CKD

New Products

Electric actuator for rechargeable batteries

Slider EBS-G P4 Series

Rod with built-in guide EBR-G P4 Series

Controller ECG Series

ELECTRIC ACTUATOR EBS-G P4, EBR-G P4, ECG SERIES

New options in the rechargeable battery manufacturing process

ROBODEX *Pulse*

CKD Corporation

CC-1556A

Contributes to "Facilities that never stop" and "stable operation" for improved productivity!

With the progress of rechargeable and next-generation battery development, we have responded to the demand for components with improved dry environmental performance. These products provide production stability in the manufacturing process, meeting the needs of rechargeable battery manufacturing, from electrode production to packaging.

Material restrictions

Configuration parts material limitations

Limited use of inappropriate material and surface treatment in the rechargeable battery manufacturing process. Product failure of rechargeable batteries is reduced.
*Excluding motor, wiring, and connector

Cu Limited copper material

Zu Limited zinc material

Ni Limited nickel-based material

ENi Limited electrolytic nickel plating

Dry environment

DEW POINT -70°C

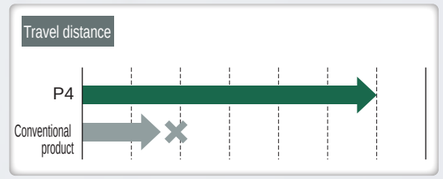
Long service life even in -70°C dew point environments

Ultra-dry environment compatible grease is used. Retains the smooth operation of the sliding part for long periods, even in dry environments.

Stable operation

Contributing to a system that never stops

Uses special grease that supports low dew points and high frequency.
Contributes to stable operation of equipment.



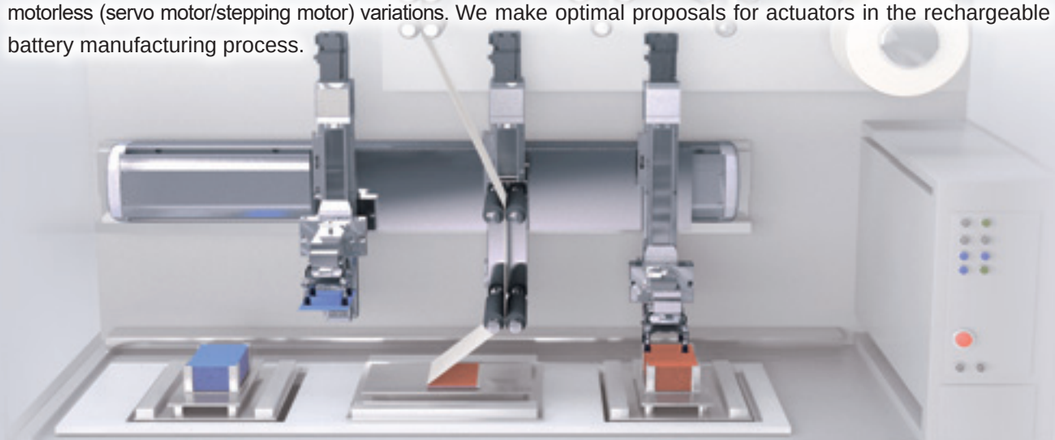
Supports dust generation

Suppresses dust generation of metal wear powder

Equipped with a local exhaust function (vacuum treatment port).
Prevents contamination to the electrodes or cell by not leaking the metal wear powder outside.

Contributes to the Electric Motion Systemization of production facilities

In addition to pneumatic components and control valves, the P4 Series also supports electric actuators for multi-model production and shockless transport. We offer a wide range of motor-equipped (stepping motor) and motorless (servo motor/stepping motor) variations. We make optimal proposals for actuators in the rechargeable battery manufacturing process.



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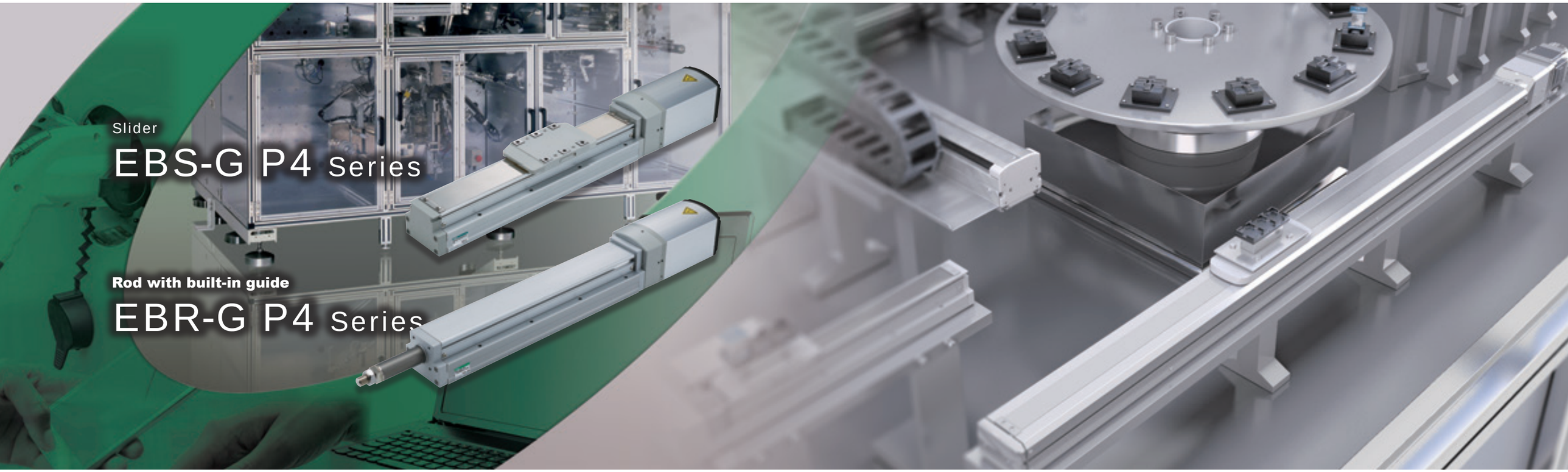


Slider

EBS-G P4 Series

Rod with built-in guide

EBR-G P4 Series

Can be used in any process

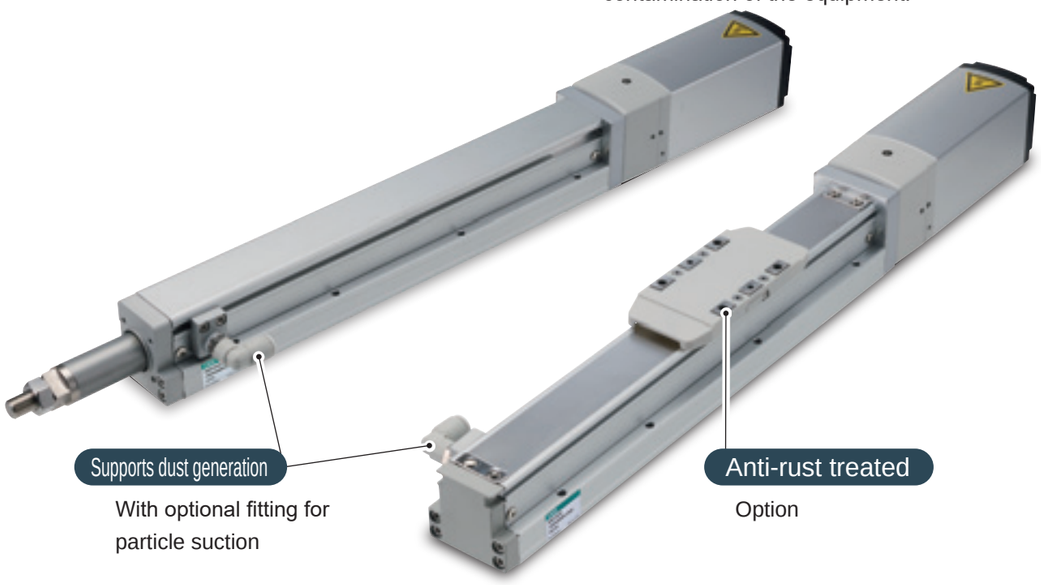
Anti-rust treated

Slider EBS supports anti-rust treatment of the slider part as an option. It can suppress the occurrence of corrosion and rust and improve the reliability of equipment.

Prevention of contamination

Compatible with vacuum treatment fittings

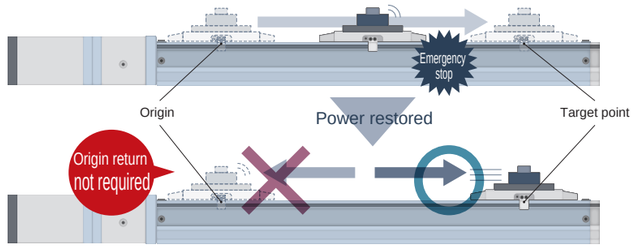
Suction port can be optionally built-in. Suctioning from the port prevents the particles of the movable part of the electric actuator from flowing out. Be rest assured by suppressing contamination of the equipment.



Shorter equipment stop times

Battery-less absolute encoders can be selected

The absolute encoder retains present position information without the use of a battery. The system does not need to return to origin when the power is turned ON, and there is no need to install an origin sensor. This allows quick recovery from an emergency stop or power outage. Because it uses no battery, there is no need to replace the encoder battery.



Expanded selection

Also supports motorless specifications (servo motors/stepper motors)

Each model uses a common body and can also be driven at the same size using a servo motor.
This provides even greater control for your preferred motor.

[Servo motor compatible manufacturer]

- Mitsubishi Electric Corp.
- Delta Electronics Co., Ltd.
- Sanyo Denki Co., Ltd.
- YASKAWA Electric Corp.
- Keyence Corp.
- Panasonic Corp.
- OMRON Corp.
- Fuji Electric Co., Ltd.
- FANUC CORP.
- DENSO WAVE INCORPORATED
- Bosch Rexroth AG
- Rockwell Automation, Inc.
- SIEMENS AG

[Manufacturers supporting stepper motors]

- Oriental Motor Co., Ltd.
- MinebeaMitsumi Incorporated
- Dyadic Systems Co.,Ltd.

*Refer to separate catalog CB-055A.

Slider

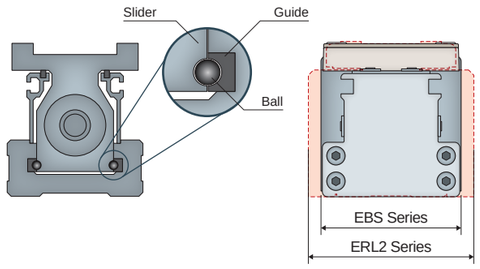
EBS-G P4 Series

High speed transport

Smaller equipment footprint

Compact body with high rigidity

An outer rail is used for the guide which supports loads. The wide guide is integrated with the body to keep the system compact yet provide high rigidity.



		ERL2-60	EBS-05
Body width		64 mm	54 mm
Static allowable moment	MP	25.7 N·m	103 N·m
	MY	25.7 N·m	103 N·m
	MR	58 N·m	144 N·m

Easy maintenance

Equipped with a grease lubrication port

The product comes equipped with a lubrication port on both sides to allow direct lubrication from the exterior. Both the guide and ball screw can be maintained simply by lubricating from a single location, without disassembling the body.

Rod with built-in guide

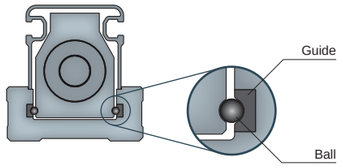
EBR-G P4 Series

For press fitting and hoisting

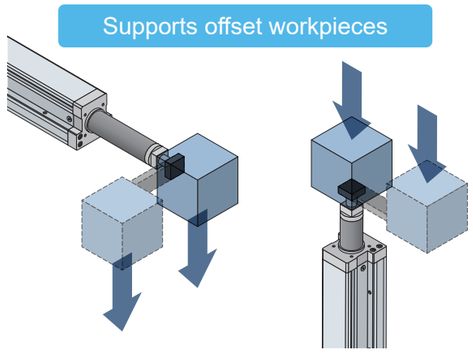
Reduces need for additional guides

Rod with built-in guide

Contains the same guide as the slider EBS. Provides a strong structure even for offset workpieces. It also provides a long stroke even greater than that of conventional products.



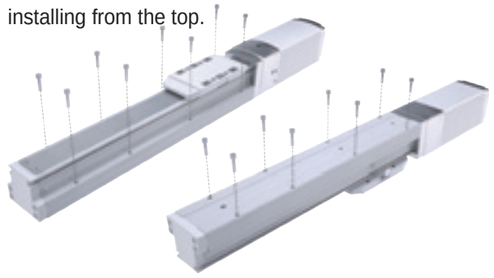
Supports offset workpieces

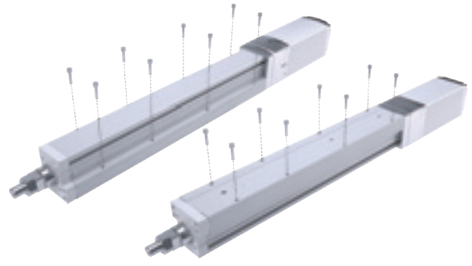


Reduced installation time

Mounting holes provided on top and bottom of product

The product structure allows direct installation from the top or bottom, without disassembly. This significantly reduces work time, especially when installing from the top.





Controller

ECG Series

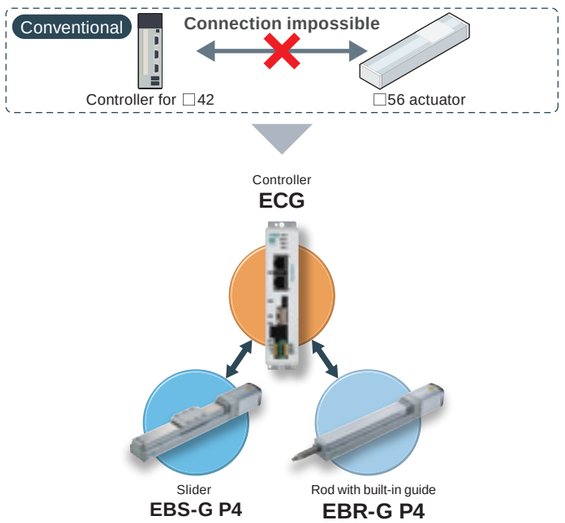
A new controller for every actuator model and size

CKD YouTube channel
Easy manual video for dedicated software "S-Tools" available

Reduced initial work hours and stock

Novel functions that support a wide range of motor sizes

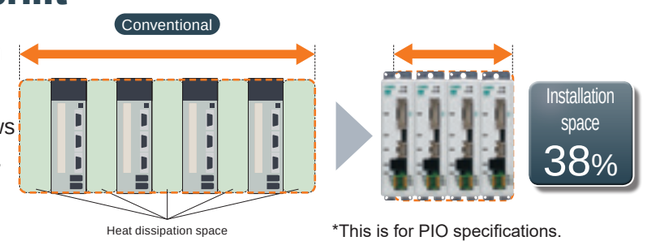
The same controller operates with actuators of different sizes and models. Equipped with an automatic recognition function that reads actuator information, for less work during initial setting. Further, with a common controller, work hours for selection and ordering can be reduced as well as inventory.



Reduced controller footprint

Compact, allowing adjacent installation

The optimized design eliminates the need for heat dissipation space at the sides. This allows controllers to be installed next to one another.

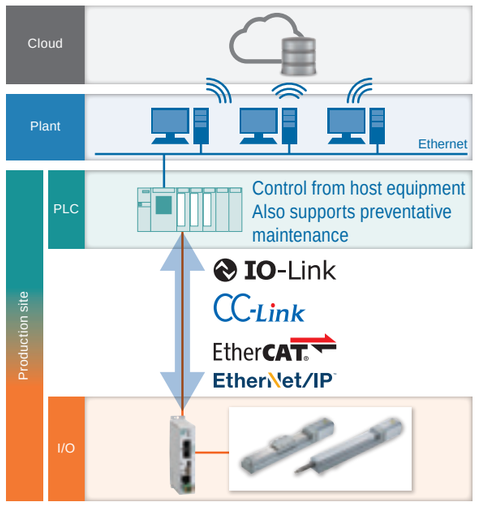


*This is for PIO specifications.

Supports IoT

Compatible with all types of networks

Our product is compatible with all types of industrial networks. This allows control from host equipment over Ethernet, and also enables preventative maintenance.



Abundant wiring configurations

EtherNet/IP built-in 2-port connectors, and supports a wide range of line, star and ring wiring.

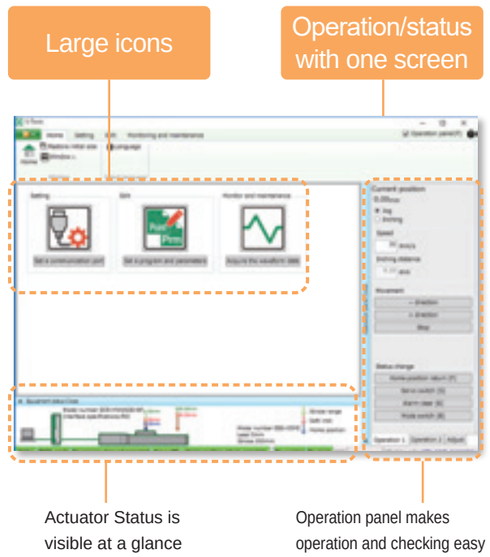
Reduces adjustment time

Common configuration tool "S-Tools" Easy configuration

Please check via iPad or smartphone.

*Depending on your smartphone environment, it may not be displayed correctly.

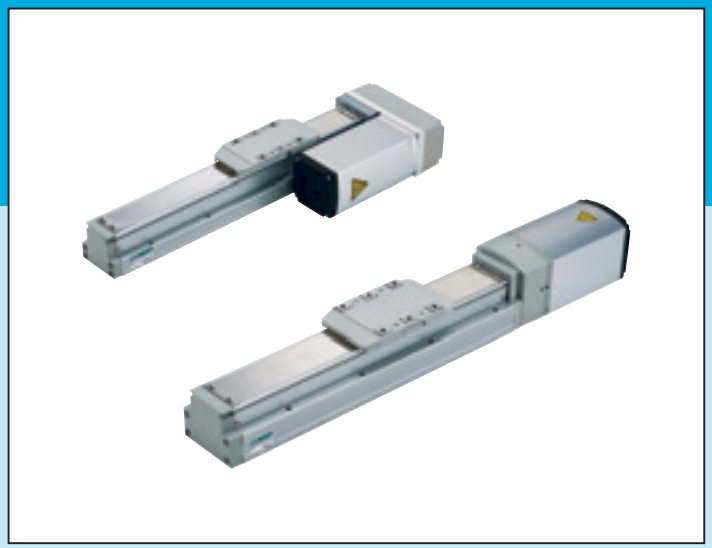
Inherits the operational feel of the popular AX-Tools software for ABSODEX. S-Tools can be downloaded from our website for free.



Electric actuator
Motor specification

EBS-G-P4

Slider



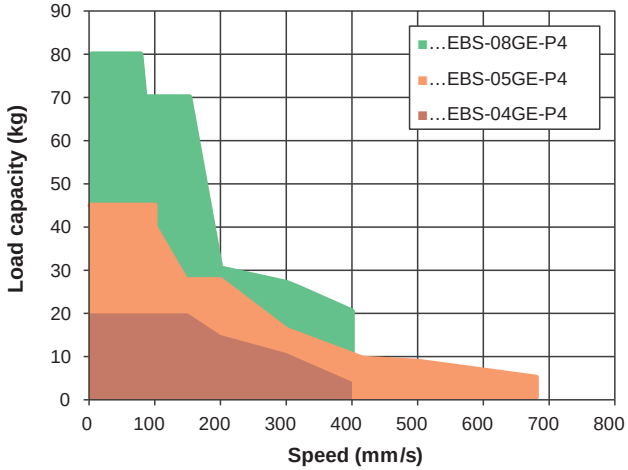
CONTENTS

EBS-G-P4 Series

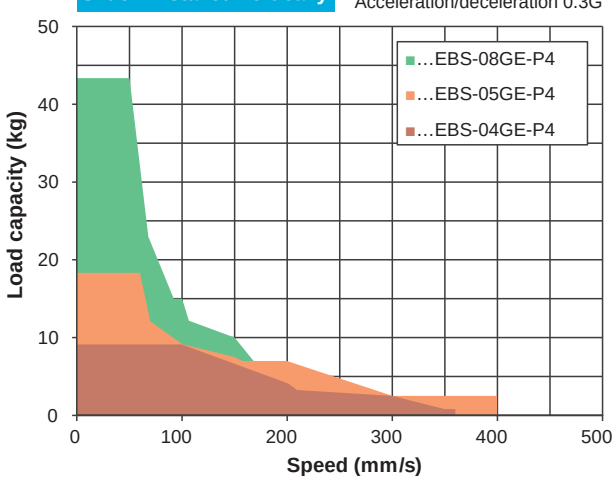
Series variation

Controller	ActuatorModel No.		Motor Size	Motor Mounting Direction	Body width (mm)	Screw lead (mm)	Max. load capacity (kg) Horizontal	Max. load capacity (kg) Vertical	Max. Pressing force (N)
ECG Series		EBS-04GE-06-P4	□35	Straight	44	6	20.0	9.2	155
		EBS-04GE-12-P4				12	15.0	3.3	77
		EBS-04GR/D/L-06-P4		Left/Right/Bottom		6	20.0	9.2	155
		EBS-04GR/D/L-12-P4				12	11.7	3.3	77
		EBS-05GE-02-P4	□42	Straight	54	2	45.0	18.3	550
		EBS-05GE-05-P4				5	40.0	14.0	220
		EBS-05GE-10-P4				10	27.5	7.0	110
		EBS-05GE-20-P4				20	18.3	2.5	55
		EBS-05GR/D/L-02-P4		Left/Right/Bottom		2	45.0	18.3	550
		EBS-05GR/D/L-05-P4				5	40.0	10.0	220
		EBS-05GR/D/L-10-P4				10	27.5	3.3	110
		EBS-05GR/D/L-20-P4				20	18.3	0.8	55
		EBS-08GE-05-P4	□56	Straight	82	5	80.0	43.3	965
		EBS-08GE-10-P4				10	70.0	28.3	482
		EBS-08GE-20-P4				20	30.0	3.3	241
		EBS-08GR/D/L-05-P4		Left/Right/Bottom		5	80.0	33.3	965
		EBS-08GR/D/L-10-P4				10	70.0	18.3	482
		EBS-08GR/D/L-20-P4				20	30.0	3.3	241

Slider: Installed horizontally Acceleration/deceleration 0.3G

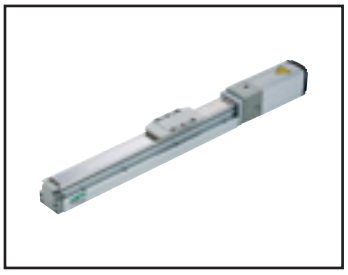


Slider: Installed vertically Acceleration/deceleration 0.3G



Stroke (mm) and max. speed (mm/s)																							Listed page
50 mm	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100		
260 mm/s																							4
400																							
200																							8
320																							
100													95	80	70								14
230														200	185								
400															370								
680																							
80															70								18
200															185								
320																							
560																							
120																				110	100		24
200																							
400																							
100																							28
200																							
320																							

* This data is at acceleration/deceleration 0.3G...
* The load capacity when wall mounted is the same as for horizontal installation.



Electric actuator Slider

EBS-04GE-P4

Straight motor mounting

☐35 stepper motor

How to order

EBS - 04 G E - 06 0300 N B N - C S03 - U C - P4

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

(A) Body size

04	Body width 44mm

(B) Applicable controller *1

G	ECG

(C) Motor mounting direction

E	Straight mounting

(D) Screw lead

06	6 mm
12	12 mm

(E) Stroke

0050 to 0500	50 mm (In 50 mm increments) 500 mm

(F) Brake *2

N	None
B	Yes

(G) Encoder

B	Battery-less absolute encoder
C	Incremental encoder

(H) Relay cable *3

N00	None
S01	Fixing cable 1 m
S03	Fixing cable 3 m
S05	Fixing cable 5 m
S10	Fixing cable 10 m
R 01	Movable cable 1 m
R 03	Movable cable 3 m
R 05	Movable cable 5 m
R 10	Movable cable 10 m

(I) Anti-rust treatment*4

N	None
U	Yes

(J) Fitting

N	None
C	Yes

*1 Select the controller from page 85.
*2 For vertical use, select "Yes".
*3 Refer to page 96 for relay cable dimensions.
*4 Positioning pin holes may not be surface treated.

Specifications

Motor		☐35 stepper motor	
Encoder type		Battery-less absolute encoder Incremental encoder	
Drive method		Ball screw ø10	
Stroke	mm	50 to 500	
Screw lead	mm	6	12
Max. workload kg *1	Horizontal	20.0	15.0
	Vertical	9.2	3.3
Operation speed range *2	mm/s	7 to 260	15 to 400
Maximum pushing force	N	155	77
Pressing operation speed range	mm/s	5 to 20	5 to 20
Repeatability	mm	±0.01	
Lost motion	mm	0.1 or less	
Static allowable moment	N·m	MP:62 MY:62 MR:92	
Motor power supply voltage		24 VDC ±10%	
Motor section max. instantaneous current	A	2.4	
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC ±10%	
	Power consumption W	6.1	
	Holding force N	140	70
Insulation resistance		10 MΩ, 500 VDC	
Withstand voltage		500 VAC for 1 minute	
Operating ambient temperature		10 to 40 °C (no freezing)	
Storage ambient temperature		-10 to 50 °C (no freezing)	
Atmosphere		No corrosive gas, explosive gas, or dust	
Degree of protection		IP40	

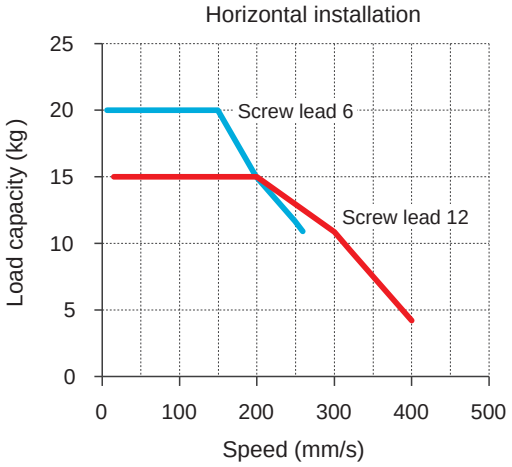
*1 Load capacity varies according to acceleration/deceleration and speed.Refer to pages 40 and 41 for details.
*2 The maximum speed may decrease depending on the conditions.

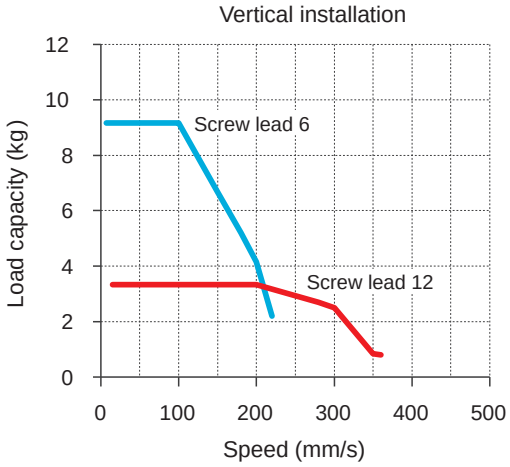
Stroke and max. speed

(mm/s)

Screw lead	Stroke
	50 to 500
6	260
12	400

Speed and load capacity

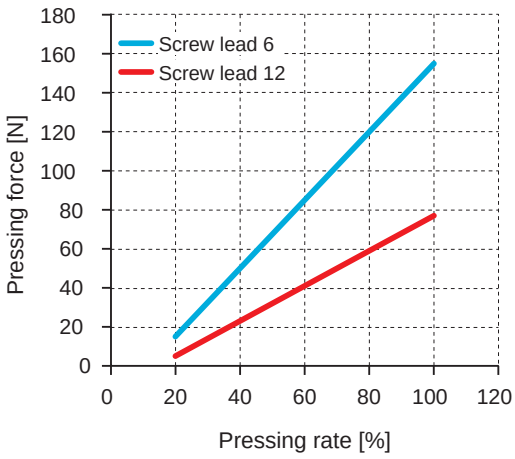




* Acceleration/deceleration 0.3G.

* Refer to pages 40 and 41 for details.

Pressing force



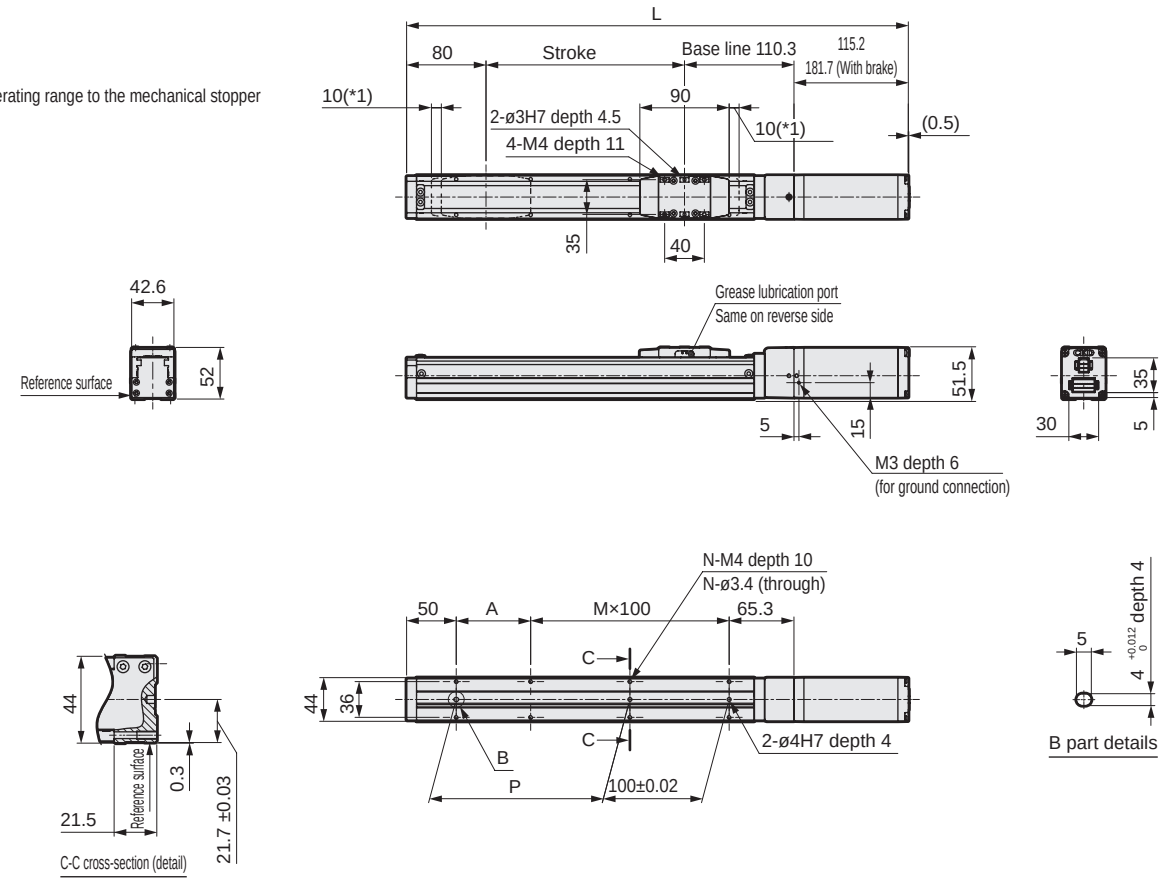
*The above pressing force is a reference value. Variation may occur according to conditions such as pressing speed.

EBS-04GE-P4

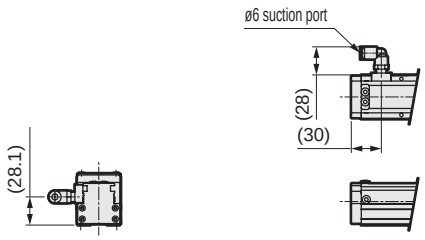
Dimensions Straight motor mounting

● EBS-04GE-P4

*1 Operating range to the mechanical stopper



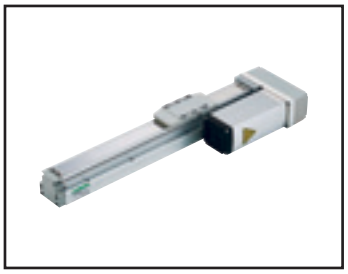
● EBS-04GE-*-*-*C-P4



Stroke code		0050	0100	0150	0200	0250	0300	0350	0400	0450	0500
Stroke length (mm)		50	100	150	200	250	300	350	400	450	500
L	Without brake	355.5	405.5	455.5	505.5	555.5	605.5	655.5	705.5	755.5	805.5
	With brake	422	472	522	572	622	672	722	772	822	872
A		25	75	25	75	25	75	25	75	25	75
M		1	1	2	2	3	3	4	4	5	5
N		6	6	8	8	10	10	12	12	14	14
P		25	75	125	175	225	275	325	375	425	475
Weight (kg)	Without brake	1.5	1.6	1.8	1.9	2.0	2.2	2.3	2.4	2.6	2.7
	With brake	2.0	2.1	2.3	2.4	2.5	2.7	2.8	2.9	3.1	3.2

* The suction port fitting (ZW-L6-6-P4) is an attachment.
* Keep the air intake amount from the intake port at 30.0Nℓ/min or less.

Notes



Electric actuator Slider

EBS-04G*-P4

Motor side mounting (left, right, bottom)

☐ 35 stepper motor

How to order

EBS - 04 G R - 06 0300 N B N - C S03 - U C - P4

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

(A) Body size

04	Body width 44mm

(B) Applicable controller *1

G	ECG

(C) Motor mounting direction *2*3

R	Right mounting
D	Bottom mounting
L	Left mounting

(D) Screw lead

06	6 mm
12	12 mm

(E) Stroke *2*3

0050 to 0500	50 mm (In 50 mm increments) 500 mm

(F) Brake *4

N	None
B	Yes

(G) Encoder

B	Battery-less absolute encoder
C	Incremental encoder

(H) 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
R 01	Movable cable 1 m
R 03	Movable cable 3 m
R 05	Movable cable 5 m
R 10	Movable cable 10 m

(I) Anti-rust treatment*6

N	None
U	Yes

(J) Fitting *3

N	None
C	Yes

*1 Select the controller from page 85.
*2 When selecting the motor mounting direction "D", the stroke length is "0250 (250 mm)" to "0500(500mm)"is the selection.
*3 For the motor mounting direction "L" and "C" with fittings, 0050 (50 mm stroke length) cannot be selected.
*4 When using vertically, select "Yes".
*5 Refer to page 96 for relay cable dimensions.
*6 Positioning pin holes may not be surface treated.

Specifications

Motor		☐ 35 stepper motor	
Encoder type		Battery-less absolute encoder Incremental encoder	
Drive method		Ball screw ø10	
Stroke	mm	50 to 500	
Screw lead	mm	6	12
Max. workload kg *1	Horizontal	20.0	11.7
	Vertical	9.2	3.3
Operation speed range *2	mm/s	7 to 200	15 to 320
Maximum pushing force	N	155	77
Pressing operation speed range	mm/s	5 to 20	5 to 20
Repeatability	mm	±0.01	
Lost motion	mm	0.1 or less	
Static allowable moment	N·m	MP:62 MY:62 MR:92	
Motor power supply voltage		24 VDC ±10%	
Motor section max. instantaneous current	A	2.4	
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC ±10%	
	Power consumption W	6.1	
	Holding force N	140	70
Insulation resistance		10 MΩ, 500 VDC	
Withstand voltage		500 VAC for 1 minute	
Operating ambient temperature		10 to 40 °C (no freezing)	
Storage ambient temperature		-10 to 50°C (no freezing)	
Atmosphere		No corrosive gas, explosive gas, or dust	
Degree of protection		IP40	

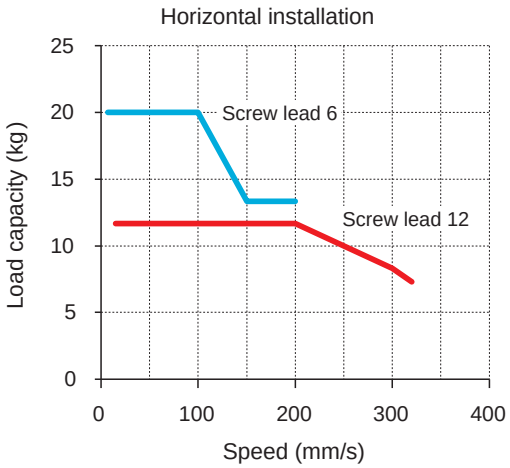
*1 Load capacity varies according to acceleration/deceleration and speed.Refer to pages 40 and 41 for details.
*2 The maximum speed may decrease depending on the conditions.

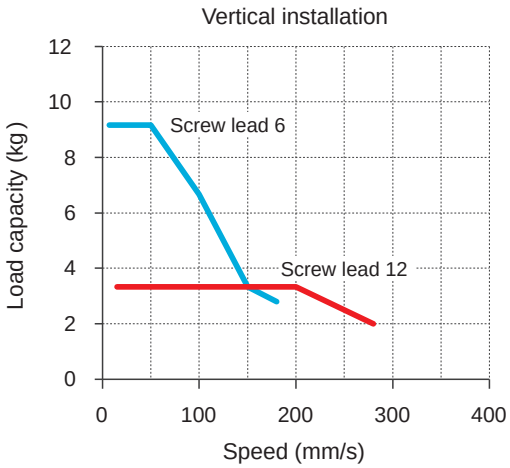
Stroke and max. speed

(mm/s)

Screw lead	Stroke
	50 to 500
6	200
12	320

Speed and load capacity

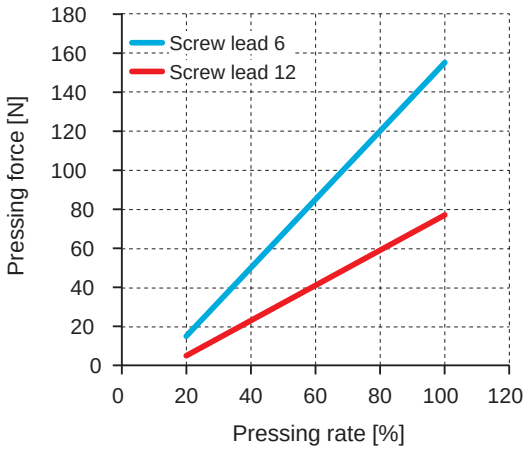




* Acceleration/deceleration 0.3G.

* Refer to pages 40 and 41 for details.

Pressing force



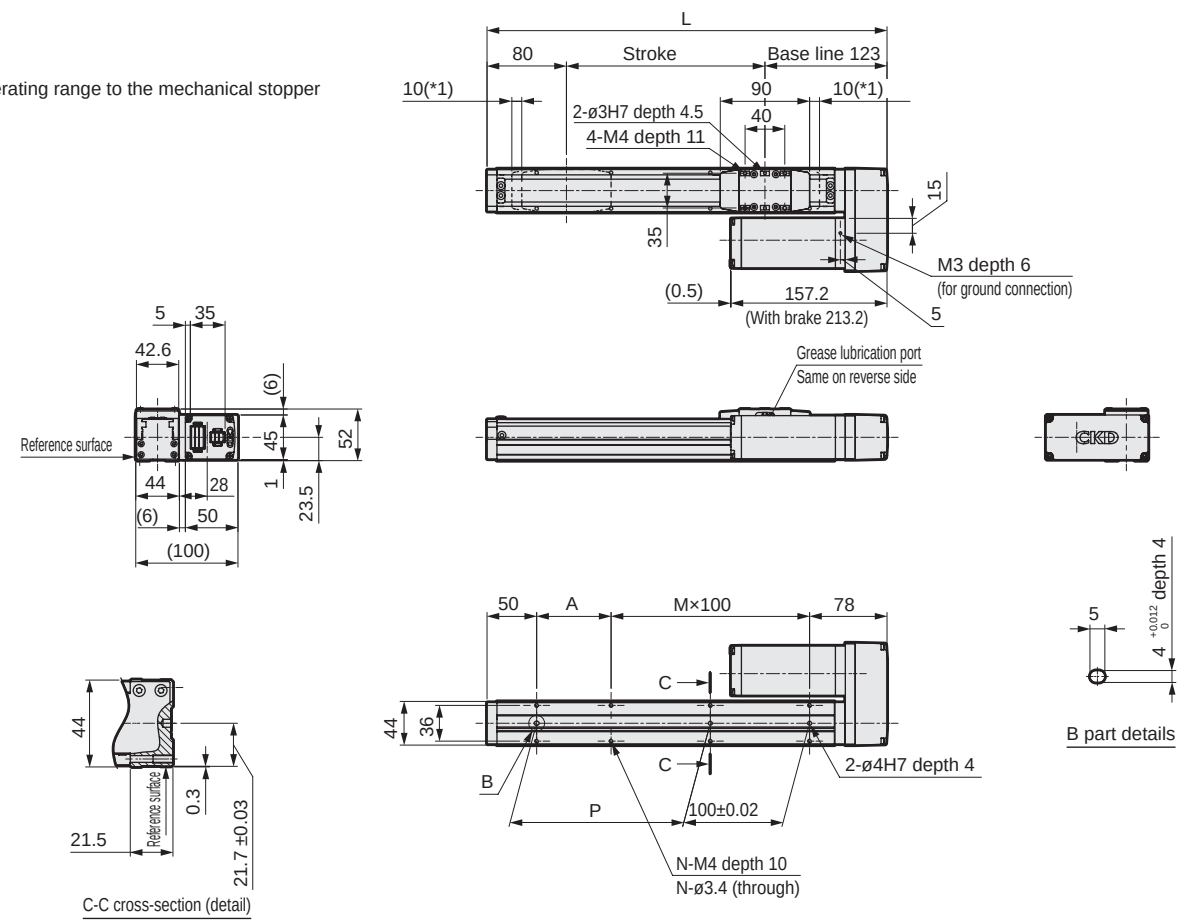
*The above pressing force is a reference value. Variations may occur according to conditions such as pressing speed.

EBS-04G*-P4

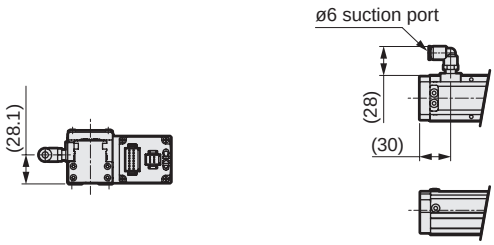
Dimensions Right motor mounting

● EBS-04GR-P4

*1 Operating range to the mechanical stopper



● EBS-04GR-*-*-*C-P4

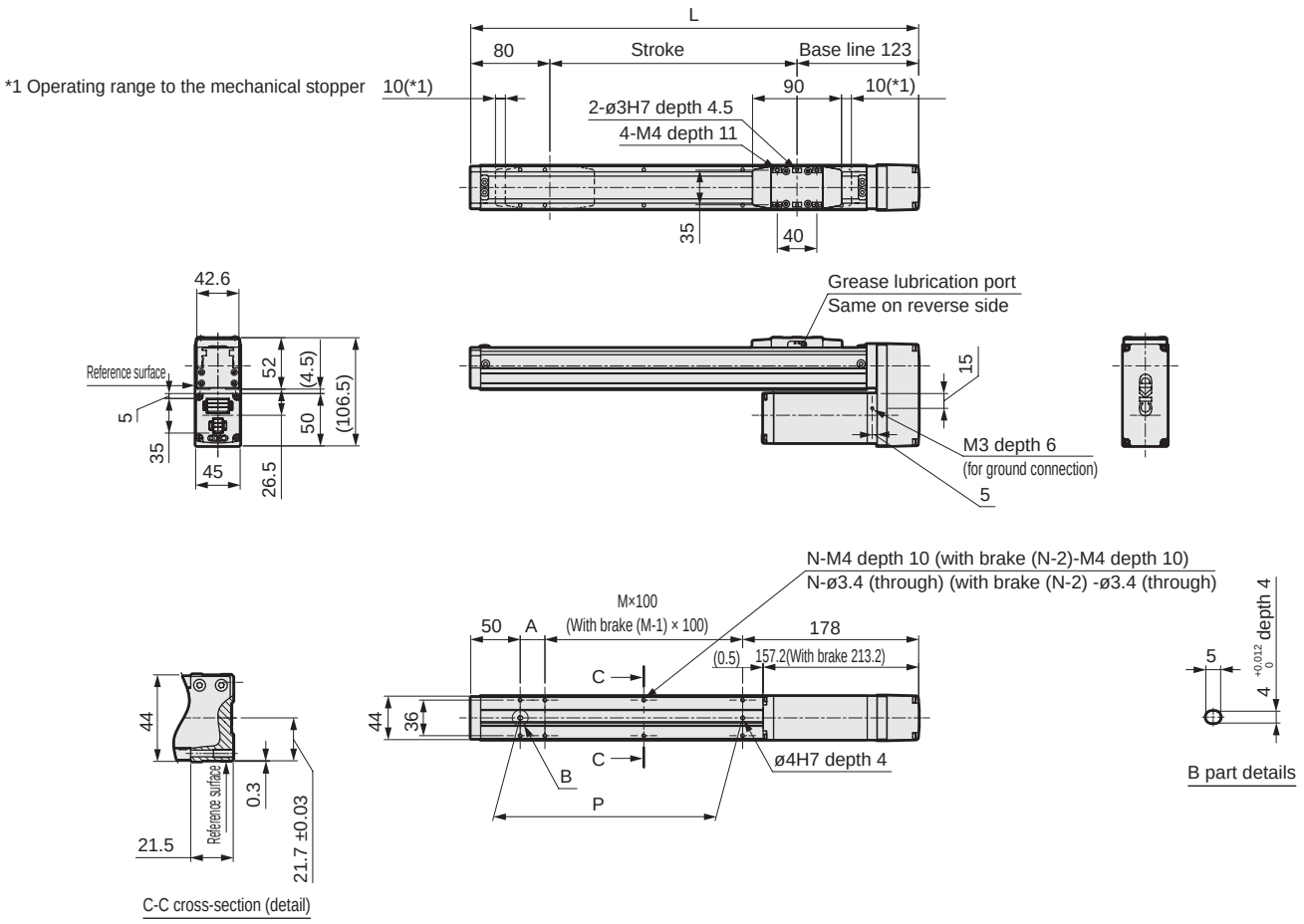


Stroke code		0050	0100	0150	0200	0250	0300	0350	0400	0450	0500
Stroke length (mm)		50	100	150	200	250	300	350	400	450	500
L		253	303	353	403	453	503	553	603	653	703
A		25	75	25	75	25	75	25	75	25	75
M		1	1	2	2	3	3	4	4	5	5
N		6	6	8	8	10	10	12	12	14	14
P		25	75	125	175	225	275	325	375	425	475
Weight (kg)	Without brake	1.7	1.9	2.0	2.2	2.4	2.6	2.7	2.9	3.1	3.3
	With brake	2.2	2.4	2.5	2.7	2.9	3.1	3.2	3.4	3.6	3.8

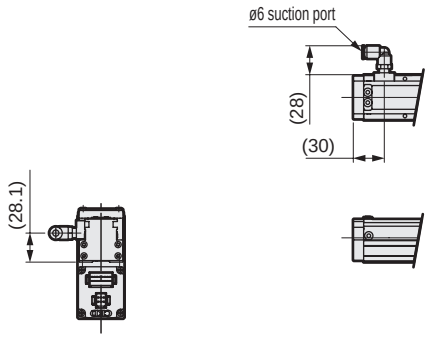
* The suction port fitting (ZW-L6-6-P4) is an attachment.
* Keep the air intake amount from the intake port at 30.0Nℓ/min or less.

Dimensions Bottom motor mounting

● EBS-04GD-P4



● EBS-04GD-*-*-*C-P4



Stroke code		0250	0300	0350	0400	0450	0500
Stroke length (mm)		250	300	350	400	450	500
L		453	503	553	603	653	703
A		25	75	25	75	25	75
M		2	2	3	3	4	4
N		8	8	10	10	12	12
P		225	275	325	375	425	475
Weight (kg)	Without brake	2.4	2.6	2.7	2.9	3.1	3.3
	With brake	2.9	3.1	3.2	3.4	3.6	3.8

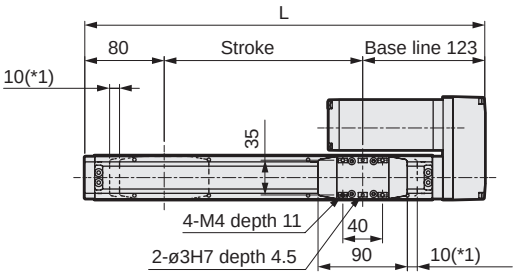
* The suction port fitting (ZW-L6-6-P4) is an attachment.
* Keep the air intake amount from the intake port at 30.0Nℓ/min or less.

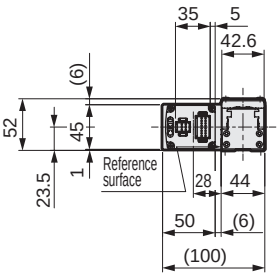
EBS-04G*-P4

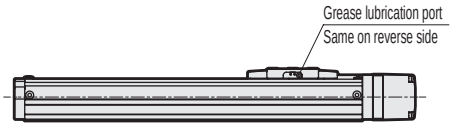
Dimensions Left motor mounting

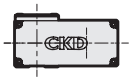
● EBS-04GL-P4

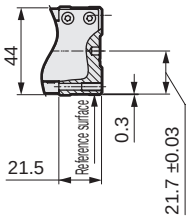
*1 Operating range to the mechanical stopper



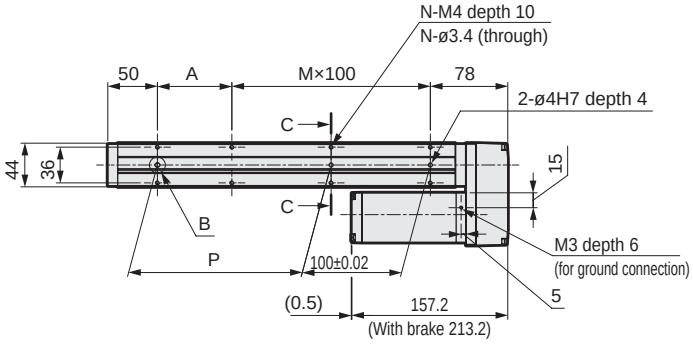


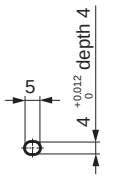






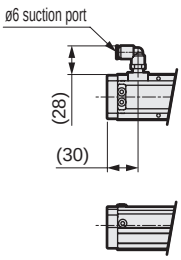
C-C cross-section (detail)

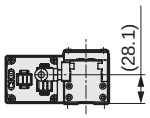




B part details

● EBS-04GL-*-*-*C-P4

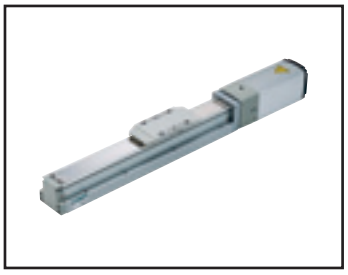




Stroke code		0050	0100	0150	0200	0250	0300	0350	0400	0450	0500
Stroke length (mm)		50 (*2)	100	150	200	250	300	350	400	450	500
L		253	303	353	403	453	503	553	603	653	703
A		25	75	25	75	25	75	25	75	25	75
M		1	1	2	2	3	3	4	4	5	5
N		6	6	8	8	10	10	12	12	14	14
P		25	75	125	175	225	275	325	375	425	475
Weight (kg)	Without brake	1.7	1.9	2.0	2.2	2.4	2.6	2.7	2.9	3.1	3.3
	With brake	2.2	2.4	2.5	2.7	2.9	3.1	3.2	3.4	3.6	3.8

* The suction port fitting (ZW-L6-6-P4) is an attachment.
* Keep the air intake amount from the intake port at 30.0Nℓ/min or less.
*2: 50 mm stroke length cannot be selected for types with fittings.

Notes



Electric actuator Slider

EBS-05GE-P4

Straight motor mounting

☐42 Stepper motor

How to order

EBS - 05 G E - 05 0300 N B N - C S03 - U C - P4

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

(A) Body size

05	Body width 54mm

(B) Applicable controller *1

G	ECG

(C) Motor mounting direction

E	Straight mounting

(D) Screw lead

02	2 mm
05	5 mm
10	10 mm
20	20 mm

(E) Stroke

0050 to 0800	50 mm (In 50 mm increments) 800 mm

(F) Brake *2

N	None
B	Yes

(G) Encoder

B	Battery-less absolute encoder
C	Incremental encoder

(H) Relay cable *3

N00	None
S01	Fixing cable 1 m
S03	Fixing cable 3 m
S05	Fixing cable 5 m
S10	Fixing cable 10 m
R 01	Movable cable 1 m
R 03	Movable cable 3 m
R 05	Movable cable 5 m
R 10	Movable cable 10 m

(I) Anti-rust treatment *4

N	None
U	Yes

(J) Fitting

N	None
C	Yes

*1 Select the controller from page 85.
*2 When using vertically "Yes".
*3 Refer to page 96 for relay cable dimensions.
*4 Positioning pin holes may not be surface treated.

Specifications

Motor		☐42 Stepper motor			
Encoder type		Battery-less absolute encoder Incremental encoder			
Drive method		Ball screw ø12			
Stroke	mm	50 to 800			
Screw lead	mm	2	5	10	20
Max. workload kg *1	Horizontal	45.0	40.0	27.5	18.3
	Vertical	18.3	14.0	7.0	2.5
Operation speed range *2	mm/s	2 to 100	6 to 230	12 to 400	25 to 680
Maximum pushing force	N	550	220	110	55
Pressing operation speed range	mm/s	5 to 20	5 to 20	5 to 20	5 to 20
Repeatability	mm	±0.01			
Lost motion	mm	0.1 or less			
Static allowable moment	N·m	MP:103 MY:103 MR:144			
Motor power supply voltage		24 VDC ±10%			
Motor section max. instantaneous current	A	2.7			
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC ±10%			
	Power consumption W	6.1			
	Holding force N	420	168	84	42
Insulation resistance		10 MΩ, 500 VDC			
Withstand voltage		500 VAC for 1 minute			
Operating ambient temperature		10 to 40 °C (no freezing)			
Storage ambient temperature		-10 to 50°C (no freezing)			
Atmosphere		No corrosive gas, explosive gas, or dust			
Degree of protection		IP40			

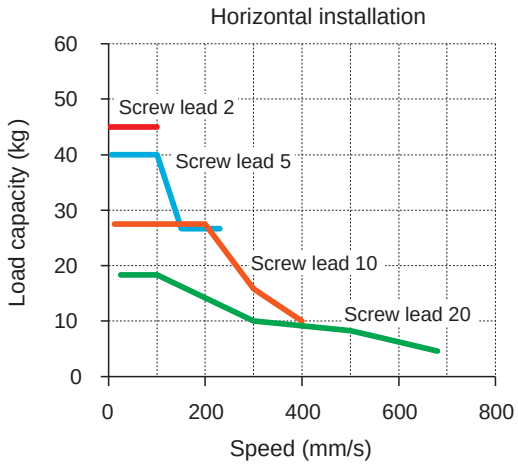
*1 Load capacity varies according to acceleration/deceleration and speed.Refer to pages 40 and 41 for details.
*2 The maximum speed may decrease depending on the conditions.

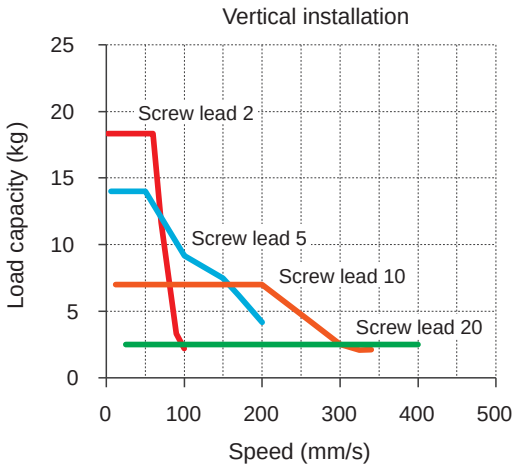
Stroke and max. speed

(mm/s)

Screw lead	Stroke			
	50 to 650	700	750	800
2	100	95	80	70
5	230	230	200	185
10	400	400	400	370
20	680	680	680	680

Speed and load capacity

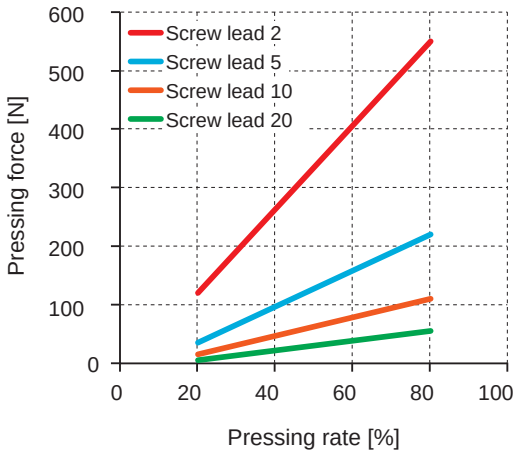




* Acceleration/Deceleration 0.3G.

* Refer to pages 40 and 41 for details.

Pressing force

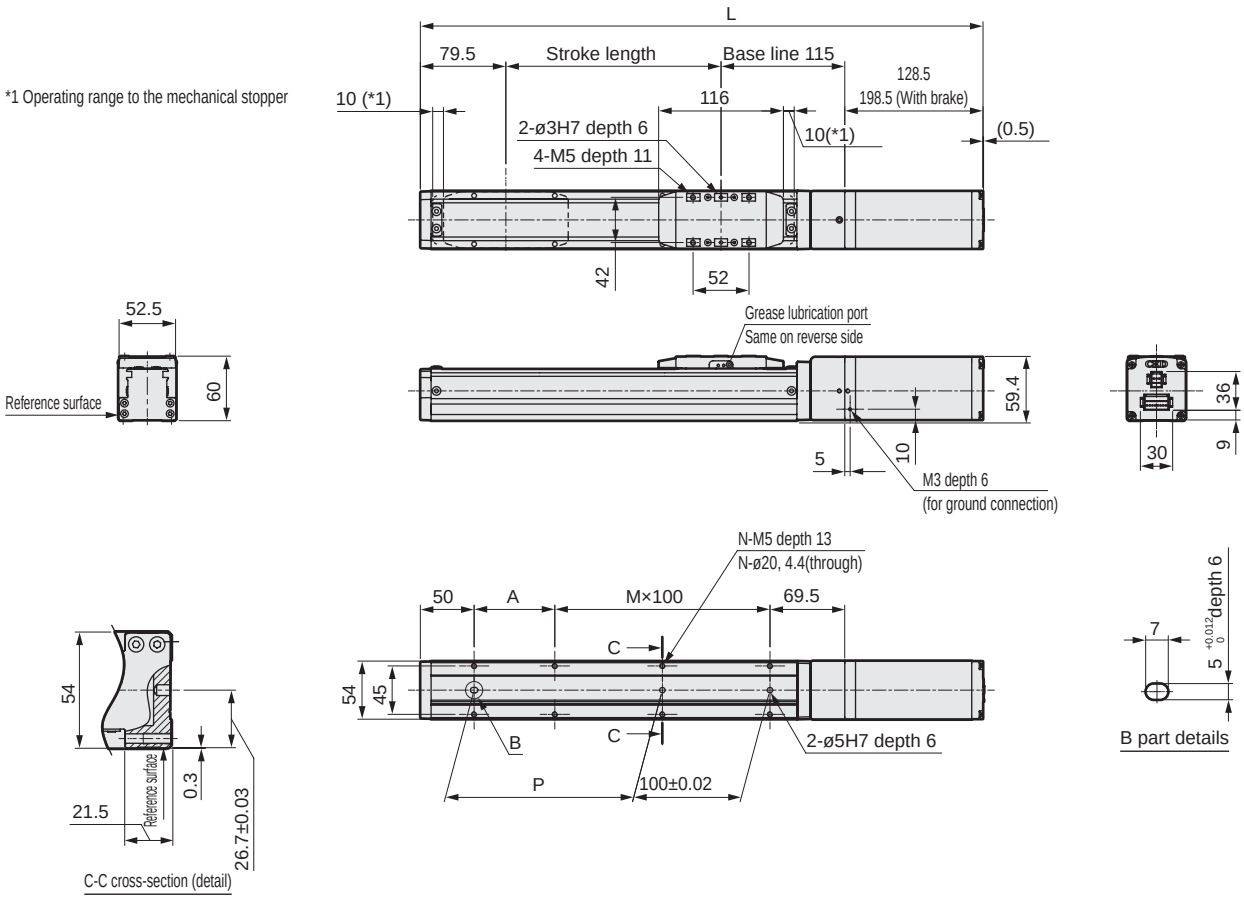


*The above pressing force is a reference value. Variation may occur according to conditions such as pressing speed.

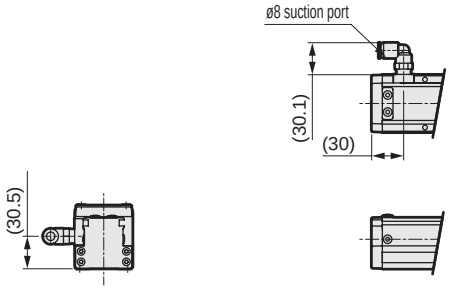
EBS-05GE-P4

Dimensions Straight motor mounting

● EBS-05GE-P4



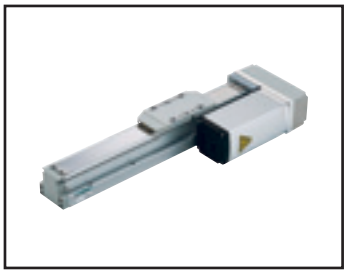
● EBS-05GE-*-*-*C-P4



Stroke code		0050	0100	0150	0200	0250	0300	0350	0400	0450	0500	0550	0600	0650	0700	0750	0800
Stroke length (mm)		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	Without brake	373	423	473	523	573	623	673	723	773	823	873	923	973	1023	1073	1123
	With brake	443	493	543	593	643	693	743	793	843	893	943	993	1043	1093	1143	1193
A		25	75	25	75	25	75	25	75	25	75	25	75	25	75	25	75
M		1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
N		6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
P		25	75	125	175	225	275	325	375	425	475	525	575	625	675	725	775
Weight (kg)	Without brake	2.8	2.9	3.1	3.2	3.4	3.5	3.7	3.8	4.0	4.1	4.2	4.4	4.5	4.7	4.8	5.0
	With brake	3.5	3.6	3.8	3.9	4.1	4.2	4.4	4.5	4.7	4.8	4.9	5.1	5.2	5.4	5.5	5.7

* The suction port fitting (ZW-L8-8-P4) is an attachment.
* Use the product with air intake of 30.0Nℓ/min or less from the intake port.

Notes



Electric actuator Slider

EBS-05G*-P4

Motor side mounting (left, right, bottom)

☐42 Stepper motor

How to order

EBS - 05 G R - 05 0300 N B N - C S03 - U C - P4

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

(A) Body size

05	Body width 54mm

(B) Applicable controller *1

G	ECG

(C) Motor mounting direction *2*3

R	Right mounting
D	Bottom mounting
L	Left mounting

(D) Screw lead

02	2 mm
05	5 mm
10	10 mm
20	20 mm

(E) Stroke *2*3

0050 to 0800	50 mm (In 50 mm increments) 800 mm

(F) Brake *4

N	None
B	Yes

(G) Encoder

B	Battery-less absolute encoder
C	Incremental encoder

(H) 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
R 01	Movable cable 1 m
R 03	Movable cable 3 m
R 05	Movable cable 5 m
R 10	Movable cable 10 m

(I) Anti-rust treatment *6

N	None
U	Yes

(J) Fitting *3

N	None
C	Yes

*1 Select the controller from page 85.
*2 When the motor mounting direction "D" is selected, the stroke length will be a selection from "0250 (250 mm)" to "0800 (800 mm)".
*3 For the motor mounting direction "L" and "C" with fittings, 0050 (50 mm stroke length) cannot be selected.
*4 When using vertically, select "Yes".
*5 Refer to page 96 for relay cable dimensions.
*6 Positioning pin holes may not be surface treated.

Specifications

Motor		☐42 Stepper motor			
Encoder type		Battery-less absolute encoder Incremental encoder			
Drive method		Ball screw ø12			
Stroke	mm	50 to 800			
Screw lead	mm	2	5	10	20
Max. workload kg *1	Horizontal	45.0	40.0	27.5	18.3
	Vertical	18.3	10.0	3.3	0.8
Operation speed range *2	mm/s	2 to 80	6 to 200	12 to 320	25 to 560
Maximum pushing force	N	550	220	110	55
Pressing operation speed range	mm/s	5 to 20	5 to 20	5 to 20	5 to 20
Repeatability	mm	±0.01			
Lost motion	mm	0.1 or less			
Static allowable moment	N·m	MP:103 MY:103 MR:144			
Motor power supply voltage		24 VDC ±10%			
Motor section max. instantaneous current	A	2.7			
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC ±10%			
	Power consumption W	6.1			
	Holding force N	420	168	84	42
Insulation resistance		10 MΩ, 500 VDC			
Withstand voltage		500 VAC for 1 minute			
Operating ambient temperature		10 to 40 °C (no freezing)			
Storage ambient temperature		-10 to 50 °C (no freezing)			
Atmosphere		No corrosive gas, explosive gas, or dust			
Degree of protection		IP40			

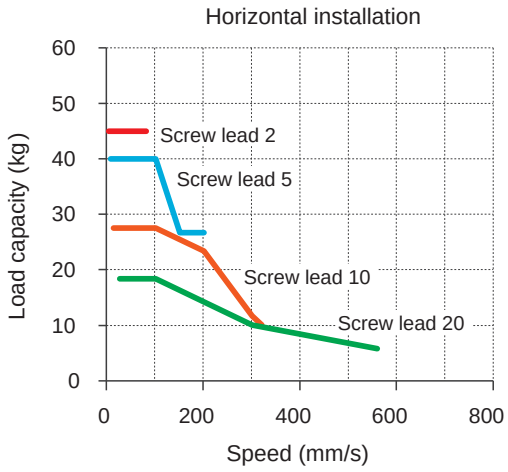
*1 Load capacity varies according to acceleration/deceleration and speed.Refer to pages 40 and 41 for details.
*2 The maximum speed may decrease depending on the conditions.

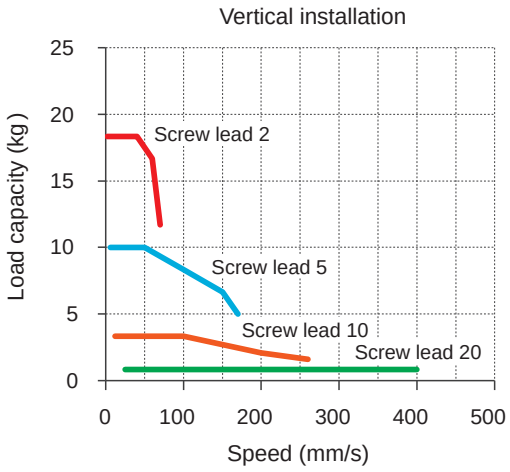
Stroke and max. speed

(mm/s)

Screw lead	Stroke	
	50 to 750	800
2	80	70
5	200	185
10	320	320
20	560	560

Speed and load capacity

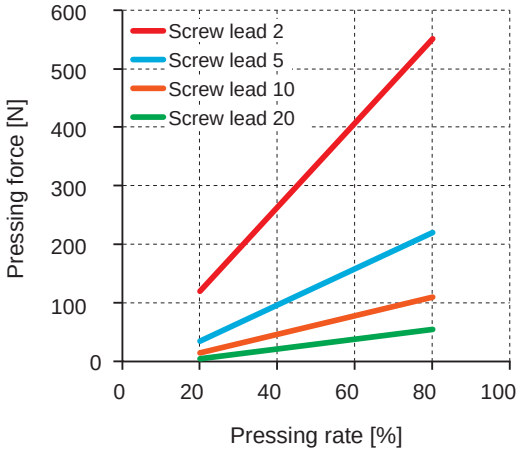




* Acceleration/Deceleration 0.3G.

* Refer to pages 40 and 41 for details.

Pressing force



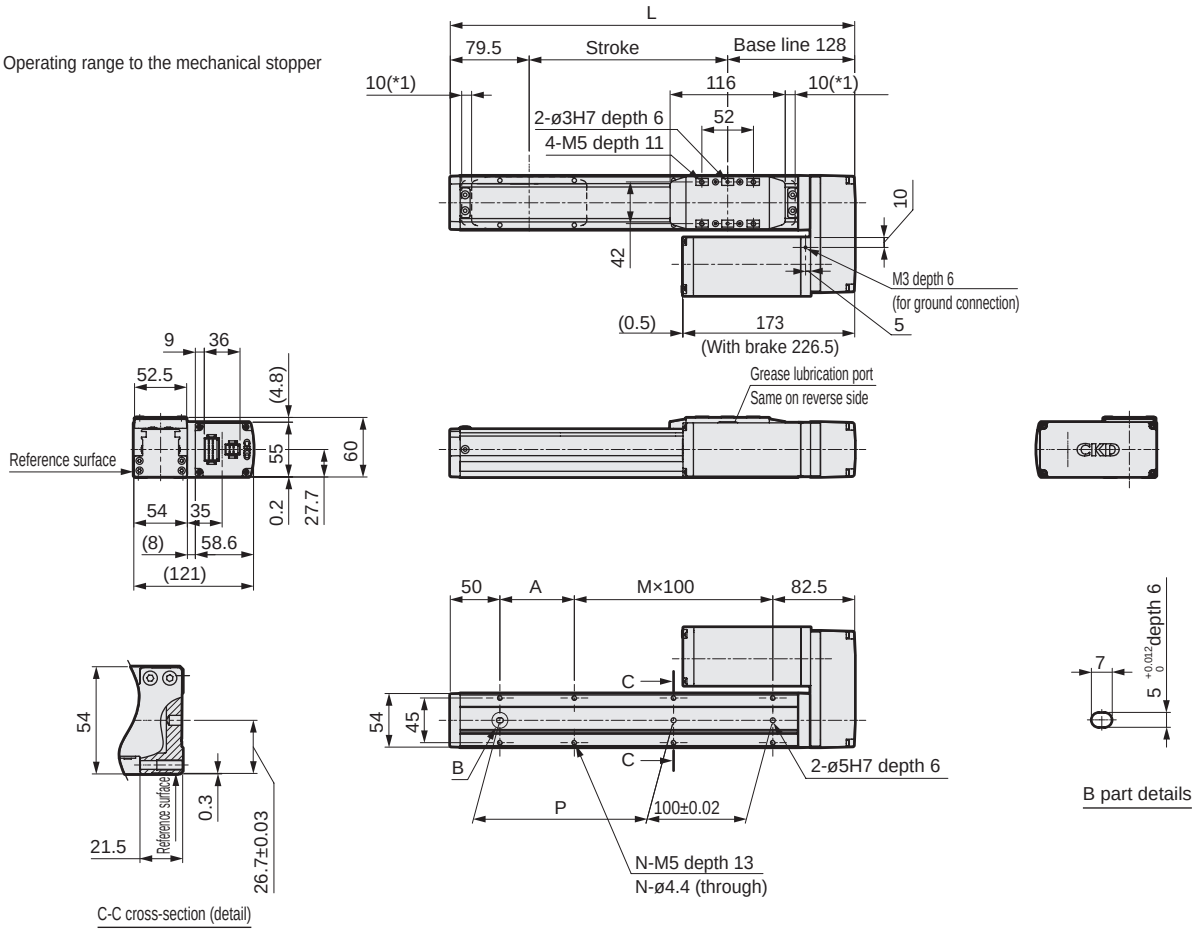
*The above pressing force is a reference value. Variation may occur according to conditions such as pressing speed.

EBS-05G*-P4

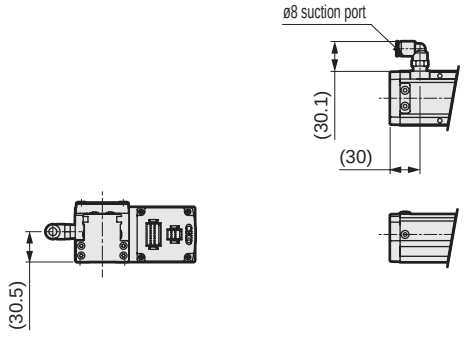
Dimensions Right motor mounting

● EBS-05GR-P4

*1 Operating range to the mechanical stopper



● EBS-05GR-*-*-*C-P4



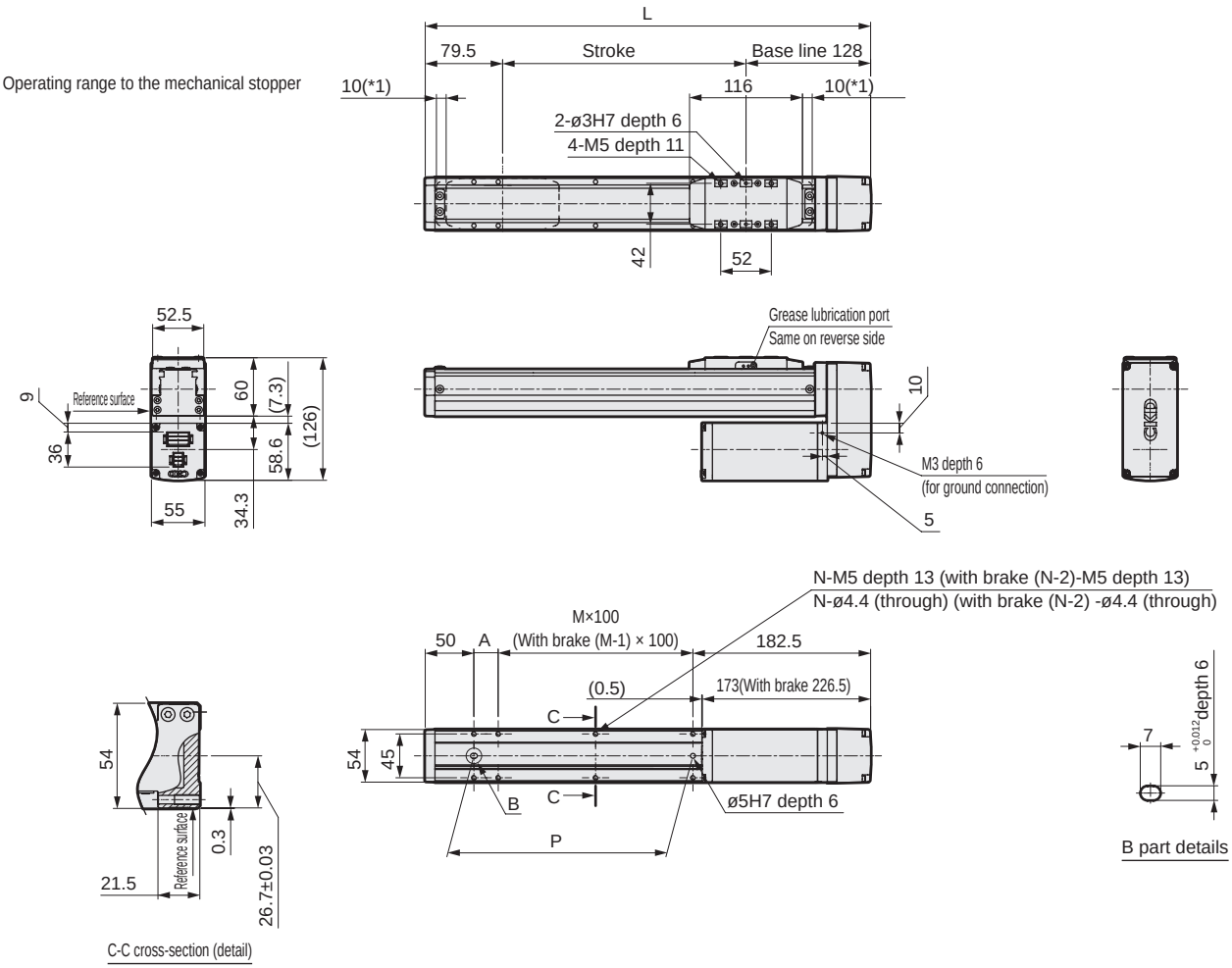
Stroke code		0050	0100	0150	0200	0250	0300	0350	0400	0450	0500	0550	0600	0650	0700	0750	0800
Stroke length (mm)		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L		257.5	307.5	357.5	407.5	457.5	507.5	557.5	607.5	657.5	707.5	757.5	807.5	857.5	907.5	957.5	1007.5
A		25	75	25	75	25	75	25	75	25	75	25	75	25	75	25	75
M		1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
N		6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
P		25	75	125	175	225	275	325	375	425	475	525	575	625	675	725	775
Weight (kg)	Without brake	2.7	2.8	3.0	3.1	3.4	3.5	3.6	3.8	3.9	4.0	4.2	4.3	4.5	4.6	4.7	5.1
	With brake	3.4	3.5	3.7	3.8	4.1	4.2	4.3	4.5	4.6	4.7	4.9	5.0	5.2	5.3	5.4	5.8

* The suction port fitting (ZW-L8-8-P4) is an attachment.
* Use the product with air intake of 30.0Nℓ/min or less from the intake port.

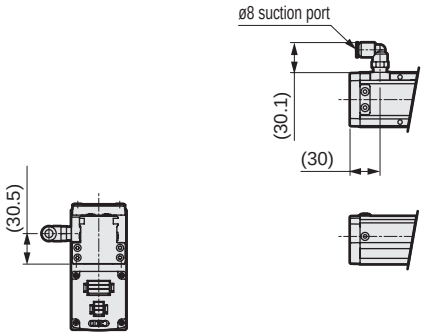
Dimensions Bottom motor mounting

EBS-05GD-P4

*1 Operating range to the mechanical stopper



EBS-05GD-*-*-*C-P4



Stroke code		0250	0300	0350	0400	0450	0500	0550	0600	0650	0700	0750	0800
Stroke length (mm)		250	300	350	400	450	500	550	600	650	700	750	800
L		457.5	507.5	557.5	607.5	657.5	707.5	757.5	807.5	857.5	907.5	957.5	1007.5
A		25	75	25	75	25	75	25	75	25	75	25	75
M		2	2	3	3	4	4	5	5	6	6	7	7
N		8	8	10	10	12	12	14	14	16	16	18	18
P		225	275	325	375	425	475	525	575	625	675	725	775
Weight (kg)	Without brake	3.4	3.5	3.6	3.8	3.9	4.0	4.2	4.3	4.5	4.6	4.7	5.1
	With brake	4.1	4.2	4.3	4.5	4.6	4.7	4.9	5.0	5.2	5.3	5.4	5.8

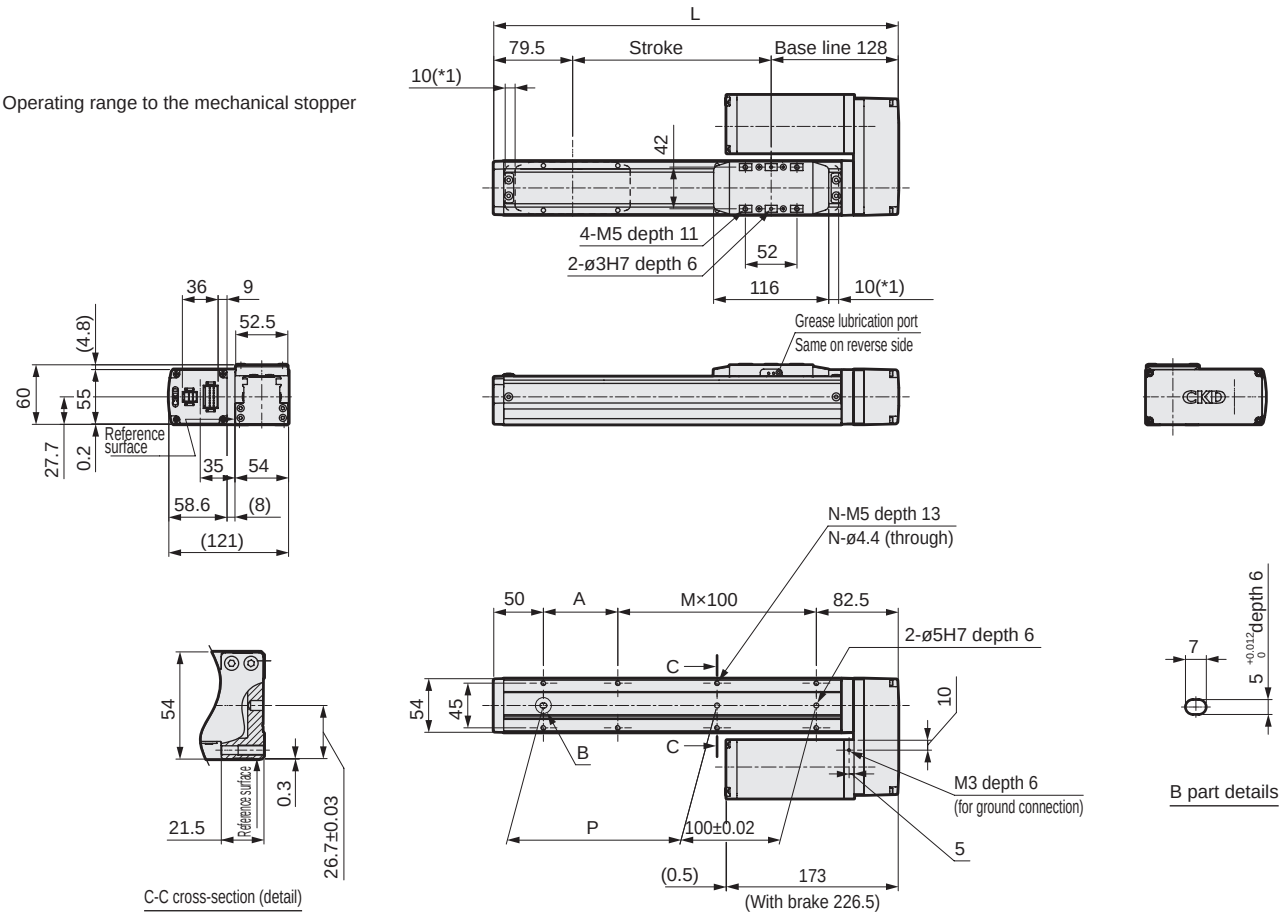
* The suction port fitting (ZW-L8-8-P4) is an attachment.
* Use the product with air intake of 30.0Nℓ/min or less from the intake port.

EBS-05G*-P4

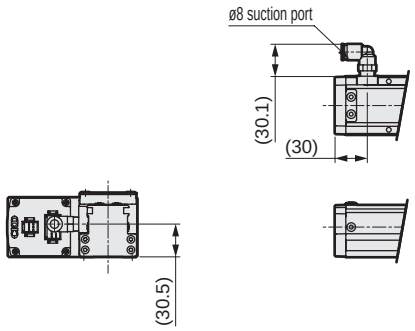
Dimensions Left motor mounting

● EBS-05GL-P4

*1 Operating range to the mechanical stopper



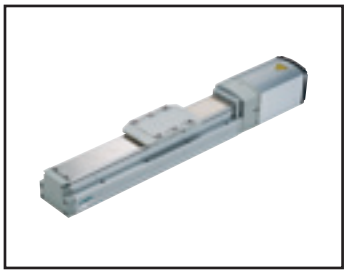
● EBS-05GL-*-*-*C-P4



Stroke code		0050	0100	0150	0200	0250	0300	0350	0400	0450	0500	0550	0600	0650	0700	0750	0800
Stroke length (mm)		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L		257.5	307.5	357.5	407.5	457.5	507.5	557.5	607.5	657.5	707.5	757.5	807.5	857.5	907.5	957.5	1007.5
A		25	75	25	75	25	75	25	75	25	75	25	75	25	75	25	75
M		1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
N		6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
P		25	75	125	175	225	275	325	375	425	475	525	575	625	675	725	775
Weight (kg)	Without brake	2.7	2.8	3.0	3.1	3.4	3.5	3.6	3.8	3.9	4.0	4.2	4.3	4.5	4.6	4.7	5.1
	With brake	3.4	3.5	3.7	3.8	4.1	4.2	4.3	4.5	4.6	4.7	4.9	5.0	5.2	5.3	5.4	5.8

* The suction port fitting (ZW-L8-8-P4) is an attachment.
* Use the product with air intake of 30.0Nℓ/min or less from the intake port.
*2: 50 mm stroke length cannot be selected for types with fittings.

Notes



Electric actuator Slider

EBS-08GE-P4

Straight motor mounting

☐56 Stepper motor

How to order

EBS - 08 G E - 05 0300 N B N - C S03 - U C - P4

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

(A) Body size

08	Body width 82mm

(B) Applicable controller *1

G	ECG

(C) Motor mounting direction

E	Straight mounting

(D) Screw lead

05	5 mm
10	10 mm
20	20 mm

(E) Stroke

0050 to 1100	50 mm (In 50 mm increments) 1100 mm

(F) Brake *2

N	None
B	Yes

(G) Encoder

B	Battery-less absolute encoder
C	Incremental encoder

(H) Relay cable *3

N00	None
S01	Fixing cable 1 m
S03	Fixing cable 3 m
S05	Fixing cable 5 m
S10	Fixing cable 10 m
R 01	Movable cable 1 m
R 03	Movable cable 3 m
R 05	Movable cable 5 m
R 10	Movable cable 10 m

(I) Anti-rust treatment *4

N	None
U	Yes

(J) Fitting

N	None
C	Yes

*1 Select the controller from page 85.
*2 When using vertically"Yes".
*3 Refer to page 96 for relay cable dimensions.
*4 Positioning pin holes may not be surface treated.

Specifications

Motor		☐56 Stepper motor		
Encoder type		Battery-less absolute encoder Incremental encoder		
Drive method		Ball screw ø16		
Stroke	mm	50 to 1100		
Screw lead	mm	5	10	20
Max. workload kg *1	Horizontal	80.0	70.0	30.0
	Vertical	43.3	28.3	3.3
Operation speed range *2	mm/s	6 to 120	12 to 200	25 to 400
Maximum pushing force	N	965	482	241
Pressing operation speed range	mm/s	5 to 20	5 to 20	5 to 20
Repeatability	mm	±0.01		
Lost motion	mm	0.1 or less		
Static allowable moment	N·m	MP:203 MY:203 MR:336		
Motor power supply voltage		24 VDC ±10%		
Motor section max. instantaneous current	A	4.0		
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC ±10%		
	Power consumption W	7.2		
	Holding force N	768	384	192
Insulation resistance		10 MΩ, 500 VDC		
Withstand voltage		500 VAC for 1 minute		
Operating ambient temperature		10 to 40 °C (no freezing)		
Storage ambient temperature		-10 to 50°C (no freezing)		
Atmosphere		No corrosive gas, explosive gas, or dust		
Degree of protection		IP40		

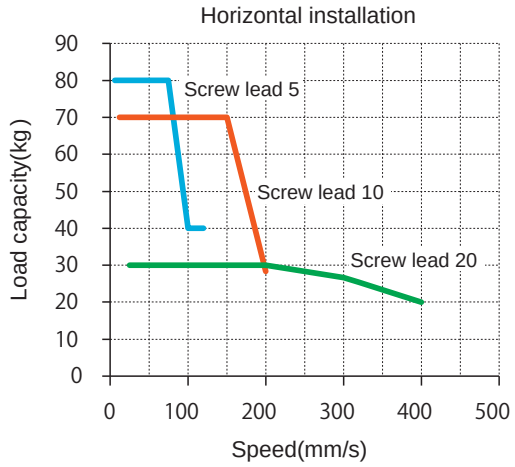
*1 Load capacity varies according to acceleration/deceleration and speed.Refer to pages 40 and 41 for details.
*2 The maximum speed may decrease depending on the conditions.

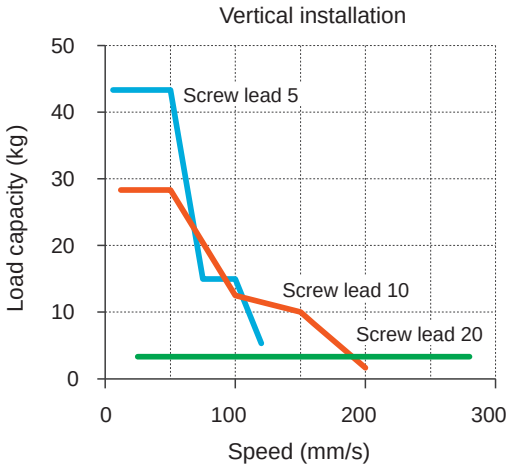
Stroke and max. speed

(mm/s)

Screw lead	Stroke		
	50 to 1000	1050	1100
5	120	110	100
10	200	200	200
20	400	400	400

Speed and load capacity

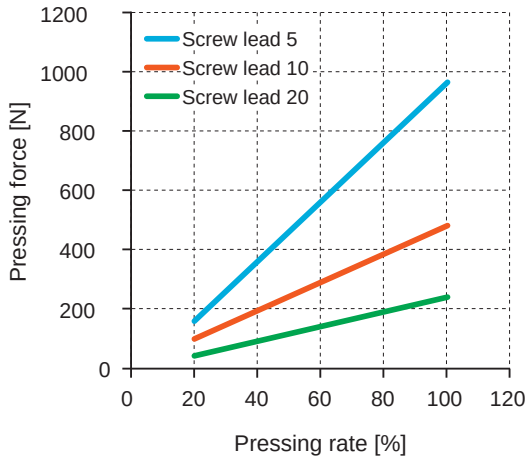




* Acceleration/Deceleration 0.3G.

* Refer to pages 40 and 41 for details.

Pressing force

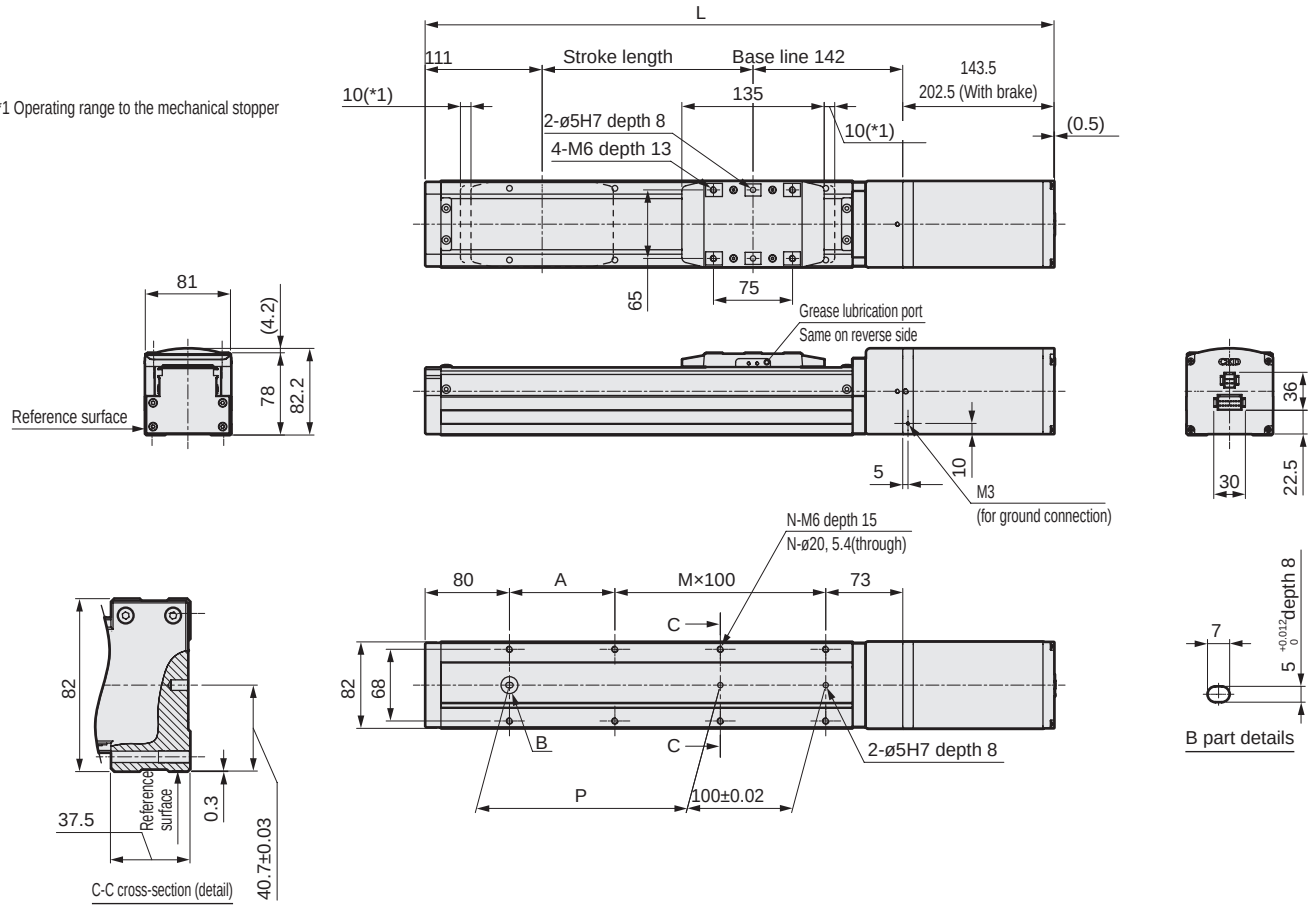


*The above pressing force is a reference value. Variation may occur according to conditions such as pressing speed.

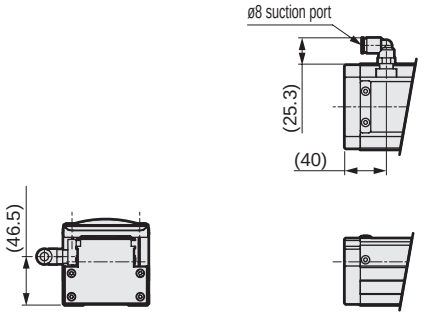
EBS-08GE-P4

Dimensions Straight motor mounting

● EBS-08GE-P4



● EBS-08GE-*-*-*C-P4



Stroke code		0050	0100	0150	0200	0250	0300	0350	0400	0450	0500	0550	0600	0650	0700	0750	0800	0850	0900	0950	1000	1050	1100
Stroke length (mm)		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
L	Without brake	446.5	496.5	546.5	596.5	646.5	696.5	746.5	796.5	846.5	896.5	946.5	996.5	1046.5	1096.5	1146.5	1196.5	1246.5	1296.5	1346.5	1396.5	1446.5	1496.5
	With brake	505.5	555.5	605.5	655.5	705.5	755.5	805.5	855.5	905.5	955.5	1005.5	1055.5	1105.5	1155.5	1205.5	1255.5	1305.5	1355.5	1405.5	1455.5	1505.5	1555.5
A		50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M		1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11
N		6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20	22	22	24	24	26	26
P		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100
Weight (kg)	Without brake	6.7	7.0	7.3	7.6	8.0	8.3	8.6	9.0	9.3	9.6	9.9	10.3	10.6	10.9	11.2	11.6	11.9	12.2	12.6	12.9	13.2	13.5
	With brake	8.0	8.3	8.6	8.9	9.3	9.6	9.9	10.3	10.6	10.9	11.2	11.6	11.9	12.2	12.5	12.9	13.2	13.5	13.9	14.2	14.5	14.8

* The suction port fitting (ZW-L8-8-P4) is an attachment.
* Use the product with air intake of 30.0Nℓ/min or less from the intake port.

Notes

Electric actuator Slider

EBS-08G*-P4

Motor side mounting (left, right, bottom)

☐56 Stepper motor

How to order

EBS - 08 G R - 05 0300 N B N - C S03 - U C - P4

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

(A) Body size

08	Body width 82mm

(B) Applicable controller *1

G	ECG

(C) Motor mounting direction *2

R	Right mounting
D	Bottom mounting
L	Left mounting

(D) Screw lead

05	5 mm
10	10 mm
20	20 mm

(E) Stroke *2

0050 to 1100	50 mm (In 50 mm increments) 1100 mm

(F) Brake *3

N	None
B	Yes

(G) Encoder

B	Battery-less absolute encoder
C	Incremental encoder

(H) Relay cable *4

N00	None
S01	Fixing cable 1 m
S03	Fixing cable 3 m
S05	Fixing cable 5 m
S10	Fixing cable 10 m
R 01	Movable cable 1 m
R 03	Movable cable 3 m
R 05	Movable cable 5 m
R 10	Movable cable 10 m

(I) Anti-rust treatment *5

N	None
U	Yes

(J) Fitting

N	None
C	Yes

*1 Select the controller from page 85.
*2 Motor mounting direction "D" If you select, the stroke length is "0250 (250 mm)" to "1100(1100mm)"is the selection.
*3 When using vertically, select "Yes".
*4 Refer to page 96 for relay cable dimensions.
*5 Positioning pin holes may not be surface treated.

Specifications

Motor		☐56 Stepper motor		
Encoder type		Battery-less absolute encoder Incremental encoder		
Drive method		Ball screw ø16		
Stroke	mm	50 to 1100		
Screw lead	mm	5	10	20
Max. workload kg *1	Horizontal	80.0	70.0	30.0
	Vertical	33.3	18.3	3.3
Operation speed range *2	mm/s	6 to 100	12 to 200	25 to 320
Maximum pushing force	N	965	482	241
Pressing operation speed range	mm/s	5 to 20	5 to 20	5 to 20
Repeatability	mm	±0.01		
Lost motion	mm	0.1 or less		
Static allowable moment	N·m	MP:203 MY:203 MR:336		
Motor power supply voltage		24 VDC ±10%		
Motor section max. instantaneous current	A	4.0		
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC ±10%		
	Power consumption W	7.2		
	Holding force N	768	384	192
Insulation resistance		10 MΩ, 500 VDC		
Withstand voltage		500 VAC for 1 minute		
Operating ambient temperature		10 to 40 °C (no freezing)		
Storage ambient temperature		-10 to 50°C (no freezing)		
Atmosphere		No corrosive gas, explosive gas, or dust		
Degree of protection		IP40		

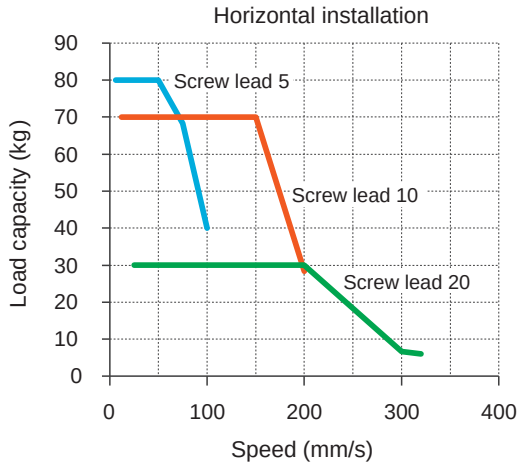
*1 Load capacity varies according to acceleration/deceleration and speed.Refer to pages 40 and 41 for details.
*2 The maximum speed may decrease depending on the conditions.

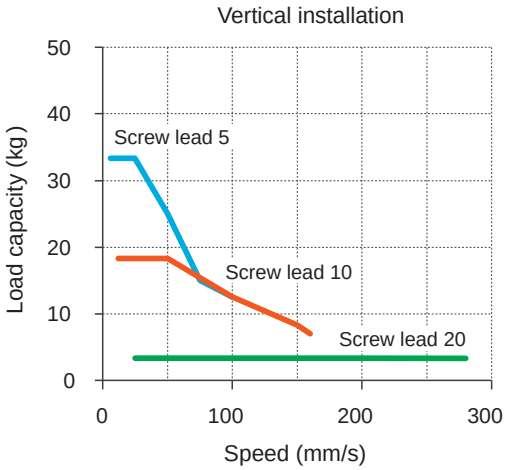
Stroke and max. speed

(mm/s)

Screw lead	Stroke
	50 to 1100
5	100
10	200
20	320

Speed and load capacity

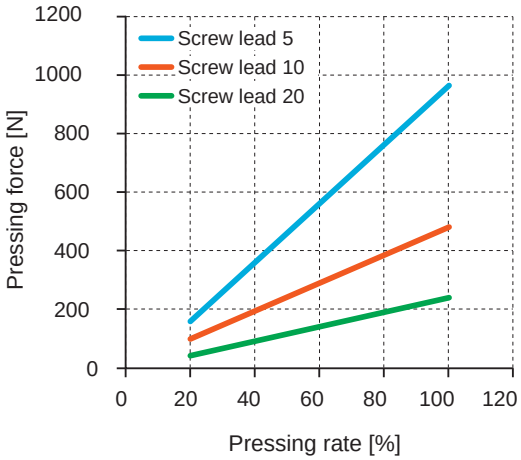




* Acceleration/Deceleration 0.3G.

* Refer to pages 40 and 41 for details.

Pressing force



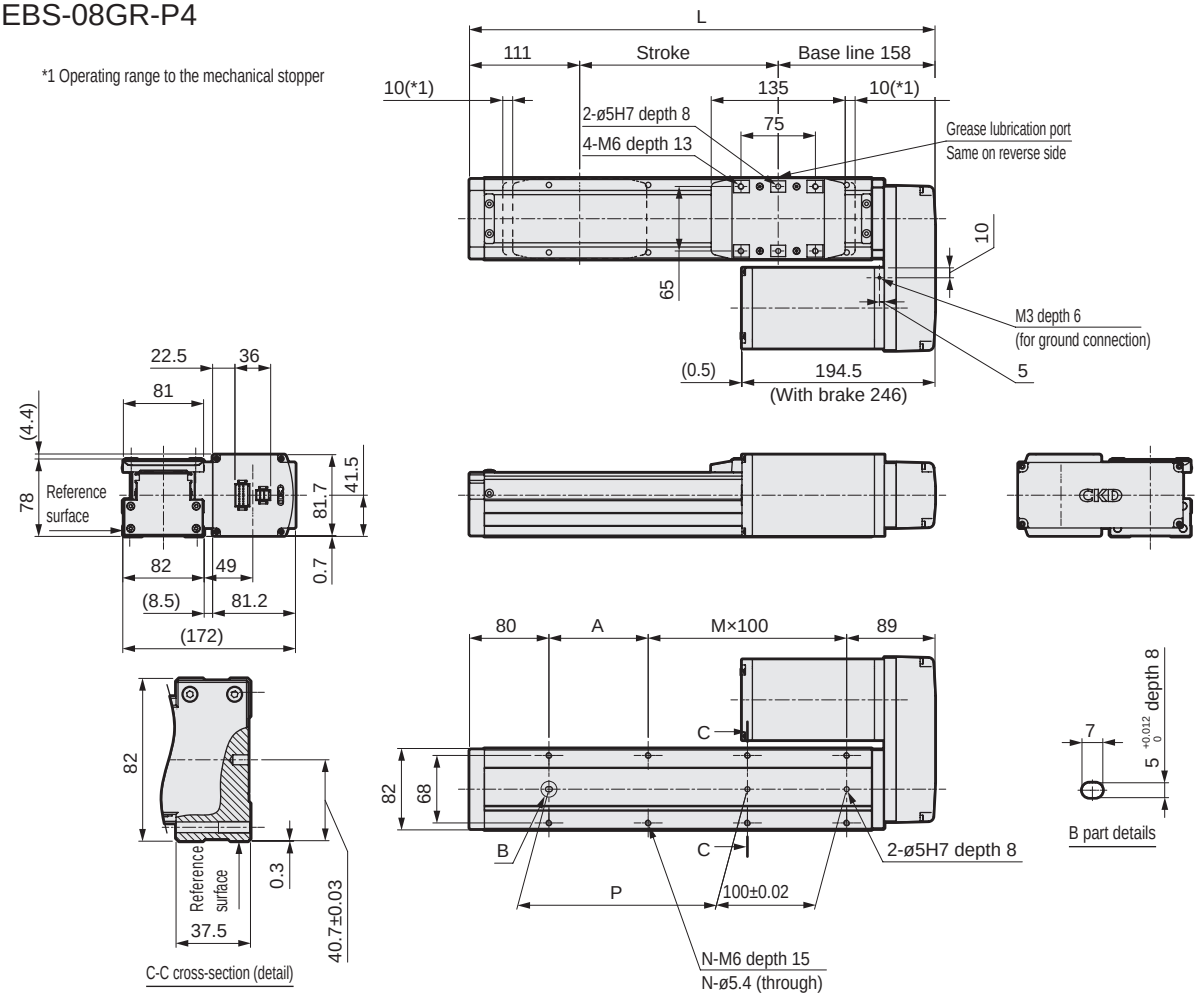
*The above pressing force is a reference value. Variation may occur according to conditions such as pressing speed.

EBS-08G*-P4

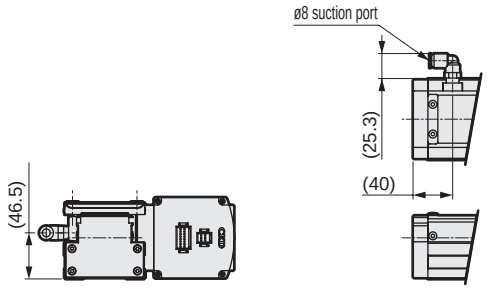
Dimensions Right motor mounting

● EBS-08GR-P4

*1 Operating range to the mechanical stopper



● EBS-08GR-*-*-*C-P4



Stroke code		0050	0100	0150	0200	0250	0300	0350	0400	0450	0500	0550	0600	0650	0700	0750	0800
Stroke length (mm)		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L		319	369	419	469	519	569	619	669	719	769	819	869	919	969	1019	1069
A		50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M		1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
N		6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
P		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Weight (kg)	Without brake	5.7	6.1	6.5	6.8	7.2	7.5	7.8	8.2	8.5	8.8	9.2	9.5	9.9	10.2	10.5	10.8
	With brake	7.0	7.4	7.8	8.1	8.5	8.8	9.1	9.5	9.8	10.1	10.5	10.8	11.2	11.5	11.8	12.1

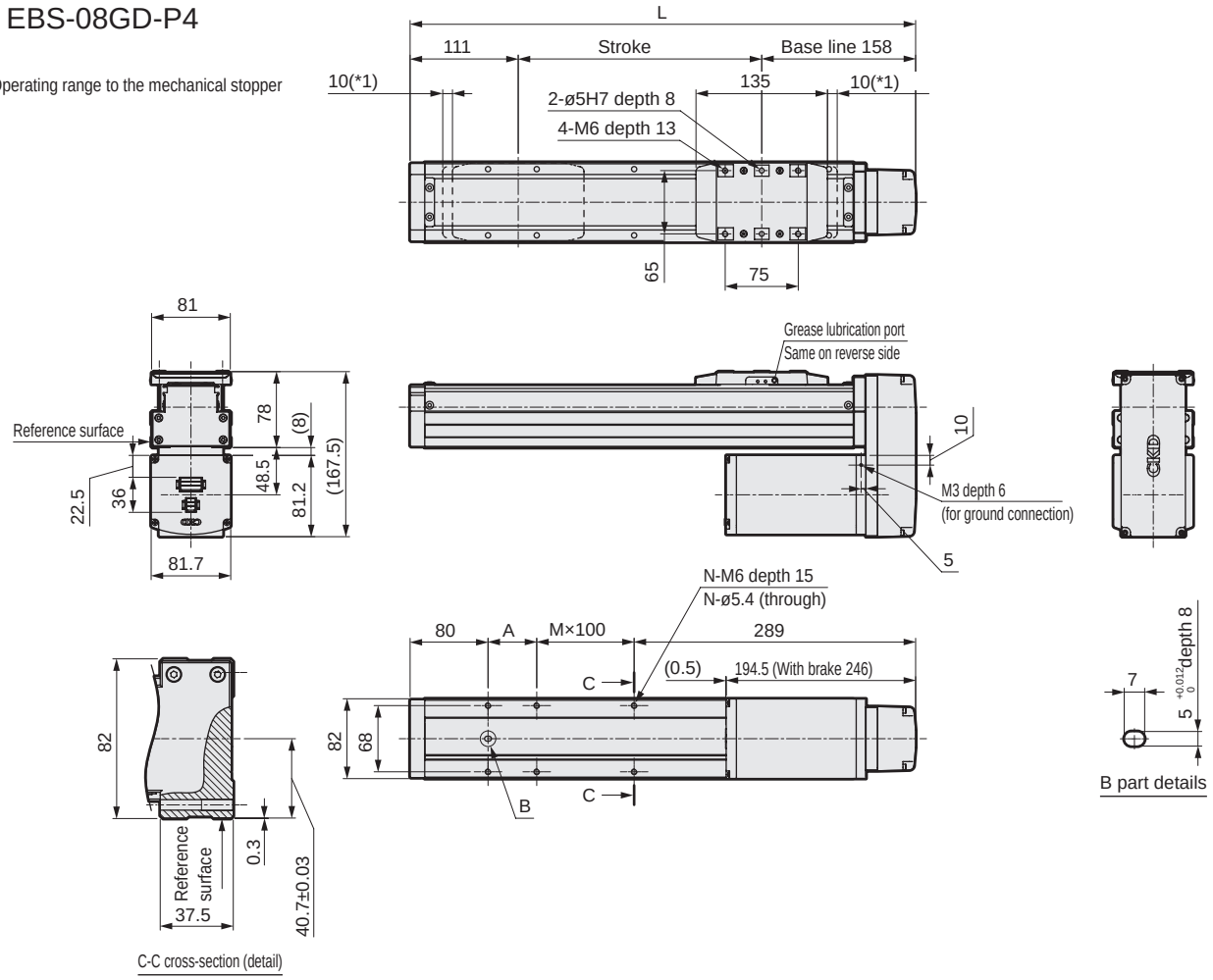
Stroke code		0850	0900	0950	1000	1050	1100
Stroke length (mm)		850	900	950	1000	1050	1100
L		1119	1169	1219	1269	1319	1369
A		50	100	50	100	50	100
M		9	9	10	10	11	11
N		22	22	24	24	26	26
P		850	900	950	1000	1050	1100
Weight (kg)	Without brake	11.2	11.4	11.8	12.1	12.5	12.9
	With brake	12.5	12.7	13.1	13.4	13.8	14.2

* The suction port fitting (ZW-L8-8-P4) is an attachment.
* Use the product with air intake of 30.0Nℓ/min or less from the intake port.

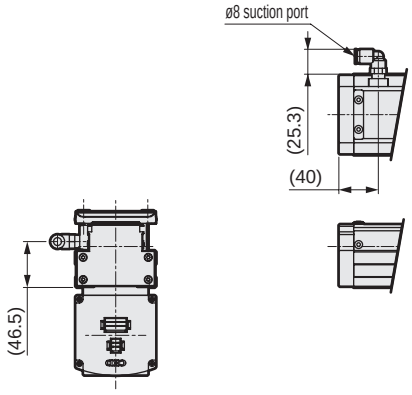
Dimensions Bottom motor mounting

EBS-08GD-P4

*1 Operating range to the mechanical stopper



EBS-08GD-*-*-*C-P4



Stroke code		0250	0300	0350	0400	0450	0500	0550	0600	0650	0700	0750	0800	0850	0900	0950	1000
Stroke length (mm)		250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
L		519	569	619	669	719	769	819	869	919	969	1019	1069	1119	1169	1219	1269
A		50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M		1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
N		6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
Weight (kg)	Without brake	7.2	7.5	7.8	8.2	8.5	8.8	9.2	9.5	9.9	10.2	10.5	10.8	11.2	11.4	11.8	12.1
	With brake	8.5	8.8	9.1	9.5	9.8	10.1	10.5	10.8	11.2	11.5	11.8	12.1	12.5	12.7	13.1	13.4

Stroke code		1050	1100
Stroke length (mm)		1050	1100
L		1319	1369
A		50	100
M		9	9
N		22	22
Weight (kg)	Without brake	12.5	12.9
	With brake	13.8	14.2

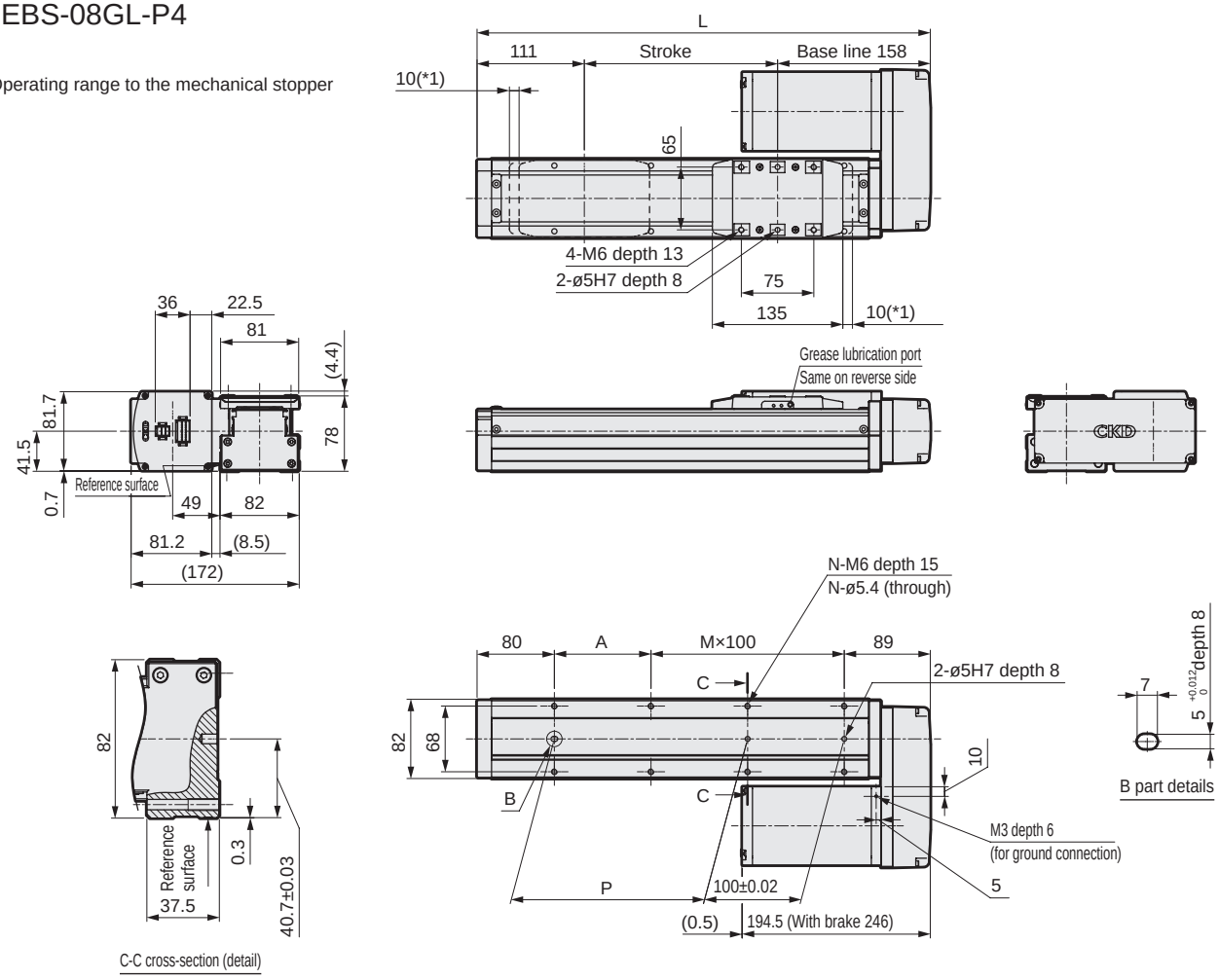
* The suction port fitting (ZW-L8-8-P4) is an attachment.
* Use the product with air intake of 30.0Nℓ/min or less from the intake port.

EBS-08G*-P4

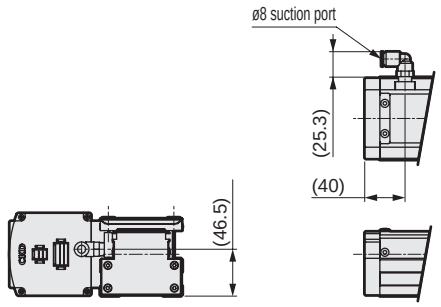
Dimensions Left motor mounting

● EBS-08GL-P4

*1 Operating range to the mechanical stopper



● EBS-08GL-*-*-*C-P4



Stroke code		0050	0100	0150	0200	0250	0300	0350	0400	0450	0500	0550	0600	0650	0700	0750	0800
Stroke length (mm)		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L		319	369	419	469	519	569	619	669	719	769	819	869	919	969	1019	1069
A		50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M		1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
N		6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
P		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Weight (kg)	Without brake	5.7	6.1	6.5	6.8	7.2	7.5	7.8	8.2	8.5	8.8	9.2	9.5	9.9	10.2	10.5	10.8
	With brake	7.0	7.4	7.8	8.1	8.5	8.8	9.1	9.5	9.8	10.1	10.5	10.8	11.2	11.5	11.8	12.1

Stroke code		0850	0900	0950	1000	1050	1100
Stroke length (mm)		850	900	950	1000	1050	1100
L		1119	1169	1219	1269	1319	1369
A		50	100	50	100	50	100
M		9	9	10	10	11	11
N		22	22	24	24	26	26
P		850	900	950	1000	1050	1100
Weight (kg)	Without brake	11.2	11.4	11.8	12.1	12.5	12.9
	With brake	12.5	12.7	13.1	13.4	13.8	14.2

* The suction port fitting (ZW-L8-8-P4) is an attachment.
* Use the product with air intake of 30.0Nℓ/min or less from the intake port.

Notes

Model selection

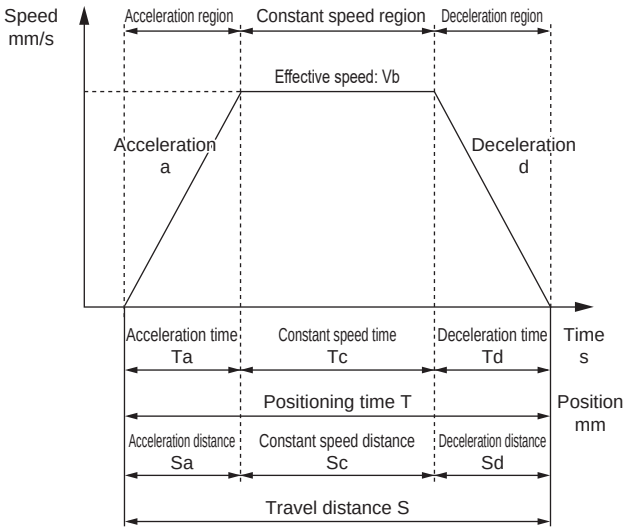
STEP 1 Confirming load capacity

Load capacity varies with mounting orientation, screw lead, transport speed and acceleration/deceleration. Refer to the Series Variation (pages 2 and 3), the specification table for each model and the Table of Load Capacity by Speed and Acceleration/Deceleration to select the size and screw lead.

STEP 2 Confirming positioning time

Calculate the positioning time with the selected product according to the following example and confirm that the required tact is achievable.

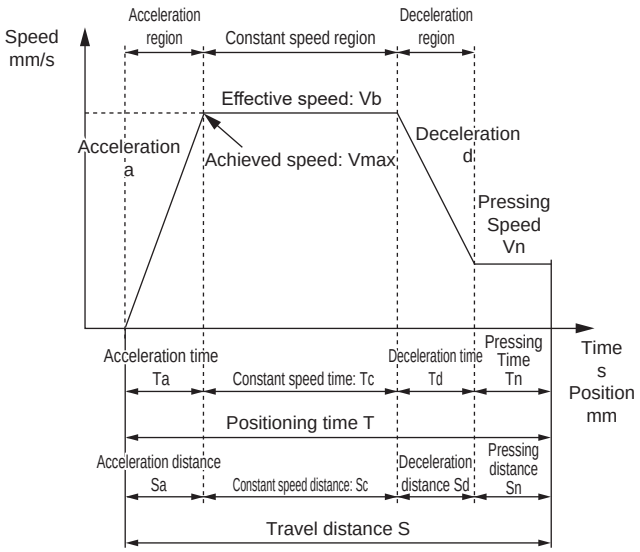
Positioning time for general transport operation



	Description	Code	Unit	Remarks
Set value	Set speed	V	mm/s	
	Set acceleration	a	mm/s^2	
	Set deceleration	d	mm/s^2	
	Travel distance	S	mm	
Calculated value	Achieved speed	Vmax	mm/s	$=\{2\times a\times d\times S/(a+d)\}^{1/2}$
	Effective speed	Vb	mm/s	Smaller of V and Vmax
	Acceleration time	Ta	s	=Vb/a
	Deceleration time	Td	s	=Vb/d
	Constant speed time	Tc	s	=Sc/Vb
	Acceleration distance	Sa	mm	$=(a\times Ta^2)/2$
	Deceleration distance	Sd	mm	$=(d\times Td^2)/2$
	Constant speed distance	Sc	mm	=S-(Sa+Sd)
	Positioning time	T	s	=Ta+Tc+Td

* Do not use at speeds that exceed the specifications.
* Depending on acceleration/deceleration and stroke length, the trapezoidal speed waveform may not be formed (the set speed may not be achieved). In this case, select the effective speed (Vb) from the set speed (V) and the achieved speed (Vmax), whichever is smaller.
* Acceleration and deceleration differ depending on the product and working conditions. Refer to pages 40 and 41 for details.
* While settling time depends on working conditions, it may take 0.2 seconds or so.
* 1G≈9.8m/s^2.

Positioning time for pressing operation



	Description	Code	Unit	Remarks
Set value	Set speed	V	mm/s	
	Set acceleration	a	mm/s^2	
	Set deceleration	d	mm/s^2	
	Travel distance	S	mm	
	Pressing speed	Vn	mm/s	
	Pressing distance	Sn	mm	
Calculated value	Achieved speed	Vmax	mm/s	$=\{2\times a\times d\times(S-Sn+Vn^2/2/d)/(a+d)\}^{1/2}$
	Effective speed	Vb	mm/s	The lesser value of V and Vmax
	Acceleration time	Ta	s	=Vb/a
	Deceleration time	Td	s	=(Vb-Vn)/d
	Constant speed time	Tc	s	=Sc/Vb
	Pressing time	Tn	s	=Sn/Vn
	Acceleration distance	Sa	mm	$=(a\times Ta^2)/2$
	Deceleration distance	Sd	mm	=((Vb+Vn)×Td)/2
	Constant speed distance	Sc	mm	=S-(Sa+Sd+Sn)
	Positioning time	T	s	=Ta+Tc+Td+Tn

* Do not use at speeds that exceed the specifications.
* Pressing speed differs depending on the product.
* Depending on acceleration/deceleration and stroke length, the trapezoidal speed waveform may not be formed (the set speed may not be achieved). In this case, select the effective speed (Vb) from the set speed (V) and the achieved speed (Vmax), whichever is smaller.
* Acceleration and deceleration differ depending on the product and working conditions. Refer to pages 40 and 41 for details.
* While settling time depends on working conditions, it may take 0.2 seconds or so.
* 1G≈9.8m/s^2.

STEP 3 Confirming static allowable load and moment

Calculate the load and moment that are generated when the table is stopped. Resultant moment (M) according to the formula below$_T$) must be:

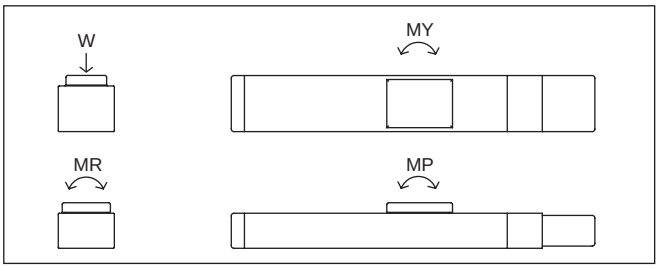
$$M_T=\frac{W}{W\ max}+\frac{MP}{MP\ max}+\frac{MR}{MR\ max}+\frac{MY}{MY\ max}<1$$

Static allowable load and moment

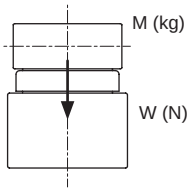
Model No.	Vertical load W max(N)	Pitching moment MP max(N·m)	Yawing moment MY max(N·m)	Rolling moment MR max(N·m)
EBS-04	1030	62	62	92
EBS-05	1168	103	103	144
EBS-08	2781	203	203	336

Calculating static allowable load and moment

How moment is applied

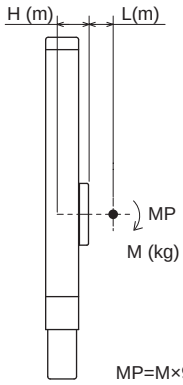


● Vertical load W (N)



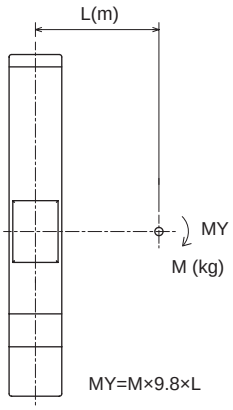
M: Workpiece weight (kg)
W=M×9.8

● Pitching moment MP (N·m)



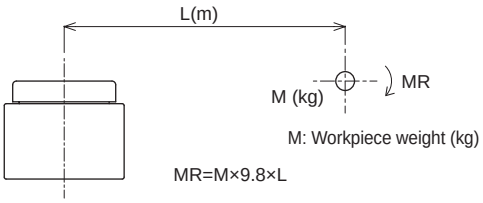
MP=M×9.8×(L+H)

● Yawing moment MY (N·m)

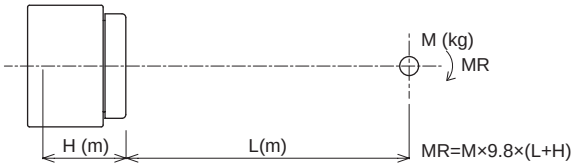


MY=M×9.8×L

● Rolling moment MR (N·m)



M: Workpiece weight (kg)
MR=M×9.8×L



MR=M×9.8×(L+H)

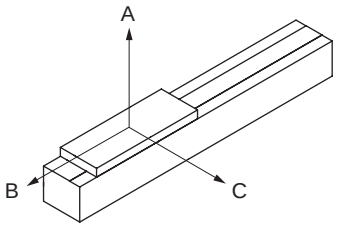
Model No.	H(m)
EBS-04	0.040
EBS-05	0.048
EBS-08	0.052

STEP 4 Checking allowable overhang length

Make sure that the load overhang length during operation is within the allowable range (pages 36 to 38).

Allowable overhang length (EBS-G-P4 Series)

[When installed horizontally]



[Allowable overhang length]

● EBS-04G-P4

Motor Mounting	Acceleration/ Deceleration G	Thread Lead	Load weight kg	Overhang mm		
				A	B	C
Straight / side/ bottom	0.3	6	7	800	115	160
			14	545	55	80
			20	535	40	60
		12	5	800	155	205
			10	555	75	105
			15	545	50	75
	0.7	6	7	530	115	155
			14	465	65	90
			20	410	45	65
		12	5	550	155	195
			10	400	80	110
			11	560	35	25

● EBS-05G-P4

Motor Mounting	Acceleration/ Deceleration G	Thread Lead	Load weight kg	Overhang mm		
				A	B	C
Straight / side/ bottom	0.3	2	15	1000	140	195
			30	900	65	85
			45	690	40	55
		5	13	910	100	135
			26	400	45	55
			40	600	30	45
		10	9	820	135	170
			18	520	65	85
			27	450	45	60
		20	6	855	190	215
			12	900	105	140
			18	1000	85	115
	0.7	2	15	1000	135	185
			30	630	60	85
			45	405	40	55
		5	13	500	100	130
			26	215	40	55
			40	325	30	45
		10	9	450	135	160
			18	295	65	80
			27	240	45	55
		20	3	925	380	395
			5	700	240	270
			8	1000	195	265

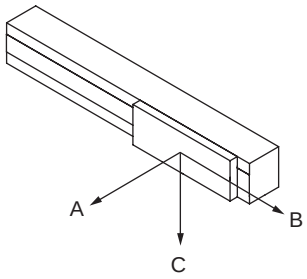
● EBS-08G-P4

Motor Mounting	Acceleration/ Deceleration G	Thread Lead	Load weight kg	Overhang mm		
				A	B	C
Straight / side/ bottom	0.3	5	26	1000	180	295
			53	1000	85	140
			80	1000	50	90
		10	23	1000	180	290
			46	970	85	135
			70	725	55	85
		20	10	1000	380	560
			20	1000	180	265
			30	1000	135	215
	0.7	5	26	1000	180	290
			53	820	85	140
			80	525	50	85
		10	23	1000	180	285
			46	555	85	135
			70	395	55	85
		20	9	1000	435	645
			18	890	210	310
			26	1000	185	300

* Values are when the actuator operating life is 5,000km. (The value of screw lead 2 mm is for when the operating life is 1,000km.)
* The overhang direction is for a single-direction load.
* Dimensions A, B, and C are measured from the center of the table top.
* Values are at maximum speed given stroke of 350 mm and maximum load capacity.
* Load weight may differ depending on motor mounting direction.
* For acceleration/deceleration and load capacity, refer to the Load Capacity by Speed and Acceleration/Deceleration table (pages 40 and 41).

Allowable overhang length (EBS-G-P4 Series)

[When wall-mounted]



[Allowable overhang length]

● EBS-04G-P4

Motor Mounting	Acceleration/ Deceleration G	Thread Lead	Load weight kg	Overhang mm A	B	C
Straight / side/ bottom	0.3	6	7	125	85	800
			14	40	30	425
			20	20	15	370
		12	5	170	125	800
			10	65	45	450
			15	35	25	420
	0.7	6	7	120	85	490
			14	50	35	410
			20	25	15	350
		12	5	165	125	510
			10	75	50	355
			11	55	35	530

● EBS-05G-P4

Motor Mounting	Acceleration/ Deceleration G	Thread Lead	Load weight kg	Overhang mm A	B	C
Straight / side/ bottom	0.3	2	10	240	185	1000
			20	95	65	1000
			30	45	30	865
		5	7	215	160	1000
			13	85	65	775
			20	35	25	395
		10	7	180	140	960
			13	70	55	490
			20	30	20	320
		20	6	175	150	740
			12	95	70	770
			18	70	50	1000
	0.7	2	10	230	185	1000
			20	90	60	800
			30	40	25	525
		5	7	210	160	930
			13	85	65	440
			20	35	25	225
		10	7	170	140	545
			13	75	55	330
			20	30	20	195
		20	3	365	340	880
			5	235	200	650
			8	220	160	1000

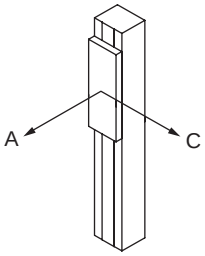
● EBS-08G-P4

Motor Mounting	Acceleration/ Deceleration G	Thread Lead	Load weight kg	Overhang mm A	B	C
Straight / side/ bottom	0.3	5	26	245	150	1000
			53	90	55	1000
			80	35	20	955
		10	23	235	150	1000
			46	85	55	835
			70	35	20	540
		20	10	515	345	1000
			20	220	145	1000
			30	160	100	1000
	0.7	5	26	235	150	1000
			53	90	55	795
			80	35	20	540
		10	23	235	150	1000
			46	85	55	490
			70	35	20	305
		20	9	600	405	1000
			18	270	180	840
			26	250	150	1000

* Values are when the actuator operating life is 5,000km. (The value of screw lead 2 mm is for when the operating life is 1,000km.)
* The overhang direction is for a single-direction load.
* Dimensions A, B, and C are measured from the center of the table top.
* Values are at maximum speed given stroke of 350 mm and maximum load capacity.
* Load weight may differ depending on motor mounting direction.
* For acceleration/deceleration and load capacity, refer to the Load Capacity by Speed and Acceleration/Deceleration table (pages 40 and 41).

Allowable overhang length (EBS-G-P4 Series)

[When installed vertically]



[Allowable overhang length]

● EBS-04G-P4

Motor Mounting	Acceleration/ Deceleration G	Thread Lead	Load weight kg	Overhang mm A	Overhang mm C
Straight / side/ bottom	0.3	6	3	265	260
			6	120	120
			9	80	80
		12	1	790	765
			2	380	370
			3	270	265

● EBS-05G-P4

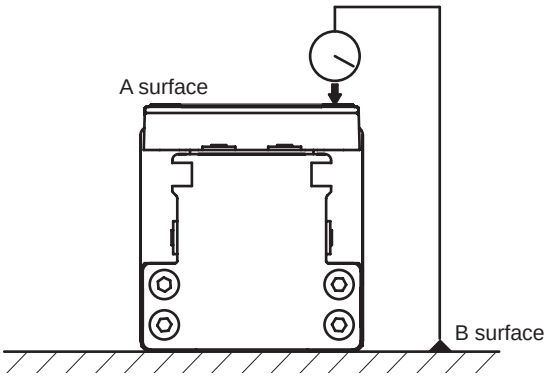
Motor Mounting	Acceleration/ Deceleration G	Thread Lead	Load weight kg	Overhang mm A	Overhang mm C
Straight / side/ bottom	0.3	2	5	410	410
			10	185	185
			15	55	55
		5	5	255	250
			10	125	125
			14	85	85
		10	2	615	600
			4	295	290
			7	165	160
		20	0.7	1000	1000
			1.5	815	780
			2.5	470	450

● EBS-08G-P4

Motor Mounting	Acceleration/ Deceleration G	Thread Lead	Load weight kg	Overhang mm A	Overhang mm C
Straight / side/ bottom	0.3	5	14	320	320
			28	145	145
			43	80	80
		10	9	480	475
			18	245	245
			28	150	150
		20	1	1000	1000
			2	1000	1000
			3	1000	1000

* Values are when the actuator operating life is 5,000km. (The value of screw lead 2 mm is for when the operating life is 1,000km.)
* The overhang direction is for a single-direction load.
* Dimensions A and C are measured from the center of the table top.
* Values are at maximum speed given stroke of 350 mm and maximum load capacity.
* Load weight may differ depending on motor mounting direction.
* For acceleration/deceleration and load capacity, refer to the Load Capacity by Speed and Acceleration/Deceleration table (pages 40 and 41).

Slider parallelism *Reference value

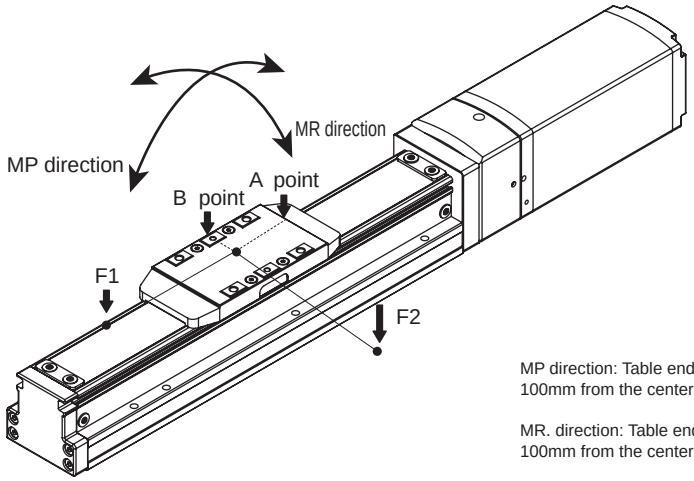


(mm)

	Parallelism
	A surface against B surface
EBS-04 Series	0.03
EBS-05 Series	
EBS-08 Series	

*Parallelism with the product fixed to a surface plate.

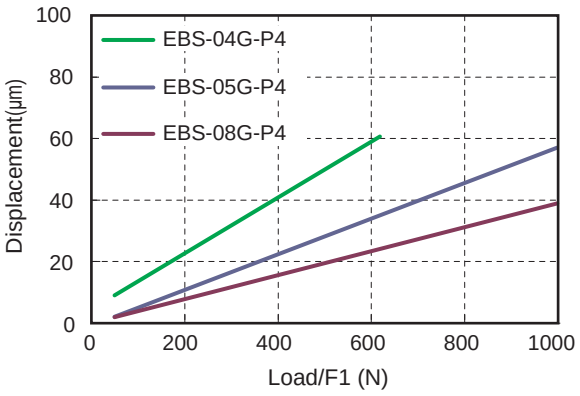
Table deflection *Reference value



MP direction: Table end when load (F1) is applied to a position 100mm from the center of the table(Displacement at point A)

MR. direction: Table end when load (F2) is applied to a position 100mm from the center of the table(Displacement at point B)

Displacement in MP direction



Displacement in MR direction

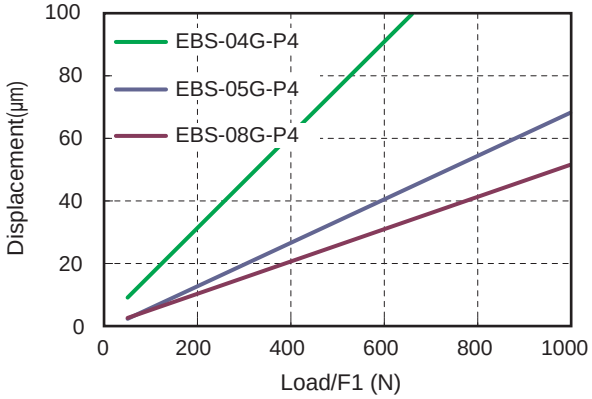


Table of Load Capacity by Speed and Acceleration/Deceleration

[When installed horizontally]

The table below lists the maximum load capacity during acceleration/deceleration and the maximum speed at which operation is possible. Refer to the model that satisfies the required operation conditions.

■EBS-04G-P4

Screw lead 6 (kg)

Speed (mm/s)	Straight		Left/Right/Bottom	
	Acceleration/Deceleration (G)			
	0.3	0.7	0.3	0.7
7	20	20	20	20
50	20	20	20	20
100	20	20	20	20
150	20	12.5	13.3	11.7
200	15	12.5	13.3	10
250	11.7	11.7		
260	10.9	10.9		

Screw lead 12

Speed (mm/s)	Straight		Left/Right/Bottom	
	Acceleration/Deceleration (G)			
	0.3	0.7	0.3	0.7
15	15	11	11.7	10
100	15	11	11.7	10
200	15	10.8	11.7	10
300	10.8	8.3	8.3	8.3
320	9.5	7.5	7.3	7.3
400	4.2	4.2		

■EBS-05G-P4

Screw lead 2

Speed (mm/s)	Straight		Left/Right/Bottom	
	Acceleration/Deceleration (G)			
	0.3	0.7	0.3	0.7
2	45	45	45	45
25	45	45	45	45
50	45	45	45	45
70	45	45	45	45
80	45	45	45	45
100	45	45		

Screw lead 5

Speed (mm/s)	Straight		Left/Right/Bottom	
	Acceleration/Deceleration (G)			
	0.3	0.7	0.3	0.7
6	40	40	40	40
50	40	40	40	40
100	40	40	40	40
150	26.7	26.7	26.7	26.7
200	26.7	26.7	26.7	26.7
230	26.7	26.7		

Screw lead 10

Speed (mm/s)	Straight		Left/Right/Bottom	
	Acceleration/Deceleration (G)			
	0.3	0.7	0.3	0.7
12	27.5	27.5	27.5	27.5
100	27.5	27.5	27.5	27.5
200	27.5	27.5	23.3	20
300	15.8	12.5	11.7	11.7
320	14.6	11.8	10	10
400	10	9.2		

Screw lead 20

Speed (mm/s)	Straight		Left/Right/Bottom	
	Acceleration/Deceleration (G)			
	0.3	0.7	0.3	0.7
25	18.3	8.3	18.3	7.5
100	18.3	8.3	18.3	7.5
300	10	6.7	10	5
500	8.3	5	6.7	4.2
560	7.1	4.3	5.7	3.5
680	4.6	2.8		

■EBS-08G-P4

Screw lead 5

Speed (mm/s)	Straight		Left/Right/Bottom	
	Acceleration/Deceleration (G)			
	0.3	0.7	0.3	0.7
6	80	80	80	80
25	80	80	80	80
50	80	80	80	80
75	80	80	68.3	68.3
100	40	40	40	40
120	40	40		

Screw lead 10

Speed (mm/s)	Straight		Left/Right/Bottom	
	Acceleration/Deceleration (G)			
	0.3	0.7	0.3	0.7
12	70	70	70	70
50	70	70	70	70
100	70	70	70	70
150	70	70	70	30
200	28.3	17.5	28.3	17.5

Screw lead 20

Speed (mm/s)	Straight		Left/Right/Bottom	
	Acceleration/Deceleration (G)			
	0.3	0.7	0.3	0.7
25	30	26.7	30	26.7
100	30	26.7	30	26.7
200	30	18.3	30	18.3
300	26.7	18.3	6.7	6.7
320	25.4	17	6	6
400	20			

Table of Load Capacity by Speed and Acceleration/Deceleration

[When installed vertically]

The table below lists the maximum load capacity during acceleration/deceleration and the maximum speed at which operation is possible. Refer to the model that satisfies the required operation conditions.

■EBS-04G-P4

(kg)

Screw lead 6

Speed (mm/s)	Straight	Left/Right/Bottom
	Acceleration/Deceleration (G)	
	0.3	0.3
7	9.2	9.2
50	9.2	9.2
100	9.2	6.7
150	6.7	3.3
180	5.2	2.8
200	4.2	
220	2.2	

Screw lead 12

Speed (mm/s)	Straight	Left/Right/Bottom
	Acceleration/Deceleration (G)	
	0.3	0.3
15	3.3	3.3
100	3.3	3.3
200	3.3	3.3
280	2.7	2
300	2.5	
350	0.8	
360	0.8	

■EBS-05G-P4

Screw lead 2

Speed (mm/s)	Straight	Left/Right/Bottom
	Acceleration/Deceleration (G)	
	0.3	0.3
2	18.3	18.3
20	18.3	18.3
40	18.3	18.3
60	18.3	16.7
70	11.7	11.7
90	3.3	
100	2.2	

Screw lead 5

Speed (mm/s)	Straight	Left/Right/Bottom
	Acceleration/Deceleration (G)	
	0.3	0.3
6	14	10
50	14	10
100	9.2	8.3
150	7.5	6.7
170	6.2	5
200	4.2	

Screw lead 10

Speed (mm/s)	Straight	Left/Right/Bottom
	Acceleration/Deceleration (G)	
	0.3	0.3
12	7	3.3
100	7	3.3
200	7	2.1
260	4.3	1.6
300	2.5	
325	2.1	
340	2.1	

Screw lead 20

Speed (mm/s)	Straight	Left/Right/Bottom
	Acceleration/Deceleration (G)	
	0.3	0.3
25	2.5	0.8
200	2.5	0.8
400	2.5	0.8

■EBS-08G-P4

Screw lead 5

Speed (mm/s)	Straight	Left/Right/Bottom
	Acceleration/Deceleration (G)	
	0.3	0.3
6	43.3	33.3
25	43.3	33.3
50	43.3	25
75	15	15
100	15	12.5
120	5.3	

Screw lead 10

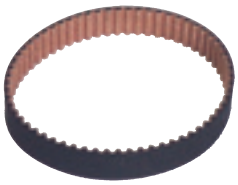
Speed (mm/s)	Straight	Left/Right/Bottom
	Acceleration/Deceleration (G)	
	0.3	0.3
12	28.3	18.3
50	28.3	18.3
100	12.5	12.5
150	10	8.3
160	8.3	7
200	1.7	

Screw lead 20

Speed (mm/s)	Straight	Left/Right/Bottom
	Acceleration/Deceleration (G)	
	0.3	0.3
25	3.3	3.3
100	3.3	3.3
200	3.3	3.3
280	3.3	3.3

Maintenance parts

■ Maintenance parts / motor mounting direction: For right/left/downward mounting (timing belt)

Model No. 	Compatibility
EBS-04MR-BELT	EBS-04GR/D/L
EBS-05MR-BELT	EBS-05GR/D/L
EBS-08MR-BELT	EBS-08GR/D/L

■ Maintenance parts (grease nozzle)

Model No. 	Compatibility
EBS-NOZZLE	All models

■ Maintenance parts (steel belt)

Model No. 	Compatibility
EBS-04-STEELBELT (4-digit stroke code)	EBS-04 (applicable stroke product)
EBS-05-STEELBELT (4-digit stroke code)	EBS-05 (applicable stroke product)
EBS-08-STEELBELT (4-digit stroke code)	EBS-08 (applicable stroke product)

■ Fitting

Model No. 	Compatibility
ZW-L6-6-P4	EBS-04G
ZW-L8-8-P4	EBS-05G/08G

Electric actuator
Motor specifications

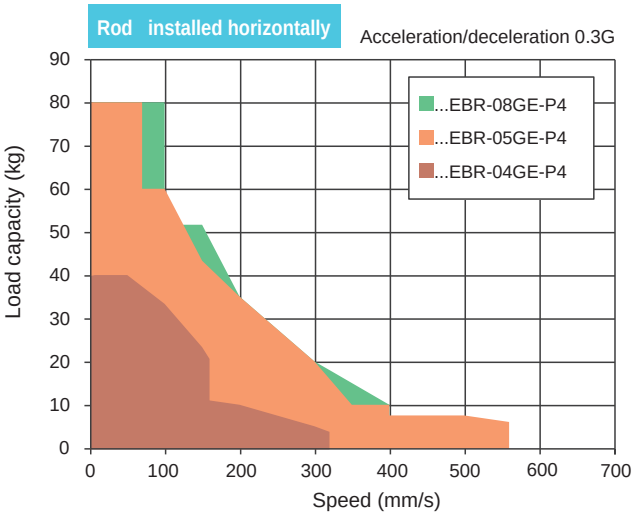
EBR-G-P4

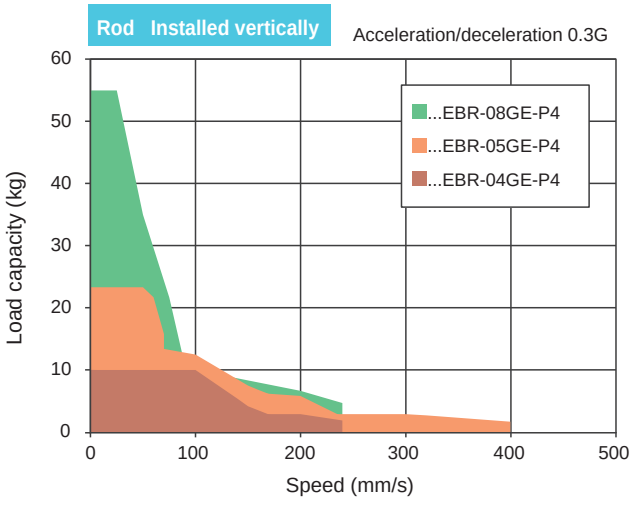
Rod with built-in guide

CONTENTS

Series variation

Controller	Actuator model No.		Motor size	Motor mounting direction	Body width (mm)	Screw lead (mm)	Max. load capacity (kg) Horizontal	Max. load capacity (kg) Vertical	Maximum pushing force (N)	
ECG Series		EBR-04GE-06-P4	□35	Straight	44	6	40.0	10.0	155	
		EBR-04GE-12-P4				12	12.5	2.9	77	
		EBR-04GR/D/L-06-P4		Left/Right/Bottom		6	40.0	8.3	155	
		EBR-04GR/D/L-12-P4				12	12.5	2.9	77	
		EBR-05GE-02-P4	□42	Straight	54	2	80.0	23.3	550	
		EBR-05GE-05-P4				5	60.0	14.0	220	
		EBR-05GE-10-P4				10	41.7	7.0	110	
		EBR-05GE-20-P4				20	11.7	2.9	55	
		EBR-05GR/D/L-02-P4		Left/Right/Bottom		2	80.0	23.3	550	
		EBR-05GR/D/L-05-P4				5	60.0	14.0	220	
		EBR-05GR/D/L-10-P4				10	38.3	6.7	110	
		EBR-05GR/D/L-20-P4				20	11.7	1.7	55	
		EBR-08GE-05-P4	□56	Straight	82	5	80.0	55.0	965	
		EBR-08GE-10-P4				10	70.0	23.3	482	
		EBR-08GE-20-P4				20	35.0	10.0	241	
		EBR-08GR/D/L-05-P4		Left/Right/Bottom		5	80.0	55.0	965	
		EBR-08GR/D/L-10-P4				10	70.0	20.0	482	
		EBR-08GR/D/L-20-P4				20	35.0	8.3	241	





Stroke (mm) and max. speed (mm/s)														Listed page
50 mm	100	150	200	250	300	350	400	450	500	550	600	650	700	
160 mm/s														46
320														
160														50
280														
70														56
240					210									
400														
560														
70														60
200														
320														
480														
100														66
240														
400														
100														70
200														
320														

*This data is at power supply voltage 24 VDC and acceleration/deceleration 0.3 G.
* The load capacity when wall mounted is the same as for horizontal installation.

Electric actuator Rod with built-in guide

EBR-04GE-P4

Straight motor mounting

☐35 stepper motor

How to order

EBR - 04 G E - 00 - 06 0300 N B N - C S03 - C - P4

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

(A) Body size

04	Body width 44mm

(B) Applicable controller *1

G	ECG

(C) Motor mounting direction

E	Straight mounting

(D) Mounting

00	Basic
FA	Rod side flange

(E) Screw lead

06	6 mm
12	12 mm

(F) Stroke

0050 to 0400	50 mm (In 50 mm increments) 400 mm

(G) Brake *2

N	None
B	Yes

(H) Encoder *1

B	Battery-less absolute encoder
C	Incremental encoder

(I) Relay cable *3

N00	None
S01	Fixing cable 1 m
S03	Fixing cable 3 m
S05	Fixing cable 5 m
S10	Fixing cable 10 m
R 01	Movable cable 1 m
R 03	Movable cable 3 m
R 05	Movable cable 5 m
R 10	Movable cable 10 m

(J) Fitting

N	None
C	Yes

*1 Select the controller from page 85.
*2 For vertical use, select "Yes".
*3 Refer to page 96 for relay cable dimensions.

Specifications

Motor		☐35 stepper motor	
Encoder type		Battery-less absolute encoder Incremental encoder	
Drive method		Ball screw ø10	
Stroke	mm	50 to 400	
Screw lead	mm	6	12
Max. workload kg *1	Horizontal	40.0	12.5
	Vertical	10.0	2.9
Operation speed range *2	mm/s	7 to 160	15 to 320
Maximum pushing force	N	155	77
Pressing operation speed range	mm/s	5 to 20	5 to 20
Repeatability	mm	±0.01	
Lost motion	mm	0.1 or less	
Motor power supply voltage		24 VDC ±10%	
Motor section max. instantaneous current	A	2.4	
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC ±10%	
	Power consumption W	6.1	
	Holding force N	140	70
Insulation resistance		10 MΩ, 500 VDC	
Withstand voltage		500 VAC for 1 minute	
Operating ambient temperature		10 to 40 °C (no freezing)	
Storage ambient temperature		-10 to 50°C (no freezing)	
Atmosphere		No corrosive gas, explosive gas, or dust	
Degree of protection		IP40	

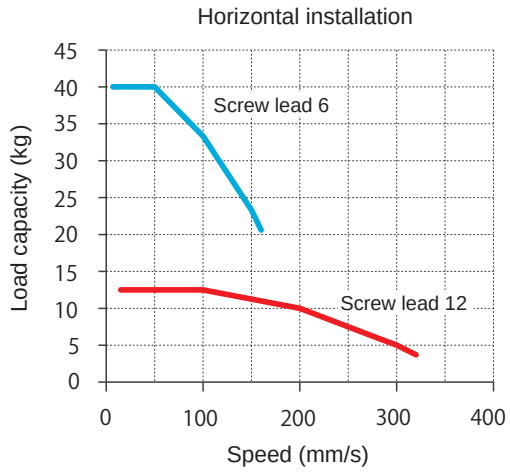
*1 Load capacity varies according to acceleration/deceleration and speed. Refer to pages 82 and 83 for details.
*2 The maximum speed may decrease depending on the conditions.

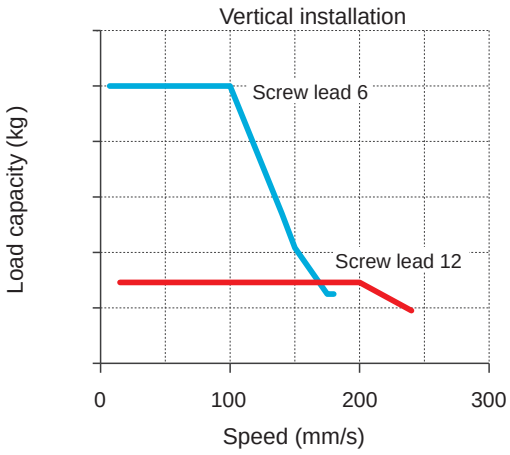
Stroke and max. speed

(mm/s)

Screw lead	Stroke
	50 to 400
6	160
12	320

Speed and load capacity

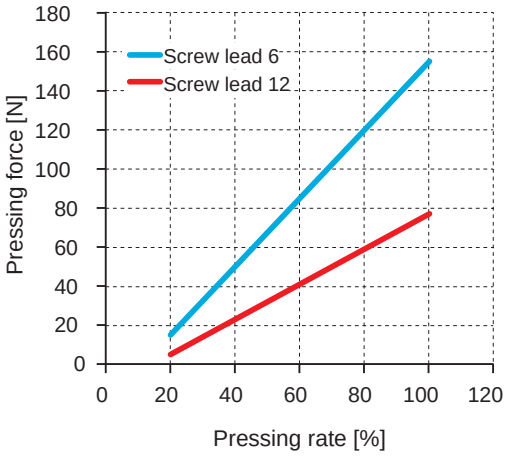




* Acceleration/deceleration 0.3G.

* Refer to pages 82 and 83 for details.

Pressing force

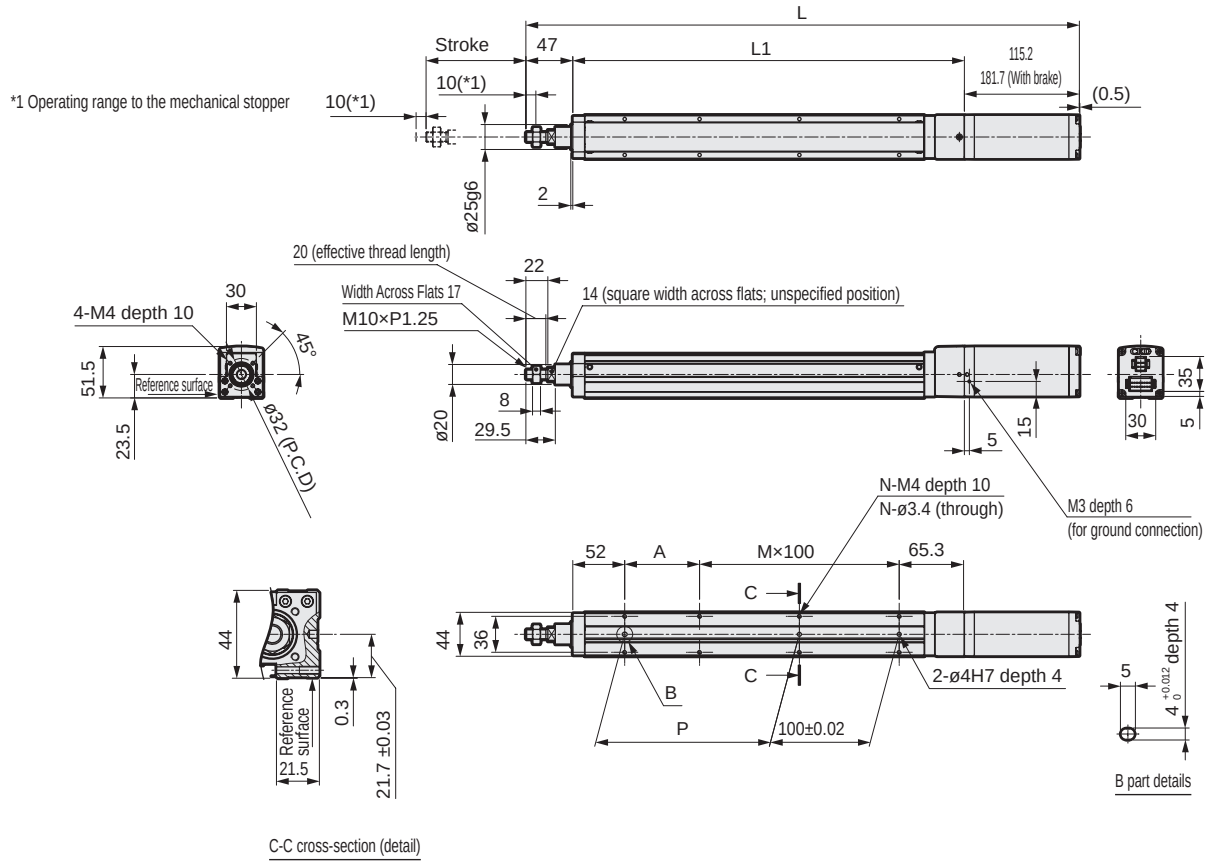


*The above pressing force is a reference value. Variation may occur according to conditions such as pressing speed.

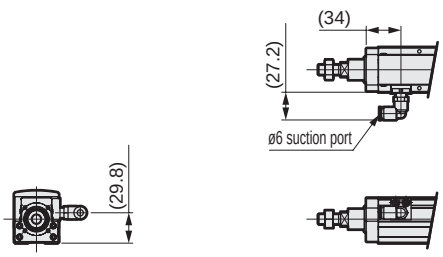
EBR-04GE-P4

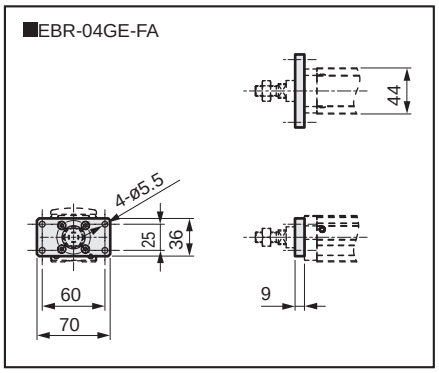
Dimensions Straight motor mounting

● EBR-04GE-P4



● EBR-04GE-*-*-*-C-P4





Stroke code		0050	0100	0150	0200	0250	0300	0350	0400
Stroke length (mm)		50	100	150	200	250	300	350	400
L	Without brake	404.5	454.5	504.5	554.5	604.5	654.5	704.5	754.5
	With brake	471	521	571	621	671	721	771	821
L1		242.3	292.3	342.3	392.3	442.3	492.3	542.3	592.3
A		25	75	25	75	25	75	25	75
M		1	1	2	2	3	3	4	4
N		6	6	8	8	10	10	12	12
P		25	75	125	175	225	275	325	375
Weight (kg)	Without brake	1.6	1.8	1.9	2.1	2.2	2.4	2.5	2.7
	With brake	2.1	2.3	2.4	2.6	2.7	2.9	3.0	3.2

* The suction port fitting (ZW-L6-6-P4) is an attachment.
* Use the product with air intake of 30.0Nℓ/min or less from the intake port.

Notes

Electric actuator Rod with built-in guide

EBR-04G*-P4

Motor side mounting (left, right, bottom)

☐35 stepper motor

How to order

EBR - 04 G R - 00 - 06 0300 N B N - C S03 - C - P4

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

(A) Body size

04	Body width 44mm

(B) Applicable controller *1

G	ECG

(C) Motor mounting direction *2*3

R	Right mounting
D	Bottom mounting
L	Left mounting

(D) Mounting

00	Basic
FA	Rod side flange

(E) Screw lead

06	6 mm
12	12 mm

(F) Stroke *2*3

0050 to 0400	50 mm (In 50 mm increments) 400 mm

(G) Brake *4

N	None
B	Yes

(H) Encoder

B	Battery-less absolute encoder
C	Incremental encoder

(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
R 01	Movable cable 1 m
R 03	Movable cable 3 m
R 05	Movable cable 5 m
R 10	Movable cable 10 m

(J) Fitting *3

N	None
C	Yes

*1 Select the controller from page 85.
*2 When the motor mounting direction "D" is selected, the stroke length will be a selection from "0250 (250 mm)" to "0400 (400 mm)".
*3 For the motor mounting direction "R" and "C" with fittings, 0050 (50 mm stroke length) cannot be selected.
*4 When using vertically, select "Yes".
*5 Refer to page 96 for relay cable dimensions.

Specifications

Motor		☐35 stepper motor	
Encoder type		Battery-less absolute encoder Incremental encoder	
Drive method		Ball screw ø10	
Stroke	mm	50 to 400	
Screw lead	mm	6	12
Max. workload kg *1	Horizontal	40.0	12.5
	Vertical	8.3	2.9
Operation speed range *2	mm/s	7 to 160	15 to 280
Maximum pushing force	N	155	77
Pressing operation speed range	mm/s	5 to 20	5 to 20
Repeatability	mm	±0.01	
Lost motion	mm	0.1 or less	
Motor power supply voltage		24 VDC ±10%	
Motor section max. instantaneous current	A	2.4	
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC ±10%	
	Power consumption W	6.1	
	Holding force N	140	70
Insulation resistance		10 MΩ, 500 VDC	
Withstand voltage		500 VAC for 1 minute	
Operating ambient temperature		10 to 40 °C (no freezing)	
Storage ambient temperature		-10 to 50°C (no freezing)	
Atmosphere		No corrosive gas, explosive gas, or dust	
Degree of protection		IP40	

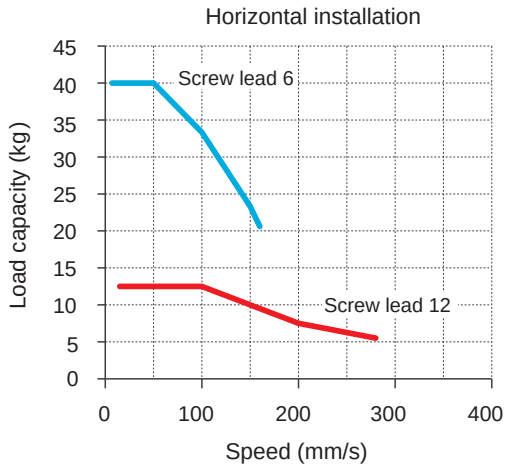
*1 Load capacity varies according to acceleration/deceleration and speed. Refer to pages 82 and 83 for details.
*2 The maximum speed may decrease depending on the conditions.

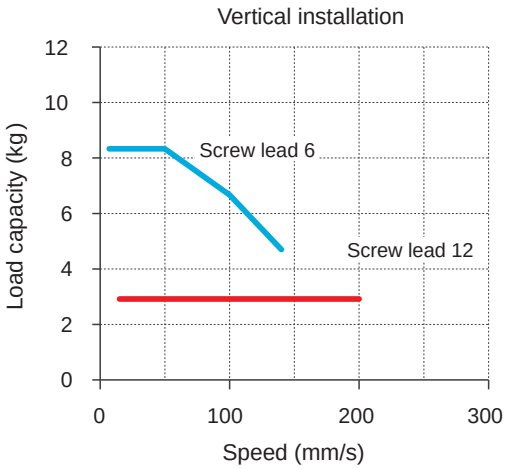
Stroke and max. speed

(mm/s)

Screw lead	Stroke
	50 to 400
6	160
12	280

Speed and load capacity

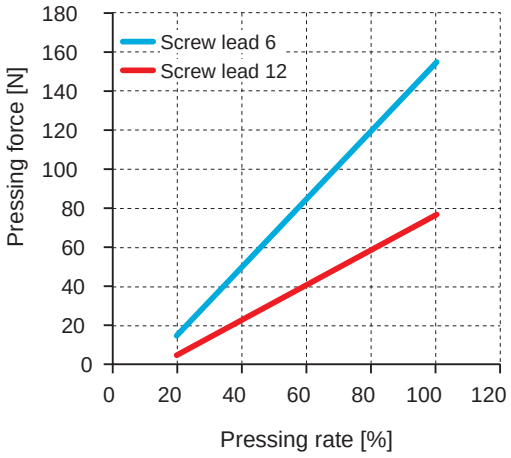




* Acceleration/deceleration 0.3G.

* Refer to pages 82 and 83 for details.

Pressing force



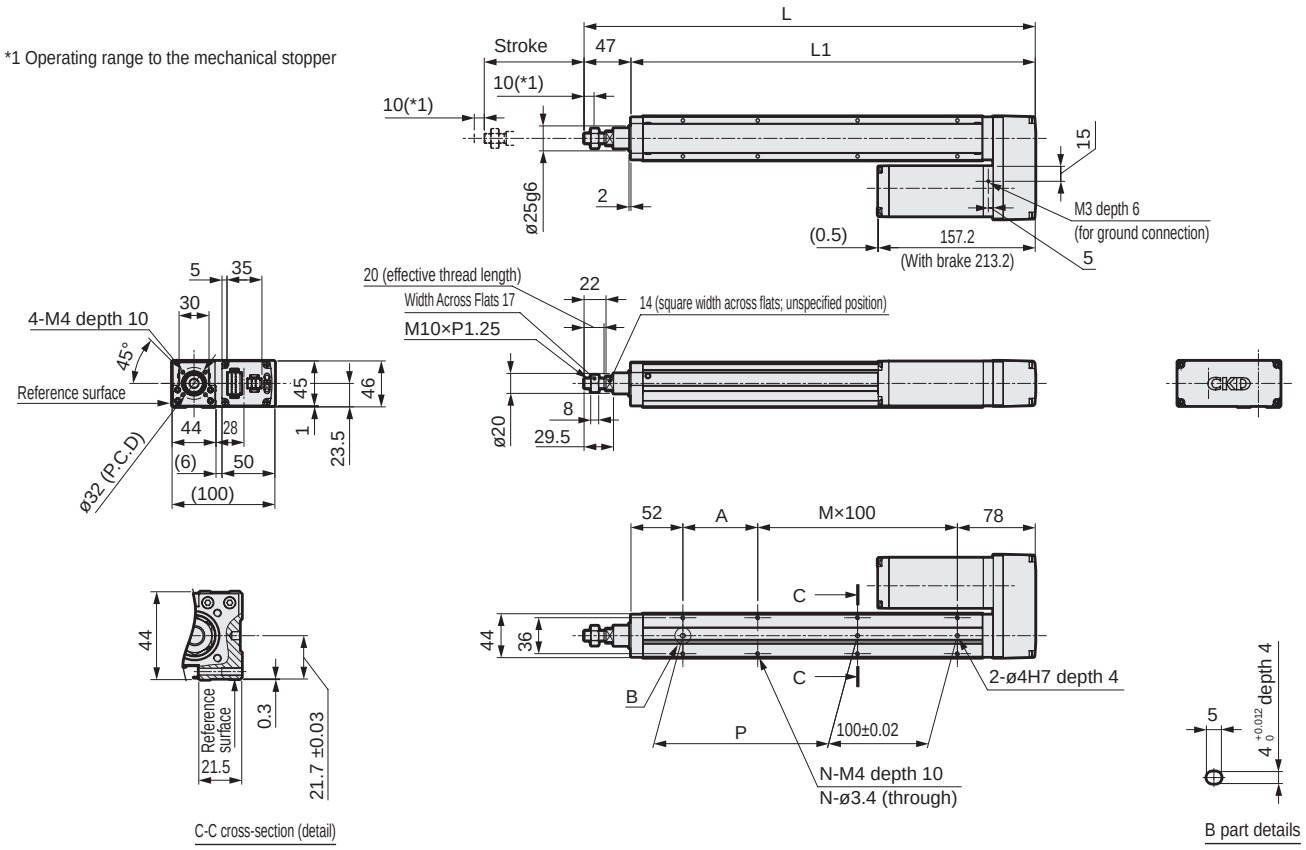
*The above pressing force is a reference value. Variation may occur according to conditions such as pressing speed.

EBR-04G*-P4

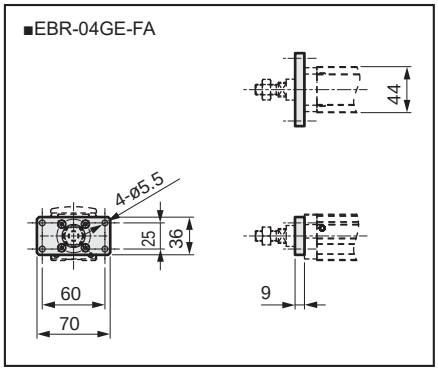
Dimensions Right motor mounting

● EBR-04GR-P4

*1 Operating range to the mechanical stopper



● EBR-04GR-*-*-*-C-P4

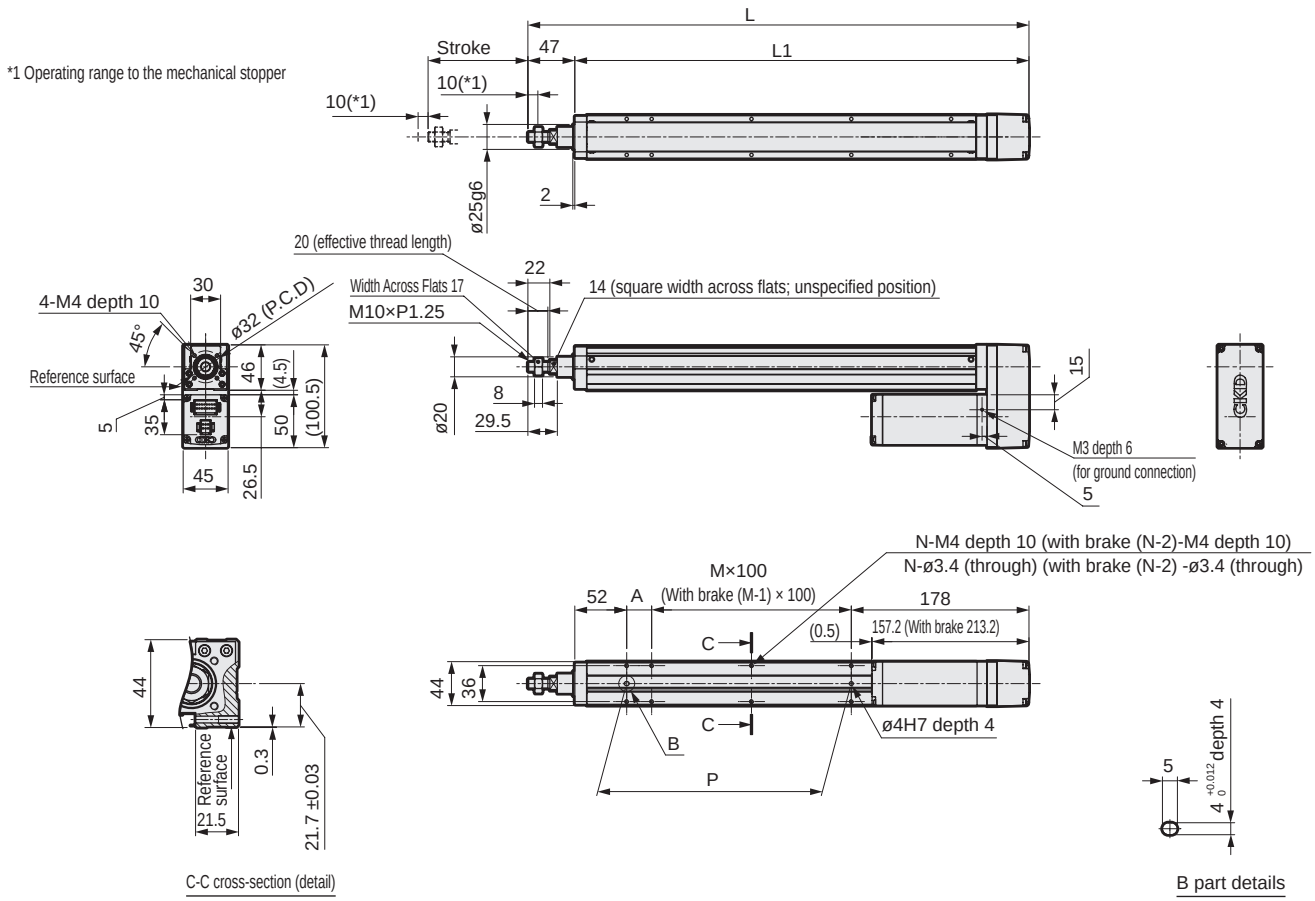


Stroke code		0050	0100	0150	0200	0250	0300	0350	0400
Stroke length (mm)		50	100	150	200	250	300	350	400
L		302	352	402	452	502	552	602	652
L1		255	305	355	405	455	505	555	605
A		25	75	25	75	25	75	25	75
M		1	1	2	2	3	3	4	4
N		6	6	8	8	10	10	12	12
P		25	75	125	175	225	275	325	375
Weight (kg)	Without brake	1.6	1.8	1.9	2.1	2.3	2.5	2.6	2.8
	With brake	2.1	2.3	2.4	2.6	2.8	3.0	3.1	3.3

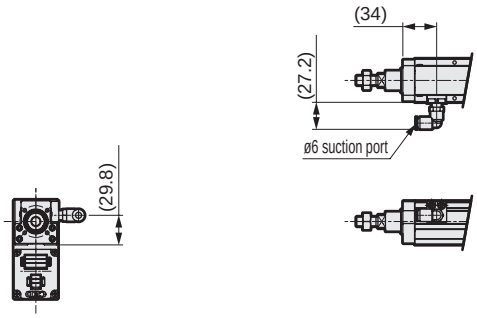
* The suction port fitting (ZW-L6-6-P4) is an attachment.
* Use the product with air intake of 30.0Nℓ/min or less from the intake port.
*2: 50 mm stroke length cannot be selected for types with fittings.

Dimensions Bottom motor mounting

● EBR-04GD



● EBR-04GD-*-*-*-C-P4



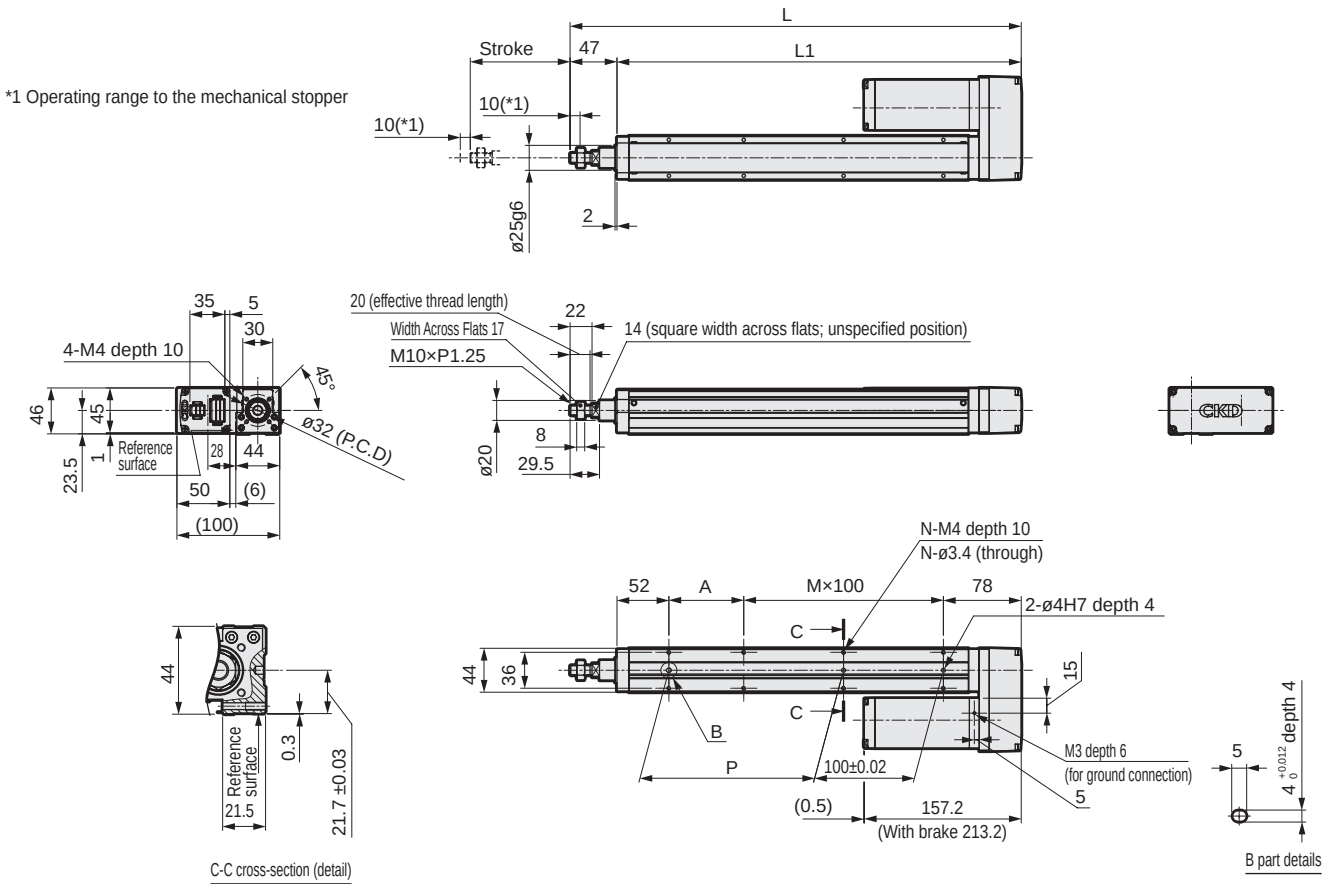
Stroke code		0250	0300	0350	0400
Stroke length (mm)		250	300	350	400
L		502	552	602	652
L1		455	505	555	605
A		25	75	25	75
M		2	2	3	3
N		8	8	10	10
P		225	275	325	375
Weight (kg)	Without brake	2.3	2.5	2.6	2.8
	With brake	2.8	3.0	3.1	3.3

* The suction port fitting (ZW-L6-6-P4) is an attachment.
* Use the product with air intake of 30.0Nℓ/min or less from the intake port.

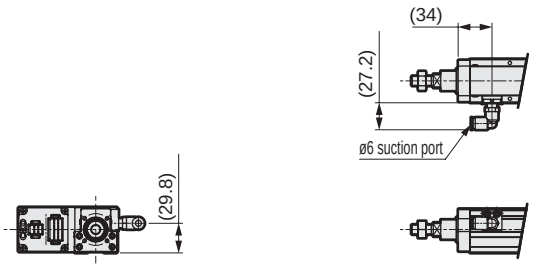
Dimensions Left motor mounting

● EBR-04GL-P4

*1 Operating range to the mechanical stopper



● EBR-04GL-*-*-*-C-P4



Stroke code		0050	0100	0150	0200	0250	0300	0350	0400
Stroke length (mm)		50	100	150	200	250	300	350	400
L		302	352	402	452	502	552	602	652
L1		255	305	355	405	455	505	555	605
A		25	75	25	75	25	75	25	75
M		1	1	2	2	3	3	4	4
N		6	6	8	8	10	10	12	12
P		25	75	125	175	225	275	325	375
Weight (kg)	Without brake	1.6	1.8	1.9	2.1	2.3	2.5	2.6	2.8
	With brake	2.1	2.3	2.4	2.6	2.8	3.0	3.1	3.3

* The suction port fitting (ZW-L6-6-P4) is an attachment.
* Use the product with air intake of 30.0Nℓ/min or less from the intake port.

Notes

Electric actuator Rod with built-in guide

EBR-05GE-P4

Straight motor mounting

☐42 Stepper motor

How to order

EBR - 05 G E - 00 - 05 0300 N B N - C S03 - C - P4

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

(A) Body size

05	Body width 54mm

(B) Applicable controller *1

G	ECG

(C) Motor mounting direction

E	Straight mounting

(D) Mounting

00	Basic
FA	Rod side flange

(E) Screw lead

02	2 mm
05	5 mm
10	10 mm
20	20 mm

(F) Stroke

0050 to 0400	50 mm (In 50 mm increments) 400 mm

(G) Brake *2

N	None
B	Yes

(H) Encoder

B	Battery-less absolute encoder
C	Incremental encoder

(I) Relay cable *3

N00	None
S01	Fixing cable 1 m
S03	Fixing cable 3 m
S05	Fixing cable 5 m
S10	Fixing cable 10 m
R 01	Movable cable 1 m
R 03	Movable cable 3 m
R 05	Movable cable 5 m
R 10	Movable cable 10 m

(J) Fitting

N	None
C	Yes

*1 Select the controller from page 85.
*2 For vertical use, select "Yes".
*3 Refer to page 96 for relay cable dimensions.

Specifications

Motor		☐42 Stepper motor			
Encoder type		Battery-less absolute encoder Incremental encoder			
Drive method		Ball screw ø12			
Stroke	mm	50 to 400			
Screw lead	mm	2	5	10	20
Max. workload kg *1	Horizontal	80.0	60.0	41.7	11.7
	Vertical	23.3	14.0	7.0	2.9
Operation speed range *2	mm/s	2 to 70	6 to 240	12 to 400	25 to 560
Maximum pushing force	N	550	220	110	55
Pressing operation speed range	mm/s	5 to 20	5 to 20	5 to 20	5 to 20
Repeatability	mm	±0.01			
Lost motion	mm	0.1 or less			
Motor power supply voltage		24 VDC ±10%			
Motor section max. instantaneous current	A	2.7			
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC ±10%			
	Power consumption W	6.1			
	Holding force N	420	168	84	42
Insulation resistance		10 MΩ, 500 VDC			
Withstand voltage		500 VAC for 1 minute			
Operating ambient temperature		10 to 40 °C (no freezing)			
Storage ambient temperature		-10 to 50°C (no freezing)			
Atmosphere		No corrosive gas, explosive gas, or dust			
Degree of protection		IP40			

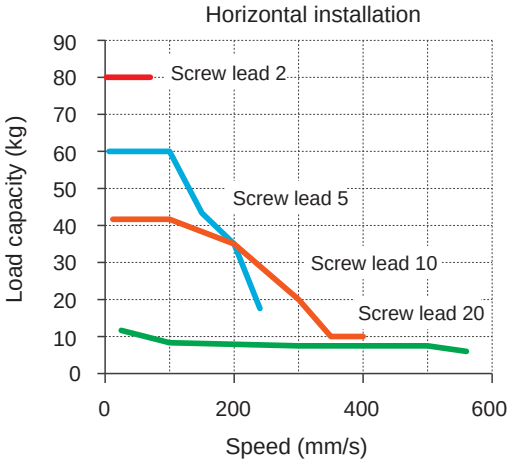
*1 Load capacity varies according to acceleration/deceleration and speed. Refer to pages 82 and 83 for details.
*2 The maximum speed may decrease depending on the conditions.

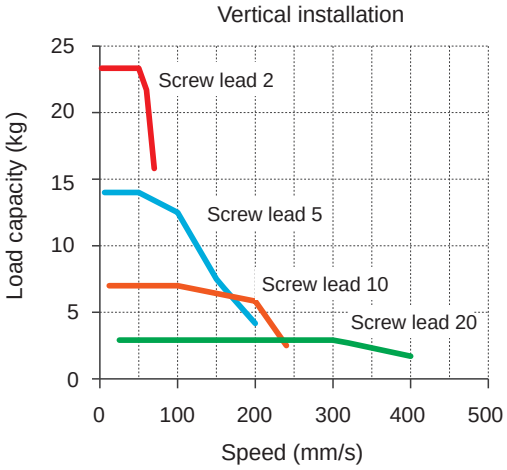
Stroke and max. speed

(mm/s)

Screw lead	Stroke			
	50 to 250	300	350	400
2	70			
5	240	210		
10	400			
20	560			

Speed and load capacity

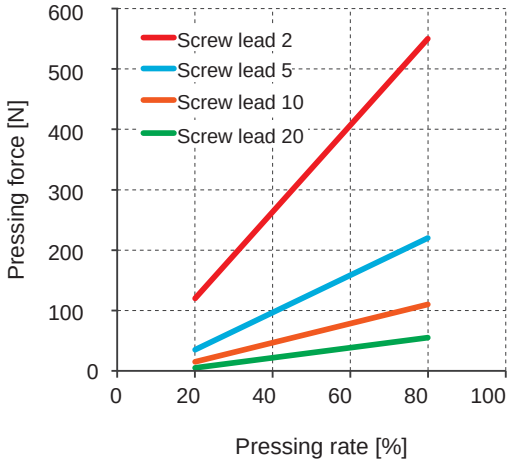




* Acceleration/Deceleration 0.3G.

* Refer to pages 82 and 83 for details.

Pressing force

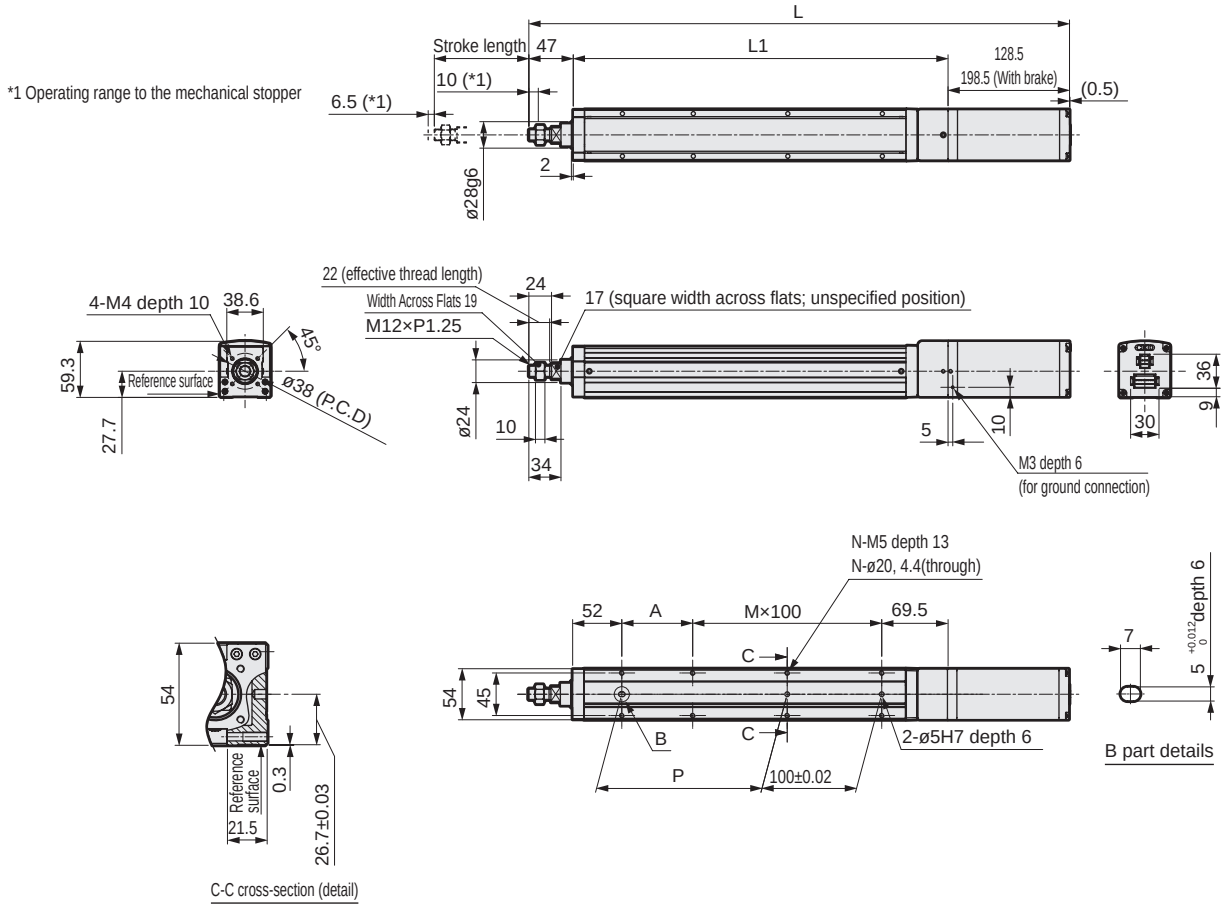


*The above pressing force is a reference value. Variation may occur according to conditions such as pressing speed.

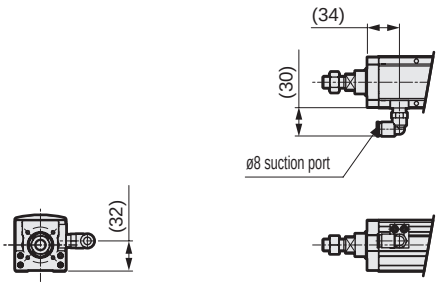
EBR-05GE-P4

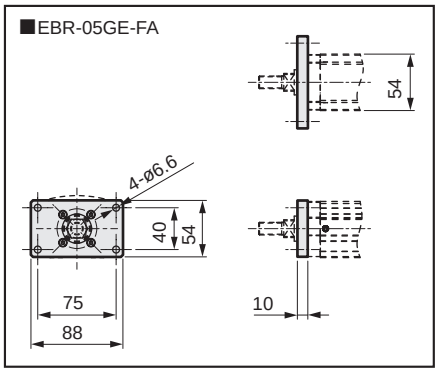
Dimensions

● EBR-05GE-P4



● EBR-05GE-*-*-*-C-P4





Stroke code		0050	0100	0150	0200	0250	0300	0350	0400
Stroke length (mm)		50	100	150	200	250	300	350	400
L	Without brake	422	472	522	572	622	672	722	772
	With brake	492	542	592	642	692	742	792	842
L1		246.5	296.5	346.5	396.5	446.5	496.5	546.5	596.5
A		25	75	25	75	25	75	25	75
M		1	1	2	2	3	3	4	4
N		6	6	8	8	10	10	12	12
P		25	75	125	175	225	275	325	375
Weight (kg)	Without brake	2.5	2.7	2.9	3.1	3.3	3.5	3.7	3.8
	With brake	3.3	3.5	3.7	3.9	4.1	4.3	4.5	4.6

* The suction port fitting (ZW-L8-8-P4) is an attachment.
* Use the product with air intake of 30.0Nℓ/min or less from the intake port.

Notes

Electric actuator Rod with built-in guide

EBR-05G*-P4

Motor side mounting (left, right, bottom)

☐42 Stepper motor

How to order

EBR - 05 G R - 00 - 05 0300 N B N - C S03 - C - P4

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

(A) Body size

05	Body width 54mm

(B) Applicable controller *1

G	ECG

(C) Motor mounting direction *2*3

R	Right mounting
D	Bottom mounting
L	Left mounting

(D) Mounting

00	Basic
FA	Rod side flange

(E) Screw lead

02	2 mm
05	5 mm
10	10 mm
20	20 mm

(F) Stroke *2*3

0050 to 0400	50 mm (In 50 mm increments) 400 mm

(G) Brake *4

N	None
B	Yes

(H) Encoder

B	Battery-less absolute encoder
C	Incremental encoder

(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
R 01	Movable cable 1 m
R 03	Movable cable 3 m
R 05	Movable cable 5 m
R 10	Movable cable 10 m

(J) Fitting *3

N	None
C	Yes

*1 Select the controller from page 85.
*2 When the motor mounting direction "D" is selected, the stroke length will be a selection from "0250 (250 mm)" to "0400 (400 mm)".
*3 For the motor mounting direction "R" and "C" with fittings, 0050 (50 mm stroke length) cannot be selected.
*4 When using vertically, select "Yes".
*5 Refer to page 96 for relay cable dimensions.

Specifications

Motor		☐42 Stepper motor			
Encoder type		Battery-less absolute encoder Incremental encoder			
Drive method		Ball screw ø12			
Stroke	mm	50 to 400			
Screw lead	mm	2	5	10	20
Max. workload kg *1	Horizontal	80.0	60.0	38.3	11.7
	Vertical	23.3	14.0	6.7	1.7
Operation speed range *2	mm/s	2 to 70	6 to 200	12 to 320	25 to 480
Maximum pushing force	N	550	220	110	55
Pressing operation speed range	mm/s	5 to 20	5 to 20	5 to 20	5 to 20
Repeatability	mm	±0.01			
Lost motion	mm	0.1 or less			
Motor power supply voltage		24 VDC ±10%			
Motor section max. instantaneous current	A	2.7			
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC ±10%			
	Power consumption W	6.1			
	Holding force N	420	168	84	42
Insulation resistance		10 MΩ, 500 VDC			
Withstand voltage		500 VAC for 1 minute			
Operating ambient temperature		10 to 40 °C (no freezing)			
Storage ambient temperature		-10 to 50°C (no freezing)			
Atmosphere		No corrosive gas, explosive gas, or dust			
Degree of protection		IP40			

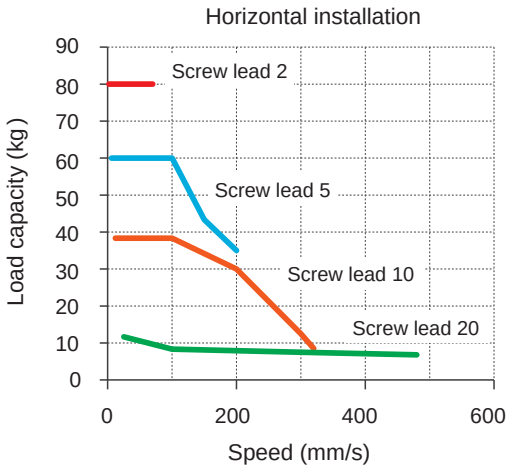
*1 Load capacity varies according to acceleration/deceleration and speed. Refer to pages 82 and 83 for details.
*2 The maximum speed may decrease depending on the conditions.

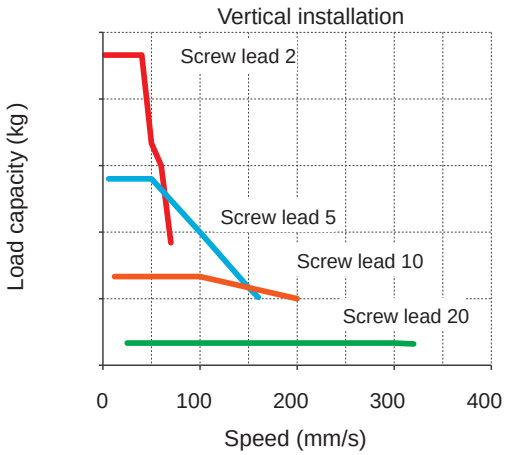
Stroke and max. speed

(mm/s)

Screw lead	Stroke
	50 to 400
2	70
5	200
10	320
20	480

Speed and load capacity

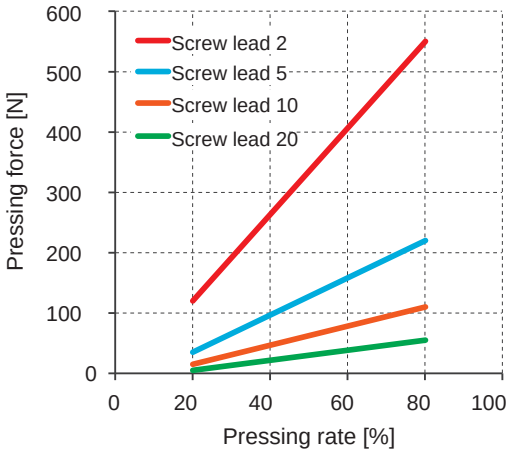




* Acceleration/Deceleration 0.3G.

* Refer to pages 82 and 83 for details.

Pressing force

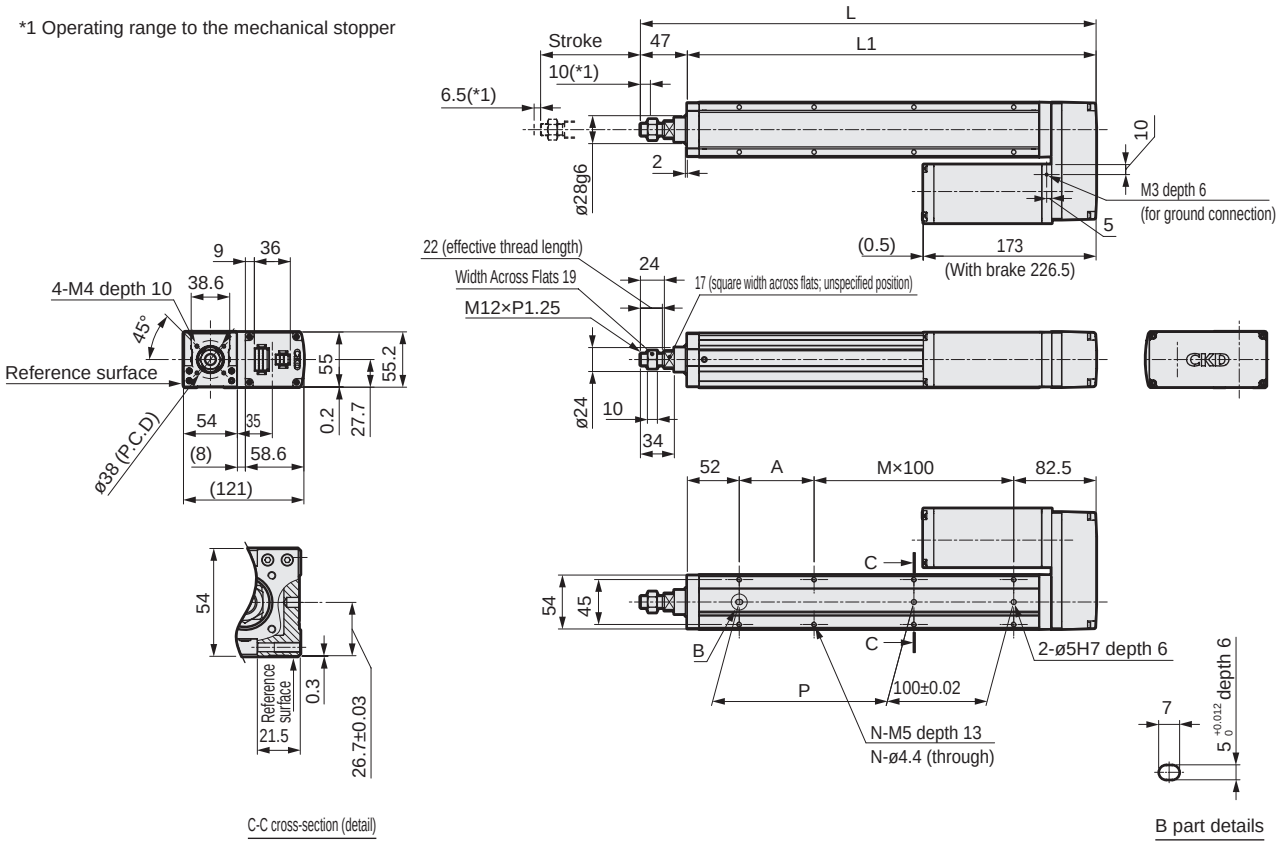


*The above pressing force is a reference value. Variation may occur according to conditions such as pressing speed.

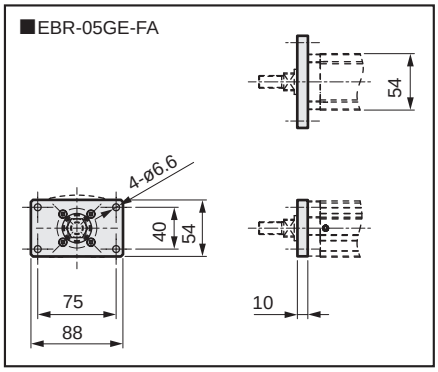
Dimensions Right motor mounting

● EBR-05GR-P4

*1 Operating range to the mechanical stopper



● EBR-05GR-*-*-*-C-P4



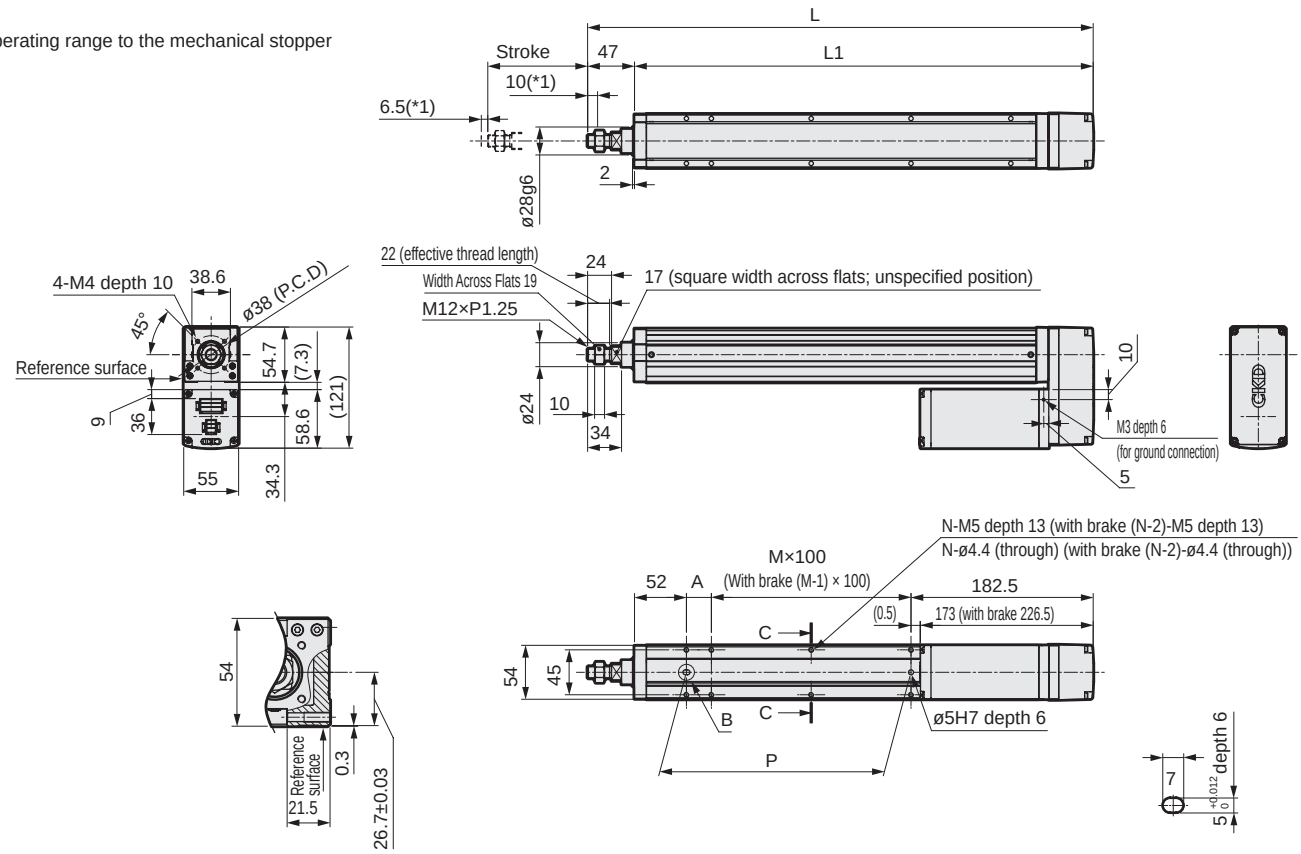
Stroke code		0050	0100	0150	0200	0250	0300	0350	0400
Stroke length (mm)		50	100	150	200	250	300	350	400
L		306.5	356.5	406.5	456.5	506.5	556.5	606.5	656.5
L1		259.5	309.5	359.5	409.5	459.5	509.5	559.5	609.5
A		25	75	25	75	25	75	25	75
M		1	1	2	2	3	3	4	4
N		6	6	8	8	10	10	12	12
P		25	75	125	175	225	275	325	375
Weight (kg)	Without brake	2.4	2.5	2.6	2.8	3.1	3.2	3.2	3.5
	With brake	3.5	3.6	3.7	3.9	4.2	4.3	4.3	4.6

* The suction port fitting (ZW-L8-8-P4) is an attachment.
* Use the product with air intake of 30.0Nℓ/min or less from the intake port.
*2: 50 mm stroke length cannot be selected for types with fittings.

Dimensions Bottom motor mounting

● EBR-05GD-P4

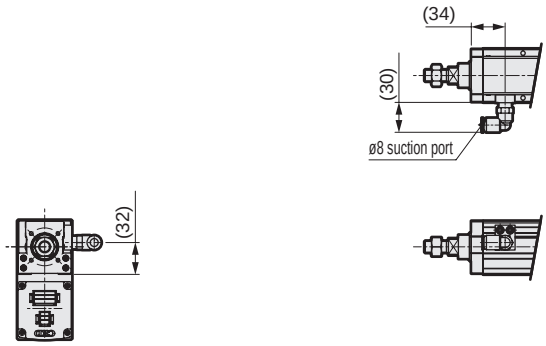
*1 Operating range to the mechanical stopper



C-C cross-section (detail)

B part details

● EBR-05GD-*-*-*-C-P4



Stroke code		0250	0300	0350	0400
Stroke length (mm)		250	300	350	400
L		506.5	556.5	606.5	656.5
L1		459.5	509.5	559.5	609.5
A		25	75	25	75
M		2	2	3	3
N		8	8	10	10
P		225	275	325	375
Weight (kg)	Without brake	3.1	3.2	3.2	3.5
	With brake	4.2	4.3	4.3	4.6

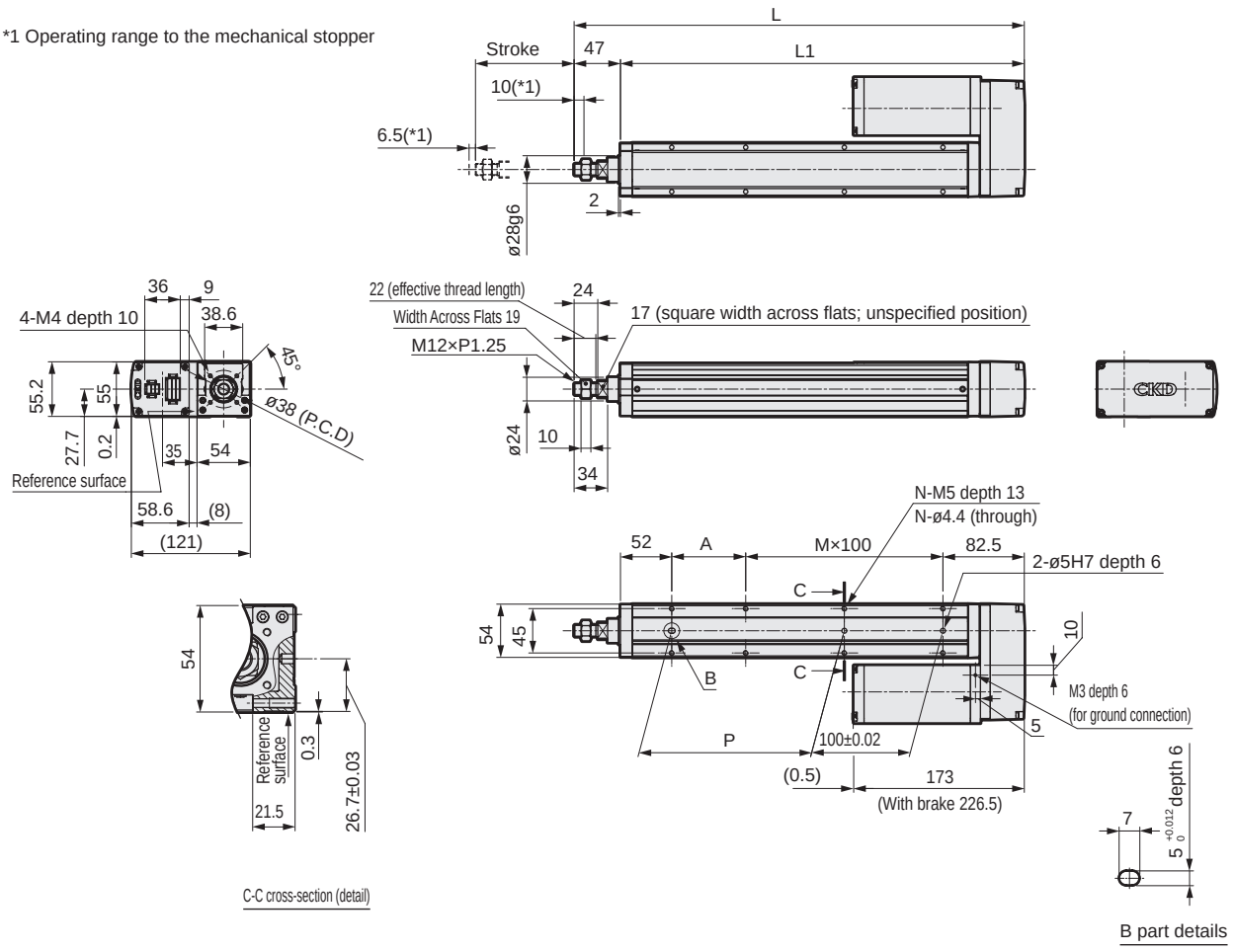
* The suction port fitting (ZW-L8-8-P4) is an attachment.
* Use the product with air intake of 30.0Nℓ/min or less from the intake port.

EBR-05G*-P4

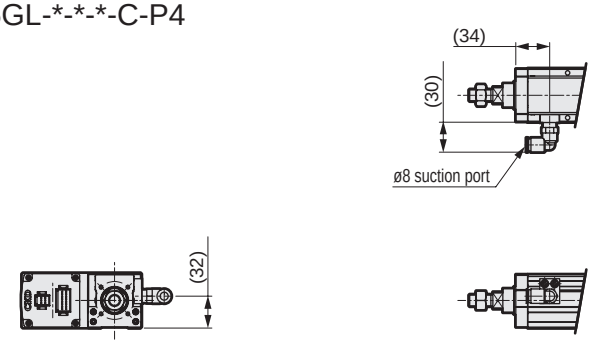
Dimensions Left motor mounting

● EBR-05GL-P4

*1 Operating range to the mechanical stopper



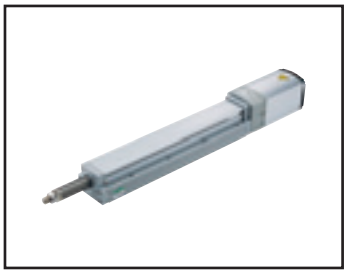
● EBR-05GL-*-*-*-C-P4



Stroke code		0050	0100	0150	0200	0250	0300	0350	0400
Stroke length (mm)		50	100	150	200	250	300	350	400
L		306.5	356.5	406.5	456.5	506.5	556.5	606.5	656.5
L1		259.5	309.5	359.5	409.5	459.5	509.5	559.5	609.5
A		25	75	25	75	25	75	25	75
M		1	1	2	2	3	3	4	4
N		6	6	8	8	10	10	12	12
P		25	75	125	175	225	275	325	375
Weight (kg)	Without brake	2.4	2.5	2.6	2.8	3.1	3.2	3.2	3.5
	With brake	3.5	3.6	3.7	3.9	4.2	4.3	4.3	4.6

* The suction port fitting (ZW-L8-8-P4) is an attachment.
* Use the product with air intake of 30.0Nℓ/min or less from the intake port.

Notes



Electric actuator Rod with built-in guide

EBR-08GE-P4

Straight motor mounting

☐56 Stepper motor

How to order

EBR - 08 G E - 00 - 05 0300 N B N - C S03 - C - P4

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

(A) Body size

08	Body width 82mm

(B) Applicable controller *1

G	ECG

(C) Motor mounting direction

E	Straight mounting

(D) Mounting

00	Basic
FA	Rod side flange

(E) Screw lead

05	5 mm
10	10 mm
20	20 mm

(F) Stroke

0050 to 0700	50 mm (In 50 mm increments) 700 mm

(G) Brake *2

N	None
B	Yes

(H) Encoder

B	Battery-less absolute encoder
C	Incremental encoder

(I) Relay cable *3

N00	None
S01	Fixing cable 1 m
S03	Fixing cable 3 m
S05	Fixing cable 5 m
S10	Fixing cable 10 m
R 01	Movable cable 1 m
R 03	Movable cable 3 m
R 05	Movable cable 5 m
R 10	Movable cable 10 m

(J) Fitting

N	None
C	Yes

*1 Select the controller from page 85.
*2 For vertical use, select "Yes".
*3 Refer to page 96 for relay cable dimensions.

Specifications

Motor		☐56 Stepper motor		
Encoder type		Battery-less absolute encoder Incremental encoder		
Drive method		Ball screw ø16		
Stroke	mm	50 to 700		
Screw lead	mm	5	10	20
Max. workload kg *1	Horizontal	80.0	70.0	35.0
	Vertical	55.0	23.3	10.0
Operation speed range *2	mm/s	6 to 100	12 to 240	25 to 400
Maximum pushing force	N	965	482	241
Pressing operation speed range	mm/s	5 to 20	5 to 20	5 to 20
Repeatability	mm	±0.01		
Lost motion	mm	0.1 or less		
Motor power supply voltage		24 VDC ±10%		
Motor section max. instantaneous current	A	4.0		
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC ±10%		
	Power consumption W	7.2		
	Holding force N	768	384	192
Insulation resistance		10 MΩ, 500 VDC		
Withstand voltage		500 VAC for 1 minute		
Operating ambient temperature		10 to 40 °C (no freezing)		
Storage ambient temperature		-10 to 50°C (no freezing)		
Atmosphere		No corrosive gas, explosive gas, or dust		
Degree of protection		IP40		

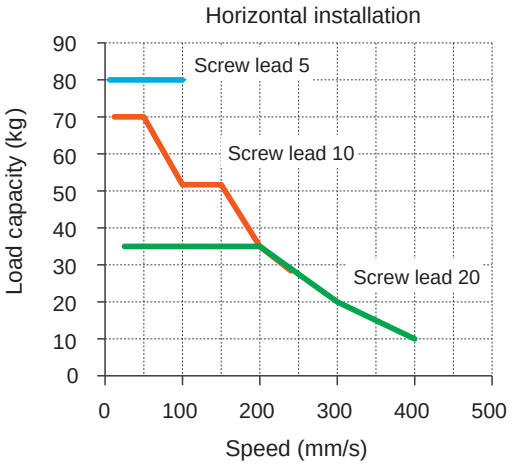
*1 Load capacity varies according to acceleration/deceleration and speed. Refer to pages 82 and 83 for details.
*2 The maximum speed may decrease depending on the conditions.

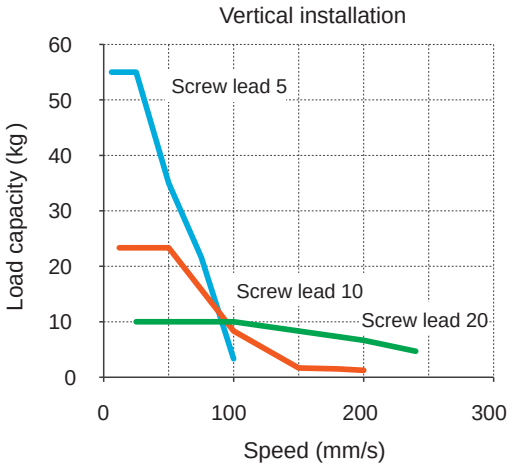
Stroke and max. speed

(mm/s)

Screw lead	Stroke
	50 to 700
5	100
10	240
20	400

Speed and load capacity

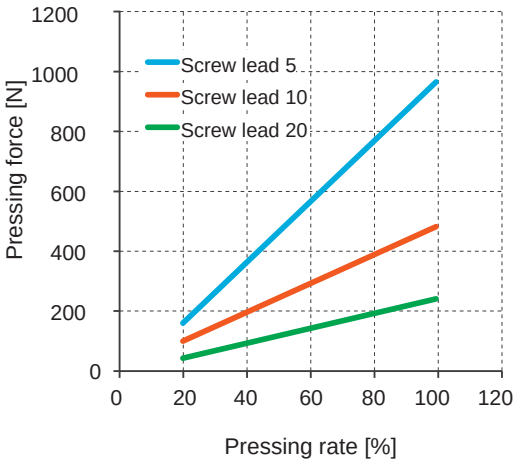




* Acceleration/Deceleration 0.3G.

* Refer to pages 82 and 83 for details.

Pressing force



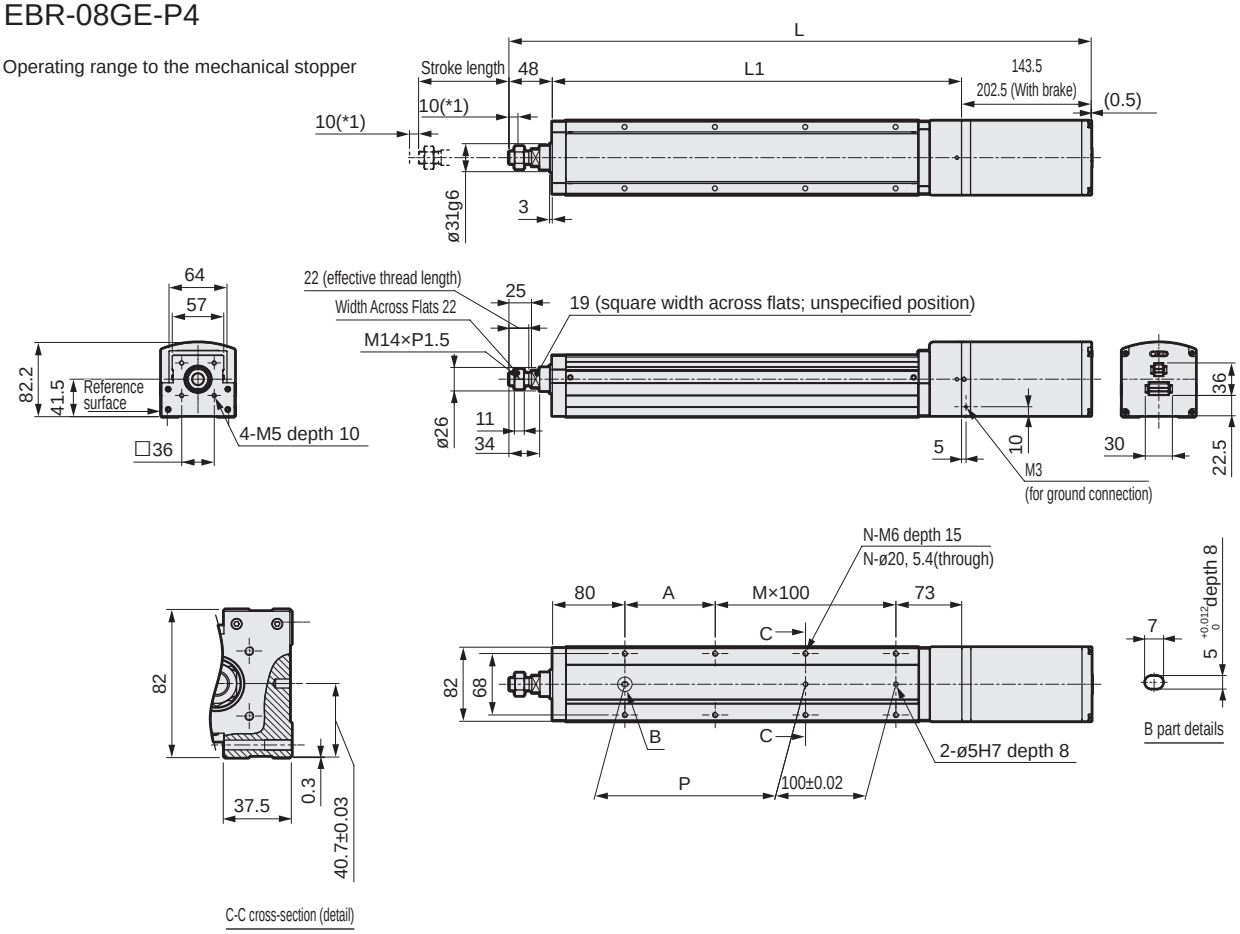
*The above pressing force is a reference value. Variation may occur according to conditions such as pressing speed.

EBR-08GE-P4

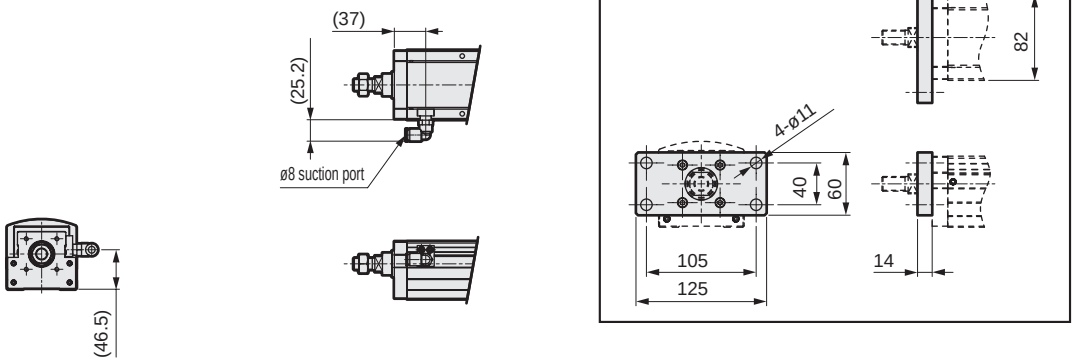
Dimensions

● EBR-08GE-P4

*1 Operating range to the mechanical stopper



● EBR-08GE-*-*-*-C-P4



Stroke code		0050	0100	0150	0200	0250	0300	0350	0400	0450	0500	0550	0600	0650	0700
Stroke length (mm)		50	100	150	200	250	300	350	400	450	500	550	600	650	700
L	Without brake	494.5	544.5	594.5	644.5	694.5	744.5	794.5	844.5	894.5	944.5	994.5	1044.5	1094.5	1144.5
	With brake	553.5	603.5	653.5	703.5	753.5	803.5	853.5	903.5	953.5	1003.5	1053.5	1103.5	1153.5	1203.5
L1		303	353	403	453	503	553	603	653	703	753	803	853	903	953
A		50	100	50	100	50	100	50	100	50	100	50	100	50	100
M		1	1	2	2	3	3	4	4	5	5	6	6	7	7
N		6	6	8	8	10	10	12	12	14	14	16	16	18	18
P		50	100	150	200	250	300	350	400	450	500	550	600	650	700
Weight (kg)	Without brake	6.2	6.6	7.0	7.3	7.7	8.1	8.5	8.8	9.2	9.6	9.9	10.3	10.7	11.0
	With brake	7.5	7.9	8.3	8.6	9.0	9.4	9.8	10.1	10.5	10.9	11.2	11.6	12.0	12.3

* The suction port fitting (ZW-L8-8-P4) is an attachment.
* Keep the air intake amount from the intake port at 30.0Nℓ/min or less.

Notes

Electric actuator Rod with built-in guide

EBR-08G*-P4

Motor side mounting (left, right, bottom)

☐56 Stepper motor

How to order

EBR - 08 G R - 00 - 05 0300 N B N - C S03 - C - P4

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

(A) Body size

08	Body width 82mm

(B) Applicable controller *1

G	ECG

(C) Motor mounting direction *2

R	Right mounting
D	Bottom mounting
L	Left mounting

(D) Mounting

00	Basic
FA	Rod side flange

(E) Screw lead

05	5 mm
10	10 mm
20	20 mm

(F) Stroke *2

0050 to 0700	50 mm (In 50 mm increments) 700 mm

(G) Brake *3

N	None
B	Yes

(H) Encoder

B	Battery-less absolute encoder
C	Incremental encoder

(I) Relay cable *4

N00	None
S01	Fixing cable 1 m
S03	Fixing cable 3 m
S05	Fixing cable 5 m
S10	Fixing cable 10 m
R 01	Movable cable 1 m
R 03	Movable cable 3 m
R 05	Movable cable 5 m
R 10	Movable cable 10 m

(J) Fitting

N	None
C	Yes

*1 Select the controller from page 85.
*2 When the motor mounting direction "D" is selected, the stroke length will be a selection from "0250 (250 mm)" to "0700 (700 mm)".
*3 When using vertically, select "Yes".
*4 Refer to page 96 for relay cable dimensions.

Specifications

Motor		☐56 Stepper motor		
Encoder type		Battery-less absolute encoder Incremental encoder		
Drive method		Ball screw ø16		
Stroke	mm	50 to 700		
Screw lead	mm	5	10	20
Max. workload kg *1	Horizontal	80.0	70.0	35.0
	Vertical	55.0	20.0	8.3
Operation speed range *2	mm/s	6 to 100	12 to 200	25 to 320
Maximum pushing force	N	965	482	241
Pressing operation speed range	mm/s	5 to 20	5 to 20	5 to 20
Repeatability	mm	±0.01		
Lost motion	mm	0.1 or less		
Motor power supply voltage		24 VDC ±10%		
Motor section max. instantaneous current	A	4.0		
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC ±10%		
	Power consumption W	7.2		
	Holding force N	768	384	192
Insulation resistance		10 MΩ, 500 VDC		
Withstand voltage		500 VAC for 1 minute		
Operating ambient temperature		10 to 40 °C (no freezing)		
Storage ambient temperature		-10 to 50°C (no freezing)		
Atmosphere		No corrosive gas, explosive gas, or dust		
Degree of protection		IP40		

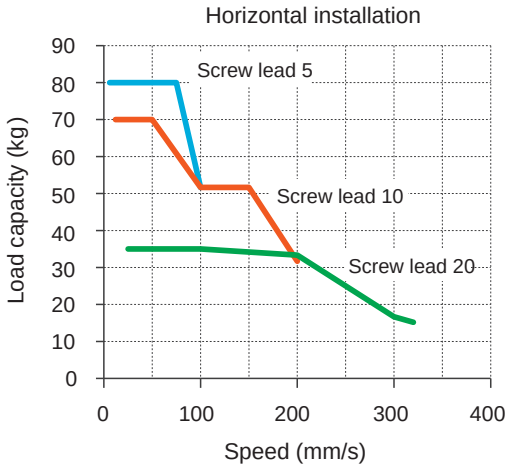
*1 Load capacity varies according to acceleration/deceleration and speed. Refer to pages 82 and 83 for details.
*2 The maximum speed may decrease depending on the conditions.

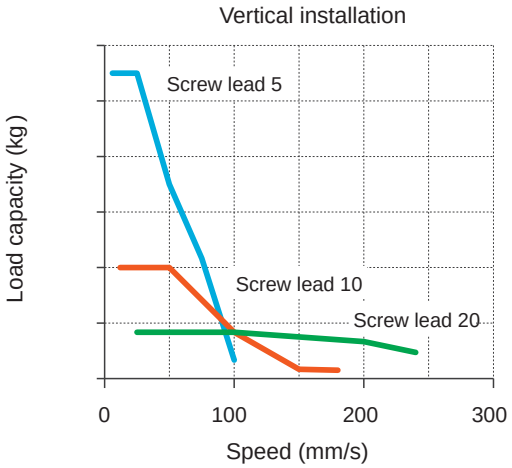
Stroke and max. speed

(mm/s)

Screw lead	Stroke
	50 to 700
5	100
10	200
20	320

Speed and load capacity

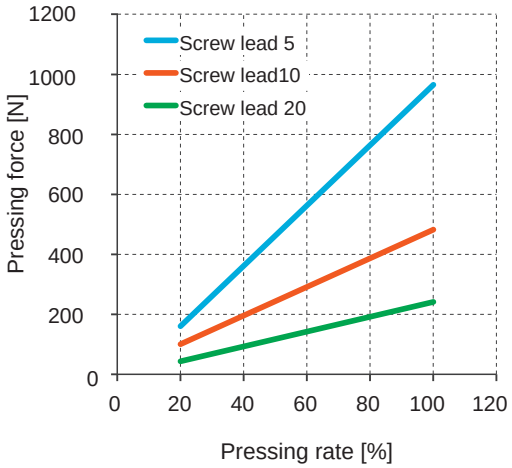




* Acceleration/Deceleration 0.3G.

* Refer to pages 82 and 83 for details.

Pressing force

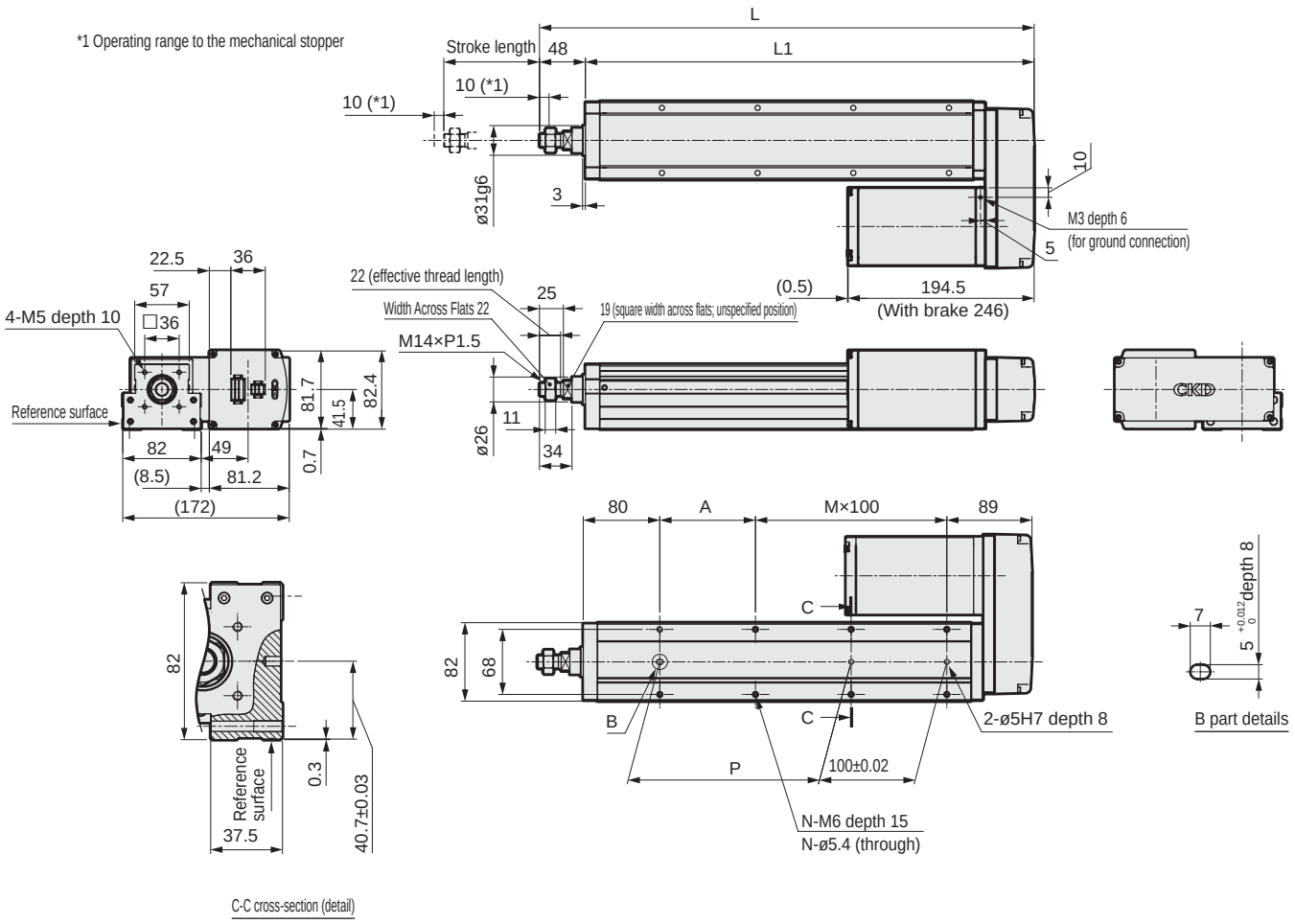


*The above pressing force is a reference value. Variation may occur according to conditions such as pressing speed.

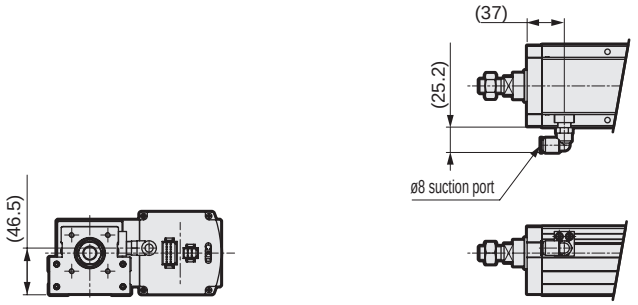
EBR-08G*-P4

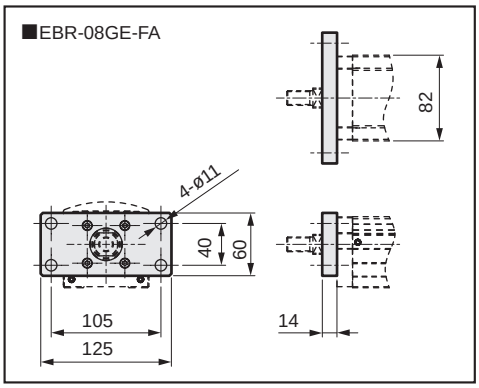
Dimensions Right motor mounting

● EBR-08GR-P4



● EBR-08GR-*-*-*-C-P4



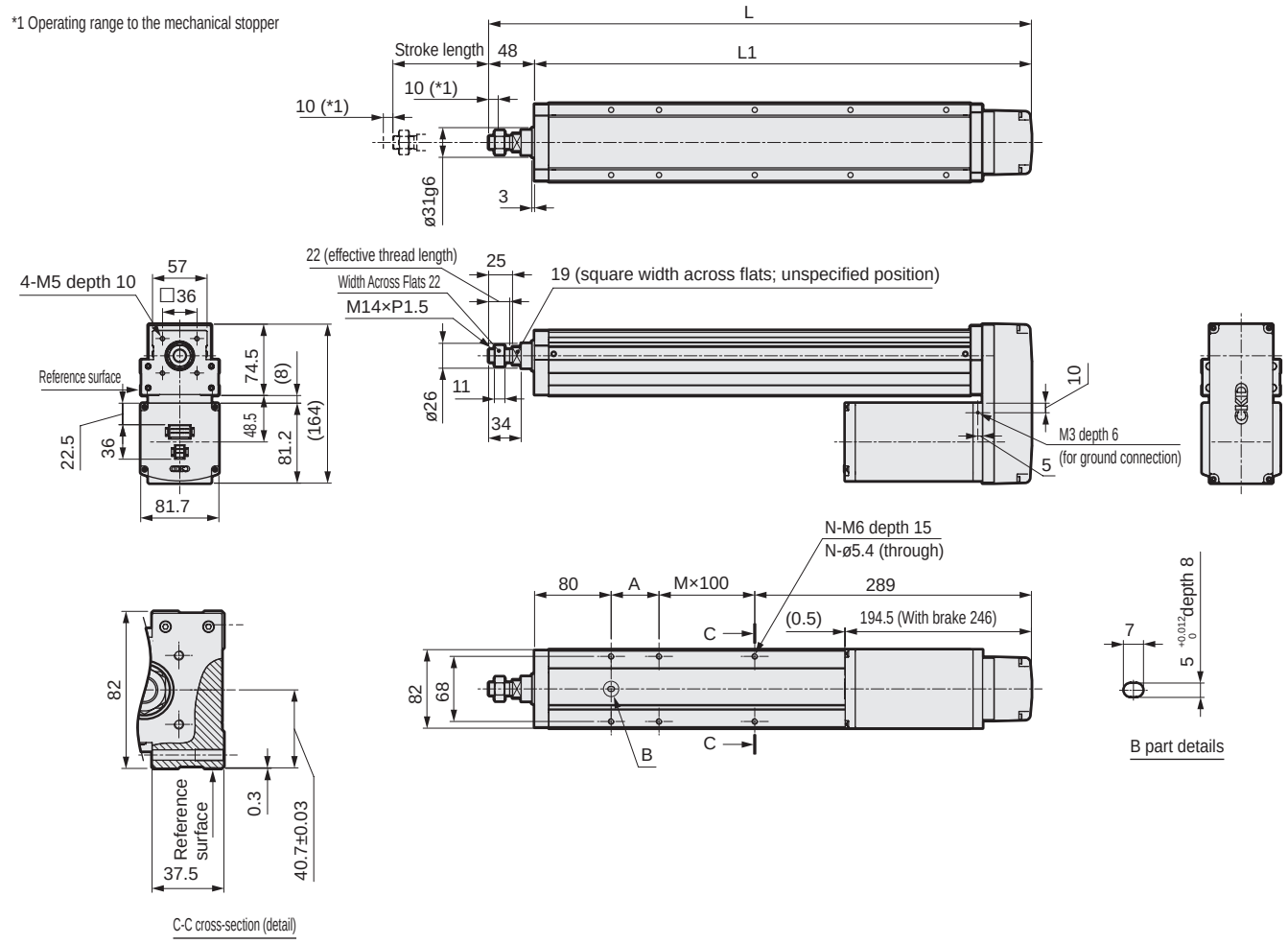


Stroke code		0050	0100	0150	0200	0250	0300	0350	0400	0450	0500	0550	0600	0650	0700
Stroke length (mm)		50	100	150	200	250	300	350	400	450	500	550	600	650	700
L		367	417	467	517	567	617	667	717	767	817	867	917	967	1017
L1		319	369	419	469	519	569	619	669	719	769	819	869	919	969
A		50	100	50	100	50	100	50	100	50	100	50	100	50	100
M		1	1	2	2	3	3	4	4	5	5	6	6	7	7
N		6	6	8	8	10	10	12	12	14	14	16	16	18	18
P		50	100	150	200	250	300	350	400	450	500	550	600	650	700
Weight (kg)	Without brake	5.9	6.3	6.7	7.0	7.3	7.7	8.0	8.3	8.6	8.9	9.4	9.7	10.1	10.4
	With brake	7.2	7.6	8.0	8.3	8.6	9.0	9.3	9.6	9.9	10.2	10.7	11.0	11.4	11.7

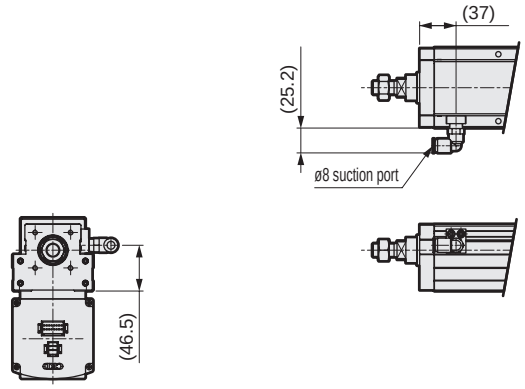
* The suction port fitting (ZW-L8-8-P4) is an attachment.
* Use the product with air intake of 30.0Nℓ/min or less from the intake port.

Dimensions Bottom motor mounting

● EBR-08GD-P4



● EBR-08GD-*-*-*-C-P4

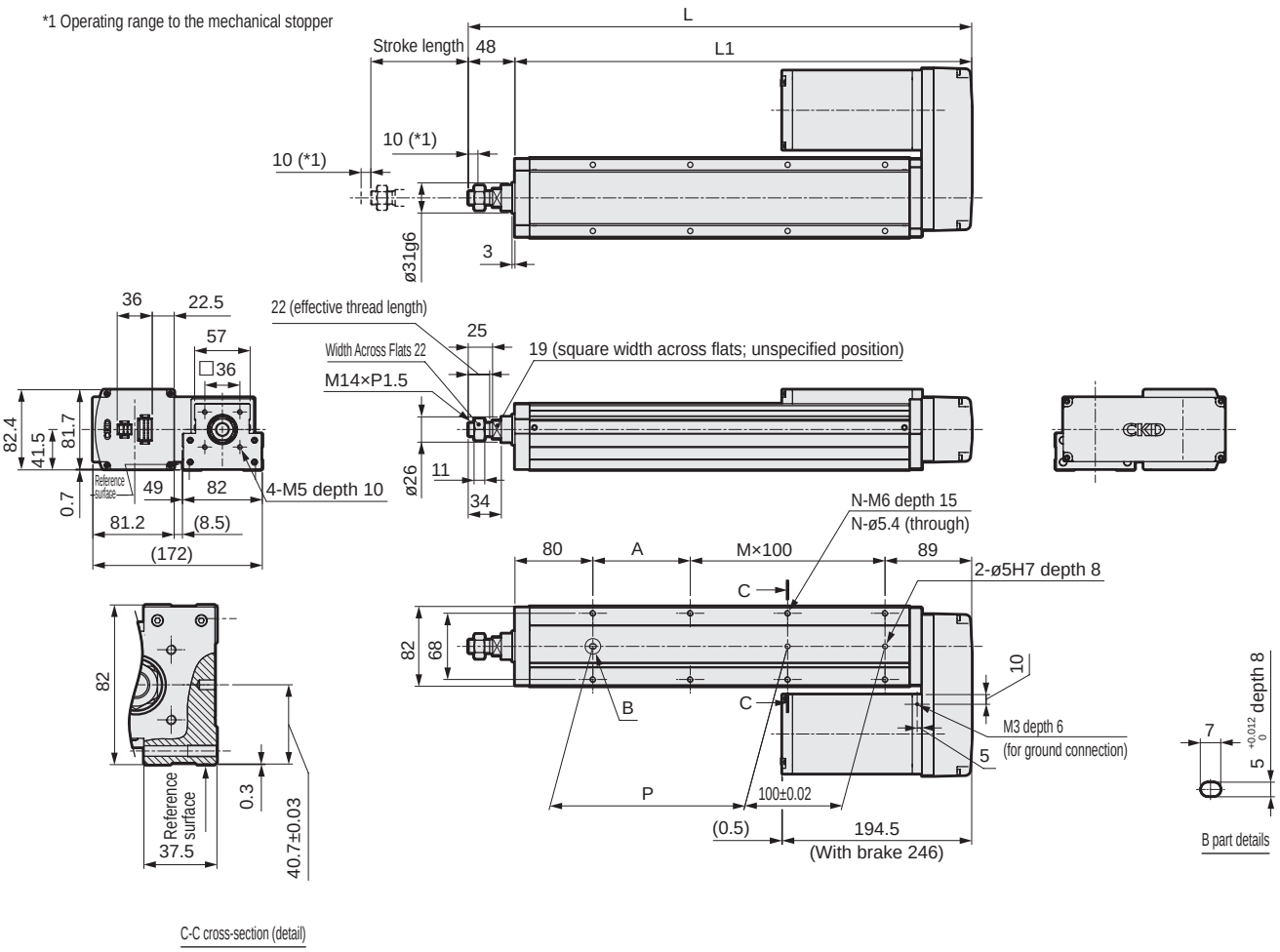


Stroke code		0250	0300	0350	0400	0450	0500	0550	0600	0650	0700
Stroke length (mm)		250	300	350	400	450	500	550	600	650	700
L		567	617	667	717	767	817	867	917	967	1017
L1		519	569	619	669	719	769	819	869	919	969
A		50	100	50	100	50	100	50	100	50	100
M		1	1	2	2	3	3	4	4	5	5
N		6	6	8	8	10	10	12	12	14	14
Weight (kg)	Without brake	7.3	7.7	8.0	8.3	8.6	8.9	9.4	9.7	10.1	10.4
	With brake	8.6	9.0	9.3	9.6	9.9	10.2	10.7	11.0	11.4	11.7

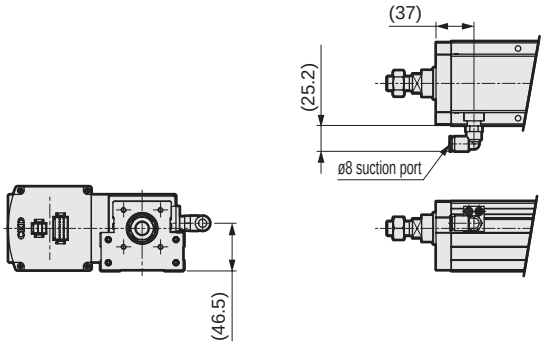
* The suction port fitting (ZW-L8-8-P4) is an attachment.
* Use the product with air intake of 30.0Nℓ/min or less from the intake port.

Dimensions Left motor mounting

● EBR-08GL-P4



● EBR-08GL-*-*-*-C-P4



Stroke code		0050	0100	0150	0200	0250	0300	0350	0400	0450	0500	0550	0600	0650	0700
Stroke length (mm)		50	100	150	200	250	300	350	400	450	500	550	600	650	700
L		367	417	467	517	567	617	667	717	767	817	867	917	967	1017
L1		319	369	419	469	519	569	619	669	719	769	819	869	919	969
A		50	100	50	100	50	100	50	100	50	100	50	100	50	100
M		1	1	2	2	3	3	4	4	5	5	6	6	7	7
N		6	6	8	8	10	10	12	12	14	14	16	16	18	18
P		50	100	150	200	250	300	350	400	450	500	550	600	650	700
Weight (kg)	Without brake	5.9	6.3	6.7	7.0	7.3	7.7	8.0	8.3	8.6	8.9	9.4	9.7	10.1	10.4
	With brake	7.2	7.6	8.0	8.3	8.6	9.0	9.3	9.6	9.9	10.2	10.7	11.0	11.4	11.7

* The suction port fitting (ZW-L8-8-P4) is an attachment.
* Use the product with air intake of 30.0Nℓ/min or less from the intake port.

Notes

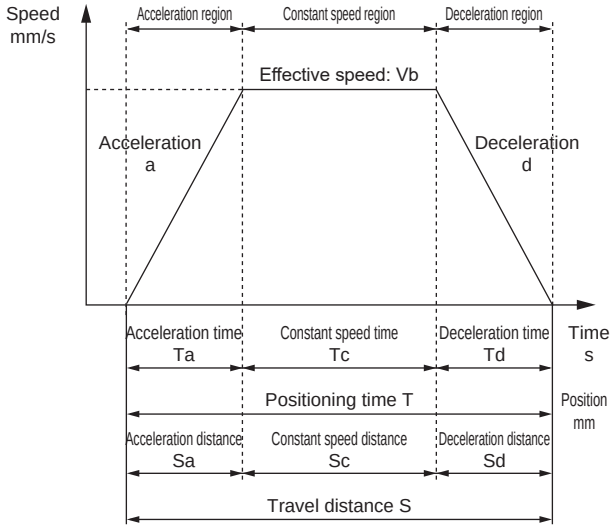
STEP 1 Confirming load capacity

Load capacity varies with mounting orientation, screw lead, transport speed and acceleration/deceleration.
Refer to the Series Variation (pages 44 and 45), the specification table for each model and the Table of Load Capacity by Speed and Acceleration/Deceleration to select the size and screw lead.

STEP 2 Confirming positioning time

Calculate the positioning time with the selected product according to the following example and confirm that the required tact is achievable.

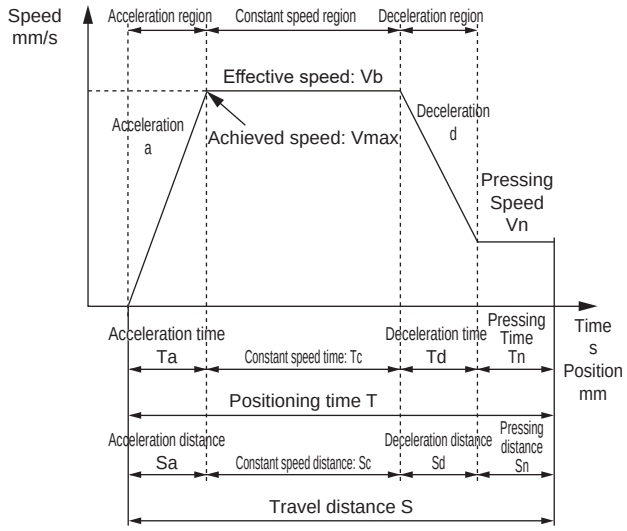
Positioning time for general transport operation



	Description	Code	Unit	Remarks
Set value	Set speed	V	mm/s	
	Set acceleration	a	mm/s^2	
	Set deceleration	d	mm/s^2	
	Travel distance	S	mm	
Calculated value	Achieved speed	Vmax	mm/s	$=\{2\times a\times d\times S/(a+d)\}^{1/2}$
	Effective speed	Vb	mm/s	Smaller of V and Vmax
	Acceleration time	Ta	s	=Vb/a
	Deceleration time	Td	s	=Vb/d
	Constant speed time	Tc	s	=Sc/Vb
	Acceleration distance	Sa	mm	$=(a\times Ta^2)/2$
	Deceleration distance	Sd	mm	$=(d\times Td^2)/2$
	Constant speed distance	Sc	mm	=S-(Sa+Sd)
	Positioning time	T	s	=Ta+Tc+Td

* Do not use at speeds that exceed the specifications.
* Depending on acceleration/deceleration and stroke length, the trapezoidal speed waveform may not be formed (the set speed may not be achieved). In this case, select the effective speed (Vb) from the set speed (V) and the achieved speed (Vmax), whichever is smaller.
* Acceleration and deceleration differ depending on the product and working conditions. Refer to pages 82 and 83 for details.
* Though the stabilization time depends on working conditions, it may take as long as 0.2s.
* 1G≈9.8m/s^2.

Positioning time for pressing operation



	Description	Code	Unit	Remarks
Set value	Set speed	V	mm/s	
	Set acceleration	a	mm/s^2	
	Set deceleration	d	mm/s^2	
	Travel distance	S	mm	
	Pressing speed	Vn	mm/s	
	Pressing distance	Sn	mm	
Calculated value	Achieved speed	Vmax	mm/s	$=\{2\times a\times d\times(S-Sn+Vn^2/2/d)/(a+d)\}^{1/2}$
	Effective speed	Vb	mm/s	The lesser value of V and Vmax
	Acceleration time	Ta	s	=Vb/a
	Deceleration time	Td	s	=(Vb-Vn)/d
	Constant speed time	Tc	s	=Sc/Vb
	Pressing time	Tn	s	=Sn/Vn
	Acceleration distance	Sa	mm	$=(a\times Ta^2)/2$
	Deceleration distance	Sd	mm	=((Vb+Vn)×Td)/2
	Constant speed distance	Sc	mm	=S-(Sa+Sd+Sn)
	Positioning time	T	s	=Ta+Tc+Td+Tn

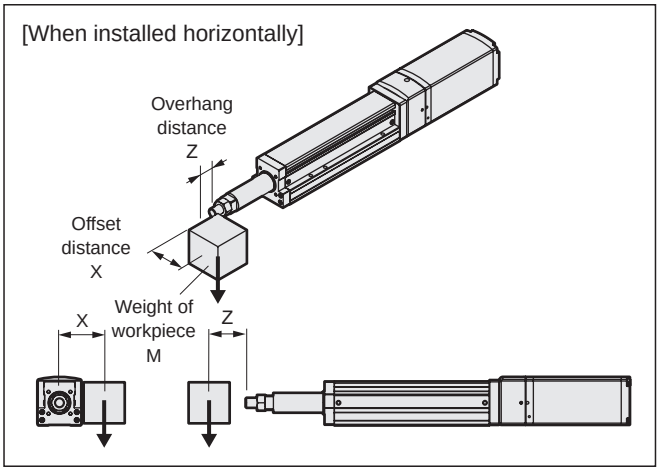
* Do not use at speeds that exceed the specifications.
* Pressing speed differs depending on the product.
* Depending on acceleration/deceleration and stroke length, the trapezoidal speed waveform may not be formed (the set speed may not be achieved). In this case, select the effective speed (Vb) from the set speed (V) and the achieved speed (Vmax), whichever is smaller.
* Acceleration and deceleration differ depending on the product and working conditions. Refer to pages 82 and 83 for details.
* Though the stabilization time depends on working conditions, it may take as long as 0.2s.
* 1G≈9.8m/s^2.

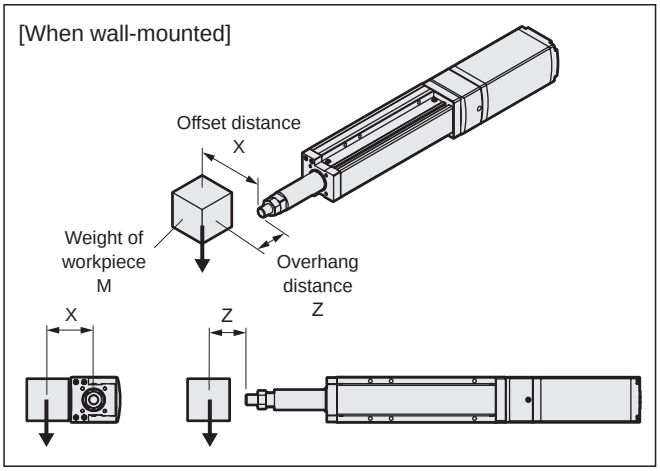
STEP 3 Confirming allowable load weight (Rod with built-in guide EBR Series)

Confirm that the load weight during operation is within the allowable range (pages 78 and 79). If the allowable load weight is exceeded, increase the size or use an external guide in conjunction.

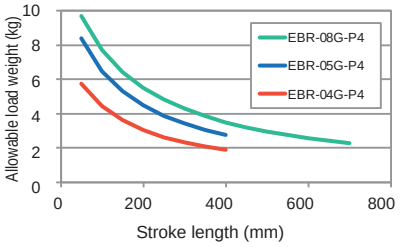
Allowable load weight * Reference value

[When installed horizontally or wall-mounted]

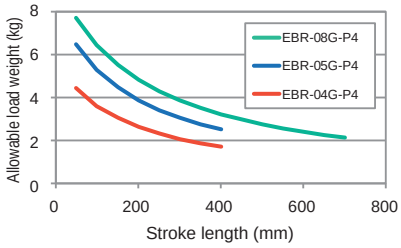




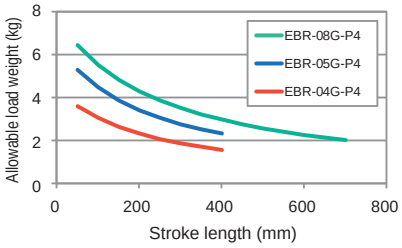
[Offset (X) 0 / Overhang distance (Z) 0 mm]



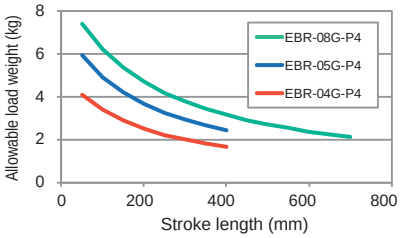
[Offset (X) 0 / Overhang distance (Z) 50 mm]



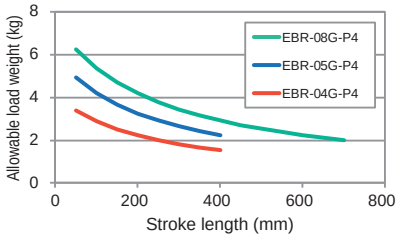
[Offset (X) 0 / Overhang distance (Z) 100 mm]



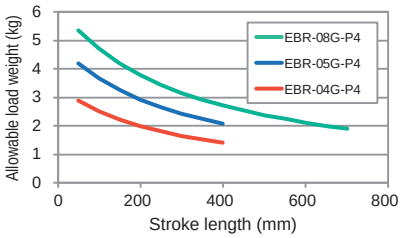
[Offset (X) 100 mm / Overhang distance (Z) 0 mm]



[Offset (X) 100 / Overhang distance (Z) 50mm]



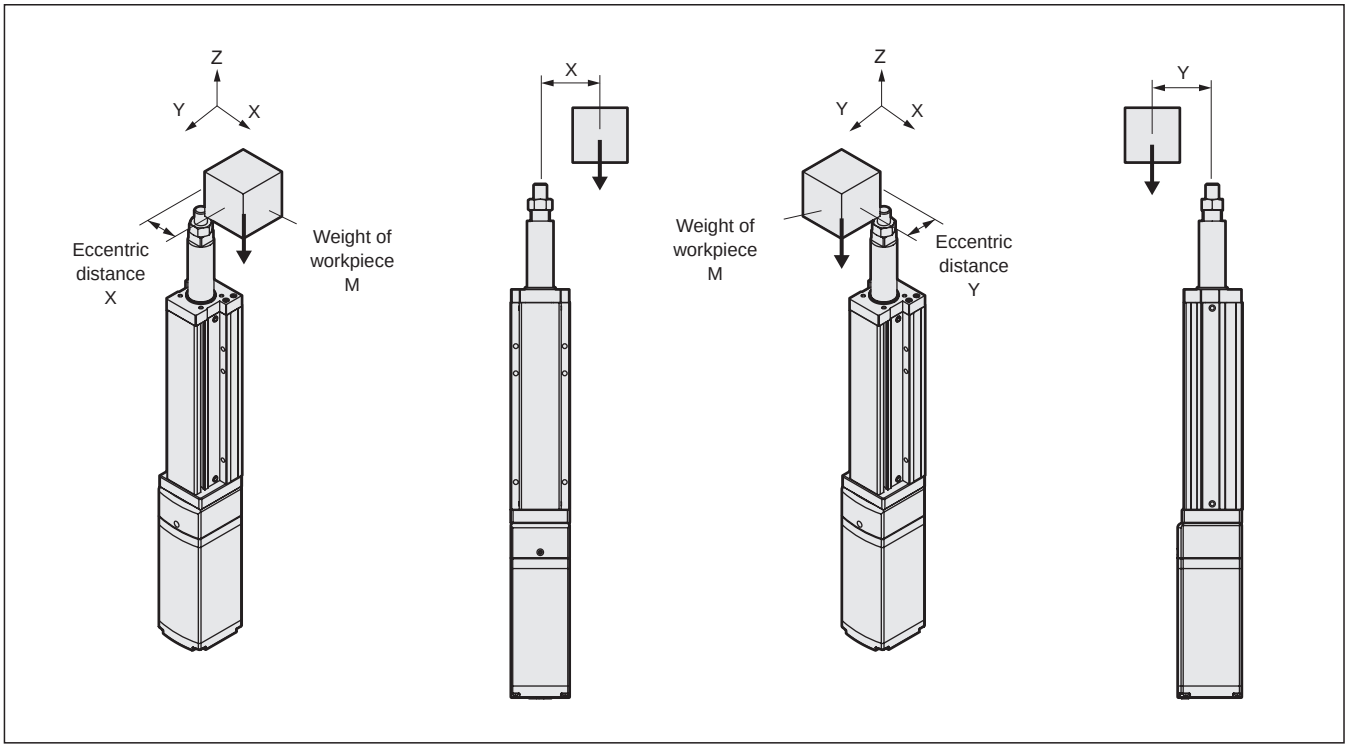
[Offset (X) 100 / Overhang distance (Z) 100mm]

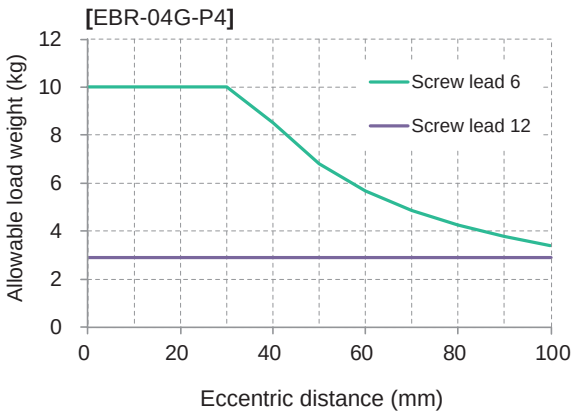


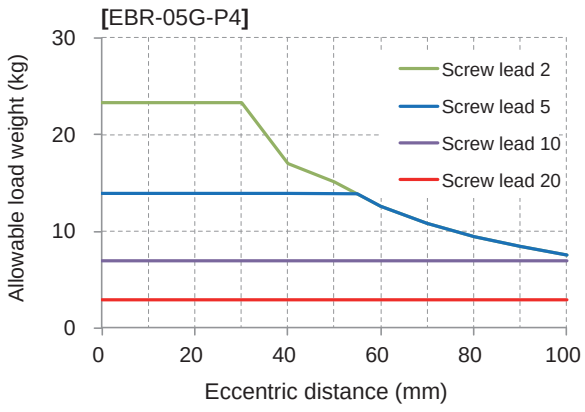
* Values are when the actuator operating life is 5,000km. (Acceleration/Deceleration 0.3 G, speed 300 mm/s)

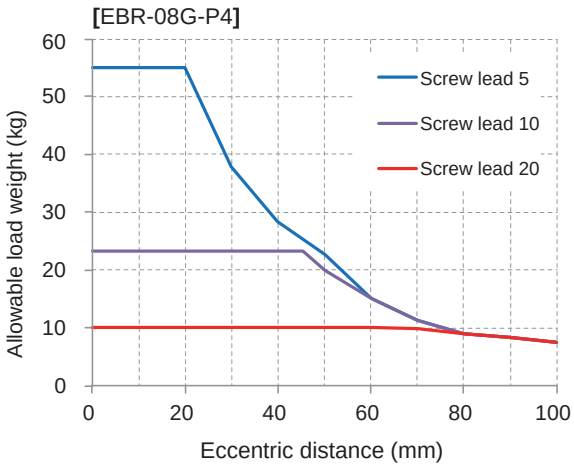
Allowable load weight * Reference value

[When installed vertically]



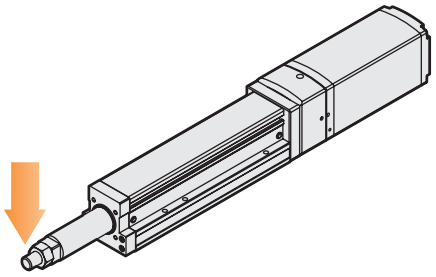




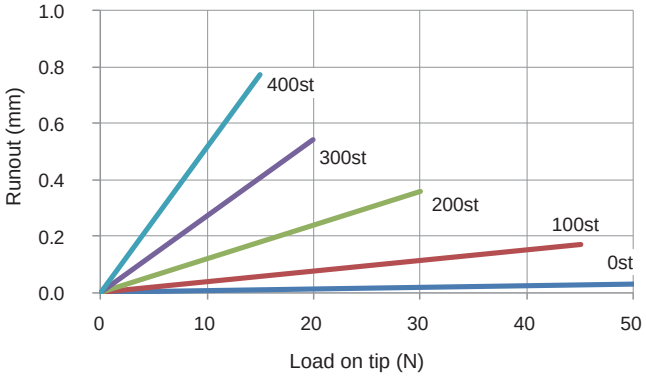


* Acceleration/Deceleration 0.3G

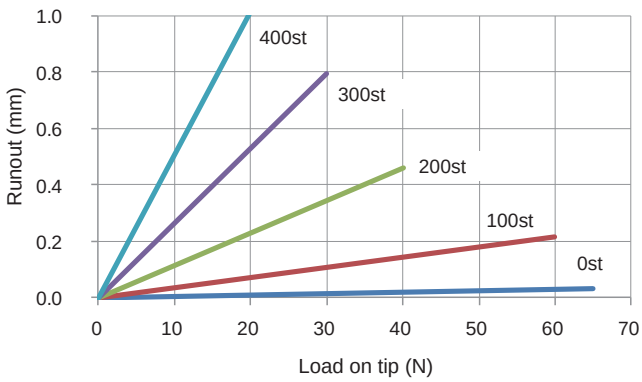
Rod end runout *Reference value



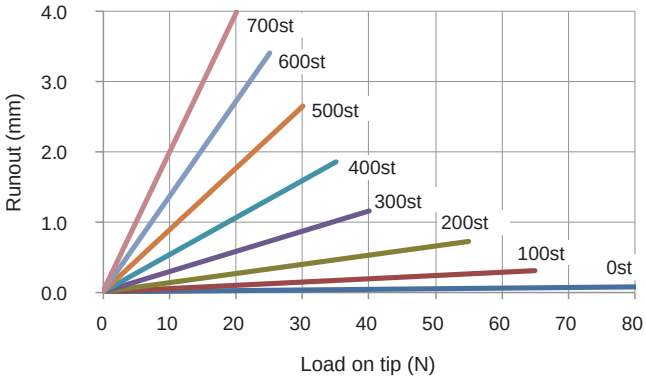
[EBR-04G-P4]



[EBR-05G-P4]



[EBR-08G-P4]



Notes

Table of Load Capacity by Speed and Acceleration/Deceleration

[When installed horizontally]

The table below lists the maximum load capacity during acceleration/deceleration and the maximum speed at which operation is possible. Refer to the model that satisfies the required operation conditions.

■EBR-04G-P4

(kg)

Screw lead 6

Speed (mm/s)	Straight		Left/Right/Bottom	
	Acceleration/Deceleration (G)			
	0.3	0.7	0.3	0.7
7	40	40	40	35
50	40	40	40	35
100	33.3	25.8	33.3	25.8
150	23.3	17.5	23.3	17.5
160	20.6	15.7	20.6	15.7

Screw lead 12

Speed (mm/s)	Straight		Left/Right/Bottom	
	Acceleration/Deceleration (G)			
	0.3	0.7	0.3	0.7
15	12.5	6.7	12.5	6.7
100	12.5	6.7	12.5	6.7
200	10	6.7	7.5	5
280	6	3.3	5.5	3.0
300	5	2.5		
320	3.7	2.0		

■EBR-05G-P4

Screw lead 2

Speed (mm/s)	Straight		Left/Right/Bottom	
	Acceleration/Deceleration (G)			
	0.3	0.7	0.3	0.7
2	80	80	80	80
25	80	80	80	80
50	80	80	80	80
70	80	80	80	80

Screw lead 5

Speed (mm/s)	Straight		Left/Right/Bottom	
	Acceleration/Deceleration (G)			
	0.3	0.7	0.3	0.7
6	60	60	60	60
50	60	60	60	60
100	60	53.3	60	43.3
150	43.3	35	43.3	26.7
200	35	20	35	18.3
240	17.6	10.6		

Screw lead 10

Speed (mm/s)	Straight		Left/Right/Bottom	
	Acceleration/Deceleration (G)			
	0.3	0.7	0.3	0.7
12	41.7	20	38.3	20
100	41.7	20	38.3	20
200	35	20	30	14.2
300	20	8.3	12.5	6.7
320	16	7	8.5	4.3
350	10	5		
400	10	5		

Screw lead 20

Speed (mm/s)	Straight		Left/Right/Bottom	
	Acceleration/Deceleration (G)			
	0.3	0.7	0.3	0.7
25	11.7	11.7	11.7	5.8
100	8.3	8.3	8.3	5.8
300	7.5	5.8	7.5	5.8
480	7.5	3.6	6.8	3.6
500	7.5	3.3		
560	6.0	2.3		

■EBR-08G-P4

Screw lead 5

Speed (mm/s)	Straight		Left/Right/Bottom	
	Acceleration/Deceleration (G)			
	0.3	0.7	0.3	0.7
6	80	80	80	80
25	80	80	80	80
50	80	80	80	80
75	80	80	80	80
100	80	51.7	51.7	43.3

Screw lead 10

Speed (mm/s)	Straight		Left/Right/Bottom	
	Acceleration/Deceleration (G)			
	0.3	0.7	0.3	0.7
12	70	70	70	70
50	70	70	70	70
100	51.7	35	51.7	35
150	51.7	26.7	51.7	26.7
200	35	26.7	31.7	18.3
240	28.4	8		

Screw lead 20

Speed (mm/s)	Straight		Left/Right/Bottom	
	Acceleration/Deceleration (G)			
	0.3	0.7	0.3	0.7
25	35	26.7	35	21.7
100	35	26.7	35	21.7
200	35	18.3	33.3	18.3
300	20	10	16.7	9.2
320	18	8.3	15.2	7.7
400	10	1.7		

Table of Load Capacity by Speed and Acceleration/Deceleration

[When installed vertically]

The table below lists the maximum load capacity during acceleration/deceleration and the maximum speed at which operation is possible. Refer to the model that satisfies the required operation conditions.

■EBR-04G-P4

Screw lead 6

Speed (mm/s)	Straight	Left/Right/Bottom
	Acceleration/Deceleration (G)	
	0.3	0.3
7	10	8.3
50	10	8.3
100	10	6.7
140	5.4	4.7
150	4.2	
175	2.5	
180	2.5	

Screw lead 12

Speed (mm/s)	Straight	Left/Right/Bottom
	Acceleration/Deceleration (G)	
	0.3	0.3
15	2.9	2.9
100	2.9	2.9
200	2.9	2.9
240	1.9	

■EBR-05G-P4

Screw lead 2

Speed (mm/s)	Straight	Left/Right/Bottom
	Acceleration/Deceleration (G)	
	0.3	0.3
2	23.3	23.3
20	23.3	23.3
25	23.3	23.3
40	23.3	23.3
50	23.3	16.7
60	21.7	15
70	15.8	9.2

Screw lead 5

Speed (mm/s)	Straight	Left/Right/Bottom
	Acceleration/Deceleration (G)	
	0.3	0.3
6	14	14
50	14	14
100	12.5	10
150	7.5	5.8
160	6.8	5.1
200	4.2	

Screw lead 10

Speed (mm/s)	Straight	Left/Right/Bottom
	Acceleration/Deceleration (G)	
	0.3	0.3
12	7	6.7
100	7	6.7
200	5.8	5
240	2.5	

Screw lead 20

Speed (mm/s)	Straight	Left/Right/Bottom
	Acceleration/Deceleration (G)	
	0.3	0.3
25	2.9	1.7
100	2.9	1.7
300	2.9	1.7
320	2.7	1.6
400	1.7	

■EBR-08G-P4

Screw lead 5

Speed (mm/s)	Straight	Left/Right/Bottom
	Acceleration/Deceleration (G)	
	0.3	0.3
6	55	55
25	55	55
50	35	35
75	21.7	21.7
100	3.3	3.3

Screw lead 10

Speed (mm/s)	Straight	Left/Right/Bottom
	Acceleration/Deceleration (G)	
	0.3	0.3
12	23.3	20
50	23.3	20
100	8.3	8.3
150	1.7	1.7
180	1.5	1.5
200	1.3	

Screw lead 20

Speed (mm/s)	Straight	Left/Right/Bottom
	Acceleration/Deceleration (G)	
	0.3	0.3
25	10	8.3
100	10	8.3
200	6.7	6.7
240	4.7	4.7

Maintenance parts

■ Maintenance parts / motor mounting direction: For right/left/downward mounting (timing belt)

Model No. 	Compatibility
EBS-04MR-BELT	EBR-04GR/D/L
EBS-05MR-BELT	EBR-05GR/D/L
EBS-08MR-BELT	EBR-08GR/D/L

■ Maintenance parts (grease nozzle)

Model No. 	Compatibility
EBS-NOZZLE	All models

■ Maintenance parts (flange)

Model No. 	Compatibility
EBR-04-FA	EBR-04G
EBR-05-FA	EBR-05G
EBR-08-FA	EBR-08G

■ Fitting

Model No. 	Compatibility
ZW-L6-6-P4	EBR-04G
ZW-L8-8-P4	EBR-05G/08G

ECG-A

Controller

CONTENTS

Controller

ECG-A Series

Controller for EBS-G, EBR-G

How to order

ECG-ANNN30 - NP A 02

Ⓐ Interface specifications

NP	Parallel I/O (NPN and PNP common)
LK	IO-Link
CL	CC-Link
EC	EtherCAT
EN	EtherNet/IP

Ⓑ Mounting method

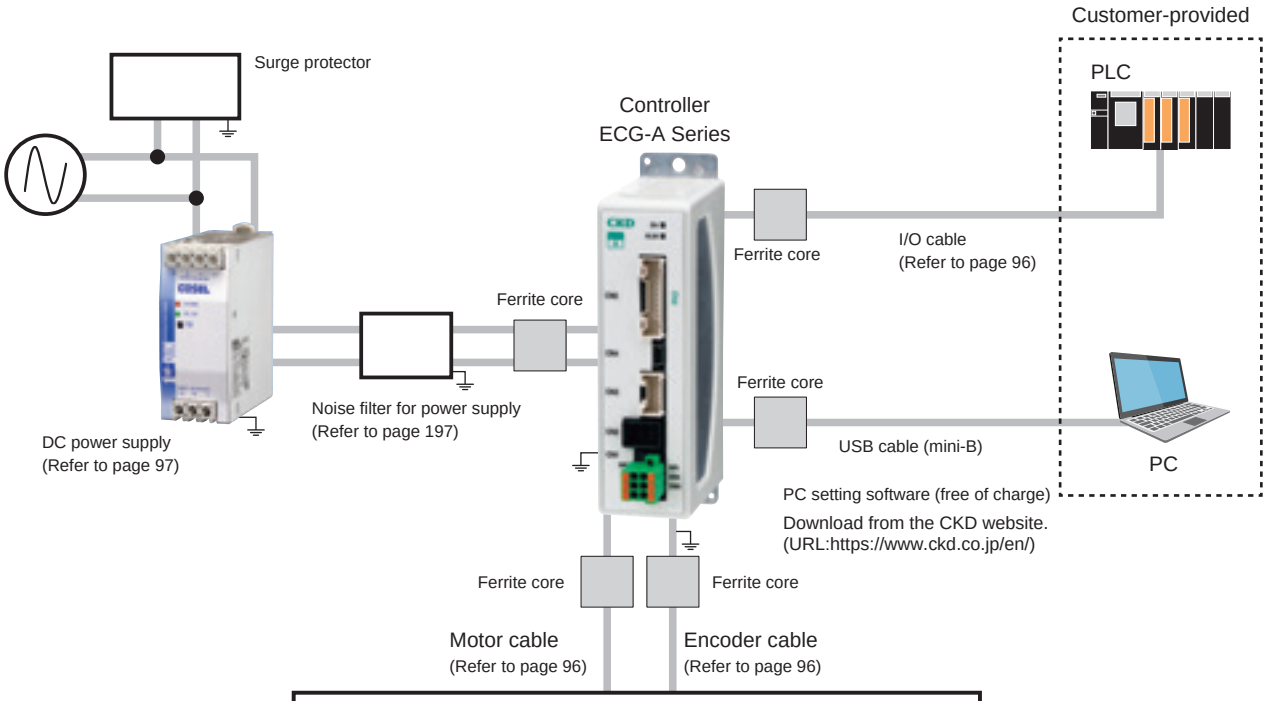
A	Standard mount
D	DIN rail mount

Ⓒ IO cable length *1

00	None
02	2m
03	3m
05	5m
10	10m

*1 Interface specifications“Parallel I/O”is not selected."None".

System configuration



Connectable actuators

EBS-G Series
(Page 1)

EBR-G Series
(Page 43)

* Refer to the Instruction Manual for details about installing and wiring the noise filter, surge protector, and ferrite core.

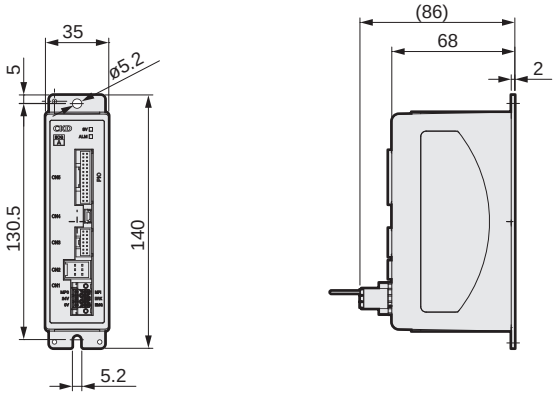
General specifications

Item		Description		
Applicable actuators		EBS-G/EBR-G		
Applicable motor sizes		□35	□42	□56
Settings tool		PC setting software (S-Tools) Connection cable: USB cable (mini-B)		
External interface	Parallel I/O specification	DC24V±10%, I/O max. 13 points, cable length max. 10 m		
	Field network specification	IO-Link, CC-Link, EtherCAT, EtherNet/IP		
Display lamp		SV lamp, alarm lamp Communication status check lamp (according to each interface specification)		
Power supply voltage	Control power	24 VDC ±10%		
	Power supply	24 VDC ±10%		
Current consumption	Control power	0.4A or less		
	Power supply	1.7A or less	1.9A or less	2.8A or less
Motor section max. instantaneous current		2.4A or less	2.7A or less	4.0A or less
Brake current consumption		0.4A or less		
Insulation resistance		500 MΩ and over at 10 VDC		
Withstand voltage		500 VAC for 1 minute		
Operating ambient temperature		0 to 40°C (no freezing)		
Operating ambient humidity		35 to 80% RH (no condensation)		
Storage ambient temperature		-10 to 50°C (no freezing)		
Storage ambient humidity		35 to 80% RH (no condensation)		
Working atmosphere		No corrosive gas, explosive gas, or dust		
Degree of protection		IP20		
Weight	Parallel I/O specification	Approx. 180g (standard mount), approx. 210g (DIN rail mount)		
	Field network specification	Approx. 310g (standard mount), approx. 340g (DIN rail mount)		

Dimensions

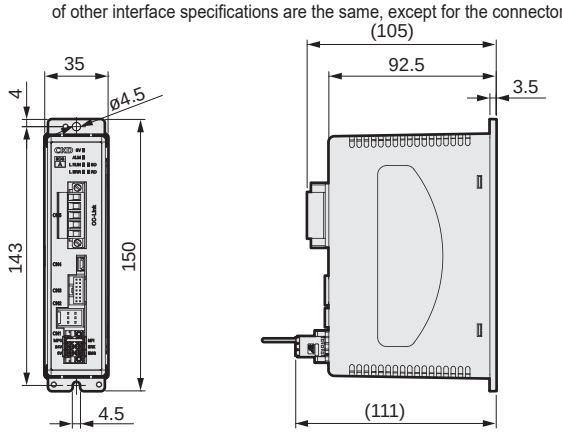
● Standard mount

ECG-ANNN30-NPA□□ (Parallel I/O specification)



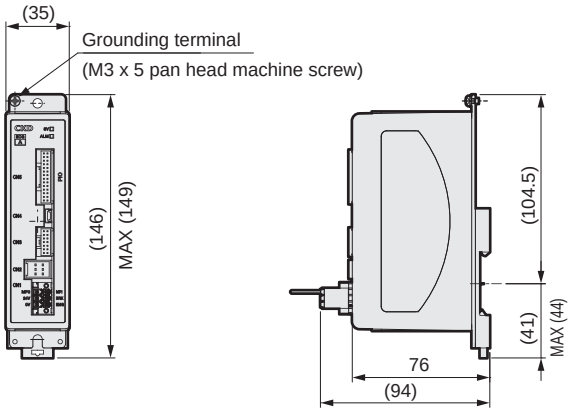
ECG-ANNN30-□□A□□(Others)

* This figure shows Dimensions with CC-Link specifications. The Dimensions of other interface specifications are the same, except for the connector part.



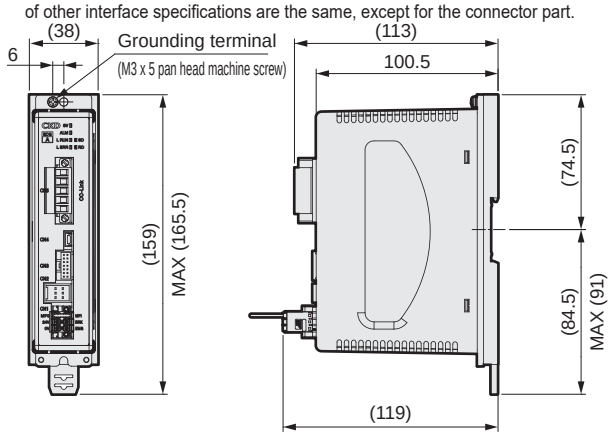
● DIN rail mounting

ECG-ANNN30-NPD□□ (Parallel I/O specification)



ECG-ANNN30-□□D□□(Others)

* This figure shows Dimensions with CC-Link specifications. The Dimensions of other interface specifications are the same, except for the connector part.

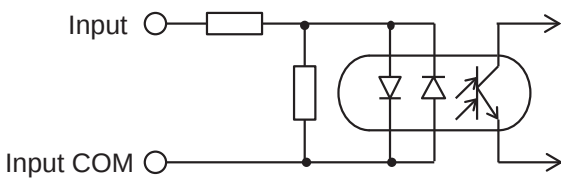


Parallel I/O (PIO) input/output circuit

Input specification

Item	ECG-ANNN30-NP □□
No. of inputs	13 points
Input voltage	24 VDC ±10%
Input current	4 mA/point
Input voltage when ON	19 V or higher
Input current when OFF	0.2 mA or less

Input circuit

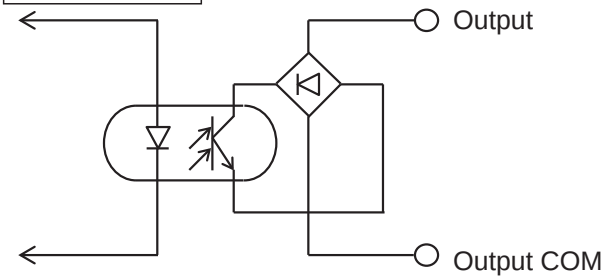


The input is not polarized. (The input COM can be used with either + or -)

Output specifications

Item	ECG-ANNN30-NP □□
No. of output points	13 points
Load voltage	24 VDC ±10%
Load current	20 mA or less/point
Internal voltage drop when ON	3 V or less
Leakage current when OFF	0.1 mA or less
Output short-circuit protection circuit	Yes
Connecting load	PLC, etc.

Output circuit



The output is not polarized.
(The output COM can be used with either + or -)

Parallel I/O (PIO) operation mode

The controller offers five operation modes. Use the PC setting software to set the appropriate operation mode.
The initial setting is 64-point mode.

Operation mode	Positioning point count	Overview
64-point mode	64 points	• JOG travel start input • Selectable output: 2 points (point zone, zone 1, zone 2, travel, warning)
Simple 7-point mode	7 points	• JOG travel start input • Selectable output: 2 points (point zone, zone 1, zone 2, travel, warning)
Solenoid valve mode Double 2-position	2 points	• SW output: 2 points • Selectable output: 2 points (point zone, zone 1, zone 2, travel, warning)
Solenoid valve mode double 3-position	2 points	• SW output: 2 points • Selectable output: 2 points (point zone, zone 1, zone 2, travel, warning)
Solenoid valve mode single	2 points	• SW output: 2 points • Selectable output: 2 points (point zone, zone 1, zone 2, travel, warning)

Parallel I/O (PIO) signal name list

Input signal

Abbreviation	Name	Abbreviation	Name
PST	Point travel start	JOGM	JOG (-) travel start
PSB*	Point number selection bit*	JOGP	JOG (+) travel start
OST	Origin return start	P*ST	Point number * travel start
SVON	Servo ON	V1ST	Solenoid valve travel instruction 1
ALMRST	Alarm reset	V2ST	Solenoid valve travel instruction 2
STOP	Stop	VST	Solenoid valve travel instruction

Output signal

Abbreviation	Name	Abbreviation	Name
PEND	Point travel complete	SONS	Servo ON state
PCB*	Point number confirmation bit *	ALM	Alarm
ACB*	Alarm confirmation bit *	WARN	Warning
PZONE	Point zone	READY	Operation preparation complete
MOVE	Moving	P*END	Point number * travel complete
ZONE1	Zone 1	SW1	Switch 1
ZONE2	Zone 2	SW2	Switch 2
OEND	Origin return complete		

Parallel I/O (PIO) operation mode and signal assignment

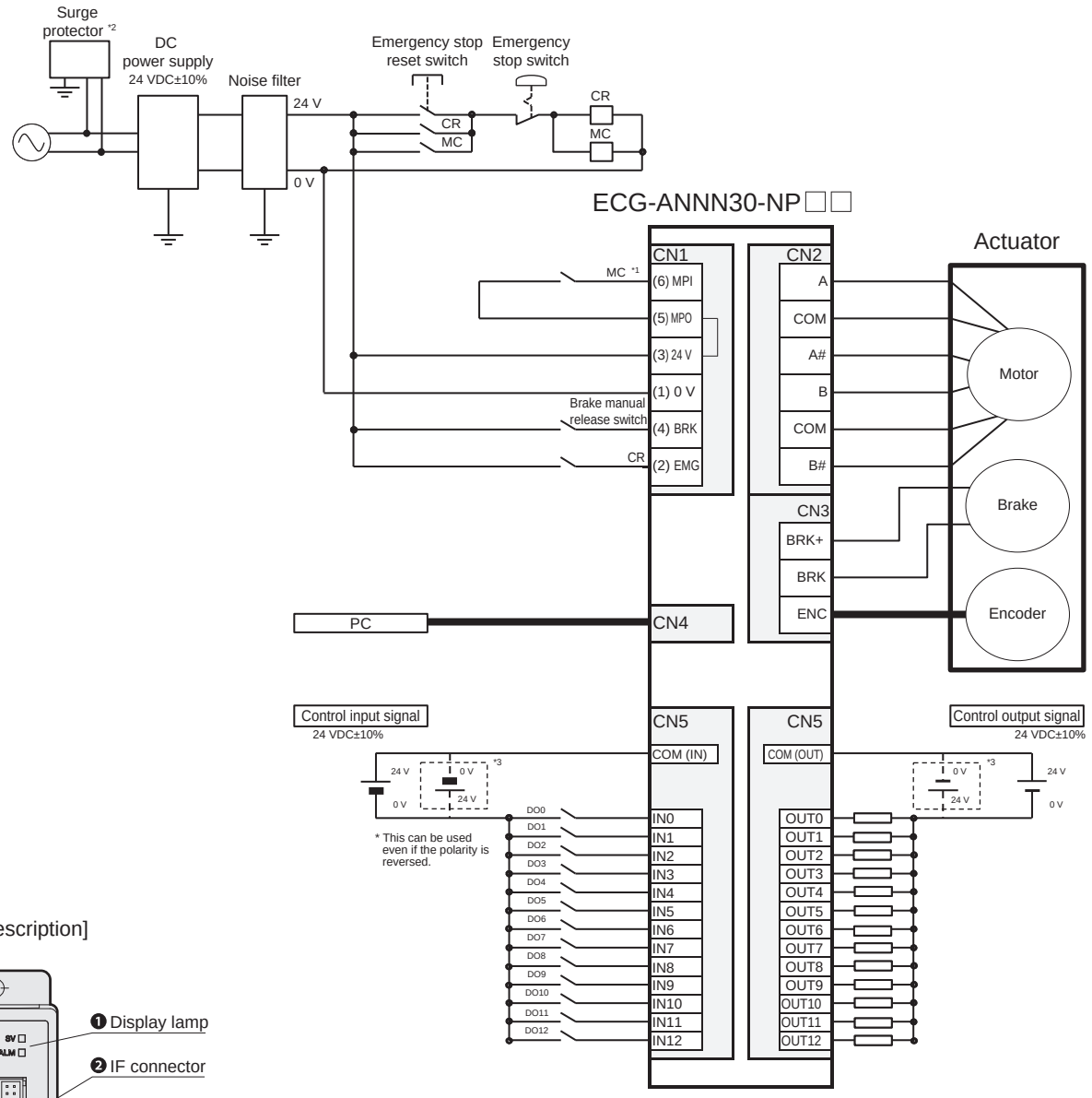
The following figure shows signal assignments in each operation mode.

Operation mode		64-point mode	Simple 7-point mode	Solenoid mode Double 2-position	Solenoid mode Double 3-position	Solenoid mode Single type
Positioning point count		64	7	2	2	2
Input	IN0	PSB0	P1ST	V1ST	V1ST	-
	IN1	PSB1	P2ST	V2ST	V2ST	VST
	IN2	PSB2	P3ST	-	-	-
	IN3	PSB3	P4ST	-	-	-
	IN4	PSB4	P5ST	-	-	-
	IN5	PSB5	P6ST	-	-	-
	IN6	PST	P7ST	-	-	-
	IN7	JOGM	JOGM	-	-	-
	IN8	JOGP	JOGP	-	-	-
	IN9	OST	OST	OST	OST	OST
	IN10	SVON	SVON	SVON	SVON	SVON
	IN11	ALMRST	ALMRST	ALMRST	ALMRST	ALMRST
	IN12	STOP#	STOP#	-	-	-
Output	OUT0	PCB0/ ACB0	P1END	P1END	P1END	P1END
	OUT1	PCB1/ ACB1	P2END	P2END	P2END	P2END
	OUT2	PCB2/ ACB2	P3END	-	-	-
	OUT3	PCB3/ ACB3	P4END	-	-	-
	OUT4	PCB4	P5END	SW1	SW1	SW1
	OUT5	PCB5	P6END	SW2	SW2	SW2
	OUT6	PEND	P7END	-	-	-
	OUT7	PZONE/ ZONE1/ ZONE2/ MOVE/ WARN#	PZONE/ ZONE1/ ZONE2/ MOVE/ WARN#	PZONE/ ZONE1/ ZONE2/ MOVE/ WARN#	PZONE/ ZONE1/ ZONE2/ MOVE/ WARN#	PZONE/ ZONE1/ ZONE2/ MOVE/ WARN#
	OUT8	PZONE/ ZONE1/ ZONE2/ MOVE/ WARN#	PZONE/ ZONE1/ ZONE2/ MOVE/ WARN#	PZONE/ ZONE1/ ZONE2/ MOVE/ WARN#	PZONE/ ZONE1/ ZONE2/ MOVE/ WARN#	PZONE/ ZONE1/ ZONE2/ MOVE/ WARN#
	OUT9	OEND	OEND	OEND	OEND	OEND
	OUT10	SONS	SONS	SONS	SONS	SONS
	OUT11	ALM#	ALM#	ALM#	ALM#	ALM#
	OUT12	READY	READY	READY	READY	READY

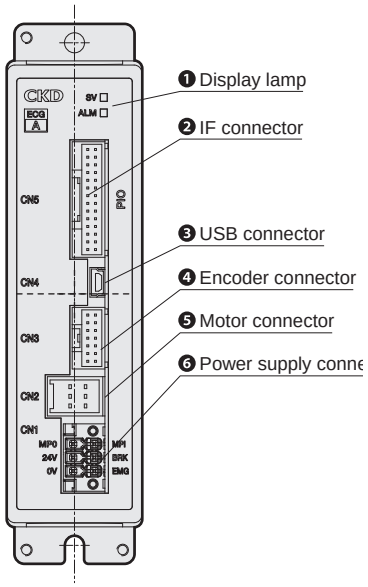
*The pound sign (#) indicates a negative logic signal.

Parallel I/O connection diagram (ECG-ANNN30-NP**)

[PIO]



[Panel description]



*1 If corresponding to safety categories, etc., it is necessary to cut off the motor drive source, connect a contact such as an electromagnetic switch between the MPI and MPO terminal. (Connected with jumper wires at shipment.)
*2 A surge protector is required to comply with the CE marking.
*3 This can be used even if the polarity is reversed.

● Accessories

Part name	Manufacturer model	Manufacturer
Power supply connector	DFMC1,5/3-STF-3,5	PHOENIX CONTACT

Description of field network operation modes

Operation mode	Overview
PIO mode (PIO)	Point operation can be used and signal assignment of inputs and outputs can be changed in the operation mode (PIO) in the same way as the parallel I/O specification. However, direct value operation that sets the operating conditions for operation directly from the PLC cannot be selected. Reading and writing of parameters do work, and the monitoring function cannot be used. Refer to the table below for details.
Half simple direct value mode (HSDP)	This mode is selectable only with the CC-Link specification controller. Switching the direct travel selection signal enables the target position to be arbitrarily set by the PLC or 64 point operation. The selected direct travel operation method can then be used. The monitoring function can be used with restrictions. However, reading and writing of parameters is not possible. Refer to the table below for details.
Simple direct value mode (SDP)	Switching the direct travel selection signal enables the target position to be arbitrarily set by the PLC or 64 point operation. The selected direct travel operation method can then be used. Reading and writing of parameters are possible, and the monitoring function can be used. Refer to the table below for details.
Half direct value mode (HDP)	This mode is selectable only with the CC-Link specification controller. Switching the direct travel selection signal enables operation conditions to be arbitrarily set by the PLC with restrictions or 64 point operations. The selected direct travel operation method can then be used. The monitoring function can be used. However, reading and writing of parameters is not possible. Refer to the table below for details.
Full direct value mode (FDP)	Switching the direct travel selection signal enables operation conditions to be arbitrarily set by the PLC or 64 point operation. The selected direct travel operation method can then be used. Reading and writing of parameters are possible, and the monitoring function can be used. Refer to the table below for details.

Operation mode		PIO	HSDP	SDP	HDP	FDP
Parameter reading/writing		Available	Not available	Available	Not available	Available
Direct value travel selection *1		Selection not possible	1	1	1	1
Positioning point count		64	No limit	No limit	No limit	No limit
Direct value travel Item *2	Target position	-	○	○	○	○
	Positioning width	-	-	-	○	○
	Speed	-	-	-	○	○
	Acceleration	-	-	-	●	○
	Deceleration	-	-	-	●	○
	Pressing rate	-	-	-	○	○
	Pressing distance	-	-	-	○	○
	Pressing speed	-	-	-	-	○
	Position specification method	-	-	-	○	○
	Operation mode	-	-	-	○	○
	Stop method	-	-	-	○	○
	Acceleration/deceleration method	-	-	-	○	○
Monitor Item *3	Position	-	○	○	○	○
	Speed	-	○	▲	○	○
	Current	-	○	▲	○	○
	Alarm	-	-	▲	○	○

*1: When direct value travel selection is 0, operation uses the value set by the point data. This enables up to 64 positioning points.
*2: 0 indicates Item operating with value set by PLC. - indicates operation with the value set by the point data. ● indicates Items operated with the value set by the PLC, but only the same values can be set.
*3: ○ indicates Items that can be monitored. - indicates Items that cannot be monitored. Only one selected Item can be monitored from ▲.
▲ indicates which Items can be monitored when selected as monitor values (one for CC-Link and IO-Link, three other values can be monitored simultaneously).

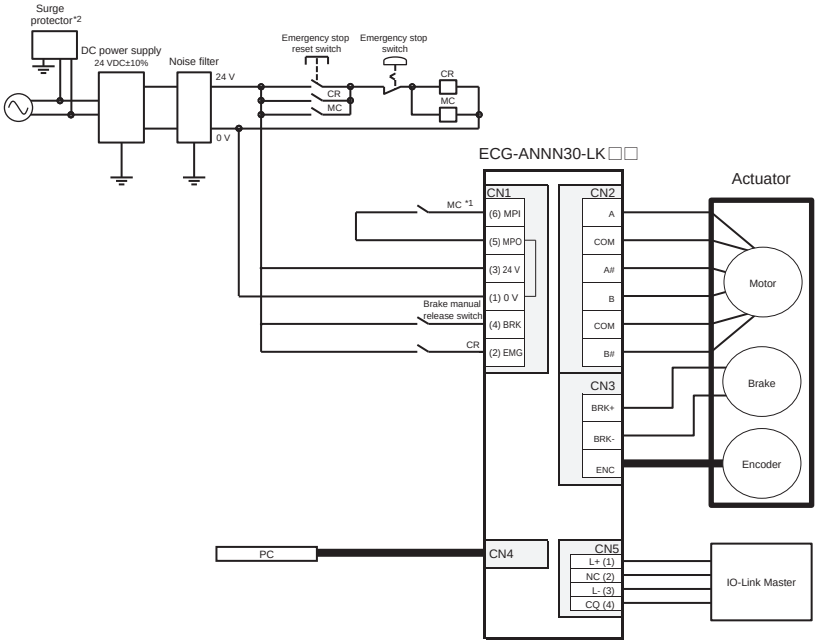
IO-Link specifications and connection diagram (ECG-ANNN30-LK**)

[Communication specifications]

Item	Specifications
Communication protocol version	V1.1
Transmission bit rate	COM3(230.4kbps)
Port	Class A
Process data length (input) PD (in) data length	PIO mode: 2 bytes
	Simple direct value mode: 9 bytes
	Full direct value mode: 12 bytes
Process data length (output) PD (out) data length	PIO mode: 2 bytes
	Simple direct value mode: 7 bytes
	Full direct value mode: 22 bytes
Minimum cycle time	PIO mode: 1 ms
	Simple direct value mode: 1.5 ms
	Full direct value mode: 2.5 ms
Monitor function	Position, speed, current, alarm

* The operation mode varies the Items that can be monitored. Refer to page 91 for details.

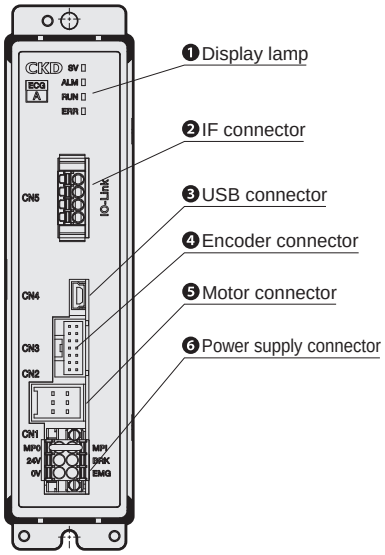
[IO-Link]



*1 If corresponding to safety categories, etc., it is necessary to cut off the motor drive source, connect a contact such as an electromagnetic switch between the MPI and MPO terminal. (Connected with jumper wires at shipment.)

*2 A surge protector is required to comply with the CE marking.

[Panel description]



Cyclic data from master

PD (out)	bit	Full direct value mode Signal name
0	7	Pause#
	6	Stop#
	5	Alarm reset
	4	Servo ON
	3	Origin return start
	2	Point travel start
	1	JOG/INCH (+) travel start
	0	JOG/INCH(-)Travel start
1	7	INCH selection
	6	-
	5 to 0	Point number selection bit 5 to 0
2	7 to 4	-
	3 to 1	Rotation direction (direct value travel)
	0	Direct value travel selection
3 to 6	7 to 0	Position (direct value travel)
7 to 8	7 to 0	Positioning width (direct value travel)
9 to 10	7 to 0	Speed (direct value travel)
11	7 to 0	Acceleration (direct value travel)
12	7 to 0	Deceleration (direct value travel)
13	7 to 0	Pressing rate(Direct value travel)
14	7 to 0	Pressing speed (direct value travel)
15 to 18	7 to 0	Pressing distance (direct value travel)
19 to 20	7 to 0	Gain magnification (direct value travel)
21	7	Position specification method (direct value travel)
	6 to 5	Operation method (direct value travel)
	4 to 3	Acceleration/deceleration method (direct value travel)
	2 to 0	Stop method (direct value travel)

Cyclic data from controller

PD (in)	bit	Full direct value mode Signal name
0	7	Operation preparation complete
	6	Warning#
	5	Alarm#
	4	Servo ON state
	3	Origin return complete
	2	Point travel complete
	1 to 0	-
1	7 to 6	-
	5 to 0	Point number confirmation bit 5 to 0
2	7 to 5	-
	4	Zone 2
	3	Zone 1
	2	Moving
	1	Point zone
	0	Direct travel status
3 to 6	7 to 0	Position (monitor value)
7 to 8	7 to 0	Speed (monitor value)
9	7 to 0	Current (monitor value)
10 to 11	7 to 0	Alarm (monitor value)

* Refer to the Instruction Manual for details of other operation modes.
* #indicates a negative logic signal.

● Accessories

Part name	Manufacturer model	Manufacturer
Power supply connector	DFMC 1,5/3-STF-3,5	PHOENIX CONTACT
IO-Link connector	FMC1,5/4-ST-3,5-RF	PHOENIX CONTACT

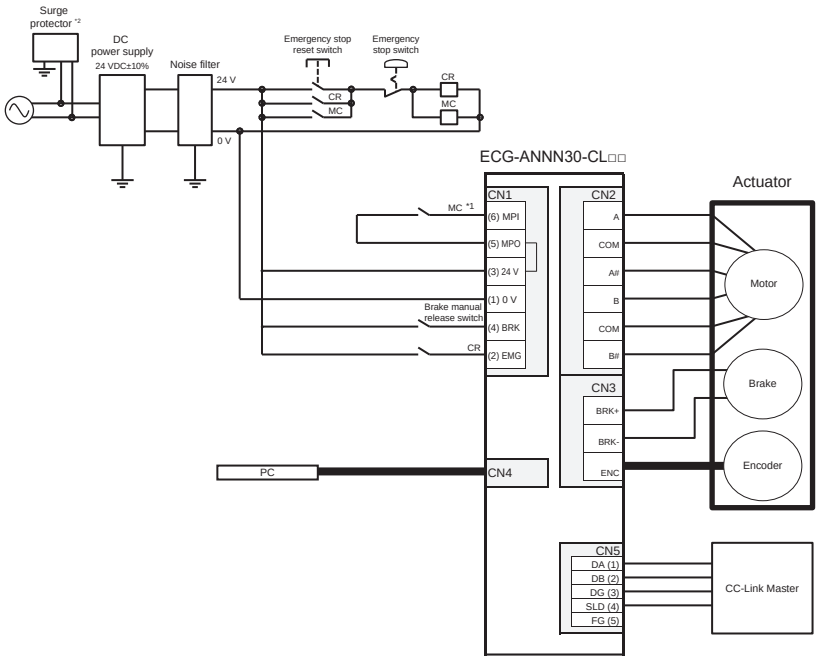
CC-Link specifications and connection diagram (ECG-ANNN30-CL**)

[Communication specifications]

Item	Specifications
CC-Link Version	Ver. 1.10
Station	Remote device station
Remote station No.	1 to 64 (set by parameter setting)
Operation mode and number of occupied stations	PIO mode (1 station occupied)
	Half simple direct value mode (1 station occupied)
	Simple direct value mode (2 stations occupied)
	Half direct value mode (2 stations occupied)
	Full direct value mode (4 stations occupied)
Remote input/ output points	32 points × number of occupied stations
Remote Register input/output	4-word × occupied stations
Communication speed	10M/5M/2.5M/625k/156kbps (Selected by parameter setting)
Connection cable	CC-Link Ver. 1.10 compliant cable (3-conductor twisted pair cable with shield)
Number of connected units	42 max. when only remote device stations are connected
Monitor function	Position, speed, current, alarm

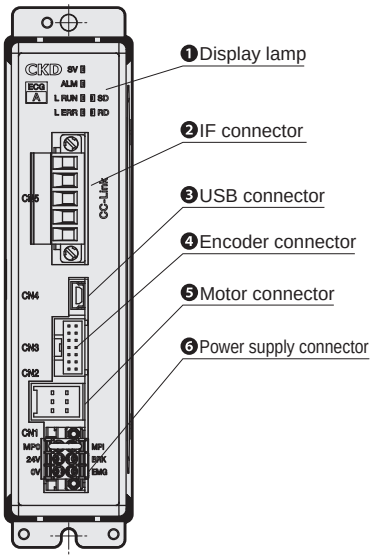
* The operation mode varies the Items that can be monitored. Refer to page 91 for details.

[CC-Link]



*1 If corresponding to safety categories, etc., it is necessary to cut off the motor drive source, connect a contact such as an electromagnetic switch between the MPI and MPO terminal. (Connected with jumper wires at shipment.)
*2 A surge protector is required to comply with the CE marking.

[Panel description]



Cyclic data from master

Device No.	Half simple direct value mode Signal name
RYn0	Point number selection bit 0
RYn1	Point number selection bit 1
RYn2	Point number selection bit 2
RYn3	Point number selection bit 3
RYn4	Point number selection bit 4
RYn5	Point number selection bit 5
RYn6	Direct value travel selection
RYn7	JOG/INCH(-)Travel start
RYn8	JOG/INCH(+)Travel start
RYn9	INCH selection
RYnA	Point travel start
RYnB	Origin return start
RYnC	Servo ON
RYnD	Alarm reset
RYnE	Stop#
RYnF	Pause#
RY(n+1)0 to RY(n+1)F	Vacant

Cyclic data from controller

Device No.	Half simple direct value mode Signal name
RXn0	Point number confirmation bit 0
RXn1	Point number confirmation bit 1
RXn2	Point number confirmation bit 2
RXn3	Point number confirmation bit 3
RXn4	Point number confirmation bit 4
RXn5	Point number confirmation bit 5
RXn6	Direct value travel status
RXn7	Selectable output 1
RXn8	Selectable output 2
RXn9	-
RXnA	Point travel complete
RXnB	Origin return complete
RXnC	Servo ON state
RXnD	Alarm#
RXnE	Warning#
RXnF	Operation preparation complete
RX(n+1)0 to RX(n+1)F	Vacant

Device No.	Half simple direct value mode Signal name
RWw0	Position (direct value travel)
RWw1	
RWw2	-
RWw3	-

Device No.	Half simple direct value mode Signal name
RWr0	Position (monitor value)
RWr1	
RWr2	Speed (monitor value)
RWr3	Current (monitor value)

* For other operation modes, refer to the instruction manual.
* #indicates a negative logic signal.

● Accessories

Part name	Manufacturer model	Manufacturer
Power supply connector	DFMC1,5/3-STF-3,5	PHOENIX CONTACT
CC-Link connector	MSTB2,5/5-STF-5,08ABGYAU	PHOENIX CONTACT

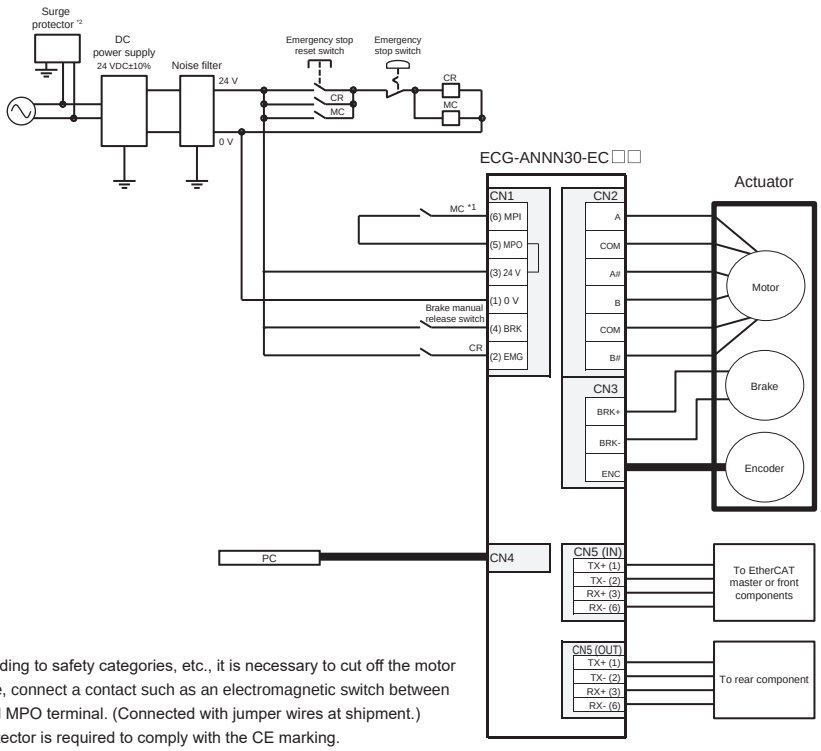
EtherCAT specifications and connection diagram (ECG-ANNN30-EC**)

[Communication specifications]

Item	Specifications
Communication speed	100Mbps (fast Ethernet, full duplex)
Process data	Variable PDO mapping
Max. PDO Data length	RxPDO:64 bytes/ TxPDO:64 bytes
Station Alias	0 - 65535 (Set by a parameter)
Connection cable	EtherCAT compliant cable (Twisted pair cable of CAT5e or higher (Double shield with aluminum tape and braid is recommended)
Node address	Automatic allocation by master
Monitor function	Position, speed, current, alarm

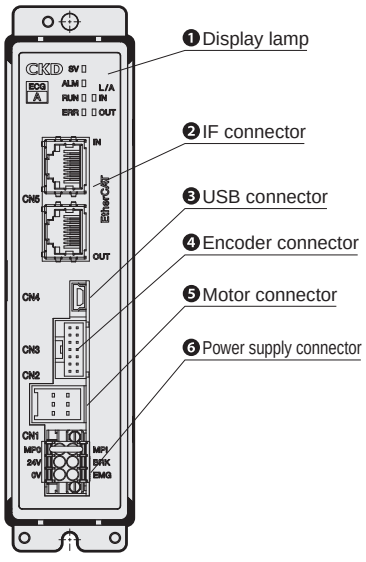
* The operation mode varies the Items that can be monitored. Refer to page 91 for details.

[EtherCAT]



*1 If corresponding to safety categories, etc., it is necessary to cut off the motor drive source, connect a contact such as an electromagnetic switch between the MPI and MPO terminal. (Connected with jumper wires at shipment.)
*2 A surge protector is required to comply with the CE marking.

[Panel description]



Cyclic data from master

Index	Sub Index	bit	Full direct value mode Signal name
0 x 2001	0x01	0 to 5	Point number selection bit 0 to 5
		6	-
		7	JOG/INCH (-) travel start
		8	JOG/INCH (+) travel start
		9	INCH selection
		10	Point travel start
		11	Origin return start
		12	Servo ON
		13	Alarm reset
		14	Stop#
		15	Pause#
		16 to 31	-
	0x02	0 to 3	-
		4	Data request
		5	Data R/W selection
		6 to 11	-
		12	Monitor request
		13 to 14	-
		15	Direct value travel selection
		16 to 31	-
0 x 2003	0x01	0 to 31	Position (direct value travel)
	0x02	0 to 31	Positioning width (direct value travel)
	0x03	0 to 31	Speed (direct value travel)
	0x04	0 to 31	Acceleration (direct value travel)
	0x05	0 to 31	Deceleration (direct value travel)
	0x06	0 to 31	Pressing ratio (direct value travel)
	0x07	0 to 31	Pressing speed (direct value travel)
	0x08	0 to 31	Pressing distance (direct value travel)
	0x09	0 to 31	Mode (direct value travel)
	0x0 A	0 to 31	Gain magnification (direct value travel)
	0x0 B	0 to 31	Writing data
	0x0C	0 to 31	Data number
	0x0D	0 to 31	Monitor number 1
	0x0E	0 to 31	Monitor number 2

Cyclic data from controller

Index	Sub Index	bit	Full direct value mode Signal name
0 x 2005	0x01	0 to 5	Point number confirmation bit 0 to 5
		6 to 9	-
		10	Point travel complete
		11	Origin return complete
		12	Servo ON state
		13	Alarm#
		14	Warning#
		15	Operation preparation complete
		16 to 31	-
	0x02	0 to 3	Data response
		4	Data complete
		5	Data write status
		6 to 7	-
		8 to 11	Monitor response
		12	Monitor complete
		13 to 14	-
		15	Direct value travel status
		16	Point zone
		17	Moving
		18	Zone 1
		19	Zone 2
		20 to 31	-
0x2007	0x01	0 to 31	Position (monitor value)
	0x02	0 to 31	Speed (monitor value)
	0x03	0 to 31	Current (monitor value)
	0x04	0 to 31	-
	0x05	0 to 31	Alarm (monitor value)
	0x06 to 0x0 A	0 to 31	-
	0x0 B	0 to 31	Read data
	0x0C	0 to 31	Data (alarm)
	0x0D	0 to 31	Monitor value 1
	0x0E	0 to 31	Monitor value 2

* Refer to the Instruction Manual for details of other operation modes.
* #indicates a negative logic signal.

● Accessories

Part name	Manufacturer model	Manufacturer
Power supply connector	DFMC 1,5/3-STF-3,5	PHOENIX CONTACT

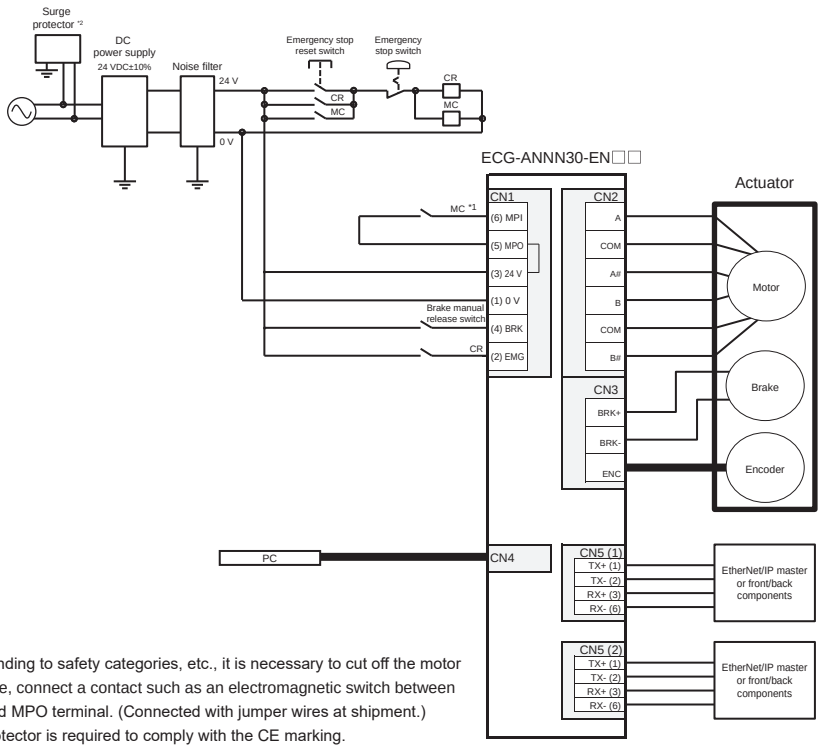
EtherNet/IP specifications and connection diagram (ECG-ANNN30-EN**)

[Communication specifications]

Item	Specifications
Communication protocol	EtherNet/IP
Communication speed	Automatic setting (100 Mbps/10 Mbps, full duplex/half duplex)
Occupied bytes	Input: 64 bytes/Output: 64 bytes
IP address	Setting by parameter (0.0.0.0 to 255.255.255.255) Via DHCP server (arbitrary address)
RPI (Packet interval)	4ms to 10000ms
Connection cable	EtherNet/IP compliant cable (Twisted pair cable of CAT5e or higher (Double shield with aluminum tape and braid is recommended)
Monitor function	Position, speed, current, alarm

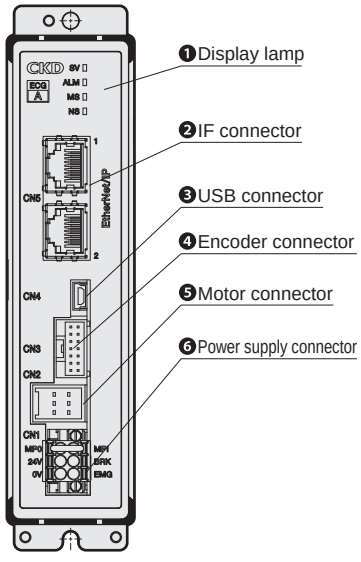
* The operation mode varies the Items that can be monitored.
Refer to page 91 for details.

[EtherNet/IP]



*1 If corresponding to safety categories, etc., it is necessary to cut off the motor drive source, connect a contact such as an electromagnetic switch between the MPI and MPO terminal. (Connected with jumper wires at shipment.)
*2 A surge protector is required to comply with the CE marking.

[Panel description]



Cyclic data from master

Byte	bit	Full direct value mode Signal name
0	0 to 5	Point number selection bit 0 to 5
	6	-
	7	JOG/INCH (-) travel start
1	0	JOG/INCH (+) travel start
	1	INCH selection
	2	Point travel start
	3	Origin return start
	4	Servo ON
	5	Alarm reset
	6	Stop#
	7	Pause#
2 to 3	0 to 7	-
4	0 to 3	-
	4	Data request
	5	Data R/W selection
	6 to 7	-
5	0 to 3	-
	4	Monitor request
	5 to 6	-
	7	Direct value travel selection
6 to 7	0 to 7	-
8 to 11	0 to 7	Position (direct value travel)
12 to 15	0 to 7	Positioning width (direct value travel)
16 to 19	0 to 7	Speed (direct value travel)
20 to 23	0 to 7	Acceleration (direct value travel)
24 to 27	0 to 7	Deceleration (direct value travel)
28 to 31	0 to 7	Pressing ratio (direct value travel)
32 to 35	0 to 7	Pressing speed (direct value travel)
36 to 39	0 to 7	Pressing distance (direct value travel)
40 to 43	0 to 7	Mode (direct value travel)
44 to 47	0 to 7	Gain magnification (direct value travel)
48 to 51	0 to 7	Writing data
52 to 55	0 to 7	Data number
56 to 59	0 to 7	Monitor number 1
60 to 63	0 to 7	Monitor number 2

Cyclic data from controller

Byte	bit	Full direct value mode Signal name
0	0 to 5	Point number confirmation bit 0 to 5
	6 to 7	-
1	0 to 1	-
	2	Point travel complete
	3	Origin return complete
	4	Servo ON state
	5	Alarm#
	6	Warning#
	7	Operation preparation complete
2 to 3	0 to 7	-
4	0 to 3	Data response
	4	Data complete
	5	Data write status
	6 to 7	-
5	0 to 3	Monitor response
	4	Monitor complete
	5 to 6	-
	7	Direct value travel status
6	0	Point zone
	1	Moving
	2	Zone 1
	3	Zone 2
	4 to 7	-
7	0 to 7	-
8 to 11	0 to 7	Position (monitor value)
12 to 15	0 to 7	Speed (monitor value)
16 to 19	0 to 7	Current (monitor value)
20 to 23	0 to 7	-
24 to 27	0 to 7	Alarm (monitor value)
28 to 47	0 to 7	-
48 to 51	0 to 7	Read data
52 to 55	0 to 7	Data (alarm)
56 to 59	0 to 7	Monitor value 1
60 to 63	0 to 7	Monitor value 2

* Refer to the Instruction Manual for details of other operation modes.
* #indicates a negative logic signal.

● Accessories

Part name	Manufacturer model	Manufacturer
Power supply connector	DFMC 1,5/3-STF-3,5	PHOENIX CONTACT

Relay cable

● Motor cable (fixed/movable)

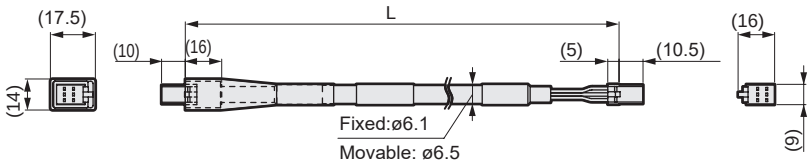
* Actuator type is also available

EA-CBLM3 - S 01

Ⓐ Ⓑ

Ⓐ Cable type	
S	Fixed cable
R	Movable cable

Ⓑ Cable length	
01	1m
03	3m
05	5m
10	10m



● Encoder cable (fixed/movable)

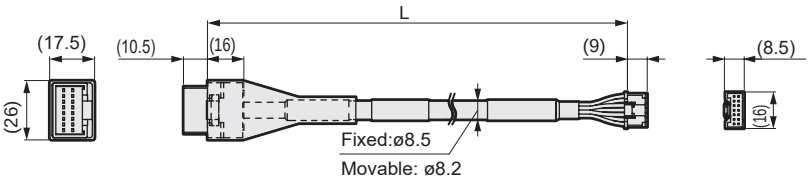
* Actuator type is also available

EA-CBLE3 - S 01

Ⓐ Ⓑ

Ⓐ Cable type	
S	Fixed cable
R	Movable cable

Ⓑ Cable length	
01	1m
03	3m
05	5m
10	10m



I/O cable

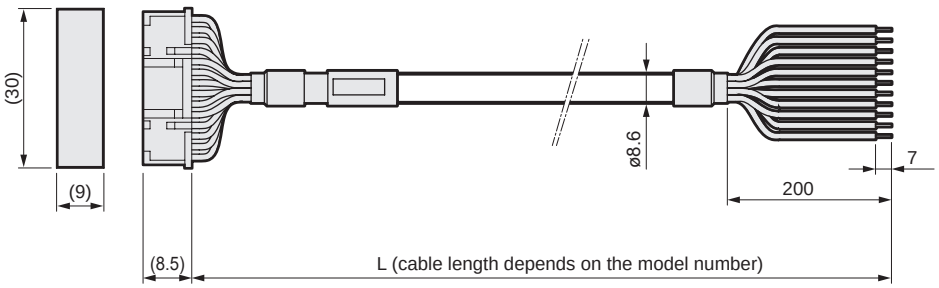
● I/O cable

* Parallel I/O specification controller also available

EA-CBLNP2 - 02

Ⓐ

Ⓐ Cable length	
02	2m
03	3m
05	5m
10	10m



Related parts model No. table

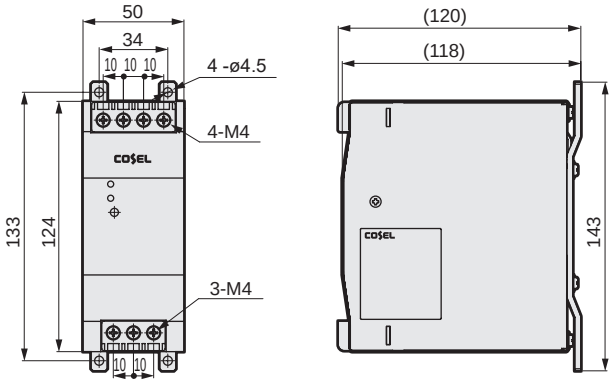
● DC power supply

Item			Model No. EA-PWR-KHNA240F-24-N2 (screw mounted) EA-PWR-KHNA240F-24 (DIN rail mount)
Manufacturer			COSEL Co., Ltd.
Manufacturer model No.	Mounting screw		KHNA240F-24-N2
	DIN rail mount		KHNA240F-24
Input voltage			AC85 to 264V 1Φ or DC88 to 370V
Output	Power		240 W
	Voltage/current		24V10A
	Variable voltage range		22.5~28.5V
Included functions	Overcurrent protection		Operating at 101% min of peak current
	Overvoltage protection		30.0~36.0V
	Remote control		Available
	Remote sensing		-
	Other		DC_OK display, ALARM display
Operating temperature/humidity			25 to +70°C, 20 to 90% RH (no condensation), startup possible at 40°C*
Applicable standards	Safety standards	AC input	AC input: Certified UL60950-1, C-UL (CSA60950-1), EN60950-1
			UL508, ANSI / ISA12.12.01, and ATEX; Electrical Appliances and Material Safety Act compliant*
		DC input	UL60950-1, C-UL(CSA60950-1), EN60950-1
	Noise terminal voltage		Compliant with FCC-B, VCCI-B, CISPR22-B, EN55011-B, EN55022-B
	Harmonic current		Compliant with IEC61000-3-2 (class A)*
Structure	Dimensions (W x H x D)		50×124×117mm
	Weight		900g max
	Cooling method		Natural air cooling

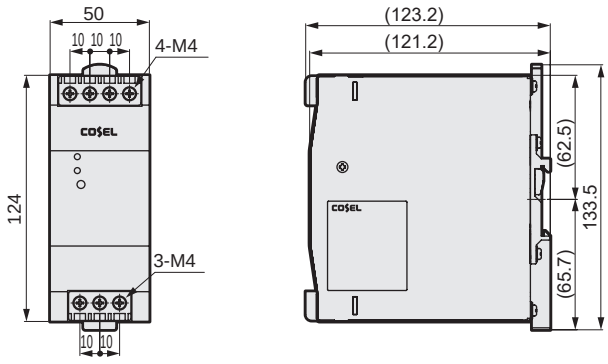
* Refer to the manufacturer's HP for details.
* CE marking and ROHS are obtained with the manufacturer model No.

Part names and dimensions

●EA-PWR-KHNA240F-24-N2 (24 V screw mounted)



●EA-PWR-KHNA240F-24 (24 V DIN rail mounted)



● Other parts

Part name	Model No.
Noise filter for power supply (single phase, 15 A)	AX-NSF-NF2015A-OD

* Refer to the instruction manual for the ferrite core to be used.

Safety Precautions

Always read this section before use.

When designing equipment using electric actuators, the manufacturer is obligated to ensure that the safety of the mechanism and the electrically controlled system are secured.
It is important to select, use, handle and maintain CKD products appropriately to ensure their safe usage.
Observe warnings and precautions to ensure device safety.
Check that device safety is ensured and a safe device is manufactured.

WARNING

1 This product is designed and manufactured as a general industrial machine part.
It must be handled by an operator having sufficient knowledge and experience in handling.

2 Use the product within specifications range.

This product must be used within its stated specifications. It must not be modified or machined additionally. This product is intended for use as a device or part for general-purpose industrial machinery. It is not intended for use outdoors (except for outdoor type) or for use under the following conditions or environment. (Note that this product can be used under the following conditions only when CKD is consulted prior to use and the customer consents to CKD product specifications. The customer must provide safety measures to avoid risks in the event of problems.)

❶ Use for special applications which require the safety, including nuclear energy, railways, aircrafts, marine vessels, vehicles, medicinal devices, devices or applications coming into contact with beverages or foodstuffs, amusement devices, emergency operations (cutoff circuits, opening etc.) circuits, press machines, brake circuits, or safety devices or applications.

❷ Use for applications where life or assets could be adversely affected and special safety measures are required.

3 Observe organization standards and regulations, etc. related to the safety of device design.

4 Never remove devices before confirming safety.

❶ Inspect and service on the machine and devices after confirming safety of the entire system related to this product.
❷ Note that there may be hot or charged sections even after operation is stopped.
❸ When inspecting or maintaining device, be sure to shut down the power supply of the equipment and the relevant power supply, using caution to avoid electric shock.

5 Observe instruction manual and precautions attached the product surely to prevent accidents.

❶ The product could operate unexpectedly during teaching operation or trial operation. Be especially careful not to touch the actuator. If operating the product from a position where the shaft body cannot be seen, be sure to first confirm that the safety is secured even if the actuator moves.

6 Observe precautions to prevent electric shock.

❶ Do not touch the heat sink, cement friction, or motor inside the controller.
These will heat up, and could cause burns. Wait an appropriate amount of time prior to performing inspections or other tasks.
A high voltage is applied until the electrical load stored in the internal capacitors is discharged after the power is turned OFF.
Do not touch for around three minutes after the power OFF.
❷ Make sure to turn the switch on the controller power supply source OFF, before maintenances and inspections.
There is a danger of high voltage electric shocks.
❸ Do not attach or remove connector, while the power is on. Otherwise, this may cause malfunction, failure, or electric shock.

7 Install an overcurrent protector.

The wiring to the driver should be in accordance with JIS B 9960-1:2019 (IEC 60204-1:2016) Safety of Machinery - Electrical Equipment of Machines - Part 1: General Requirements. Install an overcurrent protector (a circuit breaker or circuit protector for wiring) on the main power, control power, and I/O power.

(Reference: JIS B 9960-1 7.2.1 General description)
If there is a possibility the circuit current may exceed the rated value of the component or the allowable current of the conductor, an overcurrent protection must be provided. The details of the ratings or set values to be selected shall be provided in 7.2.10.

8 Observe precautions below to prevent accidents.

■ The precautions are ranked as "DANGER", "WARNING" and "CAUTION" in this section.

DANGER: When a dangerous situation may occur if handling is mistaken leading to fatal or serious injuries, and when there is a high degree of emergency to a warning.

WARNING: When a dangerous situation may occur if handling is mistaken leading to fatal or serious injuries.

CAUTION: When a dangerous situation may occur if handling is mistaken leading to minor injuries or physical damage.

Note that some items described as "CAUTION" may lead to serious results depending on the situation.
Every item provides important information and must be observed.

Warranty

1 Warranty period

The product specified herein is warranted for one (1) year from the date of delivery to the location specified by the customer.

2 Warranty coverage

If the product specified herein fails for reasons attributable to CKD within the warranty period specified above, CKD will promptly provide a replacement for the faulty product or a part thereof or repair the faulty product at one of CKD's facilities free of charge.

However, following failures are excluded from this warranty:

1) Failure caused by handling or use of the product under conditions and in environments not conforming to those stated in the catalog, the Specifications, or the Instruction Manual.
2) Failure caused by use of the product exceeding its durability (cycles, distance, time, etc.) or caused by consumable parts.
3) Failure not caused by the product.
4) Failure caused by use not intended for the product.
5) Failure caused by modifications/alterations or repairs not carried out by CKD.
6) Failure caused by reasons unforeseen at the level of technology available at the time of delivery.
7) Failure caused by acts of nature and disasters beyond control of CKD.

The warranty stated herein covers only the delivered product itself. Any loss or damage induced by failure of the delivered product is excluded from this warranty.

Note: For details on the durability and consumable parts, contact your nearest CKD sales office.

3 Compatibility confirmation

The customer is responsible for confirming the compatibility of CKD products with the customer's systems, machines and equipment.

4 Range of service

The delivered product price does not include engineer dispatch service fees. Separate fees will be charged in the following cases.

(1) Instruction of installation and adjustment, and presence on test operation
(2) Maintenance and inspection, adjustment, and repair
(3) Technical instructions and technical education (operation, program, wiring method, safety education, etc.)

Precautions for export

Products and related technologies in this catalog

Those of the products and related technologies in this catalog which are subject to US Export Administration Regulations (EAR) are marked on the product page as "Product subject to the EAR (EAR99) or (EAR99 and 3A991)".

For export or provision of products or related technologies subject to EAR regulations, we request that the US Export Administration Regulations (EAR) be observed appropriately.

Safety Precautions

Be sure to read this section before use.

Common precautions: Electric actuator EBS/EBR Series/Controller ECR/ECG

Design/selection

1. Common

⚠DANGER

- Do not use in places where dangerous goods such as ignitable substances, inflammable substances or explosives are present.
  There is a possibility of ignition, combustion or explosion.
- Ensure that the product is free of water droplets and oil droplets.
  Failure to do so may lead to fire or malfunction.
- When mounting the product, be sure to hold and fix it (including workpieces) securely.
  Falling, dropping, abnormal operation, etc., of the product may cause injury. As a rule, fix the product using all mounting holes.
- Use a DC stabilized power supply (48 VDC ± 10% or 24 VDC ±10%) for the ECR Series motor and control power supplies.
  Connecting directly to the AC power supply may cause fire, explosion, damage, etc.
- Use a DC stabilized power supply (24 VDC ±10%) for the input/output circuit power supplies and ECG Series motor and control power supplies.
  Connecting directly to the AC power supply may cause fire, explosion, damage, etc.

⚠WARNING

- Use the product in the range of conditions specified for the product.
- Provide a safety fence to prevent entry to the movable range of the electric actuator.
  In addition, install the emergency stop button switch as a device in a location which is easy to operate in an emergency situation.
  For the emergency stop button, use a structure and wiring that will prevent automatic restoration or inadvertent restoration by personnel.
- An emergency stop may take several seconds, depending on the travel speed and load.
- Design a safety circuit or equipment so that damage to equipment, injury to persons, etc., does not occur when the machine stops in the event of a system failure such as emergency stop or power outage.
- Install indoors with low humidity.
  There is a risk of electric leakage or fire accidents in places exposed to rainwater or where there is high humidity (humidity of 80% or more, condensation). Oil drops and oil mist are also strictly prohibited.
  Use in such an environment could lead to damage or operation failure.
- Make sure that the product is D type grounded (ground resistance of 100 Ω or less).
  Electric shock or malfunction may occur if there is electric leakage.
- When installing the actuator in a direction other than horizontal, select the type with brake.
  If the motor is not equipped with a brake, the movable parts may fall off at servo OFF (including emergency stops and alarms) or power OFF, which may result in injury or damage to the workpiece.
- The brakes are not sufficient to completely retain the actuator in all situations. Be sure to achieve a balanced state or install a mechanical lock mechanism where safety must be guaranteed, such as when performing maintenance in an application where the slider moves with an unbalanced load or when stopping the machine for a long period of time.
- When vertically installing the actuator, do everything possible to keep the motor on top.
  While normal operation with the motor on the bottom will not be problematic, if the motor is stopped for a long time, the grease may separate and flow into the motor, very occasionally leading to malfunctions.
- Use and store in accordance with the working/storage temperatures and where there is no condensation.
  (Storage temperature: -10°C to 50°C, storage humidity: 35% to 80%, operating ambient temperature: 0°C to 40°C (for EBS-G, EBR-G: 10°C to 40°C), operating ambient humidity: 35% to 80%)
  Otherwise, abnormal stopping or decreased product service life may result. Ventilate in locations where heat may build up.
- Do not use this product in a location where the ambient temperature could suddenly change and cause dew to condense.
- Install in a location free from direct sunlight, dust, and corrosive gas/explosive gas/inflammable gas/combustibles, and away from heat sources.
  Chemical resistance of this product has not been taken into account.
  Otherwise, damage, explosions, or fire may result.
- Use and store in locations free from strong electromagnetic waves, ultraviolet rays, or radiation.
  Otherwise, malfunction or damage may result.
- Consider the possibility of power source failure.
  Take measures to prevent bodily injury or machine damage even in the event of a power failure.

■ Consider the operation status when restarting after emergency or abnormal stops.
Design the system so that bodily injury or equipment damage will not occur when restarting. If there is a need to reset the electric actuator to the starting position, design a safe control device. Consider the possibility of power failure of the mounted motor. Take measures to prevent bodily injury or machine damage even in the event of a power failure.

■ Avoid using this product where vibration or impact are present.

■ Do not apply a load to the product that is greater than or equal to the allowable load listed in the materials for selection.

⚠CAUTION

■ Do not use in a range where the moving table and rod could collide with the stroke end.

■ Indicate the maintenance conditions in the device's instruction manual.
The product's functionality may drop too low to maintain an appropriate safety level depending on usage conditions, working environment and maintenance status. With correct maintenance, the product functions can be used to the fullest.

■ Products are manufactured based on compliance with various standards.
Never disassemble or modify the product.

■ The customer is responsible for confirming the compatibility of CKD products with the customer's systems, machines and equipment.

■ Set up the wiring so as not to apply inductive noise.
Avoid locations where large currents or strong magnetic fields are generated.
Do not use the same wiring (with multi-conductor cables) as any large motor power lines other than that of this product.
Do not use the same wiring as inverter power supplies used for robots, etc. Apply a frame ground for the power supply and insert the filter to the output part.

■ Do not use this product in an environment where strong magnetic fields are generated.
This could cause improper operation.

■ Be sure to separate the power supply of the output of this product and the power supply of inductive loads that generate surges, such as solenoid valves and relays.
If the power supply is shared, surge current may flow into the output and cause damage.
If a separate power supply cannot be used, connect the surge absorption element directly to all inductive loads in parallel.

■ Select a power supply which provides ample capacity based on the number of installed products. Malfunction may occur if there is no margin for the capacity.
(□35: 2.4 A/unit, □42: 2.7 A/unit, □56: 4.0 A/unit)

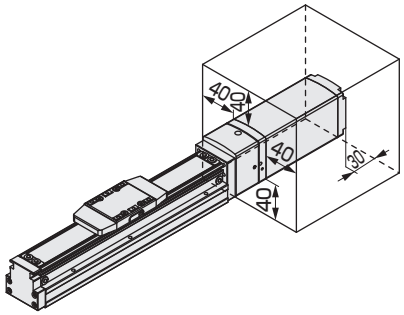
■ A fixed cable cannot be used in applications where it is repeatedly bent. Use a movable cable in places where it is repeatedly bent.

■ Fix the fixed cable so that it does not move easily. Use a movable cable with a bending radius of 63 mm or more.
Because the bending radius does not apply to bending of the connector part, we recommend fixing near the connector.

■ The origin position is recognized when the power supply is turned ON. If an external stopper or holding mechanism (brake, etc.) is attached, an unintended position may be recognized as the origin position. Be careful with the layout of the external stopper, etc., so that the origin can be properly detected after the power supply is turned ON.

■ If using EBS-G or EBR-G Series, do not apply a magnetic field with magnetic flux of 0.7 mT or higher to the surface of the motor.
This may cause damage or malfunction of the product.

■ If using multiple EBS-G or EBR-G Series units, separate the motors by at least the distance shown in the diagram.
Installing them close together may result in malfunction.

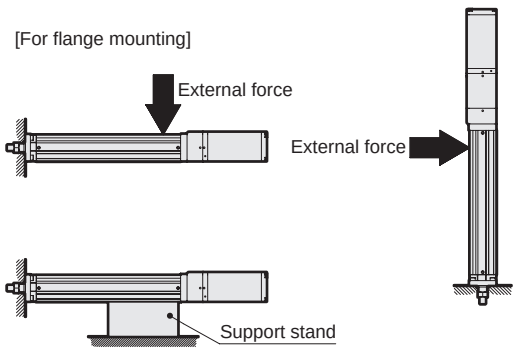


2.EBS Series

■ Check that there is no interference between the workpiece to be mounted on the slider and the motor part.
Some motors are larger than the slider mounting surface height.

3.EBR Series

■ Do not apply external force to the body when mounting the flange (option). External force may lead to malfunction or part damage.
Install a support stand when front-mounting horizontally. Vibration caused by operation conditions or the installation area could damage the actuator body. If the body will be subject to external force use the mounting holes on its base to fix the body in place.



Mounting, installation and adjustment

1. Common

⚠ DANGER

- Do not enter the operating range of the product while the product is operable.
  The product may suddenly move and may result in injuries.
- The wiring should be in accordance with JIS B 9960-1: 2019 Safety of Machinery - Electrical Equipment of Machines - Part 1: General Requirements. Install an overcurrent protector (a circuit protector or a shutoff mechanism for wiring) for the primary side of the power supply.
- Do not operate the unit with wet hands.
  This may cause electric shock.
- Fingers and other extremities may be snagged between the motor and slider sections of the EBS Series (slider) during origin return. Please be careful.
- When connecting a computer, do not ground its frame ground (FG).
  When using a controller with positive grounding, connecting the controller and peripheral components to the computer with a USB cable risks short-circuiting the DC power supply.

⚠ WARNING

- Precision parts are built in, so laying the product on its side or applying vibration or impact during transportation are strictly prohibited.
  This may cause damage to the parts.
- For preliminary installation, place horizontally.
- Do not step onto the packaging or place objects on it.
- Avoid condensation, freezing, etc., and maintain ambient temperatures of -10 to 50°C and ambient humidity of 35 to 80% RH when transporting and carrying.
  Failure to do so may cause damage to the product.
- Mount the product on incombustible materials. Direct mounting on combustibles or mounting near combustibles may cause fire.
  There is a risk of burns.
- Do not step onto the product or place objects on it.
  This may result in falling, knocking the product over, injury due to falling, product damage and/or malfunctions due therein, etc.
- Take measures to prevent bodily injury or machine damage even in the event of a power failure.
  There is a risk of unexpected accidents.
- If the product generates abnormal heat, smoke or odor, turn OFF the power immediately.
  Otherwise, product damage or fire may result.
- Stop operation immediately when abnormal noise or major vibration occurs.
  Otherwise, product damage or abnormal operation may result.
- Wire the product securely while confirming with this catalog and the instruction manual and ensuring that there is no miswiring or loose connectors. Check wiring insulation.
  Due to contact with other circuits, ground faults and insulation failure between terminals, overcurrent may flow into the product and damage it. This may cause abnormal operation or fire.
- Be sure to insulate unused wires.
  This may cause malfunction, failure, or electric shock.
- Do not damage the cable, snag it, apply excessive stress to it, or place heavy objects on it.
  Otherwise, poor conduction or electric shock may occur.
- Be sure to perform a safety check of the device's operating range before supplying power to the product. If the product LEDs do not light up when the power supply is turned ON, immediately turn the power OFF.
  Inadvertently supplying power can cause electric shock or injury.
- When restarting the machine/equipment, confirm that measures are taken to prevent parts from coming loose.
- Check that the servo is turned OFF when manually moving the movable parts of the product.
- The movable parts of the equipment may move unexpectedly when the actuator servo is turned OFF. When turning the servo OFF, take steps to prevent danger and operate the equipment with full attention to safety.
- Before operating the actuator, check that it will operate safely.

⚠ CAUTION

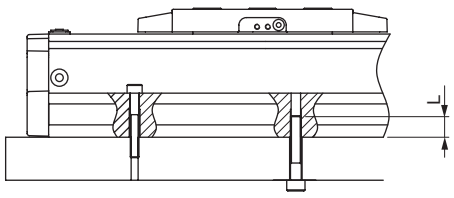
- Regarding installing, setting up, and/or adjusting the actuator, read through the instruction manual and operate correctly.
- When installing the product, be sure to secure space for maintenance work.
  Otherwise, it may not be possible to conduct inspection and maintenance, leading to stoppage or damage of the device or injury during operation.
- Do not hold the product's movable parts or cables during transportation and installation.
  This may lead to injury or disconnection.
- When carrying the product, support it from the bottom.
- When transporting and mounting the product, ensure operator safety by supporting the product with a lift or other supporting tools, or working in pairs or more.

- Do not install in places where large vibration or impact is transmitted.
  This may cause malfunction.
- Do not operate the movable parts of the product with external force or sudden deceleration.
  This may lead to malfunction or damage due to regenerative current.
- When returning to origin, excluding pressing operation, do not hit the mechanical stopper, etc.
  The feed screw could be damaged or malfunction.
- Durability varies with transported load and environment. The transport load, etc., should be at a setting well within the margin.
- Do not apply external force to the actuator during origin return. There is a possibility of misrecognition of the origin.
- Make sure that no vibration/impact is applied to the movable parts.
- Install such that no torsion or bending force is applied to the product.
- When performing electric welding on the equipment to which the product is mounted, remove all F.G. (frame ground) wire connections to the product.
  If electric welding is performed with the F.G. connection attached, the product may be damaged by welding current, excessively high voltage during welding, or surge voltage.
- Do not disassemble or modify the product.
  This may cause injury, accident, malfunction or failure.
- Do not bend the fixing cable repeatedly.
  If the cable needs to be repeatedly bent, use a movable cable.
- Fix the fixed cable so that it does not move easily. Use a movable cable with a bending radius of 63 mm or more.
  Because the bending radius does not apply to bending of the connector part, we recommend fixing near the connector.
- Avoid use in locations exposed to ultraviolet rays or with atmospheres of corrosive gas or salt.
  Otherwise, degradation of performance, abnormal operation or deterioration in strength due to rust may result.
- Be sure to use the dedicated cable to connect the actuator and controller.
  Mistakenly connecting another component may cause malfunction or failure.
- Before adjusting the gain, secure the actuator body to the machine and securely mount jigs and other components.

2. EBS/EBR Series

⚠CAUTION

- Do not apply excessive moment to the slider when using the EBS Series (slider).
  This may cause damage or malfunction of the product.
- Make the flatness of the installation surface 0.05 mm/200 mm or less.
- For the EBS Series (slider), ensure that the flatness of the workpiece side attached to the slider is 0.02 mm or less, and do not apply torsion or bending force to the product.
  This may cause damage or malfunction of the product.
- Tighten the body mounting screws with the appropriate torque.



(A) (B)

Descriptions	(A) Mounting from top		(B) Mounting from bottom		
	Bolt used	Tightening torque (N·m)	Bolt used	Tightening torque (N·m)	Min. screw insertion depth L (mm)
EBS-04 EBR-04	M3×0.5	0.63	M4×0.7	1.5	6
EBS-05 EBR-05	M4×0.7	1.5	M5×0.8	3	7.5
EBS-08 EBR-08	M5×0.8	3	M6×1	5.2	9

- When using an external guide, check that it operates smoothly in all positions of the product stroke before installation.

3. Controller ECG

⚠CAUTION

- When wiring, do not apply excessive force to the connectors.
- Do not push hard on the controller case.
- Use a cable within 10 m to connect the IF connector.

Use/maintenance

1. Common

⚠DANGER

- Do not operate the unit with wet hands.
  This may cause electric shock.

⚠WARNING

- Wiring work and inspection should be done by a specialized technician.
- When performing maintenance, inspection and repair, stop the power supply to this product.
  Caution people in the vicinity that a third party should not turn ON the power inadvertently.
- Do not attach or detach wiring or connectors with the power supply ON.
  This may cause malfunction, failure, or electric shock.
- For wiring work and inspection, check the voltage with a tester after more than 5 minutes have elapsed since turning OFF the power.
  Failure to do so may cause electric shock.
- Mount the product before wiring.
  Failure to do so may cause electric shock.
- Make sure that the diameter of the electrical wire used for the power cable can tolerate up to 8.6 A of current (up to 4.0 A for ECG Series).
  Otherwise, heat generation or damage during operation may occur.
- Do not connect the product's communication connector to other devices.
  Doing so may cause failure or damage.
- Turn OFF the power supply in the event of a power failure. When the power is restored, the product may move unexpectedly and cause accidents.
- Perform a safety check of the device's operating range before supplying power to the product.
  Inadvertently supplying power can cause electric shock or injury.
- Do not enter the operating range while the product is operable.
  The product may move unexpectedly and cause injury.
- Do not touch the product with hands or body during operation or immediately after stopping.
  This may cause burns.
- Do not step onto the product or place objects on it.
  This may result in falling, knocking the product over, injury due to falling, product damage, malfunctions due thereto, etc.
- Take measures to prevent bodily injury or machine damage even in the event of a power failure.
  There is a risk of unexpected accidents.
- Before operating from a position where the actuator cannot be seen, confirm that it can be safely operated.
- Check that the servo is turned OFF when manually moving the movable parts of the product.
- If there is a problem with the timing belt, stop operation immediately and replace the timing belt. Breakage of the timing belt in vertical use is particularly dangerous, so be sure to replace it in a timely manner.
  Check for wear and tear on the teeth or sides, vertically split teeth, cracked or softened reverse, partial disconnection or the like of the timing belt.
- If the product generates abnormal heat, smoke or odor, turn OFF the power immediately.
  Otherwise, product damage or fire may result.
- Stop operation immediately when abnormal noise or major vibration occurs.
  Otherwise, product damage or abnormal operation may result.

⚠CAUTION

- Do not put fingers or objects into the opening of the product.
  This may cause product damage or injury.
- Do not dent or damage the movable parts.
  Otherwise, malfunction will occur.
- Do not turn OFF the servo with gravity or inertia applied.
  The product may continue to operate or fall at servo OFF. Be sure to turn OFF the servo in a balanced state without gravity or inertia applied, or confirm safety before proceeding.
- Do not issue a stop command while the product is accelerating or decelerating.
  Doing so may result in a dangerous change in speed (acceleration).
- When operation involves vibration, change the set speed so that vibration does not occur.
- Vibration may occur even within the operation speed range depending on the working conditions.

■ Deflection or displacement of the steel belt is more likely to occur if slider products are mounted on the wall or ceiling. Continued use in this state may cause trouble, such as breakage of the steel belt. Be sure to conduct daily inspections and adjust the steel belt if there is deflection or displacement.

■ Do not disassemble or modify the product.
This may cause injury, accident, malfunction or failure.

■ Ensure proper operation through periodic inspections (2 to 3 times per year).
Refer to the instruction manual for details.

■ The grease lubrication interval is normally 100 km as a guideline.
However, situations may differ depending on working conditions, so determining a lubrication interval based on the initial inspection is recommended. Refer to the instruction manual for details.

■ Be sure to wear protective eyewear when lubricating.
If grease scatters and enters the eye, it may cause inflammation.

■ When disposing of the product, comply with laws pertaining to waste treatment and cleaning. Consign it to a specialized waste disposal company for processing.

■ The circuit board inside the product has capacitors connected between the circuits and the metal body to prevent damage due to static electricity. Avoid withstand voltage and insulation resistance tests on equipment with this product installed. If tests are done, the product will be damaged. If necessary for the equipment, remove the product before doing the test.

■ If removing the timing belt, follow the procedure and be sure to adjust the origin.
If the origin is not adjusted, the unit may move outside the stroke range and collide with the internal mechanical stopper, causing damage

■ If the actuator and controller combination is changed, be sure to confirm the programs and parameters prior to operation.
Otherwise, there is a risk of unexpected accidents.

■ Do not operate the moving table or rod for several seconds after the power is turned ON, as the actuator position is confirmed when the power is turned ON.
The position may not be appropriately confirmed, leading to unexpected operation.

2. Controller ECG

⚠CAUTION

■ Frequently turning the power ON/OFF can cause damage to the elements inside the controller.
Repeatedly energizing and shutting OFF the power can shorten the life of capacitors and other components.
In addition, if there is no more than a 1-second interval between the power being cut OFF and the power being turned ON again, the product may be damaged by the surge voltage.

■ Do not operate in excess of the maximum load capacity.
The elements inside the controller may overheat and be damaged.

■ When clamping during pressing operation, set the position about 5 mm greater than the target stop position.
Otherwise, clamping force may not be generated, depending on the stop position.

■ The relationships between pressing force and pressing rate described in this catalog are merely guidelines. Fluctuation in motor torque, etc., may cause errors even at the same set values.

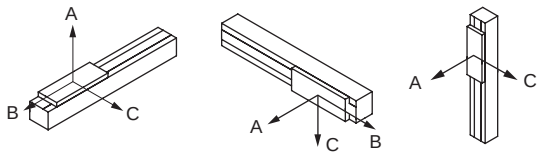
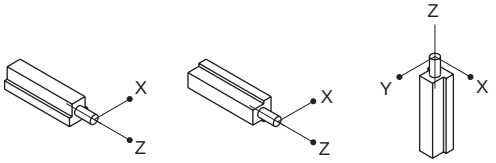
EBS/EBR Model Selection Check Sheet → **CKD**(Contact)

Fill in the form and send to the nearest CKD Sales Office. We will respond with the model selection results.

Customer:

Company		Department	
Name		E-mail	
Tel.		Fax	

Selecting conditions:

Desired model	(EBS/EBR)-	
Basic specifications	Max. stroke length: mm, ball screw lead: mm	
Operating conditions	Travel stroke: mm, travel time: s	
	Set speed: mm/s	
	Set acceleration/deceleration: mm/s ^{2} (set acceleration/deceleration time: s)	
	Repeatability: ± mm	
Load conditions	Slider	Rod
	Load weight: kg	
	Mounting orientation: Horizontal / wall mounted / vertical / ceiling mounted / other 	Mounting orientation: Horizontal / wall mounted / vertical / ceiling mounted / other 
	Distance from slider and rod center to the center of gravity of load	
	A direction: mm B direction: mm C direction: mm	X direction: mm Y direction: mm Z direction: mm
	Pressing load: No / Yes (N) Operating / Stopped Direction of the force applied to slider center ( )	
Working environment	Ambient temperature: °C, Ambient humidity: %	
	Atmosphere:	
Interface specifications	Parallel I/O / IO-Link / CC-Link / EtherCAT / EtherNet/IP	
Remarks		

Related products

Components for rechargeable battery production P4* Series

■ Material restrictions

Configuration parts material limitations

■ Countermeasures for dust

Long service life even in dusty environments

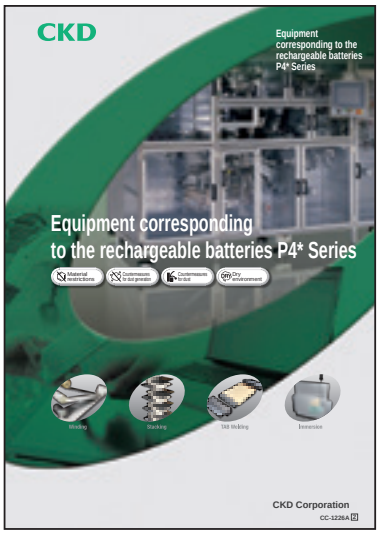
■ Countermeasures for dust generation

Suppresses dust generation of metal wear powder

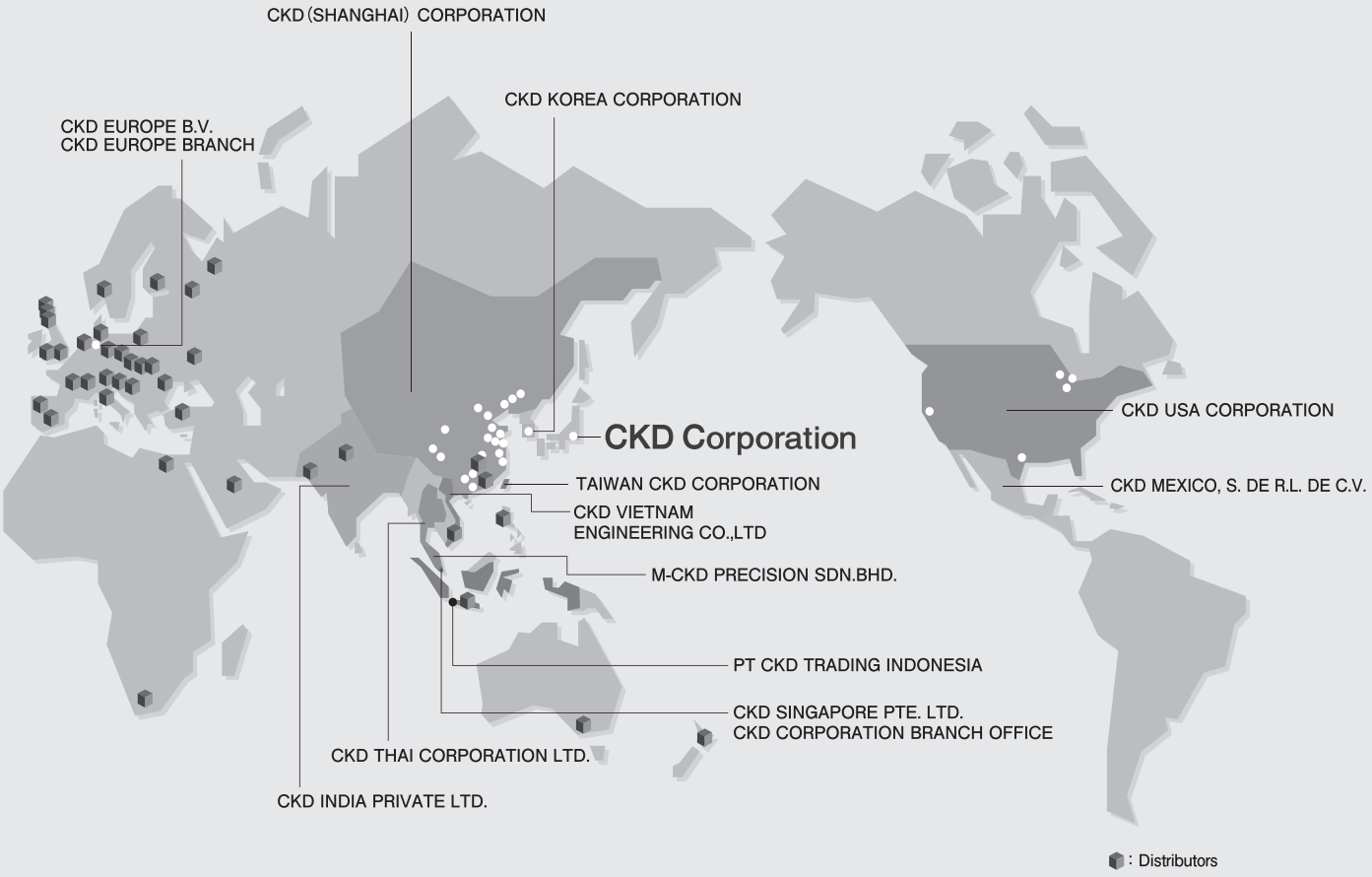
■ Dry environment

Long service life even in ultra-dry environments

Catalog No. CC-1226A



WORLD-NETWORK



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