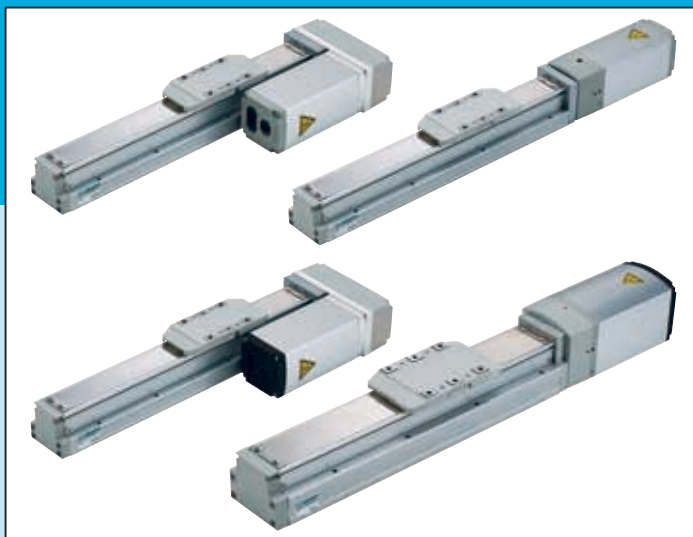


EBS-M/G

Electric actuator
Motor specifications

Slider



CONTENTS

Product introduction	Intro Page
Series variation	2
● Specifications/How to order/Dimensions	
· EBS-04*	6
· EBS-05*	16
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● Model selection	36
● Technical data	38
⚠ Safety precautions	116
Model selection check sheet	124

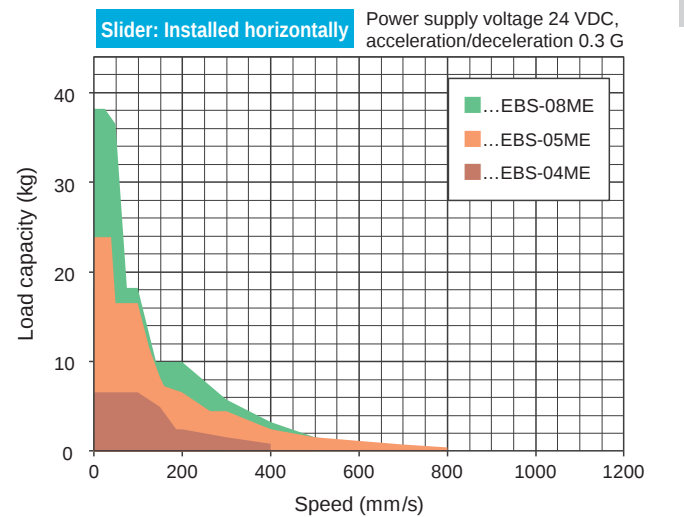
EBS
(With motor)

EBR
(With motor)

ECR
(Controller)

ECG-A
(Controller)

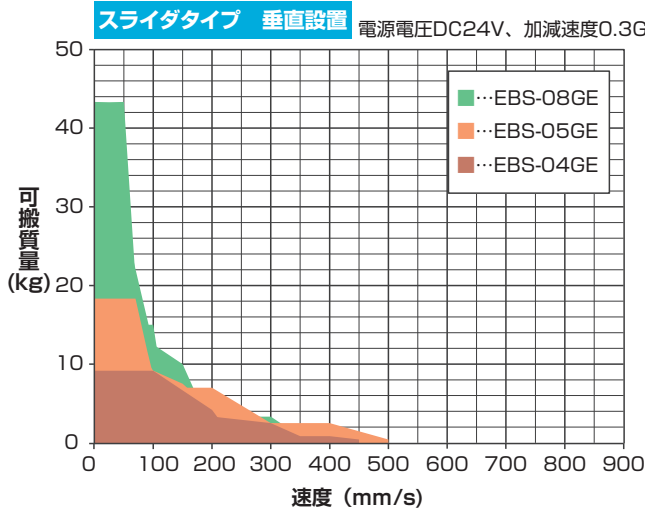
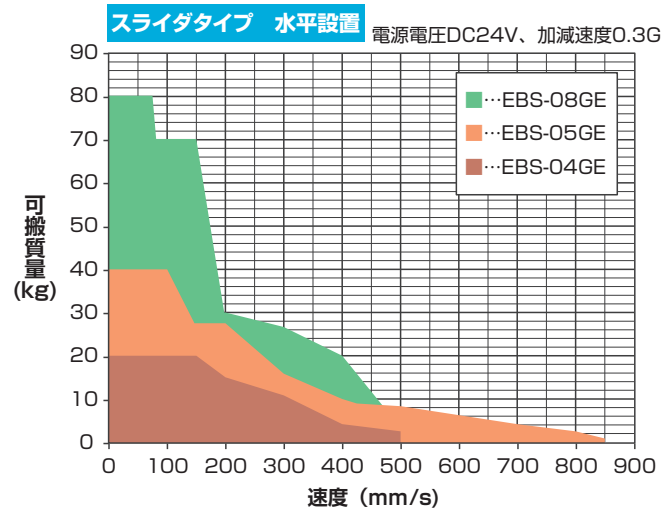
Safety
precautions



Series variation

Controller	Actuator model No.		Motor size	Motor mounting direction	Body width (mm)	Screw lead (mm)	Max. load capacity (kg)		Max. pressing force (N)		Stroke (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	1150	1200					
  ECG Series		EBS-04GE-06	□35	Straight	44	6	20.0	9.2	155		320 mm/s																										6		
		EBS-04GE-12				12	15.0	3.3	77		500																												
		EBS-04GR/D/L-06		Left/Right/Bottom		6	20.0	9.2	155		250																										10		
		EBS-04GR/D/L-12				12	11.7	3.3	77		400																												
		EBS-05GE-02	□42	Straight	54	2	45.0	18.3	550		120											105	95	80	70												16		
		EBS-05GE-05				5	40.0	14.0	220		290											270	235	200	185														
		EBS-05GE-10				10	27.5	7.0	110		500												475	415	370														
		EBS-05GE-20				20	18.3	2.5	55		850													830	740														
		EBS-05GR/D/L-02		Left/Right/Bottom		2	45.0	18.3	550		100												95	80	70											20			
		EBS-05GR/D/L-05				5	40.0	10.0	220		250												235	200	185														
		EBS-05GR/D/L-10				10	27.5	3.3	110		400														370														
		EBS-05GR/D/L-20				20	18.3	0.8	55		700																												
		EBS-08GE-05	□56	Straight	82	5	80.0	43.3	965		150														135	120	110	100								26			
		EBS-08GE-10				10	70.0	28.3	482		250														240	225	200												
		EBS-08GE-20				20	30.0	3.3	241		500														490	450	410												
		EBS-08GR/D/L-05		Left/Right/Bottom		5	80.0	33.3	965		125														120	110	100												
		EBS-08GR/D/L-10				10	70.0	18.3	482		250														240	225	200						30						
		EBS-08GR/D/L-20				20	30.0	3.3	241		400																												

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





Electric actuator Slider EBS-04*E

Straight motor mounting

☐ 35 stepper motor



How to order

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

A	B	C	D	E	F	G	H
A Body size	B Applicable controller *1	C Motor mounting direction	D Screw lead	E Stroke length	F Brake *2	G Encoder *1	H Relay cable *3
04 Body width 44 mm	M ECR G ECG	E Straight mounting	06 6 mm 12 12 mm	0050 to 0500 50 mm (In 50 mm increments) 500 mm	N None B Yes	A Battery-less absolute encoder (for ECR) B Battery-less absolute encoder (for ECG) C Incremental encoder (for ECG)	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 the controller from page 93 or page 105.

Select encoder "A" when an ECR controller is selected and "B" or "C" when an ECG controller is selected.

*2 Select "Yes" for vertical use.

*3 Refer to page 103 for ECR and page 116 for ECG relay cable dimensions.

Product subject to the EAR (EAR99)

Specifications

[EBS-04M (applicable controller ECR)]

Motor	☐ 35 stepper motor	
Encoder type	Battery-less absolute encoder	
Drive method	Ball screw ø10	
Stroke length mm	50 to 500	
Thread lead mm	6	12
Max. load capacity kg *1*2	Horizontal 16.6 (16.6) Vertical 8.3 (6.6)	13.3 (11.6) 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
Press 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%	
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC ±10%
	Power consumption W	7
	Holding force N	126 63

*1 The values in () are at 24 VDC.

*2 Load capacity varies according to acceleration/deceleration and speed.

Refer to page 42 for details.

*3 The maximum speed values in () are at 24 VDC.

*4 The maximum speed may decrease depending on the conditions.

[EBS-04G (applicable controller ECG)]

Motor	☐ 35 stepper motor	
Encoder type	Battery-less absolute encoder Incremental encoder	
Drive method	Ball screw ø10	
Stroke length mm	50 to 500	
Thread lead mm	6	12
Max. load capacity kg *1	Horizontal 20.0 Vertical 9.2	15.0 3.3
Operation speed range*2 mm/s	7 to 320	15 to 500
Maximum pressing force N	155	77
Press operation speed range mm/s	5 to 20	5 to 20
Repeatability mm	±0.01	
Lost motion mm	0.1 or less	
Static allowable moment N·m	MP:62 MY:62 MR:92	
Motor power supply voltage	24 VDC ±10%	
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC ±10%
	Power consumption W	6.1
	Holding force N	140 70

*1 Load capacity varies according to acceleration/deceleration and speed.

Refer to page 44 for details.

*2 The maximum speed may decrease depending on the conditions.

[Common specifications]

Insulation resistance	10MΩ, 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

* The operating ambient temperature of EBS-**G is 10°C to 40°C.

Stroke and max. speed

[EBS-04M (applicable controller ECR)]

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

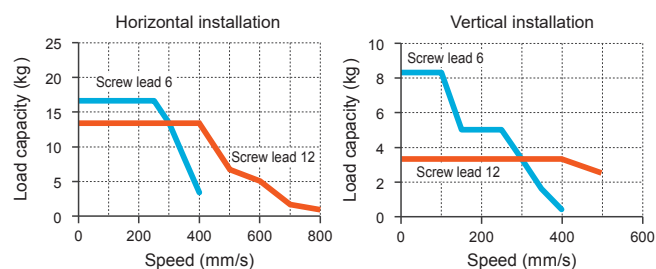
[EBS-04G (applicable controller ECG)]

Thread lead	Power supply voltage	Stroke length
		50 to 500
6	24 VDC	320
12	24 VDC	500

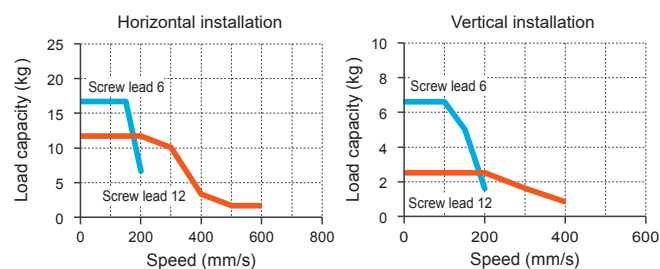
Speed and load capacity

[EBS-04M (applicable controller ECR)]

· At 48 VDC

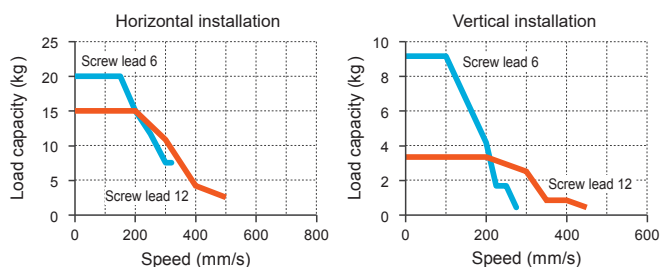


· At 24 VDC



[EBS-04G (applicable controller ECG)]

· At 24 VDC



* At acceleration of 0.3 G.

* Confirm each of the pages listed below for details.

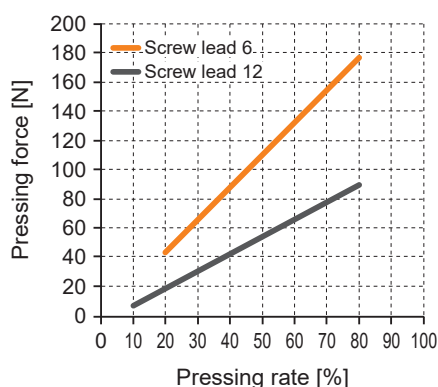
ECR: Page 42

ECG: Page 44

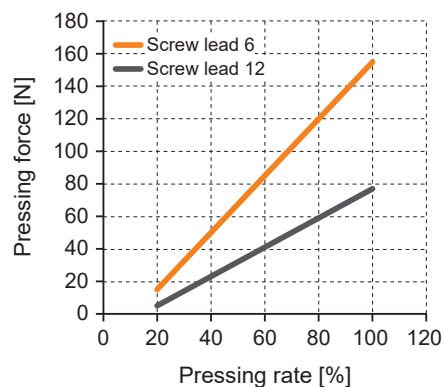
* Incorrectly applying a 48 VDC power supply could result in damage.

Pressing force

[EBS-04M (applicable controller ECR)]



[EBS-04G (applicable controller ECG)]



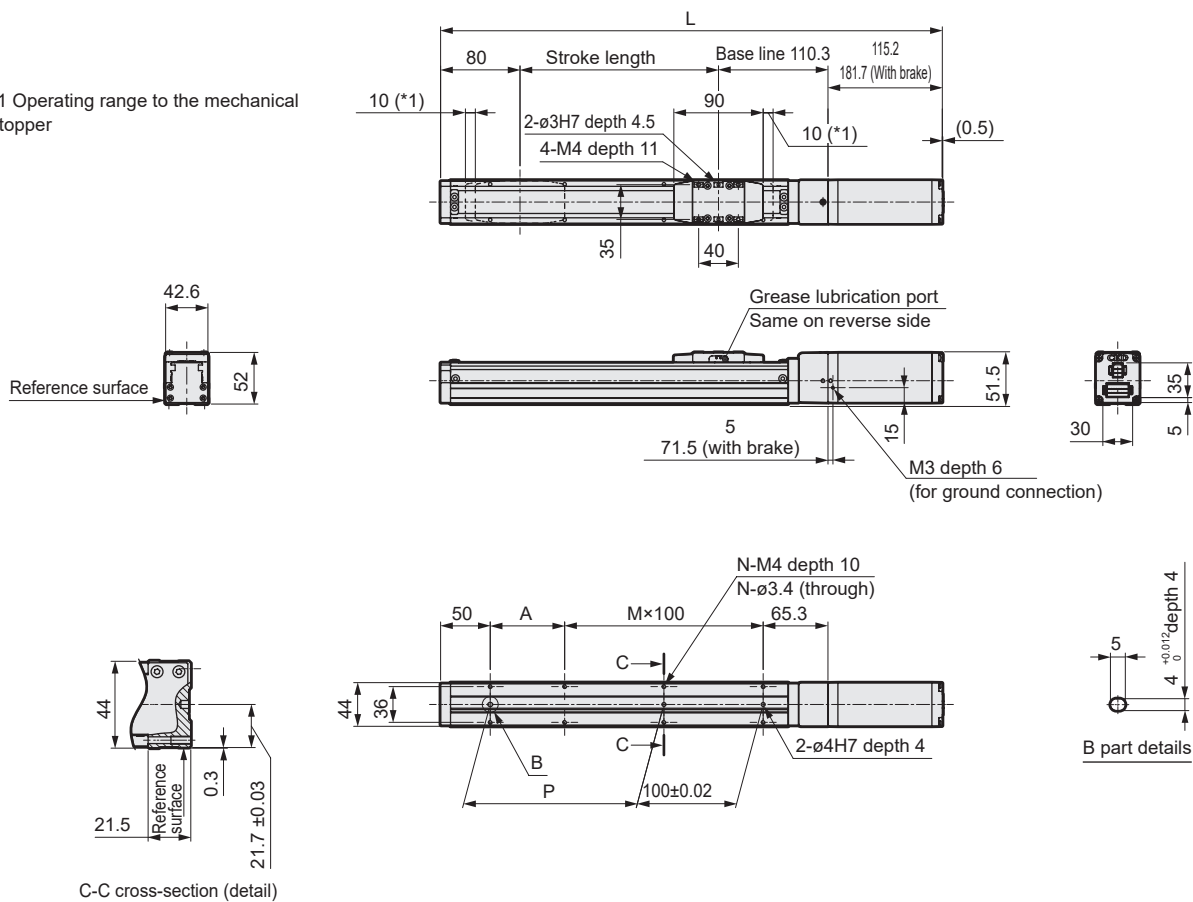
* The above pressing force is a reference value. Variation may occur according to conditions such as pressing speed.

EBS-04*E

Dimensions: Straight motor mounting

● EBS-04*E

*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	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

Notes

EBS (With motor)	EBR (With motor)	ECR (Controller)	ECG-A (Controller)	Safety precautions
---------------------	---------------------	---------------------	-----------------------	-----------------------



Electric actuator Slider EBS-04**

Motor side mounting (left, right, bottom)

☐ 35 stepper motor



How to order

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

A Body size
04 Body width 44 mm

B Applicable controller *1
M ECR
G ECG

C Motor mounting direction *2
R Right mounting
D Bottom mounting
L Left mounting

E Stroke length *2
0050 to 0500 50 mm (In 50 mm increments) 500 mm

F Brake *3
N None
B Yes

D Screw lead
06 6 mm
12 12 mm

G Encoder *1
A Battery-less absolute encoder (for ECR)
B Battery-less absolute encoder (for ECG)
C Incremental encoder (for ECG)

H Relay cable *4
N00 None
S01 Fixing cable 1 m
S03 Fixing cable 3 m
S05 Fixing cable 5 m
S10 Fixing cable 10 m
R01 Movable cable 1 m
R03 Movable cable 3 m
R05 Movable cable 5 m
R10 Movable cable 10 m

*1 Select the controller from page 93 or page 105.

Select encoder "A" when an ECR controller is selected and "B" or "C" when an ECG controller is selected.

*2 If "D" is selected for the motor mounting direction, select a stroke length from "0250 (250 mm)" to "0500 (500 mm)".

*3 Select "Yes" for vertical use.

*4 Refer to page 103 for ECR and page 116 for ECG relay cable dimensions.

Product subject to the EAR (EAR99)

Specifications

[EBS-04M (applicable controller ECR)]

Motor	☐ 35 stepper motor	
Encoder type	Battery-less absolute encoder	
Drive method	Ball screw ø10	
Stroke length mm	50 to 500	
Thread lead mm	6	12
Max. load capacity kg *1*2	Horizontal 16.6 (16.6)	Vertical 13.3 (11.6)
	Horizontal 8.3 (6.6)	Vertical 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
Press 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%	
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC ±10%
	Power consumption W	7
	Holding force N	126 63

*1 The values in () are at 24 VDC.

*2 Load capacity varies according to acceleration/deceleration and speed.

Refer to page 42 for details.

*3 The maximum speed values in () are at 24 VDC.

*4 The maximum speed may decrease depending on the conditions.

[EBS-04G (applicable controller ECG)]

Motor	☐ 35 stepper motor	
Encoder type	Battery-less absolute encoder Incremental encoder	
Drive method	Ball screw ø10	
Stroke length mm	50 to 500	
Thread lead mm	6	12
Max. load capacity kg *1	Horizontal 20.0	Vertical 11.7
	Horizontal 9.2	Vertical 3.3
Operation speed range*2 mm/s	7 to 250	15 to 400
Maximum pressing force N	155	77
Press operation speed range mm/s	5 to 20	5 to 20
Repeatability mm	±0.01	
Lost motion mm	0.1 or less	
Static allowable moment N·m	MP: 62, MY: 62, MR: 92	
Motor power supply voltage	24 VDC ±10%	
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC ±10%
	Power consumption W	6.1
	Holding force N	140 70

*1 Load capacity varies according to acceleration/deceleration and speed.

Refer to page 44 for details.

*2 The maximum speed may decrease depending on the conditions.

[Common specifications]

Insulation resistance	10MΩ, 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

* The operating ambient temperature of EBS-**G is 10°C to 40°C.

Stroke and max. speed

[EBS-04M (applicable controller ECR)]

Thread lead	Power supply voltage	Stroke length
		(mm/s) 50 to 500
6	48 VDC	400
	24 VDC	200
12	48 VDC	700
	24 VDC	500

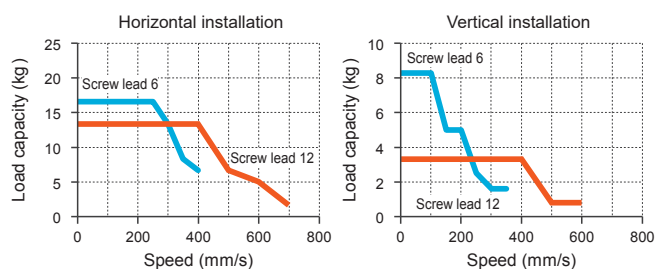
[EBS-04G (applicable controller ECG)]

Thread lead	Power supply voltage	Stroke length
		(mm/s) 50 to 500
6	24 VDC	250
12	24 VDC	400

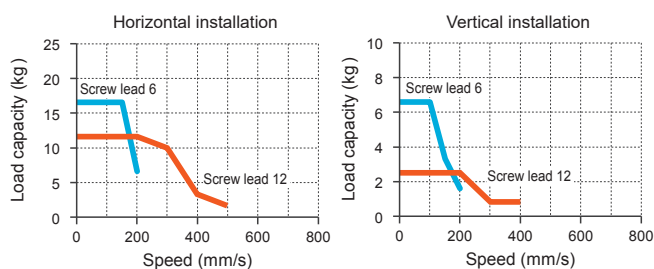
Speed and load capacity

[EBS-04M (applicable controller ECR)]

· At 48 VDC

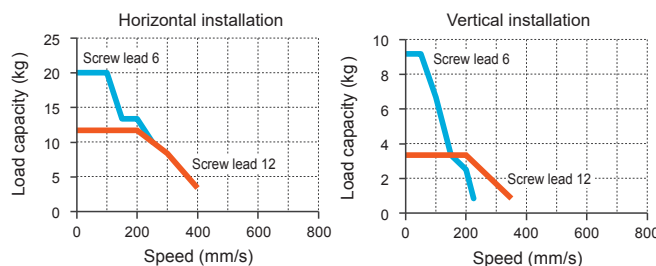


· At 24 VDC



[EBS-04G (applicable controller ECG)]

· At 24 VDC



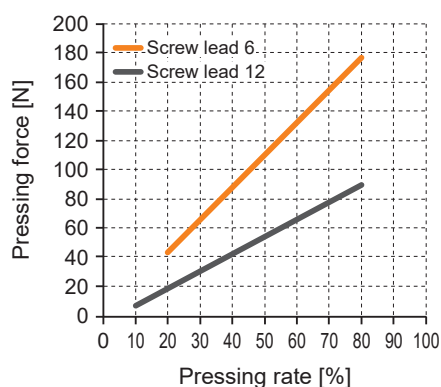
* At acceleration of 0.3 G.

* Confirm each of the pages listed below for details.
ECR: Page 42
ECG: Page 44

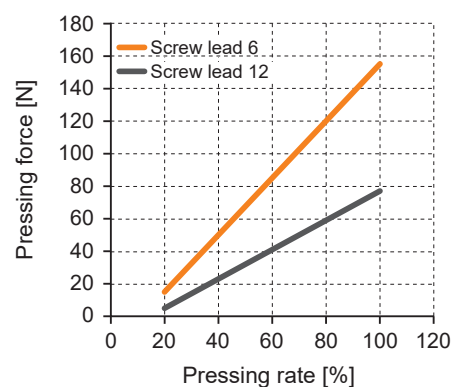
* Incorrectly applying a 48 VDC power supply could result in damage.

Pressing force

[EBS-04M (applicable controller ECR)]



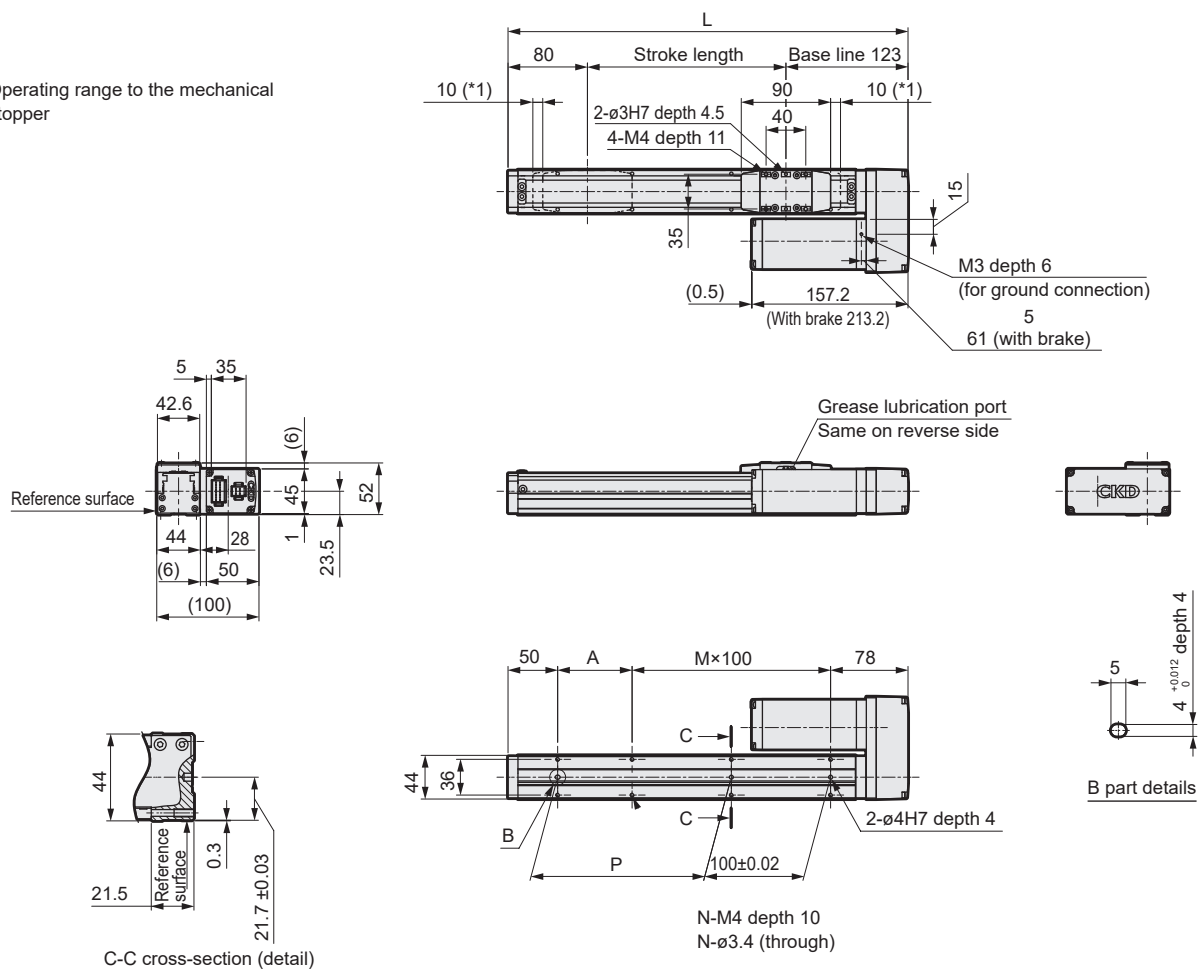
[EBS-04G (applicable controller ECG)]



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

● EBS-04*R

*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
	With brake	2.2	2.4	2.5	2.7	2.9	3.1	3.2	3.4	3.6

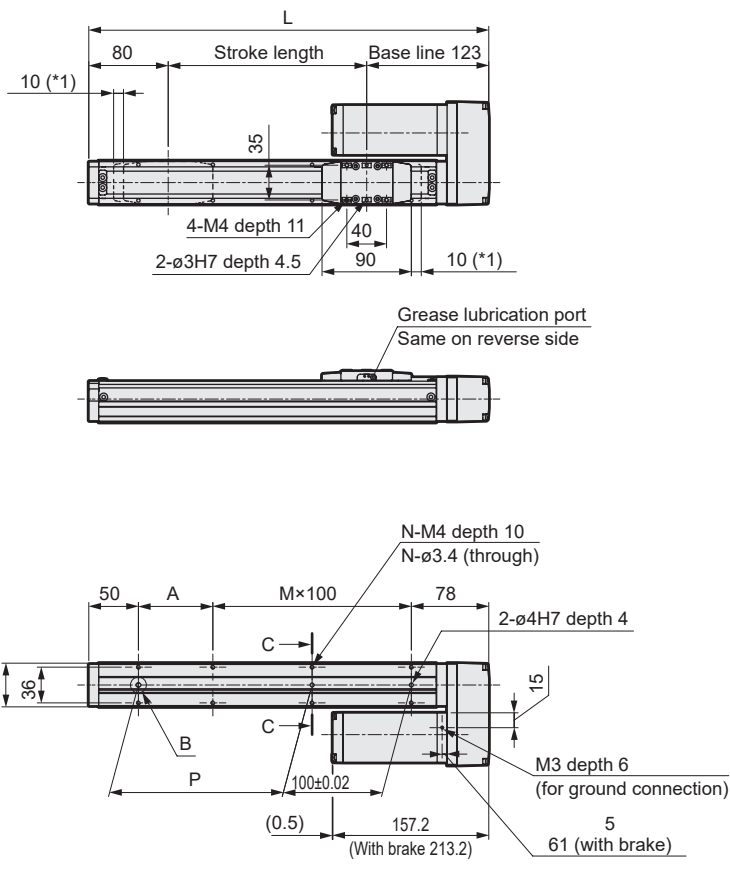
● EBS-04*D

13

Dimensions: Motor left-side mounting

● EBS-04*L

*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
	With brake	2.2	2.4	2.5	2.7	2.9	3.1	3.2	3.4	3.6

Notes

EBS (With motor)



Electric actuator Slider EBS-05*E

Straight motor mounting

☐ 42 Stepper motor



How to order

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

A Body size
05 Body width 54mm

B Applicable controller *1
M ECR
G ECG

C Motor mounting direction
E Straight mounting

D Screw lead
02 2 mm
05 5 mm
10 10 mm
20 20 mm

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

F Brake *2
N None
B Yes

G Encoder *1
A Battery-less absolute encoder (for ECR)
B Battery-less absolute encoder (for ECG)
C Incremental encoder (For ECG)

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

*1 Select the controller from pages 93 and 105.

Select encoder "A" when an ECR controller is selected and "B" or "C" when an ECG controller is selected.

*2 Select "Yes" for vertical use.

*3 For Dimensions of the relay cable, refer to page 103 for ECR and page 116 for ECG.

EAR-compliant product (EAR99-embedded product)

Specifications

[EBS-05M (applicable controller ECR)]

Motor	☐ 42 Stepper motor			
Encoder type	Battery-less absolute encoder			
Drive method	Ball screw ø12			
Stroke length mm	50 to 800			
Thread lead mm	2	5	10	20
Max. load capacity kg *1 *2	Horizontal 45 (45) Vertical 24 (24)	40 (40) 16.6 (16.6)	35 (35) 8.3 (8.3)	16.6 (16.6) 4.5 (4.5)
Operation speed range *3 *4 mm/s	2 to 130	6 to 300 (250)	12 to 700 (600)	25 to 1100 (900)
Maximum pressing force N	385	250	121	44
Press 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%			
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC ±10%		
	Power consumption W	7		
	Holding force N	471	188	94 47

*1 The values in () are at 24 VDC.

*2 Load capacity varies according to acceleration/deceleration and speed. Refer to page 42 for details.

*3 The maximum speed values in () are at 24 VDC.

*4 The maximum speed may decrease depending on the conditions.

[EBS-05G (applicable controller ECG)]

Motor	☐ 42 Stepper motor			
Encoder type	Battery-less absolute encoder/incremental encoder			
Drive method	Ball screw ø12			
Stroke length mm	50 to 800			
Thread lead mm	2	5	10	20
Max. load capacity kg *1	Horizontal 45.0 Vertical 18.3	40.0 14.0	27.5 7.0	18.3 2.5
Operation speed range*2 mm/s	2 to 120	6 to 290	12 to 500	25 to 850
Maximum pressing force N	550	220	110	55
Press operation speed range mm/s	5 to 20	5 to 20	5 to 20	5 to 20
Repeatability mm	±0.01			
Lost motion mm	0.1 or less			
Static allowable moment N·m	MP:103 MY:103 MR:144			
Motor power supply voltage	24 VDC ±10%			
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC ±10%		
	Power consumption W	6.1		
	Holding force N	420	168	84 42

*1 Load capacity varies according to acceleration/deceleration and speed. Refer to page 44 for details.

*2 The maximum speed may decrease depending on the conditions.

[Common specifications]

Insulation resistance	10MΩ, 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

* The operating ambient temperature of EBS-**G is 10°C to 40°C.

Stroke and max. speed

[EBS-05M (applicable controller ECR)]

Thread lead	Power supply voltage	Stroke length (mm/s)						
		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

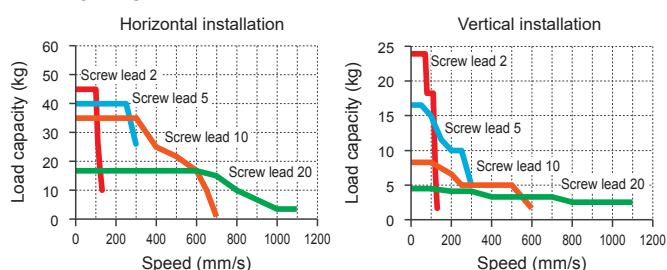
[EBS-05G (applicable controller ECG)]

Thread lead	Power supply voltage	Stroke length (mm/s)				
		50 to 600	650	700	750	800
2	24 VDC	120	105	95	80	70
5	24 VDC	290	270	235	200	185
10	24 VDC	500	500	475	415	370
20	24 VDC	850	850	850	850	740

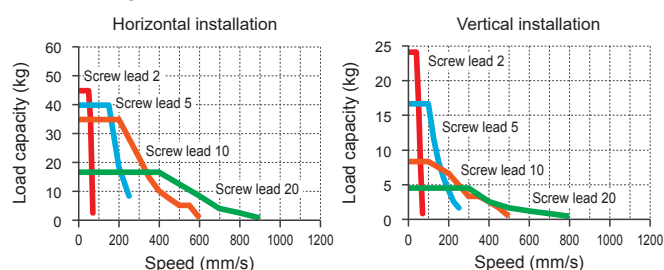
Speed and load capacity

[EBS-05M (applicable controller ECR)]

· At 48 VDC

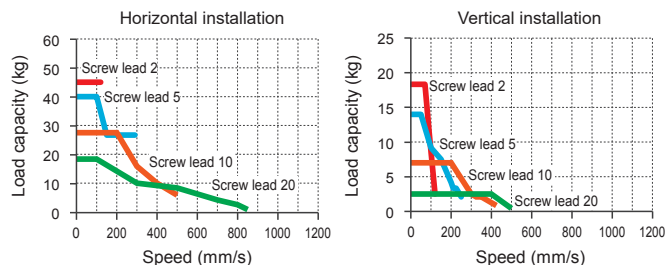


· At 24 VDC



[EBS-05G (applicable controller ECG)]

· At 24 VDC



* At acceleration of 0.3 G.

* Confirm each of the pages listed below for details.

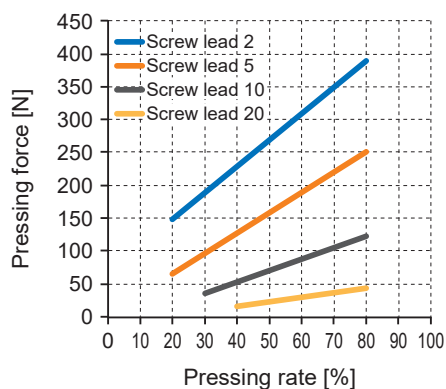
ECR: Page 42

ECG: Page 44

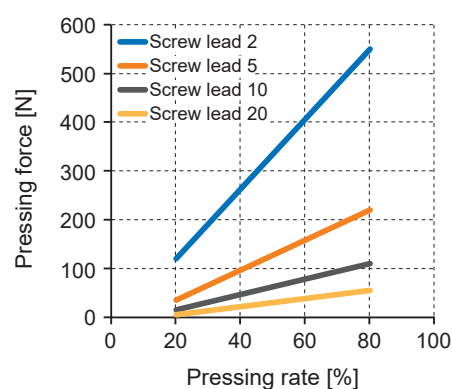
* Incorrectly applying a 48 VDC power supply could result in damage.

Pressing force

[EBS-05M (applicable controller ECR)]



[EBS-05G (applicable controller ECG)]



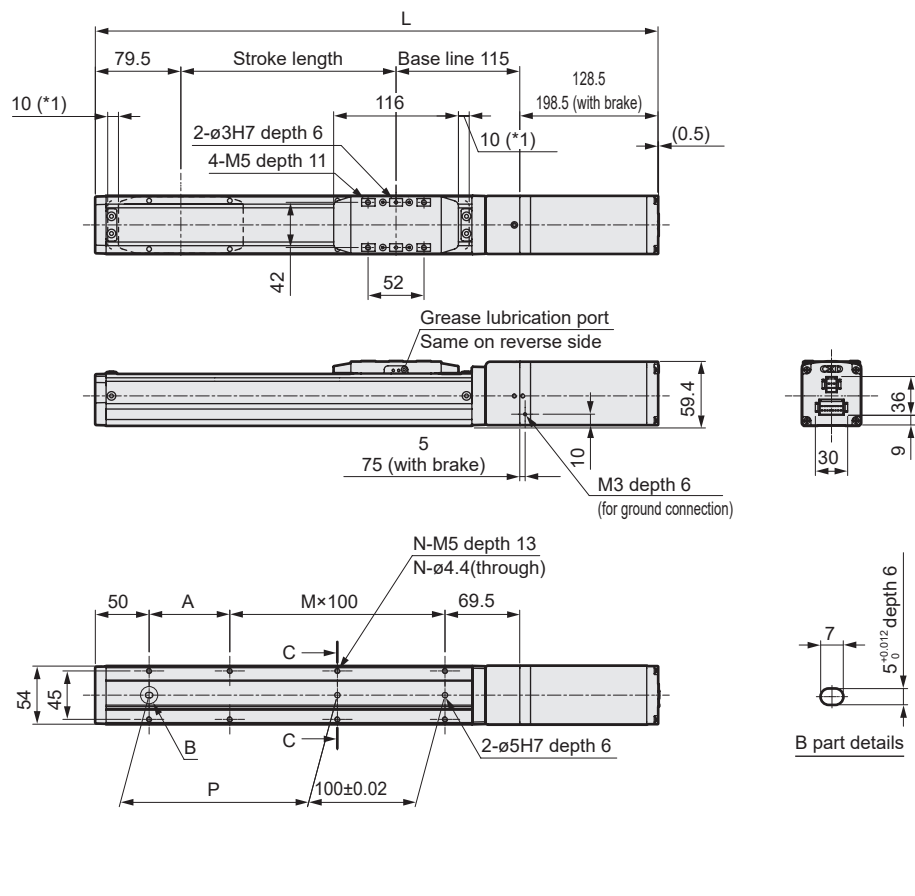
* The above pressing force is a reference value. Variation may occur according to conditions such as pressing speed.

EBS-05* E

Dimensions: Straight motor mounting

● EBS-05*E

*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-05**

Motor side mounting (left, right, bottom)

☐ 42 Stepper motor



How to order

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

A Body size
05 Body width 54 mm

B Applicable controller *1
M ECR
G ECG

C Motor mounting direction *2
R Right mounting
D Bottom mounting
L Left mounting

E Stroke length *2
0050 to 0800 50 mm (In 50 mm increments) 800 mm

F Brake *3
N None
B Yes

D Screw lead
02 2 mm
05 5 mm
10 10 mm
20 20 mm

G Encoder *1
A Battery-less absolute encoder (for ECR)
B Battery-less absolute encoder (for ECG)
C Incremental encoder (for ECG)

H Relay cable *4
N00 None
S01 Fixing cable 1 m
S03 Fixing cable 3 m
S05 Fixing cable 5 m
S10 Fixing cable 10 m
R01 Movable cable 1 m
R03 Movable cable 3 m
R05 Movable cable 5 m
R10 Movable cable 10 m

*1 Select the controller from page 93 or page 105.

Select encoder "A" when an ECR controller is selected and "B" or "C" when an ECG controller is selected.

*2 If "D" is selected for the motor mounting direction, select a stroke length from "0250 (250 mm)" to "0800 (800 mm)".

*3 Select "Yes" for vertical use.

*4 Refer to page 103 for ECR and page 116 for ECG relay cable dimensions.

Product subject to the EAR (EAR99)

Specifications

[EBS-05M (applicable controller ECR)]

Motor	☐ 42 Stepper motor			
Encoder type	Battery-less absolute encoder			
Drive method	Ball screw ø12			
Stroke length mm	50 to 800			
Thread lead mm	2	5	10	20
Max. load capacity kg	Horizontal 45 (45)	40 (40)	35 (35)	16.6 (16.6)
*1 *2	Vertical 24 (24)	16.6 (16.6)	8.3 (8.3)	4.5 (4.5)
Operation speed range	2 to 130	6 to 300	12 to 600	25 to 1100
*3 *4	mm/s (70)	(250)	(500)	(900)
Maximum pressing force N	385	250	121	44
Press 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%			
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC ±10%		
	Power consumption W	7		
	Holding force N	471	188	94
				47

*1 The values in () are at 24 VDC.

*2 Load capacity varies according to acceleration/deceleration and speed. Refer to page 42 for details.

*3 The maximum speed values in () are at 24 VDC.

*4 The maximum speed may decrease depending on the conditions.

[EBS-05G (applicable controller ECG)]

Motor	☐ 42 Stepper motor			
Encoder type	Battery-less absolute encoder/ incremental encoder			
Drive method	Ball screw ø12			
Stroke length mm	50 to 800			
Thread lead mm	2	5	10	20
Max. load capacity kg	Horizontal 45.0	40.0	27.5	18.3
*1	Vertical 18.3	10.0	3.3	0.8
Operation speed range*2 mm/s	2 to 100	6 to 250	12 to 400	25 to 700
Maximum pressing force N	550	220	110	55
Press operation speed range mm/s	5 to 20	5 to 20	5 to 20	5 to 20
Repeatability mm	±0.01			
Lost motion mm	0.1 or less			
Static allowable moment N·m	MP: 103, MY: 103, MR: 144			
Motor power supply voltage	24 VDC ±10%			
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC ±10%		
	Power consumption W	6.1		
	Holding force N	420	168	84
				42

*1 Load capacity varies according to acceleration/deceleration and speed. Refer to page 44 for details.

*2 The maximum speed may decrease depending on the conditions.

Isolation specifications	10MΩ, 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

*The operating ambient temperature of EBS-05G is 10°C to 40°C.

Stroke and max. speed

[EBS-05M (applicable controller ECR)]

Thread lead	Power supply voltage	Stroke length (mm/s)						
		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

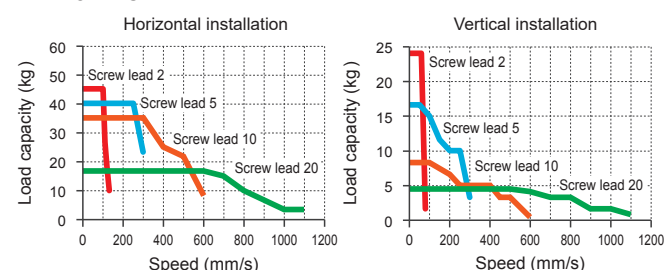
[EBS-05G (applicable controller ECG)]

Thread lead	Power supply voltage	Stroke length (mm/s)			
		50 to 650	700	750	800
2	24 VDC	100	95	80	70
5	24 VDC	250	235	200	185
10	24 VDC	400	400	400	370
20	24 VDC	700	700	700	700

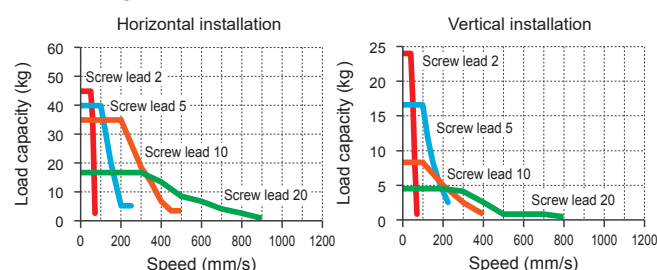
Speed and load capacity

[EBS-05M (applicable controller ECR)]

· At 48 VDC

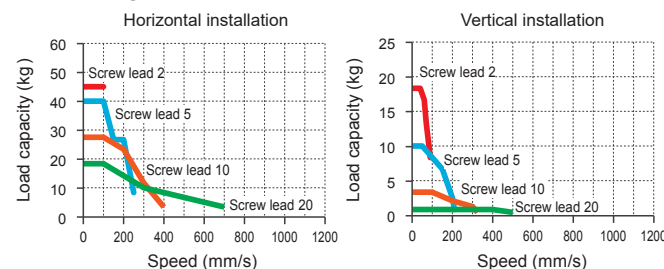


· At 24 VDC



[EBS-05G (applicable controller ECG)]

· At 24 VDC



* At acceleration of 0.3 G.

* Confirm each of the pages listed below for details.

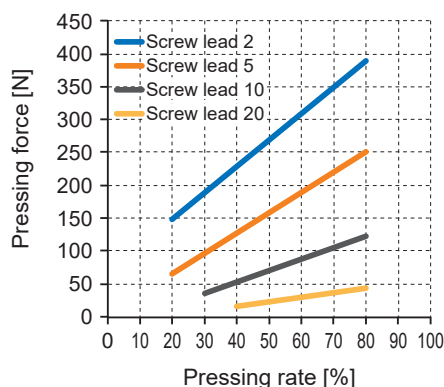
ECR: Page 42

ECG: Page 44

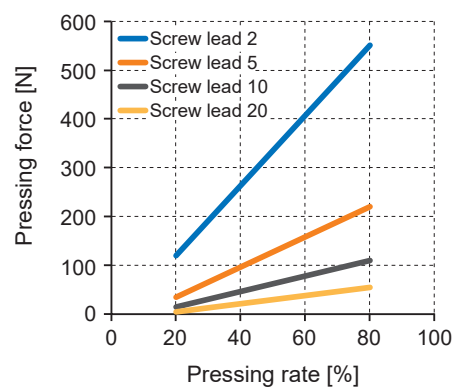
* Incorrectly applying a 48 VDC power supply could result in damage.

Pressing force

[EBS-05M (applicable controller ECR)]



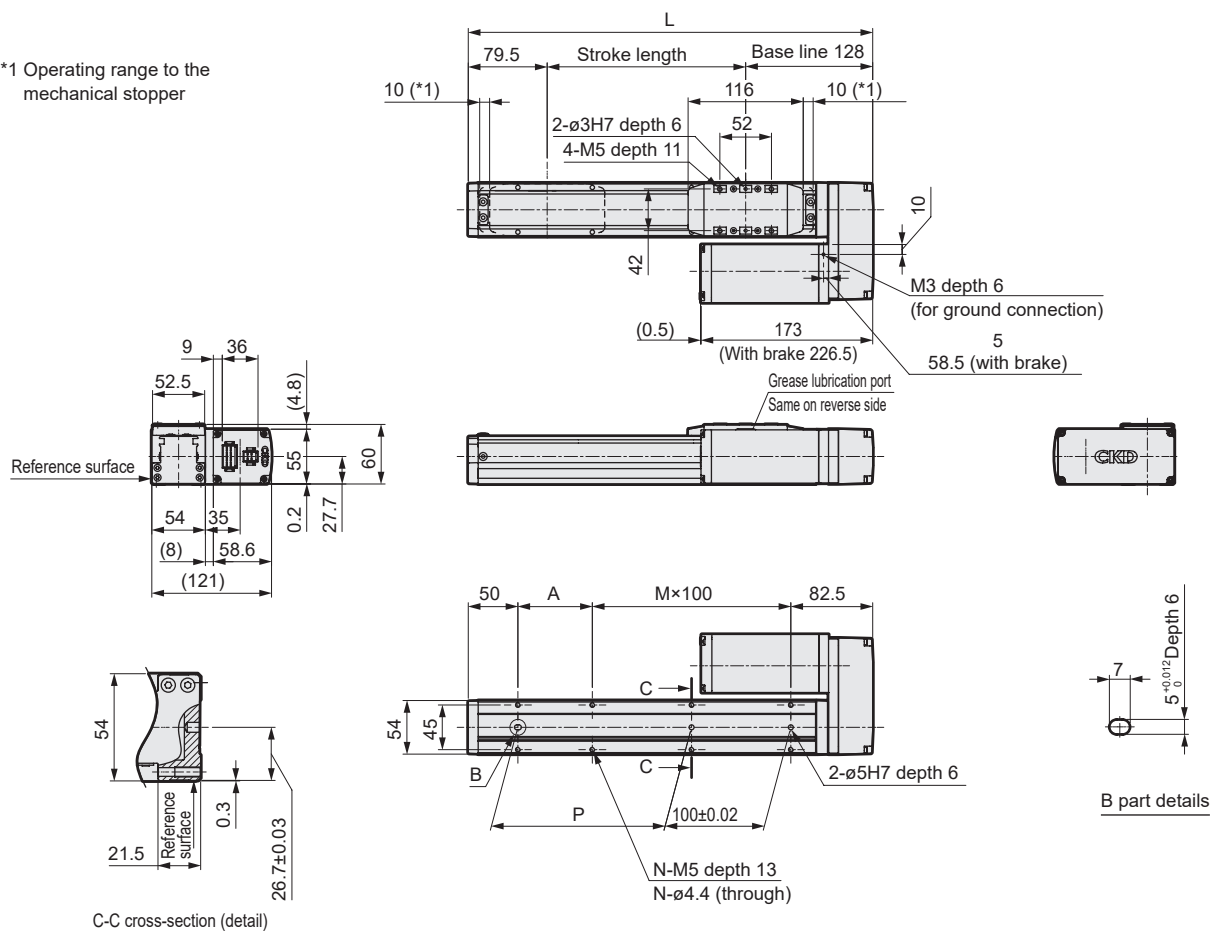
[EBS-05G (applicable controller ECG)]



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

● EBS-05*R

*1 Operating range to the mechanical stopper



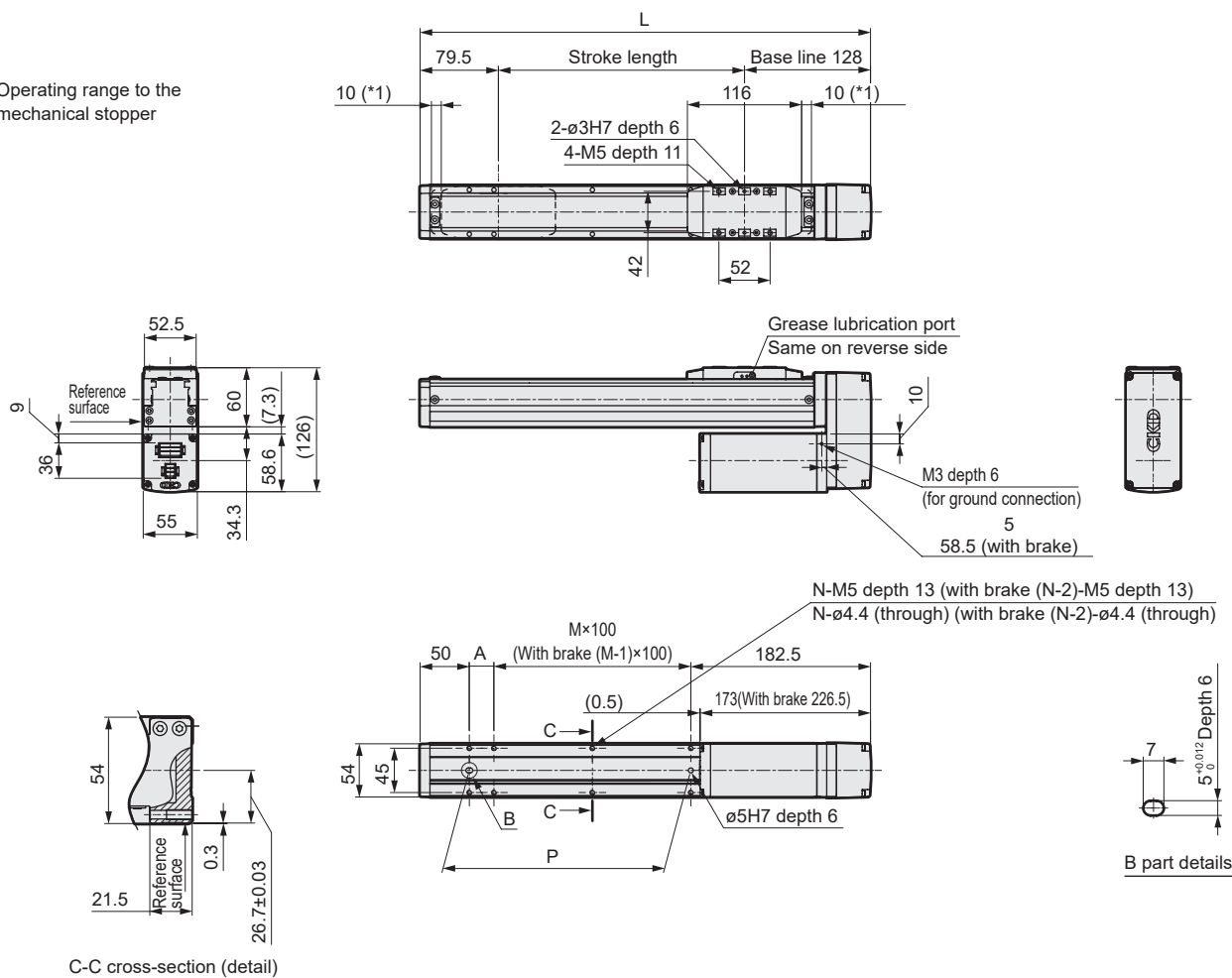
C-C cross-section (detail)

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	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	5.8

Dimensions: Motor bottom mounting

● EBS-05*D

*1 Operating range to the mechanical stopper



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	5.1
	With brake	4.1	4.2	4.3	4.5	4.6	4.7	4.9	5.0	5.2	5.3	5.8

EBS
(With motor)

EBR
(With motor)

ECR
(Controller)

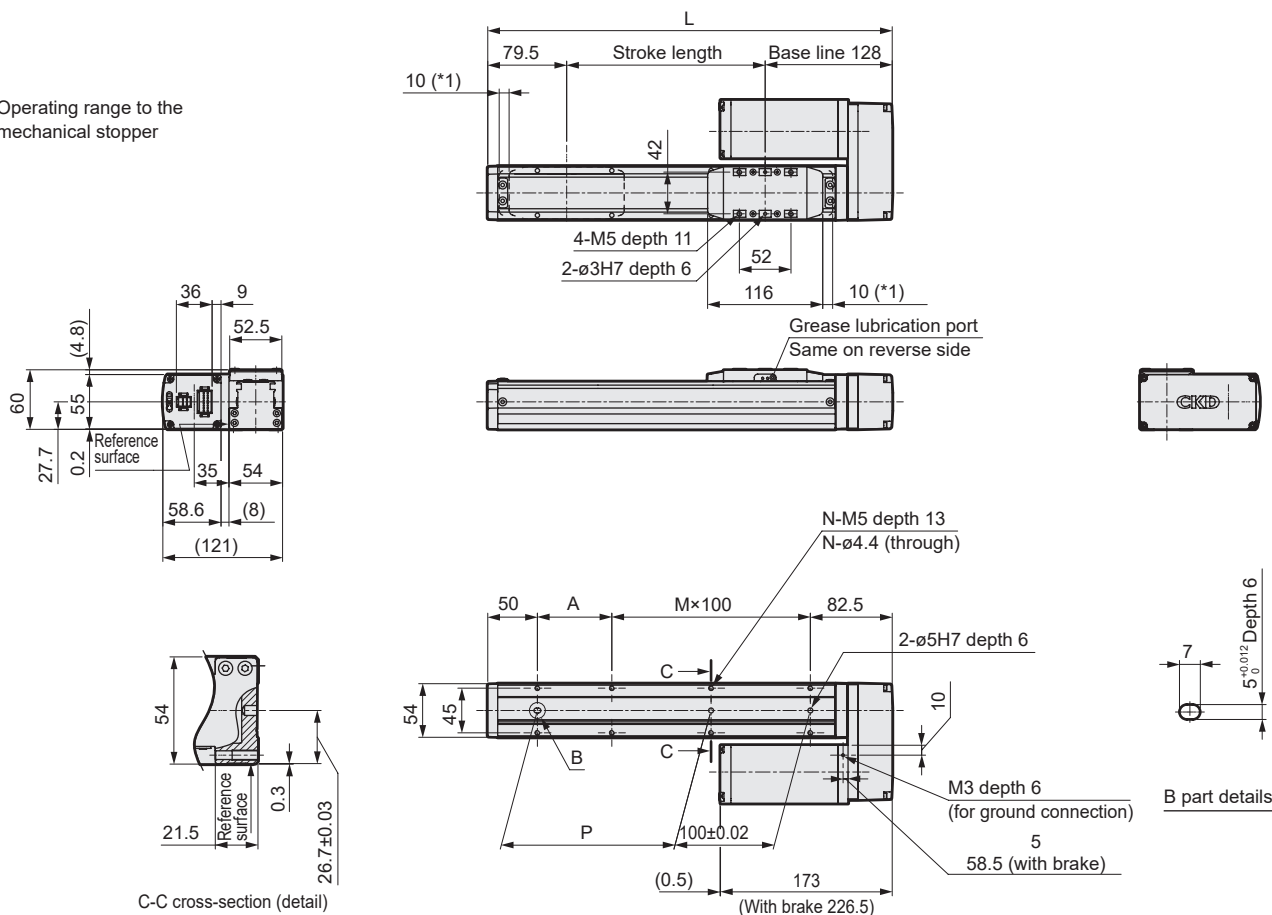
ECG-A
(Controller)

Safety
precautions

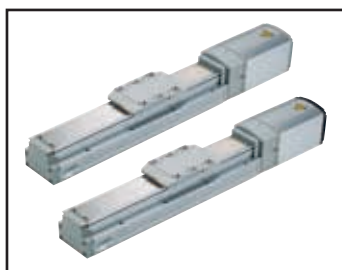
Dimensions: Motor left-side mounting

● EBS-05*L

*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	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	5.8



Electric actuator Slider EBS-08*E

Straight motor mounting

☐ 56 Stepper motor



How to order

EBS - **08** **M** **E** - **05** **0300** **N** **A** **N - C** **S03**

A Body size
08 Body width 82 mm

B Applicable controller *1
M ECR
G ECG

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 *2
N None
B Yes

G Encoder *1
A Battery-less absolute encoder (for ECR)
B Battery-less absolute encoder (for ECG)
C Incremental encoder (for ECG)

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

*1 Select the controller from page 93 or page 105.

Select encoder "A" when an ECR controller is selected and "B" or "C" when an ECG controller is selected.

*2 Select "Yes" for vertical use.

*3 Refer to page 103 for ECR and page 116 for ECG relay cable dimensions.

Product subject to the EAR (EAR99)

Specifications

[EBS-08M (applicable controller ECR)]

Motor	☐ 56 Stepper motor		
Encoder type	Battery-less absolute encoder		
Drive method	Ball screw ø16		
Stroke length mm	50 to 1100		
Thread lead mm	5	10	20
Max. load capacity kg	Horizontal 80 (80)	70 (70)	43.3 (43.3)
*1 *2	Vertical 40 (38.3)	18.3 (18.3)	10 (10)
Operation speed range	6 to 250	12 to 550	25 to 1100
*3 *4	(150)	(300)	(600)
Maximum pressing force N	970	477	250
Press 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%		
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC ±10%	
	Power consumption W	8	
	Holding force N	754	377 188

*1 The values in () are at 24 VDC.

*2 Load capacity varies according to acceleration/deceleration and speed. Refer to page 42 for details.

*3 The maximum speed values in () are at 24 VDC.

*4 The maximum speed may decrease depending on the conditions.

[Common specifications]

Insulation resistance	10MΩ, 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

[EBS-08G (applicable controller ECG)]

Motor	☐ 56 Stepper motor		
Encoder type	Battery-less absolute encoder Incremental encoder		
Drive method	Ball screw ø16		
Stroke length mm	50 to 1100		
Thread lead mm	5	10	20
Max. load capacity kg	Horizontal 80.0	70.0	30.0
*1	Vertical 43.3	28.3	3.3
Operation speed range	6 to 150	12 to 250	25 to 500
*2	mm/s		
Maximum pressing force N	965	482	241
Press operation speed range mm/s	5 to 20	5 to 20	5 to 20
Repeatability mm	±0.01		
Lost motion mm	0.1 or less		
Static allowable moment N·m	MP: 203, MY: 203, MR: 336		
Motor power supply voltage	24 VDC ±10%		
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC ±10%	
	Power consumption W	7.2	
	Holding force N	768	384 192

*1 Load capacity varies according to acceleration/deceleration and speed. Refer to page 44 for details.

*2 The maximum speed may decrease depending on the conditions.

* The operating ambient temperature of EBS-**G is 10°C to 40°C.

Stroke and max. speed

[EBS-08M (applicable controller ECR)]

(mm/s)

Thread lead	Power supply voltage	Stroke length										
		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

[EBS-08G (applicable controller ECG)]

(mm/s)

Thread lead	Power supply voltage	Stroke length				
		50 to 900	950	1000	1050	1100
5	24 VDC	150	135	120	110	100
10	24 VDC	250	250	240	225	200
20	24 VDC	500	500	490	450	410

EBS
(With motor)

EBR
(With motor)

ECR
(Controller)

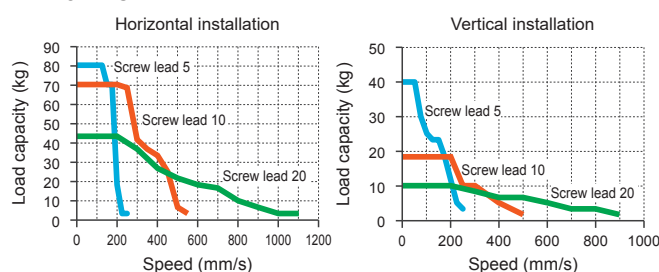
ECG-A
(Controller)

Safety
precautions

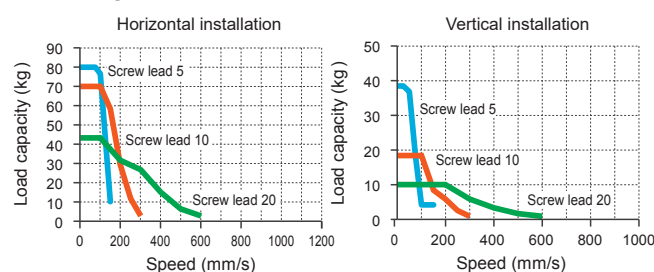
Speed and load capacity

[EBS-08M (applicable controller ECR)]

· At 48 VDC

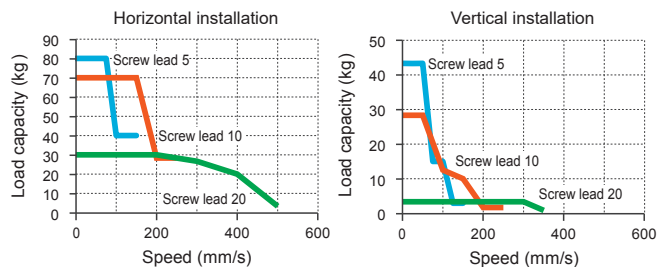


· At 24 VDC



[EBS-08G (applicable controller ECG)]

· At 24 VDC



* At acceleration of 0.3 G.

* Confirm each of the pages listed below for details.

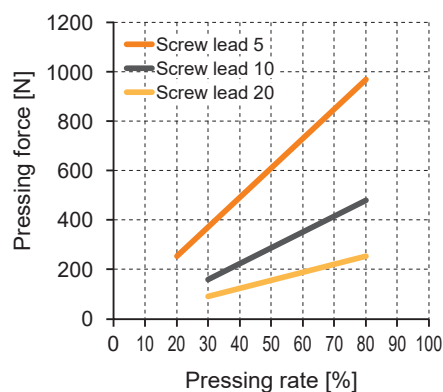
ECR: Page 42

ECG: Page 44

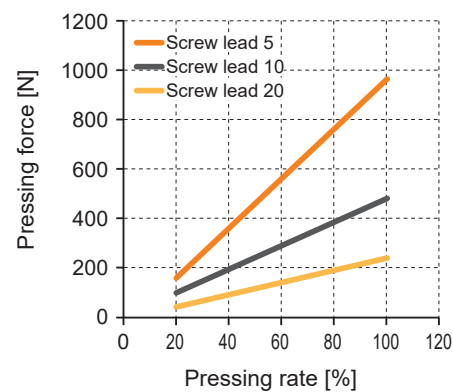
* Incorrectly applying a 48 VDC power supply could result in damage.

Pressing force

[EBS-08M (applicable controller ECR)]



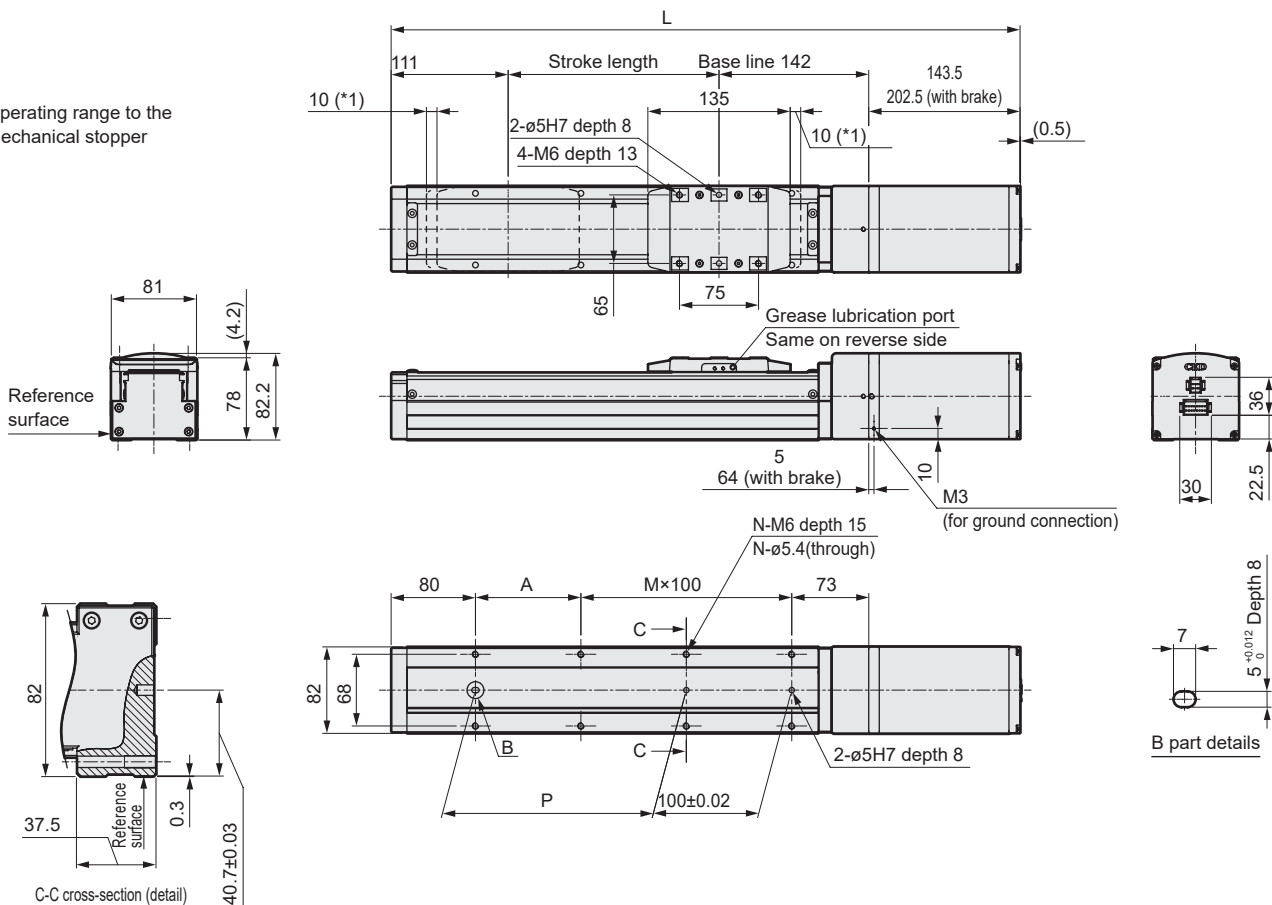
[EBS-08G (applicable controller ECG)]



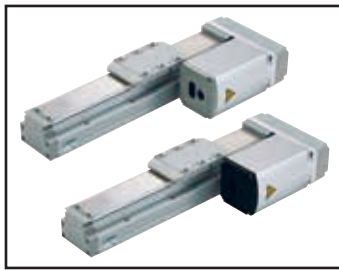
* The above pressing force is a reference value. Variation may occur according to conditions such as pressing speed.

● EBS-08*E

*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	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-08**

Motor side mounting (left, right, bottom)

☐ 56 Stepper motor



How to order

EBS - **08** **M** **R** - **05** **0300** **N** **A** **N - C** **S03**

A Body size
08 Body width 82 mm

B Applicable controller *1
M ECR
G ECG

C Motor mounting direction *2
R Right mounting
D Bottom mounting
L Left mounting

E Stroke length *2
0050 to 1100 50 mm (In 50 mm increments) 1100 mm

F Brake *3
N None
B Yes

D Screw lead
05 5 mm
10 10 mm
20 20 mm

G Encoder *1
A Battery-less absolute encoder (for ECR)
B Battery-less absolute encoder (for ECG)
C Incremental encoder (for ECG)

H Relay cable *4
N00 None
S01 Fixing cable 1 m
S03 Fixing cable 3 m
S05 Fixing cable 5 m
S10 Fixing cable 10 m
R01 Movable cable 1 m
R03 Movable cable 3 m
R05 Movable cable 5 m
R10 Movable cable 10 m

*1 Select the controller from page 93 or page 105.

Select encoder "A" when an ECR controller is selected and "B" or "C" when an ECG controller is selected.

*2 If "D" is selected for the motor mounting direction, select a stroke length from "0250 (250 mm)" to "1100 (1100 mm)".

*3 Select "Yes" for vertical use.

*4 Refer to page 103 for ECR and page 116 for ECG relay cable dimensions.

Product subject to the EAR (EAR99)

Specifications

[EBS-08M (applicable controller ECR)]

Motor	☐ 56 Stepper motor		
Encoder type	Battery-less absolute encoder		
Drive method	Ball screw ø16		
Stroke length mm	50 to 1100		
Thread lead mm	5	10	20
Max. load capacity kg	Horizontal	80 (80)	70 (70)
*1 *2	Vertical	40 (36.6)	18.3 (16.6)
Operation speed range	6 to 225	12 to 550	25 to 1000
*3 *4	mm/s	(100)	(300)
Maximum pressing force N	970	477	250
Press 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%		
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC ±10%	
	Power consumption W	8	
	Holding force N	754	377
		188	

*1 The values in () are at 24 VDC.

*2 Load capacity varies according to acceleration/deceleration and speed. Refer to page 42 for details.

*3 The maximum speed values in () are at 24 VDC.

*4 The maximum speed may decrease depending on the conditions.

[Common specifications]

Insulation resistance	10MΩ, 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

[EBS-08G (applicable controller ECG)]

Motor	☐ 56 Stepper motor		
Encoder type	Battery-less absolute encoder Incremental encoder		
Drive method	Ball screw ø16		
Stroke length mm	50 to 1100		
Thread lead mm	5	10	20
Max. load capacity kg	Horizontal	80.0	70.0
*1	Vertical	33.3	18.3
Operation speed range	6 to 125	12 to 250	25 to 400
*2	mm/s		
Maximum pressing force N	965	482	241
Press operation speed range mm/s	5 to 20	5 to 20	5 to 20
Repeatability mm	±0.01		
Lost motion mm	0.1 or less		
Static allowable moment N·m	MP: 203, MY: 203, MR: 336		
Motor power supply voltage	24 VDC ±10%		
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC ±10%	
	Power consumption W	7.2	
	Holding force N	768	384
		192	

*1 Load capacity varies according to acceleration/deceleration and speed. Refer to page 44 for details.

*2 The maximum speed may decrease depending on the conditions.

* The operating ambient temperature of EBS-08G is 10°C to 40°C.

Stroke and max. speed

[EBS-08M (applicable controller ECR)]

Thread lead	Power supply voltage	Stroke length (mm/s)								
		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

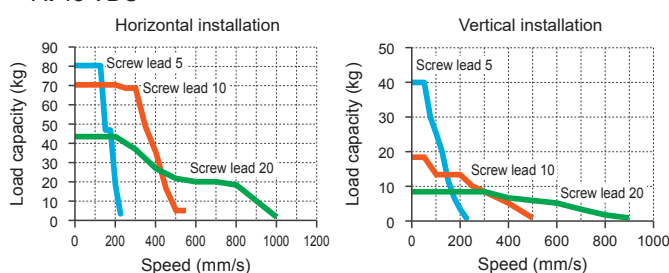
[EBS-08G (applicable controller ECG)]

Thread lead	Power supply voltage	Stroke length (mm/s)			
		50 to 600	1000	1050	1100
5	24 VDC	125	120	110	100
10	24 VDC	250	240	225	200
20	24 VDC	400	400	400	400

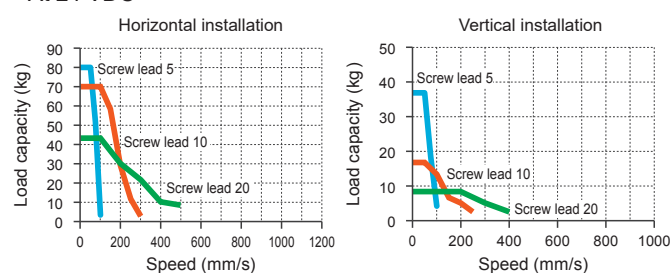
Speed and load capacity

[EBS-08M (applicable controller ECR)]

· At 48 VDC

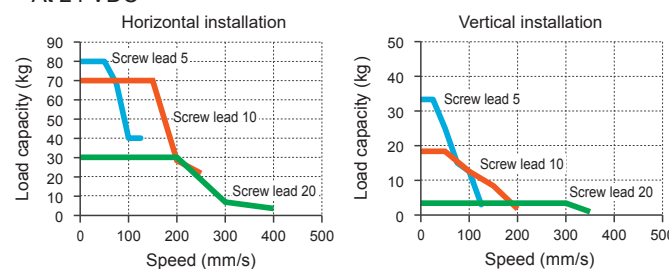


· At 24 VDC



[EBS-08G (applicable controller ECG)]

· At 24 VDC



* At acceleration of 0.3 G.

* Confirm each of the pages listed below for details.

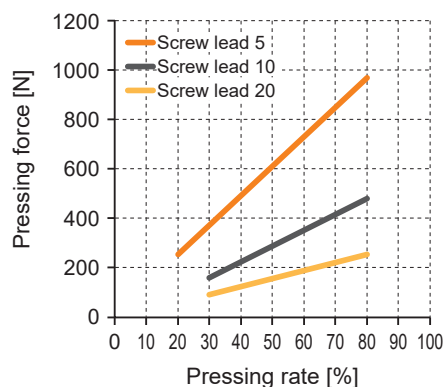
ECR: Page 42

ECG: Page 44

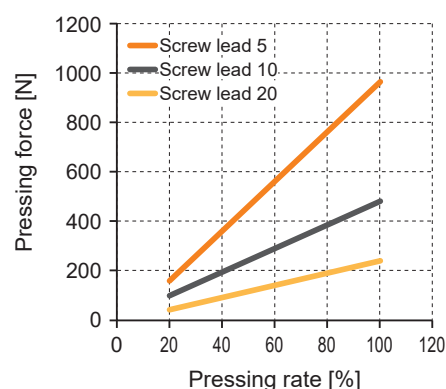
* Incorrectly applying a 48 VDC power supply could result in damage.

Pressing force

[EBS-08M (applicable controller ECR)]



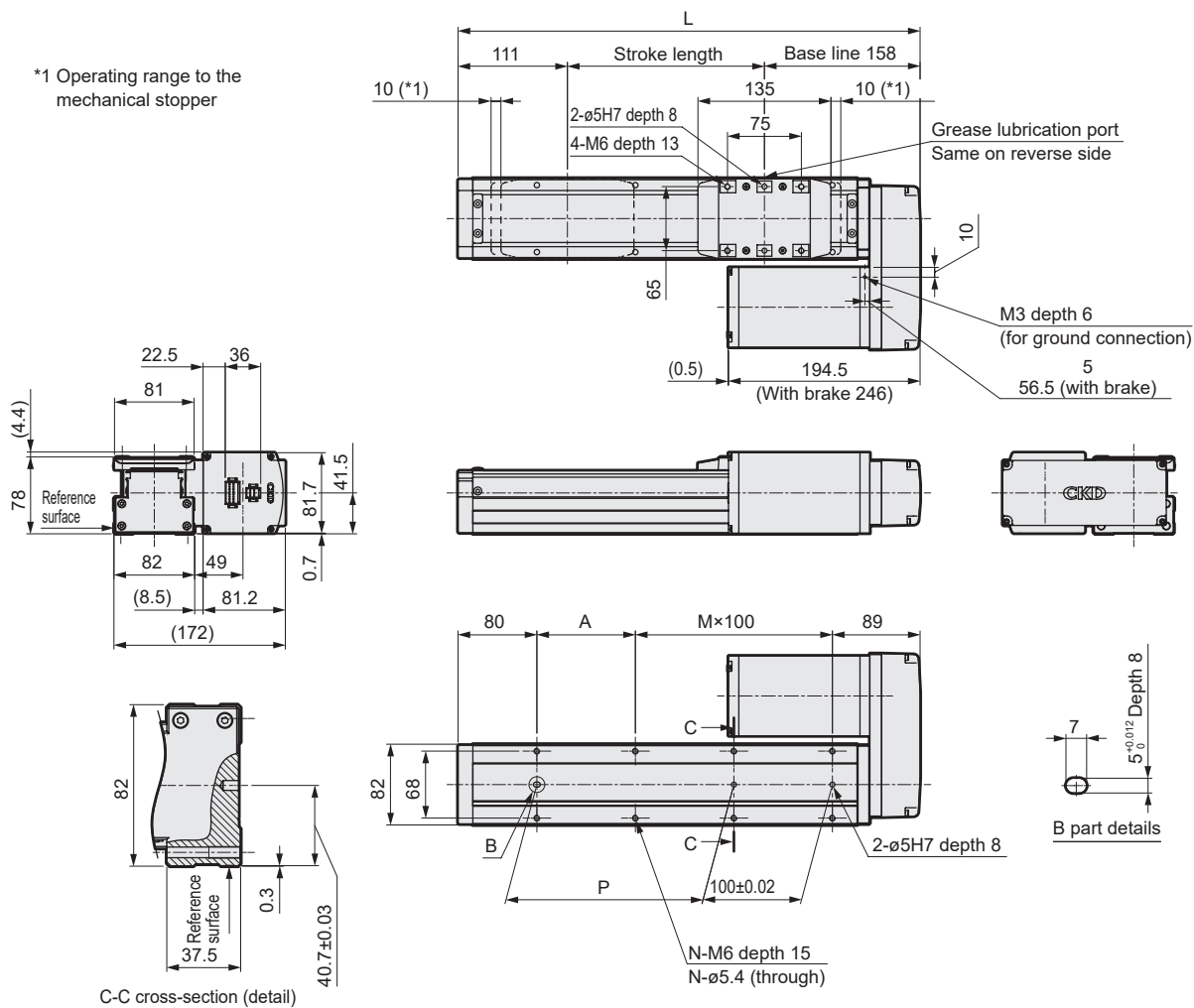
[EBS-08G (applicable controller ECG)]



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

● EBS-08*R

*1 Operating range to the mechanical stopper



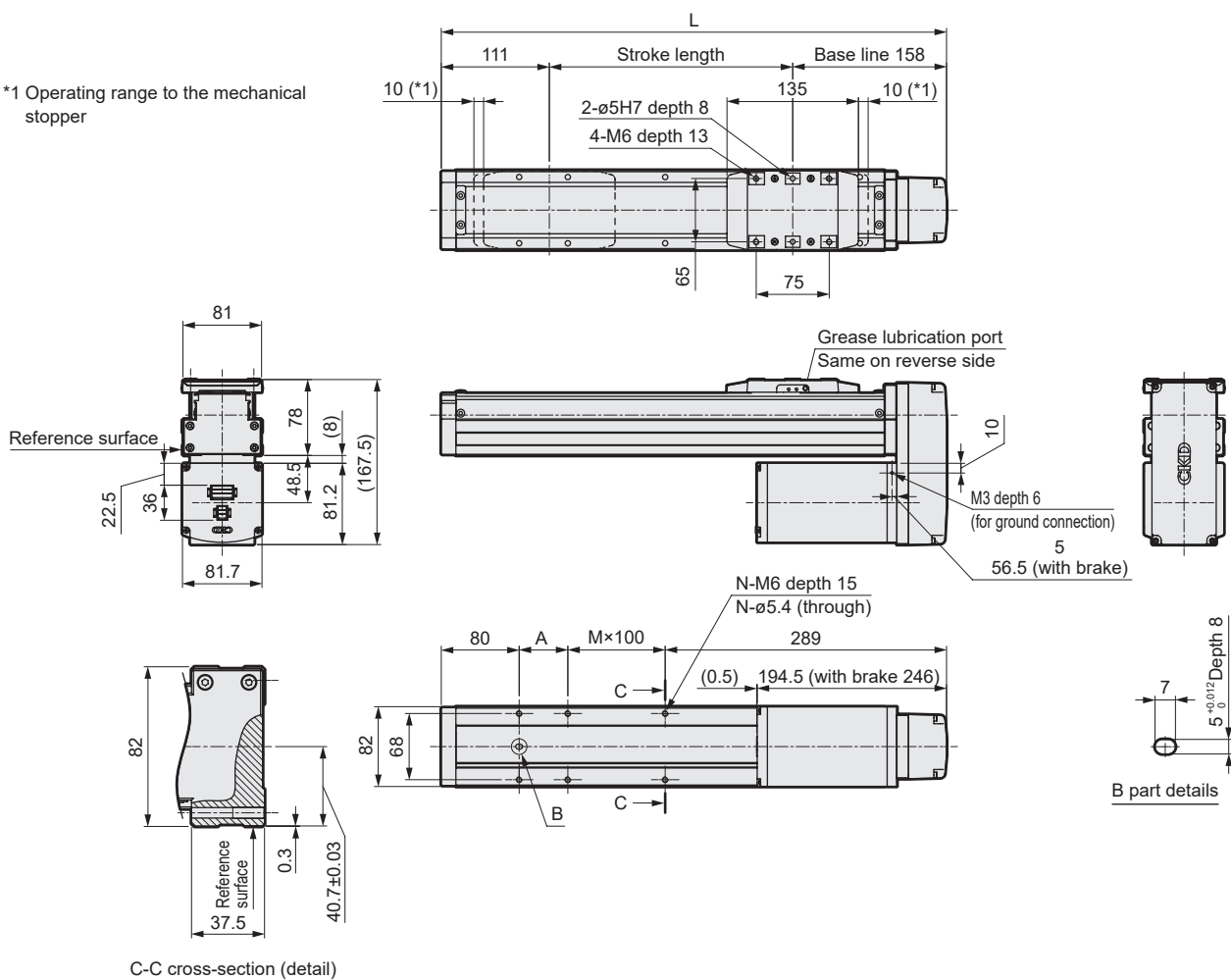
Stroke code	0050	0100	0150	0200	0250	0300	0350	0400	0450	0500	0550	0600	0650	0700	0750	0800
Stroke length (mm)	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
L	319	369	419	469	519	569	619	669	719	769	819	869	919	969	1019	1069
A	50	100	50	100	50	100	50	100	50	100	50	100	50	100	50	100
M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

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
	With brake	12.5	12.7	13.1	13.4	13.8

Dimensions: Motor bottom mounting

● EBS-08*D

*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	100	50	100
M	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
N	6	6	8	8	10	10	12	12	14	14	16	16	18	18	20	20
Weight (kg)	Without brake	7.2	7.5	7.8	8.2	8.5	8.8	9.2	9.5	9.9	10.2	10.5	10.8	11.2	11.4	11.8
	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

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

EBS
(With motor)

EBR
(With motor)

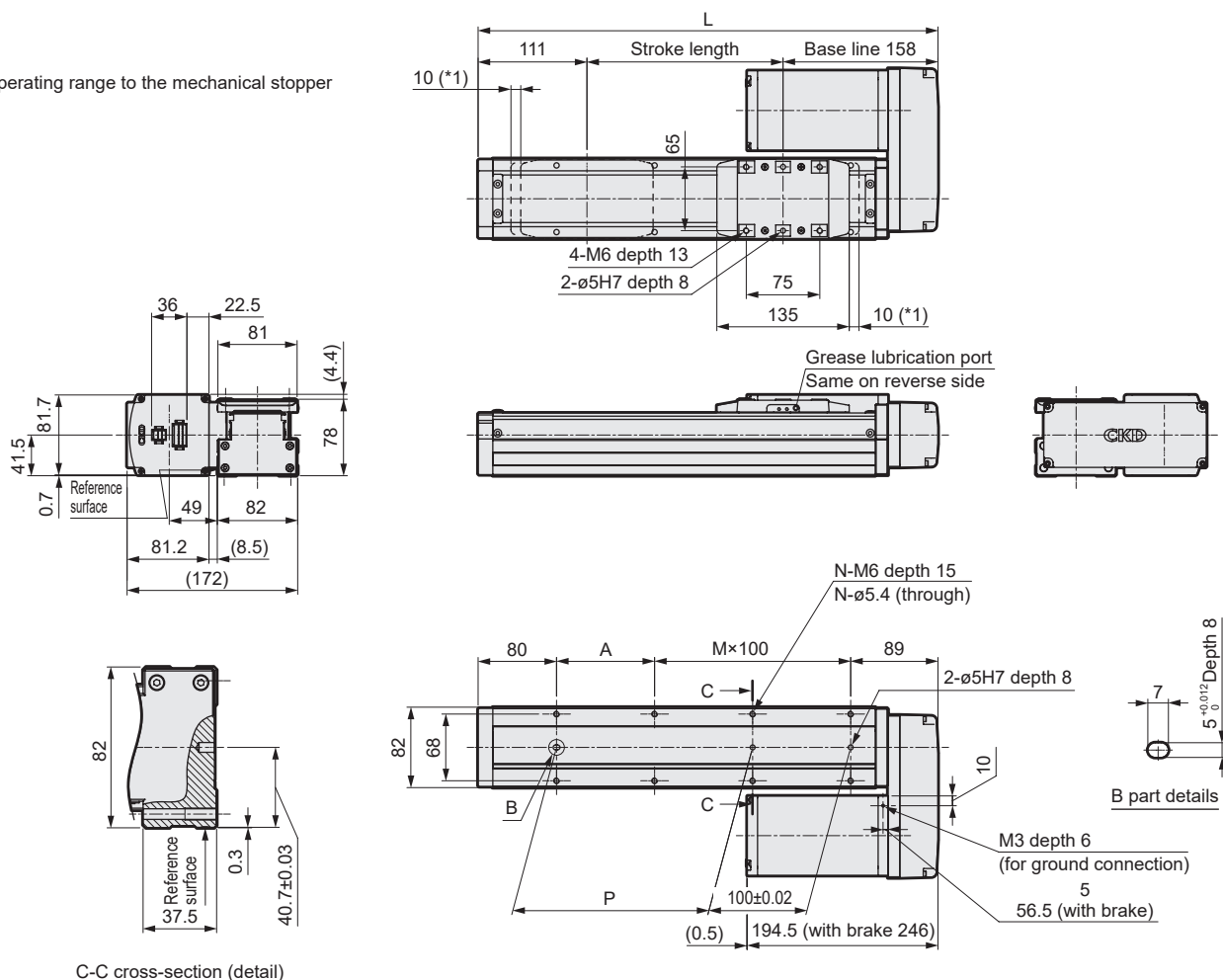
ECR
(Controller)

ECG-A
(Controller)

Safety
precautions

● EBS-08*L

*1 Operating range to the mechanical stopper



C-C cross-section (detail)

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