

Electric Actuator Compatible with Rechargeable Battery Manufacturing Processes FLCR-G P4 Series



Air Component "Advantage" and compatible with rechargeable battery manufacturing processes

Material restrictions



Material Restrictions

Restricts the use of materials and surface treatments inappropriate for the rechargeable battery manufacturing process. Product failure of rechargeable batteries is reduced.

* Motor / wiring / connector section is excluded



Limited copper material



Limited zinc material



Limited nickel-based material



Limited electrolytic nickel plating

Dry environment



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

Adopted grease compatible with ultra-dry environments.

Retains the smooth operation of the sliding part for long periods, even in dry environments.

Supports dust generation

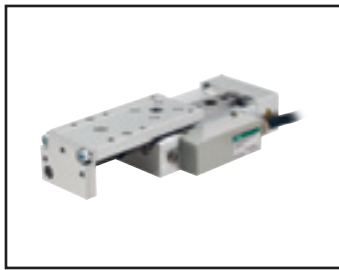


Suppresses dust generation of metal wear powder

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

Vacuum treatment port (option)





Electric actuator Table

FLCR-16G-P4

□20 Stepper motor



How to order

FLCR - 16 G 02 050 N C N - L S03 - V - P4

A Size
16

B Applicable controller *1
G ECG

C Screw lead
02 2 mm
08 8 mm

D Stroke
050 50 mm
075 75 mm
100 100 mm

E Brake
N None
B Yes

F Encoder
C Incremental Encoder

G Connector leadout direction *2
L Left surface
R Right surface

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

I Fitting
Blank None
V Yes

[Fig. 1]

*1 Select the controller from the "Electric Actuator Catalog No.CC-1444A".

*2 Refer to Fig. 1.

*3 For the Dimensions of the relay cable, refer to "Electric Actuator Catalog No.CC-1444A".

Specifications

Motor	□20 Stepper motor	
Encoder type	Incremental encoder	
Drive method	Ball screw(ø6) + belt	
Stroke mm	50, 75, 100	
Screw lead mm	2	8
Max. workload kg	Horizontal	3
*1	Vertical	0.5
Operation speed range mm/s	2 to 100	10 to 250
Maximum pushing force N	90	20
Pressing operation speed range mm/s	2 to 20	5 to 20
Repeatability mm	±0.02	
Lost motion mm	0.1 or less	
Static allowable moment N·m	[50st]MP:17.8, MY:17.8, MR:19.2	
	[75st or higher]: MP:37.3, MY:37.3, MR:19.2	
Motor power supply voltage	24 VDC ±10% or 48 VDC ±10%	
Motor section max. instantaneous current A	1.5	
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC (+10%/-5%)
	Power consumption W	1
	Holding force N	51 9
Insulation resistance	10 MΩ, 500 VDC	
Withstand voltage	500 VAC for 1 minute	
Operating ambient temperature	0 to 40 °C (no freezing)	
Storage ambient temperature	-10 to 50 °C (no freezing)	
Atmosphere	No corrosive gas, explosive gas, or dust	
Degree of protection	IP40	

*1 Max. value at acceleration/deceleration 0.3G. Load capacity varies according to acceleration/deceleration and speed. Refer to the table at right for details.

Speed and load capacity

[When installed horizontally]

		(kg)			
		Acceleration/deceleration (G)			
		0.1		0.3	
Speed (mm/s)	Screw lead (mm)				
	2	8	2	8	
2	4.0		4.0		
10	4.0	4.0	4.0	3.0	
20	4.0	4.0	4.0	3.0	
30	4.0	4.0	4.0	3.0	
40	4.0	4.0	4.0	3.0	
50	4.0	4.0	4.0	3.0	
60	4.0	4.0	4.0	3.0	
70	4.0	4.0	4.0	3.0	
80	4.0	4.0	2.0	3.0	
90	2.5	4.0	1.0	3.0	
100	2.5	4.0	0.5	3.0	
150		4.0		3.0	
200		4.0		3.0	
250		1.0		1.0	

[When installed vertically]

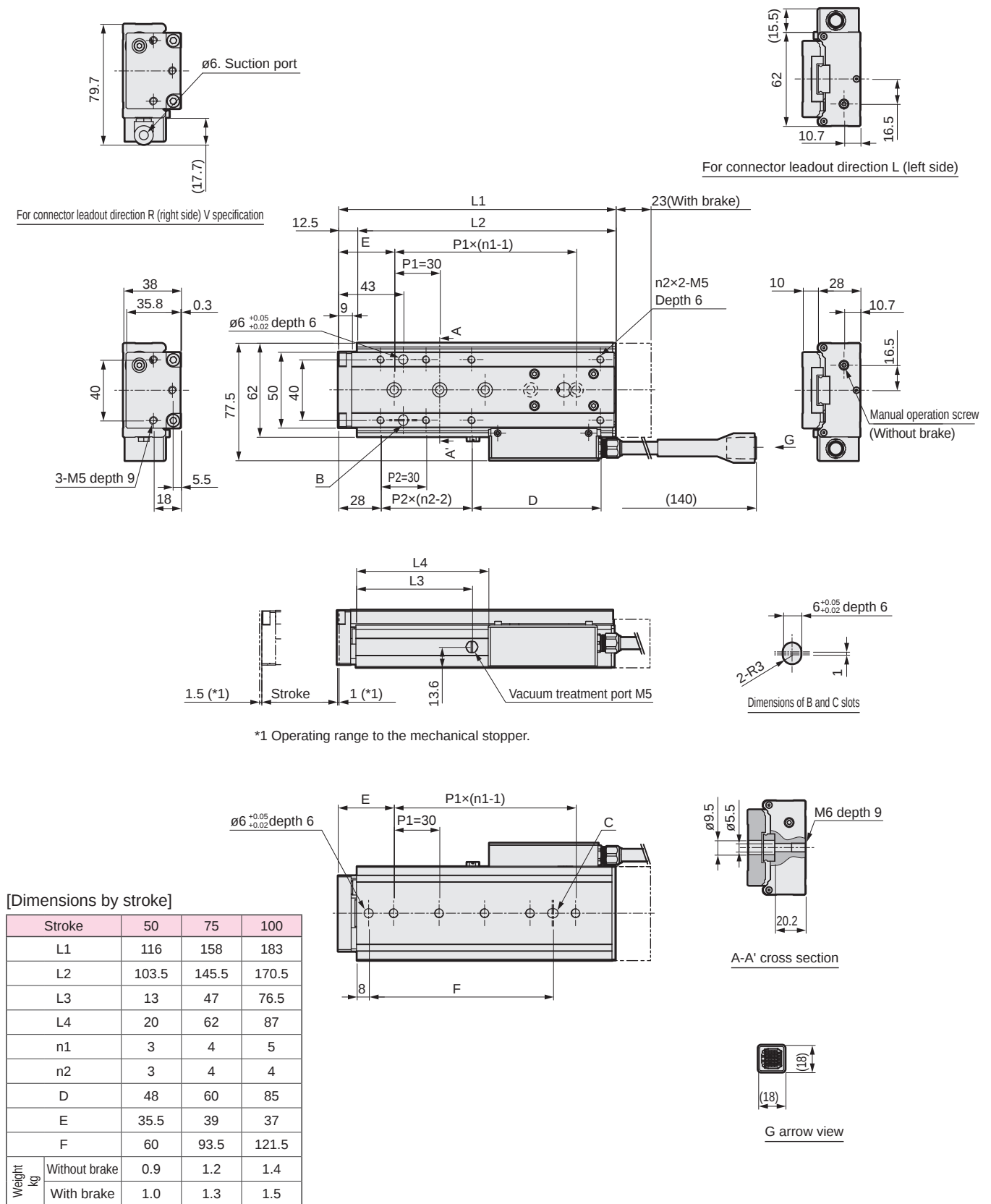
					(kg)
Speed (mm/s)		Acceleration/deceleration (G)			
		0.1		0.3	
		Screw lead (mm)			
	2	8	2	8	
2	4.0		4.0		
10	4.0	0.5	4.0	0.5	
20	4.0	0.5	4.0	0.5	
30	4.0	0.5	3.0	0.5	
40	4.0	0.5	3.0	0.5	
50	3.0	0.5	2.5	0.5	
60	0.5	0.3	0.4	0.3	
70	0.5	0.3	0.4	0.3	
80	0.4	0.3		0.3	
90		0.3		0.3	
100		0.3		0.3	
150					
200					
250					

Stroke and max. speed

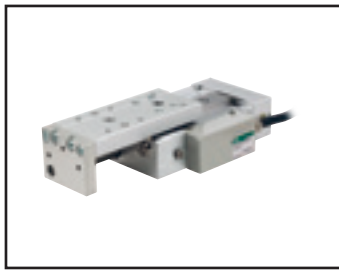
Screw lead	Stroke
	50 to 100
2	100
8	250

Dimensions

● FLCR-16G-P4



This figure shows connector leadout direction R (right side).



Electric actuator Table

FLCR-20G-P4

□25 Stepper motor



How to order

FLCR - 20 G 02 050 N C N - L S03 - V - P4

A Size
20

B Applicable controller *1
G ECG

C Screw lead
02 2 mm
08 8 mm

D Stroke
050 50 mm
075 75 mm
100 100 mm

E Brake
N None
B Yes

F Encoder
C Incremental Encoder

G Connector leadout direction*2
L Left surface
R Right surface

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

I Fitting
Blank None
V Yes

[Fig. 1]

*1 Select the controller from the "Electric Actuator Catalog No.CC-1444A".

*2 Refer to Fig. 1.

*3 For the Dimensions of the relay cable, refer to "Electric Actuator Catalog No.CC-1444A".

Specifications

Motor	□25 Stepper motor	
Encoder type	Incremental encoder	
Drive method	Ball screw (ø6) + belt	
Stroke mm	50, 75, 100	
Screw lead mm	2 8	
Max. workload kg	Horizontal	5.5 5
*1	Vertical	6 0.8
Operation speed range mm/s	2 to 100 10 to 300	
Maximum pushing force N	150 55	
Pressing operation speed range mm/s	2 to 20 5 to 20	
Repeatability mm	±0.02	
Lost motion mm	0.1 or less	
Static allowable moment N·m	[50st] MP:31.1, MY:31.1, MR:37.6	
	[75st or higher]: MP:56.2, MY:56.2, MR:37.6	
Motor power supply voltage	24 VDC ±10% or 48 VDC ±10%	
Motor section max. instantaneous current A	3	
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC (+10%/-5%)
	Power consumption W	1
	Holding force N	77 15
Insulation resistance	10 MΩ, 500 VDC	
Withstand voltage	500 VAC for 1 minute	
Operating ambient temperature	0 to 40 °C (no freezing)	
Storage ambient temperature	-10 to 50 °C (no freezing)	
Atmosphere	No corrosive gas, explosive gas, or dust	
Degree of protection	IP40	

*1 Max. value at acceleration/deceleration 0.3G. Load capacity varies according to acceleration/deceleration and speed. Refer to the table at right for details.

Speed and load capacity

[When installed horizontally]

		(kg)			
		Acceleration/deceleration (G)			
		0.1		0.3	
Speed (mm/s)	Screw lead (mm)				
	2	8	2	8	
2	5.5		5.5		
10	5.5	5.5	5.5	5.0	
15	5.5	5.5	5.5	5.0	
30	5.5	5.5	5.5	5.0	
45	5.5	5.5	5.5	5.0	
50	5.5	5.5	5.5	5.0	
60	5.5	5.5	5.5	5.0	
75	5.5	5.5	5.5	5.0	
90	5.5	5.5	5.0	5.0	
100	5.5	5.5	2.5	5.0	
150		5.5		5.0	
200		5.5		4.5	
250		5.5		4.5	
300		3.0		3.0	

[When installed vertically]

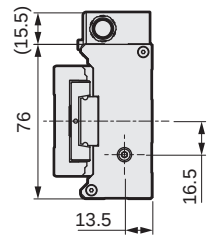
					(kg)
		Acceleration/deceleration (G)			
		0.1		0.3	
Speed (mm/s)	Screw lead (mm)				
	2	8	2	8	
2	6.0		6.0		
10	6.0	0.8	6.0	0.8	
15	6.0	0.8	6.0	0.8	
30	6.0	0.8	6.0	0.8	
45	6.0	0.8	6.0	0.8	
50	6.0	0.8	6.0	0.8	
60	6.0	0.4	6.0	0.4	
75	4.0	0.4	3.0	0.4	
90	2.0	0.4	2.0	0.4	
100	1.5	0.4	1.5	0.4	
150		0.4		0.4	
200		0.4		0.4	
250					
300					

Stroke and max. speed

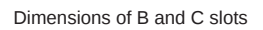
Screw lead	Stroke
	50 to 100
2	100
8	300

Dimensions

● FLCR-20G-P4



For connector leadout direction L (left side)



Technical drawing of a shaft with dimensions and a table of values.

Dimensions and labels:

- $\varnothing 6^{+0.05}_{-0.02}$ depth 6
- E
- $P1 \times (n1-1)$
- $P1=40$
- C
- 16
- F

100
192
177
80
96.5
4

This figure shows connector leadout direction R (right side).



Electric actuator Table

FLCR-25G-P4

□25L stepping motor



How to order

FLCR - 25 G 02 050 N C N - L S03 - V - P4

A Size
25

B Applicable controller *1
G ECG

C Screw lead
02 2 mm
06 6 mm

D Stroke
050 50 mm
075 75 mm
100 100 mm

E Brake
N None
B Yes

F Encoder
C Incremental Encoder

G Connector leadout direction*2
L Left surface
R Right surface

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

I Fitting
Blank None
V Yes

[Fig. 1]

*1 Select the controller from the "Electric Actuator Catalog No.CC-1444A".

*2 Refer to Fig. 1.

*3 For the Dimensions of the relay cable, refer to "Electric Actuator Catalog No.CC-1444A".

Specifications

Motor	□25L stepping motor	
Encoder type	Incremental encoder	
Drive method	Ball screw (ø10) + belt	
Stroke mm	50, 75, 100	
Screw lead mm	2 6	
Max. workload kg	Horizontal	11 11
*1	Vertical	8.5 3
Operation speed range mm/s	2 to 75 7 to 200	
Maximum pushing force N	210 90	
Pressing operation speed range mm/s	2 to 20 5 to 20	
Repeatability mm	±0.02	
Lost motion mm	0.1 or less	
Static allowable moment N·m	[50st] MP:65.1, MY:65.1, MR:116.3	
	[75st or higher]: MP:127.5, MY:127.5, MR:116.3	
Motor power supply voltage	24 VDC ±10% or 48 VDC ±10%	
Motor section max. instantaneous current A	4.5	
Brake	Model, power supply voltage	Non-excitation operation, 24 VDC (+10%/-5%)
	Power consumption W	1
	Holding force N	109 38
Insulation resistance	10 MΩ, 500 VDC	
Withstand voltage	500 VAC for 1 minute	
Operating ambient temperature	0 to 40 °C (no freezing)	
Storage ambient temperature	-10 to 50 °C (no freezing)	
Atmosphere	No corrosive gas, explosive gas, or dust	
Degree of protection	IP40	

*1 Max. value at acceleration/deceleration 0.3G. Load capacity varies according to acceleration/deceleration and speed. Refer to the table at right for details.

Speed and load capacity

[When installed horizontally]

		(kg)			
		Acceleration/deceleration (G)			
		0.1		0.3	
Speed (mm/s)	Screw lead (mm)				
	2	6	2	6	
2	11.0		11.0		
7	11.0	11.0	11.0	11.0	
15	11.0	11.0	11.0	11.0	
30	11.0	11.0	11.0	11.0	
45	11.0	11.0	11.0	11.0	
50	11.0	11.0	11.0	11.0	
60	11.0	11.0	11.0	11.0	
75	11.0	11.0	11.0	11.0	
100		11.0		11.0	
150		11.0		11.0	
200		11.0		11.0	

[When installed vertically]

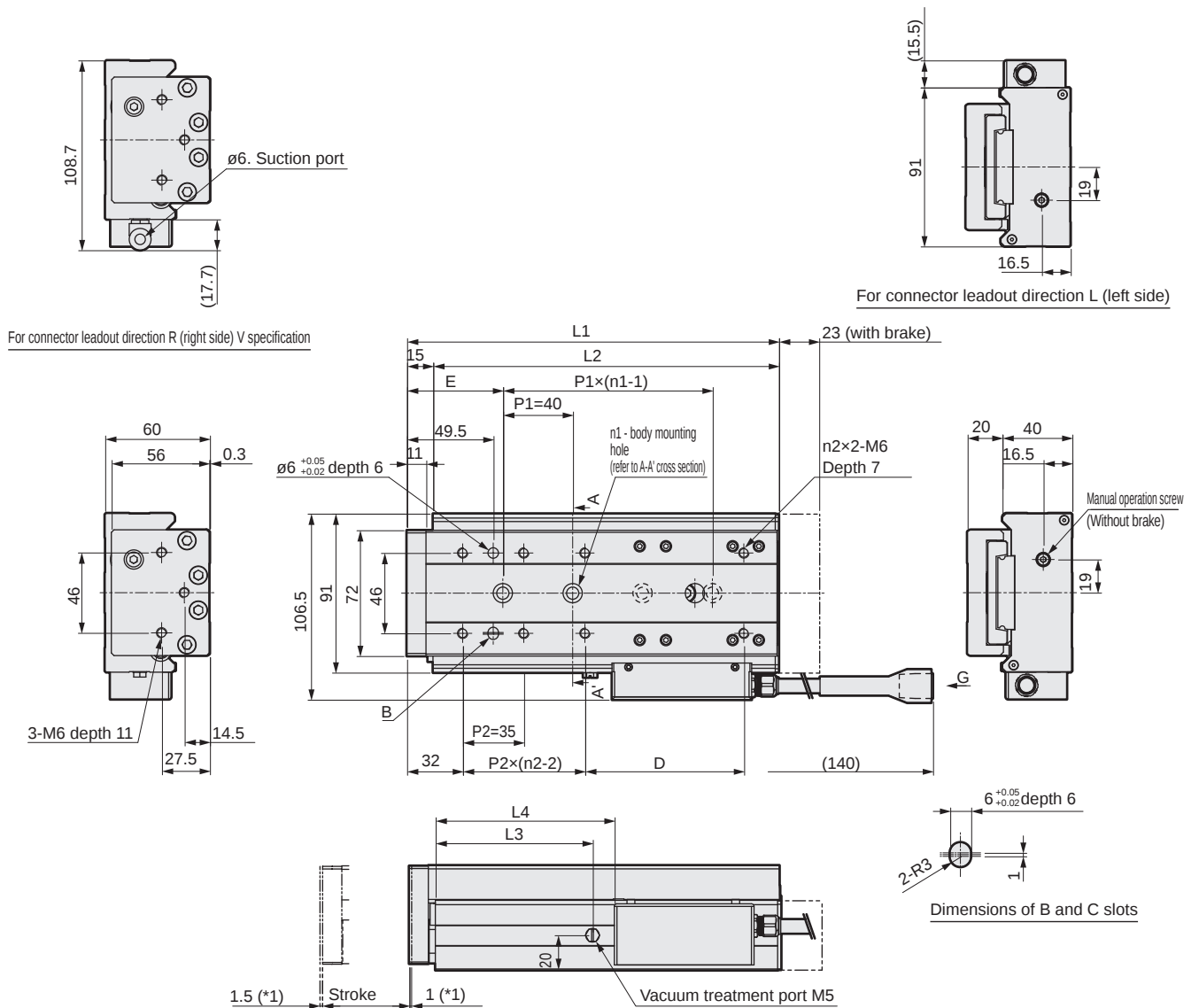
					(kg)			
					Acceleration/deceleration (G)			
					0.1	0.3		
Speed (mm/s)	Screw lead (mm)							
	2	6	2	6				
2	8.5		8.5					
7	8.5	3.0	8.5	3.0				
15	8.5	3.0	8.5	3.0				
30	8.5	3.0	8.5	3.0				
45	4.0	3.0	4.0	3.0				
50	3.5	3.0	3.5	3.0				
60	3.5	2.5	3.5	2.5				
75	3.5	2.5	3.5	2.5				
100		2.5		2.5				
150		2.0		2.0				
200								

Stroke and max. speed

Screw lead	Stroke
	50 to 100
2	75
6	200

Dimensions

● FLCR-25G-P4



*1 Operating range to the mechanical stopper.

[Dimensions by stroke]

Stroke		50	75	100
L1		142.5	188	213
L2		127.5	173	198
L3		19.5	65	90
L4		30	75.5	100.5
n1		2	3	4
n2		3	4	4
D		55.5	66	91
E		60.5	60	55
F		57	96.5	131.5
Weight kg	Without brake	2.4	3.1	3.4
	With brake	2.6	3.3	3.6

This figure shows connector leadout direction R (right side).

Related products

Components for rechargeable battery production P4* Series

- **Material Restrictions**
Use of materials with component parts is restricted
- **Long service life even in dusty environments**
- **Counters dust generation**
Suppresses dust generation of metal wear powder
- **Dry environment**
Long service life even in ultra-dry environments

Catalog No. CC-1226A



Electric actuator EJSG Series

Electric actuator that can be used in various environments

- **Full lineup of the environment-resistant series**
Five products in pursuit of ease of use and high rigidity
Standard Dust-proof specifications Low dust specifications
Compatible with rechargeable battery manufacturing processes
Compatible with food manufacturing processes
- **Compact and high rigidity body integrated with the wide guide to achieve both high rigidity and space saving.**

Catalog No. CC-1569A



⚠ Always read "Electric actuator table type FLCR Series (Catalog No.CC-1444A)" Read the safety precautions in.

If the goods and/or their replicas, the technology and/or software found in this catalog are to be exported from Japan, Japanese laws require the exporter makes sure that they will never be used for the development and/or manufacture of weapons for mass destruction.

CKD Corporation

[Website]
<https://www.ckd.co.jp/en/>

Head Office / Plant
Tokyo Office

Osaka Office

2-250, Oujii, Komaki, Aichi 485-8551
4F, Bunkahousou Media Plus, 1-31-1, Hamamatsu-cho,
Minato-ku, Tokyo 105-0013
6F, PMO EX Shin-Osaka, 4-2-10 Miyahara,
Yodogawa-ku, Osaka 532-0003

TEL(0568)77-1111 FAX(0568)77-1123
TEL(03)5402-3620 FAX(03)5402-0120
TEL(06)6152-9415 FAX(06)4866-5391