CKD

New Products

Electric actuator

Slider EBS-M Series

Rod with built-in guide EBR-M Series

Controller ECR Series

New options and wider possibilities

CKD Corporation

CC-1422A 1

Ever-evolving components for ever-

Slider

EBS-M
Series

Rod with built-in guide

EBR-M
Series

evolving facilities

Controller

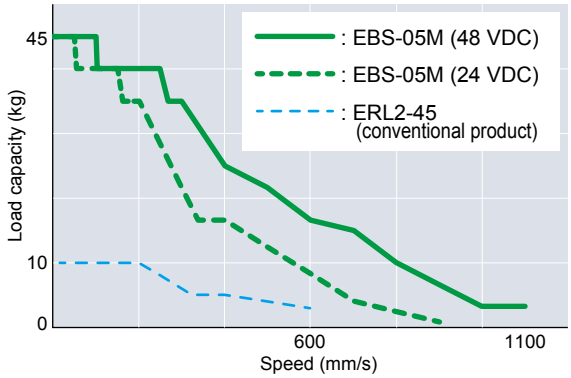
ECR
Series

INDEX

Reduced size

Significantly improved basic performance

Our new controller provides performance beyond that of conventional products.
The 48 VDC power supply provides even further improved performance. This enables compact-bodied products to cope with heavy loads, requiring less installation space.



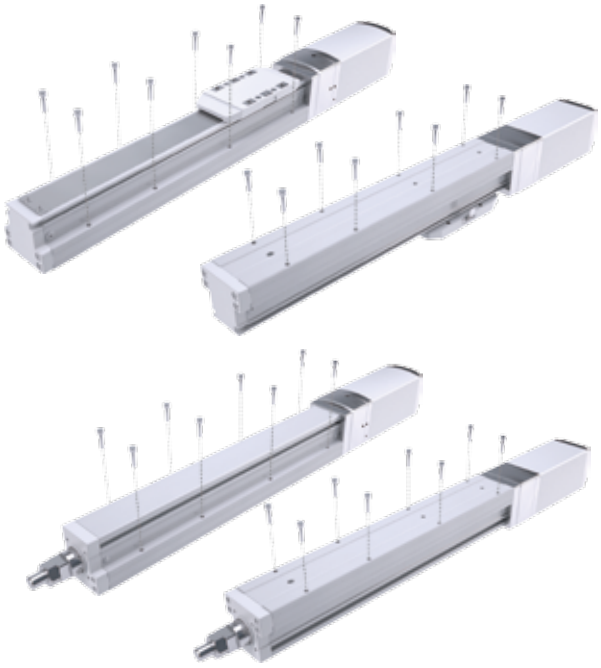
- Max. load capacity : 10 kg ➡ 45 kg (when horizontal)
- Max. speed : 600 mm/s ➡ 1100 mm/s (when horizontal)

*Comparison with □42 size

Reduced installation time

Mounting holes provided on top and bottom of product

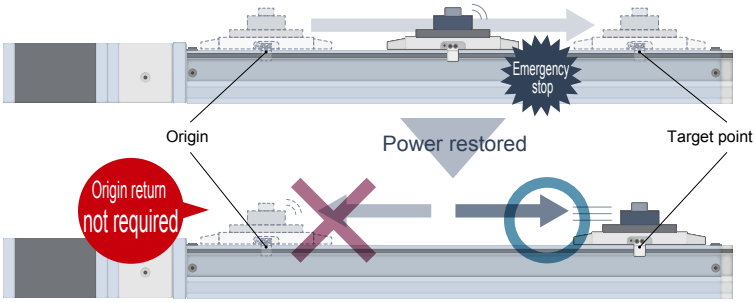
The product structure allows direct installation from the top or bottom, without disassembly. This significantly reduces work time, especially when installing from the top.



Shorter equipment stop times

Equipped with a battery-less absolute encoder as standard

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)

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

- Mitsubishi Electric Corporation
- Delta Electronics Co., Ltd.
- Sanyo Denki Co., Ltd.
- YASKAWA Electric Corporation
- Keyence Corporation
- Panasonic Corporation
- OMRON Corporation
- Bosch Rexroth Corporation

*Refer to separate catalog CB-055A.

Slider

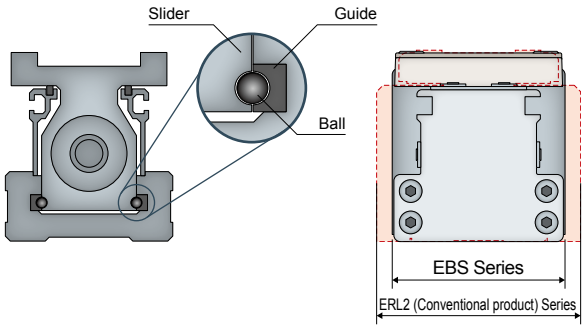
EBS-M Series

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 (Conventional product)	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 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

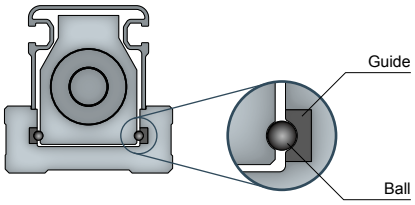
EBR-M Series

For press fitting and hoisting

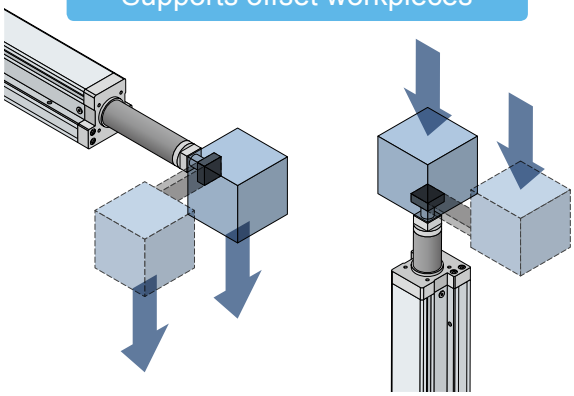
Reduces need for additional guides

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

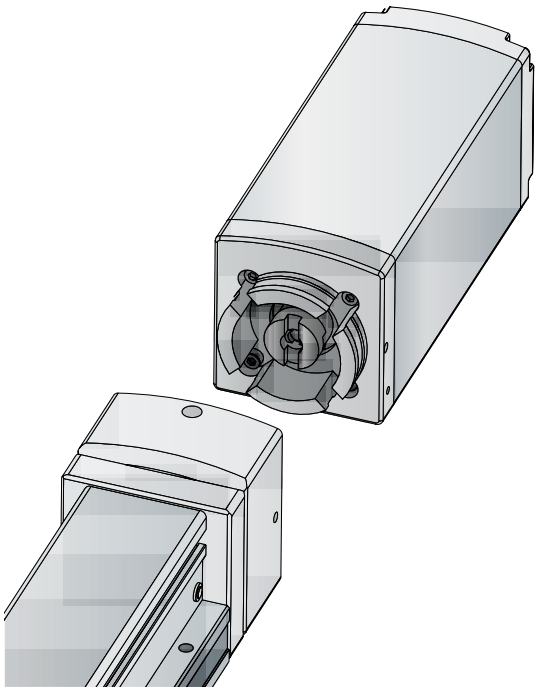


Simple maintenance

Replaceable motor unit

The motor unit can be removed. If something goes wrong, the issue can be resolved by simply replacing the motor.

*Also applies for EBS-M.



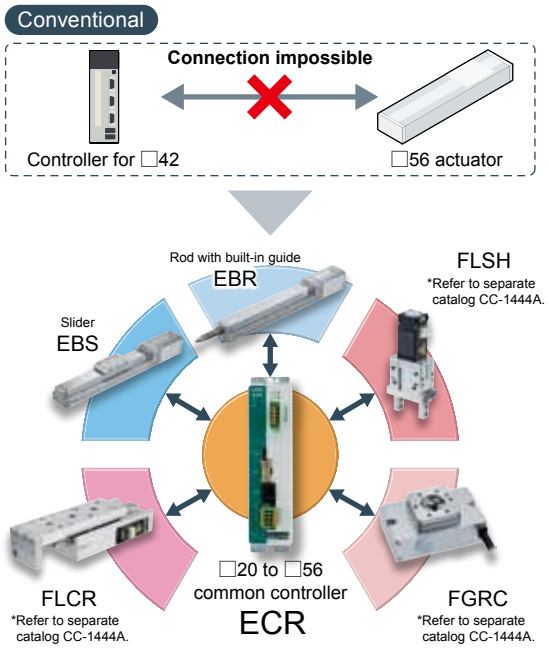
Controller

ECR Series

Reduced initial work hours and stock

"One controller" that connects to any actuator

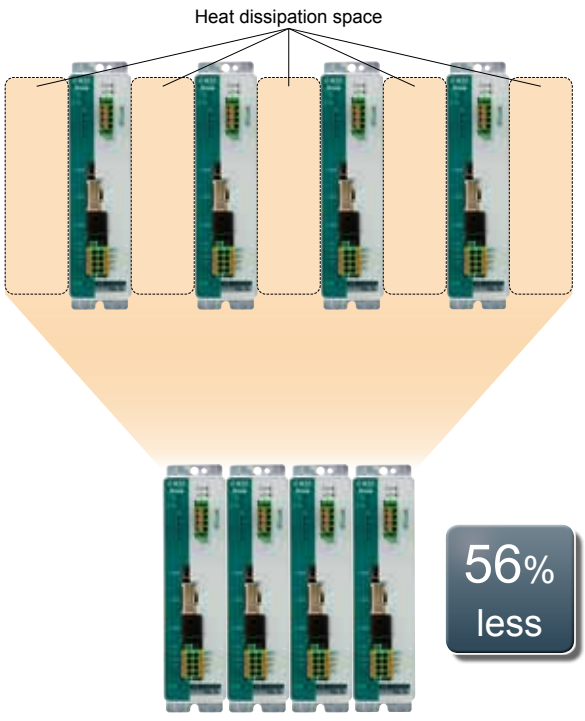
The same controller operates with actuators of different sizes and models. Equipped with an automatic recognition function that reads actuator information, for less work during initial setting. Further, with a common controller, work hours for selection and ordering can be reduced as well as inventory.



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.

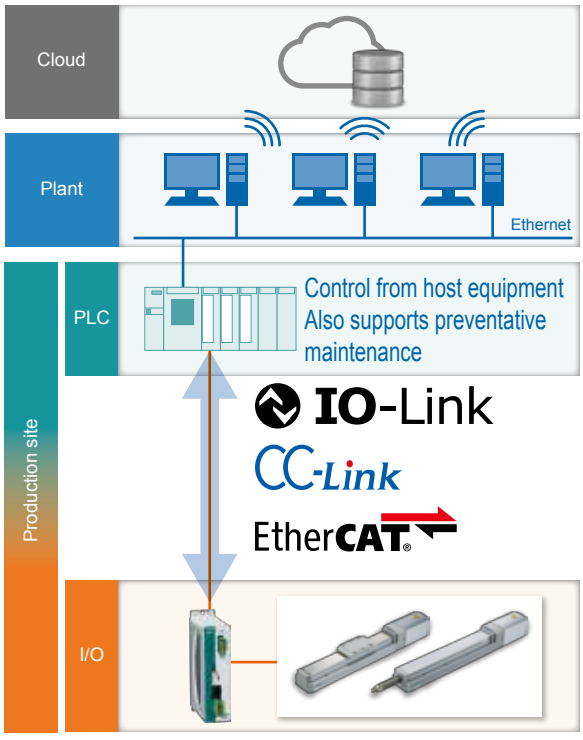


Connecting. Connected. "One controller" handles it all.

Supports IoT

Compatible with all types of networks

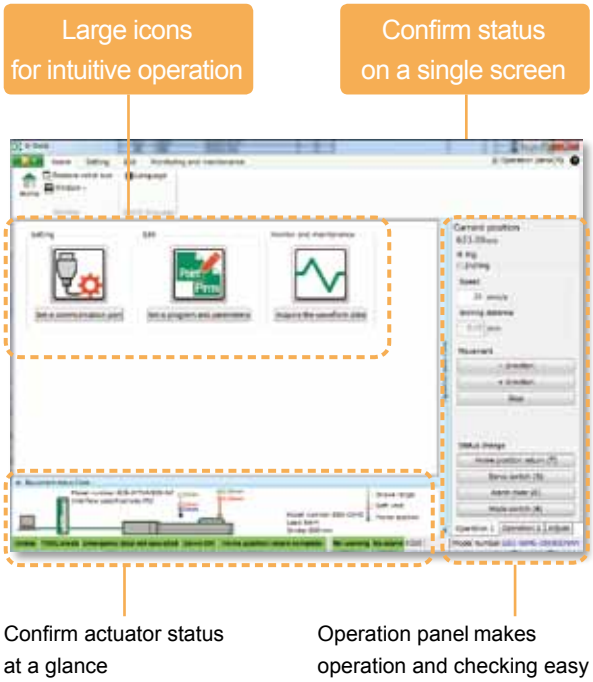
Our product is compatible with all types of industrial networks. This allows control from host equipment over Ethernet, and also enables preventative maintenance.



Reduces adjustment time

Easy setup with "S-Tools" software

Actuators with different operations can be set with a single common software program. Provided free of charge on the CKD website. It can be used by anyone, anywhere.

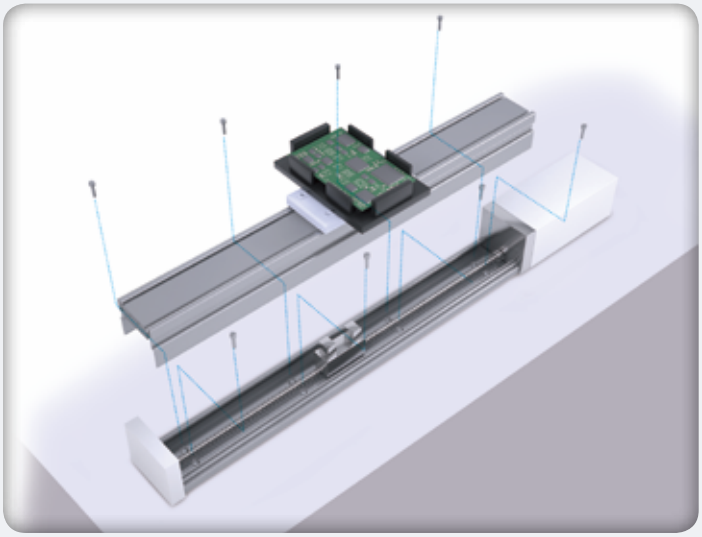


Application examples

Use as transporter for electronic parts

Conventional issues

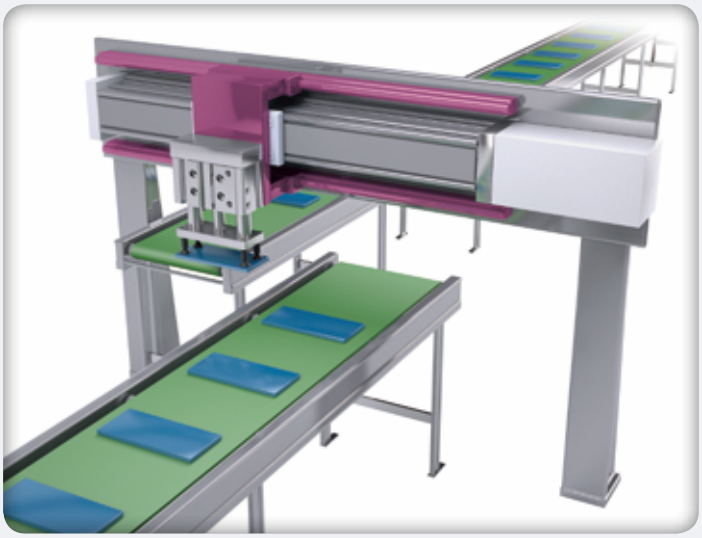
- When installing the body, product disassembly is required to use the through holes.
- Product disassembly is required for grease lubrication.



Use as transporter between processes

Conventional issues

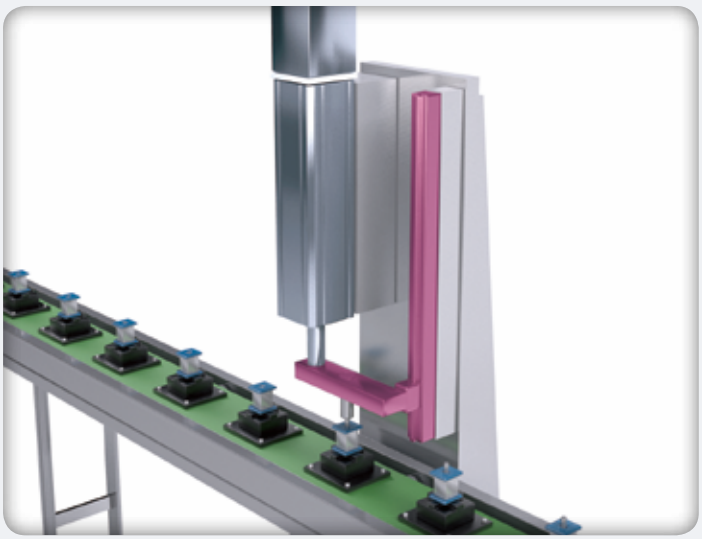
- Uses an additional guide to reduce MR moment and MY moment.



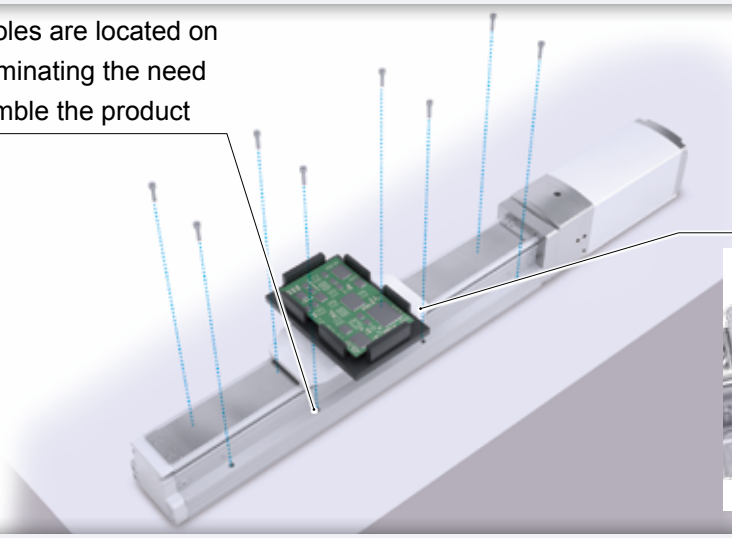
Use as press fitting equipment for electric appliances

Conventional issues

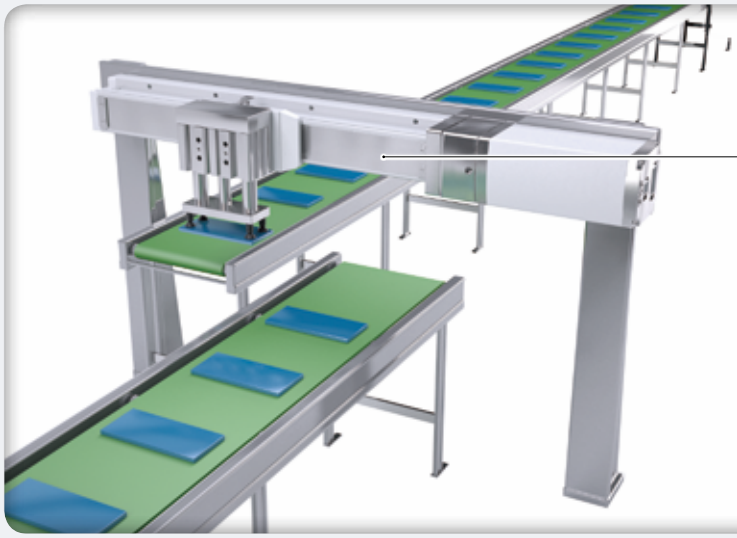
- Rod actuator requires an additional guide.



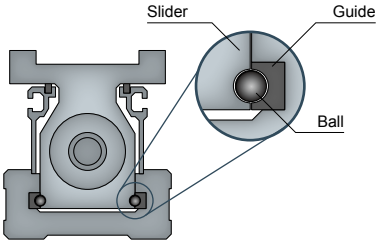
Through holes are located on the top, eliminating the need to disassemble the product

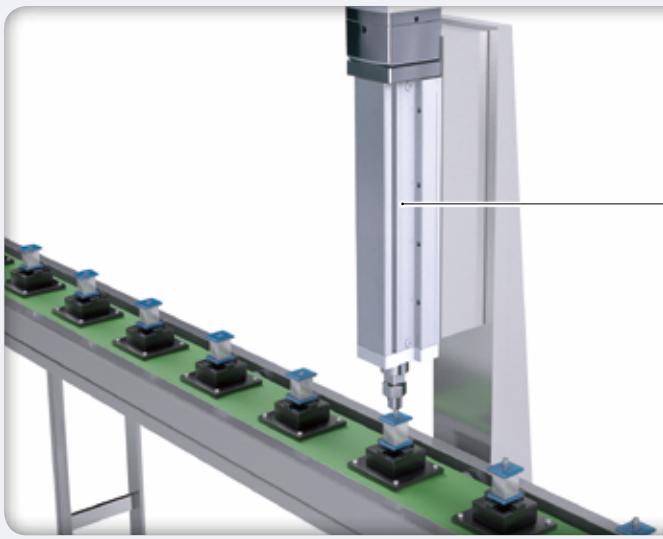


Can be maintained from the grease lubrication port

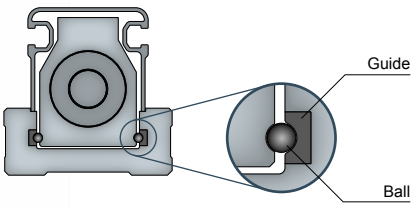


Uses an outer rail for reduced size yet high rigidity, and eliminates the need for an additional guide





Body includes a guide, so there is no need to install an additional guide



Electric actuator
Motor specification

EBS-M

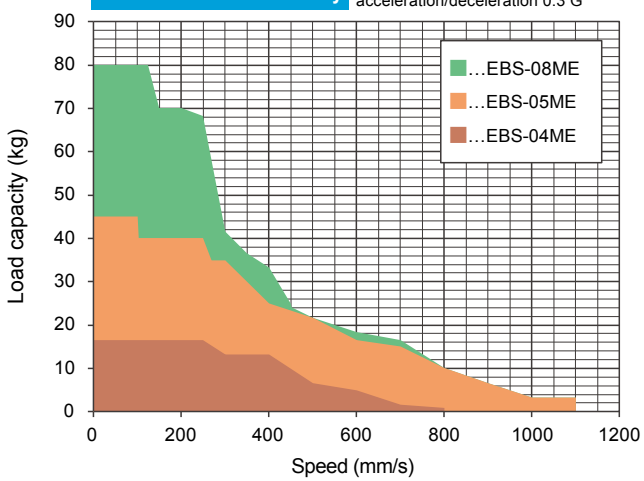
Slider

CONTENTS

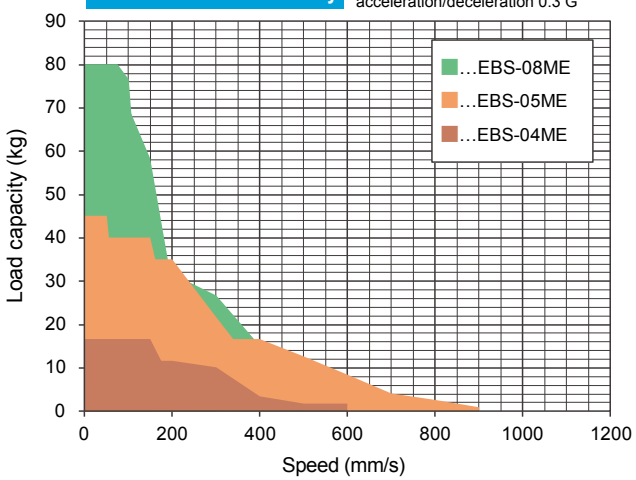
Series variation

Type	Model No.		Motor size	Motor mounting direction	Body width (mm)	Screw lead (mm)	Max. load capacity (kg) Horizontal	Max. load capacity (kg) Vertical	Maximum pressing force (N)
Slider		EBS-04ME-06	□35	Straight	44	6	16.6	8.3	177
		EBS-04ME-12				12	13.3	3.3	89
		EBS-04MR/D/L-06		Side/ Bottom		6	16.6	8.3	177
		EBS-04MR/D/L-12				12	13.3	3.3	89
		EBS-05ME-02	□42	Straight	54	2	45	24	385
		EBS-05ME-05				5	40	16.6	250
		EBS-05ME-10				10	35	8.3	121
		EBS-05ME-20				20	16.6	4.5	44
		EBS-05MR/D/L-02		Side/Bottom		2	45	24	385
		EBS-05MR/D/L-05				5	40	16.6	250
		EBS-05MR/D/L-10				10	35	8.3	121
		EBS-05MR/D/L-20				20	16.6	4.5	44
		EBS-08ME-05	□56	Straight	82	5	80	40	970
		EBS-08ME-10				10	70	18.3	477
		EBS-08ME-20				20	43.3	10	250
		EBS-08MR/D/L-05		Side/Bottom		5	80	40	970
		EBS-08MR/D/L-10				10	70	18.3	477
		EBS-08MR/D/L-20				20	43.3	8.3	250

Slider: Installed horizontally Power supply voltage 48 VDC, acceleration/deceleration 0.3 G



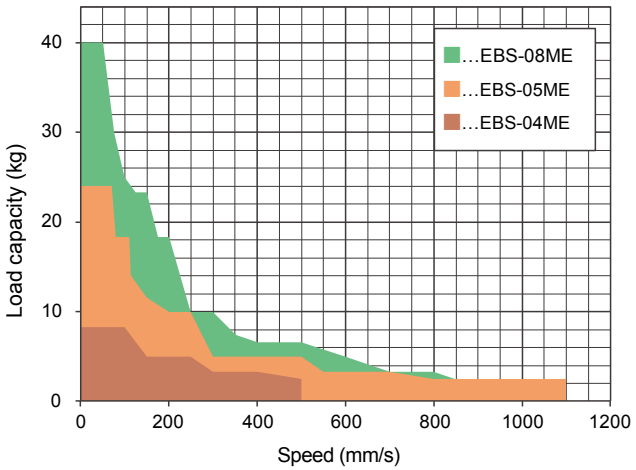
Slider: Installed horizontally Power supply voltage 24 VDC, acceleration/deceleration 0.3 G



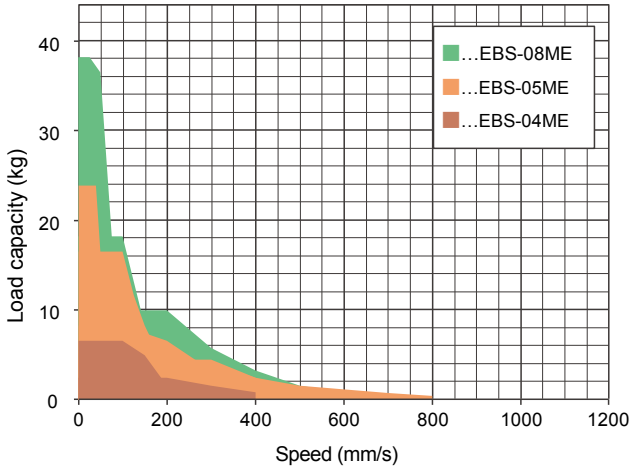
Stroke length (mm) and max. speed (mm/s)																						Page
50 mm	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	
400 mm/s																						4
800																						
400																						6
700																						
130										120		105	95	80	70							10
300												270	235	200	185							
700										625		540	475	415	370							
1100												1080	950	830	740							
130										120		105	95	80	70							12
300												270	235	200	185							
600												540	475	415	370							
1100												1080	950	830	740							
250															220	200	180	135	120	110	100	16
550														510	450	410	370	270	240	225	200	
1100												1000			910	820	740	540	490	450	410	
225															220	200	180	135	120	110	100	18
550														510	450	410	370	270	240	225	200	
1000															910	820	740	540	490	450	410	

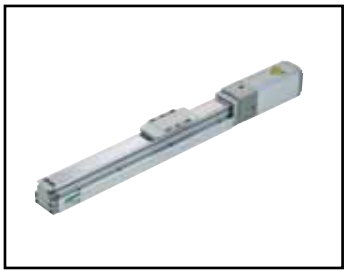
* This data is at power supply voltage 48 VDC and acceleration/deceleration 0.3 G.
* The load capacity when wall mounted is the same as for horizontal installation.

Slider: Installed vertically Power supply voltage 48 VDC, acceleration/deceleration 0.3 G



Slider: Installed vertically Power supply voltage 24 VDC, acceleration/deceleration 0.3 G





Electric actuator Slider

EBS-04ME

Straight motor mounting

□35 Stepper motor
with battery-less absolute encoder

How to order

EBS - 04 M E - 06 0300 N A N - C S03

Ⓐ 04

Ⓑ M

Ⓒ E

Ⓓ 06 / 12

Ⓔ 0300

Ⓕ N / B

Ⓖ A

Ⓗ S03

Ⓐ Body size

04	Body width 44 mm

Ⓑ Motor

M	Yes

Ⓒ Motor mounting direction

E	Straight mounting

Ⓓ Screw lead

06	6 mm
12	12 mm

Ⓔ Stroke length

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

Ⓕ Brake *1

N	Without brake
B	With brake

Ⓖ Encoder

A	Battery-less absolute encoder

Ⓗ Relay cable *2 *3

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

*1 Select "With brake" for vertical use.
*2 Select the controller from page 61.
*3 Refer to page 71 for relay cable dimensions.

Product subject to the EAR (EAR99)

Specifications

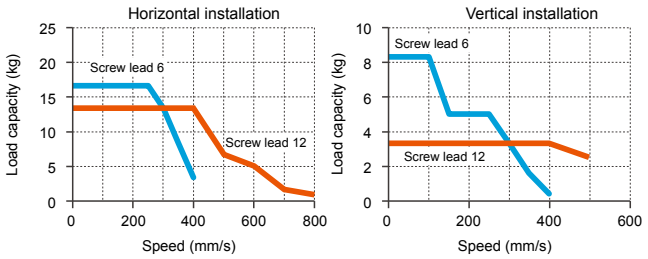
Motor		□35 Stepper motor	
Encoder type		Battery-less absolute encoder	
Drive method		Ball screw ø10	
Stroke length	mm	50 to 500	
Screw lead	mm	6	12
Max. load capacity *1 *2	kg Horizontal	16.6(16.6)	13.3(11.6)
	kg Vertical	8.3(6.6)	3.3(2.5)
Operation speed range*3 *4	mm/s	7 to 400(200)	15 to 800(600)
Maximum pressing force	N	177	89
Pressing operation speed range	mm/s	5 to 25	5 to 30
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% or 48 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	
	Holding force N	126	63
Insulation resistance		10 MΩ, 500 VDC	
Withstand voltage		500 VAC for 1 minute	
Operating ambient temperature, humidity		0 to 40°C (no freezing) 35 to 80% RH (no condensation)	
Storage ambient temperature, humidity		-10 to 50°C (no freezing) 35 to 80% RH (no condensation)	
Atmosphere		No corrosive gas, explosive gas, or dust	
Degree of protection		IP40	

*1 The values in ( ) are at 24 VDC.
*2 Load capacity varies according to acceleration/deceleration and speed. Refer to page 28 for details.
*3 The maximum speed values in ( ) are at 24 VDC.
*4 The maximum speed may decrease depending on the conditions.

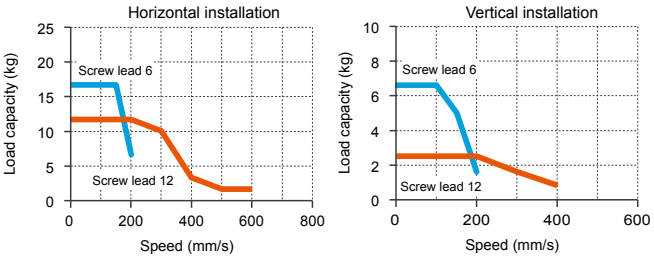
Speed and load capacity

[At 48 VDC]

*Acceleration/deceleration 0.3 G



[At 24 VDC]



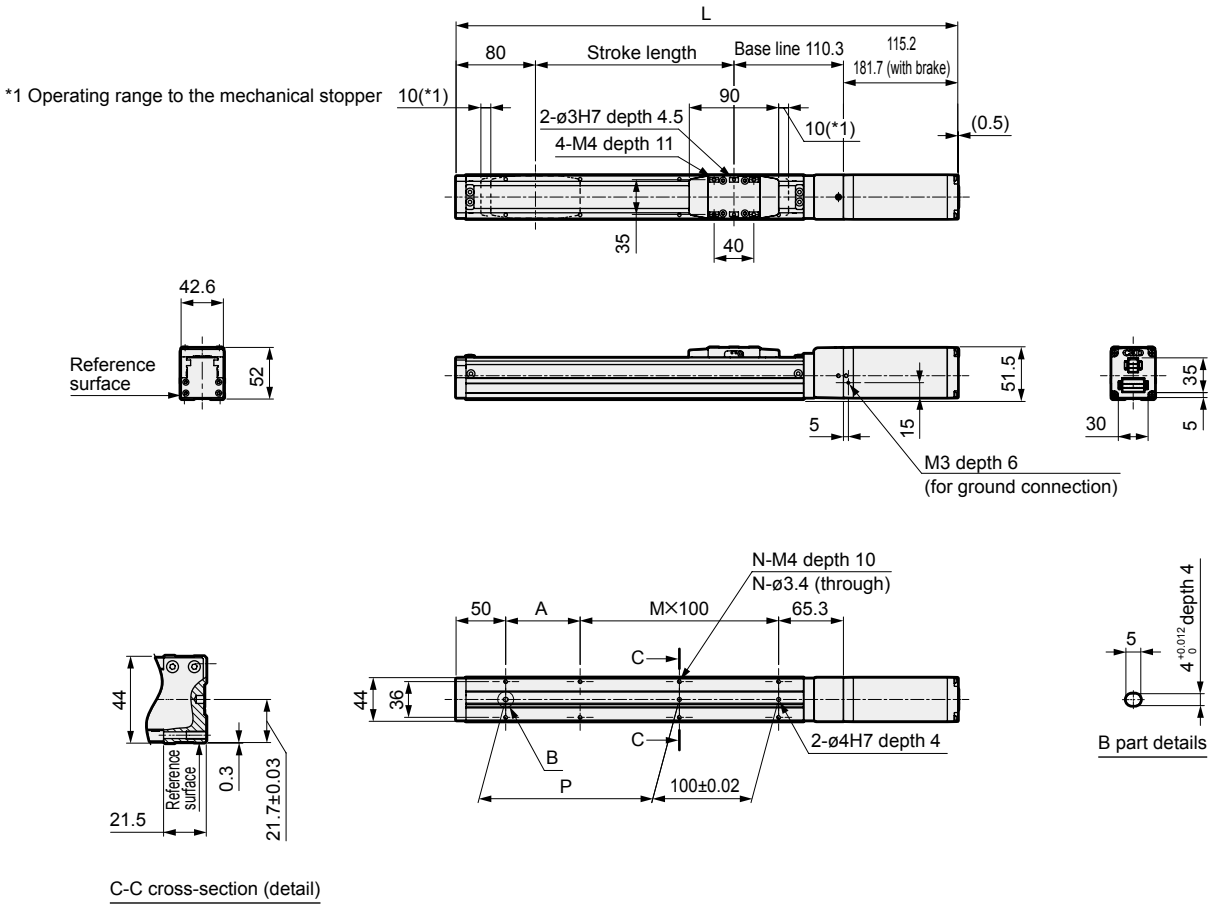
Stroke length and max. speed

(mm/s)

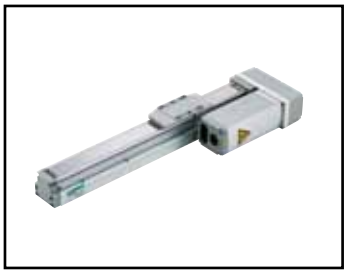
Screw lead	Power supply voltage	Stroke 50 to 500
6	48 VDC	400
	24 VDC	200
12	48 VDC	800
	24 VDC	600

Dimensions Straight motor mounting

● EBS-04ME



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



Electric actuator Slider

EBS-04M*

Motor mounting on side/bottom

□35 Stepper motor
with battery-less absolute encoder

How to order

EBS - 04 M R - 06 0300 N A N - C S03

Ⓐ 04

Ⓑ M

Ⓒ R

Ⓓ 06

Ⓔ 0300

Ⓕ N

Ⓖ A

Ⓗ S03

Ⓐ Body size

04	Body width 44 mm

Ⓑ Motor

M	Yes

Ⓒ Motor mounting direction

R	Right-side mounting
D	Bottom mounting
L	Left-side mounting

Ⓓ Screw lead

06	6 mm
12	12 mm

Ⓔ Stroke length

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

Ⓕ Brake *1

N	Without brake
B	With brake

Ⓖ Encoder

A	Battery-less absolute encoder

Ⓗ Relay cable *2 *3

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

*1 Select "With brake" for vertical use.
*2 Select the controller from page 61.
*3 Refer to page 71 for relay cable dimensions.

Product subject to the EAR (EAR99)

Specifications

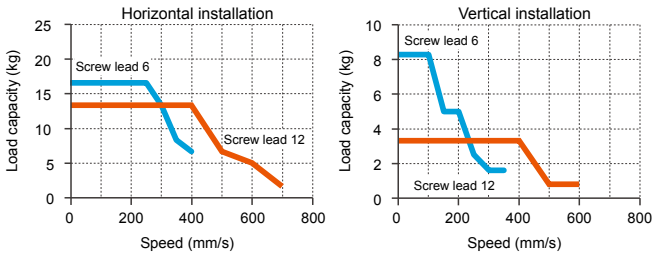
Motor		□35 Stepper motor	
Encoder type		Battery-less absolute encoder	
Drive method		Ball screw ø10	
Stroke length	mm	50 to 500	
Screw lead	mm	6	12
Max. load capacity *1 *2	kg Horizontal	16.6(16.6)	13.3(11.6)
	kg Vertical	8.3(6.6)	3.3(2.5)
Operation speed range*3 *4	mm/s	7 to 400(200)	15 to 700(500)
Maximum pressing force	N	177	89
Pressing operation speed range	mm/s	5 to 25	5 to 30
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% or 48 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	
	Holding force N	126	63
Insulation resistance		10 MΩ, 500 VDC	
Withstand voltage		500 VAC for 1 minute	
Operating ambient temperature, humidity		0 to 40 °C (no freezing) 35 to 80% RH (no condensation)	
Storage ambient temperature, humidity		-10 to 50 °C (no freezing) 35 to 80% RH (no condensation)	
Atmosphere		No corrosive gas, explosive gas, or dust	
Degree of protection		IP40	

*1 The values in ( ) are at 24 VDC.
*2 Load capacity varies according to acceleration/deceleration and speed. Refer to page 28 for details.
*3 The maximum speed values in ( ) are at 24 VDC.
*4 The maximum speed may decrease depending on the conditions.

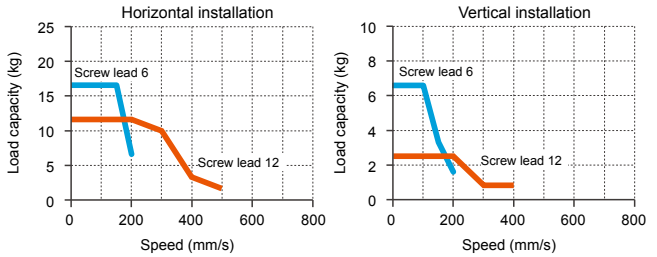
Speed and load capacity

[At 48 VDC]

*Acceleration/deceleration 0.3 G



[At 24 VDC]



Stroke length and max. speed

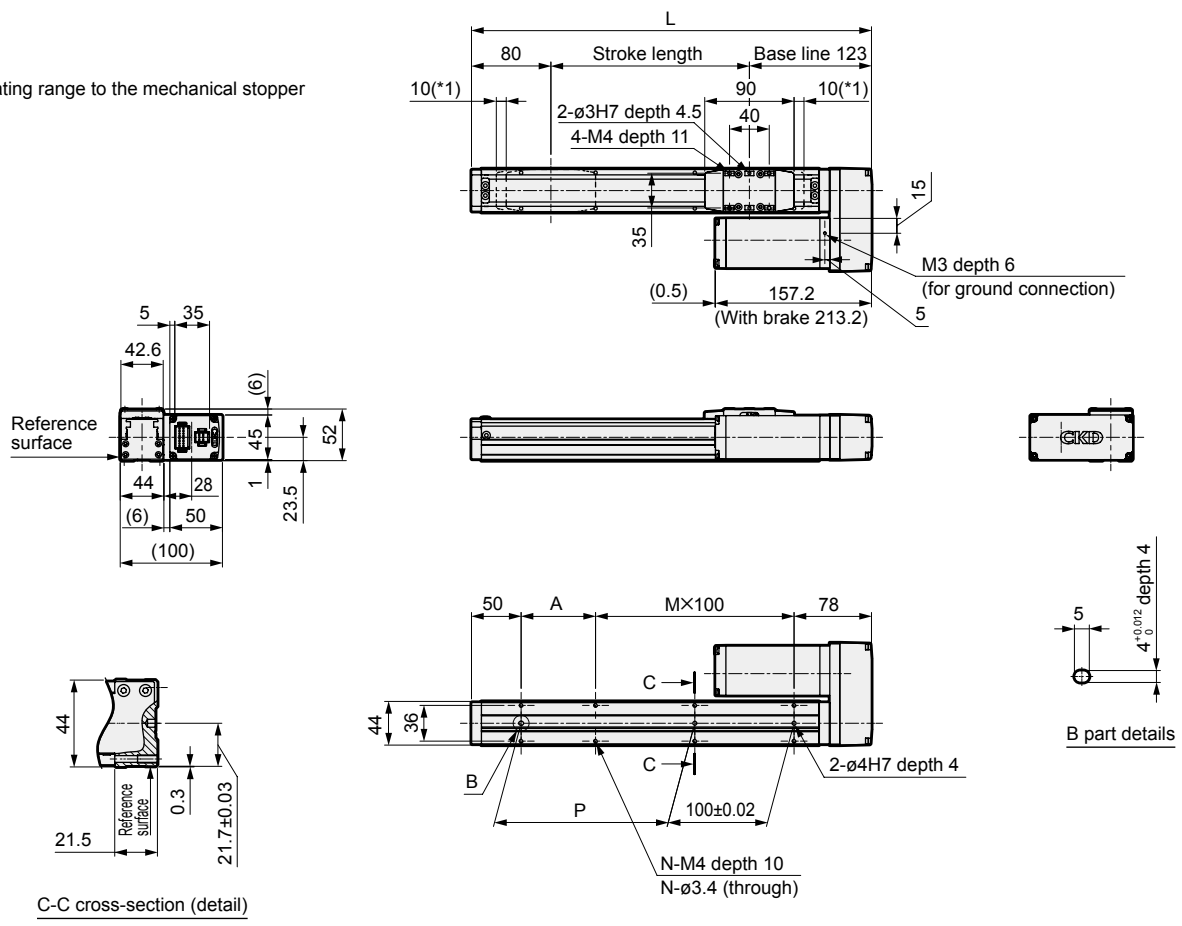
(mm/s)

Screw lead	Power supply voltage	Stroke 50 to 500
6	48 VDC	400
	24 VDC	200
12	48 VDC	700
	24 VDC	500

Dimensions Motor right-side mounting

● EBS-04MR

*1 Operating range to the mechanical stopper



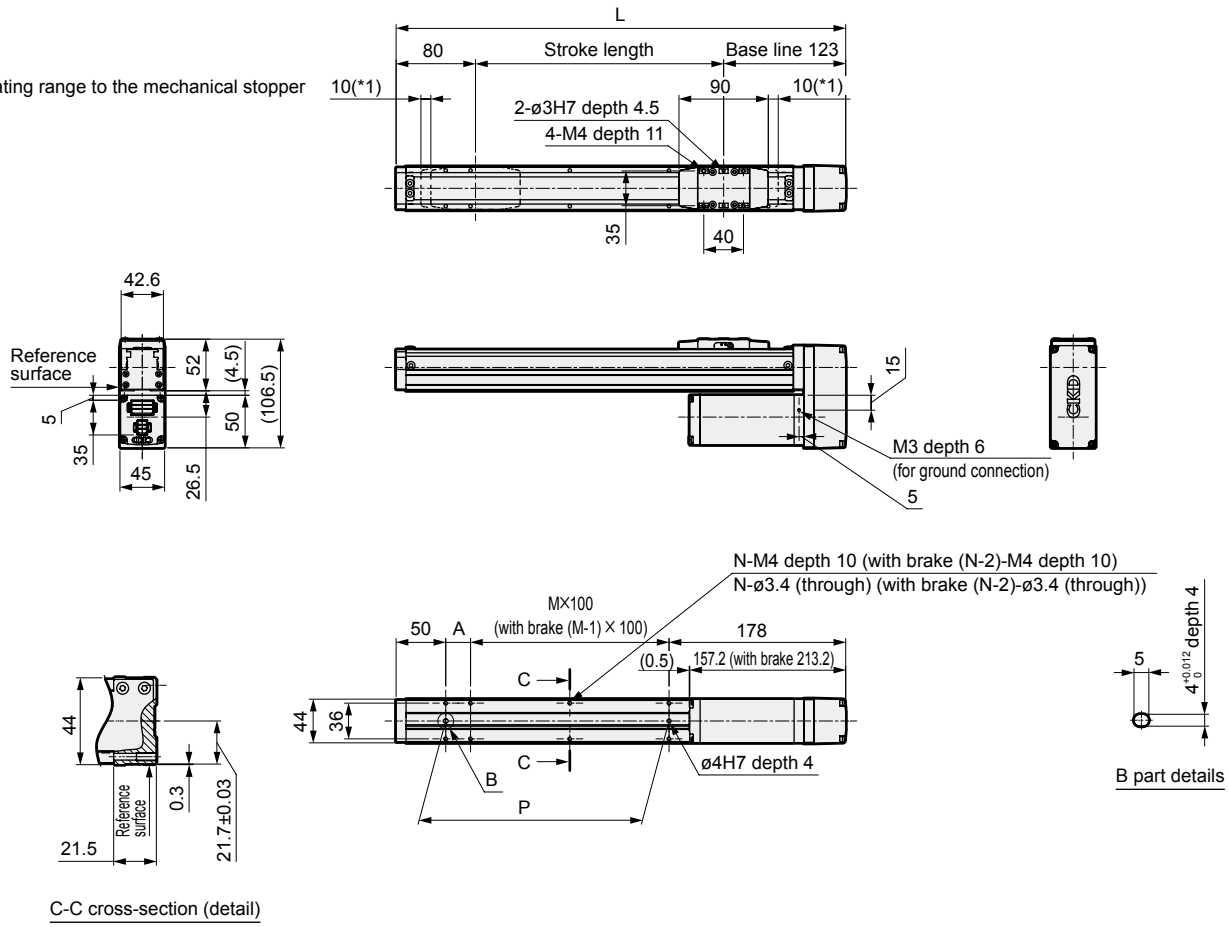
Stroke code		0050	0100	0150	0200	0250	0300	0350	0400	0450	0500
Stroke length (mm)		50	100	150	200	250	300	350	400	450	500
L		253	303	353	403	453	503	553	603	653	703
A		25	75	25	75	25	75	25	75	25	75
M		1	1	2	2	3	3	4	4	5	5
N		6	6	8	8	10	10	12	12	14	14
P		25	75	125	175	225	275	325	375	425	475
Weight (kg)	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

EBS-04M*

Dimensions Motor bottom mounting

● EBS-04MD

*1 Operating range to the mechanical stopper

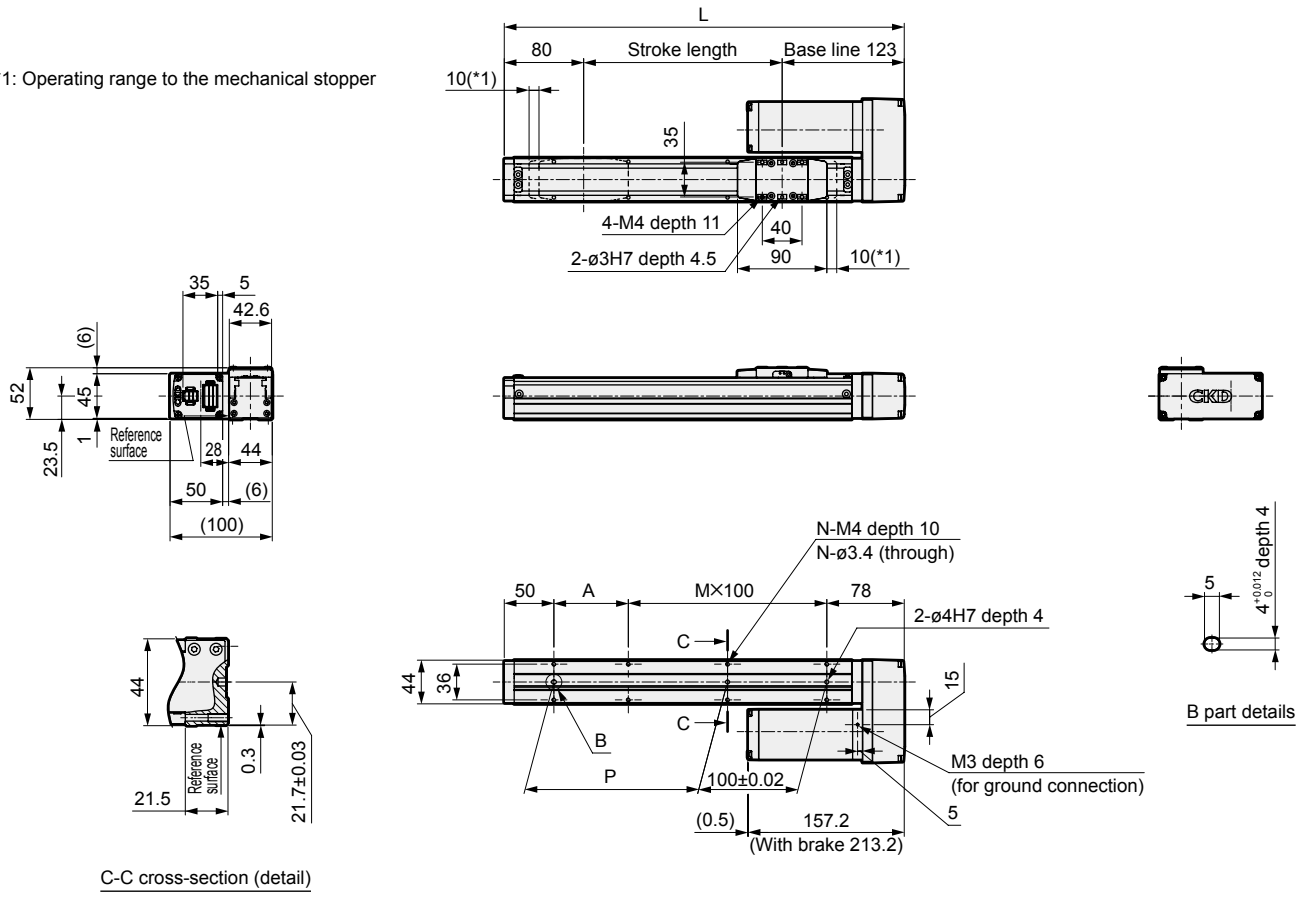


Stroke code		0250	0300	0350	0400	0450	0500
Stroke length (mm)		250	300	350	400	450	500
L		453	503	553	603	653	703
A		25	75	25	75	25	75
M		2	2	3	3	4	4
N		8	8	10	10	12	12
P		225	275	325	375	425	475
Weight (kg)	Without brake	2.4	2.6	2.7	2.9	3.1	3.3
	With brake	2.9	3.1	3.2	3.4	3.6	3.8

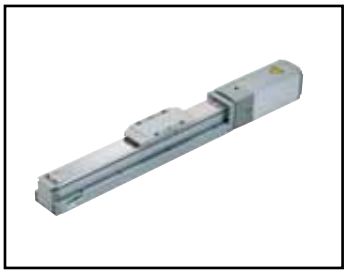
Dimensions Motor left-side mounting

● EBS-04ML

*1: Operating range to the mechanical stopper



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



Electric actuator Slider

EBS-05ME

Straight motor mounting

□42 Stepper motor

with battery-less absolute encoder

How to order

EBS - 05 M E - 05 0300 N A N - C S03

Ⓐ Body size

05	Body width 54 mm

Ⓑ Motor

M	Yes

Ⓒ Motor mounting direction

E	Straight mounting

Ⓓ Screw lead

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

Ⓔ Stroke length

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

Ⓕ Brake *1

N	Without brake
B	With brake

Ⓖ Encoder

A	Battery-less absolute encoder

Ⓗ Relay cable *2 *3

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

*1 Select "With brake" for vertical use.
*2 Select the controller from page 61.
*3 Refer to page 71 for relay cable dimensions.

Product subject to the EAR (EAR99)

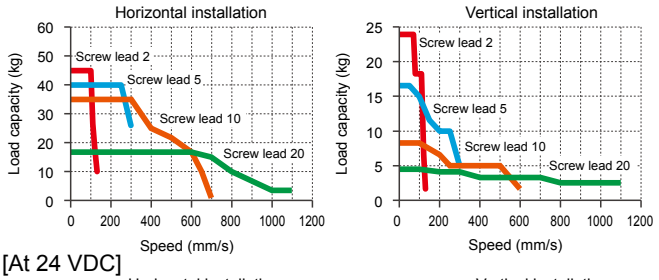
Specifications

Motor		□42 Stepper motor			
Encoder type		Battery-less absolute encoder			
Drive method		Ball screw ø12			
Stroke length	mm	50 to 800			
Screw lead	mm	2	5	10	20
Max. load capacity *1 *2	kg Horizontal	45(45)	40(40)	35(35)	16.6(16.6)
	Vertical	24(24)	16.6(16.6)	8.3(8.3)	4.5(4.5)
Operation speed range *3 *4	mm/s	2 to 130 (70)	6 to 300 (250)	12 to 700 (600)	25 to 1100 (900)
Maximum pressing force	N	385	250	121	44
Pressing operation speed range	mm/s	5 to 25	5 to 25	5 to 30	5 to 30
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% or 48 VDC ±10%			
Motor section max. instantaneous current	A	5.2			
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC ±10%			
	Power consumption W	7			
	Holding force N	471	188	94	47
Insulation resistance		10 MΩ, 500 VDC			
Withstand voltage		500 VAC for 1 minute			
Operating ambient temperature, humidity		0 to 40°C (no freezing) 35 to 80% RH (no condensation)			
Storage ambient temperature, humidity		-10 to 50°C (no freezing) 35 to 80% RH (no condensation)			
Atmosphere		No corrosive gas, explosive gas, or dust			
Degree of protection		IP40			

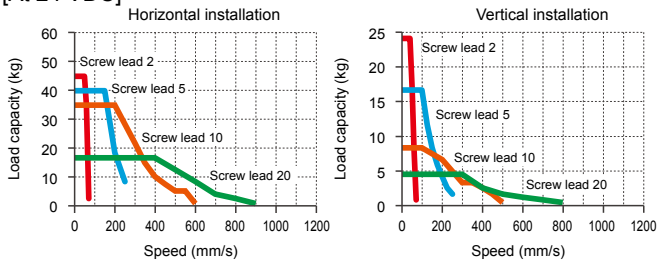
*1 The values in ( ) are at 24 VDC.
*2 Load capacity varies according to acceleration/deceleration and speed. Refer to page 28 for details.
*3 The maximum speed values in ( ) are at 24 VDC.
*4 The maximum speed may decrease depending on the conditions.

Speed and load capacity

[At 48 VDC] *Acceleration/deceleration 0.3 G



[At 24 VDC]



Stroke length and max. speed

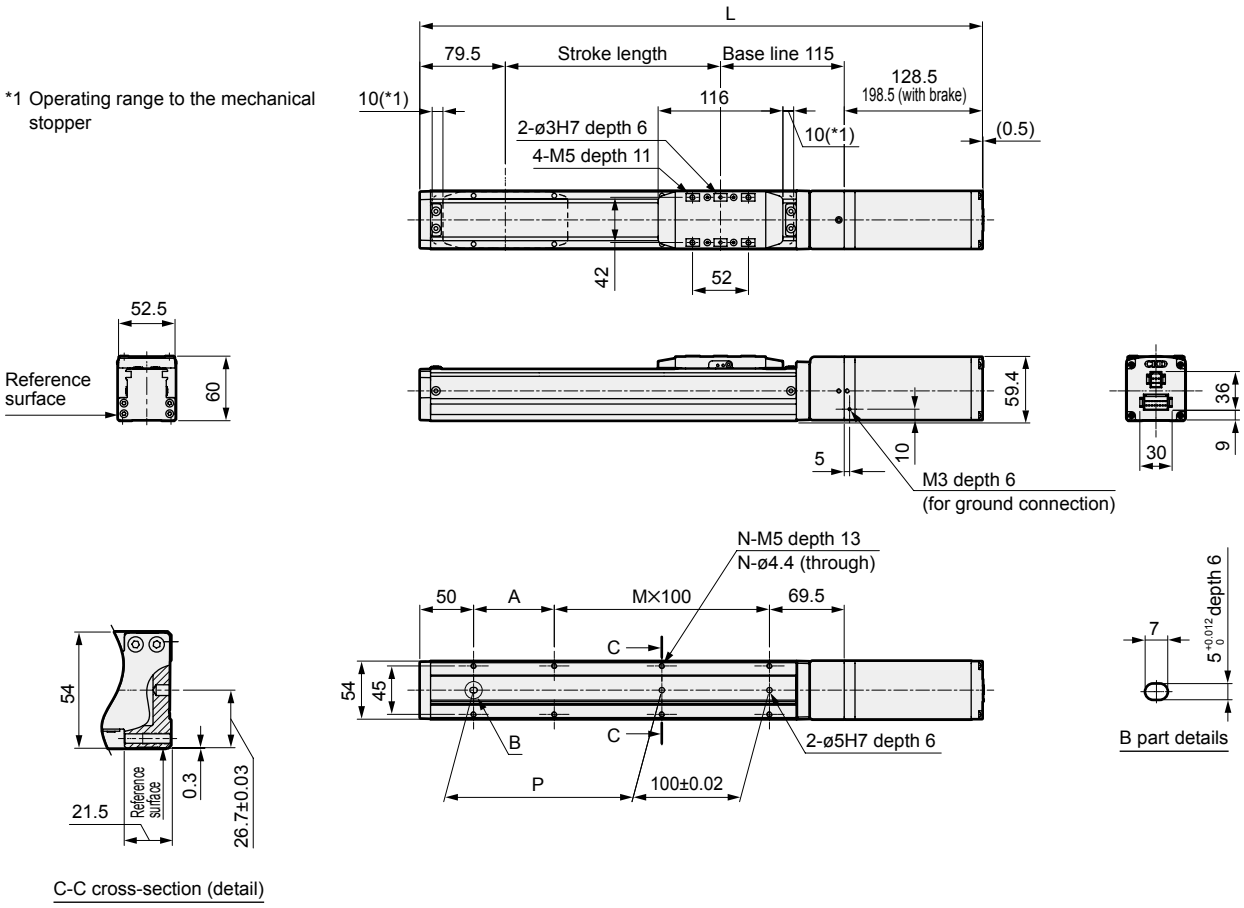
(mm/s)

Screw lead	Power supply voltage	Stroke						
		50 to 500	550	600	650	700	750	800
2	48 VDC	130	120	120	105	95	80	70
	24 VDC	70	70	70	70	70	70	70
5	48 VDC	300	300	300	270	235	200	185
	24 VDC	250	250	250	250	235	200	185
10	48 VDC	700	625	625	540	475	415	370
	24 VDC	600	600	600	540	475	415	370
20	48 VDC	1100	1100	1100	1080	950	830	740
	24 VDC	900	900	900	900	900	830	740

Dimensions Straight motor mounting

● EBS-05ME

*1 Operating range to the mechanical stopper



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

Electric actuator Slider

EBS-05M*

Motor mounting on side/bottom

□42 Stepper motor

with battery-less absolute encoder

How to order

EBS - 05 M R - 05 0300 N A N - C S03

Ⓐ 05 Body width 54 mm

Ⓑ M Yes

Ⓒ R Right-side mounting; D Bottom mounting; L Left-side mounting

Ⓓ 02 2 mm; 05 5 mm; 10 10 mm; 20 20 mm

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

Ⓕ *1 N Without brake; B With brake

Ⓖ A Battery-less absolute encoder

Ⓗ *2 *3

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

*1 Select "With brake" for vertical use.
*2 Select the controller from page 61.
*3 Refer to page 71 for relay cable dimensions.

Product subject to the EAR (EAR99)

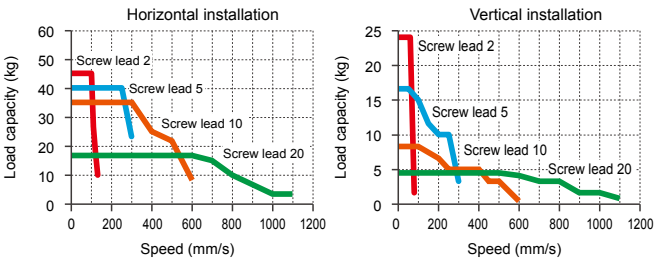
Specifications

Motor		□42 Stepper motor			
Encoder type		Battery-less absolute encoder			
Drive method		Ball screw ø12			
Stroke length	mm	50 to 800			
Screw lead	mm	2	5	10	20
Max. load capacity *1 *2	kg Horizontal	45(45)	40(40)	35(35)	16.6(16.6)
	kg Vertical	24(24)	16.6(16.6)	8.3(8.3)	4.5(4.5)
Operation speed range *3 *4	mm/s	2 to 130 (70)	6 to 300 (250)	12 to 600 (500)	25 to 1100 (900)
Maximum pressing force	N	385	250	121	44
Pressing operation speed range	mm/s	5 to 25	5 to 25	5 to 30	5 to 30
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% or 48 VDC ±10%			
Motor section max. instantaneous current	A	5.2			
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC ±10%			
	Power consumption W	7			
	Holding force N	471	188	94	47
Insulation resistance		10 MΩ, 500 VDC			
Withstand voltage		500 VAC for 1 minute			
Operating ambient temperature, humidity		0 to 40°C (no freezing) 35 to 80% RH (no condensation)			
Storage ambient temperature, humidity		-10 to 50°C (no freezing) 35 to 80% RH (no condensation)			
Atmosphere		No corrosive gas, explosive gas, or dust			
Degree of protection		IP40			

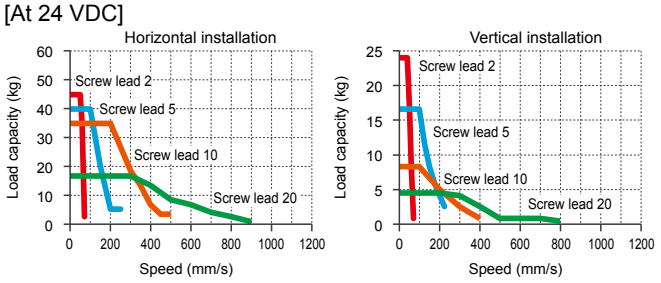
*1 The values in ( ) are at 24 VDC.
*2 Load capacity varies according to acceleration/deceleration and speed. Refer to page 28 for details.
*3 The maximum speed values in ( ) are at 24 VDC.
*4 The maximum speed may decrease depending on the conditions.

Speed and load capacity

[At 48 VDC] *Acceleration/deceleration 0.3 G



[At 24 VDC]



Stroke length and max. speed

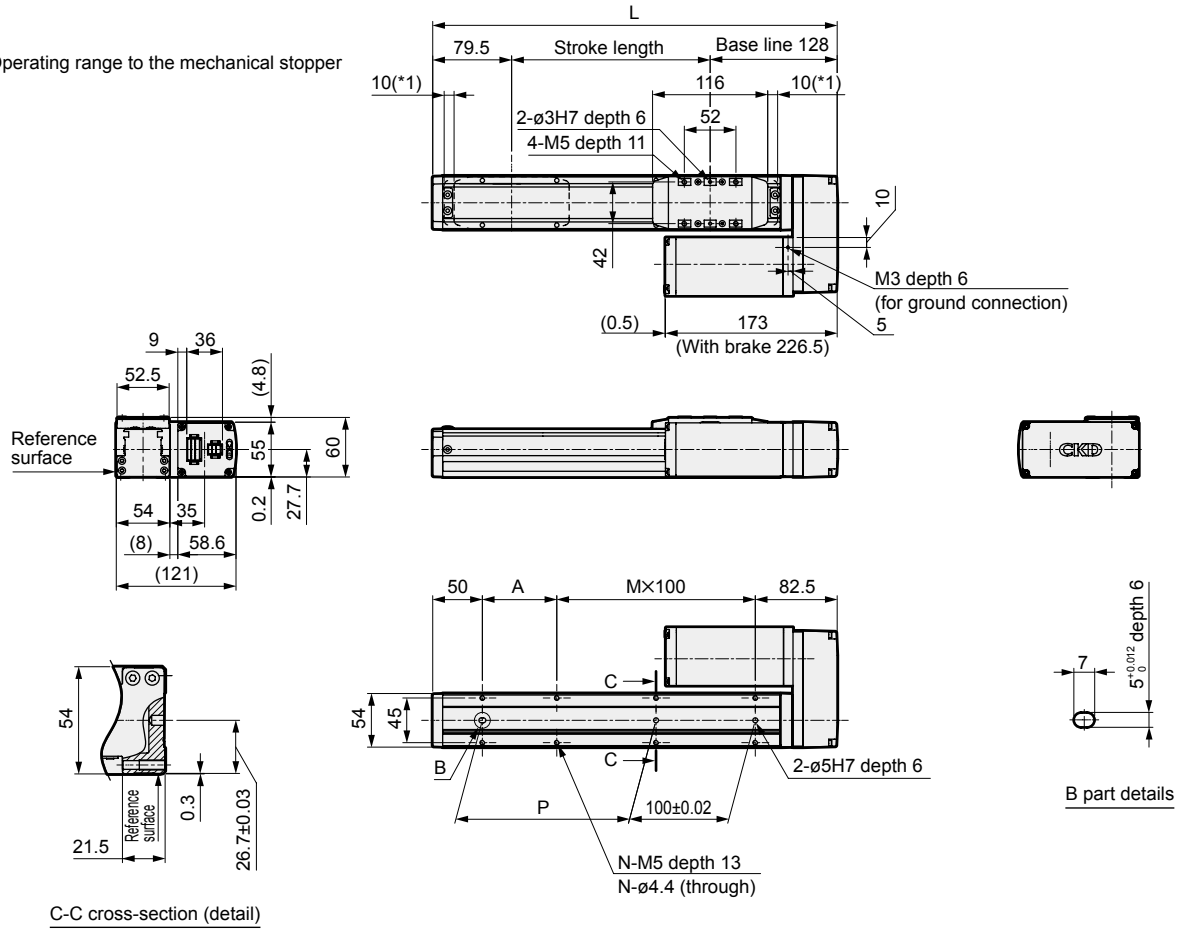
(mm/s)

Screw lead	Power supply voltage	Stroke						
		50 to 500	550	600	650	700	750	800
2	48 VDC	130	120	120	105	95	80	70
	24 VDC	70	70	70	70	70	70	70
5	48 VDC	300	300	300	270	235	200	185
	24 VDC	250	250	250	250	235	200	185
10	48 VDC	600	600	600	540	475	415	370
	24 VDC	500	500	500	500	475	415	370
20	48 VDC	1100	1100	1100	1080	950	830	740
	24 VDC	900	900	900	900	900	830	740

Dimensions Motor right-side mounting

● EBS-05MR

*1 Operating range to the mechanical stopper



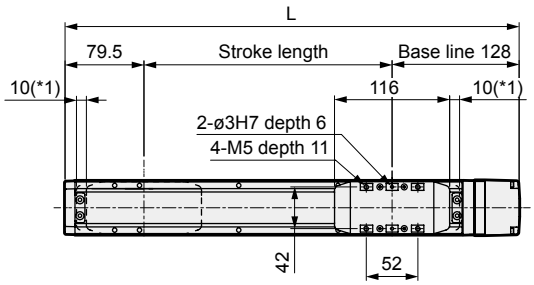
Stroke code		0050	0100	0150	0200	0250	0300	0350	0400	0450	0500	0550	0600	0650	0700	0750	0800
Stroke length (mm)		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L		257.5	307.5	357.5	407.5	457.5	507.5	557.5	607.5	657.5	707.5	757.5	807.5	857.5	907.5	957.5	1007.5
A		25	75	25	75	25	75	25	75	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

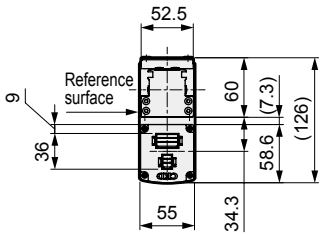
EBS-05M*

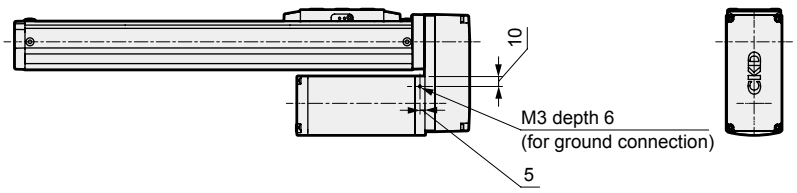
Dimensions Motor bottom mounting

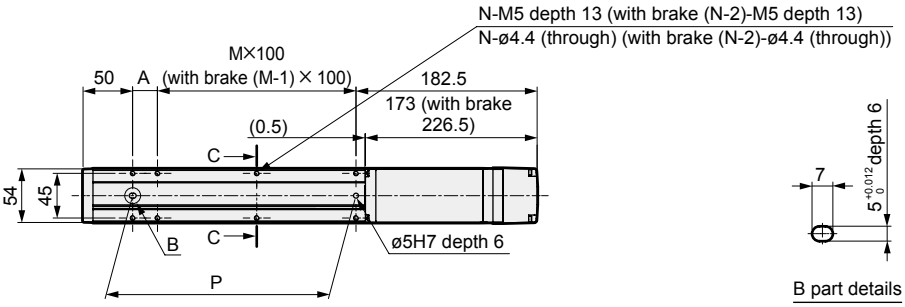
● EBS-05MD

*1 Operating range to the mechanical stopper

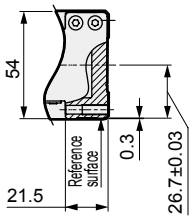








B part details



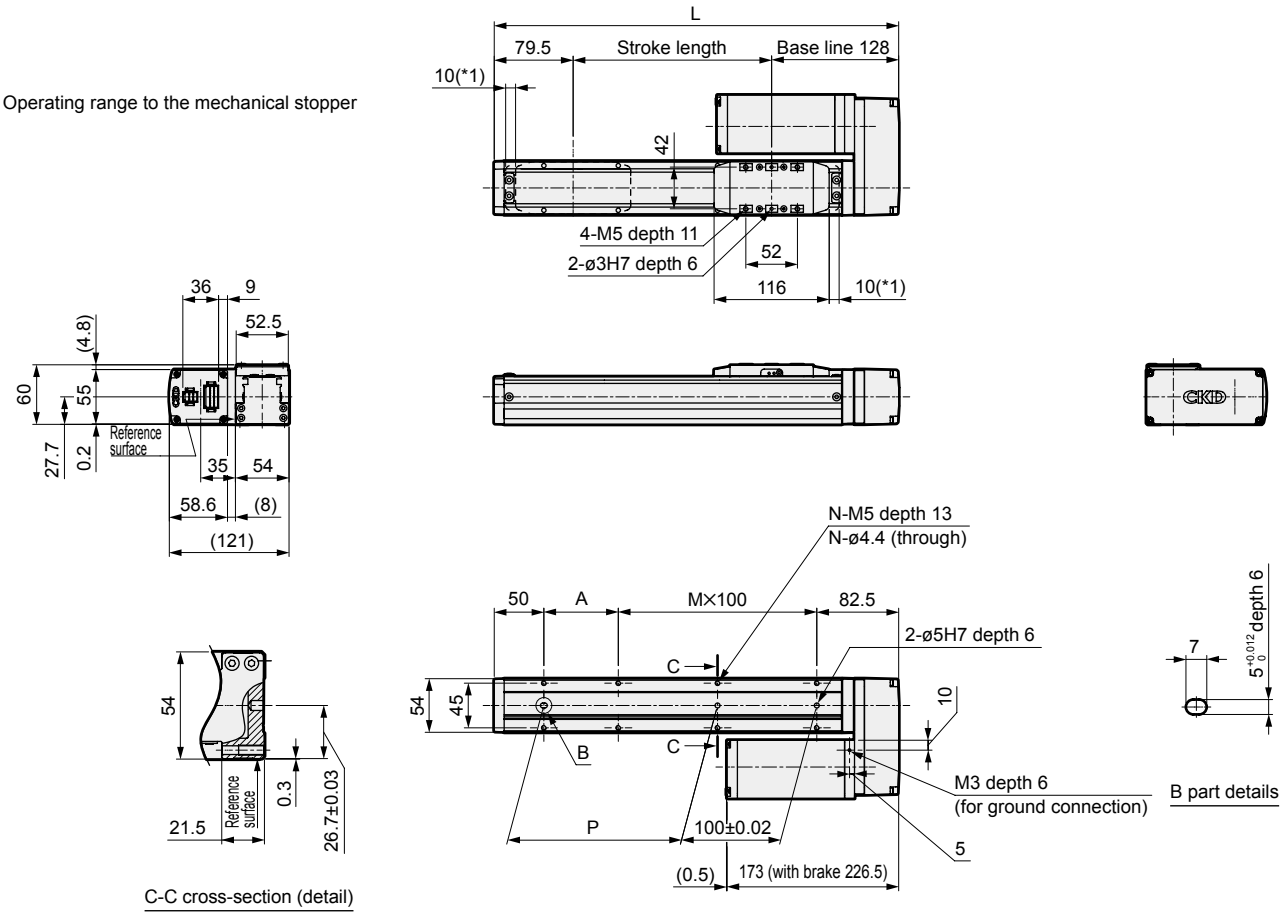
C-C cross-section (detail)

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

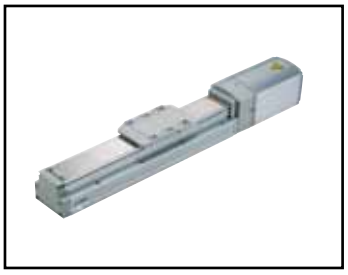
Dimensions Motor left-side mounting

● EBS-05ML

*1 Operating range to the mechanical stopper



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



Electric actuator Slider

EBS-08ME

Straight motor mounting

□56 Stepper motor

with battery-less absolute encoder

How to order

EBS - 08 (A) M (B) E (C) - 05 (D) 0300 (E) N (F) A (G) N - C (H) S03

(A) Body size

08	Body width 82 mm

(B) Motor

M	Yes

(C) Motor mounting direction

E	Straight mounting

(D) Screw lead

05	5 mm
10	10 mm
20	20 mm

(E) Stroke length

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

(F) Brake *1

N	Without brake
B	With brake

(G) Encoder

A	Battery-less absolute encoder

(H) Relay cable *2 *3

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

*1 Select "With brake" for vertical use.
*2 Select the controller from page 61.
*3 Refer to page 71 for relay cable dimensions.

Product subject to the EAR (EAR99)

Specifications

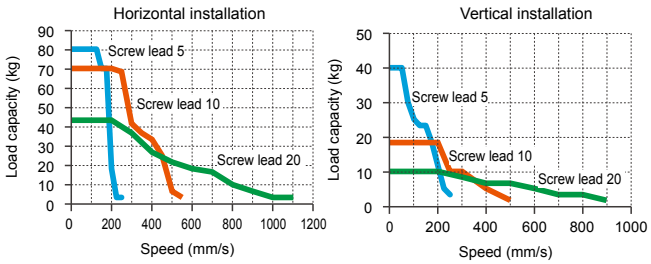
Motor		□56 Stepper motor		
Encoder type		Battery-less absolute encoder		
Drive method		Ball screw ø16		
Stroke length	mm	50 to 1100		
Screw lead	mm	5	10	20
Max. load capacity *1 *2	kg Horizontal	80(80)	70(70)	43.3(43.3)
	Vertical	40(38.3)	18.3(18.3)	10(10)
Operation speed range *3 *4	mm/s	6 to 250 (150)	12 to 550 (300)	25 to 1100 (600)
Maximum pressing force	N	970	477	250
Pressing operation speed range	mm/s	5 to 25	5 to 30	5 to 30
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% or 48 VDC ±10%		
Motor section max. instantaneous current	A	8.6		
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC ±10%		
	Power consumption W	8		
	Holding force N	754	377	188
Insulation resistance		10 MΩ, 500 VDC		
Withstand voltage		500 VAC for 1 minute		
Operating ambient temperature, humidity		0 to 40°C (no freezing) 35 to 80% RH (no condensation)		
Storage ambient temperature, humidity		-10 to 50°C (no freezing) 35 to 80% RH (no condensation)		
Atmosphere		No corrosive gas, explosive gas, or dust		
Degree of protection		IP40		

*1 The values in ( ) are at 24 VDC.
*2 Load capacity varies according to acceleration/deceleration and speed. Refer to page 28 for details.
*3 The maximum speed values in ( ) are at 24 VDC.
*4 The maximum speed may decrease depending on the conditions.

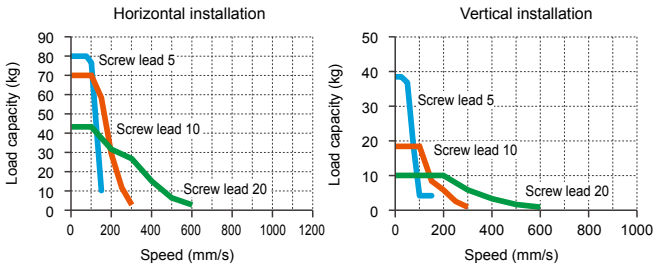
Speed and load capacity

*Acceleration/deceleration 0.3 G

[At 48 VDC]



[At 24 VDC]



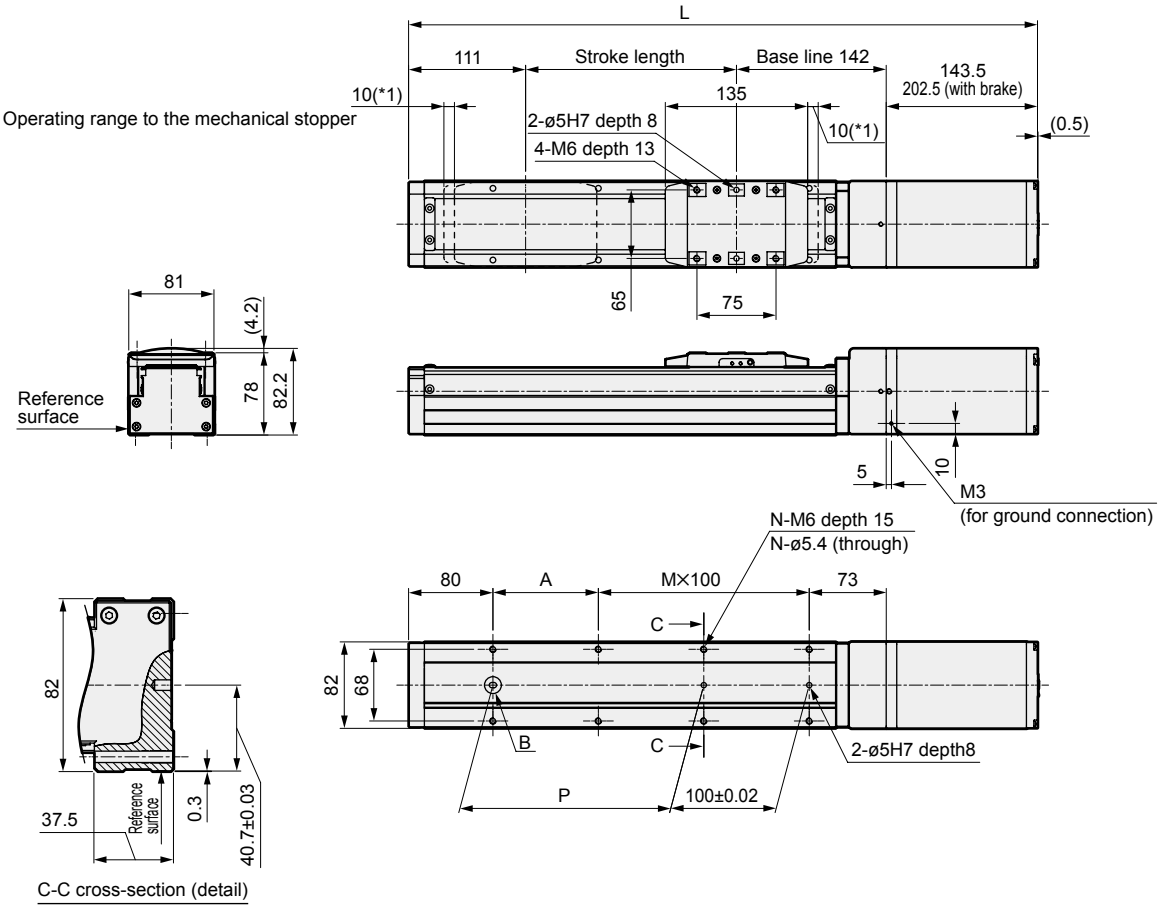
Stroke length and max. speed

(mm/s)

Screw lead	Power supply voltage	Stroke										
		50 to 600	650	700	750	800	850	900	950	1000	1050	1100
5	48 VDC	250	250	250	250	220	200	180	135	120	110	100
	24 VDC	150	150	150	150	150	150	150	135	120	110	100
10	48 VDC	550	550	550	510	450	410	370	270	240	225	200
	24 VDC	300	300	300	300	300	300	300	270	240	225	200
20	48 VDC	1100	1000	1000	1000	910	820	740	540	490	450	410
	24 VDC	600	600	600	600	600	600	600	540	490	450	410

Dimensions Straight motor mounting

● EBS-08ME



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

Electric actuator Slider

EBS-08M*

Motor mounting on side/bottom

□56 Stepper motor

with battery-less absolute encoder

How to order

EBS - 08 (A) M (B) R (C) - 05 (D) 0300 (E) N (F) A (G) N - C S03 (H)

(A) Body size

08	Body width 82 mm

(B) Motor

M	Yes

(C) Motor mounting direction

R	Right-side mounting
D	Bottom mounting
L	Left-side mounting

(D) Screw lead

05	5 mm
10	10 mm
20	20 mm

(E) Stroke length

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

(F) Brake *1

N	Without brake
B	With brake

(G) Encoder

A	Battery-less absolute encoder

(H) Relay cable *2 *3

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

*1 Select "With brake" for vertical use.
*2 Select the controller from page 61.
*3 Refer to page 71 for relay cable dimensions.

Product subject to the EAR (EAR99)

Specifications

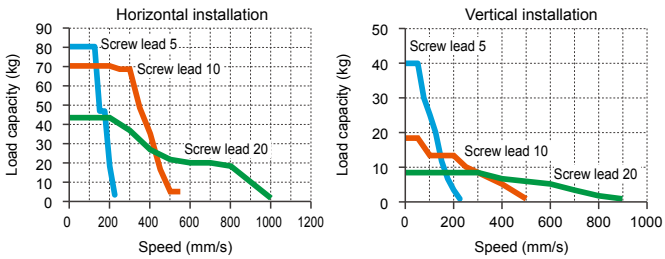
Motor		□56 Stepper motor		
Encoder type		Battery-less absolute encoder		
Drive method		Ball screw ø16		
Stroke length	mm	50 to 1100		
Screw lead	mm	5	10	20
Max. load capacity *1 *2	kg Horizontal	80(80)	70(70)	43.3(43.3)
	Vertical	40(36.6)	18.3(16.6)	8.3(8.3)
Operation speed range *3 *4	mm/s	6 to 225 (100)	12 to 550 (300)	25 to 1000 (500)
Maximum pressing force	N	970	477	250
Pressing operation speed range	mm/s	5 to 25	5 to 30	5 to 30
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% or 48 VDC ±10%		
Motor section max. instantaneous current	A	8.6		
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC ±10%		
	Power consumption W	8		
	Holding force N	754	377	188
Insulation resistance		10 MΩ, 500 VDC		
Withstand voltage		500 VAC for 1 minute		
Operating ambient temperature, humidity		0 to 40 °C (no freezing) 35 to 80% RH (no condensation)		
Storage ambient temperature, humidity		-10 to 50 °C (no freezing) 35 to 80% RH (no condensation)		
Atmosphere		No corrosive gas, explosive gas, or dust		
Degree of protection		IP40		

*1 The values in ( ) are at 24 VDC.
*2 Load capacity varies according to acceleration/deceleration and speed. Refer to page 28 for details.
*3 The maximum speed values in ( ) are at 24 VDC.
*4 The maximum speed may decrease depending on the conditions.

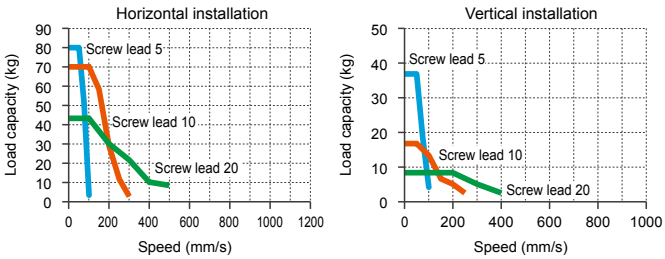
Speed and load capacity

[At 48 VDC]

*Acceleration/deceleration 0.3 G



[At 24 VDC]



Stroke length and max. speed

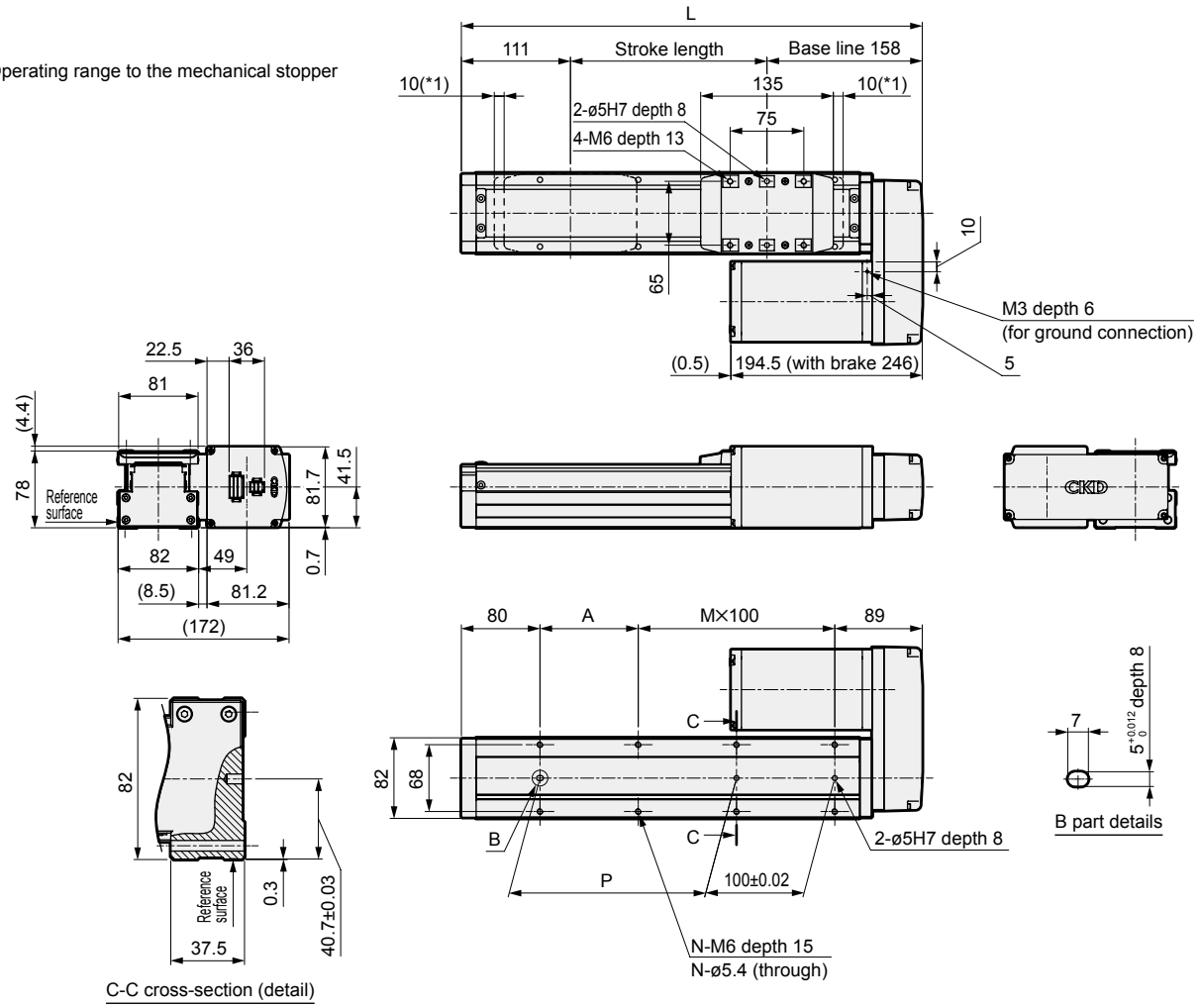
(mm/s)

Screw lead	Power supply voltage	Stroke								
		50 to 700	750	800	850	900	950	1000	1050	1100
5	48 VDC	225	225	220	200	180	135	120	110	100
	24 VDC	100	100	100	100	100	100	100	100	100
10	48 VDC	550	510	450	410	370	270	240	225	200
	24 VDC	300	300	300	300	300	270	240	225	200
20	48 VDC	1000	1000	910	820	740	540	490	450	410
	24 VDC	500	500	500	500	500	500	490	450	410

Dimensions Motor right-side mounting

● EBS-08MR

*1 Operating range to the mechanical stopper



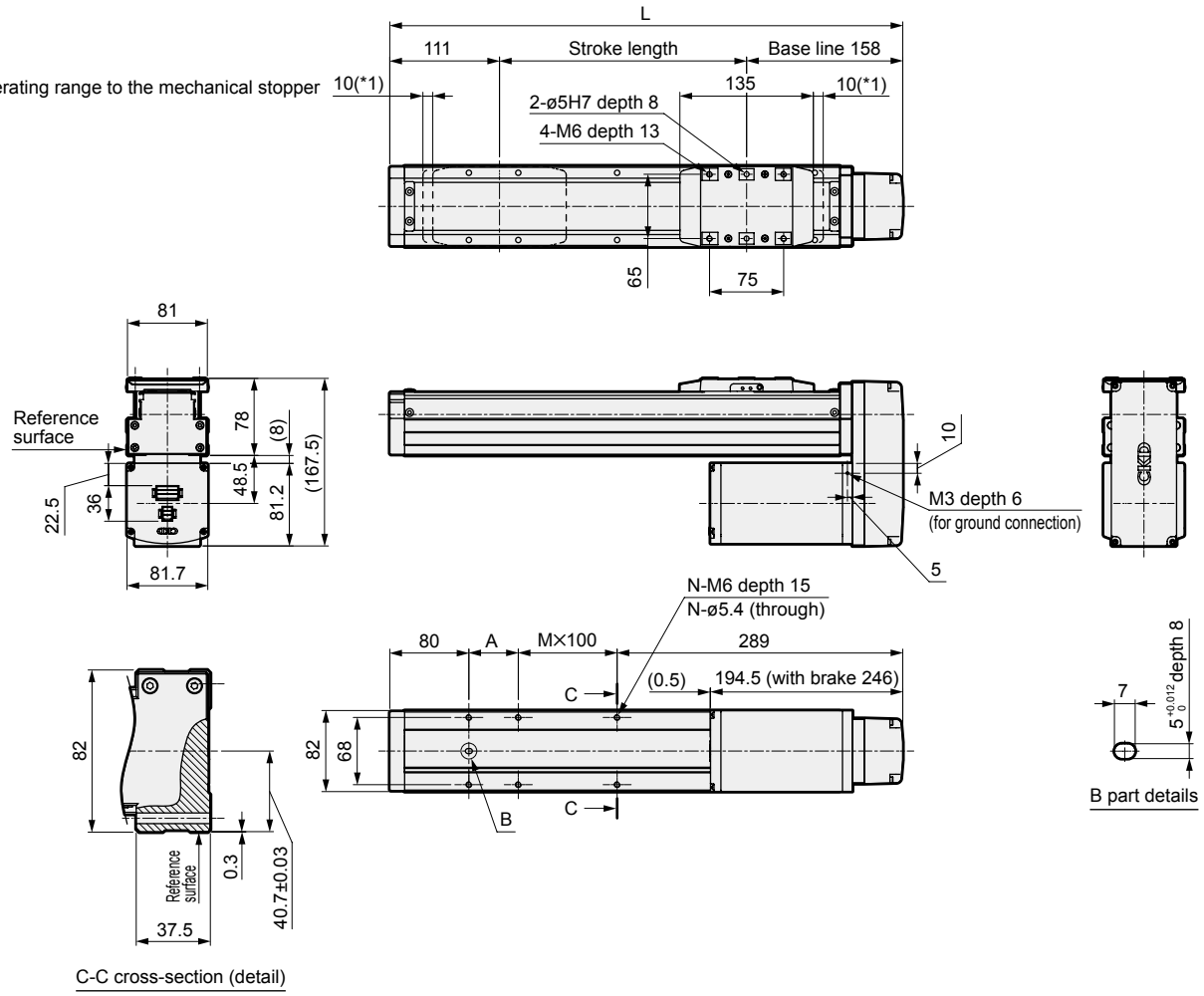
Stroke code		0050	0100	0150	0200	0250	0300	0350	0400	0450	0500	0550	0600	0650	0700	0750	0800
Stroke length (mm)		50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L		319	369	419	469	519	569	619	669	719	769	819	869	919	969	1019	1069
A		50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
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

Dimensions Motor bottom mounting

● EBS-08MD

*1 Operating range to the mechanical stopper



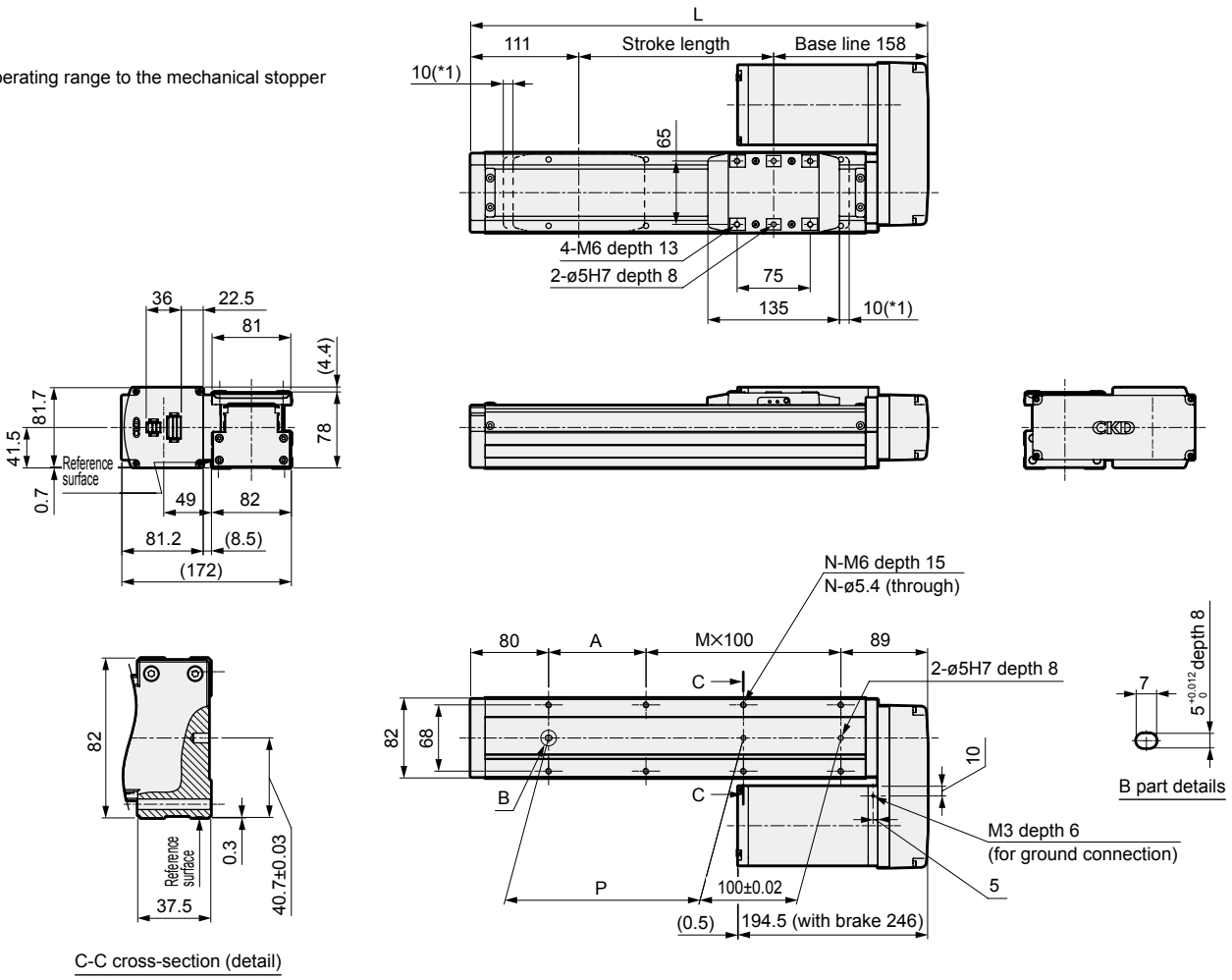
Stroke code		0250	0300	0350	0400	0450	0500	0550	0600	0650	0700	0750	0800	0850	0900	0950	1000
Stroke length (mm)		250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
L		519	569	619	669	719	769	819	869	919	969	1019	1069	1119	1169	1219	1269
A		50	100	50	100	50	100	50	100	50	100	50	100	50	1169	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

Dimensions Motor left-side mounting

● EBS-08ML

*1 Operating range to the mechanical stopper



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

Model selection

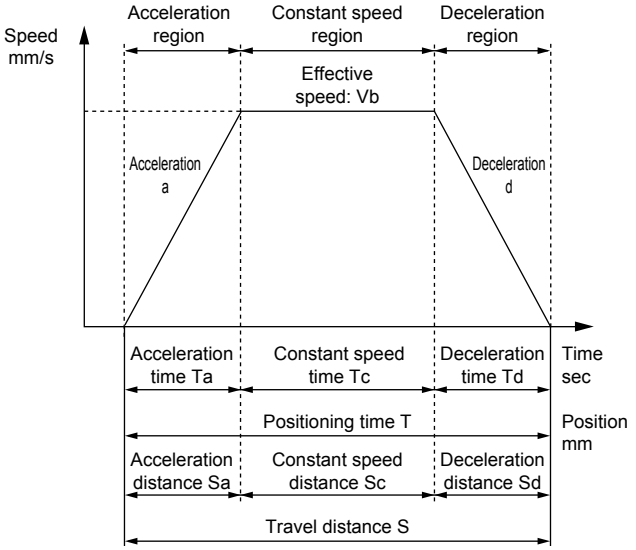
STEP 1 Confirming load capacity

Load capacity varies with mounting orientation, screw lead, transport speed, acceleration/deceleration and power supply voltage. Refer to the Series Variation (page 2), 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.

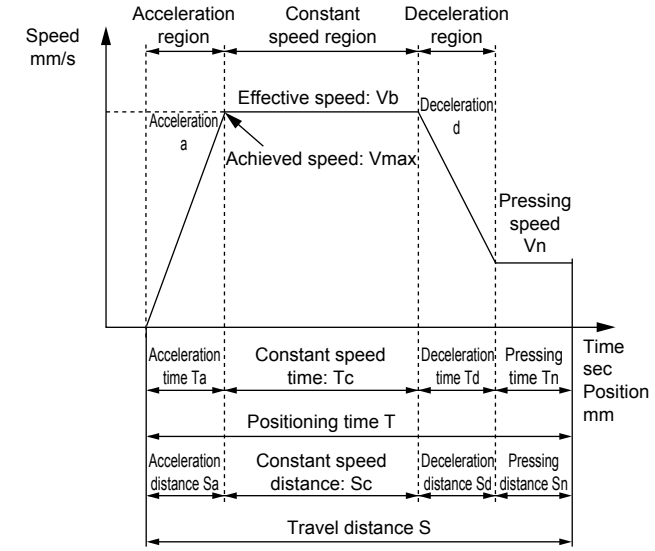
Positioning time for general transport operation



	Content	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 trapezoid 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/deceleration varies depending on the product and the working conditions. Refer to page 28 for details.
* While settling time depends on working conditions, it may take 0.2 seconds or so.
* 1 G ≈ 9.8 m/s^2.

Positioning time for pressing operation



	Content	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	$=((Vb+Vn) \times Td)/2$
	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 trapezoid 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/deceleration varies depending on the product and the working conditions. Refer to page 28 for details.
* While settling time depends on working conditions, it may take 0.2 seconds or so.
* 1 G ≈ 9.8 m/s^2.

STEP 3 Confirming static allowable load and moment

Calculate the load and moment that are generated when the table is stopped.
Make sure that the resultant moment (M_T) is as follows (the following formula is satisfied) according to the formula below.

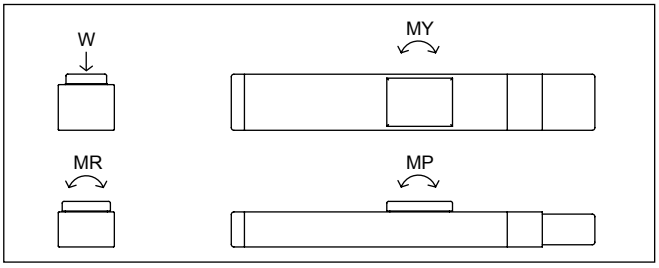
$$M_T=\frac{W}{W\ max}+\frac{MP}{MP\ max}+\frac{MR}{MR\ max}+\frac{MY}{MY\ max}<1$$

Static allowable load and moment

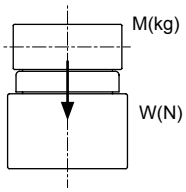
Model No.	Vertical load W max (N)	Pitching moment MP max (N·m)	Yawing moment MY max (N·m)	Rolling moment MR max (N·m)
EBS-04	1030	62	62	92
EBS-05	1168	103	103	144
EBS-08	2781	203	203	336

Calculating static allowable load and moment

How moment is applied

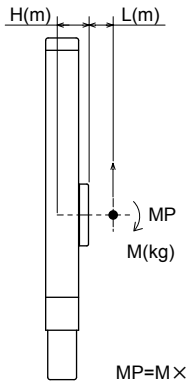


● Vertical load W (N)



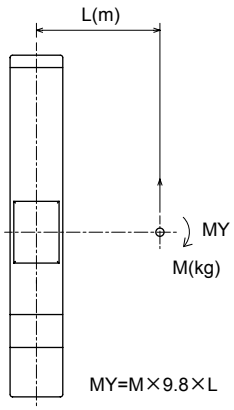
M: Workpiece weight (kg)
W=M×9.8

● Pitching moment MP (N·m)



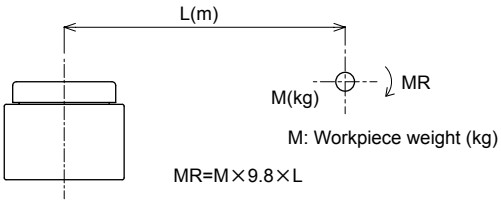
MP=M×9.8×(L+H)

● Yawing moment MY (N·m)

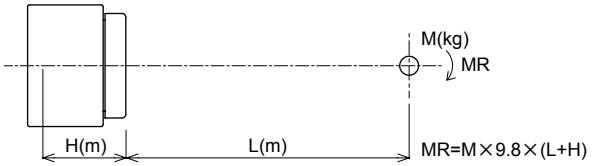


MY=M×9.8×L

● Rolling moment MR (N·m)



M: Workpiece weight (kg)
MR=M×9.8×L



MR=M×9.8×(L+H)

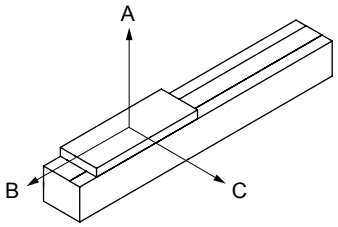
Model No.	H(m)
EBS-04	0.040
EBS-05	0.048
EBS-08	0.052

STEP 4 Checking allowable overhang length

Make sure that the load overhang length during operation is within the allowable range (pages 24 to 26).

Allowable overhang length (EBS Series)

[When installed horizontally]



[Allowable overhang length]

●EBS-04M

Motor mounted	Acceleration/ deceleration G	Screw lead	Weight kg	Overhang length mm		
				A	B	C
Straight/ side/ bottom	0.3	6	6	800	135	190
			11	595	70	95
			16	375	40	60
		12	4	800	190	255
			9	490	80	105
			13	320	50	65
	1.0	6	5	800	230	330
			10	590	110	160
			16	350	60	90
		12	3	710	260	320
			5	400	150	180
			8	230	90	105

●EBS-05M

Motor mounted	Acceleration/ deceleration G	Screw lead	Weight kg	Overhang length mm		
				A	B	C
Straight/ side/ bottom	0.3	2	15	1000	105	145
			30	815	45	65
			45	520	25	35
		5	13	820	95	125
			27	350	40	50
			40	210	20	30
		10	12	765	100	130
			23	355	45	60
			35	210	25	35
		20	5	1000	235	285
			11	520	100	120
			16	330	65	75
	0.7	2	15	950	115	160
			30	450	50	70
			45	285	30	45
	1.0	5	13	760	120	170
			27	340	50	70
			40	210	30	45
		10	6	1000	235	310
			11	540	120	160
			16	220	70	85
		20	3	1000	440	555
			7	590	180	225
			10	400	125	150

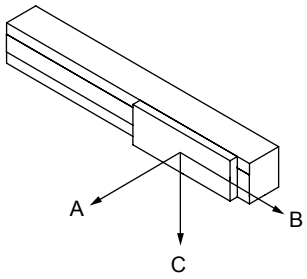
●EBS-08M

Motor mounted	Acceleration/ deceleration G	Screw lead	Weight kg	Overhang length mm		
				A	B	C
Straight/ side/ bottom	0.3	5	25	1000	185	305
			50	1000	85	140
			80	740	45	75
		10	25	1000	165	260
			45	875	85	135
			70	525	50	75
		20	14	1000	305	490
			29	1000	140	220
			43	920	90	140
	1.0	5	27	1000	195	325
			53	560	90	150
			80	350	55	90
		10	23	1000	230	385
			47	630	105	175
			70	410	65	110
		20	6	1000	665	970
			12	1000	325	465
			18	700	210	300

*Values with actuator operating life restricted to 5,000 km.
*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.
*Values may vary according to motor mounting direction and power supply voltage. Contact CKD for details.
*For acceleration/deceleration and load capacity, refer to the Table of Load Capacity by Speed and Acceleration/Deceleration (page 28).

Allowable overhang length (EBS Series)

[When wall-mounted]



[Allowable overhang length]

●EBS-04M

Motor mounted	Acceleration/ deceleration G	Screw lead	Weight kg	Overhang length mm		
				A	B	C
Straight/ side/ bottom	0.3	6	6	150	105	800
			11	60	40	490
			16	20	15	240
		12	4	220	165	800
			9	70	50	390
			13	30	25	210
	1.0	6	5	290	200	800
			10	120	80	600
			16	50	35	360
		12	3	290	230	680
			5	150	120	370
			8	75	60	200

●EBS-05M

Motor mounted	Acceleration/ deceleration G	Screw lead	Weight kg	Overhang length mm		
				A	B	C
Straight/ side/ bottom	0.3	2	10	175	125	1000
			20	55	40	1000
			30	15	10	560
		5	7	205	150	1000
			13	80	60	685
			20	30	20	335
		10	7	195	145	1000
			13	75	55	575
			20	25	20	265
		20	5	245	200	1000
			11	80	65	400
			16	35	25	200
	0.7	2	10	200	140	1000
			20	70	50	700
			30	25	15	450
	1.0	5	7	280	200	1000
			13	120	90	770
			20	50	40	490
		10	6	270	200	995
			11	115	85	495
			16	60	40	290
		20	3	520	405	1000
			7	185	145	555
			10	110	90	360

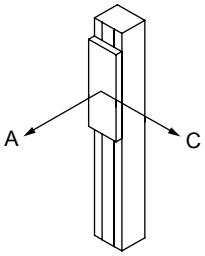
●EBS-08M

Motor mounted	Acceleration/ deceleration G	Screw lead	Weight kg	Overhang length mm		
				A	B	C
Straight/ side/ bottom	0.3	5	25	250	155	1000
			50	85	50	1000
			70	40	20	680
		10	25	210	130	1000
			45	85	50	745
			70	25	15	345
		20	15	350	220	1000
			30	140	90	810
			43	90	55	790
	1.0	5	27	270	165	1000
			53	100	60	1000
			80	40	25	370
		10	23	330	200	1000
			47	125	75	660
			70	55	35	430
		20	6	920	630	1000
			12	425	290	1000
			18	260	180	660

*Values with actuator operating life restricted to 5,000 km.
*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.
*Values may vary according to motor mounting direction and power supply voltage. Contact CKD for details.
*For acceleration/deceleration and load capacity, refer to the Table of Load Capacity by Speed and Acceleration/Deceleration (page 28).

Allowable overhang length (EBS Series)

[When installed vertically]



[Allowable overhang length]

●EBS-04M

Motor mounted	Acceleration/ deceleration G	Screw lead	Weight kg	Overhang length mm	
				A	C
Straight / side/ bottom	0.3	6	3	315	315
			5	175	175
			8	90	90
		12	1	755	725
			2	355	340
			3	225	215
	0.5	6	3	315	315
			5	175	170
			8	90	90
		12	1	790	770
			2	375	365
			3	235	235

●EBS-05M

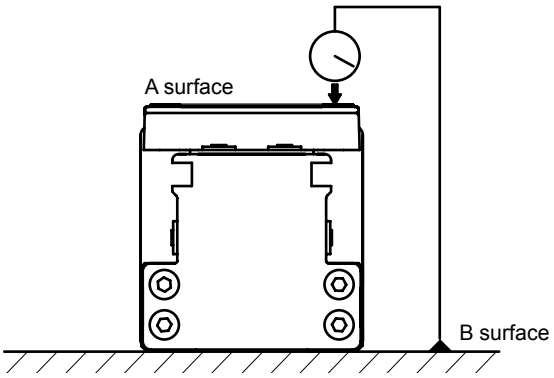
Motor mounted	Acceleration/ deceleration G	Screw lead	Weight kg	Overhang length mm	
				A	C
Straight / side/ bottom	0.3	2	8	175	175
			16	65	65
			24	25	25
		5	6	265	265
			11	120	120
			16	70	70
		10	3	525	525
			5	295	295
			8	170	170
		20	2	815	810
			3	525	525
			4.5	340	340
	0.5	2	8	185	185
			16	65	65
			24	30	30
		5	6	265	265
			11	120	120
			16	70	70
		10	3	525	525
			5	295	295
			8	170	170
		20	2	815	810
			3	525	525
			4.5	340	340

●EBS-08M

Motor mounted	Acceleration/ deceleration G	Screw lead	Weight kg	Overhang length mm	
				A	C
Straight / side/ bottom	0.3	5	15	325	325
			25	175	175
			40	90	90
		10	6	690	680
			12	315	315
			18	195	195
		20	3	1000	1000
			7	580	575
			10	390	390
	0.5	5	12	420	420
			23	195	195
			35	110	110
		10	6	900	900
			12	420	420
			18	235	235
		20	3	1000	1000
			5	835	825
			8	500	500

*Values with actuator operating life restricted to 5,000 km.
*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.
*Values may vary according to motor mounting direction and power supply voltage. Contact CKD for details.
*For acceleration/deceleration and load capacity, refer to the Table of Load Capacity by Speed and Acceleration/Deceleration (page 28).

Slider parallelism *Reference value

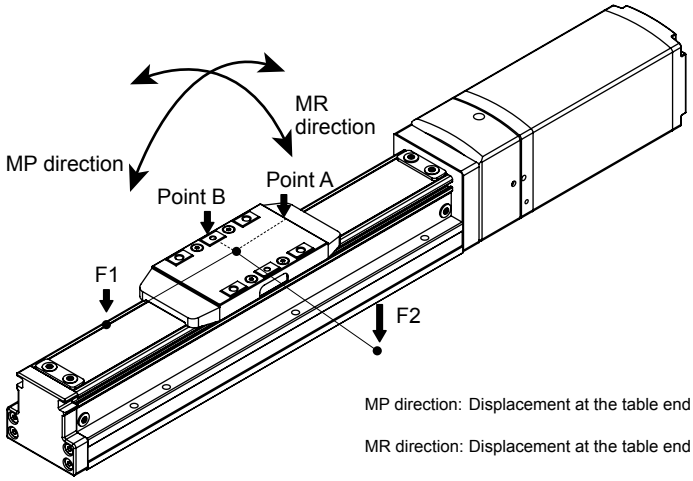


(mm)

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

*1 Parallelism with the product fixed to a surface plate.

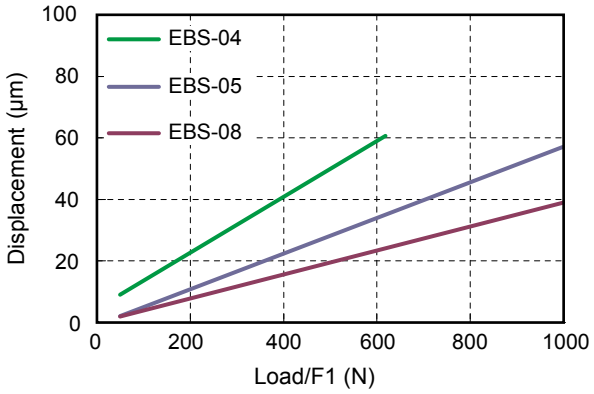
Table deflection *Reference value



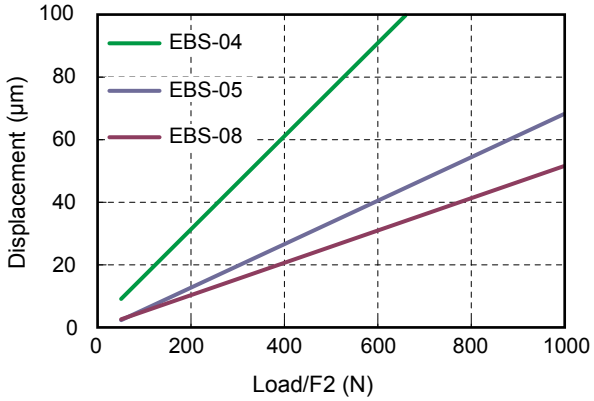
MP direction: Displacement at the table end (Point A) when load (F1) is applied to a position 100 mm from the center of the table

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

Displacement in MP direction

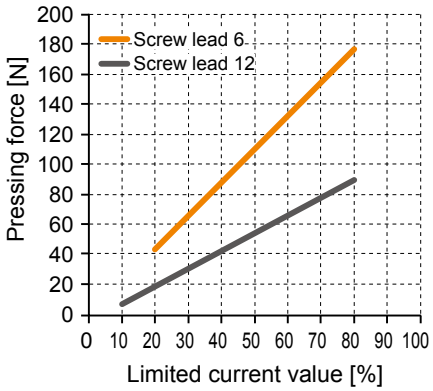


Displacement in MR direction

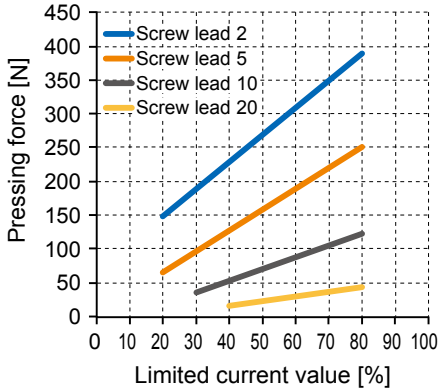


Pressing force

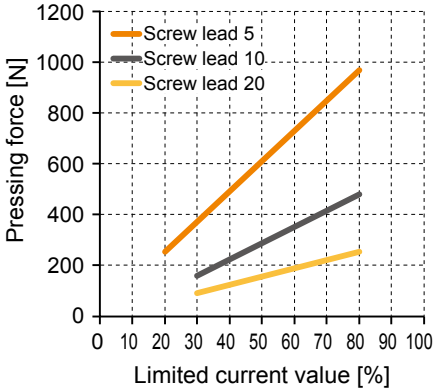
EBS-04M



EBS-05M



EBS-08M



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

Table of Load Capacity by Speed and Acceleration/Deceleration

48 VDC

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.

[When installed horizontally]

■EBS-04M

(kg)

Screw lead 6

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 1.0	Side/Bottom 0.3	Side/Bottom 1.0
0	16.6	16.6	16.6	16.6
50	16.6	16.6	16.6	16.6
100	16.6	15.0	16.6	16.6
150	16.6	10.0	16.6	13.3
200	16.6	1.6	16.6	8.3
250	16.6	1.6	16.6	1.6
300	13.3		13.3	
350	8.3		8.3	
400	3.3		6.6	

Screw lead 12

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 1.0	Side/Bottom 0.3	Side/Bottom 1.0
0	13.3	8.3	13.3	8.3
100	13.3	8.3	13.3	8.3
200	13.3	8.3	13.3	8.3
300	13.3	8.3	13.3	8.3
400	13.3	8.3	13.3	8.3
500	6.6	3.3	6.6	3.3
600	5.0	2.5	5.0	2.5
700	1.6	0.8	1.6	0.8
800	0.8			

■EBS-05M

Screw lead 2

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 0.7	Side/Bottom 0.3	Side/Bottom 0.7
0	45.0	45.0	45.0	45.0
50	45.0	45.0	45.0	45.0
60	45.0	13.3	45.0	13.3
70	45.0	13.3	45.0	13.3
80	45.0		45.0	
100	45.0		45.0	
110	26.6		26.6	
120	18.3		18.3	
130	10.0		10.0	

Screw lead 5

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 1.0	Side/Bottom 0.3	Side/Bottom 1.0
0	40.0	40.0	40.0	40.0
50	40.0	40.0	40.0	40.0
100	40.0	40.0	40.0	40.0
150	40.0	35.0	40.0	18.3
200	40.0	18.3	40.0	8.3
250	40.0	10.0	40.0	8.3
300	26.6		23.3	

Screw lead 10

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 1.0	Side/Bottom 0.3	Side/Bottom 1.0
0	35.0	16.6	35.0	16.6
200	35.0	16.6	35.0	16.6
250	35.0	10.0	35.0	10.0
300	35.0	8.3	35.0	8.3
400	25.0	8.3	25.0	6.6
500	21.6	5.0	21.6	1.6
600	16.6		8.3	
650	10.0			
700	0.8			

Screw lead 20

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 1.0	Side/Bottom 0.3	Side/Bottom 1.0
0	16.6	10.0	16.6	10.0
100	16.6	10.0	16.6	10.0
200	16.6	10.0	16.6	8.3
300	16.6	10.0	16.6	8.3
400	16.6	6.6	16.6	6.6
500	16.6	3.3	16.6	3.3
700	15.0	3.3	15.0	3.3
800	10.0	1.6	10.0	1.6
900	6.6	1.6	6.6	1.6
1000	3.3		3.3	1.6
1100	3.3		3.3	

■EBS-08M

Screw lead 5

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 1.0	Side/Bottom 0.3	Side/Bottom 1.0
0	80.0	80.0	80.0	80.0
50	80.0	80.0	80.0	80.0
60	80.0	38.3	80.0	38.3
70	80.0	21.6	80.0	21.6
75	80.0	15.0	80.0	15.0
80	80.0	6.6	80.0	6.6
125	80.0	6.6	80.0	
150	70.0	3.3	46.6	
175	70.0		46.6	
200	18.3		18.3	
225	3.3		3.3	
250	3.3			

Screw lead 10

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 1.0	Side/Bottom 0.3	Side/Bottom 1.0
0	70.0	70.0	70.0	70.0
50	70.0	70.0	70.0	70.0
100	70.0	51.6	70.0	70.0
150	70.0	51.6	70.0	43.3
200	70.0	18.3	70.0	18.3
250	68.3	5.0	68.3	4.1
300	41.6		68.3	
350	36.6		48.3	
400	33.3		35.0	
450	25.0		16.6	
500	6.6		5.0	
550	3.3		5.0	

Screw lead 20

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 1.0	Side/Bottom 0.3	Side/Bottom 1.0
0	43.3	18.3	43.3	18.3
300	36.6	18.3	36.6	18.3
400	26.6	8.3	26.6	8.3
500	21.6	3.3	21.6	3.3
600	18.3	1.6	20.0	1.6
700	16.6	0.8	20.0	0.8
800	10.0		18.3	
900	6.6		10.0	
1000	3.3		1.6	
1100	3.3			

[When installed vertically]

■EBS-04M

Screw lead 6

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 0.5	Side/Bottom 0.3	Side/Bottom 0.5
0	8.3	8.3	8.3	8.3
100	8.3	8.3	8.3	8.3
150	5.0	6.6	5.0	5.0
200	5.0	5.0	5.0	5.0
250	5.0	3.3	2.5	1.6
300	3.3	1.6	1.6	0.4
350	1.6	0.4	1.6	0.4
400	0.4			

Screw lead 12

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 0.5	Side/Bottom 0.3	Side/Bottom 0.5
0	3.3	3.3	3.3	3.3
100	3.3	3.3	3.3	3.3
200	3.3	3.3	3.3	3.3
300	3.3	3.3	3.3	3.3
400	3.3	2.5	3.3	2.5
500	2.5	1.6	0.8	0.4
600			0.8	0.4

■EBS-05M

Screw lead 2

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 0.5	Side/Bottom 0.3	Side/Bottom 0.5
0	24.0	24.0	24.0	24.0
50	24.0	24.0	24.0	24.0
60	24.0	18.3	24.0	18.3
70	24.0	13.3	11.6	8.3
80	18.3	6.6	1.6	
90	18.3	6.6		
100	18.3	6.6		
110	18.3			
120	6.6			
130	1.6			

Screw lead 5

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 0.5	Side/Bottom 0.3	Side/Bottom 0.5
0	16.6	16.6	16.6	16.6
50	16.6	16.6	16.6	16.6
100	15.0	15.0	15.0	15.0
150	11.6	11.6	11.6	11.6
200	10.0	10.0	10.0	10.0
250	10.0	5.0	10.0	5.0
300	5.0	3.3	3.3	3.3

Screw lead 10

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 0.5	Side/Bottom 0.3	Side/Bottom 0.5
0	8.3	8.3	8.3	8.3
100	8.3	8.3	8.3	8.3
200	6.6	6.6	6.6	6.6
250	5.0	5.0	5.0	5.0
300	5.0	5.0	5.0	5.0
400	5.0	3.3	5.0	3.3
450	5.0	3.3	3.3	3.3
500	5.0		3.3	
600	1.6		0.4	

Screw lead 20

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 0.5	Side/Bottom 0.3	Side/Bottom 0.5
0	4.5	4.5	4.5	4.5
100	4.5	4.5	4.5	4.5
400	3.3	3.3	4.5	4.5
500	3.3	3.3	4.5	4.1
600	3.3	3.3	4.1	3.3
700	3.3	2.9	3.3	2.9
800	2.5	2.0	3.3	2.0
900	2.5	2.0	1.6	2.0
1000	2.5	2.0	1.6	1.6
1100	2.5	2.0	0.8	0.8

■EBS-08M

Screw lead 5

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 0.5	Side/Bottom 0.3	Side/Bottom 0.5
0	40.0	35.0	40.0	35.0
50	40.0	35.0	40.0	35.0
75	30.0	31.6	30.0	31.6
100	25.0	25.0	25.0	25.0
125	23.3	25.0	20.0	18.3
150	23.3	11.6	11.6	6.6
175	18.3	5.0	6.6	0.8
200	11.6		3.3	
225	5.0		0.8	
250	3.3			

Screw lead 10

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 0.5	Side/Bottom 0.3	Side/Bottom 0.5
0	18.3	18.3	18.3	18.3
50	18.3	18.3	18.3	18.3
100	18.3	18.3	13.3	13.3
200	18.3	11.6	13.3	11.6
250	10.0	10.0	10.0	10.0
300	10.0	10.0	8.3	8.3
400	5.0	1.6	5.0	1.6
500	1.6	1.6	0.8	

Screw lead 20

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 0.5	Side/Bottom 0.3	Side/Bottom 0.5
0	10.0	8.3	8.3	8.3
200	10.0	8.3	8.3	8.3
300	8.3	6.6	8.3	6.6
400	6.6	5.0	6.6	5.0
500	6.6	5.0	5.8	4.1
600	5.0	3.3	5.0	3.3
700	3.3	3.3	3.3	2.5
800	3.3	1.6	1.6	0.8
900	1.6	1.6	0.8	

Table of Load Capacity by Speed and Acceleration/Deceleration

24 VDC

* At 24 VDC, operation is possible up to 0.7 G when horizontally installed and 0.3 G when vertically installed.
Contact CKD for details.

[When installed horizontally]

■EBS-04M

(kg)

Screw lead 6

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	16.6	16.6
50	16.6	16.6
100	16.6	16.6
150	16.6	16.6
200	6.6	6.6
250		5.0

Screw lead 12

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	11.6	11.6
100	11.6	11.6
200	11.6	11.6
300	10.0	10.0
400	3.3	3.3
500	1.6	1.6
600	1.6	

■EBS-05M

Screw lead 2

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	45.0	45.0
25	45.0	45.0
50	45.0	45.0
60	35.0	35.0
70	2.5	2.5

Screw lead 5

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	40.0	40.0
50	40.0	40.0
100	40.0	40.0
150	40.0	20.0
200	18.3	5.0
250	8.3	5.0

Screw lead 10

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	35.0	35.0
100	35.0	35.0
200	35.0	35.0
300	21.6	18.3
350	15.0	13.3
400	10.0	6.6
450	7.5	3.3
500	5.0	3.3
550	5.0	
600	0.8	

Screw lead 20

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	16.6	16.6
100	16.6	16.6
200	16.6	16.6
300	16.6	16.6
400	16.6	13.3
500	12.5	8.3
600	8.3	6.6
700	4.1	4.1
800	2.5	2.5
900	0.8	0.8

■EBS-08M

Screw lead 5

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	80.0	80.0
25	80.0	80.0
50	80.0	80.0
75	80.0	51.6
100	76.6	3.3
125	43.3	
150	10.0	

Screw lead 10

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	70.0	70.0
50	70.0	70.0
100	70.0	70.0
150	58.3	58.3
200	29.1	29.1
250	11.6	11.6
300	2.5	2.5

Screw lead 20

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	43.3	43.3
100	43.3	43.3
200	31.6	30.0
300	26.6	21.6
400	15.0	10.0
500	6.2	8.3
600	2.5	

[When installed vertically]

■EBS-04M

Screw lead 6

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	6.6	6.6
50	6.6	6.6
100	6.6	6.6
150	5.0	3.3
200	1.6	1.6

Screw lead 12

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	2.5	2.5
100	2.5	2.5
200	2.5	2.5
300	1.6	0.8
400	0.8	0.8

■EBS-05M

Screw lead 2

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	24.0	24.0
10	24.0	24.0
20	24.0	24.0
30	24.0	24.0
40	24.0	24.0
50	16.6	16.6
60	8.3	8.3
70	0.8	0.8

Screw lead 5

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	16.6	16.6
50	16.6	16.6
75	16.6	16.6
100	16.6	16.6
125	11.6	11.6
150	8.3	8.3
175	5.8	5.8
200	4.1	4.1
225	2.5	2.5
250	1.6	

Screw lead 10

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	8.3	8.3
100	8.3	8.3
200	6.6	5.0
300	3.3	2.5
350	3.3	1.6
400	2.5	0.8
450	1.6	
500	0.4	

Screw lead 20

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	4.5	4.5
100	4.5	4.5
200	4.5	4.5
300	4.5	4.1
400	2.5	2.5
500	1.6	0.8
600	1.2	0.8
700	0.8	0.8
800	0.4	0.4

■EBS-08M

Screw lead 5

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	38.3	36.6
25	38.3	36.6
50	36.6	36.6
75	18.3	18.3
100	4.1	4.1
125	4.1	
150	4.1	

Screw lead 10

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	18.3	16.6
50	18.3	16.6
100	18.3	13.3
150	8.3	6.6
200	5.8	5.0
250	2.5	2.5
300	0.8	

Screw lead 20

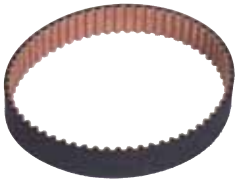
Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	10.0	8.3
100	10.0	8.3
200	10.0	8.3
300	5.8	5.0
400	3.3	2.5
500	1.6	
600	0.8	

Maintenance parts

■ Maintenance parts (motor unit)

	Model No. 	Compatibility	
Without brake	EBS-04ME-MOTORUNIT-N	EBS-04ME	Without brake
	EBS-04MR-MOTORUNIT-N	EBS-04MR/D/L	
	EBS-05ME-MOTORUNIT-N	EBS-05ME	
	EBS-05MR-MOTORUNIT-N	EBS-05MR/D/L	
	EBS-08ME-MOTORUNIT-N	EBS-08ME	
	EBS-08MR-MOTORUNIT-N	EBS-08MR/D/L	
With brake	EBS-04ME-MOTORUNIT-B	EBS-04ME	With brake
	EBS-04MR-MOTORUNIT-B	EBS-04MR/D/L	
	EBS-05ME-MOTORUNIT-B	EBS-05ME	
	EBS-05MR-MOTORUNIT-B	EBS-05MR/D/L	
	EBS-08ME-MOTORUNIT-B	EBS-08ME	
	EBS-08MR-MOTORUNIT-B	EBS-08MR/D/L	

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

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

Electric actuator
Motor specification

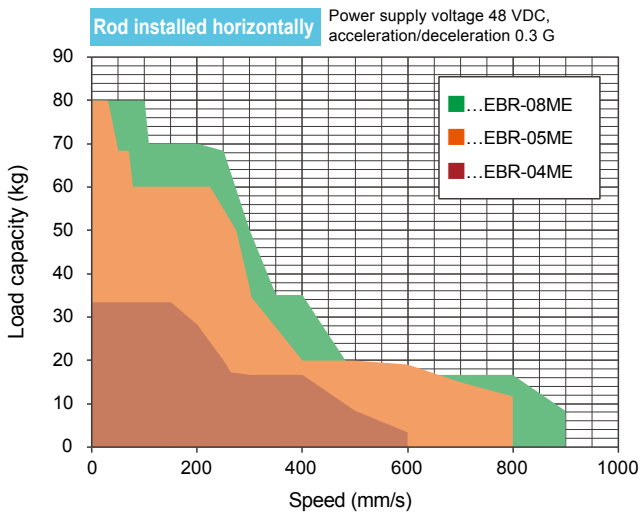
EBR-M

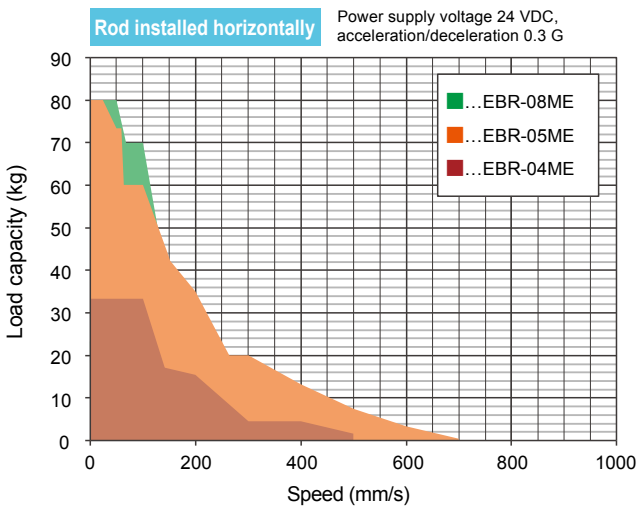
Rod with built-in guide

CONTENTS

Series variation

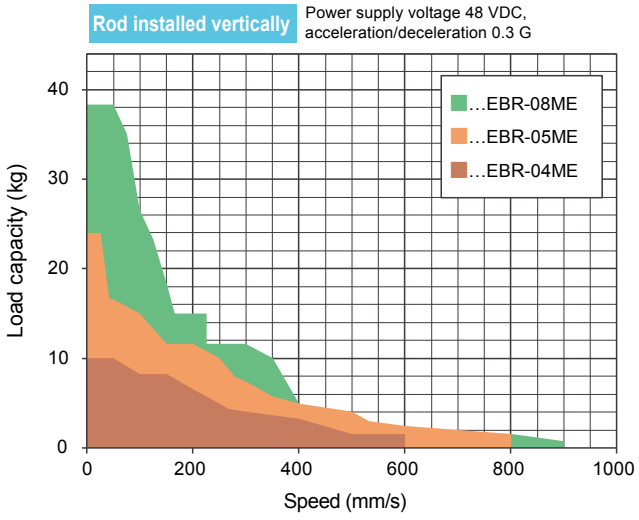
Type	Model No.		Motor size	Motor mounting direction	Body width (mm)	Screw lead (mm)	Max. load capacity (kg) Horizontal	Max. load capacity (kg) Vertical	Maximum pressing force (N)
Rod		EBR-04ME-06	□35	Straight	44	6	33.3	10	131
		EBR-04ME-12				12	18.3	5	69
		EBR-04MR/D/L-06		Side/Bottom		6	33.3	9.1	131
		EBR-04MR/D/L-12				12	18.3	5	69
		EBR-05ME-02	□42	Straight	54	2	80	24	397
		EBR-05ME-05				5	60	16.6	193
		EBR-05ME-10				10	50	10	94
		EBR-05ME-20				20	20	4.1	33
		EBR-05MR/D/L-02		Side/Bottom		2	80	24	397
		EBR-05MR/D/L-05				5	60	16.6	193
		EBR-05MR/D/L-10				10	36.6	8.3	94
		EBR-05MR/D/L-20				20	18.3	4.1	33
		EBR-08ME-05	□56	Straight	82	5	80	38.3	1050
		EBR-08ME-10				10	70	18.3	468
		EBR-08ME-20				20	35	11.6	213
		EBR-08MR/D/L-05		Side/Bottom		5	80	38.3	1050
		EBR-08MR/D/L-10				10	70	18.3	468
		EBR-08MR/D/L-20				20	35	8.3	213

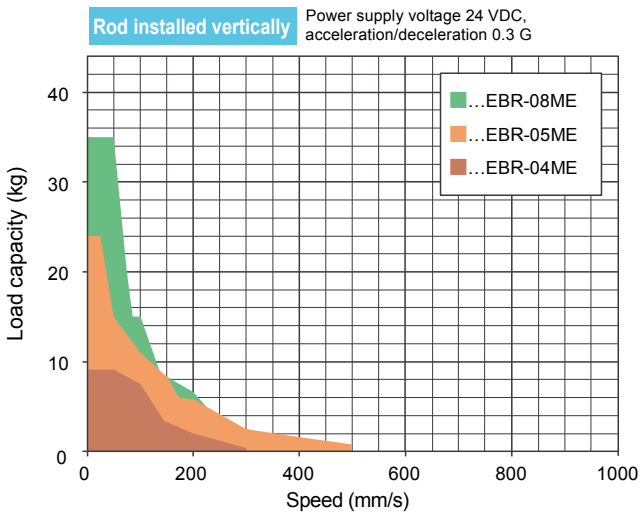




Stroke length (mm) and max. speed (mm/s)														Page
50 mm	100	150	200	250	300	350	400	450	500	550	600	650	700	
350 mm/s				300		250								34
600						490								
350				300		250								36
600						490								
130						85								40
330						210								
600						420								
800														
120						85								42
330						210								
500						420								
800														
225							200							46
450							400							
900					600									
225							200							48
450							400							
700					600									

* This data is at power supply voltage 48 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-04ME

Straight motor mounting

□35 Stepper motor

with battery-less absolute encoder

How to order

EBR - 04 (A) M (B) E (C) - 00 (D) - 06 (E) 0300 (F) N (G) A (H) N - C S03 (I)

(A) Body size

04	Body width 44 mm

(B) Motor

M	Yes

(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 *1

N	Without brake
B	With brake

(H) Encoder

A	Battery-less absolute encoder

(I) Relay cable *2 *3

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

*1 Select "With brake" for vertical use.
*2 Select the controller from page 61.
*3 Refer to page 71 for relay cable dimensions.

Product subject to the EAR (EAR99)

Specifications

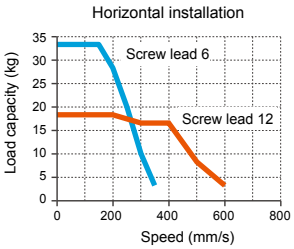
Motor		□35 Stepper motor	
Encoder type		Battery-less absolute encoder	
Drive method		Ball screw ø10	
Stroke length	mm	50 to 400	
Screw lead	mm	6	12
Max. load capacity *1 *2	kg Horizontal	33.3(33.3)	18.3(18.3)
	kg Vertical	10(9.1)	5(4.5)
Operation speed range *3 *4	mm/s	7 to 350(250)	15 to 600(500)
Maximum pressing force	N	131	69
Pressing operation speed range	mm/s	5 to 20	5 to 30
Repeatability	mm	±0.01	
Lost motion	mm	0.1 or less	
Motor power supply voltage		24 VDC ±10% or 48 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	
	Holding force N	126	63
Insulation resistance		10 MΩ, 500 VDC	
Withstand voltage		500 VAC for 1 minute	
Operating ambient temperature, humidity		0 to 40°C (no freezing) 35 to 80% RH (no condensation)	
Storage ambient temperature, humidity		-10 to 50°C (no freezing) 35 to 80% RH (no condensation)	
Atmosphere		No corrosive gas, explosive gas, or dust	
Degree of protection		IP40	

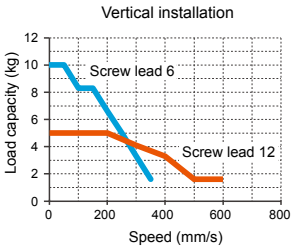
*1 The values in ( ) are at 24 VDC.
*2 Load capacity varies according to acceleration/deceleration and speed. Refer to page 58 for details.
*3 The maximum speed values in ( ) are at 24 VDC.
*4 The maximum speed may decrease depending on the conditions.

Speed and load capacity

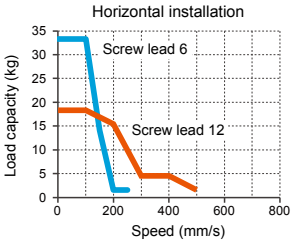
[At 48 VDC]

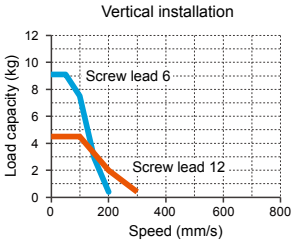
*Acceleration/deceleration 0.3 G





[At 24 VDC]





Stroke length and max. speed

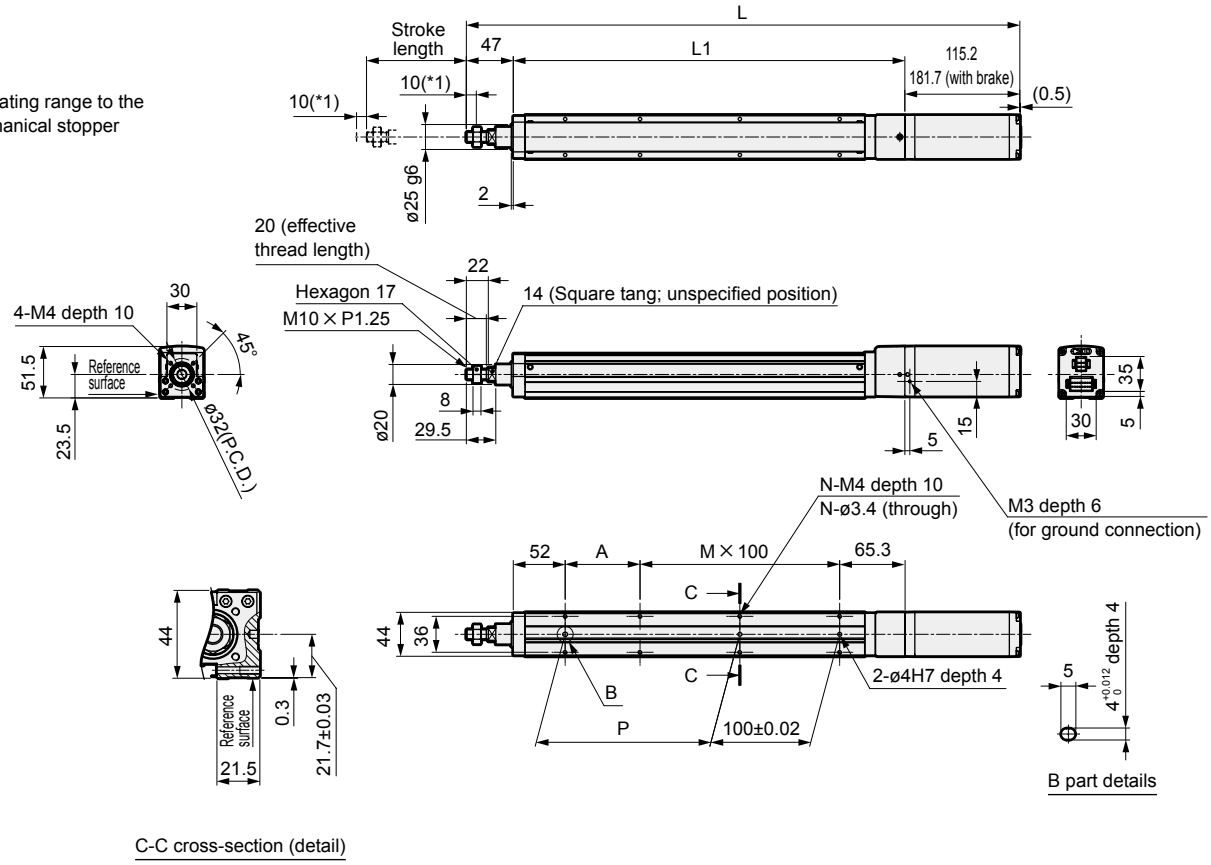
(mm/s)

Screw lead	Power supply voltage	Stroke				
		50 to 200	250	300	350	400
6	48 VDC	350	300	250	250	250
	24 VDC	250	250	250	250	250
12	48 VDC	600	600	490	490	490
	24 VDC	500	500	490	490	490

Dimensions Straight motor mounting

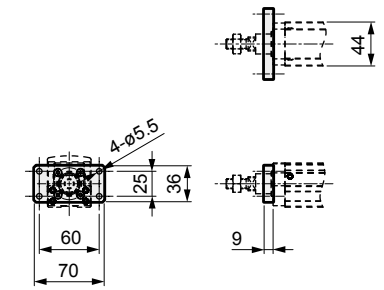
● EBR-04ME

*1 Operating range to the mechanical stopper



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

■ EBR-04ME-FA



Electric actuator Rod with built-in guide

EBR-04M*

Motor mounting on side/bottom

□35 Stepper motor
with battery-less absolute encoder

How to order

EBR - 04 M R - 00 - 06 0300 N A N - C S03

Ⓐ 04 Body width 44 mm

Ⓑ M Yes

Ⓒ R Right-side mounting; D Bottom mounting; L Left-side mounting

Ⓓ 00 Basic; FA Rod side flange

Ⓔ 06 5 mm; 12 10 mm

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

Ⓖ N Without brake; B With brake *1

Ⓗ A Battery-less absolute encoder

Ⓘ Relay cable *2 *3

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

*1 Select "With brake" for vertical use.
*2 Select the controller from page 61.
*3 Refer to page 71 for relay cable dimensions.

Product subject to the EAR (EAR99)

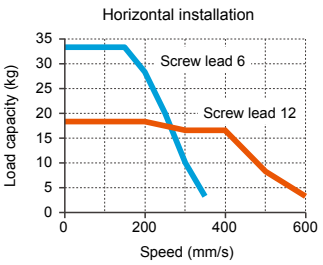
Specifications

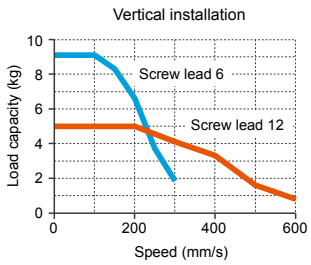
Motor		□35 Stepper motor	
Encoder type		Battery-less absolute encoder	
Drive method		Ball screw ø10	
Stroke length	mm	50 to 400	
Screw lead	mm	6	12
Max. load capacity *1 *2	kg Horizontal	33.3(33.3)	18.3(18.3)
	Vertical	9.1(9.1)	5(4.5)
Operation speed range *3 *4	mm/s	7 to 350(200)	15 to 600(400)
Maximum pressing force	N	131	69
Pressing operation speed range	mm/s	5 to 20	5 to 30
Repeatability	mm	±0.01	
Lost motion	mm	0.1 or less	
Motor power supply voltage		24 VDC ±10% or 48 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	
	Holding force N	126	63
Insulation resistance		10 MΩ, 500 VDC	
Withstand voltage		500 VAC for 1 minute	
Operating ambient temperature, humidity		0 to 40 °C (no freezing) 35 to 80% RH (no condensation)	
Storage ambient temperature, humidity		-10 to 50 °C (no freezing) 35 to 80% RH (no condensation)	
Atmosphere		No corrosive gas, explosive gas, or dust	
Degree of protection		IP40	

*1 The values in ( ) are at 24 VDC.
*2 Load capacity varies according to acceleration/deceleration and speed. Refer to page 58 for details.
*3 The maximum speed values in ( ) are at 24 VDC.
*4 The maximum speed may decrease depending on the conditions.

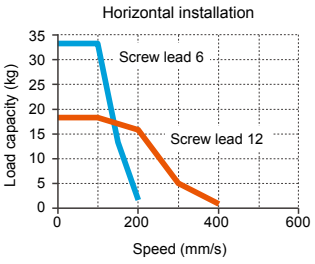
Speed and load capacity

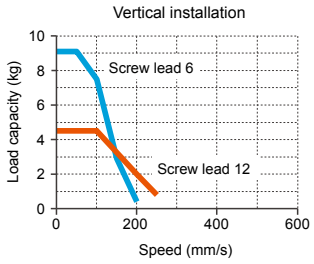
[At 48 VDC] *Acceleration/deceleration 0.3 G





[At 24 VDC]





Stroke length and max. speed

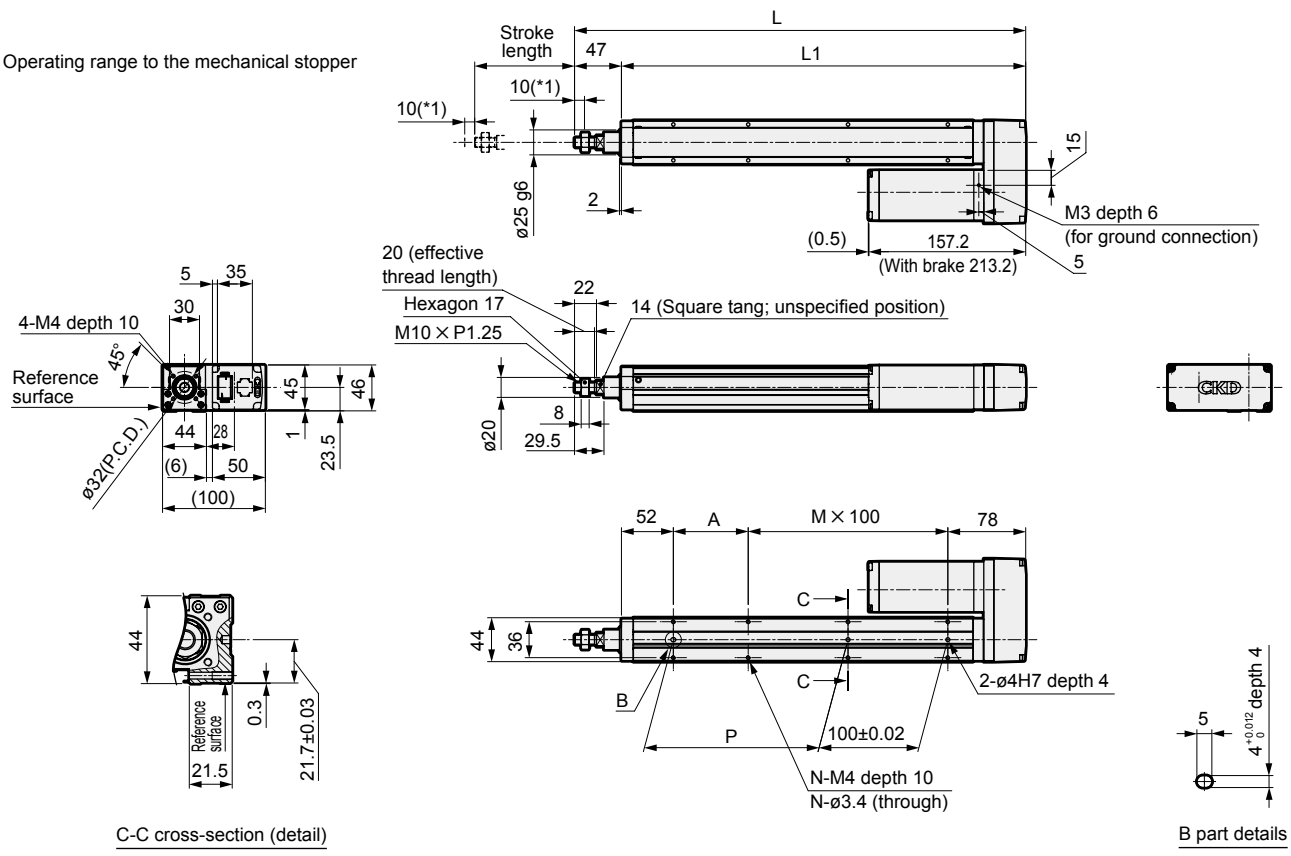
(mm/s)

Screw lead	Power supply voltage	Stroke				
		50 to 200	250	300	350	400
6	48 VDC	350	300	250	250	250
	24 VDC	200	200	200	200	200
12	48 VDC	600	600	490	490	490
	24 VDC	400	400	400	400	400

Dimensions Motor right-side mounting

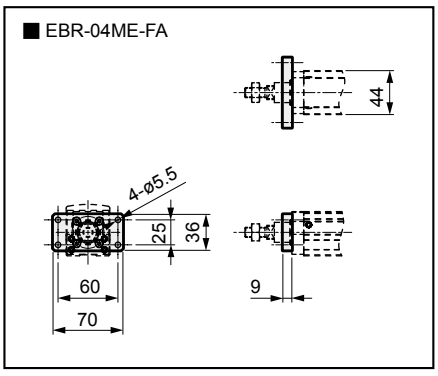
● EBR-04MR

*1 Operating range to the mechanical stopper



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

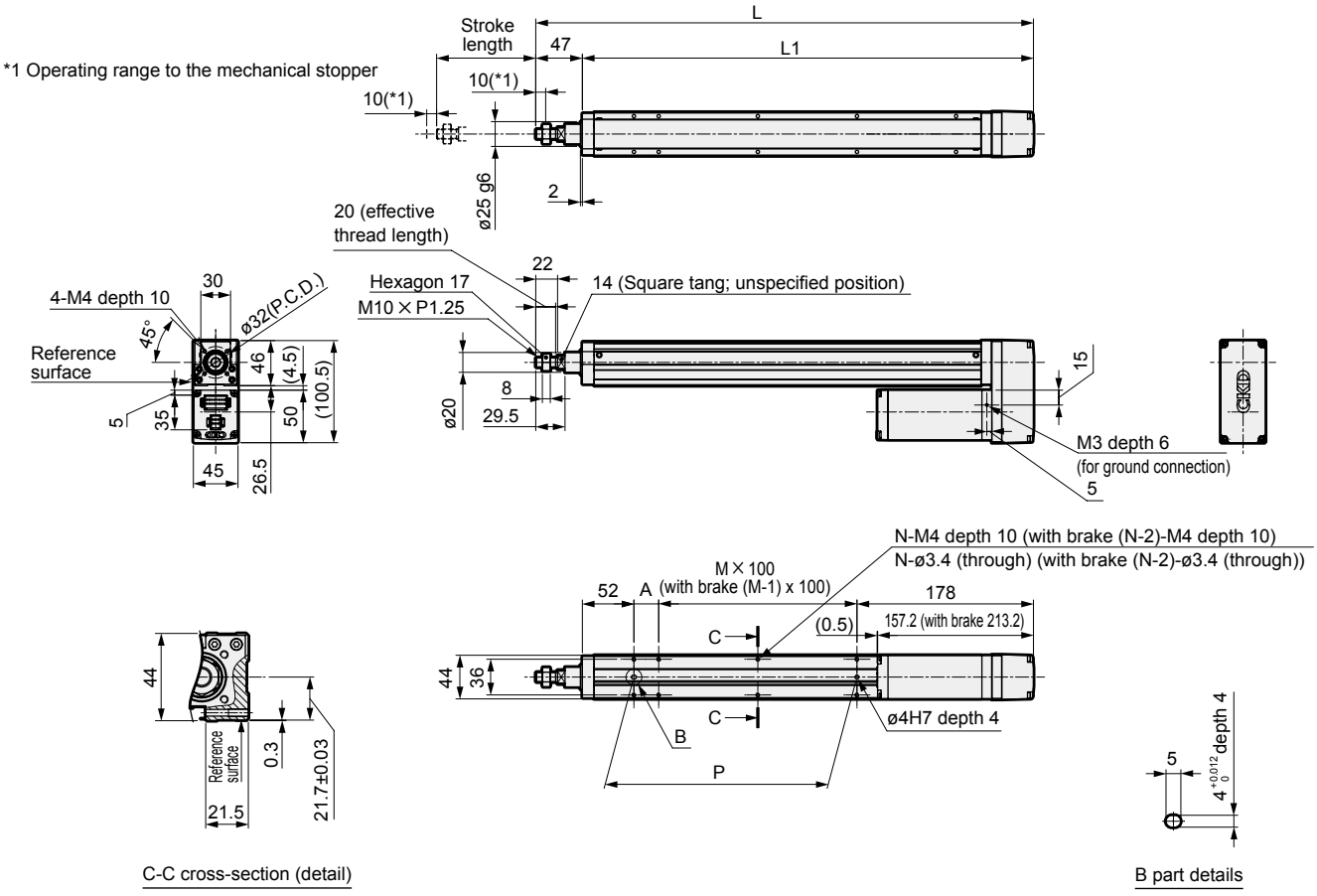
■ EBR-04ME-FA



EBR-04M*

Dimensions Motor bottom mounting

● EBR-04MD

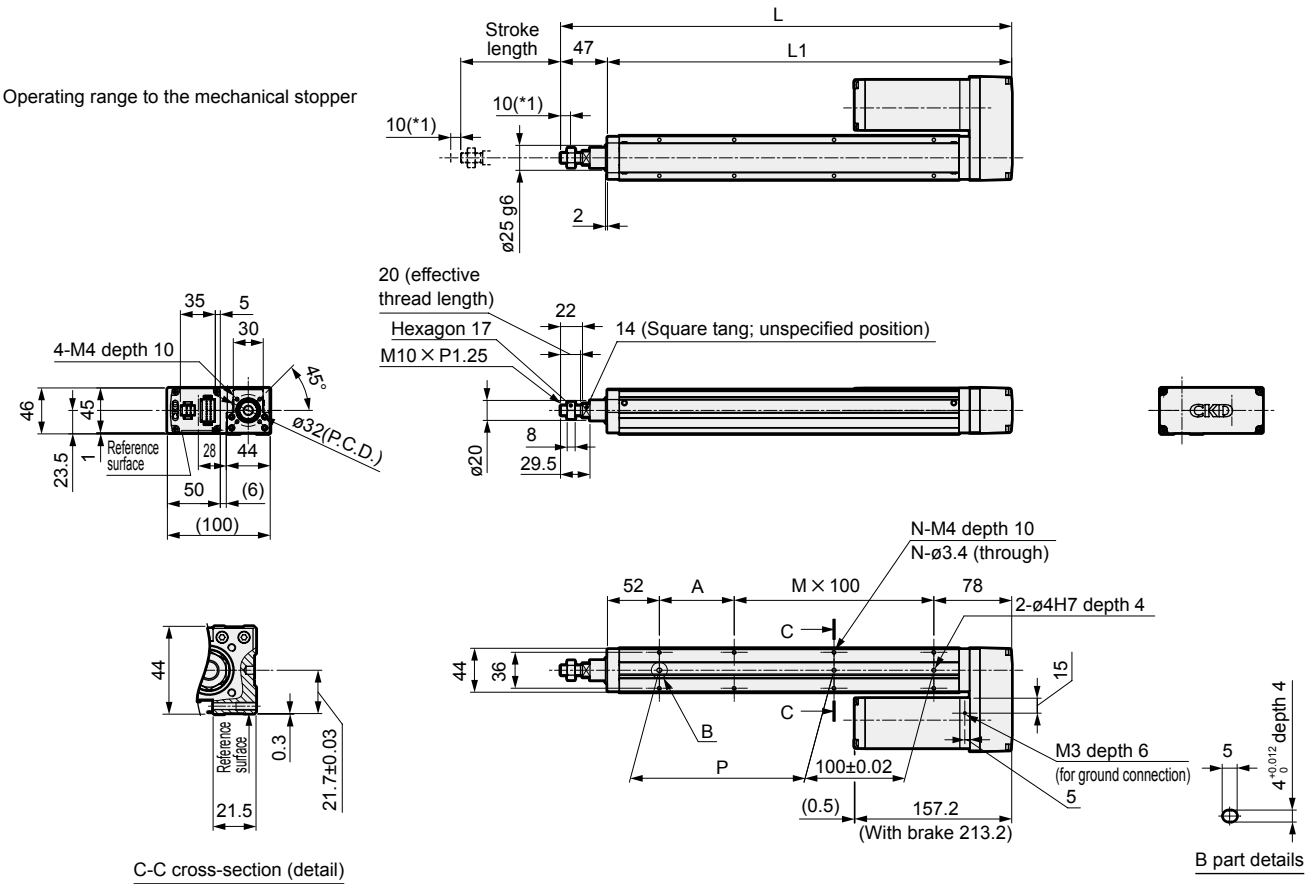


Stroke code		0250	0300	0350	0400
Stroke length (mm)		250	300	350	400
L		502	552	602	652
L1		455	505	555	605
A		25	75	25	75
M		2	2	3	3
N		8	8	10	10
P		225	275	325	375
Weight (kg)	Without brake	2.3	2.5	2.6	2.8
	With brake	2.8	3.0	3.1	3.3

Dimensions Motor left-side mounting

● EBR-04ML

*1 Operating range to the mechanical stopper



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

Electric actuator Rod with built-in guide

EBR-05ME

Straight motor mounting

□42 Stepper motor

with battery-less absolute encoder

How to order

EBR - 05 (A) M (B) E (C) - 00 (D) - 05 (E) 0300 (F) N (G) A (H) N - C S03 (I)

A Body size

05	Body width 54 mm

B Motor

M	Yes

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 *1

N	Without brake
B	With brake

H Encoder

A	Battery-less absolute encoder

I Relay cable *2 *3

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

*1 Select "With brake" for vertical use.
*2 Select the controller from page 61.
*3 Refer to page 71 for relay cable dimensions.

Product subject to the EAR (EAR99)

Specifications

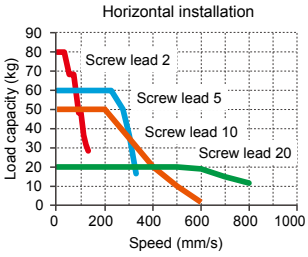
Motor		□42 Stepper motor			
Encoder type		Battery-less absolute encoder			
Drive method		Ball screw ø12			
Stroke length	mm	50 to 400			
Screw lead	mm	2	5	10	20
Max. load capacity *1 *2	kg Horizontal	80(80)	60(60)	50(50)	20(20)
	Vertical	24(24)	16.6(15)	10(6.6)	4.1(4.1)
Operation speed range *3 *4	mm/s	2 to 130 (80)	6 to 330 (275)	12 to 600 (500)	25 to 800 (700)
Maximum pressing force	N	397	193	94	33
Pressing operation speed range	mm/s	5 to 20	5 to 20	5 to 30	5 to 30
Repeatability	mm	±0.01			
Lost motion	mm	0.1 or less			
Motor power supply voltage		24 VDC ±10% or 48 VDC ±10%			
Motor section max. instantaneous current	A	5.2			
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC ±10%			
	Power consumption W	7			
	Holding force N	471	188	94	47
Insulation resistance		10 MΩ, 500 VDC			
Withstand voltage		500 VAC for 1 minute			
Operating ambient temperature, humidity		0 to 40°C (no freezing) 35 to 80% RH (no condensation)			
Storage ambient temperature, humidity		-10 to 50°C (no freezing) 35 to 80% RH (no condensation)			
Atmosphere		No corrosive gas, explosive gas, or dust			
Degree of protection		IP40			

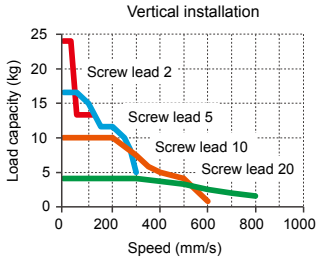
*1 The values in ( ) are at 24 VDC.
*2 Load capacity varies according to acceleration/deceleration and speed. Refer to page 58 for details.
*3 The maximum speed values in ( ) are at 24 VDC.
*4 The maximum speed may decrease depending on the conditions.

Speed and load capacity

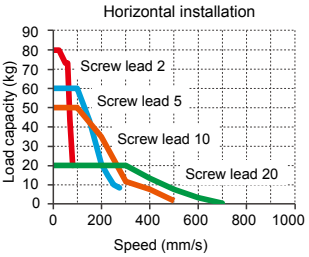
[At 48 VDC]

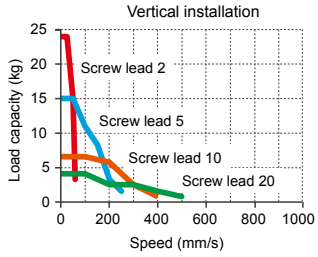
*Acceleration/deceleration 0.3 G





[At 24 VDC]





Stroke length and max. speed

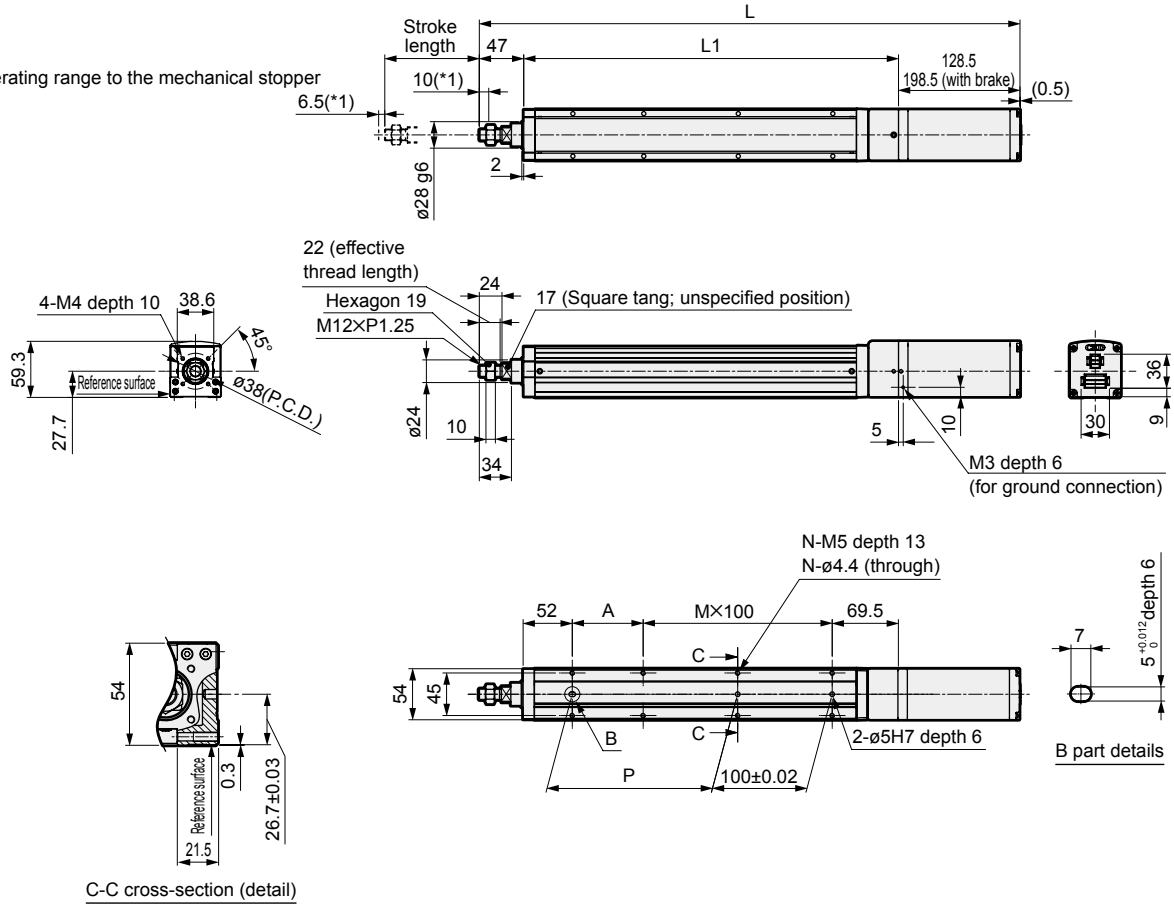
(mm/s)

Screw lead	Power supply voltage	Stroke			
		50 to 200	300	350	400
2	48 VDC	130	85	85	85
	24 VDC	80	80	80	80
5	48 VDC	330	210	210	210
	24 VDC	275	210	210	210
10	48 VDC	600	420	420	420
	24 VDC	500	420	420	420
20	48 VDC	800	800	800	800
	24 VDC	700	700	700	700

Dimensions

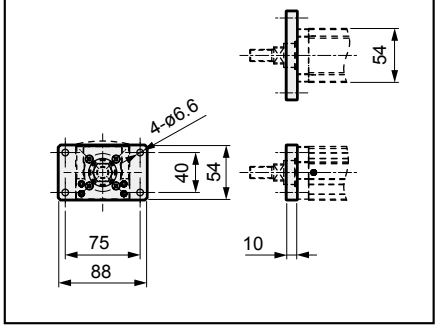
● EBR-05ME

*1 Operating range to the mechanical stopper



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

■EBR-05ME-FA



Electric actuator Rod with built-in guide

EBR-05M*

Motor mounting on side/bottom

□42 Stepper motor
with battery-less absolute encoder

How to order

EBR - 05 M R - 00 - 05 0300 N A N - C S03

Ⓐ Body size

05	Body width 54 mm

Ⓑ Motor

M	Yes

Ⓒ Motor mounting direction

R	Right-side mounting
D	Bottom mounting
L	Left-side mounting

Ⓓ Mounting

00	Basic
FA	Rod side flange

Ⓔ Screw lead

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

Ⓕ Stroke

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

Ⓖ Brake *1

N	Without brake
B	With brake

Ⓗ Encoder

A	Battery-less absolute encoder

Ⓘ Relay cable *2 *3

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

*1 Select "With brake" for vertical use.
*2 Select the controller from page 61.
*3 Refer to page 71 for relay cable dimensions.

Product subject to the EAR (EAR99)

Specifications

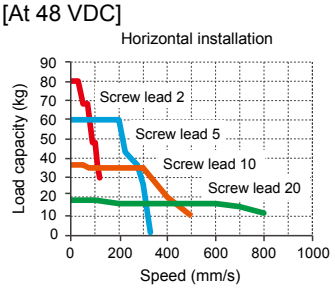
Motor		□42 Stepper motor			
Encoder type		Battery-less absolute encoder			
Drive method		Ball screw ø12			
Stroke length	mm	50 to 400			
Screw lead	mm	2	5	10	20
Max. load capacity *1 *2	kg Horizontal	80(80)	60(60)	36.6(36.6)	18.3(18.3)
	Vertical	24(24)	16.6(15)	8.3(6.6)	4.1(4.1)
Operation speed range *3 *4	mm/s	2 to 120 (80)	6 to 330 (250)	12 to 500 (400)	25 to 800 (700)
Maximum pressing force	N	397	193	94	33
Pressing operation speed range	mm/s	5 to 20	5 to 20	5 to 30	5 to 30
Repeatability	mm	±0.01			
Lost motion	mm	0.1 or less			
Motor power supply voltage		24 VDC ±10% or 48 VDC ±10%			
Motor section max. instantaneous current	A	5.2			
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC ±10%			
	Power consumption W	7			
	Holding force N	471	188	94	47
Insulation resistance		10 MΩ, 500 VDC			
Withstand voltage		500 VAC for 1 minute			
Operating ambient temperature, humidity		0 to 40°C (no freezing) 35 to 80% RH (no condensation)			
Storage ambient temperature, humidity		-10 to 50°C (no freezing) 35 to 80% RH (no condensation)			
Atmosphere		No corrosive gas, explosive gas, or dust			
Degree of protection		IP40			

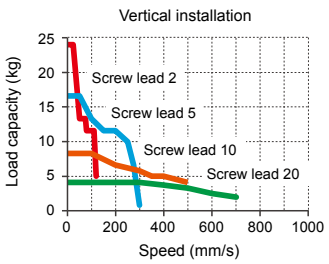
*1 The values in ( ) are at 24 VDC.
*2 Load capacity varies according to acceleration/deceleration and speed. Refer to page 58 for details.
*3 The maximum speed values in ( ) are at 24 VDC.
*4 The maximum speed may decrease depending on the conditions.

Speed and load capacity

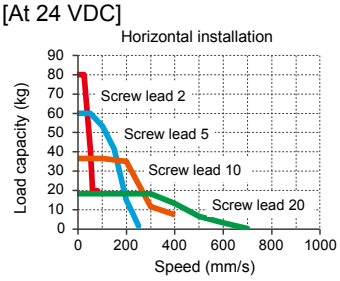
[At 48 VDC]

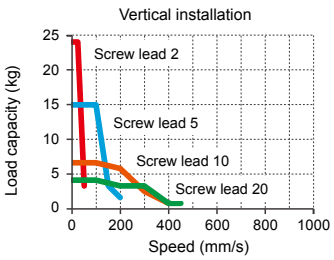
*Acceleration/deceleration 0.3 G





[At 24 VDC]





Stroke length and max. speed

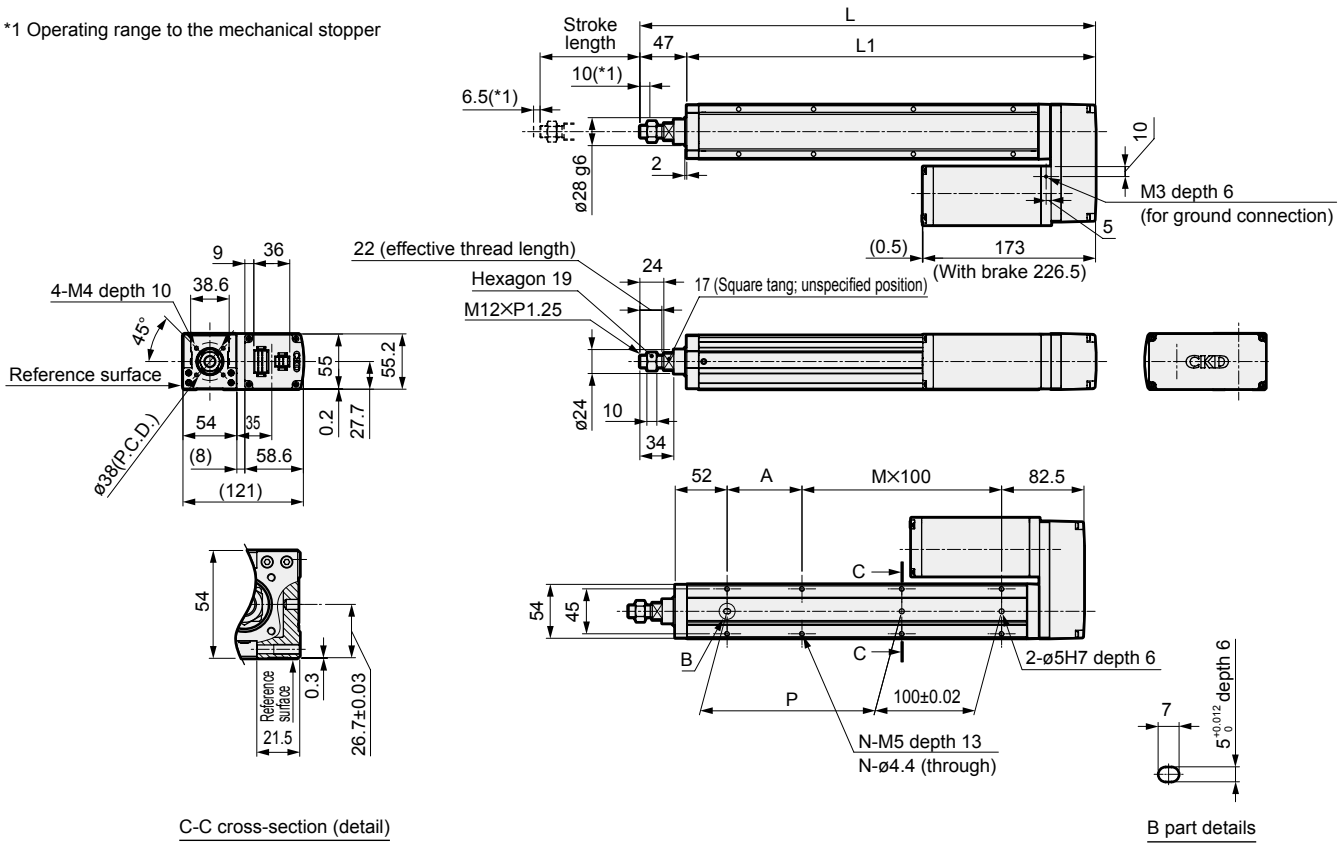
(mm/s)

Screw lead	Power supply voltage	Stroke			
		50 to 250	300	350	400
2	48 VDC	120	85	85	85
	24 VDC	80	80	80	80
5	48 VDC	330	210	210	210
	24 VDC	250	210	210	210
10	48 VDC	500	420	420	420
	24 VDC	400	400	400	400
20	48 VDC	800	800	800	800
	24 VDC	700	700	700	700

Dimensions Motor right-side mounting

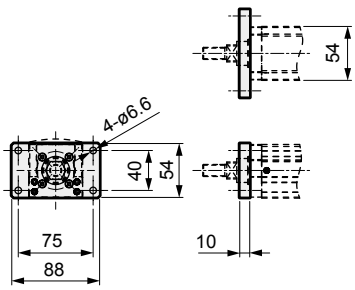
● EBR-05MR

*1 Operating range to the mechanical stopper



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

■EBR-05ME-FA

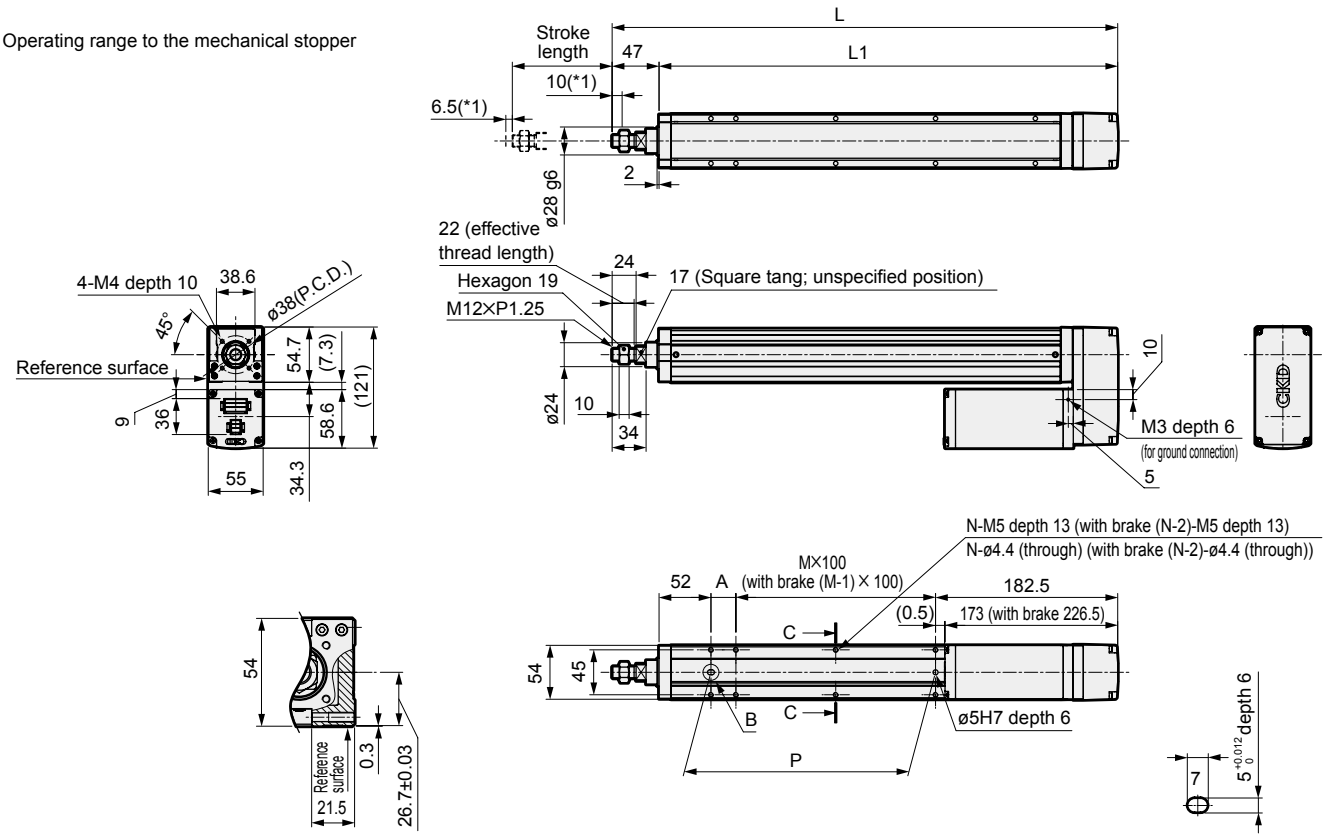


EBR-05M*

Dimensions Motor bottom mounting

● EBR-05MD

*1 Operating range to the mechanical stopper



C-C cross-section (detail)

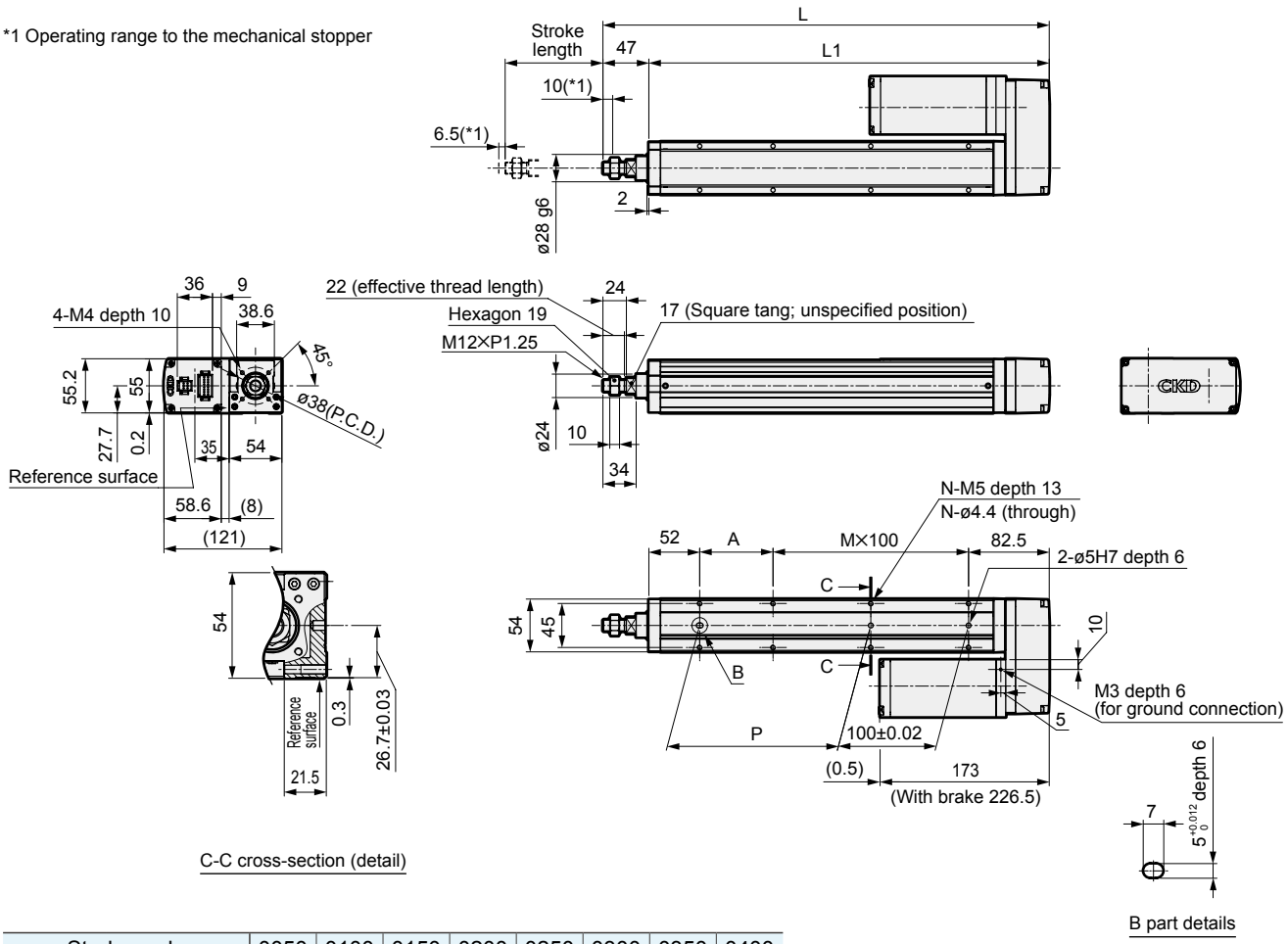
B part details

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

Dimensions Motor left-side mounting

● EBR-05ML

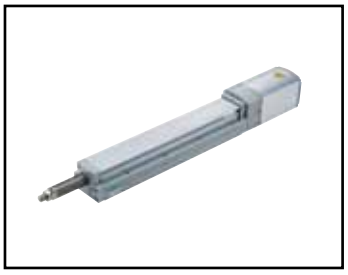
*1 Operating range to the mechanical stopper



C-C cross-section (detail)

B part details

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



Electric actuator Rod with built-in guide

EBR-08ME

Straight motor mounting
□56 Stepper motor
with battery-less absolute encoder

How to order

EBR - 08 M E - 00 - 05 0300 N A N - C S03
(A) (B) (C) (D) (E) (F) (G) (H) (I)

(A) Body size

08	Body width 82 mm

(B) Motor

M	Yes

(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 *1

N	Without brake
B	With brake

(H) Encoder

A	Battery-less absolute encoder

(I) Relay cable *2 *3

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

*1 Select "With brake" for vertical use.
*2 Select the controller from page 61.
*3 Refer to page 71 for relay cable dimensions.

Product subject to the EAR (EAR99)

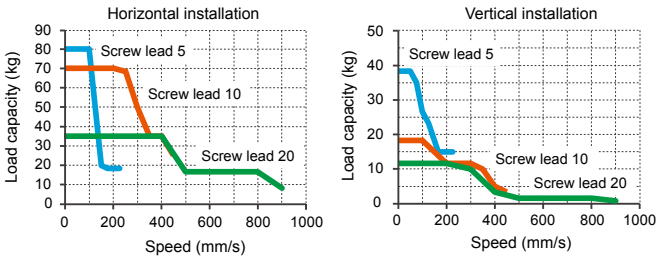
Specifications

Motor		□56 Stepper motor		
Encoder type		Battery-less absolute encoder		
Drive method		Ball screw ø16		
Stroke length	mm	50 to 700		
Screw lead	mm	5	10	20
Max. load capacity *1 *2	kg Horizontal	80(80)	70(70)	35(23.3)
	Vertical	38.3(35)	18.3(15)	11.6(10)
Operation speed range *3 *4	mm/s	6 to 225 (150)	12 to 450 (300)	25 to 900 (500)
Maximum pressing force	N	1050	468	213
Pressing operation speed range	mm/s	5 to 30	5 to 30	5 to 30
Repeatability	mm	±0.01		
Lost motion	mm	0.1 or less		
Motor power supply voltage		24 VDC ±10% or 48 VDC ±10%		
Motor section max. instantaneous current	A	8.6		
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC ±10%		
	Power consumption W	8		
	Holding force N	754	377	188
Insulation resistance		10 MΩ, 500 VDC		
Withstand voltage		500 VAC for 1 minute		
Operating ambient temperature, humidity		0 to 40 °C (no freezing) 35 to 80% RH (no condensation)		
Storage ambient temperature, humidity		-10 to 50 °C (no freezing) 35 to 80% RH (no condensation)		
Atmosphere		No corrosive gas, explosive gas, or dust		
Degree of protection		IP40		

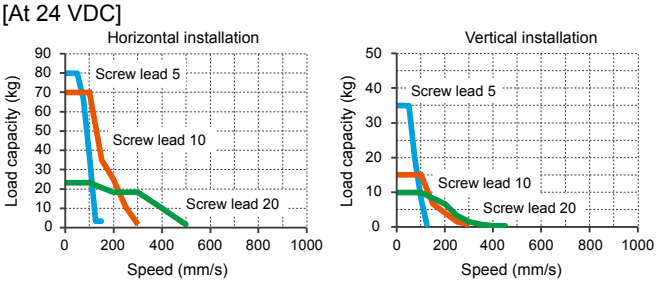
*1 The values in ( ) are at 24 VDC.
*2 Load capacity varies according to acceleration/deceleration and speed. Refer to page 58 for details.
*3 The maximum speed values in ( ) are at 24 VDC.
*4 The maximum speed may decrease depending on the conditions.

Speed and load capacity

[At 48 VDC] *Acceleration/deceleration 0.3 G



[At 24 VDC]



Stroke length and max. speed

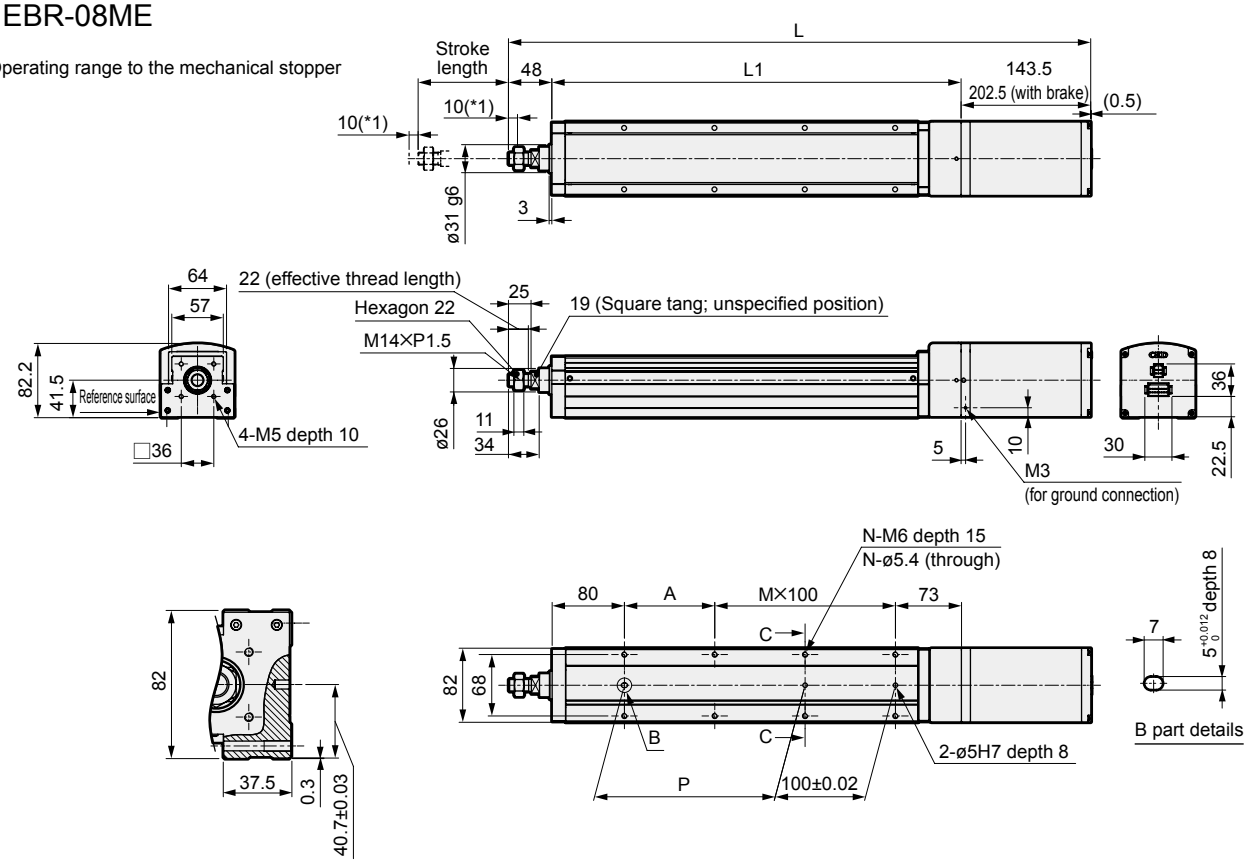
(mm/s)

Screw lead	Power supply voltage	Stroke										
		50 to 200	250	300	350	400	450	500	550	600	650	700
5	48 VDC	225	225	225	200	200	200	200	200	200	200	200
	24 VDC	150	150	150	150	150	150	150	150	150	150	150
10	48 VDC	450	450	450	400	400	400	400	400	400	400	400
	24 VDC	300	300	300	300	300	300	300	300	300	300	300
20	48 VDC	900	600	600	600	600	600	600	600	600	600	600
	24 VDC	500	500	500	500	500	500	500	500	500	500	500

Dimensions

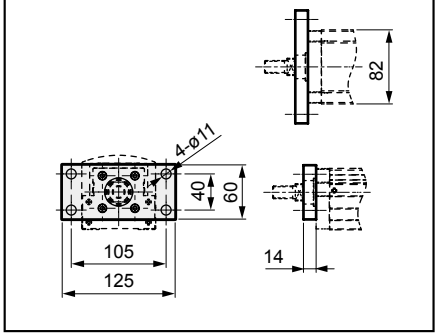
● EBR-08ME

*1 Operating range to the mechanical stopper



C-C cross-section (detail)

■EBR-08ME-FA



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

Electric actuator Rod with built-in guide

EBR-08M*

Motor mounting on side/bottom

□56 Stepper motor

with battery-less absolute encoder

How to order

EBR - 08 (A) M (B) R (C) - 00 (D) - 05 (E) 0300 (F) N (G) A (H) N - C (I) S03

(A) Body size

08	Body width 82 mm

(B) Motor

M	Yes

(C) Motor mounting direction

R	Right-side mounting
D	Bottom mounting
L	Left-side 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 *1

N	Without brake
B	With brake

(H) Encoder

A	Battery-less absolute encoder

(I) Relay cable *2 *3

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

*1 Select "With brake" for vertical use.
*2 Select the controller from page 61.
*3 Refer to page 71 for relay cable dimensions.

Product subject to the EAR (EAR99)

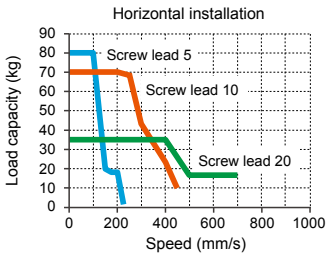
Specifications

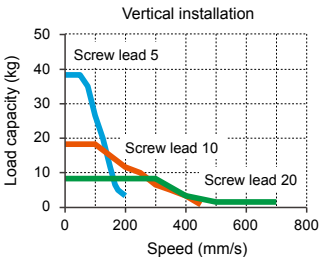
Motor		□56 Stepper motor		
Encoder type		Battery-less absolute encoder		
Drive method		Ball screw ø16		
Stroke length	mm	50 to 700		
Screw lead	mm	5	10	20
Max. load capacity *1 *2	kg Horizontal	80(80)	70(70)	35(23.3)
	Vertical	38.3(35)	18.3(15)	8.3(8.3)
Operation speed range *3 *4	mm/s	6 to 225 (100)	12 to 450 (300)	25 to 700 (500)
Maximum pressing force	N	1050	468	213
Pressing operation speed range	mm/s	5 to 30	5 to 30	5 to 30
Repeatability	mm	±0.01		
Lost motion	mm	0.1 or less		
Motor power supply voltage		24 VDC ±10% or 48 VDC ±10%		
Motor section max. instantaneous current	A	8.6		
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC ±10%		
	Power consumption W	8		
	Holding force N	754	377	188
Insulation resistance		10 MΩ, 500 VDC		
Withstand voltage		500 VAC for 1 minute		
Operating ambient temperature, humidity		0 to 40 °C (no freezing) 35 to 80% RH (no condensation)		
Storage ambient temperature, humidity		-10 to 50 °C (no freezing) 35 to 80% RH (no condensation)		
Atmosphere		No corrosive gas, explosive gas, or dust		
Degree of protection		IP40		

*1 The values in ( ) are at 24 VDC.
*2 Load capacity varies according to acceleration/deceleration and speed. Refer to page 58 for details.
*3 The maximum speed values in ( ) are at 24 VDC.
*4 The maximum speed may decrease depending on the conditions.

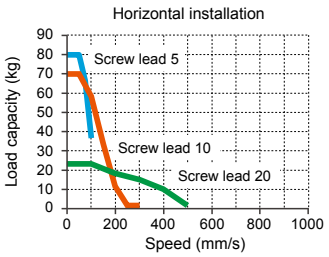
Speed and load capacity

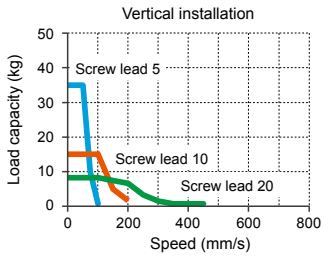
[At 48 VDC] *Acceleration/deceleration 0.3 G





[At 24 VDC]





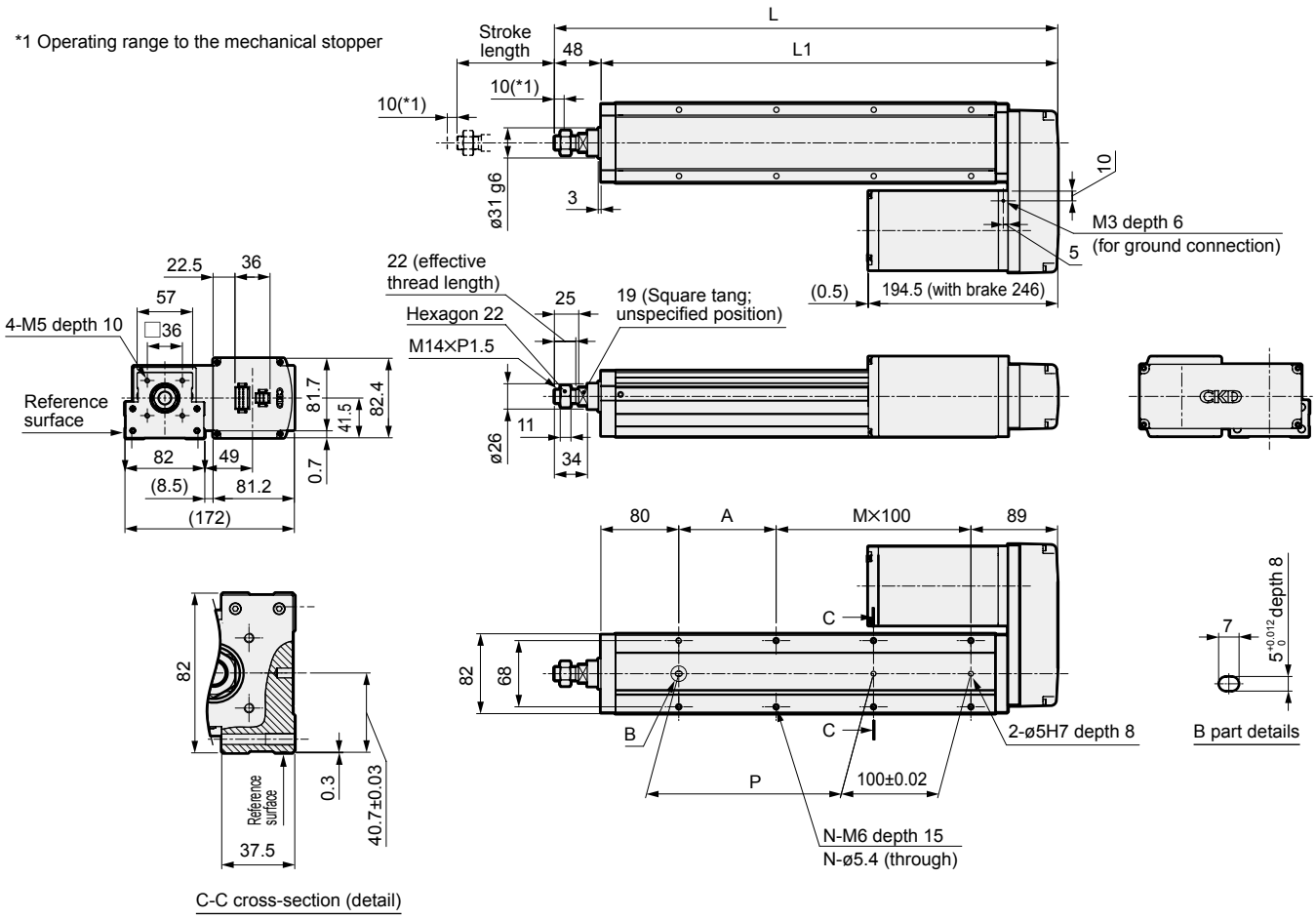
Stroke length and max. speed

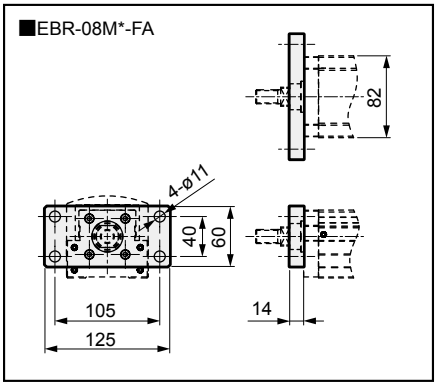
(mm/s)

Screw lead	Power supply voltage	Stroke										
		50 to 200	250	300	350	400	450	500	550	600	650	700
5	48 VDC	225	225	225	200	200	200	200	200	200	200	200
	24 VDC	100	100	100	100	100	100	100	100	100	100	100
10	48 VDC	450	450	450	400	400	400	400	400	400	400	400
	24 VDC	300	300	300	300	300	300	300	300	300	300	300
20	48 VDC	700	600	600	600	600	600	600	600	600	600	600
	24 VDC	500	500	500	500	500	500	500	500	500	500	500

Dimensions Motor right-side mounting

● EBR-08MR





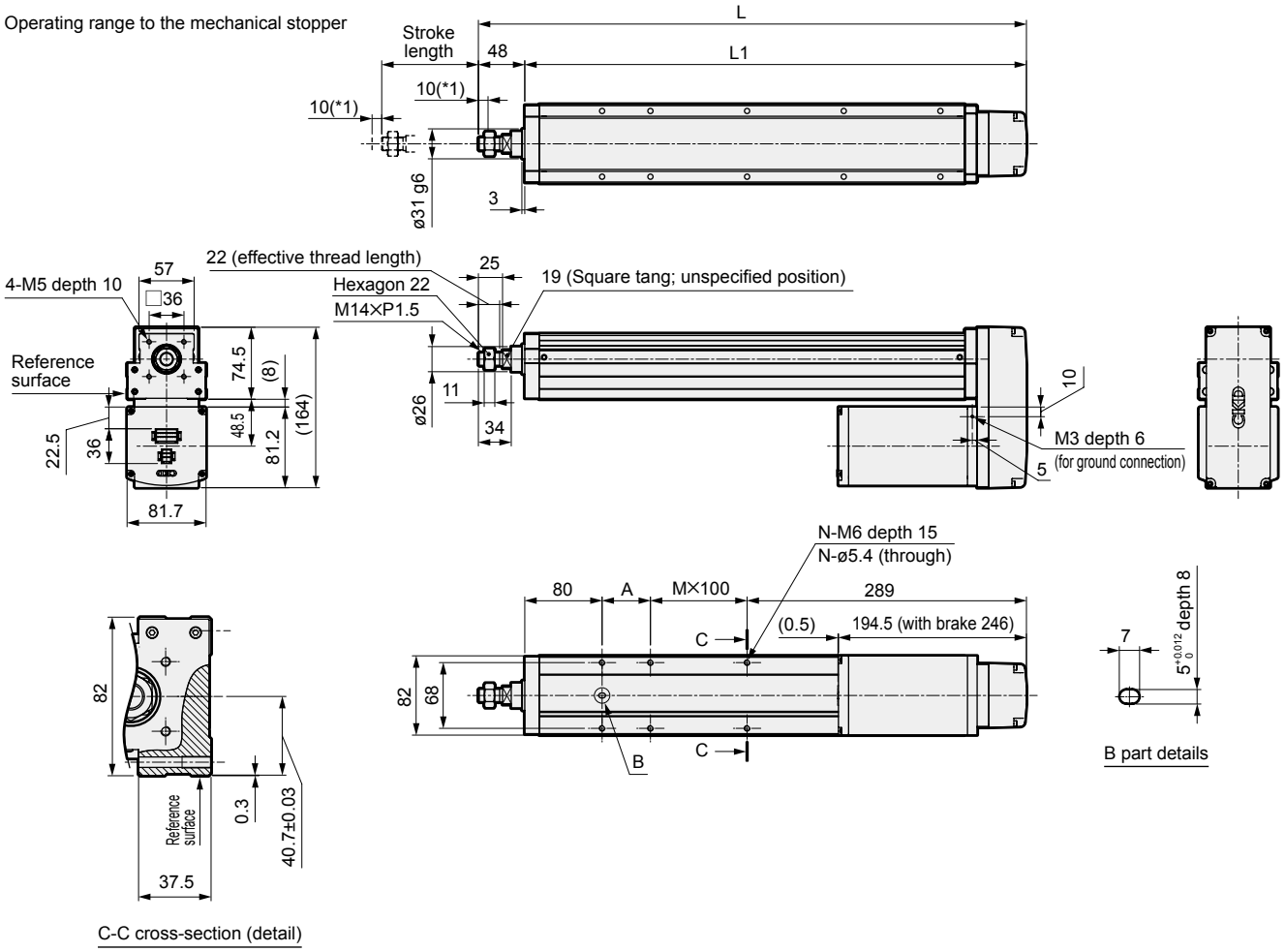
Stroke code		0050	0100	0150	0200	0250	0300	0350	0400	0450	0500	0550	0600	0650	0700
Stroke length (mm)		50	100	150	200	250	300	350	400	450	500	550	600	650	700
L		367	417	467	517	567	617	667	717	767	817	867	917	967	1017
L1		319	369	419	469	519	569	619	669	719	769	819	869	919	969
A		50	100	50	100	50	100	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

EBR-08M*

Dimensions Motor bottom mounting

● EBR-08MD

*1 Operating range to the mechanical stopper

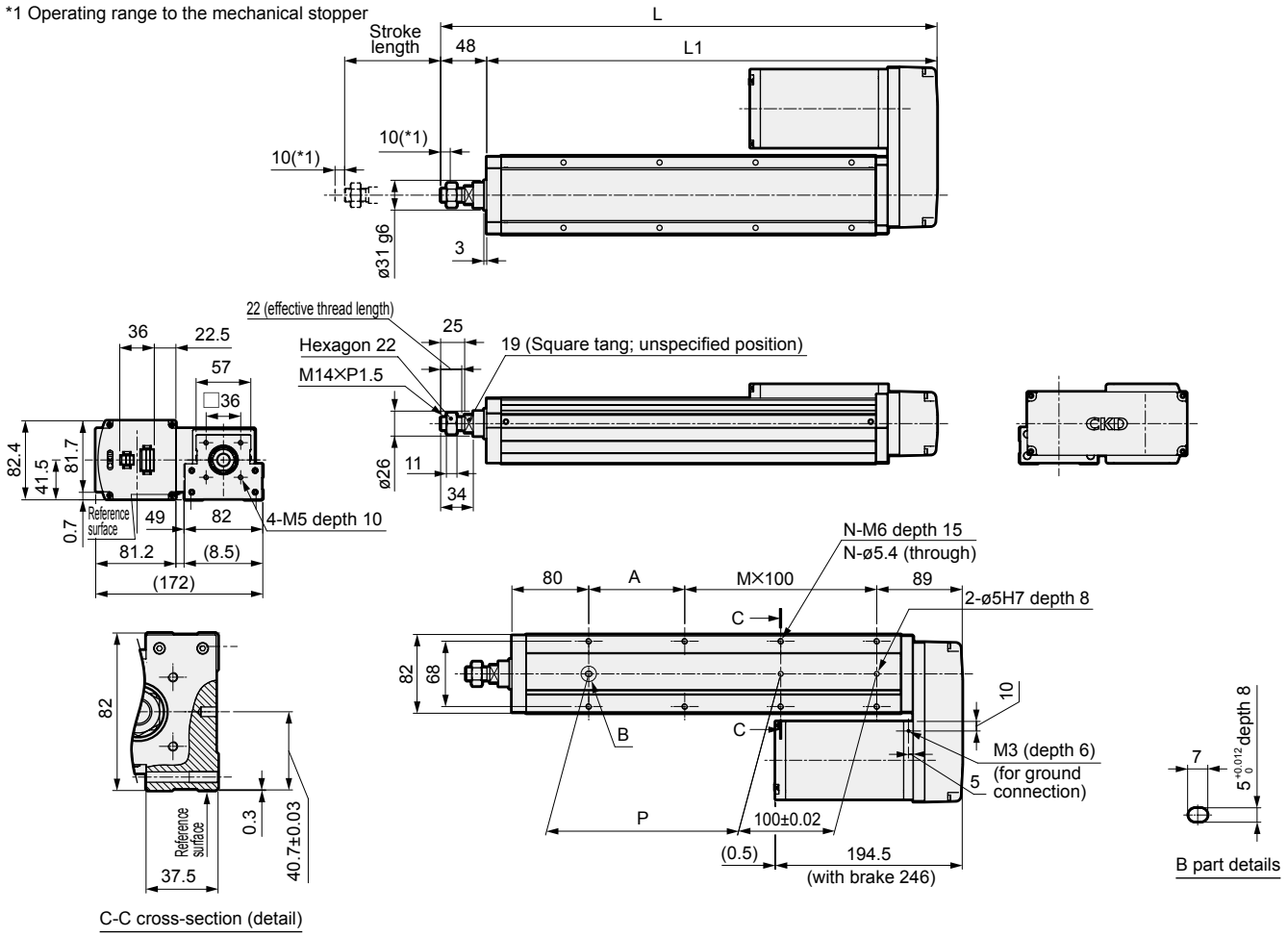


Stroke code		0250	0300	0350	0400	0450	0500	0550	0600	0650	0700
Stroke length (mm)		250	300	350	400	450	500	550	600	650	700
L		567	617	667	717	767	817	867	917	967	1017
L1		519	569	619	669	719	769	819	869	919	969
A		50	100	50	100	50	100	50	100	50	100
M		1	1	2	2	3	3	4	4	5	5
N		6	6	8	8	10	10	12	12	14	14
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

Dimensions Motor left-side mounting

● EBR-08ML

*1 Operating range to the mechanical stopper



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

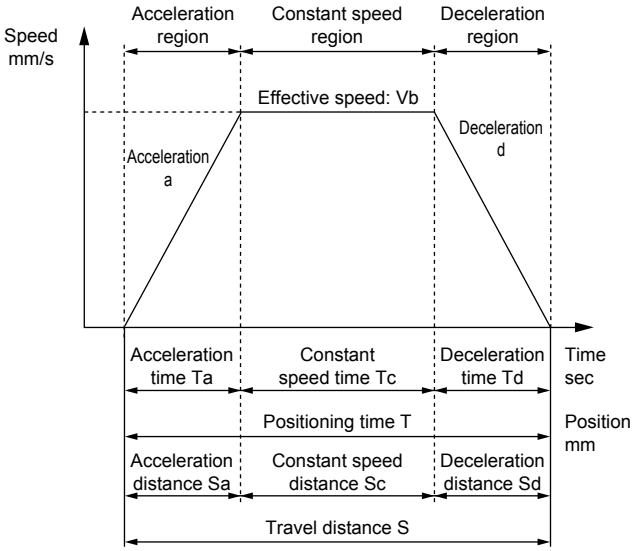
STEP 1 Confirming load capacity

Load capacity varies with mounting orientation, screw lead, transport speed, acceleration/deceleration and power supply voltage. Refer to the Series Variation (page 32), 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 available.

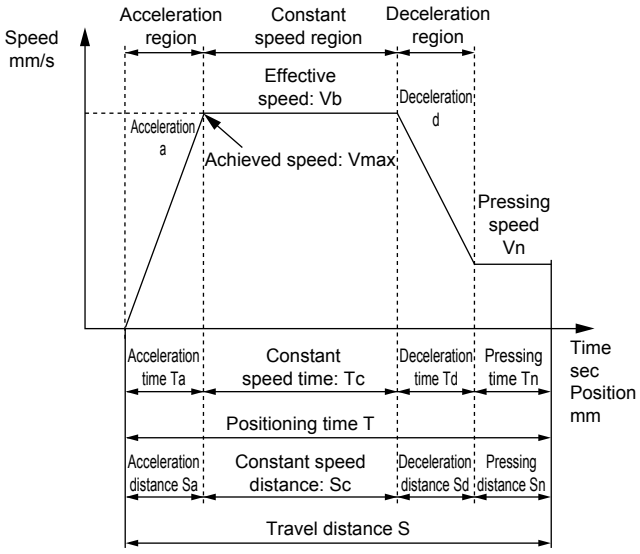
Positioning time for general transport operation



	Content	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 trapezoid 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/deceleration varies depending on the product and the working conditions. Refer to page 58 for details.
* While settling time depends on working conditions, it may take 0.2 seconds or so.
* 1 G ≈ 9.8 m/s^2.

Positioning time for pressing operation



	Content	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	$=((Vb+Vn) \times Td)/2$
	Constant speed distance	Sc	mm	=S-(Sa+Sd+Sn)
	Positioning time	T	s	=Ta+Tc+Td+Tn

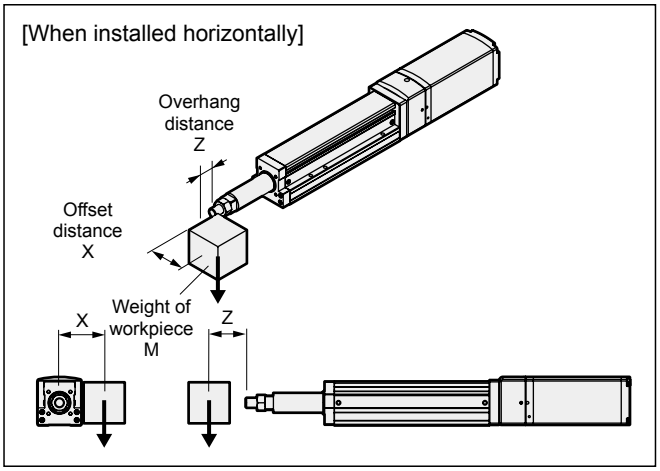
* Do not use at speeds that exceed the specifications.
* Pressing speed differs depending on the product.
* Depending on acceleration/deceleration and stroke length, the trapezoid speed waveform may not be formed (the set speed may not be achieved). In this case, select the effective speed (Vb) from the set speed (V) and the achieved speed (Vmax), whichever is smaller.
* Acceleration/deceleration varies depending on the product and the working conditions. Refer to page 58 for details.
* While settling time depends on working conditions, it may take 0.2 seconds or so.
* 1 G ≈ 9.8 m/s^2.

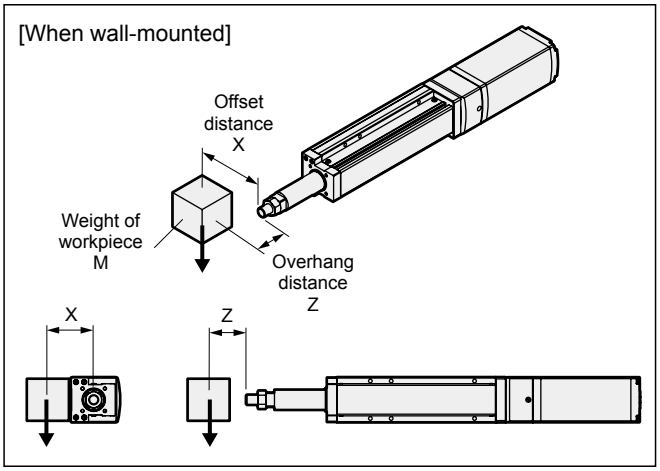
STEP 3 Confirming allowable load weight (Rod with built-in guide EBR Series)

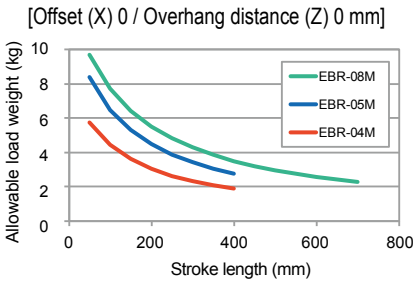
Confirm that the load weight during operation is within the allowable range (pages 54 to 55).
If the allowable load weight is exceeded, increase the size or use an external guide in conjunction.

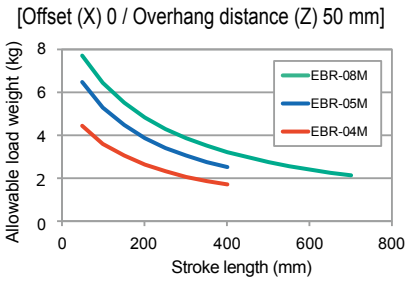
Allowable load weight

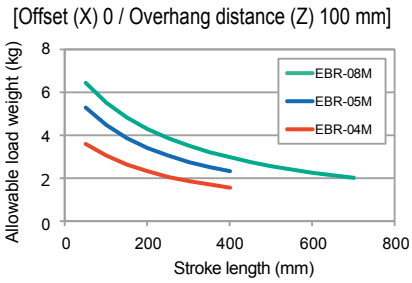
[When installed horizontally or wall-mounted]

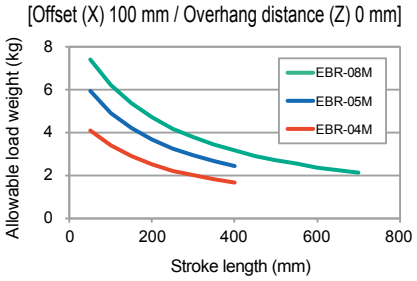


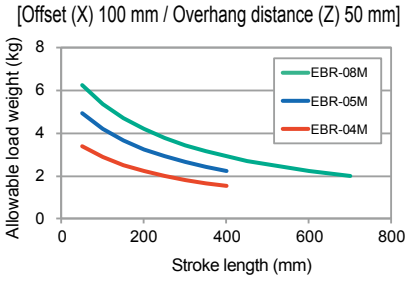


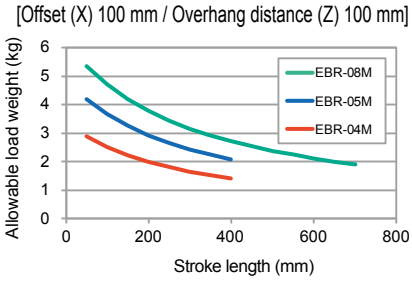








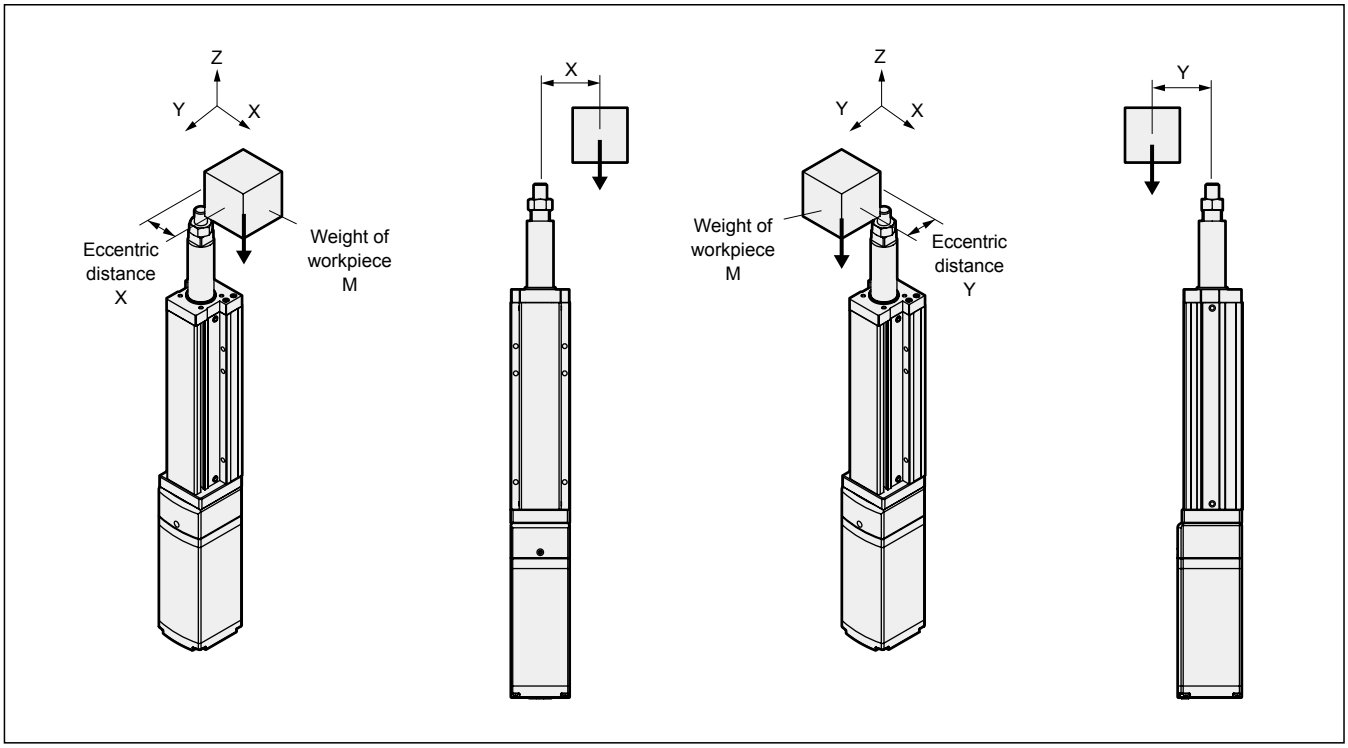


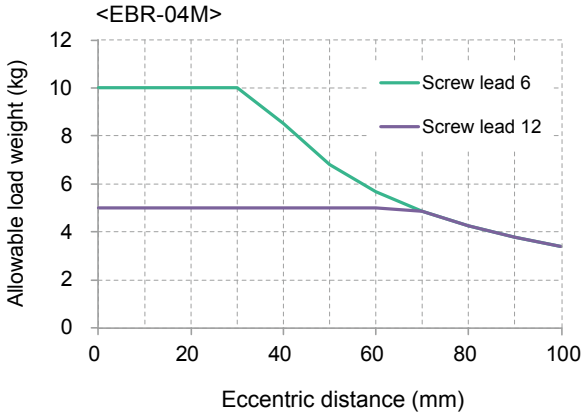


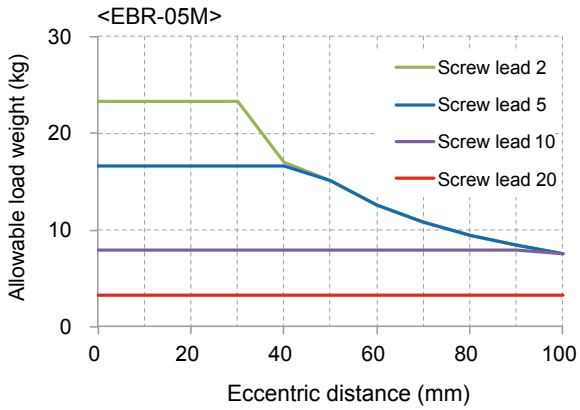
*Values with actuator operating life restricted to 5,000 km. (Acceleration/deceleration 0.5 G, speed 300 mm/s)

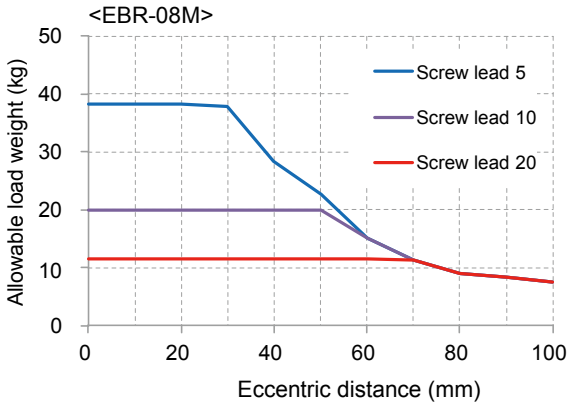
Allowable load weight

[When installed vertically]



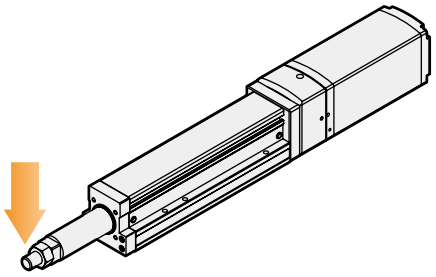




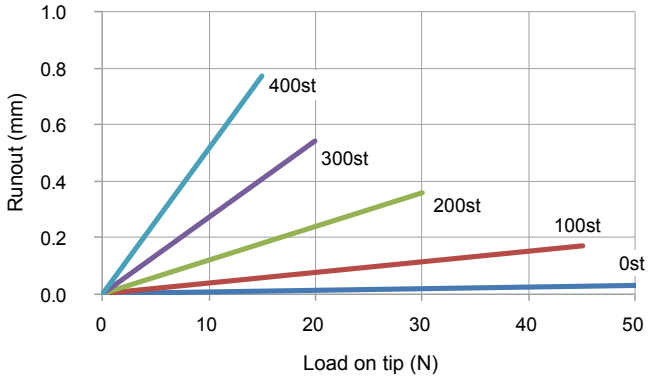


*Acceleration/deceleration 0.5 G

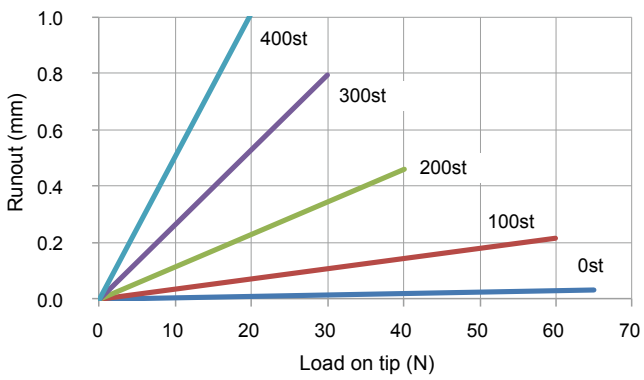
Rod end runout *Reference value



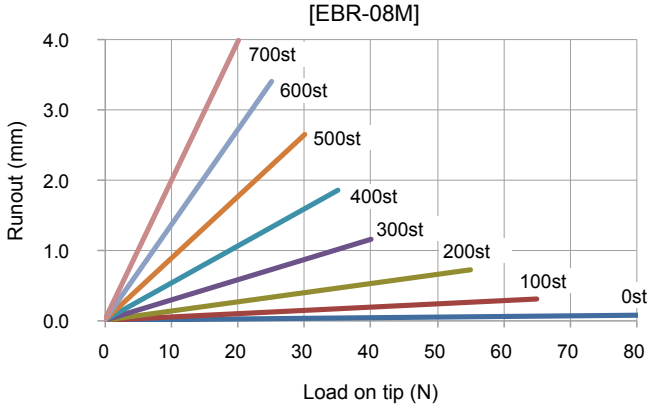
[EBR-04M]



[EBR-05M]

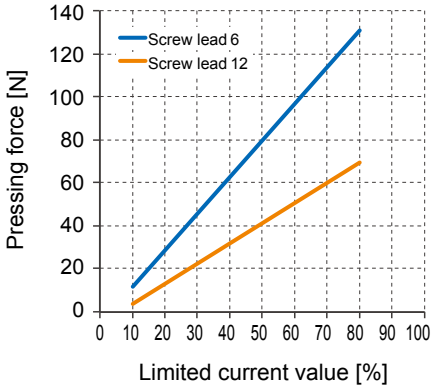


[EBR-08M]

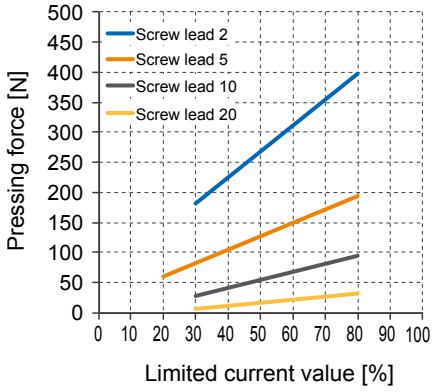


Pressing force

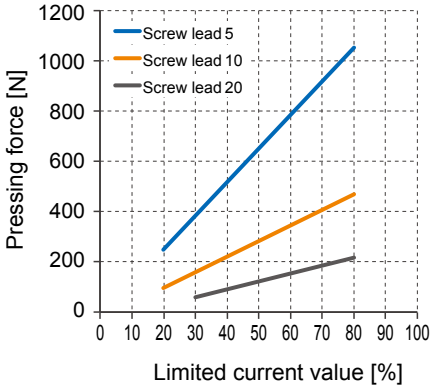
EBR-04M



EBR-05M



EBR-08M



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

Notes

Table of Load Capacity by Speed and Acceleration/Deceleration

48 VDC

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.

[When installed horizontally]

■EBR-04M

Screw lead 6 (kg)

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 1.0	Side/Bottom 0.3	Side/Bottom 1.0
0	33.3	33.3	33.3	28.3
100	33.3	28.3	33.3	28.3
150	33.3	16.6	33.3	15.0
200	28.3	6.6	28.3	6.6
250	20.0	6.6	20.0	6.6
300	10.0		10.0	
350	3.3		3.3	

Screw lead 12

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 1.0	Side/Bottom 0.3	Side/Bottom 1.0
0	18.3	10.0	18.3	10.0
100	18.3	10.0	18.3	10.0
200	18.3	8.3	18.3	8.3
300	16.6	8.3	16.6	6.6
400	16.6	6.6	16.6	5.0
500	8.3	5.0	8.3	3.3
600	3.3	3.3	3.3	

■EBR-05M

Screw lead 2

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 0.5	Side/Bottom 0.3	Side/Bottom 0.5
0	80.0	80.0	80.0	80.0
30	80.0	80.0	80.0	80.0
50	68.3	68.3	68.3	68.3
70	68.3	60.0	68.3	60.0
90	48.3	23.3	48.3	23.3
100	48.3	13.3	48.3	21.6
110	36.6		36.6	
120	31.6		30.0	
130	28.3			

Screw lead 5

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 1.0	Side/Bottom 0.3	Side/Bottom 1.0
0	60.0	60.0	60.0	60.0
50	60.0	60.0	60.0	60.0
100	60.0	55.0	60.0	43.3
150	60.0	38.3	60.0	23.3
200	60.0	21.6	60.0	13.3
225	60.0	10.0	43.3	3.3
250	55.0	10.0	40.0	3.3
275	50.0	1.6	36.6	
300	36.6	1.6	26.6	
330	16.6		1.6	

Screw lead 10

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 1.0	Side/Bottom 0.3	Side/Bottom 1.0
0	50.0	35.0	36.6	26.6
50	50.0	35.0	36.6	26.6
75	50.0	23.3	35.0	23.3
100	50.0	21.6	35.0	21.6
200	50.0	20.0	35.0	15.0
300	35.0	18.3	35.0	10.0
400	20.0	11.6	20.0	5.0
500	10.0	5.0	10.0	1.6
600	1.6	1.6		

Screw lead 20

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 1.0	Side/Bottom 0.3	Side/Bottom 1.0
0	20.0	15.0	18.3	8.3
100	20.0	15.0	18.3	8.3
200	20.0	13.3	16.6	8.3
300	20.0	11.6	16.6	8.3
400	20.0	10.0	16.6	8.3
500	20.0	8.3	16.6	5.8
600	19.1	5.8	16.6	1.6
700	15.0	3.3	15.0	1.6
800	11.6	1.6	11.6	0.8

■EBR-08M

Screw lead 5

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 1.0	Side/Bottom 0.3	Side/Bottom 1.0
0	80.0	80.0	80.0	80.0
50	80.0	80.0	80.0	80.0
75	80.0	51.6	80.0	51.6
100	80.0	20.0	80.0	20.0
125	50.0	20.0	50.0	6.6
150	20.0	3.3	20.0	
175	18.3		18.3	
200	18.3		18.3	
225	18.3		1.6	

Screw lead 10

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 1.0	Side/Bottom 0.3	Side/Bottom 1.0
0	70.0	68.3	70.0	60.0
100	70.0	68.3	70.0	60.0
150	70.0	50.0	70.0	46.6
200	70.0	23.3	70.0	23.3
250	68.3	10.0	68.3	10.0
300	50.0	10.0	43.3	
350	35.0	1.6	33.3	
400	35.0		23.3	
450	25.0		10.0	

Screw lead 20

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 1.0	Side/Bottom 0.3	Side/Bottom 1.0
0	35.0	26.6	35.0	23.3
200	35.0	26.6	35.0	23.3
300	35.0	16.6	35.0	16.6
400	35.0	11.6	35.0	11.6
500	16.6	5.0	16.6	5
600	16.6	3.3	16.6	1.6
700	16.6	3.3	16.6	0.8
800	16.6	1.6		
900	8.3			

[When installed vertically]

■EBR-04M

Screw lead 6

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 0.5	Side/Bottom 0.3	Side/Bottom 0.5
0	10.0	8.3	9.1	8.3
50	10.0	8.3	9.1	8.3
100	8.3	8.3	9.1	8.3
150	8.3	6.6	8.3	5.8
200	6.6	5.0	6.6	4.1
250	5.0	3.3	3.7	2.0
300	3.3	1.6	2.0	0.8
350	1.6			

Screw lead 12

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 0.5	Side/Bottom 0.3	Side/Bottom 0.5
0	5.0	4.1	5.0	4.1
100	5.0	4.1	5.0	4.1
200	5.0	4.1	5.0	4.1
300	4.1	3.3	4.1	3.3
400	3.3	3.3	3.3	3.3
500	1.6	2.5	1.6	1.6
600	1.6	0.8	0.8	0.4

■EBR-05M

Screw lead 2

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 0.5	Side/Bottom 0.3	Side/Bottom 0.5
0	24.0	23.3	24.0	23.3
25	24.0	23.3	24.0	23.3
50	13.3	23.3	13.3	23.3
60	13.3	18.3	13.3	18.3
70	13.3	15.0	13.3	15
75	13.3	8.3	13.3	8.3
80	13.3	8.3	11.6	8.3
90	13.3	0.8	11.6	0.8
100	13.3		11.6	
110	13.3		11.6	
120	13.3		5.0	

Screw lead 5

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 0.5	Side/Bottom 0.3	Side/Bottom 0.5
0	16.6	16.6	16.6	16.6
50	16.6	16.6	16.6	16.6
100	15.0	13.3	13.3	13.3
150	11.6	11.6	11.6	11.6
200	11.6	8.3	11.6	8.3
250	10.0	6.6	10.0	5.0
275	8.3	3.3	6.6	0.8
300	5.0	3.3	0.8	0.8

Screw lead 10

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 0.5	Side/Bottom 0.3	Side/Bottom 0.5
0	10.0	7.9	8.3	7.9
100	10.0	7.9	8.3	7.9
200	10.0	7.5	6.6	7.5
300	7.5	5.4	5.8	5.4
350	5.8	3.7	5.0	3.7
400	5.0	3.7	5.0	3.7
500	4.1	2.5	4.1	2.5
600	0.8	0.4		

Screw lead 20

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 0.5	Side/Bottom 0.3	Side/Bottom 0.5
0	4.1	3.3	4.1	3.3
100	4.1	3.3	4.1	3.3
200	4.1	3.3	4.1	3.3
300	4.1	2.5	4.1	2.5
400	3.7	2.5	3.7	2.5
500	3.3	1.6	3.3	1.6
600	2.5	1.6	2.5	1.6
700	2.0	1.6	2.0	1.6
800	1.6	0.8		

■EBR-08M

Screw lead 5

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 0.5	Side/Bottom 0.3	Side/Bottom 0.5
0	38.3	38.3	38.3	38.3
50	38.3	38.3	38.3	38.3
75	35.0	35.0	35.0	35.0
100	26.6	26.6	26.6	26.6
125	23.3	26.6	20.0	20.0
150	18.3	21.6	11.6	11.6
165	15.0	16.6	6.6	5.0
175	15.0	16.6	5.0	5
200	15.0	16.6	3.3	3.3
225	15.0	11.6		

Screw lead 10

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 0.5	Side/Bottom 0.3	Side/Bottom 0.5
0	18.3	20.0	18.3	18.3
100	18.3	20.0	18.3	18.3
150	15.0	15.0	15.0	15.0
200	11.6	11.6	11.6	11.6
250	11.6	11.6	10.0	8.3
300	11.6	11.6	6.6	5.0
350	10.0	10.0	5.0	3.3
400	5.0	5.0	3.3	1.6
450	3.3	3.3	0.8	0.8

Screw lead 20

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Straight 0.5	Side/Bottom 0.3	Side/Bottom 0.5
0	11.6	11.6	8.3	8.3
100	11.6	11.6	8.3	8.3
200	11.6	10.0	8.3	8.3
300	10.0	8.3	8.3	8.3
400	3.3	2.5	3.3	2.5
500	1.6	1.6	1.6	1.6
600	1.6	1.6	1.6	1.6
700	1.6	1.6	1.6	1.6
800	1.6	1.6		
900	0.8	0.8		

Table of Load Capacity by Speed and Acceleration/Deceleration

24 VDC

* At 24 VDC, operation is possible up to 0.7 G when horizontally installed and 0.3 G when vertically installed.
Contact CKD for details.

[When installed horizontally]

■EBR-04M

(kg)

Screw lead 6

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	33.3	33.3
50	33.3	33.3
100	33.3	33.3
150	14.1	13.3
200	1.6	1.6
250	1.6	

Screw lead 12

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	18.3	18.3
100	18.3	18.3
200	15.4	15.8
300	4.5	5.0
400	4.5	0.8
500	1.6	

■EBR-05M

Screw lead 2

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	80.0	80.0
25	80.0	80.0
50	73.3	41.6
60	73.3	20.0
70	43.3	20.0
80	20.0	20.0

Screw lead 5

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	60.0	60.0
50	60.0	60.0
100	60.0	53.3
150	43.3	41.6
200	20.8	15.0
225	15.0	8.3
250	10.0	1.6
275	8.3	

Screw lead 10

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	50.0	36.6
50	50.0	36.6
100	50.0	36.6
200	35.0	35.0
300	11.6	11.6
400	7.5	7.5
500	1.6	

Screw lead 20

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	20.0	18.3
50	20.0	18.3
100	20.0	18.3
200	20.0	18.3
300	20.0	18.3
400	13.3	13.3
500	7.5	6.6
600	3.3	3.3
700	0.4	0.4

■EBR-08M

Screw lead 5

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	80.0	80.0
25	80.0	80.0
50	80.0	80.0
75	66.6	66.6
100	36.6	36.6
125	3.3	
150	3.3	

Screw lead 10

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	70.0	70.0
50	70.0	70.0
100	70.0	58.3
150	35.0	33.3
200	25.0	11.6
250	10.8	1.6
300	1.6	1.6

Screw lead 20

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	23.3	23.3
100	23.3	23.3
200	18.3	18.3
300	18.3	15.0
400	10.0	10.0
500	1.6	1.6

[When installed vertically]

■EBR-04M

Screw lead 6

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	9.1	9.1
50	9.1	9.1
100	7.5	7.5
150	2.9	2.9
200	0.4	0.4

Screw lead 12

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	4.5	4.5
100	4.5	4.5
200	2.0	2.0
300	0.4	0.8

■EBR-05M

Screw lead 2

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	24.0	24.0
25	24.0	24.0
50	15.0	3.3
60	3.3	

Screw lead 5

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	15.0	15.0
50	15.0	15.0
100	11.0	15.0
150	8.3	3.3
200	3.3	1.6
250	1.6	

Screw lead 10

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	6.6	6.6
100	6.6	6.6
200	5.8	5.8
300	2.5	2.5
400	0.8	0.8

Screw lead 20

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	4.1	4.1
100	4.1	4.1
200	2.5	3.3
300	2.5	3.3
400	1.6	0.8
450	0.8	0.8
500	0.8	

■EBR-08M

Screw lead 5

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	35.0	35.0
25	35.0	35.0
50	35.0	35.0
75	20.0	10.0
100	8.3	0.8
125	0.8	

Screw lead 10

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	15.0	15.0
50	15.0	15.0
100	15.0	15.0
150	6.6	5.0
200	4.1	1.6
250	1.6	
300	0.8	

Screw lead 20

Speed (mm/s)	Straight Acceleration/deceleration (G) 0.3	Side/Bottom Acceleration/deceleration (G) 0.3
0	10.0	8.3
100	10.0	8.3
200	6.6	6.6
250	3.3	3.3
300	1.6	1.6
350	0.8	0.8
400	0.4	0.8
450	0.4	0.8

Maintenance parts

■ Maintenance parts (motor unit)

	Model No. 	Compatibility	
Without brake	EBS-04ME-MOTORUNIT-N	EBR-04ME	Without brake
	EBS-04MR-MOTORUNIT-N	EBR-04MR/D/L	
	EBS-05ME-MOTORUNIT-N	EBR-05ME	
	EBS-05MR-MOTORUNIT-N	EBR-05MR/D/L	
	EBS-08ME-MOTORUNIT-N	EBR-08ME	
	EBS-08MR-MOTORUNIT-N	EBR-08MR/D/L	
With brake	EBS-04ME-MOTORUNIT-B	EBR-04ME	With brake
	EBS-04MR-MOTORUNIT-B	EBR-04MR/D/L	
	EBS-05ME-MOTORUNIT-B	EBR-05ME	
	EBS-05MR-MOTORUNIT-B	EBR-05MR/D/L	
	EBS-08ME-MOTORUNIT-B	EBR-08ME	
	EBS-08MR-MOTORUNIT-B	EBR-08MR/D/L	

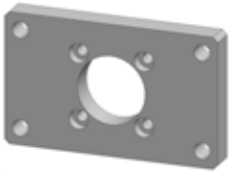
■ Maintenance parts / motor mounting direction: For right/left/bottom mounting (timing belt)

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

■ Maintenance parts (grease nozzle)

Model No. 	Compatibility
EBS-NOZZLE	All models

■ Maintenance parts (flange)

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

ECR

Controller

CONTENTS

Controller

ECR Series

All sizes of EBS, EBR, FLSH, FLCR, and FGRC can be operated with the same controller

How to order

ECR-MNNN3B - NP A 02

Ⓐ Interface specifications

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

Ⓑ Mounting method

A	Standard mount
D	DIN rail mount

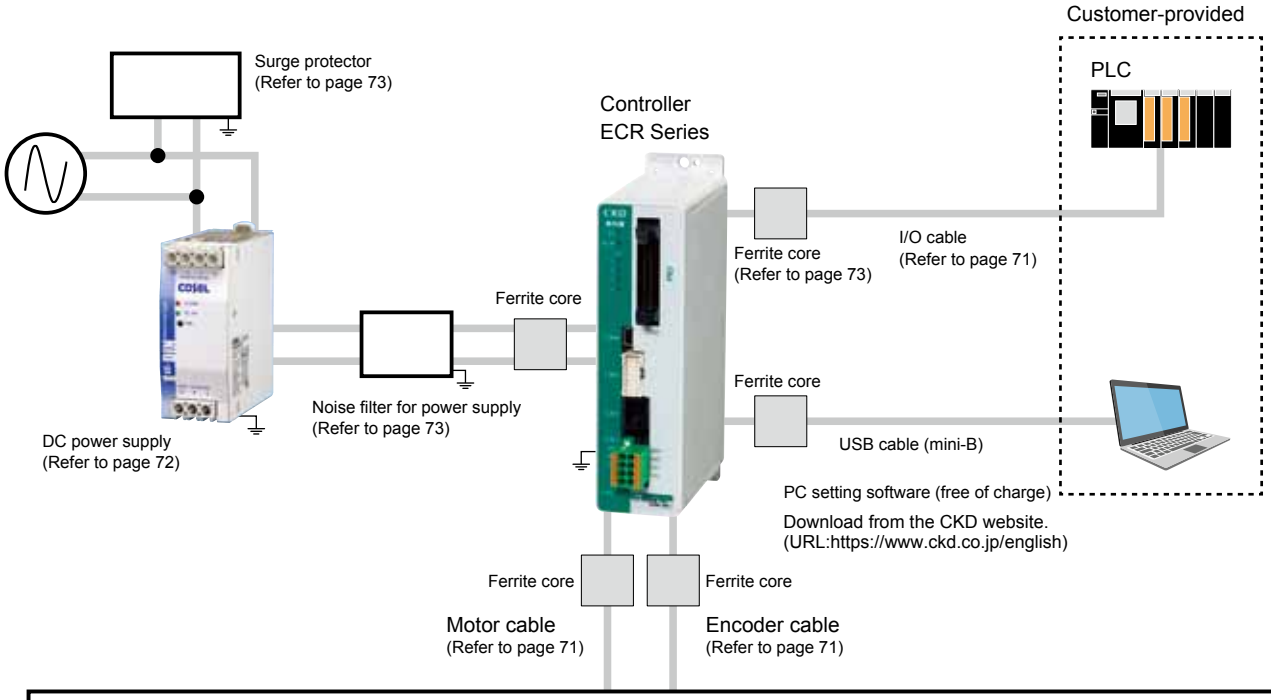
Ⓒ I/O cable length *1

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

*1 Select “None” when selecting interface specifications other than “Parallel I/O”.

Product subject to the EAR (EAR99)

System configuration



Connectable actuators

EBS-M Series
(page 1)

EBR-M Series
(page 31)

FLSH Series
(Catalog No. CC-1444A)

FLCR Series
(Catalog No. CC-1444A)

FGRC Series
(Catalog No. CC-1444A)

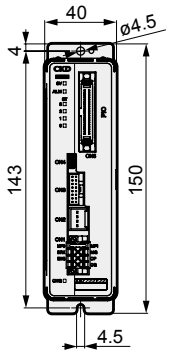
*Refer to the Instruction Manual for details on installing and wiring noise filters, surge protectors, and ferrite cores.

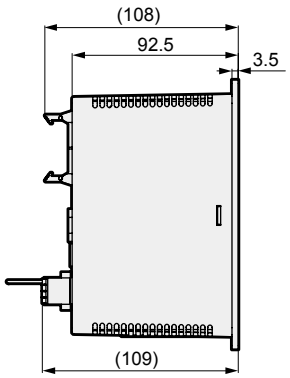
General specifications

Descriptions		Content						
Applicable actuators		EBS/EBR			FLSH/FLCR/FGRC			
Applicable motor capacity		□35	□42	□56	□20	□25	□25L	□35
Setting tools		PC setting software (S-Tools) Connection cable: USB cable (mini-B)						
External interface	Parallel I/O specification	24 VDC ±10%, input/output max. 16 points, cable length max. 10 m						
	Field network specification	IO-Link, CC-Link, EtherCAT						
Display lamp		Servo ON/OFF LED, alarm status LED Status LED, communication status LED (according to each interface specification)						
Power supply voltage	Control power	24 VDC ±10% or 48 VDC ±10%						
	Power supply	24 VDC ±10% or 48 VDC ±10%						
Current consumption	Control power	0.6 A or less						
	Power supply	2.8 A or less	3.7 A or less	6.1 A or less	1.1 A or less	2.1 A or less	3.2 A or less	3.0 A or less
Motor section maximum instantaneous current		4.0 A or less	5.2 A or less	8.6 A or less	1.5 A or less	3.0 A or less	4.5 A or less	4.2 A or less
Brake current consumption		0.4 A or less						
Insulation resistance		10 MΩ and over at 500 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		Approx. 400 g (standard mount) Approx. 430 g (DIN rail mount)						

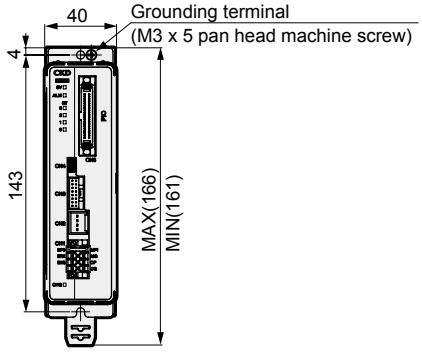
Dimensions

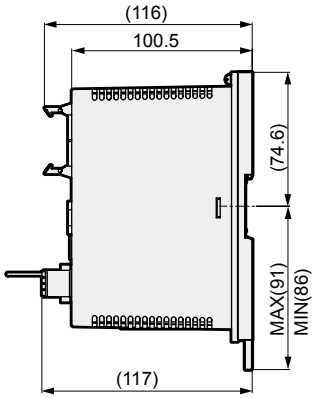
● Standard mount (ECR-MNNN3B-*A*)





● DIN rail mount (ECR-MNNN3B-*D*)



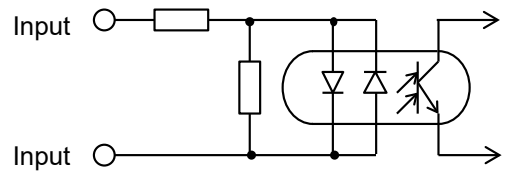


Parallel I/O (PIO) input/output circuit

Input specification

Descriptions	ECR-MNNN3B-NP□□
No. of inputs	16 points
Input voltage	24 VDC ±10%
Input current	3.7 mA/1 point
ON voltage	19 V or higher
OFF current	0.2 mA or less

Input circuit

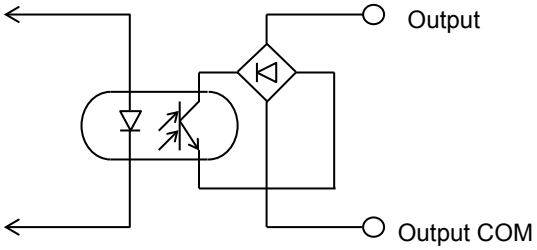


The input is not polarized.
(The input COM can be used with either + or -)

Output specifications

Descriptions	ECR-MNNN3B-NP□□
Output points	16 points
Load voltage	24 VDC ±10%
Load current	20 mA or less/1 point
Internal voltage drop	3 V or less
Leakage current	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 -)

Operation mode

Controllers offer nine operation modes.

Use the PC setting software or a PLC to set the appropriate operation mode. The initial setting is 64-point mode.

Operation mode	Positioning point count	Overview
64-point mode	64 points	· Travel output · Zone output: 2 points · Point zone output: 1 point
128-point mode	128 points	· Travel output · Selectable output: 2 points (point zone, zone 1, zone 2, travel)
256-point mode	256 points	· Selectable output: 2 points (point zone, zone 1, zone 2, travel)
512-point mode	512 points	· Selectable output: 1 point (point zone, zone 1, zone 2, travel)
Teaching 64-point mode	64 points	· JOG (INCH) travel start input · Selectable output: 2 points (point zone, zone 1, zone 2, travel) · Travel output
Simple 7-point mode	7 points	· Travel output · Zone output: 2 points
Solenoid valve mode double 2-position	2 points	· SW output: 2 points · Travel output · Point zone output: 1 point · Zone output: 2 points
Solenoid valve mode double 3-position	2 points	· SW output: 2 points · Travel output · Point zone output: 1 point · Zone output: 2 points
Solenoid valve mode single	2 points	· SW output: 2 points · Travel output · Point zone output: 1 point · Zone output: 2 points

Signal abbreviation list

Input signal

Abbreviation	Name	Abbreviation	Name
PST	Point travel start	JIM	JOG/INCH (-) travel start
PSB*	Point number selection bit*	JIP	JOG/INCH (+) travel start
OST	Home position return start	INCH	INCH selection
SVON	Servo ON	P*ST	Point number * travel start
ALMRST	Alarm reset	V1ST	Solenoid valve travel command 1
STOP	Stop	V2ST	Solenoid valve travel command 2
PAUSE	Pause	VST	Solenoid valve travel command
WRST	Write start		
TEACH	Teaching selection		

Output signal

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

Operation modes and signal assignment

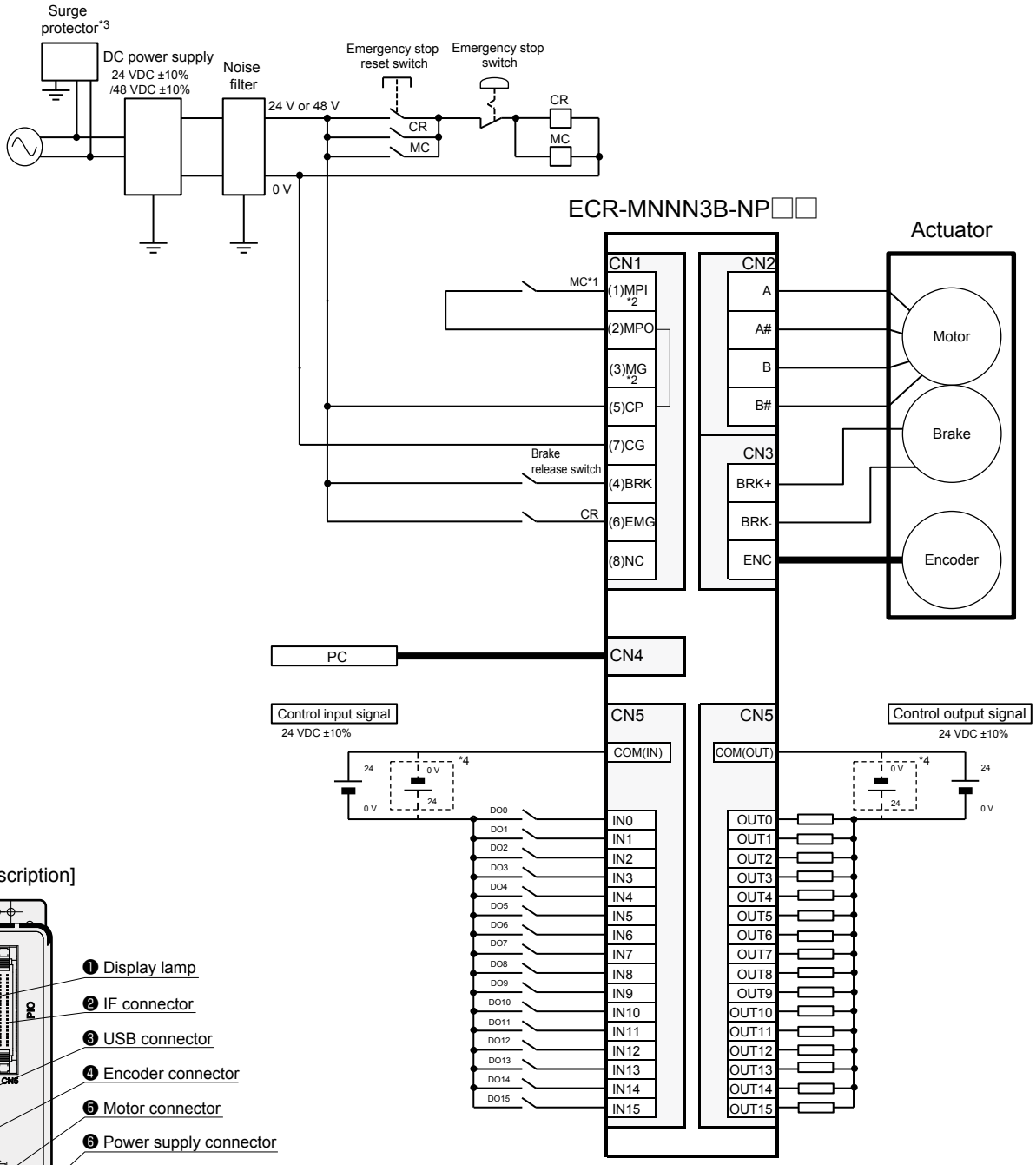
The following figure shows signal assignments in each operation mode.

Operation mode		64-point mode	128-point mode	256-point mode	512-point mode	Teaching 64-point mode	Simple 7-point mode	Solenoid valve mode double 2-position	Solenoid valve mode double 3-position	Solenoid valve mode single
Positioning point count		64	128	256	512	64	7	2	2	2
Input	IN0	PSB0	PSB0	PSB0	PSB0	PSB0	P1ST	V1ST	V1ST	-
	IN1	PSB1	PSB1	PSB1	PSB1	PSB1	P2ST	V2ST	V2ST	VST
	IN2	PSB2	PSB2	PSB2	PSB2	PSB2	P3ST	-	-	-
	IN3	PSB3	PSB3	PSB3	PSB3	PSB3	P4ST	-	-	-
	IN4	PSB4	PSB4	PSB4	PSB4	PSB4	P5ST	-	-	-
	IN5	PSB5	PSB5	PSB5	PSB5	PSB5	P6ST	-	-	-
	IN6	-	PSB6	PSB6	PSB6	TEACH	P7ST	-	-	-
	IN7	-	-	PSB7	PSB7	JIM	-	-	-	-
	IN8	-	-	-	PSB8	JIP	-	-	-	-
	IN9	-	-	-	-	INCH	-	-	-	-
	IN10	PST	PST	PST	PST	PST/ WRST	-	-	-	-
	IN11	OST	OST	OST	OST	OST	OST	OST	OST	OST
	IN12	SVON	SVON	SVON	SVON	SVON	SVON	SVON	SVON	SVON
	IN13	ALMRST	ALMRST	ALMRST	ALMRST	ALMRST	ALMRST	ALMRST	ALMRST	ALMRST
	IN14	STOP#	STOP#	STOP#	STOP#	STOP#	STOP#	-	-	-
	IN15	PAUSE#	PAUSE#	PAUSE#	PAUSE#	PAUSE#	PAUSE#	-	-	-
Output	OUT0	PCB0/ ACB0	PCB0/ ACB0	PCB0/ ACB0	PCB0/ ACB0	PCB0/ ACB0	P1END	P1END	P1END	P1END
	OUT1	PCB1/ ACB1	PCB1/ ACB1	PCB1/ ACB1	PCB1/ ACB1	PCB1/ ACB1	P2END	P2END	P2END	P2END
	OUT2	PCB2/ ACB2	PCB2/ ACB2	PCB2/ ACB2	PCB2/ ACB2	PCB2/ ACB2	P3END	-	-	-
	OUT3	PCB3/ ACB3	PCB3/ ACB3	PCB3/ ACB3	PCB3/ ACB3	PCB3/ ACB3	P4END	-	-	-
	OUT4	PCB4	PCB4	PCB4	PCB4	PCB4	P5END	SW1	SW1	SW1
	OUT5	PCB5	PCB5	PCB5	PCB5	PCB5	P6END	SW2	SW2	SW2
	OUT6	PZONE	PCB6	PCB6	PCB6	TEACHS	P7END	-	-	-
	OUT7	MOVE	MOVE	PCB7	PCB7	MOVE	MOVE	MOVE	MOVE	MOVE
	OUT8	ZONE1	PZONE/ ZONE1/ ZONE2/ MOVE	PZONE/ ZONE1/ ZONE2/ MOVE	PCB8	PZONE/ ZONE1/ ZONE2/ MOVE	ZONE1	ZONE1	ZONE1	ZONE1
	OUT9	ZONE2	PZONE/ ZONE1/ ZONE2/ MOVE	PZONE/ ZONE1/ ZONE2/ MOVE	PZONE/ ZONE1/ ZONE2/ MOVE	PZONE/ ZONE1/ ZONE2/ MOVE	ZONE2	ZONE2	ZONE2	ZONE2
	OUT10	PEND	PEND	PEND	PEND	PEND/ WREND	PZONE	PZONE	PZONE	PZONE
	OUT11	OEND	OEND	OEND	OEND	OEND	OEND	OEND	OEND	OEND
	OUT12	SONS	SONS	SONS	SONS	SONS	SONS	SONS	SONS	SONS
	OUT13	ALM#	ALM#	ALM#	ALM#	ALM#	ALM#	ALM#	ALM#	ALM#
	OUT14	WARN#	WARN#	WARN#	WARN#	WARN#	WARN#	WARN#	WARN#	WARN#
	OUT15	READY	READY	READY	READY	READY	READY	READY	READY	READY

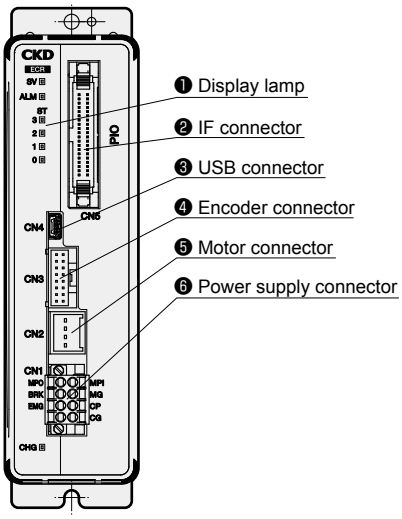
*The pound sign (#) indicates a negative logic signal.

Parallel I/O connection diagram (ECR-MNNN3B-NP**)

[PIO]



[Panel description]



*1 For safety category support, connect the contact of an electromagnetic switch or other device between the MPI and MPO terminals when motor drive power must be shut OFF.
(Connected with jumper wires at shipment.)
*2 The MPI and MG terminals can be used to isolate the motor power supply and control power supply.
*3 A surge protector is required to comply with the CE marking.
*4 This can be used even if the polarity is reversed.

● Attachments

Part name	Manufacturer model	Manufacturer
Power supply connector	DFMC1,5/4-STF-3,5	PHOENIX CONTACT

Description of field network operation modes

Mode	Overview
PIO mode (PIO)	The same operation modes as the parallel I/O specification can be selected. Assigned signals are as listed in the parallel I/O signal assignment table. Monitor data cannot be confirmed.
Simple direct value mode (SDP)	An arbitrary target position can be set. In this mode, the target position is directly set prior to operation. Operation conditions other than the target position (such as speed and acceleration) will use the values set in the point data during operation. Monitor data can be confirmed.
Full direct value mode (FDP)	All operation conditions (including target position, speed, acceleration, etc.) can be set arbitrarily. Monitor data can be confirmed.

Mode	Positioning point count	PIO signal *1	Data write										Monitor *2			
			Target position	Positioning width	Speed	Acceleration	Deceleration	Pressing current	Pressing speed	Pressing distance	Mode change	Gain magnification	Position	Speed	Current	Alarm
PIO	512 points	○	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SDP	Unlimited	●	○	-	-	-	-	-	-	-	-	-	□	△	△	△
FDP	Unlimited	●	○	○	○	○	○	○	○	○	○	○	□	▲	▲	▲

*1: ○ shows that the same operation as in the parallel I/O specification is possible. ● indicates operation possible only in 512-point mode.
*2: □ shows that monitoring is possible with all networks. △ enables one monitor to be selected for IO-Link or CC-Link and three for EtherCAT.
□ shows that display is possible with all networks. ▲ enables one monitor to be selected for IO-Link and three for CC-Link or EtherCAT.

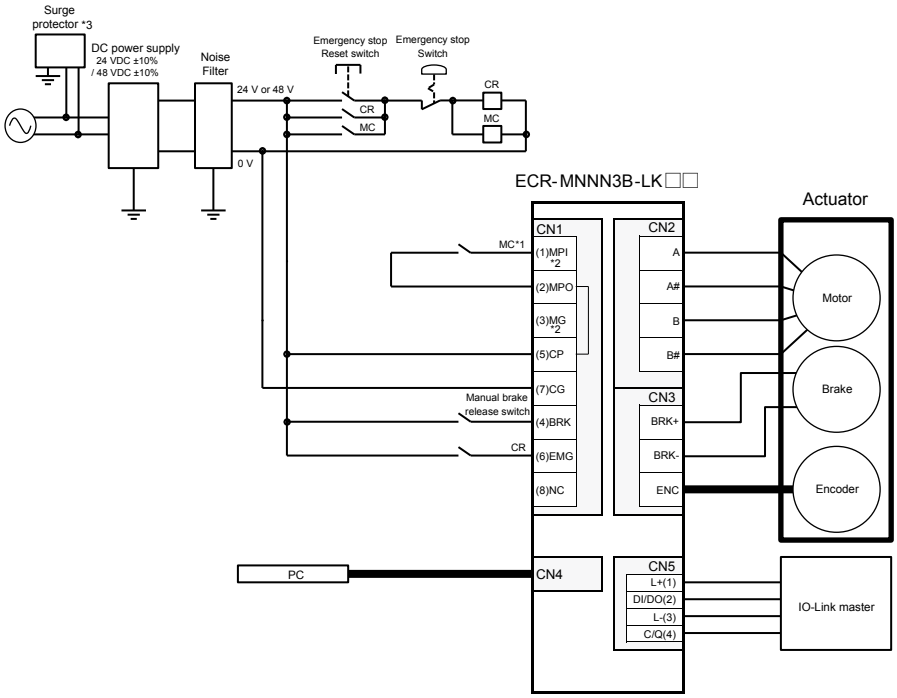
IO-Link specifications and connection diagram (ECR-MNNN3B-LK**)

[Communication specifications]

Descriptions	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: 9 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: 2 ms
	Full direct value mode: 2.5 ms
Monitor function	Position, speed, current, alarm

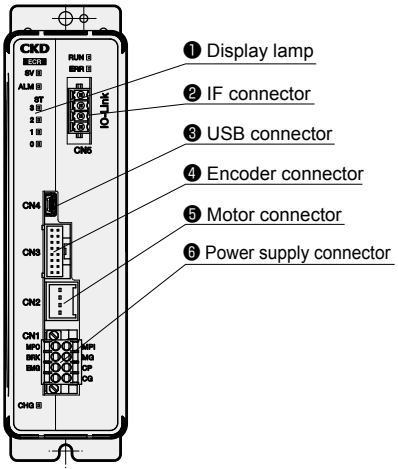
* Items that can be monitored change depending on the mode. Refer to page 67 for details.

[IO-Link]



*1 For safety category support, connect the contact of an electromagnetic switch or other device between the MPI and MPO terminals when motor drive power must be shut OFF. (Connected with jumper wires at shipment.)
*2 The MPI and MG terminals can be used to isolate the motor power supply and control power supply.
*3 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	Home position return start
	2	Point travel start
	1	—
	0	Point number selection bit 8
1	7 to 0	Point number selection bit 7 to 0
2	7	—
	6	—
	5 to 4	Rotation direction
	3 to 1	Monitor number
	0	Direct value travel selection
3 to 6	7 to 0	Position
7 to 8	7 to 0	Positioning width
9 to 10	7 to 0	Speed
11	7 to 0	Acceleration
12	7 to 0	Deceleration
13	7 to 0	Pressing current
14	7 to 0	Pressing speed
15 to 18	7 to 0	Pressing distance
19 to 20	7 to 0	Gain magnification
21	7	Position specification method
	6 to 5	Operation mode
	4 to 3	Acceleration/deceleration method
	2 to 0	Stop method

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	Home position return complete
	2	Point travel complete
	1	—
	0	Point travel confirmation bit 8
1	7 to 0	Point travel confirmation bit 7 to 0
2	7 to 5	—
	4	Zone 2
	3	Zone 1
	2	Traveling
	1	Point zone
	0	Direct travel state
3 to 6	7 to 0	Current position
7 to 8	7 to 0	Monitor value

*Refer to the Instruction Manual for details of other operation modes.
*The pound sign (#) indicates a negative logic signal.

● Attachments

Part name	Manufacturer model	Manufacturer
Power supply connector	DFMC1,5/4-STF-3,5	PHOENIX CONTACT
IO-Link connector	FMC1,5/4/ST-3,5-RF	PHOENIX CONTACT

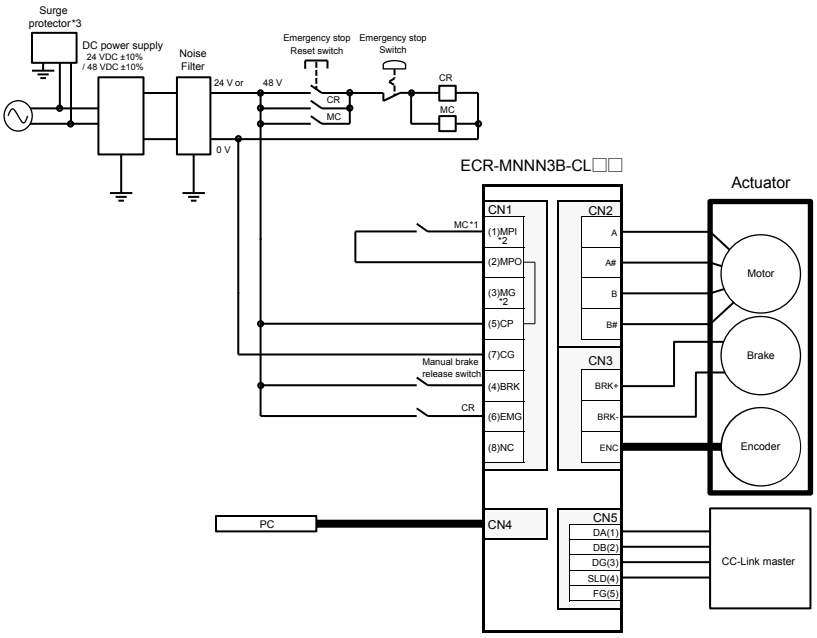
CC-Link specifications and connection diagram (ECR-MNNN3B-CL**)

[Communication specifications]

Descriptions	Specifications
CC-Link version	Ver. 1.10
Station	Remote device station
Remote station No.	1 to 64 (set by parameter setting)
Operation modes and occupied stations	PIO mode (1 station occupied)
	Simple direct value mode (2 stations occupied)
	Full direct value mode (4 stations occupied)
Remote input/output points	PIO mode: 32 points each
	Simple direct value mode: 64 points each
	Full direct value mode: 128 points each
Remote register input/output	PIO mode: 4 words each
	Simple direct value mode: 8 words each
	Full direct value mode: 16 words each
Communication speed	10 M/5 M/2.5 M/625 k/156 kbps (Selected by parameter setting)
Connection cable	CC-Link Ver. 1.10 compliant cable (shielded 3-conductor twisted pair cable)
Number of connected units	42 max. when only remote device stations are connected
Monitor function	Position, speed, current, alarm

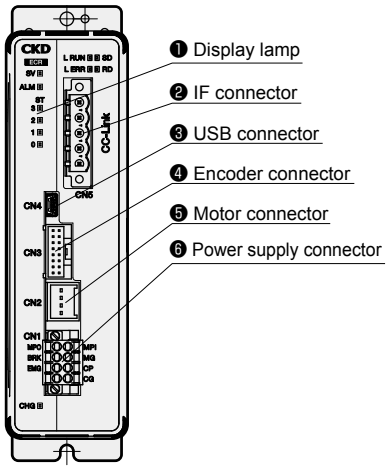
* Items that can be monitored change depending on the mode.
Refer to page 67 for details.

[CC-Link]



*1 For safety category support, connect the contact of an electromagnetic switch or other device between the MPI and MPO terminals when motor drive power must be shut OFF. (Connected with jumper wires at shipment.)
*2 The MPI and MG terminals can be used to isolate the motor power supply and control power supply.
*3 A surge protector is required to comply with the CE marking.

[Panel description]



Cyclic data from master

Device No.	Full direct value mode
	Signal name
RYn0 to RYnF	PIO input signal (conforms to parallel I/O signal assignment)
RY(n+1)0 to RY(n+1)3	–
RY(n+1)4	Data request
RY(n+1)5	Data R/W selection
RY(n+1)6 to RY(n+1)B	–
RY(n+1)C	Monitor request
RY(n+1)D	–
RY(n+1)E	
RY(n+1)F	Direct value travel selection
RY(n+2)0 to RY(n+7)9	–
RY(n+7)A	Error reset request flag
RY(n+7)B to RY(n+7)F	–

* Refer to the Instruction Manual for details of other operation modes.

Cyclic data from controller

Device No.	Full direct value mode
	Signal name
RXn0 to RXnF	PIO output signal (conforms to parallel I/O signal assignment)
RX(n+1)0 to RX(n+1)3	Data response
RX(n+1)4	Data complete
RX(n+1)5	Data write status
RX(n+1)6	–
RX(n+1)7	
RX(n+1)8 to RX(n+1)B	Monitor response
RX(n+1)C	Monitor complete
RX(n+1)D	–
RX(n+1)E	
RX(n+1)F	Direct travel state
RX(n+2)0	Point zone
RX(n+2)1	Traveling
RX(n+2)2	Zone 1
RX(n+2)3	Zone 2
RX(n+2)4 to RX(n+7)9	–
RX(n+7)A	Error status flag
RX(n+7)B	Remote ready flag
RX(n+7)C to RX(n+7)F	–

● Attachments

Part name	Manufacturer model	Manufacturer
Power supply connector	DFMC1,5/4-STF-3,5	PHOENIX CONTACT
CC-Link connector	MSTB2,5/5-STF-5,08ABGYAU	PHOENIX CONTACT

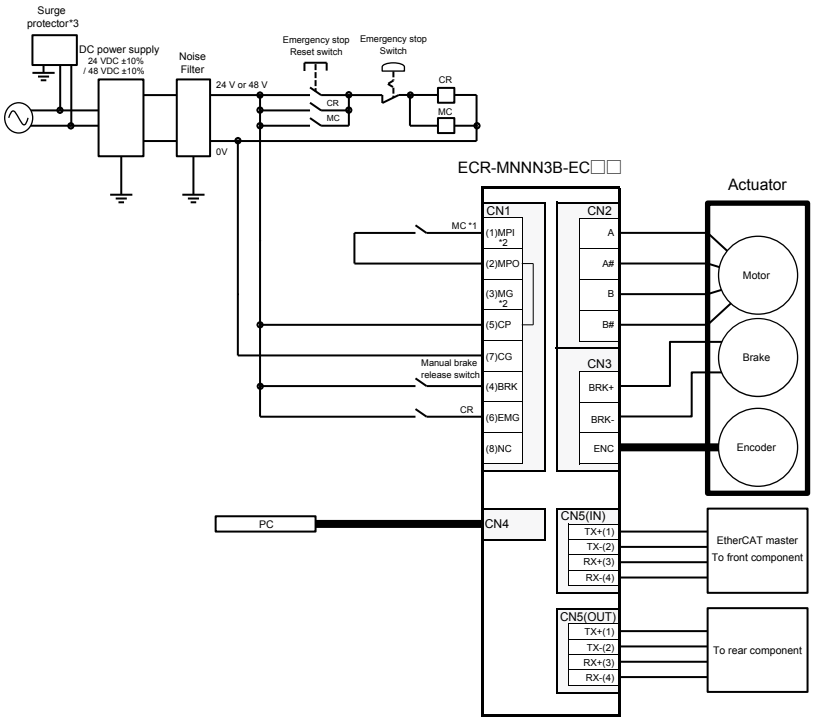
EtherCAT specifications and connection diagram (ECR-MNNN3B-EC**)

[Communication specifications]

Descriptions	Specifications
Communication speed	100 Mbps (fast Ethernet, full duplex)
Process data	Variable PDO mapping
Max. PDO data length	RxPDO: 64 bytes/TxPDO: 64 bytes
Station alias	0 to 65535 (set by parameters)
Connection cable	EtherCAT-compliant cable (CAT5e or higher twisted-pair cable [aluminum tape and braided double-shield] recommended)
Node address	Automatic indexing the master
Monitor function	Position, speed, current, alarm

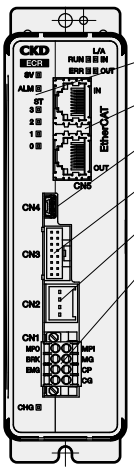
* Items that can be monitored change depending on the mode. Refer to page 67 for details.

[EtherCAT]



*1 For safety category support, connect the contact of an electromagnetic switch or other device between the MPI and MPO terminals when motor drive power must be shut OFF. (Connected with jumper wires at shipment.)
*2 The MPI and MG terminals can be used to isolate the motor power supply and control power supply.
*3 A surge protector is required to comply with the CE marking.

[Panel description]



Process data from master

Index	Sub Index	bit	Full direct value mode
			Signal name
0x2001	0x01	0 to 15	PIO input signal (conforms to parallel I/O signal assignment)
		16 to 31	–
	0x02	0 to 3	–
		4	Data request
		5	Data R/W selection
		6 to 11	–
		12	Monitor request
		13	–
		14	–
		15	Direct value travel selection
		16 to 31	–

*Refer to the Instruction Manual for details of other operation modes.

Process data from controller

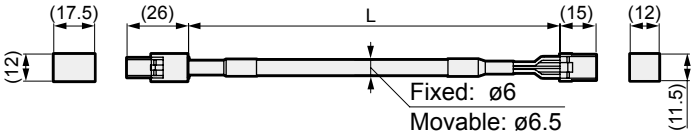
Index	Sub Index	bit	Full direct value mode
			Signal name
0x2005	0x01	0 to 15	PIO output signal (conforms to parallel I/O signal assignment)
		16 to 31	–
	0x02	0 to 3	Data response
		4	Data complete
		5	Data write status
		6	–
		7	–
		8 to 11	Monitor response
		12	Monitor complete
		13	–
		14	–
		15	Direct travel state
		16	Point zone
		17	Traveling
		18	Zone 1
		19	Zone 2
		20 to 31	–

● Attachments

Part name	Manufacturer model	Manufacturer
Power supply connector	DFMC1,5/4-STF-3,5	PHOENIX CONTACT

Relay cable (included with actuator)

● Motor cable (fixed/movable)

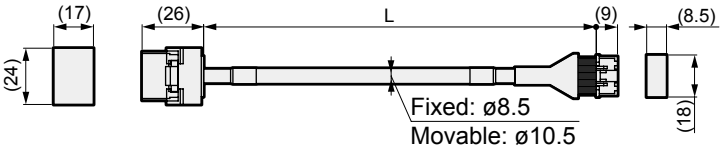


EA-CBLM1 - S 01
Ⓐ Ⓑ

Ⓐ Cable type	
S	Fixed cable
R	Movable cable

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

● Encoder cable (fixed/movable)



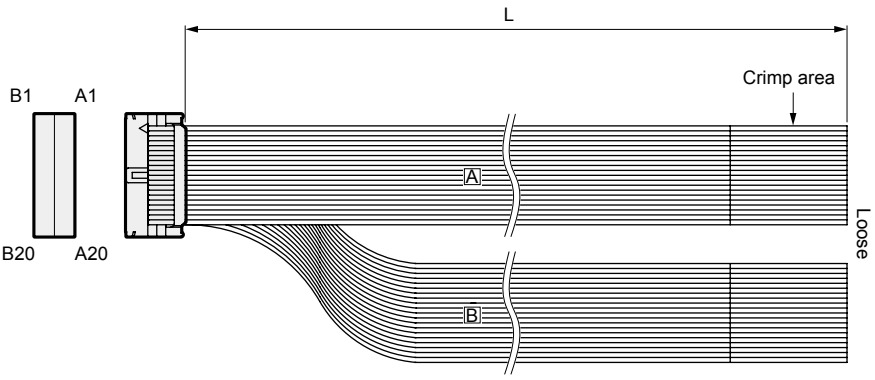
EA-CBLE1 - S 01
Ⓐ Ⓑ

Ⓐ Cable type	
S	Fixed cable
R	Movable cable

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

I/O cable (included with parallel I/O specification controller)

● I/O cable



EA-CBLNP1 - 02
Ⓐ

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

Related parts model No. table

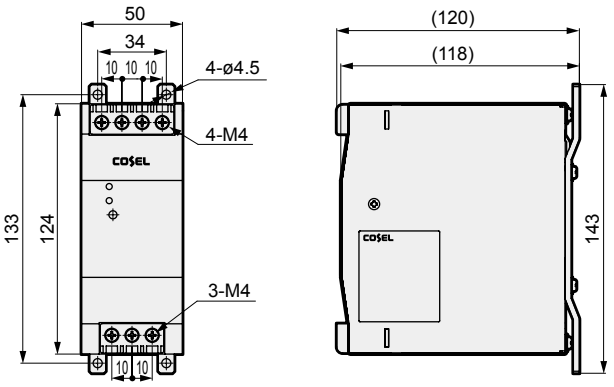
● ECR DC power supply

Descriptions \ Model No.			EA-PWR-KHNA240F-24-N2 (Mounting screw) EA-PWR-KHNA240F-24 (DIN rail mount)	EA-PWR-KHNA480F-48-N2 (Mounting screw) EA-PWR-KHNA480F-48 (DIN rail mount)
Manufacturer			COSEL Co., Ltd.	
Manufacturer model No.	Mounting screw		KHNA240F-24-N2	KHNA480F-48-N2
	DIN rail mount		KHNA240F-24	KHNA480F-48
Input voltage			85 to 264 VAC 1ø or 88 to 370 VDC	85 to 264 VAC 1ø or 88 to 350 VDC
Output	Power		240 W	480 W
	Voltage/current		24 V 10 A	48 V 10 A
	Variable voltage range		22.5 to 28.5 V	45.0 to 55.2 V
Included functions	Overcurrent protection		Operating at 101% min of peak current	
	Overvoltage protection		30.0 to 36.0 V	57.6 to 67.2 V
	Remote control		Available	
	Remote sensing		-	
	Others		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)		50×124×117 mm	70×124×117 mm
	Weight		900 g max	1,200 g max
	Cooling method		Natural air cooling	

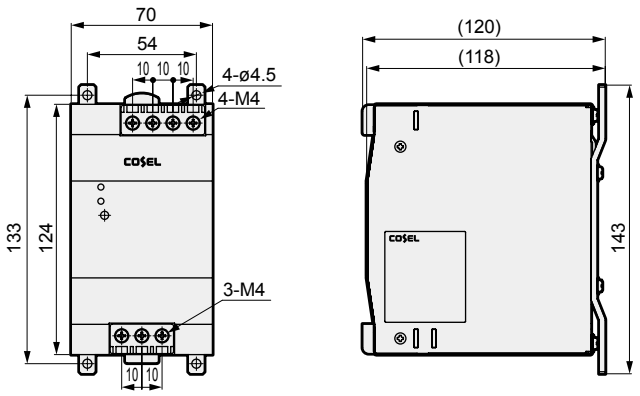
*Refer to the manufacturer's website for details.

Part names and dimensions

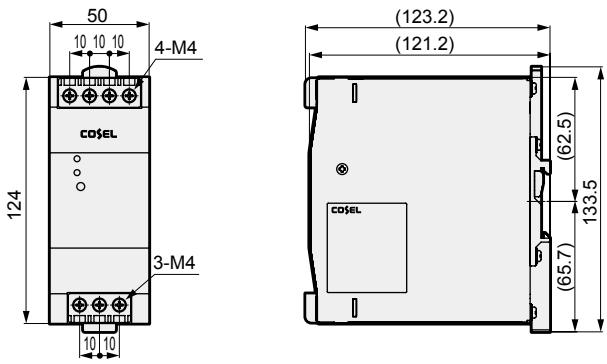
● 24 V screw mounting
EA-PWR-KHNA240F-24-N2



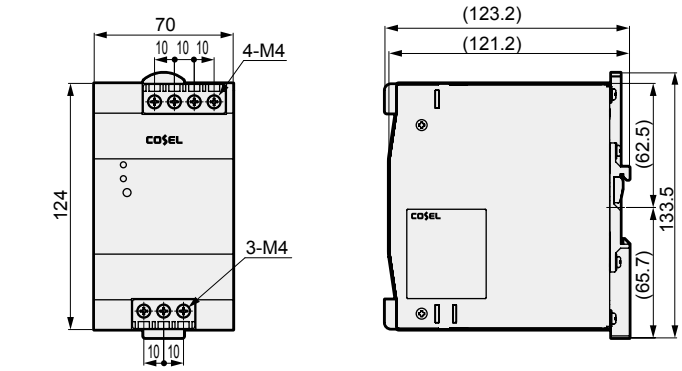
● 48 V screw mounting
EA-PWR-KHNA480F-48-N2



● 24 V DIN rail mounting
EA-PWR-KHNA240F-24



● 48 V DIN rail mounting
EA-PWR-KHNA480F-48



Related parts model No. table

● Other parts

Part name	Model No.
Noise filter for power supply (single phase, 15 A)	AX-NSF-NF2015A-OD
Surge protector	AX-NSF-RAV-781BXZ-4
Ferrite core set (7 pieces/set)	EA-NSF-FC01-SET

*Refer to the Instruction Manual for details on 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 overcurrent protector.

The wiring of the connector should be in accordance with JIS B 9960-1:2008 Safety of Machinery - Electrical Equipment of Machines - Part 1: General Requirements. Install an overcurrent protector (a shutoff mechanism for wiring or a circuit protector) for inputs (power supply connector, power supply terminal) and controls (input/output connector) power primary side.

(Extracted from JIS B 9960-1 7.2.1, General Requirements)
Overcurrent protection must be installed if the circuit current inside a machine (electrical equipment) could exceed the rated value of the components or the allowable current capacity of the conductor (whichever is smaller).

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.

Limited warranty and disclaimer

1 Term of warranty

This warranty shall be valid for one year after delivery to the customer's designated site.

2 Scope of warranty

If any faults, found to be the responsibility of CKD, occur during the above warranty term, the product shall be replaced, the required replacement parts provided free of charge, or shall be repaired at the CKD factory free of charge.
Note that the following faults are excluded from the warranty scope.

(1) When the product is used outside of conditions/environment described in product specifications.
(2) When caused by incorrect usage (e.g. careless handling) or improper management.
(3) When caused by factors other than delivered product.
(4) When caused by improper use of the product.
(5) When caused by modifications (including structure, performance and specification) conducted after delivery without involvement from CKD, or by repairs not indicated by CKD.
(6) When this product is used integrated with your machine or device, and damage is created which could have been avoided by maintaining your machine or device at a level of performance, structure, etc. generally accepted throughout the industry.
(7) When caused by matters that could not be predicted with the technologies in practice when the product was delivered.
(8) When caused by fire, earthquake, flood, lightning, other natural disasters, natural calamities, pollution, salt-air damage, gas damage, abnormal voltage, or other external factors.

The warranty guarantees the actual delivered product, as a single unit, and does not cover any damages resulting from losses induced by failures in the delivered product.

3 Warranty for exported products

(1) Only products which are returned to CKD plants or CKD specified plants will be repaired. Any construction or cost resulting from the returning will not be covered.
(2) Repairs will be delivered to the indicated location within the country, using domestic packing specifications.
These warranty items define basic items. If warranty details listed in individual specification drawings or specification documents differ from this warranty, the specification drawing/document takes priority.

4 Compatibility confirmation

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

5 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

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 motor, control and input/output circuit 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, 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 piping and wiring (with multi-conductor cables) as any large motor power lines other than that of this product.
Do not use the same piping and 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.
(Guideline: □35: 4.0 A/unit, □42: 5.2 A/unit, □56: 8.6 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.

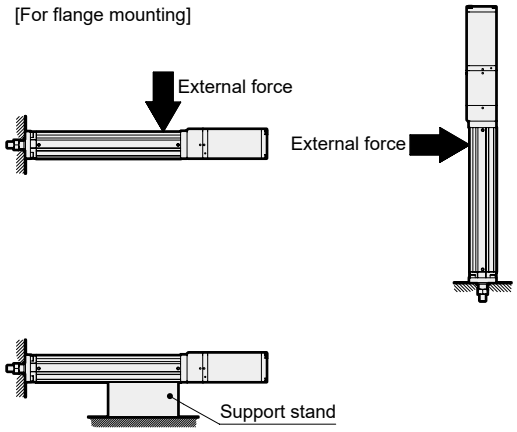
■ Fix the movable cable so that it does not easily move. When fixing, use cables with a bending radius of 63 mm or more.

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.
(EBS-08ME, EBS-08MR, EBS-08ML)

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: 2008 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.

⚠ 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% 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.

■ 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 movable cable so that it does not easily move. Use cables at or above the bending radius when fixing.

■ 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

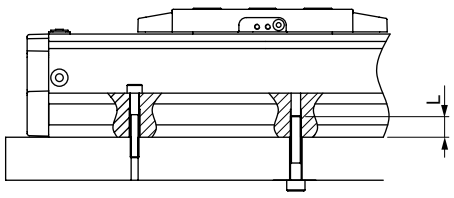
⚠CAUTION

■ 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 ECR

⚠CAUTION

■ When wiring, do not apply excessive force to the connectors.

■ Do not push hard on the controller case.

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 lead wire used for the power cable can tolerate up to 8.6 A.
Otherwise, heat generation or damage during operation may be caused.

■ 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).

■ 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.

■ When replacing the motor unit, 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 ECR

⚠CAUTION

■ Frequently turning the power ON/OFF can cause damage to the elements inside the controller.

■ 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 current limit values described in this catalog are merely guidelines. Fluctuation in motor torque, etc., may cause errors even at the same set values.

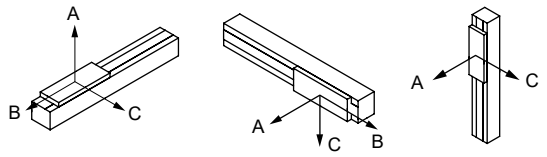
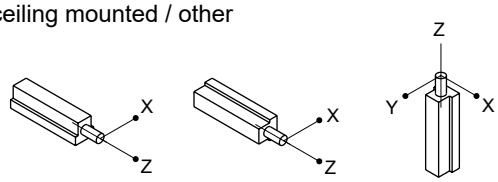
EBS/EBR Model Selection Check Sheet → **CKD** (Contact)

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:

<table>
<tr><td>Desired model</td><td colspan="3">(EBS/EBR)-</td></tr>
<tr><td>Basic specifications</td><td colspan="3">Max. stroke length: mm, ball screw lead: mm</td></tr>
<tr><td rowspan="4">Operating conditions</td><td colspan="3">Travel stroke: mm, travel time: s</td></tr>
<tr><td colspan="3">Set speed: mm/s</td></tr>
<tr><td colspan="3">Set acceleration/deceleration: mm/s^2 (set acceleration/deceleration time: s)</td></tr>
<tr><td colspan="3">Repeatability: ± mm</td></tr>
<tr><td rowspan="6">Load conditions</td><td>Slider</td><td colspan="2">Rod</td></tr>
<tr><td colspan="3">Load weight: kg</td></tr>
<tr><td>Mounting orientation:
Horizontal / wall mounted / vertical / ceiling mounted / other
  </td><td colspan="2">Mounting orientation:
Horizontal / wall mounted / vertical / ceiling mounted / other
  </td></tr>
<tr><td colspan="3">Distance from slider and rod center to the center of gravity of load</td></tr>
<tr><td>Direction A: mm
Direction B: mm
Direction C: mm</td><td colspan="2">Direction X: mm
Direction Y: mm
Direction Z: mm</td></tr>
<tr><td colspan="3">Pressing load:
No / Yes (N)
Operating / Stopped
Direction of the force applied to slider center ( )</td></tr>
<tr><td>Working environment</td><td colspan="3">Ambient temperature: °C, ambient humidity: %
Atmosphere:</td></tr>
<tr><td>Interface specifications</td><td colspan="3">Parallel I/O / IO-Link / CC-Link / EtherCAT</td></tr>
<tr><td>Remarks</td><td colspan="3"></td></tr>
</table>

Related products

Electric actuator FLSH/FLCR/FGRC Series

Catalog No. CC-1444A

■ 2-finger Gripper FLSH Series
For soft handling of multi-model workpieces

■ Table FLCR Series
For short-stroke workpiece transport and positioning

■ Rotary FGRC Series
For indexing operation and workpiece inversion

■ Controller ECR Series
“One controller” that connects to any actuator

Electric Actuator Motorless General

Catalog No. CB-055A

Wide-ranging lineup of motorless electric actuators

■ Slider

For high speed transport	EBS-L Series
For high load transport	ETS/ECS Series
For long stroke transport	ETV/ECV Series
For fast tact transport	EKS-L Series

■ Rod

For press fitting and hoisting	EBR-L Series

Direct drive motor

■ ABSODEX
AX1000/2000/4000TS, TH
AX6000MU Series,
AX7000XS Series

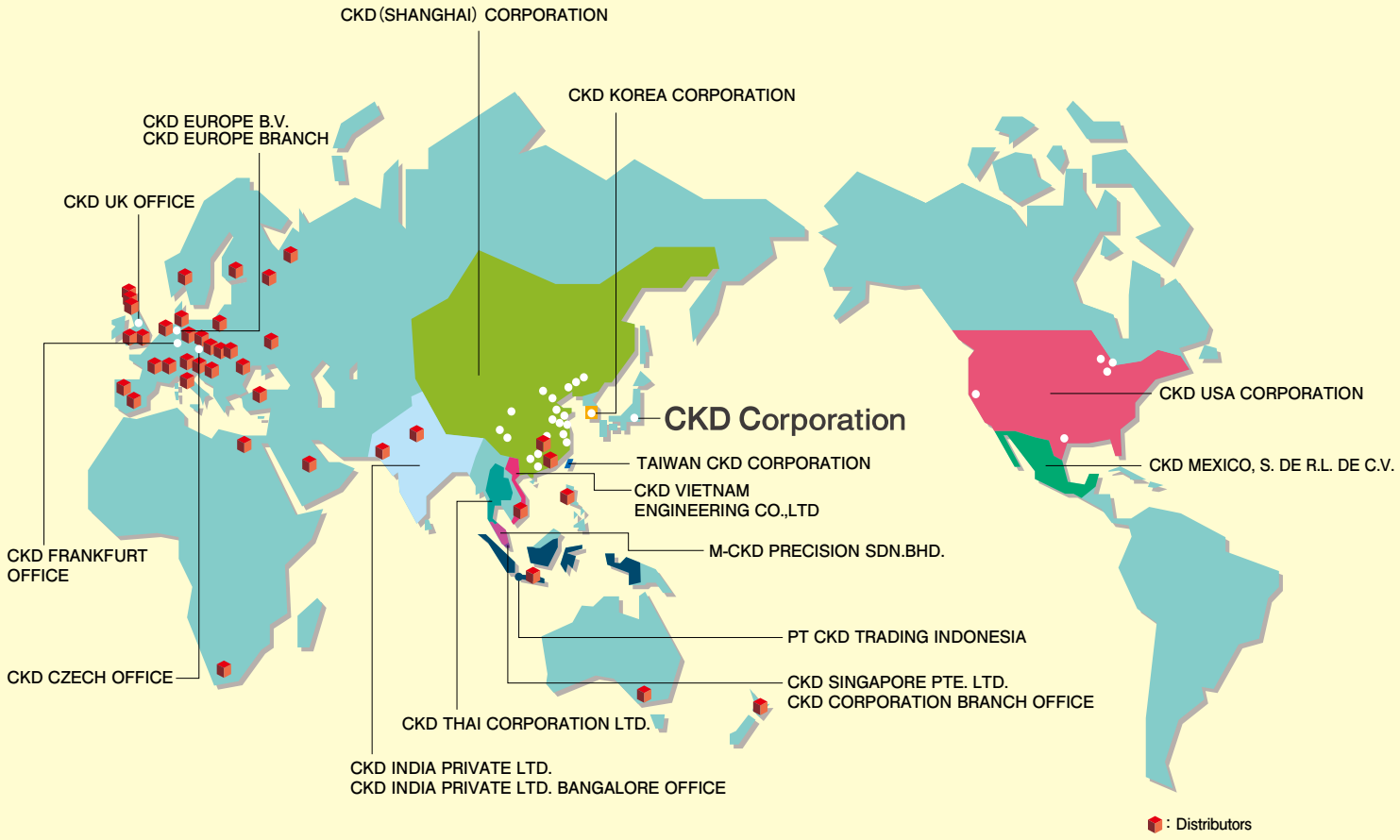
● The Direct Drive Actuator designed for ease of use
From palm-size to high-torque.
Construction of devices for transport, positioning, etc., is simple

■ τ DISC Series

● The Direct Drive Servo Motor boasting high performance
A varied lineup handling numerous demands for high precision, high speed, speed stability, etc.
The next level of performance.

NIKKI DENSO

WORLD-NETWORK



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