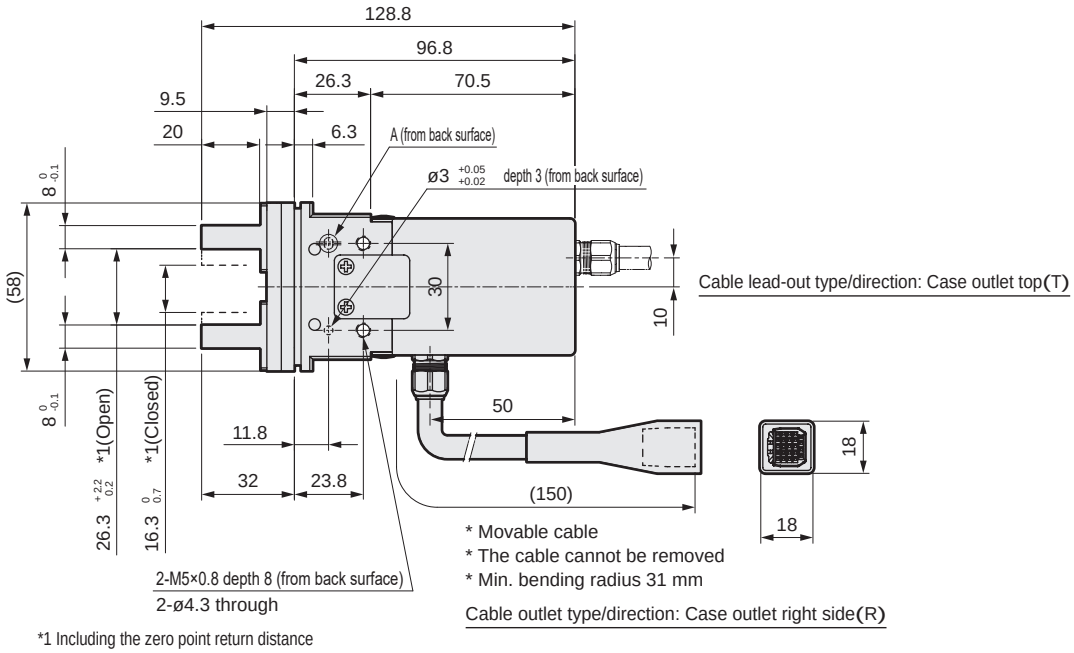
Optional weight (*6) (g)

Option	Stroke 10	Stroke 18
Rubber cover	+10	+20
Case ejection	+110	+110

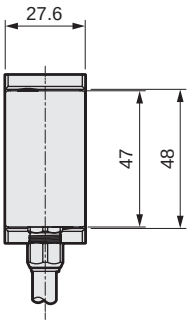
Dimensions

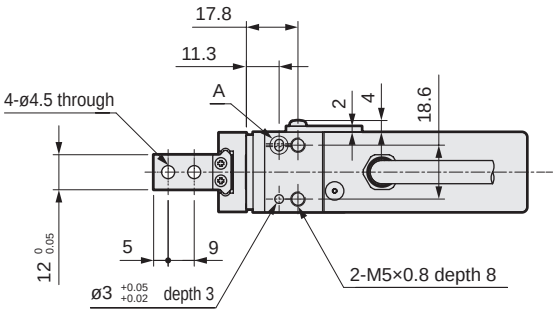
● FLSH-20GH110NC3-L/R/T*(Stroke: 10mm, rubber cover: none, finger: through hole, cable outlet type/direction: case outlet)

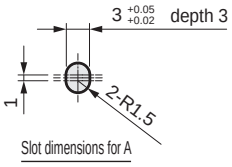




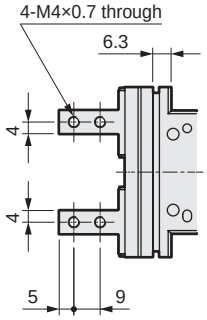
*1 Including the zero point return distance



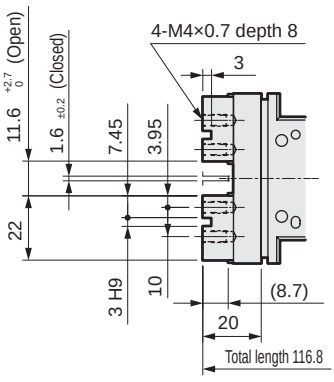




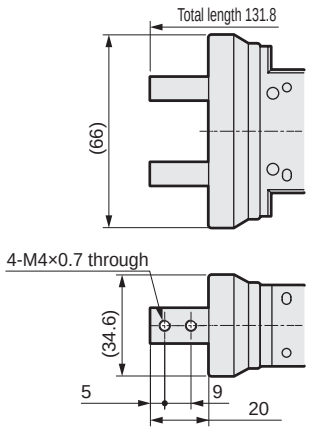
● Finger: Side tapered hole(2)



● Finger: Flat(4)

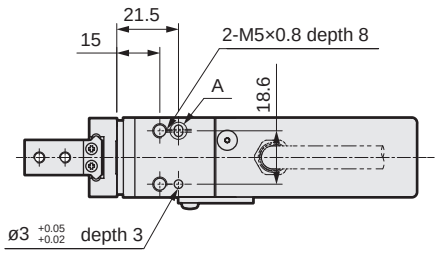


●Rubber cover(G/F) Finger: Basic(N)

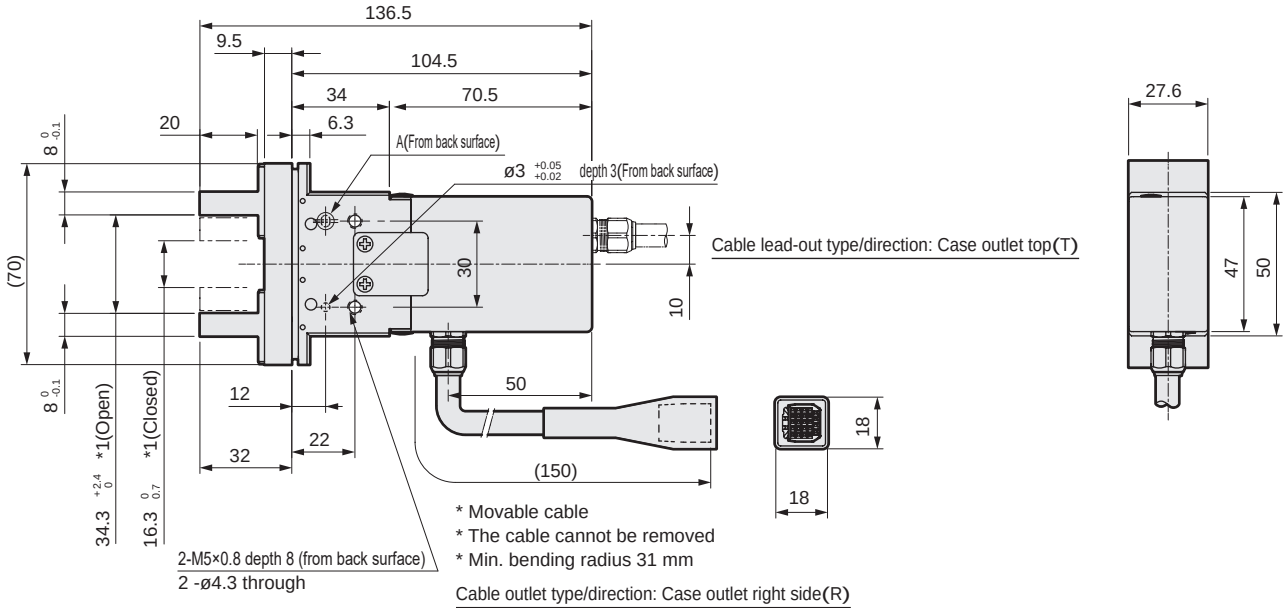


Dimensions

● FLSH-20GH118NCN-L/R/T*(Stroke: 18mm, rubber cover: none, finger: basic, cable outlet type/direction: case outlet)



Cable output type/direction: Case outlet left side (L)

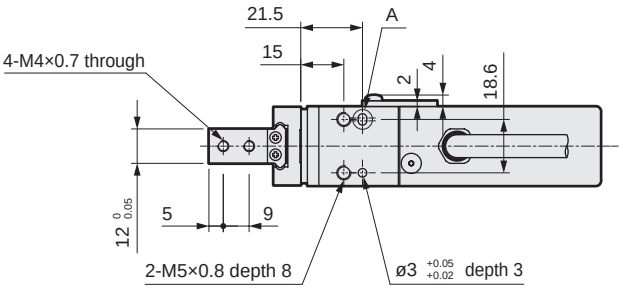


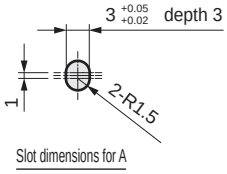
Cable lead-out type/direction: Case outlet top(T)

* Movable cable
* The cable cannot be removed
* Min. bending radius 31 mm

Cable outlet type/direction: Case outlet right side(R)

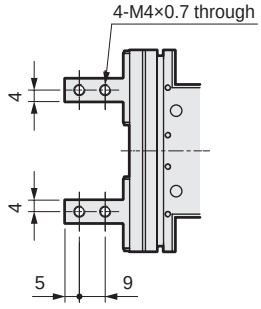
*1 Including the zero point return distance



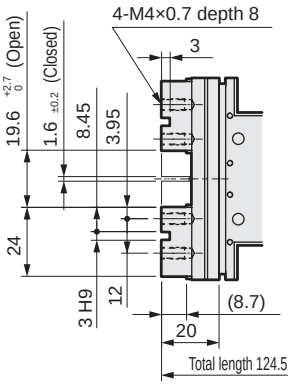


Slot dimensions for A

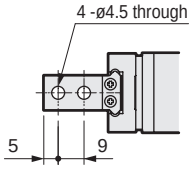
● Finger: Side tapered hole(2)



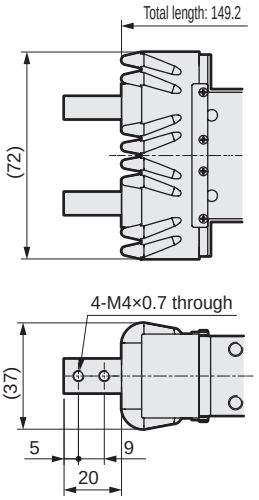
● Finger: Flat(4)



● Finger: Through hole(3)

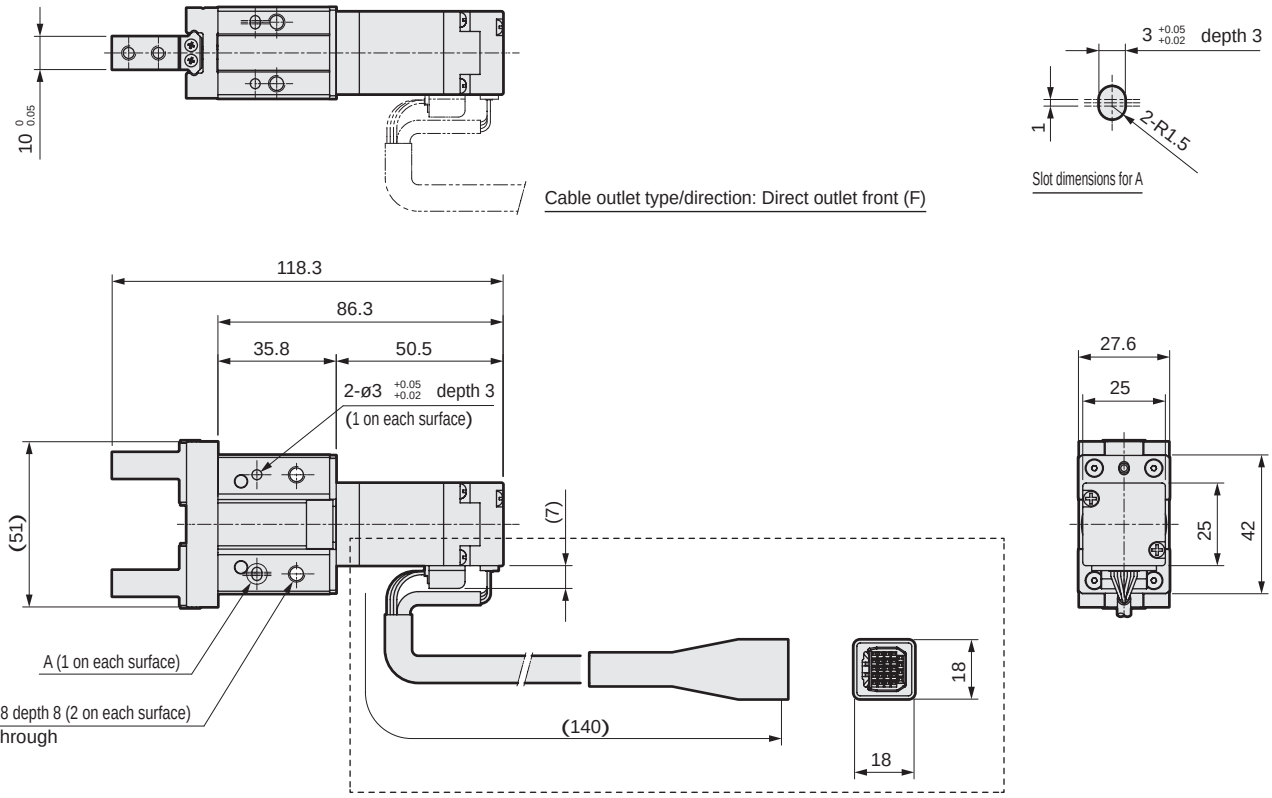


● Rubber cover(G/F) Finger: Basic(N)



Dimensions

● FLSH-20GH110NCN-F/S*(Stroke: 10mm, rubber cover: none, finger: basic, cable outlet type/direction: direct outlet)

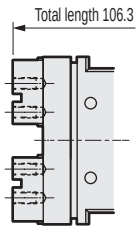


* Fixed cable
* The cable cannot be removed
* Min. bending radius 40 mm

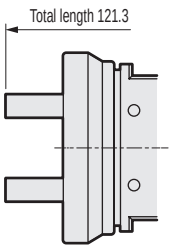
Cable outlet type/direction: direct outlet side (S)

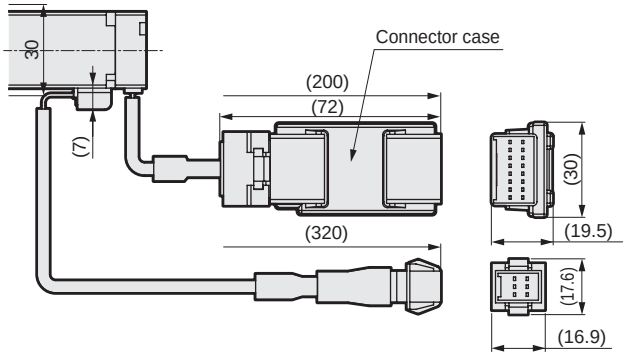
* The dotted line is as shown below when connecting ECR.

● Finger: Flat(4)



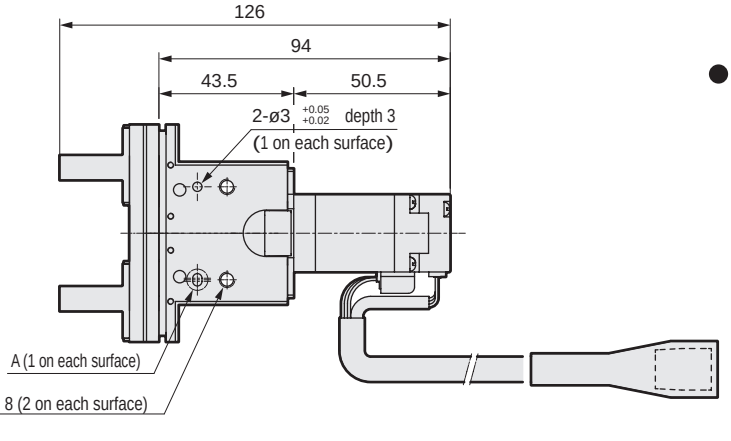
● Rubber cover(G/F)
Finger: Basic(N)



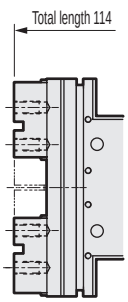


* The finger shape is the same as that of the case.

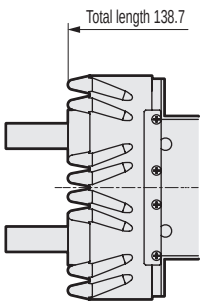
● FLSH-20GH118NCN-F/S*(Stroke: 18mm, rubber cover: none, finger: basic, cable outlet type/direction: direct outlet)



● Finger:Flat(4)



●Rubber cover(G/F)
Finger: Basic(N)



* The finger shape is the same as that of the case.

Electric Actuator 2-Finger Gripper

FLSH-25

☐ 25L stepper motor

How to order

FLSH - 25 G H1 14 N C N - F S03

(A) (B) (C) (D) (E) (F) (G) (H) (I)

(A) Size

25

(B) Applicable controller *1

G	ECG
Blank	ECR

(C) Screw lead

H1	1.5 mm

(D) Stroke

14	14 mm(Single side 7 mm)
22	22 mm (one side 11mm)

(E) Rubber cover *2

N	None
G	Chloroprene rubber
F	Fluoro rubber

(F) Encoder

C	Incremental encoder

(G) Finger

N	Basic
2	Side tapered hole
3	Through hole
4	Flat

(H) Cable output type/direction *3*4

L	Case ejection	Left surface
R	Case ejection	Right surface
T	Case ejection	Top
F	Direct outlet	Front
S	Direct outlet	Side

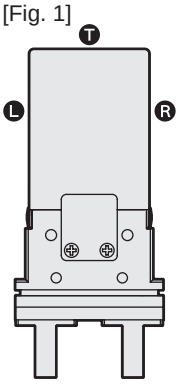
(I) Relay cable *5

N00	None
S01	Fixing cable 1 m
S03	Fixing cable 3 m
S05	Fixing cable 5 m
S10	Fixing cable 10 m
R01	Movable cable 1 m
R03	Movable cable 3 m
R05	Movable cable 5 m
R10	Movable cable 10 m

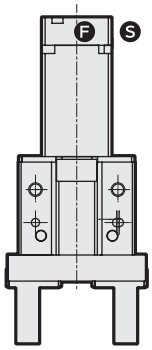
Option selection table

Option	Model No.	Applicable controller ECG	Applicable controller ECR
(D) Stroke	14	●	●
	22	●	
(E) Rubber cover	N	●	●
	G/F	●	
(G) Finger	N	●	●
	2/3/4	●	
(H) Cable output type/direction	L/R/T	●	
	F/S	●	●

[Fig. 1]



[Fig. 2]



*1 Select the controller from "Electric Actuator (Catalog No.CC-1444A)".
*2 When rubber cover "G, F" is selected, only finger "N" can be selected.
When rubber cover "G, F" is selected, only stroke "14" can be selected.
*3 Refer to Figure 1 or Figure 2.
*4 When the rubber cover "N" or finger "N" was selected for the Stroke "14", only the cable lead-out types and directions "F, S" can be selected.
*5 For the Dimensions of the relay cable, refer to "Electric Actuator (Catalog No.CC-1444A)".

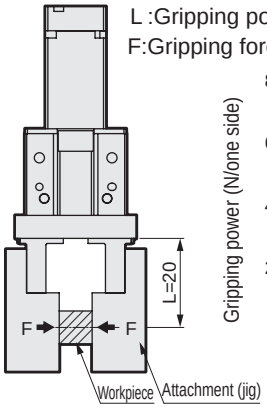
Specifications

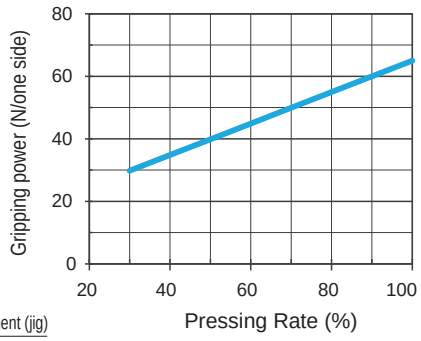
Motor		☐ 25L stepper motor	
Encoder type		Incremental encoder	
Drive method		Sliding screw	
Stroke	mm	14 (7 per side)	22 (11 per side)
Screw lead	mm	1.5	
Max. gripping force *1	N	65 (per side)	
Open/close speed range	mm/s	5 to 50 (per side)	
Acceleration/deceleration range	G	0.1 to 0.3	
Gripping speed range *1	mm/s	5 to 15 (per side)	
Repeatability *2	mm	±0.02	
Positioning repeatability *3	mm	±0.05 (per side)	
Lost motion	mm	0.3 or less (per side)	
Static allowable moment	N·m	MP: 1.94, MY: 1.94, MR: 3.88	
Motor power supply voltage *4		24 VDC ±10% or 48 VDC ±10%	
Motor section max. instantaneous current	A	3.6	
Insulation resistance		10 MΩ, 500 VDC	
Withstand voltage		500 VAC for 1 minute	
Operating ambient temperature, humidity		0 to 40 °C (no freezing) 35 to 80% RH (no condensation)	
Storage ambient temperature, humidity		-10 to 50°C (no freezing) 35 to 80% RH (no condensation)	
Atmosphere		No corrosive gas, explosive gas, or dust	
Degree of protection		IP40(IP50 *5)	
Weight	g ECG *6	590	630
	ECR	580	-

*1 Gripping is done with pressing operation.
*2 Repeatability indicates variation when the same workpieces are gripped repeatedly with the same operating conditions.
*3 This may cause variation in the stop position when positioning is repeatedly performed to the same point.
*4 48 VDC is compatible only with controller ECR.
*5 When rubber cover (G/F), cable outlet type: Direction: When case outlet (L/R/T) is selected.

Gripping force and pressing rate

[At 24/48 VDC]





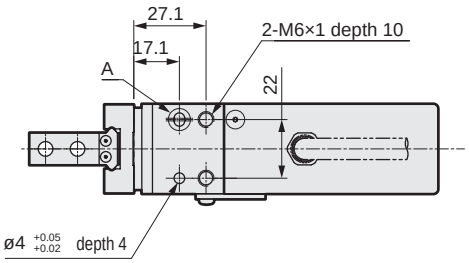
* The gripping force and pressing rate are a guide. Power supply voltages, individual motor differences and variations in mechanical efficiency may result in differing actual values, even at the same pressing ratio.
* Speed during gripping operation is for 15mm/s. (L=20)

Optional weight (*6) (g)

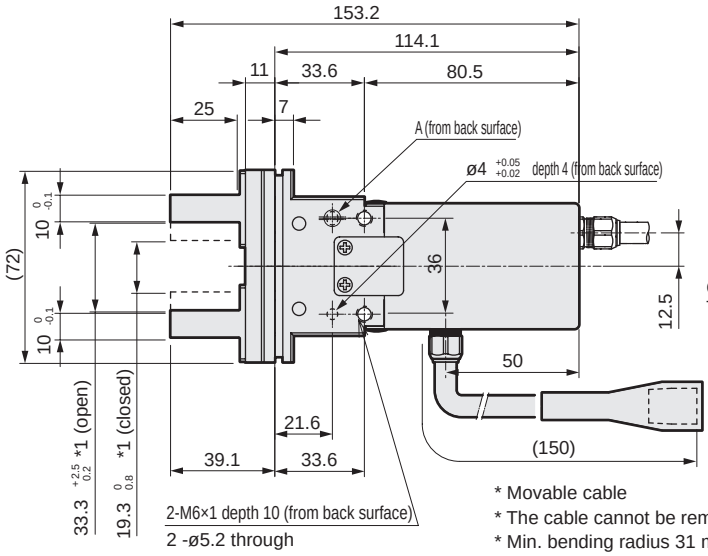
Option	Stroke 14	Stroke 22
Rubber cover	+20	-
Case ejection	+100	+100

Dimensions

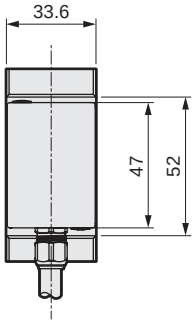
● FLSH-25GH114NC3-L/R/T *(Stroke: 14mm, rubber cover: none, finger: through hole, cable outlet type/direction: case outlet)



Cable output type/direction: Case outlet left side (L)



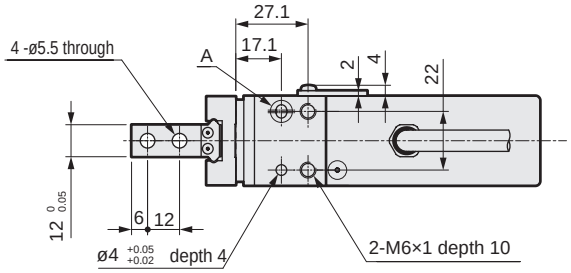
*1 Including the zero point return distance

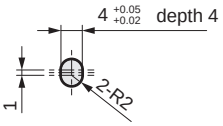


Cable output type/direction
: Case outlet top (T)

* Movable cable
* The cable cannot be removed
* Min. bending radius 31 mm

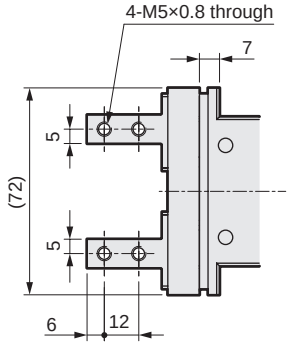
Cable output type/direction: Case outlet right side (R)



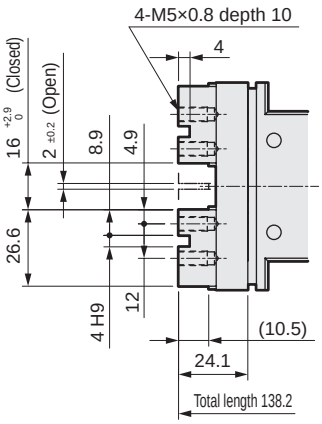


Slot dimensions for A

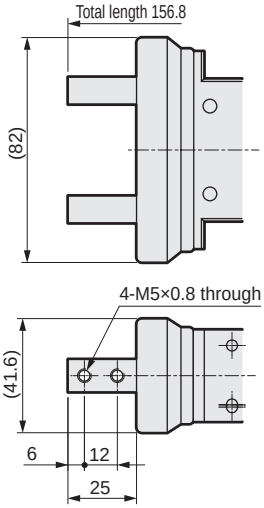
● Finger: Side tapered hole(2)



● Finger: Flat(4)

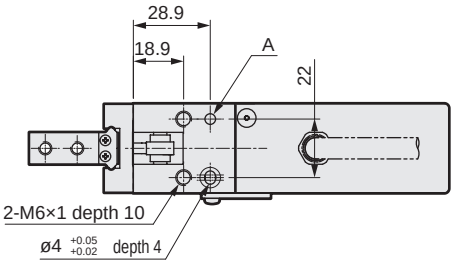


●Rubber cover(G/F) Finger: Basic(N)

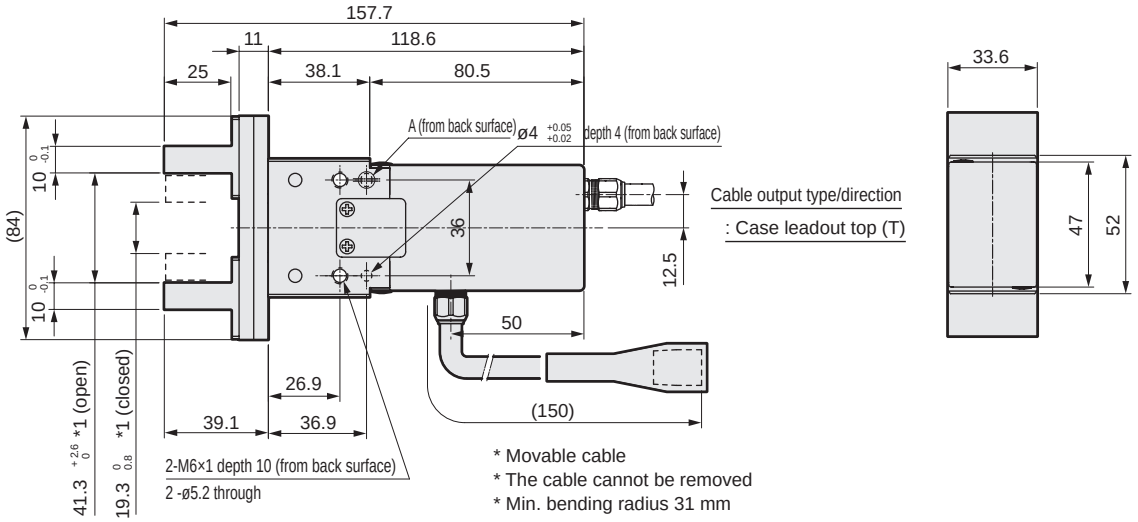


Dimensions

● FLSH-25GH122NCN-L/R/T *(Stroke: 22mm, rubber cover: none, finger: basic, cable outlet type/direction: case outlet)



Cable output type/direction: Case outlet left side (L)

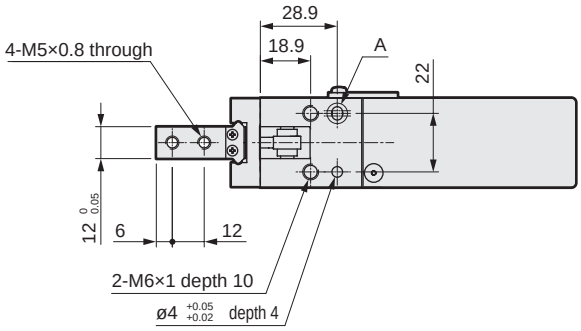


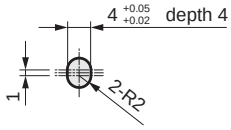
Cable output type/direction
: Case leadout top (T)

* Movable cable
* The cable cannot be removed
* Min. bending radius 31 mm

*1 Including the zero point return distance

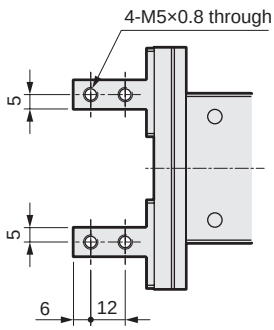
Cable output type/direction: Case outlet right side (R)



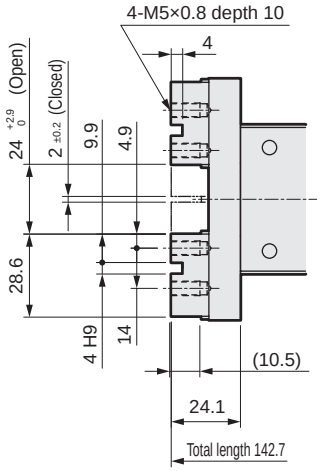


Slot dimensions for A

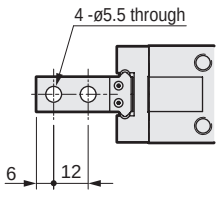
● Finger: Side tapered hole(2)



● Finger: Flat(4)

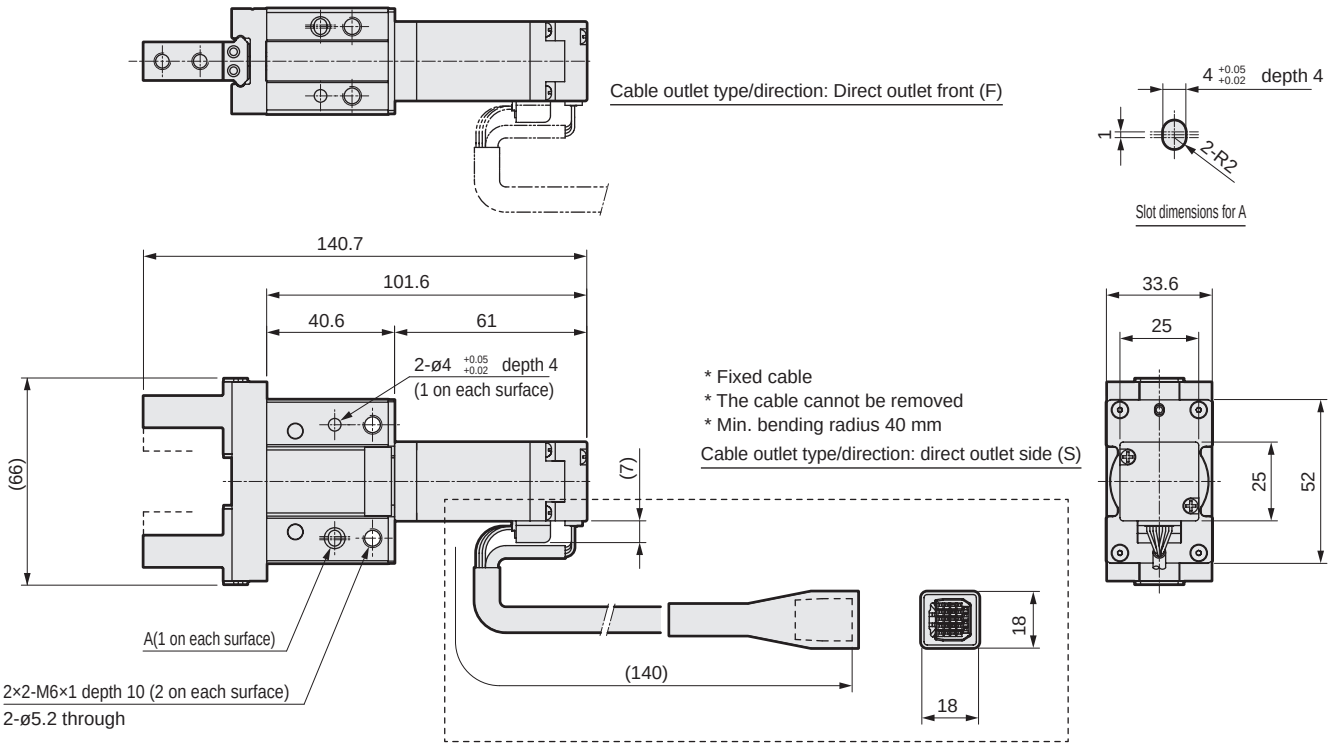


● Finger: Through hole(3)

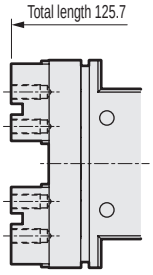


Dimensions

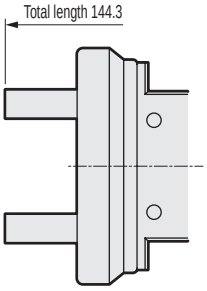
● FLSH-25GH114NCN-F/S *(Stroke: 14mm, rubber cover: none, finger: basic, cable outlet type/direction: direct outlet)



● Finger: Flat(4)

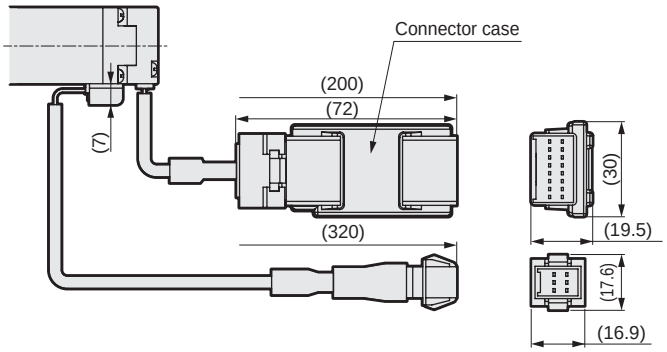


● Rubber cover(G/F)
Finger: Basic(N)

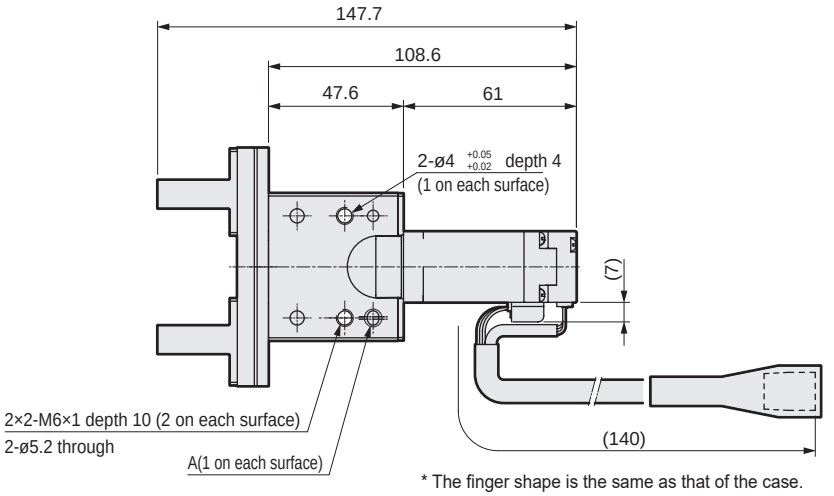


* The finger shape is the same as that of the case.

* The dotted line is as shown below when connecting ECR.



● FLSH-25GH122NCN-F/S *(Stroke: 22mm, rubber cover: none, finger: basic, cable outlet type/direction: direct outlet)



* The finger shape is the same as that of the case.

● Finger: Flat