Electric Actuators
Series LEPY/LEPS

CE c(UL)us RoHS

Miniature Rod Type/Miniature Slide Table Type

Step Motor (Servo/24 VDC)

Compact and lightweight

- **Maximum pushing force: 50 N**
- **Positioning repeatability: ±0.05 mm**
- **Possible to set position, speed and force. (64 points)**

Rod Type *Series* **LEPY** — Size: 6, 10 ▶Page **365**

Weight 240 g

∗ LEPY6□-25

30 mm
20.5 mm
125.6 mm

Slide Table Type *Series* **LEPS** — Size: 6, 10 ▶Page **374**

Weight 290 g

∗ LEPS6□-25

Linear guide integrated

41 mm
21 mm
138.6 mm
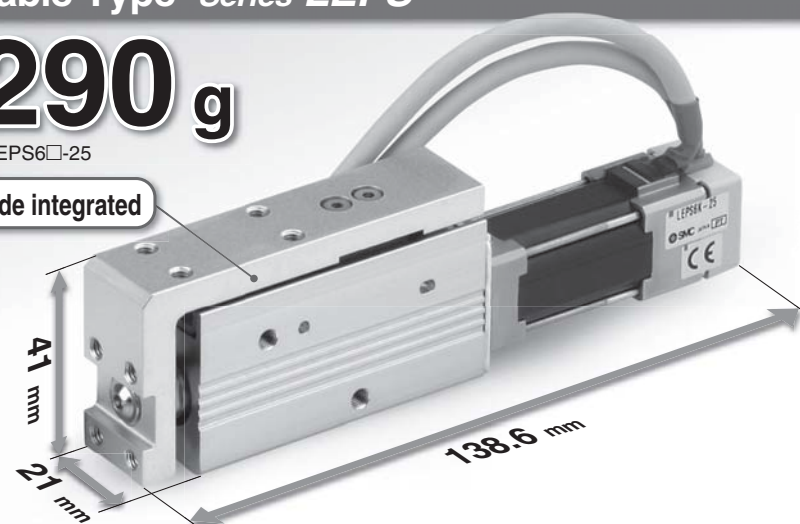
Step Motor (Servo/24 VDC) **Controller/Driver** ▶Page **538**

▶ **Step data input type**
Series **LECP6**
- 64 points positioning
- Input using controller setting kit or teaching box

▶ **CC-Link direct input type**
Series **LECPMJ**∗
∗ Not applicable to CE.

▶ **Programless type**
Series **LECP1**
- 14 points positioning
- Control panel setting

▶ **Pulse input type**
Series **LECPA**

SMC

LEFS LEFB
LEJS LEJB
LEL
LEM
LEY LEYG
LES LESH
LEPY LEPS
LER
LEH
LEY-X5
11-LEFS
11-LEJS
25A-
LEC□
LECS□
LECSS-T LECSS
LECYM LECYU
Motorless
LAT3
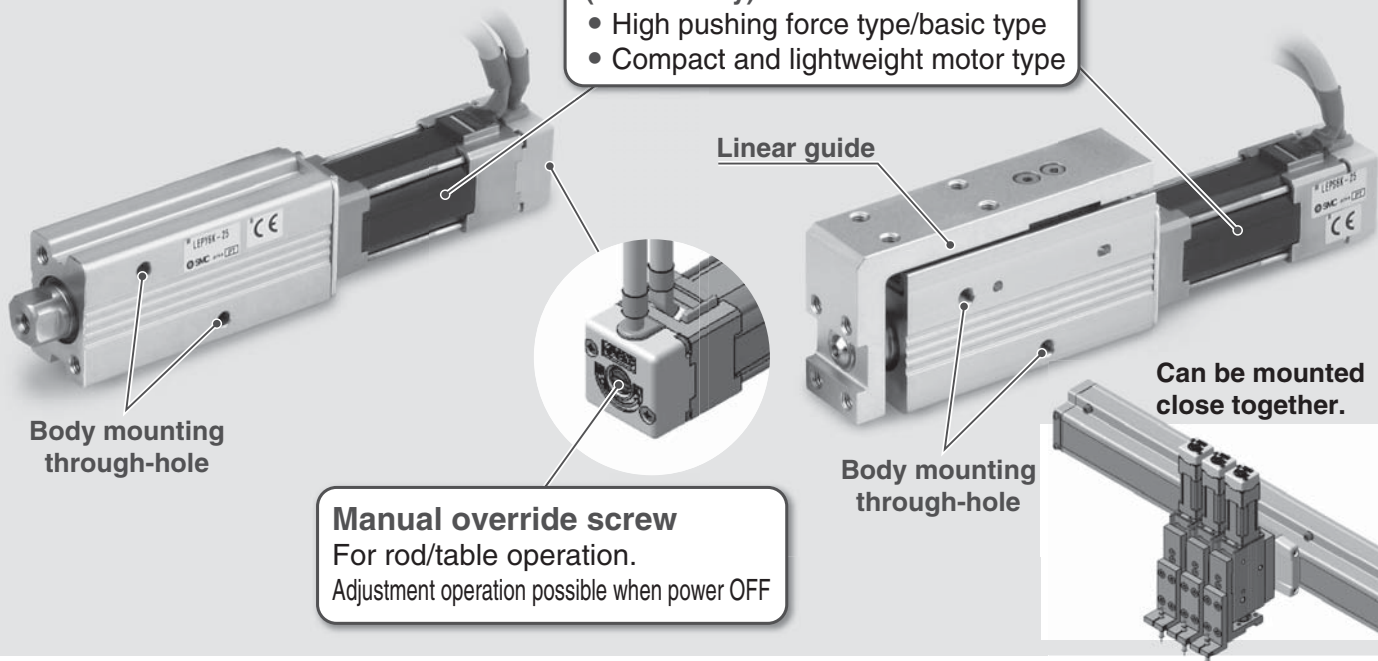
Compact and lightweight

| Rod Type | *Series LEPY*

Weight 240 g
(LEPY6☐-25)

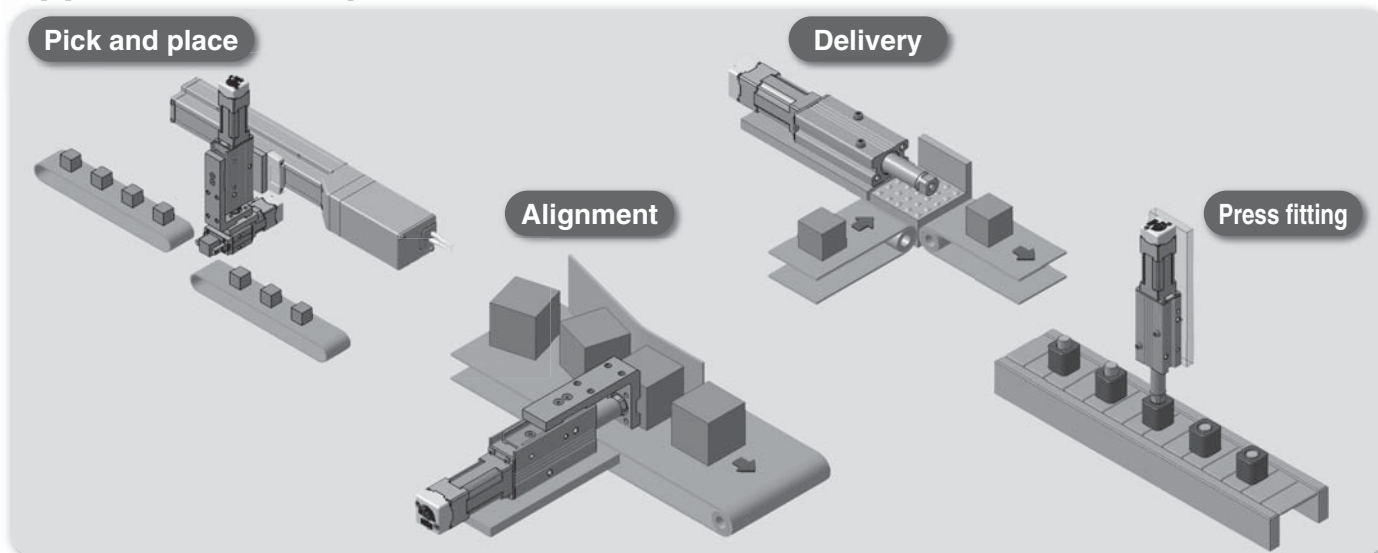Motor type can be selected to suit the application.
(Size 10 only)
● High pushing force type/basic type
● Compact and lightweight motor type

| Slide Table Type | *Series LEPS*

Weight 290 g
(LEPS6☐-25)

Linear guide

Body mounting through-hole

Body mounting through-hole

Can be mounted close together.

Manual override screw
For rod/table operation.
Adjustment operation possible when power OFF

Application Examples

Pick and place

Delivery

Alignment

Press fitting

Variations

| Type	Size	Screw lead	Pushing force [N]		Max. work load [kg] (Horizontal)		Max. work load [kg] (Vertical)		Max. speed [mm/s] (Horizontal)		Stroke [mm]	Page
			Basic	Compact	Basic	Compact	Basic	Compact	Basic	Compact		
Rod type *Series LEPY*	6	4	14 to 20	—	2.0	—	0.5	—	150	—	25 50 75	Page 365
		8	7 to 10	—	1.0	—	0.25	—	300	—		
	10	5	25 to 50	24 to 40	6.0	4.0	1.5	1.5	200	200		
		10	12.5 to 25	12 to 20	3.0	2.0	1.0	1.0	350	350		
Slide table type *Series LEPS*	6	4	14 to 20	—	1.0	—	0.5	—	150	—	25 50	Page 374
		8	7 to 10	—	0.75	—	0.25	—	300	—		
	10	5	25 to 50	24 to 40	2.0	2.0	1.5	1.5	200	200		
		10	12.5 to 25	12 to 20	1.5	1.5	1.0	1.0	350	350		

SMC

Mounting Variations

Mounting from various directions

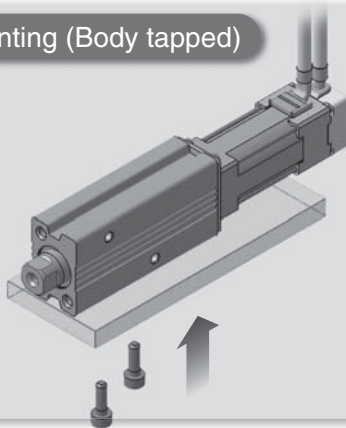**Side mounting (Body mounting through-hole)**
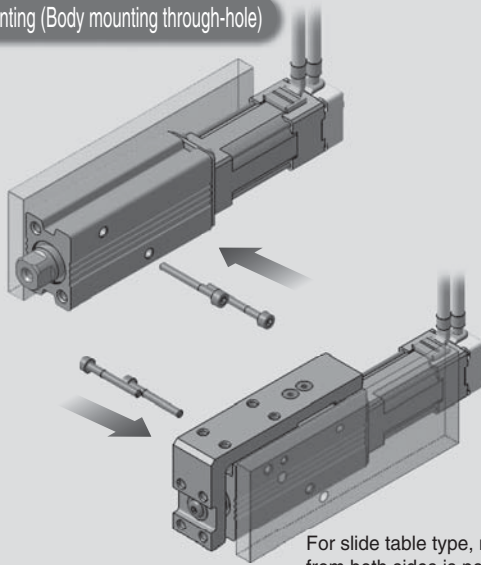
For slide table type, mounting from both sides is possible.
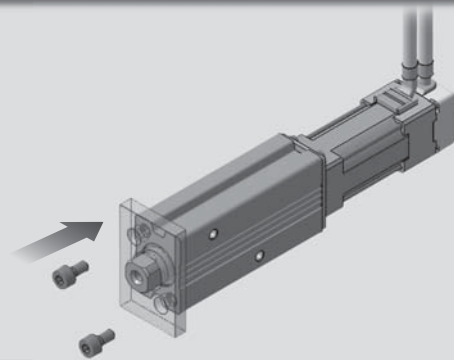
Side mounting (Body tapped)
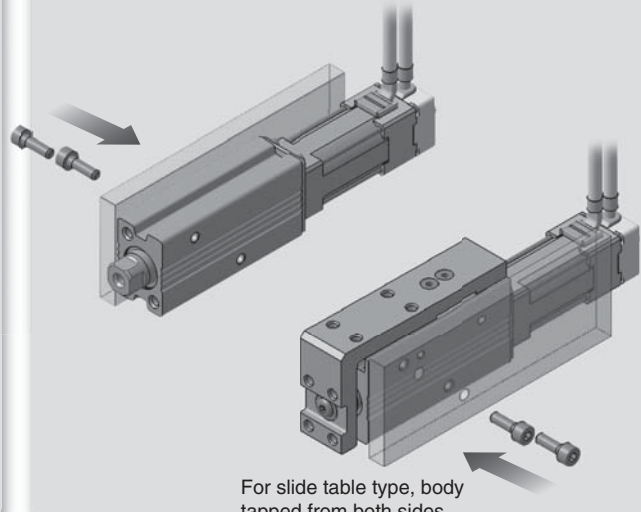
For slide table type, body tapped from both sides.
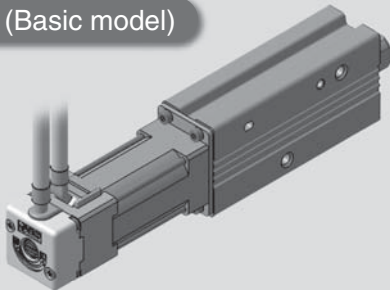
Bottom mounting (Body tapped)

Axial mounting ∗ Rod type only (Body tapped)

Motor Cable Entry Direction
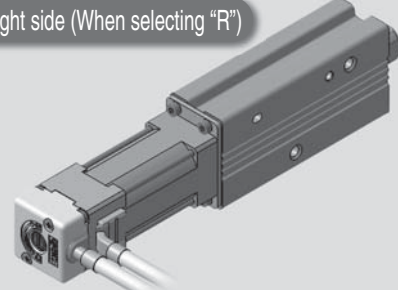
Can be selected from 4 directions.

Top entry (Basic model)

Entry on the right side (When selecting "R")

Bottom entry (When selecting "U")
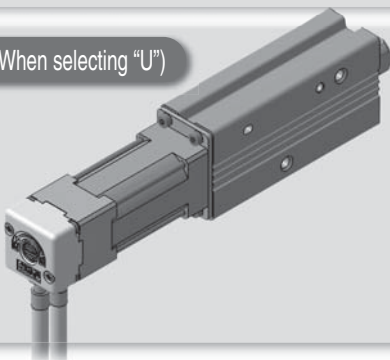
Entry on the left side (When selecting "L")

LEFS
LEFB

LEJS
LEJB

LEL

LEM

LEY
LEYG

LES
LESH

LEPY
LEPS

LER

LEH

LEY-X5

11-LEFS

11-LEJS

25A-

LEC□

LECS□

LECSS-T

LECYM
LECYU

Motorless

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Electric Actuators

Miniature Rod Type *Series* *LEPY*

Step Motor (Servo/24 VDC)

Miniature Slide Table Type *Series* *LEPS*

Step Motor (Servo/24 VDC)

LEFS
LEFB

LEJS
LEJB

LEL

LEM

LEY
LEYG

LES
LESH

LEPY
LEPS

LER

LEH

LEY-X5

11-LEFS

11-LEJS

25A-

LEC□

LECS□

LECSS-T

LECYM
LECYU

Motorless

LAT3
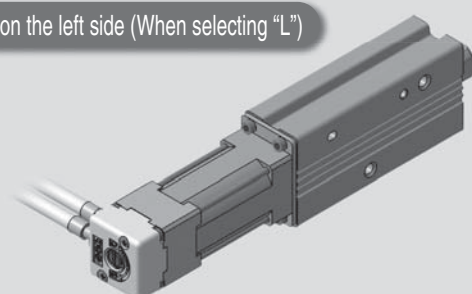
Electric Actuator/Miniature Rod Type
Series **LEPY**

Model Selection

Selection Procedure

Positioning Control Selection Procedure

Step 1 Check the work load–speed. (Vertical transfer) ➡ **Step 2** Check the cycle time.
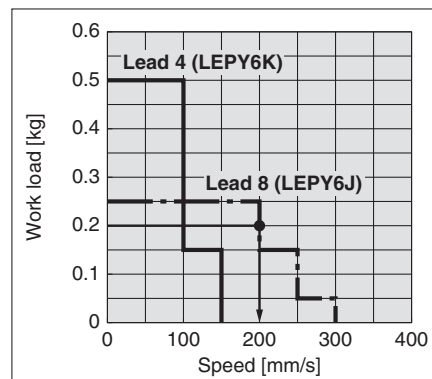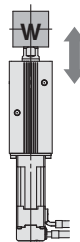
Selection Example

Operating conditions

- Workpiece mass: 0.2 [kg]
- Speed: 200 [mm/s]
- Acceleration/Deceleration: 3000 [mm/s²]
- Stroke: 40 [mm]
- Workpiece mounting condition: Vertical upward downward transfer

Step 1 **Check the work load–speed. <Speed–Work load graph>**

Select the target model based on the workpiece mass and speed with reference to the <Speed–Work load graph>.

Selection example) The **LEPY6J** is temporarily selected based on the graph shown on the right side.

∗ It is necessary to mount a guide outside the actuator when used for horizontal transfer. When selecting the target model, refer to page 371 for the horizontal work load in the specifications, and page 386 for the precautions.

<Speed–Work load graph>
(LEPY6/Step motor)

Step 2 **Check the cycle time.**

Calculate the cycle time using the following calculation method.

- Cycle time T can be found from the following equation.

$$T = T1 + T2 + T3 + T4 \ [s]$$

- T1: Acceleration time and T3: Deceleration time can be obtained by the following equation.

$$T1 = V/a1 \ [s] \qquad T3 = V/a2 \ [s]$$

- T2: Constant speed time can be found from the following equation.

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} \ [s]$$

- T4: Settling time varies depending on the conditions such as motor types, load and in position of the step data. Therefore, calculate the settling time with reference to the following value.

$$T4 = 0.2 \ [s]$$

L : Stroke [mm] ⋯ (Operating condition)
V : Speed [mm/s] ⋯ (Operating condition)
a1: Acceleration [mm/s²] ⋯ (Operating condition)
a2: Deceleration [mm/s²] ⋯ (Operating condition)

T1: Acceleration time [s] ⋯ Time until reaching the set speed
T2: Constant speed time [s] ⋯ Time while the actuator is operating at a constant speed
T3: Deceleration time [s] ⋯ Time from the beginning of the constant speed operation to stop
T4: Settling time [s] ⋯ Time until positioning is completed

Calculation example)
T1 to T4 can be calculated as follows.
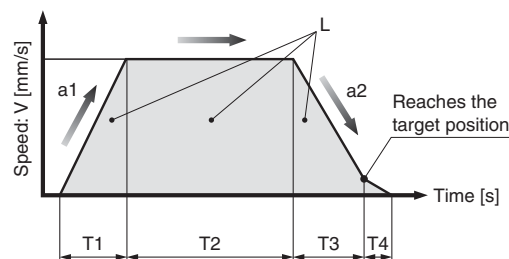
T1 = V/a1 = 200/3000 = 0.067 [s], T3 = V/a2 = 200/3000 = 0.067 [s]

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} = \frac{40 - 0.5 \cdot 200 \cdot (0.067 + 0.067)}{200} = 0.133 \ [s]$$

T4 = 0.2 [s]

Therefore, the cycle time can be obtained as follows.
T = T1 + T2 + T3 + T4 = 0.067 + 0.133 + 0.067 + 0.2 = **0.467 [s]**

Based on the above calculation result, the LEPY6J-50 is selected.

Selection Procedure

Pushing Control Selection Procedure

| Step 1 | Check the duty ratio. | → | Step 2 | Check the pushing force. | → | Step 3 | Check the lateral load on the rod end. |

∗ The duty ratio is a ratio at the time that can keep being pushed.

Selection Example

Operating conditions

- Mounting condition: Horizontal (pushing)
- Jig weight: 0.05 [kg]
- Pushing force: 30 [N]
- Duty ratio: 70 [%]
- Speed: 150 [mm/s]
- Stroke: 40 [mm]

Step 1 **Check the duty ratio.**
<Conversion table of pushing force–duty ratio>
Select the [Pushing force] from the duty ratio with reference to the <Conversion table of pushing force–duty ratio>.
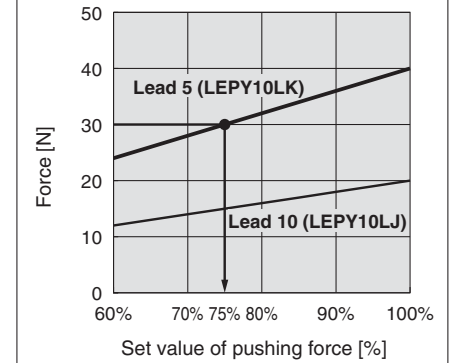
Selection example)
Based on the table below,
- Duty ratio: 70 [%]
Therefore, the set value of pushing force will be 80 [%].

<Conversion table of pushing force–duty ratio>
(LEPY10L)

Set value of pushing force [%]	Duty ratio [%]	Continuous pushing time [minute]
70 or less	100	—
80	70	10
100	50	5

∗ [Set value of pushing force] is one of the step data input to the controller.
∗ [Continuous pushing time] is the time that the actuator can continuously keep pushing.

Step 2 **Check the pushing force. <Set value of pushing force–Force graph>**
Select the target model based on the set value of pushing force and force with reference to the <Set value of pushing force–Force graph>.

Selection example)
Based on the graph shown on the right side,
- Set value of pushing force: 75 [%]
- Pushing force: 30 [N]
Therefore, the **LEPY10LK** is temporarily selected.

Step 3 **Check the lateral load on the rod end.**
<Allowable lateral load on the rod end>
Confirm the allowable lateral load on the rod end of the actuator: LEPY10L, which has been selected temporarily with reference to the <Allowable lateral load on the rod end>.

Selection example)
Based on the table below,
- Jig weight: 0.05 [kg] ≈ 0.5 [N]
Therefore, the lateral load on the rod end is in the allowable range.

<Allowable lateral load on the rod end>

Model	Allowable lateral load on the rod end [N]
LEPY6 (Basic)	0.50
LEPY10 (Basic)	1.0
LEPY10L (Compact)	1.0

Based on the above calculation result, the LEPY10LK-50 is selected.

Pushing control

Position

Time

Duty ratio = A/B x 100 [%]

Lead 5 (LEPY10LK)

Lead 10 (LEPY10LJ)

Force [N]

Set value of pushing force [%]

<Set value of pushing force–Force graph>
(LEPY10L)

LEFS
LEFB

LEJS
LEJB

LEL

LEM

LEY
LEYG

LES
LESH

LEPY
LEPS

LER

LEH

LEY-X5

11-LEFS

11-LEJS

25A-

LEC□

LECS□

LECSS-T

LECYM
LECYU

Motorless

LAT3

Series *LEPY*

Step Motor (Servo/24 VDC)

Speed–Work Load Graph (Guide)

∗ The following graph shows the values when moving force is 150%.

LEPY6 (Basic)

Horizontal
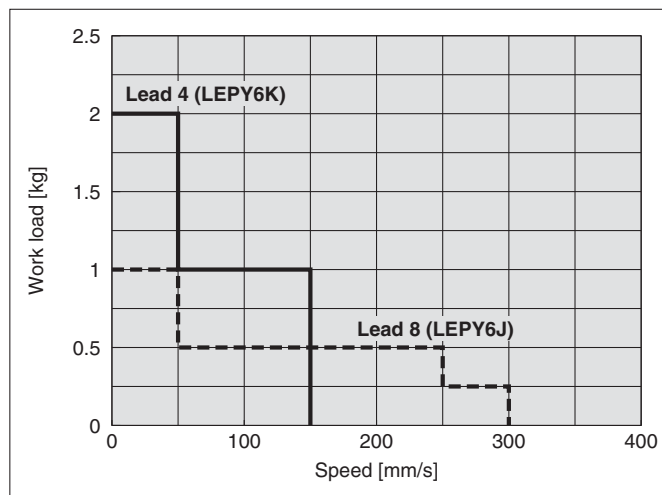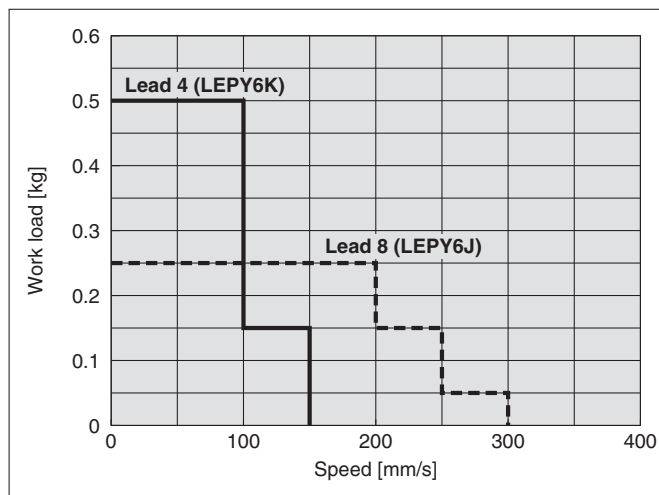
Vertical

LEPY10L (Motor size: Compact)

Horizontal
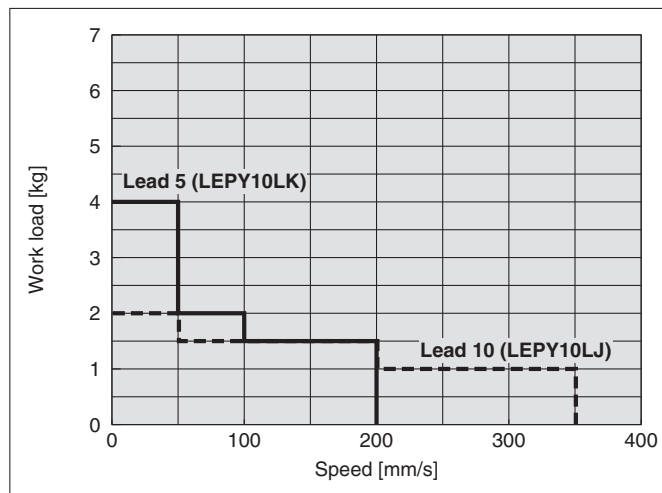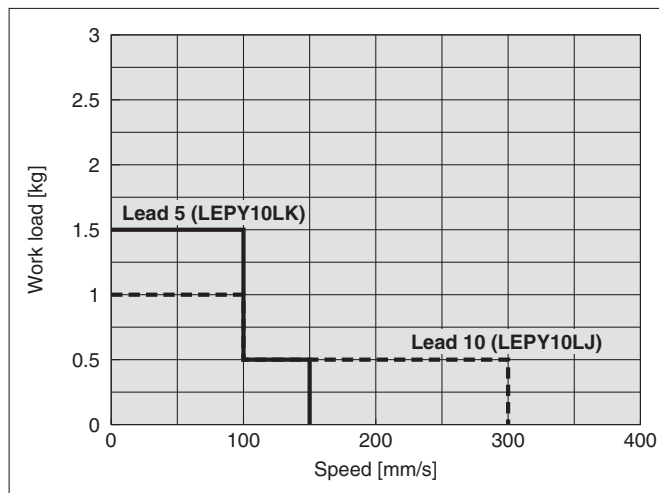
Vertical

LEPY10 (Motor size: Basic)

Horizontal
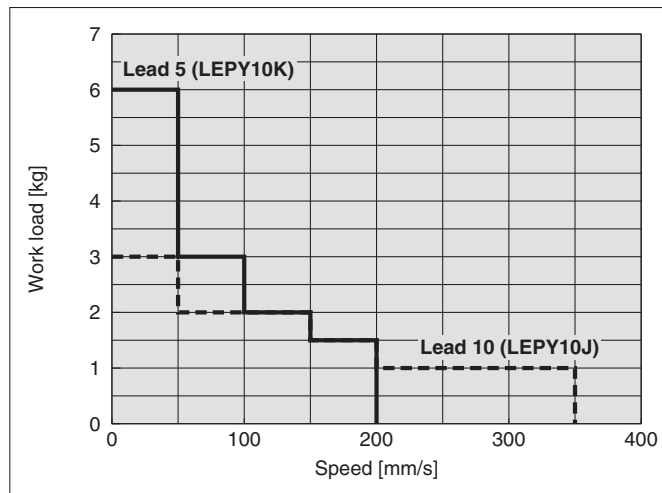
Vertical
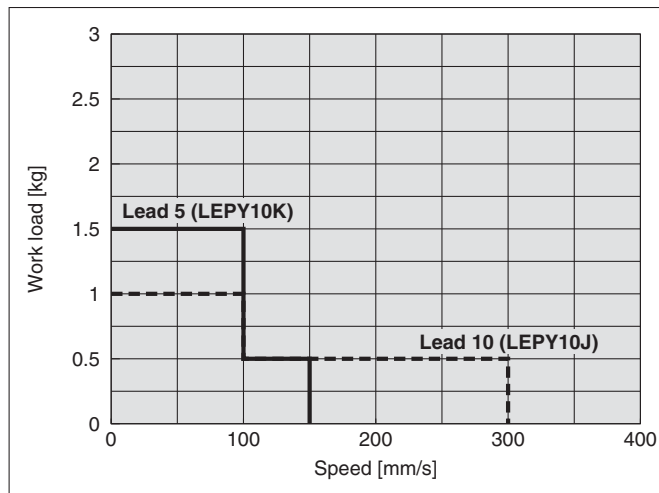
Note) The maximum value of the work load for the positioning operation. An external guide is necessary to support the load.
The actual work load and transfer speed change according to the condition of the external guide.

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SMC

Set Value of Pushing Force–Force Graph (Guide)

LEPY6 (Basic)
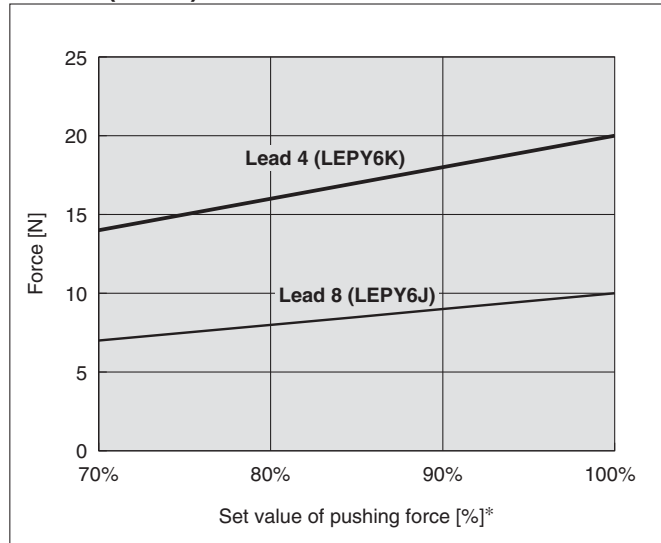
Set value of pushing force [%]	Duty ratio [%]	Continuous pushing time [minute]
70	100	—
80	70	10
100	50	5

LEPY10 (Basic)
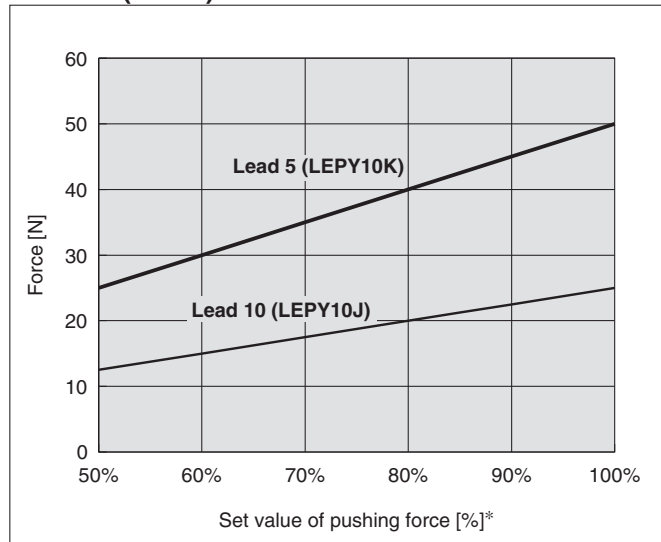
Set value of pushing force [%]	Duty ratio [%]	Continuous pushing time [minute]
60 or less	100	—
70	30	3
100	15	1

LEPY10L (Compact)
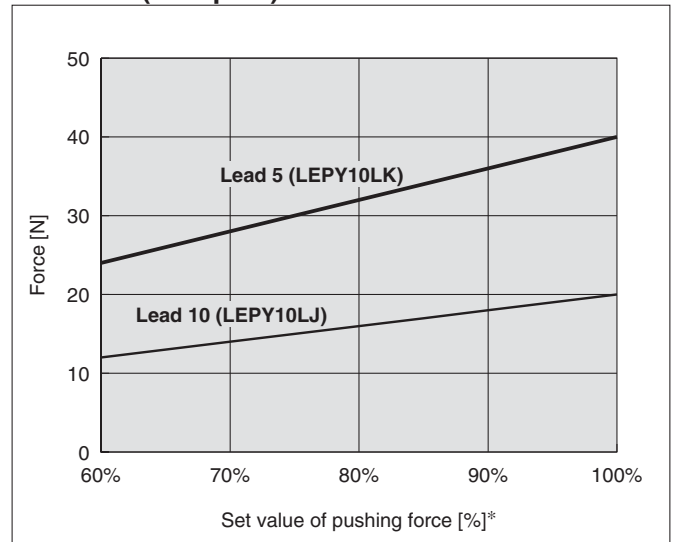
Set value of pushing force [%]	Duty ratio [%]	Continuous pushing time [minute]
70 or less	100	—
80	70	10
100	50	5

∗ Set values for the controller.

Allowable Lateral Load on the Rod End

Model	Allowable lateral load on the rod end [N]
LEPY6 (Basic)	0.50
LEPY10 (Basic)	1.0
LEPY10L (Compact)	1.0

Side tabs:
LEFS / LEFB
LEJS / LEJB
LEL
LEM
LEY / LEYG
LES / LESH
LEPY / LEPS
LER
LEH
LEY-X5
11-LEFS
11-LEJS
25A-
LEC□
LECS□
LECSS-T
LECYM / LECYU
Motorless
LAT3
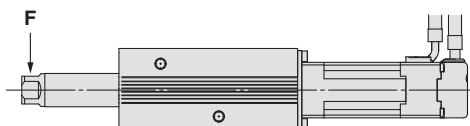
Electric Actuator Miniature Rod Type

Series *LEPY* LEPY6, 10

CE c**UL**us RoHS

How to Order

LEPY **10** ☐ **K** – **50** ☐ – **R** **1** **6N** **1** ☐

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿

❶ Size

6
10

❷ Motor size

Symbol	Motor size	Applicable size
Nil	Basic	6, 10
L	Compact	10
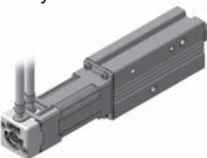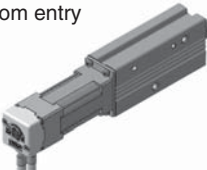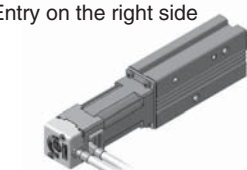
❸ Lead screw type [mm]

Symbol	Screw lead	
	LEPY6	LEPY10
K	4	5
J	8	10

❹ Stroke [mm]

Symbol	Stroke
25	25
50	50
75	75

❺ Motor cable mounting direction

	Top entry		Entry on the left side
Nil		L	
	Bottom entry		Entry on the right side
U		R	

❻ Actuator cable type*

Nil	Without cable
S	Standard cable
R	Robotic cable (Flexible cable)

∗ The standard cable should be used on fixed parts.
For using on moving parts, select the robotic cable.

⚠ Caution

[CE-compliant products]
① EMC compliance was tested by combining the electric actuator LEP series and the controller LEC series.
The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, conformity to the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify conformity to the EMC directive for the machinery and equipment as a whole.
② CC-Link direct input type (LECPMJ) is not CE-compliant.

[UL-compliant products]
When conformity to UL is required, the electric actuator and controller/driver should be used with a UL1310 Class 2 power supply.

The actuator and controller/driver are sold as a package.

Confirm that the combination of the controller/driver and the actuator is correct.

<Check the following before use.>
① Check the actuator label for model number. This matches the controller/driver.
② Check Parallel I/O configuration matches (NPN or PNP).

LEPY6K–25U NPN
① ②

∗ Refer to the operation manual for using the products. Please download it via our website, http://www.smcworld.com

SMC

❼ Actuator cable length [m]

Nil	Without cable	8	8*
1	1.5	A	10*
3	3	B	15*
5	5	C	20*

∗ Produced upon receipt of order (Robotic cable only)
Refer to the specifications Note 6) on page 371.

❽ Controller/Driver type*1

Nil	Without controller/driver	
6N	LECP6	NPN
6P	(Step data input type)	PNP
1N	LECP1	NPN
1P	(Programless type)	PNP
MJ	LECPMJ*2 (CC-Link direct input type)	—
AN	LECPA*3	NPN
AP	(Pulse input type)	PNP

∗1 For details about controller/driver and compatible motor, refer to the compatible controller/driver below.
∗2 Not applicable to CE.
∗3 When pulse signals are open collector, order the current limiting resistor (LEC-PA-R-□) on page 587 separately.

❾ I/O cable length [m]*1, Communication plug

Nil	Without cable (Without communication plug connector)*3
1	1.5
3	3*2
5	5*2
S	Straight type communication plug connector*3
T	T-branch type communication plug connector*3

∗1 When "Without controller/driver" is selected for controller/driver types, I/O cable cannot be selected. Refer to page 559 (For LECP6), page 573 (For LECP1) or page 587 (For LECPA) if I/O cable is required.
∗2 When "Pulse input type" is selected for controller/driver types, pulse input usable only with differential. Only 1.5 m cables usable with open collector.
∗3 For the LECPMJ, only "Nil", "S" and "T" are selectable since I/O cable is not included.

❿ Controller/Driver mounting

Nil	Screw mounting
D	DIN rail mounting*

∗ DIN rail is not included. Order it separately.

Compatible Controller/Driver

Type	Step data input type	CC-Link direct input type	Programless type	Pulse input type
Series	LECP6	LECPMJ	LECP1	LECPA
Features	Value (Step data) input Standard controller	CC-Link direct input	Capable of setting up operation (step data) without using a PC or teaching box	Operation by pulse signals
Compatible motor	Step motor (Servo/24 VDC)			
Maximum number of step data	64 points		14 points	—
Power supply voltage	24 VDC			
Reference page	Page 551	Page 591	Page 567	Page 581

Series *LEPY*

Specifications

Model			LEPY6		LEPY10	
Stroke [mm]			25, 50, 75			
Screw lead [mm]			4	8	5	10
Pushing force [N] Note 1) Note 6)		Basic	14 to 20	7 to 10	25 to 50	12.5 to 25
		Compact	—	—	24 to 40	12 to 20
Work load [kg] Note 2) Note 3) Note 6)	Horizontal	Basic	2.0	1.0	6.0	3.0
		Compact	—	—	4.0	2.0
	Vertical	Basic	0.5	0.25	1.5	1.0
		Compact	—	—	1.5	1.0
Speed [mm/s] Note 3) Note 6)	Horizontal	Basic	10 to 150	20 to 300 Note 4)	10 to 200	20 to 350 Note 4)
		Compact	—	—	10 to 200	20 to 350 Note 4)
	Vertical	Basic	10 to 150	20 to 300 Note 4)	10 to 150	20 to 300 Note 4)
		Compact	—	—	10 to 150	20 to 300 Note 4)
Pushing speed [mm/s] Note 5)			10	20	10	20
Acceleration/Deceleration [mm/s²]			3000			
Backlash [mm]			0.2 or less			
Positioning repeatability [mm]			±0.05			
Lost motion [mm] Note 7)			0.2 or less			
Impact/Vibration resistance [m/s²] Note 8)			50/20			
Actuation type			Slide screw			
Guide type			Sliding bushing			
Max. operating frequency [c.p.m]			60			
Operating temperature range [°C]			5 to 40			
Operating humidity range [%RH]			90 or less (No condensation)			
Motor size			□20		□28	
Motor type			Step motor (Servo/24 VDC)			
Encoder			Incremental A/B phase (800 pulse/rotation)			
Rated voltage [V]			24 VDC ±10%			
Power consumption [W] Note 9)		Basic	12		28	
		Compact	—		22	
Standby power consumption when operating [W] Note 10)		Basic	11		22	
		Compact	—		16	
Max. instantaneous power consumption [W] Note 11)		Basic	22		55	
		Compact	—		45	

The left side of the specifications table is split into **Actuator specifications** (upper) and **Electric specifications** (lower).

Note 1) Pushing force accuracy is LEPY6: ±30% (F.S.), LEPY10: ±25% (F.S.).
Refer to pages 387 and 388 for the detailed setting range and precautions.
The pushing force and the duty ratio change according to the set value. Check "Set Value of Pushing Force–Force Graph (Guide)" on page 368 and [14] on page 388.
Note 2) The maximum value of the work load for the positioning operation. An external guide is necessary to support the load. The actual work load and transfer speed change according to the condition of the external guide.
Note 3) Speed changes according to the work load. Check "Speed–Work Load Graph (Guide)" on page 367.
Note 4) When the stroke is 25 mm, the maximum speed will be 250 mm/sec.
Note 5) Set to the pushing force when pushing.
Note 6) The speed and force may change depending on the cable length, load and mounting conditions. Furthermore, if the cable length exceeds 5 m, then it will decrease by up to 10% for each 5 m. (At 15 m: Reduced by up to 20%)
Note 7) A reference value for correcting an error in reciprocal operation.
Note 8) Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)
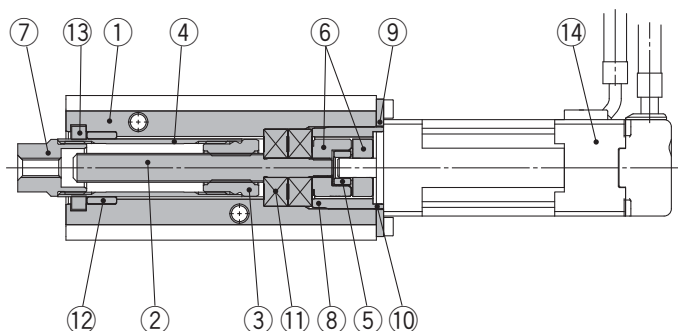Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. Test was performed in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)
Note 9) The power consumption (including the controller) is for when the actuator is operating.
Note 10) The standby power consumption when operating (including the controller) is for when the actuator is stopped in the set position during operation. Except during the pushing operation.
Note 11) The maximum instantaneous power consumption (including the controller) is for when the actuator is operating. This value can be used for the selection of the power supply.

Weight

Model		LEPY6		
Stroke [mm]		25	50	75
Product weight [kg]	**Basic**	0.24	0.29	0.34

Model		LEPY10		
Stroke [mm]		25	50	75
Product weight [kg]	**Basic**	0.47	0.55	0.65
	Compact	0.41	0.49	0.59

Construction

Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Screw shaft**	Stainless steel	Heat treatment + Specially treated
3	**Screw nut**	Stainless steel	Heat treatment + Specially treated
4	**Rod**	Stainless steel	
5	**Spider**	NBR	
6	**Hub**	Aluminum alloy	
7	**Socket**	Free cutting carbon steel	Nickel plating
8	**Bearing stopper**	Size 6: Aluminum alloy Size 10: Carbon steel	
9	**Motor plate**	Aluminum alloy	Anodized
10	**Guide ring**	Aluminum alloy	Size 10 only
11	**Bearing**	—	
12	**Bushing**	Oil impregnated sintered copper alloy	
13	**Soft wiper**	—	
14	**Step motor (Servo/24 VDC)**	—	

SMC

Dimensions

LEPY6
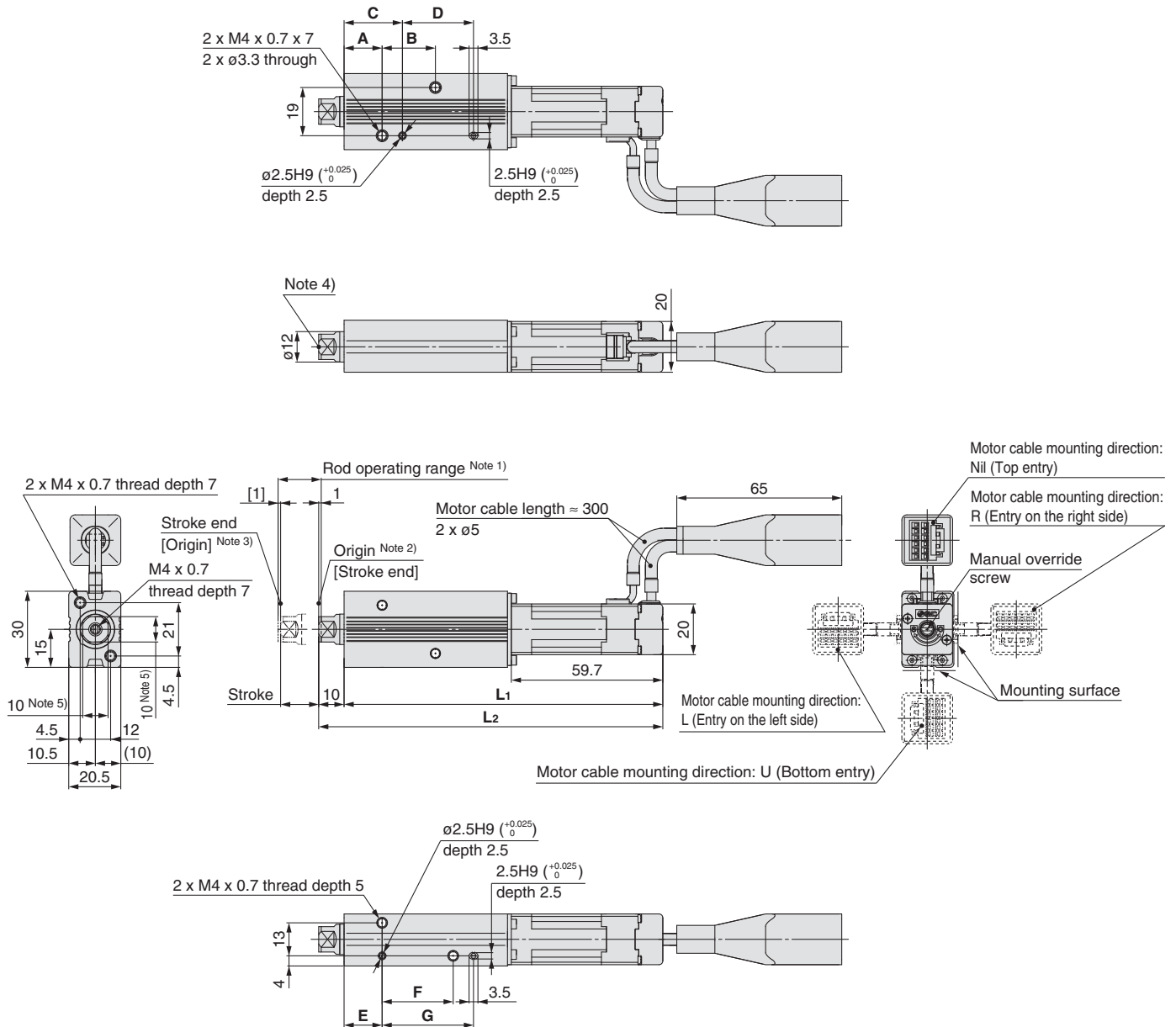
2 x M4 x 0.7 x 7
2 x ø3.3 through

ø2.5H9 ($^{+0.025}_{0}$) depth 2.5

2.5H9 ($^{+0.025}_{0}$) depth 2.5

Note 4)
ø12
20

2 x M4 x 0.7 thread depth 7

Stroke end [Origin] Note 3)
M4 x 0.7 thread depth 7

Rod operating range Note 1)
[1]   1

Motor cable length ≈ 300
2 x ø5

Origin Note 2)
[Stroke end]

65

Motor cable mounting direction: Nil (Top entry)
Motor cable mounting direction: R (Entry on the right side)
Manual override screw
Mounting surface

Motor cable mounting direction: L (Entry on the left side)
Motor cable mounting direction: U (Bottom entry)

30 15 21 4.5 10 Note 5)
10 Note 5) 4.5 12
10.5 (10)
20.5

Stroke 10 L₁ 59.7 20
L₂

ø2.5H9 ($^{+0.025}_{0}$) depth 2.5
2.5H9 ($^{+0.025}_{0}$) depth 2.5

2 x M4 x 0.7 thread depth 5
13 4
E F G 3.5

Note 1) Range within which the rod can move when it returns to origin.
 Make sure a workpiece mounted on the rod does not interfere with the workpieces and facilities around the rod.
Note 2) Position after return to origin.
Note 3) [ ] for when the direction of return to origin has changed.
Note 4) Do not apply rotational torque to the rod end.
Note 5) The direction of rod end width across flats (□10) differs depending on the products.

Dimensions [mm]

Model	L₁	L₂	A	B	C	D	E	F	G
LEPY6□-25□	125.6	135.6	15	21	23	28	15	28	36
LEPY6□-50□	156.6	166.6	22	45	30	52	22	52	60
LEPY6□-75□	188.6	198.6	29	70	37	77	29	77	85

Dimensions

LEPY10

2 x M5 x 0.8 x 9
2 x ø4.3 through

D E
B C 4
22

ø3H9 ($^{+0.025}_{0}$) depth 3   3H9 ($^{+0.025}_{0}$) depth 3

Note 4)
28
ø14

2 x M5 x 0.8 thread depth 9
Stroke end [Origin] Note 3)
M5 x 0.8 thread depth 9

Rod operating range Note 1)
[1]   1
Origin Note 2) [Stroke end]
Motor cable length ≈ 300
2 x ø5

Motor cable mounting direction: Nil (Top entry)
Motor cable mounting direction: R (Entry on the right side)
20
20

Manual override screw

42 21   28   7   12 Note 5)

Stroke   12   L₁   A   L₂
28

Motor cable mounting direction: L (Entry on the left side)

5.5   18
14.5   (14)
28.5
12 Note 5)

Mounting surface

Motor cable mounting direction: U (Bottom entry)

2 x M5 x 0.8 thread depth 9
3H9 ($^{+0.025}_{0}$) depth 3
19
5
G   4
ø3H9 ($^{+0.025}_{0}$) depth 3
F   J

Note 1) Range within which the rod can move when it returns to origin.
    Make sure a workpiece mounted on the rod does not interfere with the workpieces and facilities around the rod.
Note 2) Position after return to origin.
Note 3) [ ] for when the direction of return to origin has changed.
Note 4) Do not apply rotational torque to the rod end.
Note 5) The direction of rod end width across flats (□12) differs depending on the products.
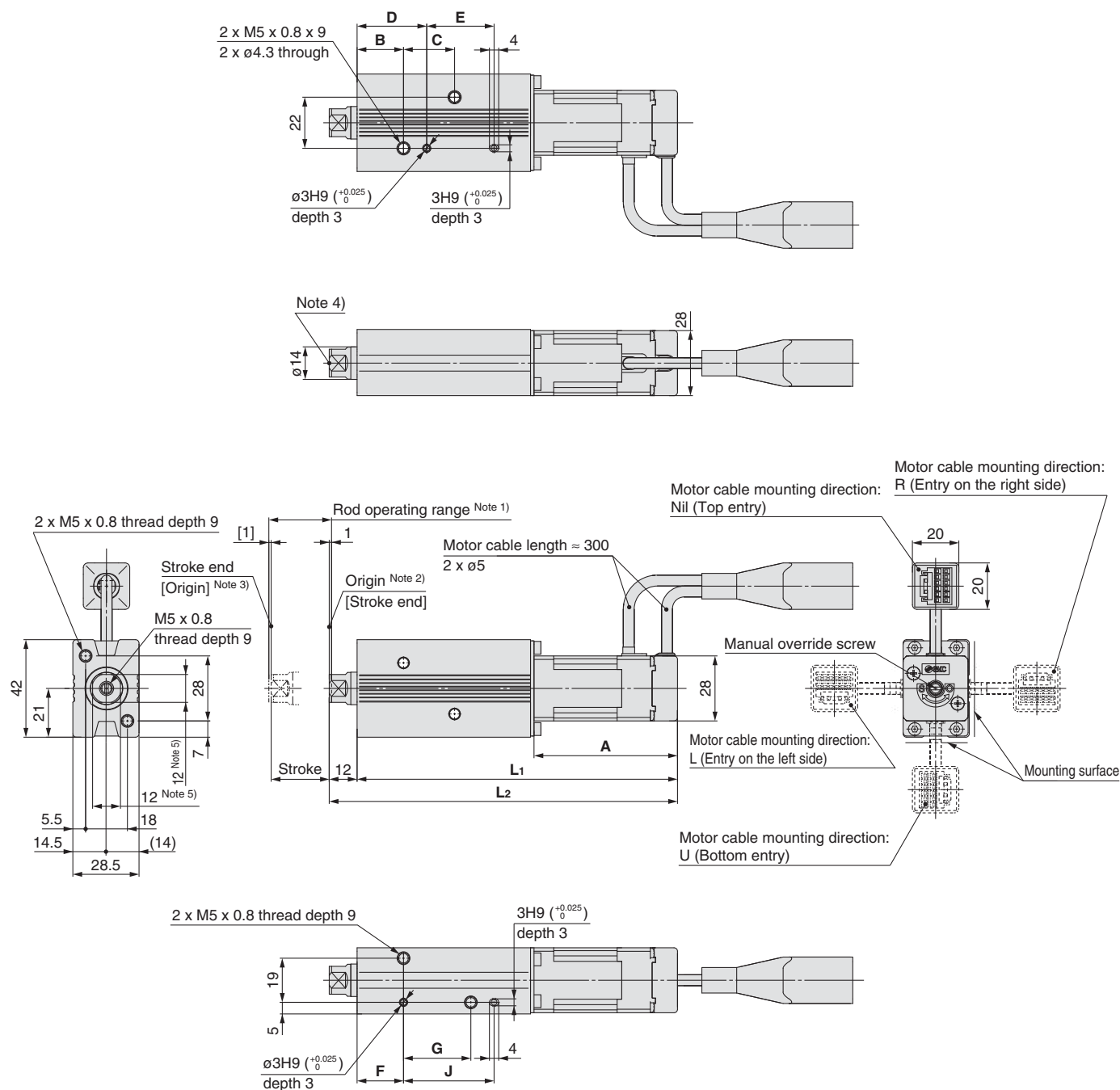
Dimensions
[mm]

Model	L₁	L₂	A	B	C	D	E	F	G	J
LEPY10□-25□	138	150		20	22	30	29	20	29	39
LEPY10□-50□	163	175	61.8	24	43	34	50	24	50	60
LEPY10□-75□	198	210		30	72	40	79	30	79	89
LEPY10L□-25□	124	136		20	22	30	29	20	29	39
LEPY10L□-50□	149	161	47.8	24	43	34	50	24	50	60
LEPY10L□-75□	184	196		30	72	40	79	30	79	89

SMC

Electric Actuator/Miniature Slide Table Type
Series LEPS

Model Selection

Selection Procedure

Positioning Control Selection Procedure

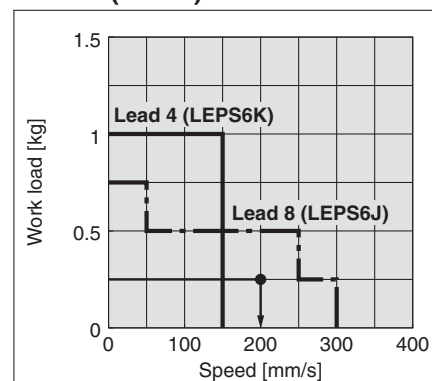| Step 1 | Check the work load–speed. (Horizontal transfer) |
| Step 2 | Check the cycle time. |
| Step 3 | Check the guide allowable moment. |
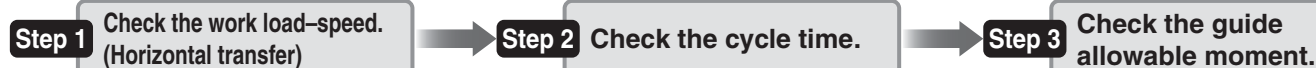
Selection Example

Operating conditions

- Workpiece mass: 0.25 [kg]
- Speed: 200 [mm/s]
- Acceleration/Deceleration: 3000 [mm/s^2]
- Stroke: 20 [mm]
- Workpiece mounting condition: Horizontal transfer

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LEPS6 (Basic)

<Speed–Work load graph>
(LEPS6/Step motor)

Lead 4 (LEPS6K)
Lead 8 (LEPS6J)

Step 1 **Check the work load–speed. <Speed–Work load graph>**

Select the target model based on the workpiece mass and speed with reference to the <Speed–Work load graph>.

Selection example) The **LEPS6J** is temporarily selected based on the graph shown on the right side.

Step 2 **Check the cycle time.**

Calculate the cycle time using the following calculation method.

- Cycle time T can be found from the following equation.

$$T = T1 + T2 + T3 + T4 \ [s]$$

- T1: Acceleration time and T3: Deceleration time can be obtained by the following equation.

$$T1 = V/a1 \ [s] \qquad T3 = V/a2 \ [s]$$

- T2: Constant speed time can be found from the following equation.

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} \ [s]$$

- T4: Settling time varies depending on the conditions such as motor types, load and in position of the step data. Therefore, calculate the settling time with reference to the following value.

$$T4 = 0.2 \ [s]$$

L : Stroke [mm] ⋯ (Operating condition)
V : Speed [mm/s] ⋯ (Operating condition)
a1: Acceleration [mm/s^2] ⋯ (Operating condition)
a2: Deceleration [mm/s^2] ⋯ (Operating condition)

T1: Acceleration time [s] ⋯ Time until reaching the set speed
T2: Constant speed time [s] ⋯ Time while the actuator is operating at a constant speed
T3: Deceleration time [s] ⋯ Time from the beginning of the constant speed operation to stop
T4: Settling time [s] ⋯ Time until positioning is completed

Calculation example)
T1 to T4 can be calculated as follows.

T1 = V/a1 = 200/3000 = 0.067 [s], T3 = V/a2 = 200/3000 = 0.067 [s]
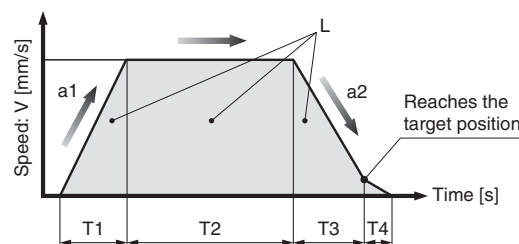
$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} = \frac{20 - 0.5 \cdot 200 \cdot (0.067 + 0.067)}{200} = 0.033 \ [s]$$

T4 = 0.2 [s]

Therefore, the cycle time can be obtained as follows.
T = T1 + T2 + T3 + T4 = 0.067 + 0.033 + 0.067 + 0.2 = **0.367 [s]**
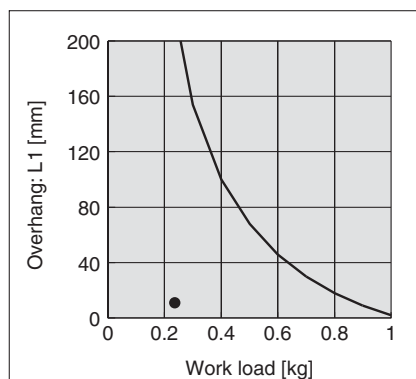
Step 3 **Check the guide allowable moment.**

Based on the above calculation result, the LEPS6J-25 is selected.

Guide allowable moment

LEFS LEFB
LEJS LEJB
LEL
LEM
LEY LEYG
LES LESH
LEPY LEPS
LER
LEH
LEY-X5
11-LEFS
11-LEJS
25A-
LEC□
LECS□
LECSS-T
LECYM LECYU
Motorless
LAT3

SMC

Series *LEPS*
Step Motor (Servo/24 VDC)

Selection Procedure

Pushing Control Selection Procedure

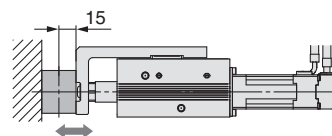| Step 1 | Check the duty ratio. | → | Step 2 | Check the pushing force. | → | Step 3 | Check the guide allowable moment. |

∗ The duty ratio is a ratio at the time that can keep being pushed.

Selection Example

Operating conditions

- Mounting condition: Horizontal (pushing)
- Jig weight: 0.4 [kg]
- Pushing force: 30 [N]
- Duty ratio: 70 [%]
- Speed: 150 [mm/s]
- Stroke: 40 [mm]

15

Step 1 Check the duty ratio.
<Conversion table of pushing force–duty ratio>

Select the [Pushing force] from the duty ratio with reference to the <Conversion table of pushing force–duty ratio>.

Selection example)
Based on the table below,
- Duty ratio: 70 [%]
Therefore, the set value of pushing force will be 80 [%].

<Conversion table of pushing force–duty ratio>
(LEPS10L)

Set value of pushing force [%]	Duty ratio [%]	Continuous pushing time [minute]
70 or less	100	—
80	70	10
100	50	5

∗ [Set value of pushing force] is one of the step data input to the controller.
∗ [Continuous pushing time] is the time that the actuator can continuously keep pushing.

Pushing control

Position

Time

A

B

Duty ratio = A/B x 100 [%]

Step 2 Check the pushing force. **<Set value of pushing force–Force graph>**

Select the target model based on the set value of pushing force and force with reference to the <Set value of pushing force–Force graph>.
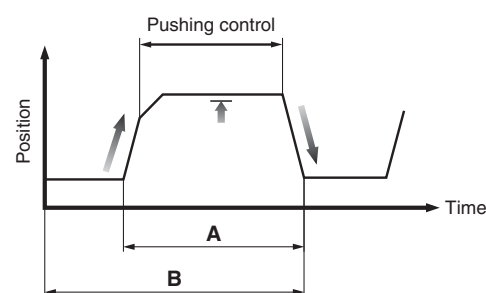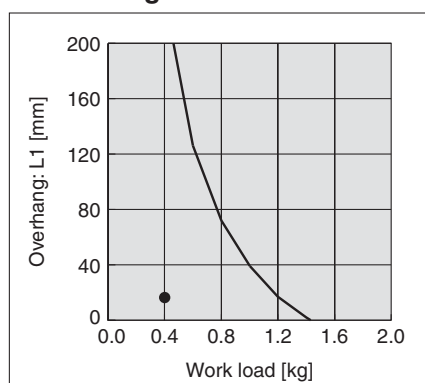
Selection example)
Based on the graph shown on the right side,
- Set value of pushing force: 75 [%]
- Pushing force: 30 [N]
Therefore, the **LEPS10LK** is temporarily selected.

Force [N]

Lead 5 (LEPS10LK)

Lead 10 (LEPS10LJ)

Set value of pushing force [%]

<Set value of pushing force–Force graph>
(LEPS10L)

Step 3 Check the guide allowable moment.

Overhang: L1 [mm]

Work load [kg]

Based on the above calculation result, the LEPS10LK-50 is selected.

SMC

Speed–Work Load Graph (Guide)

∗ The following graph shows the values when moving force is 150%.

LEPS6 (Basic)

Horizontal

Vertical

LEPS10(L) (Motor size: Basic/Compact)

Horizontal

Vertical

Set Value of Pushing Force–Force Graph (Guide)

LEPS6 (Basic)

Set value of pushing force [%]	Duty ratio [%]	Continuous pushing time [minute]
70	100	—
80	70	10
100	50	5

∗ Set values for the controller.

LEPS10 (Basic)

Set value of pushing force [%]	Duty ratio [%]	Continuous pushing time [minute]
60 or less	100	—
70	30	3
100	15	1

LEPS10L (Compact)

Set value of pushing force [%]	Duty ratio [%]	Continuous pushing time [minute]
70 or less	100	—
80	70	10
100	50	5

LEFS
LEFB

LEJS
LEJB

LEL

LEM

LEY
LEYG

LES
LESH

LEPY
LEPS

LER

LEH

LEY-X5

11-LEFS

11-LEJS

25A-

LEC□

LECS□

LECSS-T

LECYM
LECYU

Motorless

LAT3

SMC

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Dynamic Allowable Moment

∗ This graph shows the amount of allowable overhang (guide unit) when the center of gravity of the workpiece overhangs in one direction. When selecting the overhang, refer to the Electric Actuator Selection Software for confirmation, http://www.smcworld.com

Acceleration/Deceleration —— 3000 mm/s²

Orientation	Load overhanging direction		Model			
	m : Work load [kg] Me: Dynamic allowable moment [N·m] L : Overhang to the work load center of gravity [mm]		LEPS6		LEPS10	
			LEPS6□-25	LEPS6□-50	LEPS10□-25	LEPS10□-50
Horizontal/Bottom	L1 / Me / m	X	(graph L1 vs Work load)	(graph L1 vs Work load)	(graph L1 vs Work load)	(graph L1 vs Work load)
	L2 / Me / m	Y	(graph L2 vs Work load)	(graph L2 vs Work load)	(graph L2 vs Work load)	(graph L2 vs Work load)
	Me / m / L3	Z	(graph L3 vs Work load)	(graph L3 vs Work load)	(graph L3 vs Work load)	(graph L3 vs Work load)
Wall	L4 / Me / m	X	(graph L4 vs Work load)	(graph L4 vs Work load)	(graph L4 vs Work load)	(graph L4 vs Work load)
	Me / m / L5	Y	(graph L5 vs Work load)	(graph L5 vs Work load)	(graph L5 vs Work load)	(graph L5 vs Work load)
	L6 / Me / m	Z	(graph L6 vs Work load)	(graph L6 vs Work load)	(graph L6 vs Work load)	(graph L6 vs Work load)

SMC

Dynamic Allowable Moment

∗ This graph shows the amount of allowable overhang (guide unit) when the center of gravity of the workpiece overhangs in one direction. When selecting the overhang, refer to the Electric Actuator Selection Software for confirmation, http://www.smcworld.com
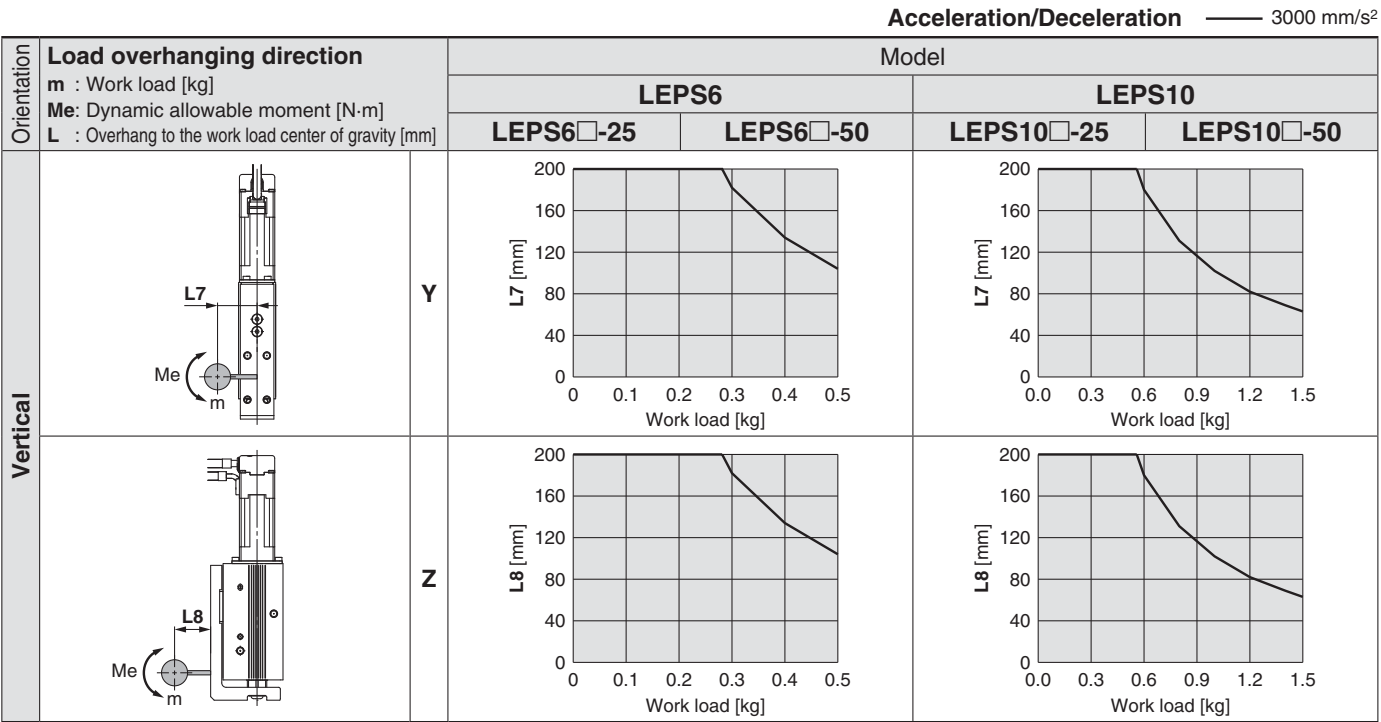
Acceleration/Deceleration ——— 3000 mm/s²

Orientation	Load overhanging direction		Model			
	m : Work load [kg] Me: Dynamic allowable moment [N·m] L : Overhang to the work load center of gravity [mm]		LEPS6		LEPS10	
			LEPS6□-25	LEPS6□-50	LEPS10□-25	LEPS10□-50
Vertical	Y					
	Z					

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SMC

Series *LEPS*

Step Motor (Servo/24 VDC)

Static Allowable Moment

Model	Allowable moment [N·m]		
	Pitch moment	Yaw moment	Roll moment
	Mp	**My**	**Mr**
LEPS6	1.07	1.07	2.51
LEPS10	2.55	2.55	5.47

Traveling Parallelism

Traveling parallelism	Stroke [mm]	
	25	50
	0.05 mm or less	0.1 mm or less

Table Deflection (Reference Value)

∗ These values are initial guideline values.

Table displacement due to pitch moment load (marked with the arrow)
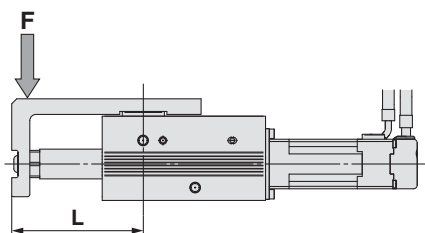
Table displacement due to yaw moment load (marked with the arrow)
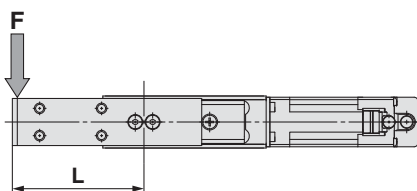
Table displacement due to roll moment load (marked with A)
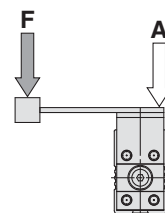
Distance L [mm]

Model	**LEPS6**		**LEPS10**	
Stroke [mm]	25	50	25	50
Distance L [mm]	53.0	77.0	59.5	82.0

LEPS6
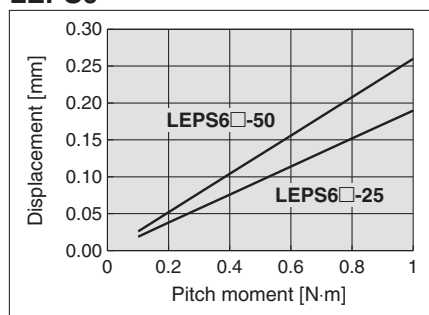
LEPS6
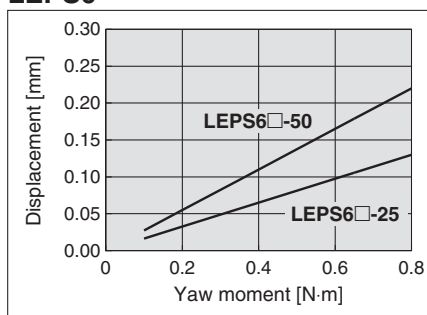
LEPS6
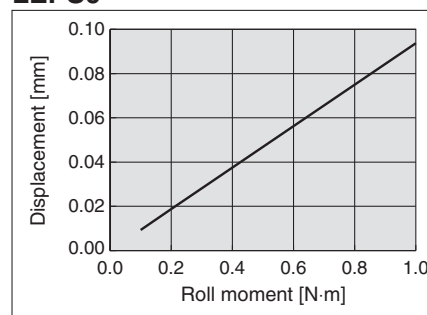
LEPS10
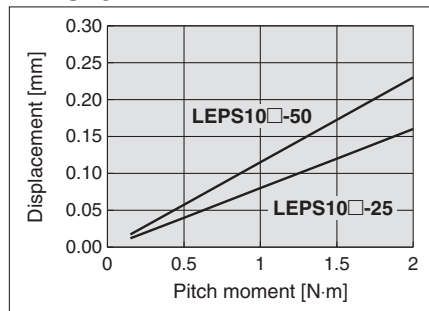
LEPS10
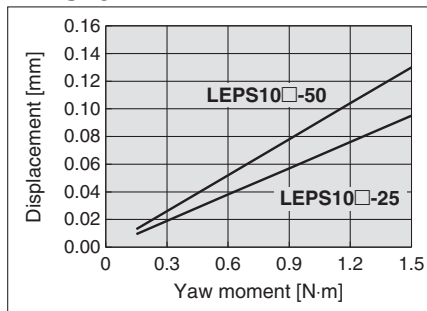
LEPS10
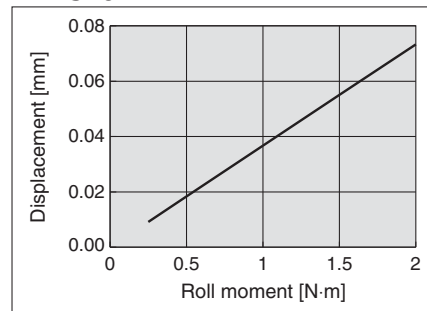
SMC

LEFS
LEFB

LEJS
LEJB

LEL

LEM

LEY
LEYG

LES
LESH

LEPY
LEPS

LER

LEH

LEY-X5

11-LEFS

11-LEJS

25A-

LEC□

LECS□

LECSS-T

LECYM
LECYU

Motorless

LAT3

Electric Actuator
Miniature Slide Table Type

Series LEPS LEPS6, 10

CE c**UL**us RoHS

How to Order

LEPS **10** ☐ **K** – **50** ☐ – **R** **1** **6N** **1** ☐

❶ ❷ ❸   ❹ ❺   ❻ ❼ ❽   ❾ ❿

---

❶ Size

6
10

❷ Motor size

Symbol	Motor size	Applicable size
Nil	Basic	6, 10
L	Compact	10
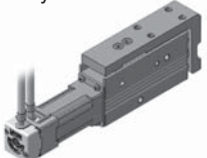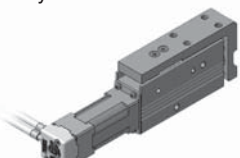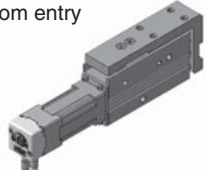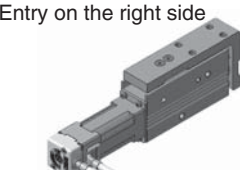
❸ Lead screw type [mm]

Symbol	Screw lead	
	LEPS6	LEPS10
K	4	5
J	8	10

❹ Stroke [mm]

Symbol	Stroke
25	25
50	50

---

❺ Motor cable mounting direction

	Top entry		Entry on the left side
Nil		**L**	
	Bottom entry		Entry on the right side
U		**R**	

❻ Actuator cable type*

Nil	Without cable
S	Standard cable
R	Robotic cable (Flexible cable)

∗ The standard cable should be used on fixed parts. For using on moving parts, select the robotic cable.

⚠ Caution

[CE-compliant products]
① EMC compliance was tested by combining the electric actuator LEP series and the controller LEC series.
The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, conformity to the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify conformity to the EMC directive for the machinery and equipment as a whole.
② CC-Link direct input type (LECPMJ) is not CE-compliant.

[UL-compliant products]
When conformity to UL is required, the electric actuator and controller/driver should be used with a UL1310 Class 2 power supply.

The actuator and controller/driver are sold as a package.

Confirm that the combination of the controller/driver and the actuator is correct.

<Check the following before use.>
① Check the actuator label for model number. This matches the controller/driver.
② Check Parallel I/O configuration matches (NPN or PNP).

LEPS6K–25U   NPN

① ②

∗ Refer to the operation manual for using the products. Please download it via our website, http://www.smcworld.com

SMC

❼ Actuator cable length [m]

Nil	Without cable	8	8*
1	1.5	A	10*
3	3	B	15*
5	5	C	20*

∗ Produced upon receipt of order (Robotic cable only) Refer to the specifications Note 6) on page 383.

❽ Controller/Driver type*1

Nil	Without controller/driver	
6N	**LECP6**	NPN
6P	(Step data input type)	PNP
1N	**LECP1**	NPN
1P	(Programless type)	PNP
MJ	**LECPMJ**∗2 (CC-Link direct input type)	—
AN	**LECPA**∗3	NPN
AP	(Pulse input type)	PNP

∗1 For details about controller/driver and compatible motor, refer to the compatible controller/driver below.
∗2 Not applicable to CE.
∗3 When pulse signals are open collector, order the current limiting resistor (LEC-PA-R-□) on page 587 separately.

❾ I/O cable length [m]*1, Communication plug

Nil	Without cable (Without communication plug connector)∗3
1	1.5
3	3∗2
5	5∗2
S	Straight type communication plug connector∗3
T	T-branch type communication plug connector∗3

∗1 When "Without controller/driver" is selected for controller/driver types, I/O cable cannot be selected. Refer to page 559 (For LECP6), page 573 (For LECP1) or page 587 (For LECPA) if I/O cable is required.
∗2 When "Pulse input type" is selected for controller/driver types, pulse input usable only with differential. Only 1.5 m cables usable with open collector.
∗3 For the LECPMJ, only "Nil", "S" and "T" are selectable since I/O cable is not included.

❿ Controller/Driver mounting

Nil	Screw mounting
D	DIN rail mounting*

∗ DIN rail is not included. Order it separately.

Compatible Controller/Driver

Type	Step data input type	CC-Link direct input type	Programless type	Pulse input type
Series	LECP6	LECPMJ	LECP1	LECPA
Features	Value (Step data) input Standard controller	CC-Link direct input	Capable of setting up operation (step data) without using a PC or teaching box	Operation by pulse signals
Compatible motor	Step motor (Servo/24 VDC)			
Maximum number of step data	64 points		14 points	—
Power supply voltage	24 VDC			
Reference page	Page 551	Page 591	Page 567	Page 581

Specifications

Model			LEPS6		LEPS10	
Stroke [mm]			25, 50			
Screw lead [mm]			4	8	5	10
Pushing force [N] Note 1) Note 6)	Basic		14 to 20	7 to 10	25 to 50	12.5 to 25
	Compact		—	—	24 to 40	12 to 20
Work load [kg] Note 2) Note 3) Note 6)	Horizontal	Basic	1.0	0.75	2.0	1.5
		Compact	—	—	2.0	1.5
	Vertical	Basic	0.5	0.25	1.5	1.0
		Compact	—	—	1.5	1.0
Speed [mm/s] Note 3) Note 6)	Horizontal	Basic	10 to 150	20 to 300 Note 4)	10 to 200	20 to 350 Note 4)
		Compact	—	—	10 to 200	20 to 350 Note 4)
	Vertical	Basic	10 to 150	20 to 300 Note 4)	10 to 150	20 to 300 Note 4)
		Compact	—	—	10 to 150	20 to 300 Note 4)
Pushing speed [mm/s] Note 5)			10	20	10	20
Acceleration/Deceleration [mm/s²]			3000			
Backlash [mm]			0.2 or less			
Positioning repeatability [mm]			±0.05			
Lost motion [mm] Note 7)			0.2 or less			
Impact/Vibration resistance [m/s²] Note 8)			50/20			
Actuation type			Slide screw			
Guide type			Linear guide			
Max. operating frequency [c.p.m]			60			
Operating temperature range [°C]			5 to 40			
Operating humidity range [%RH]			90 or less (No condensation)			
Motor size			□20		□28	
Motor type			Step motor (Servo/24 VDC)			
Encoder (Angular displacement sensor)			Incremental A/B phase (800 pulse/rotation)			
Rated voltage [V]			24 VDC ±10%			
Power consumption [W] Note 9)	Basic		12		28	
	Compact		—		22	
Standby power consumption when operating [W] Note 10)	Basic		11		22	
	Compact		—		16	
Max. instantaneous power consumption [W] Note 11)	Basic		22		55	
	Compact		—		45	

The left side of the table is divided into two spanning labels: **Actuator specifications** (rows from Stroke to Operating humidity range) and **Electric specifications** (rows from Motor size to Max. instantaneous power consumption).

Note 1) Pushing force accuracy is LEPS6: ±30% (F.S.), LEPS10: ±25%(F.S.).
　　　Refer to pages 387 and 388 for the detailed setting range and precautions. The pushing force and the duty ratio change according to the set value. Check "Set Value of Pushing Force–Force Graph (Guide)" on page 376 and [14] on page 388.
Note 2) The maximum value of the work load for the positioning operation. Check "Dynamic Allowable Moment" graph for the allowable moment of the guide on pages 377 and 378.
Note 3) Speed changes according to the work load. Check "Speed–Work Load Graph (Guide)" on page 376.
Note 4) When the stroke is 25 mm, the maximum speed will be 250 mm/sec.
Note 5) Set to the pushing force when pushing.
Note 6) The speed and force may change depending on the cable length, load and mounting conditions. Furthermore, if the cable length exceeds 5 m, then it will decrease by up to 10% for each 5 m. (At 15 m: Reduced by up to 20%)
Note 7) A reference value for correcting an error in reciprocal operation.
Note 8) Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)
　　　Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. Test was performed in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)
Note 9) The power consumption (including the controller) is for when the actuator is operating.
Note 10) The standby power consumption when operating (including the controller) is for when the actuator is stopped in the set position during operation. Except during the pushing operation.
Note 11) The maximum instantaneous power consumption (including the controller) is for when the actuator is operating. This value can be used for the selection of the power supply.

Weight

Model		LEPS6	
Stroke [mm]		25	50
Product weight [kg]	Basic	0.29	0.35

Model		LEPS10	
Stroke [mm]		25	50
Product weight [kg]	Basic	0.56	0.65
	Compact	0.50	0.59

Construction

Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Screw shaft**	Stainless steel	Heat treatment + Specially treated
3	**Screw nut**	Stainless steel	Heat treatment + Specially treated
4	**Table**	Aluminum alloy	Anodized
5	**Linear guide**	—	
6	**Rod**	Stainless steel	
7	**Spider**	NBR	
8	**Hub**	Aluminum alloy	
9	**Socket**	Free cutting carbon steel	Nickel plating
10	**Bearing stopper**	Size 6: Aluminum alloy Size 10: Carbon steel	
11	**Motor plate**	Aluminum alloy	Anodized
12	**Guide ring**	Aluminum alloy	Size 10 only
13	**Bearing**	—	
14	**Bushing**	Oil impregnated sintered copper alloy	
15	**Soft wiper**	—	
16	**Step motor (Servo/24 VDC)**	—	

SMC

Dimensions

LEPS6

2 x M4 x 0.7 thread depth 8 / ø2.5H9 $\binom{+0.025}{0}$ 2.5H9 $\binom{+0.025}{0}$
depth 2.5   depth 2.5

4 x M4 x 0.7 thread depth 6

Table operating range Note 1)

Origin Note 2)
[Stroke end]

Motor cable length ≈ 300
2 x ø5

Stroke end
[Origin] Note 3)

2 x M4 x 0.7 thread depth 8
2 x ø3.3 through
ø2.5H9 $\binom{+0.025}{0}$
depth 2.5
2.5H9 $\binom{+0.025}{0}$
depth 2.5

4 x M4 x 0.7 thread depth 7

Motor cable mounting direction
Nil (Top entry)

Manual override screw

Motor cable mounting direction
L (Entry on the left side)

Motor cable mounting direction
U (Bottom entry)

Motor cable mounting direction
R (Entry on the right side)

ø2.5H9 $\binom{+0.025}{0}$
depth 2.5
2.5H9 $\binom{+0.025}{0}$
depth 2.5

2 x M4 x 0.7 thread depth 5

Note 1) Range within which the table can move when it returns to origin.
    Make sure a workpiece mounted on the table does not interfere with the workpieces and facilities around the table.
Note 2) Position after return to origin.
Note 3) [ ] for when the direction of return to origin has changed.

Dimensions
[mm]

Model	L₁	L₂	L₃	A	B	C	D	E	F	G	J
LEPS6□-25□	127.1	138.6	11.5	16.5	21	24.5	28	16.5	28	36	76.4
LEPS6□-50□	156.6	169.6	13	22	45	30	52	22	52	60	107.4

Dimensions

LEPS10

2 x M5 x 0.8 thread depth 10

ø3H9 $\left(^{+0.025}_{0}\right)$ depth 3

3H9 $\left(^{+0.025}_{0}\right)$ depth 3

4 x M4 x 0.7 thread depth 6

Table operating range Note 1)

Origin Note 2) [Stroke end]

Motor cable length ≈ 300

Stroke end [Origin] Note 3)

4 x M4 x 0.7 thread depth 8

2 x M5 x 0.8 thread depth 9
2 x ø4.3 through
ø3H9 $\left(^{+0.025}_{0}\right)$ depth 3

3H9 $\left(^{+0.025}_{0}\right)$ depth 3

2 x ø5

Motor cable mounting direction
Nil (Top entry)

Motor cable mounting direction
R (Entry on the right side)

Motor cable mounting direction
L (Entry on the left side)

Manual override screw

Motor cable mounting direction
U (Bottom entry)

2 x M5 x 0.8 thread depth 9

3H9 $\left(^{+0.025}_{0}\right)$ depth 3

ø3H9 $\left(^{+0.025}_{0}\right)$ depth 3

Note 1) Range within which the table can move when it returns to origin.
   Make sure a workpiece mounted on the table does not interfere with the workpieces and facilities around the table.
Note 2) Position after return to origin.
Note 3) [   ] for when the direction of return to origin has changed.

Dimensions

[mm]

| Model	L₁	L₂	A	B	C	D	E	F	G	J	K
LEPS10□-25□	138	152.5	61.8	20	22	30	29	20	29	39	88.2
LEPS10□-50□	163	177.5		24	43	34	50	24	50	60	113.2
LEPS10L□-25□	124	138.5	47.8	20	22	30	29	20	29	39	88.2
LEPS10L□-50□	149	163.5		24	43	34	50	24	50	60	113.2

SMC

Design/Selection

⚠Warning

1. Do not apply a load in excess of the specification limits.

Select a suitable actuator by work load and allowable lateral load on the rod end. If the product is used outside of the specification limits, the eccentric load applied to the rod will be excessive and have adverse effects such as creating play on the sliding parts of the rod, degrading accuracy and shortening the life of the product.

2. Do not use the product in applications where excessive external force (including vibration) or impact force is applied to it.

Do not apply impact and vibration outside of the specifications; it may lead to a malfunction.

3. If gravity acts on the workpiece due to vertical mounting, it may drop due to its own weight depending on the conditions when the product is not energized (SVON signal is OFF) or stopped (EMG is not energized).

4. Power failure may result in a decrease in the pushing force; ensure that safety measures are in place to prevent injury to the operator or damage to the equipment.

When the product is used for clamping, the clamping force could be decreased due to power failure, potentially creating a hazardous situation in which the workpiece is released.

5. This product cannot be used as a stopper.

Excessive load acts on the actuator, which adversely affects the operation and the life of the product.

Mounting

⚠Warning

1. Do not drop or hit the actuator to avoid scratching and denting the mounting surfaces.

Even slight deformation can cause the deterioration of accuracy and operation failure.

2. When mounting workpieces or jigs to the rod end, hold the flats of the rod end with a wrench so that the rod does not rotate (Rod type only).

When attaching a nut or workpiece to the end of the rod, hold the flats of the rod end with a wrench (the rod should be fully retracted). Do not apply tightening torque to the rod non-rotating mechanism. The rod is manufactured to precise tolerances, so even a slight deformation may cause a malfunction and damage.


Fixed
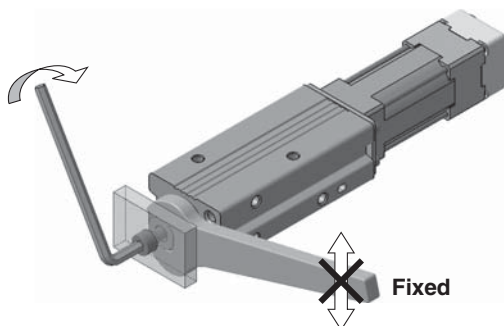
Mounting

⚠Warning

3. When mounting a bolt, workpiece or jig to the rod end, the bolt should be tightened with a torque within the specified range (Rod type only).

Tightening to a torque higher than the specified value may cause a malfunction due to deformation of the component, whilst under-tightening can cause displacement of the mounting position or in extreme conditions detaching of the workpiece. If the bolt is screwed in more than the maximum depth, the lead screw will be damaged, leading to operation failure.
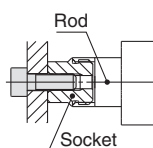
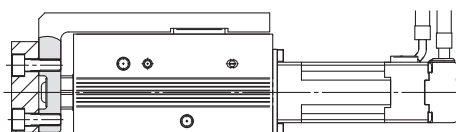| Model	Thread size	Max. tightening torque [N·m]	Max. screw-in depth [mm]	Rod end width across flats [mm]
LEPY6	M4 x 0.7	1.4	7	10
LEPY10	M5 x 0.8	3.0	9	12

4. The angular position of the rod end flats cannot be changed because the rod has a non-rotating mechanism inside (Rod type only).

The angular position of the rod end flats is not specified; it depends on the actuator type.

The rod rotates slightly due to the clearance of the non-rotating mechanism: Install the bolt or workpiece with consideration to the rotation.

5. When attaching the workpiece to the table, hold the table and tighten the screws with a torque within the specified range (Slide table type only).

The table is supported by a linear guide, do not apply impact or moment when mounting the work load.

If the screws are screwed to more than the maximum screw-in depth, it may lead to a malfunction due to damage of the linear guide or body.

Top mounting
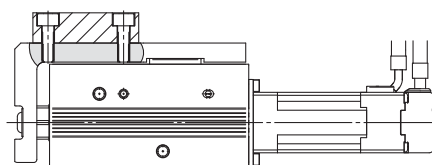
Model	Screw size	Max. tightening torque [N·m]	Max. screw-in depth [mm]
LEPS6	M4 x 0.7	1.4	6
LEPS10	M4 x 0.7	1.4	6

Front mounting

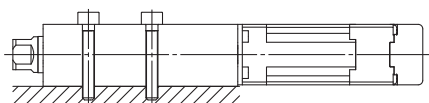| Model	Screw size	Max. tightening torque [N·m]	Max. screw-in depth [mm]
LEPS6	M4 x 0.7	1.4	7
LEPS10	M4 x 0.7	1.4	8

Mounting

⚠Warning

6. When mounting the product, tighten the mounting screws within the specified torque range.
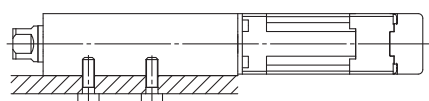
Tightening the screws with a higher torque than recommended may cause a malfunction, whilst the tightening with a lower torque can cause the displacement of the mounting position or in extreme conditions the actuator could become detached from its mounting position.
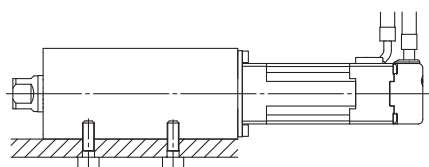
Side mounting (Body mounting through-hole)

Model	Screw size	Max. tightening torque [N·m]
LEPY6	M3 x 0.5	0.9
LEPS6		
LEPY10	M4 x 0.7	1.4
LEPS10		

Side mounting (Body tapped)

Model	Screw size	Max. tightening torque [N·m]	Max. screw-in depth [mm]
LEPY6	M4 x 0.7	1.4	7
LEPS6			
LEPY10	M5 x 0.8	3.0	9
LEPS10			

Bottom mounting (Body tapped)

Model	Screw size	Max. tightening torque [N·m]	Max. screw-in depth [mm]
LEPY6	M4 x 0.7	1.4	5
LEPS6			
LEPY10	M5 x 0.8	3.0	9
LEPS10			

Rod side mounting (Rod type only)
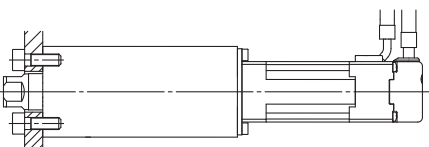
Model	Screw size	Max. tightening torque [N·m]	Max. screw-in depth [mm]
LEPY6	M4 x 0.7	1.4	7
LEPY10	M5 x 0.8	3.0	9

7. When it is necessary to operate the product by the manual override screw, check the position of the manual override and leave necessary space.

Do not apply excessive torque to the manual override screw. This may lead to damage and malfunction.

8. When an external guide is used, connect it in such a way that no impact or load is applied to it.

This may cause a malfunction due to an increase in sliding resistance, or use a freely moving connector (such as a floating joint).

Handling

⚠Caution

1. When the pushing operation is used, be sure to set to [Pushing operation].

Also, do not hit the workpiece in positioning operation or in the range of positioning operation.

It may damage and malfunction. If the operation is interrupted or stopped during the cycle: When the pushing operation command is output immediately after restarting the operation, the direction of movement depends on the position of restart.

2. Use the product within the specified pushing speed range for the pushing operation.

It may lead to damage and malfunction.

Model	Lead	Pushing speed [mm/sec]
LEPY6	4	10
LEPS6	8	20
LEPY10	5	10
LEPS10	10	20

3. For the pushing operation, ensure that the force is applied in the direction of the rod axis.

4. The moving force should be the initial value.

If the moving force is set below the initial value, it may cause an alarm.

Model	Motor size	Moving force [%]
LEPY6	Basic	150
LEPS6		
LEPY10	Basic	150
LEPS10	Compact	

5. The actual speed of this actuator is affected by the load.

Check the model selection section of the catalog.

6. Do not scratch or dent the sliding parts of the rod, by striking or attaching objects.

The rod is manufactured to precise tolerances, even a slight deformation may cause malfunction.

7. Avoid using the electric actuator in such a way that rotational torque would be applied to the rod.

It may cause deformation of the non-rotating sliding part, leading to clearance in the internal guide or an increase in the sliding resistance. Refer to the table below for the approximate values of the allowable range of rotational torque.

Allowable rotational torque [N·m] or less	LEPY6□	LEPY10□
	0.04	0.08

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Handling

⚠ Caution

8. Do not operate by fixing the rod and moving the actuator body.

Excessive load will be applied to the rod, leading to damage to the actuator and reduced the life of the product.

9. Return to origin

1) Do not apply a load, impact or resistance in addition to the transferred load during return to origin.
   Additional force will cause the displacement of the origin position since it is based on detected motor torque.
2) When the return to origin is set with <Basic parameter> [Origin offset], it is necessary to change the current position of the product. Recheck the value of step data.
3) It is recommended to set the directions of return to origin and pushing in the same direction in order to enhance the measurement accuracy during pushing operation.

10. There is no backlash effect in pushing operation.

The return to origin is done by the pushing operation.
The position can be displaced by the effect of the backlash during the positioning operation.
Take the backlash into consideration when setting the position.

<Backlash>

Model	Backlash [mm]
LEPY6	0.2 or less
LEPS6	0.2 or less
LEPY10	0.2 or less
LEPS10	0.2 or less

11. Do not hit at the stroke end except during return to origin.

This may damage the inner parts.

12. INP output signal

1) Positioning operation
   When the product comes within the set range by step data [In position], the INP output signal will turn on.
   Initial value: Set to [0.50] or higher.
2) Pushing operation
   When the effective pushing force exceeds the step data [Trigger LV], the INP output signal will turn on.
   When [Pushing force] setting and [Trigger LV] are set less than [Pushing force], use the product within the specified range of [Pushing force] and [Trigger LV].
   a) To ensure that the actuator pushes the workpiece with the set [Pushing force], it is recommended that the [Trigger LV] be set to the same value as the [Pushing force].
   b) If the [Trigger LV] is set lower than the [operation pushing force (current pushing force) for the pushing operation], the pushing force will exceed the trigger LV from the pushing start position and the INP output signal will turn on before pushing the workpiece. Increase the pushing force, or change the work load so that the current pushing force becomes smaller than the trigger LV.

<Pushing force and trigger LV range>

Model	Motor size	Set value of pushing force [%]
LEPY6 **LEPS6**	Basic	70 to 100
LEPY10	Basic	50 to 100
LEPS10	Compact	60 to 100

13. In pushing operation, set the product to a position of at least 0.5 mm away from a workpiece. (This position is referred to as a pushing start position.)

The following alarms may be generated and operation may become unstable.
   a. **"Posn failed" alarm is generated.**
   The product cannot reach a pushing start position due to variation in the width of workpieces.
   b. **"Pushing ALM" alarm is generated.**
   The product is pushed back from a pushing start position after starting to push.
   c. **"Deviation over flow" alarm is generated.**
   Displacement exceeding the specified value is generated at the pushing start position.

14. For the pushing operation, use the product within the duty ratio range below.

The duty ratio is a ratio at the time that can keep being pushed.

Model	Motor size	Set value of pushing force [%]	Duty ratio [%]	Continuous pushing time [minute]
LEPY6 **LEPS6**	Basic	70	100	—
		80	70	10
		100	50	5

Model	Motor size	Set value of pushing force [%]	Duty ratio [%]	Continuous pushing time [minute]
LEPY10 **LEPS10**	Basic	60 or less	100	—
		70	30	3
		100	15	1

Model	Motor size	Set value of pushing force [%]	Duty ratio [%]	Continuous pushing time [minute]
LEPY10 **LEPS10**	Compact	70 or less	100	—
		80	70	10
		100	50	5

15. When mounting the product, keep a 40 mm or longer diameter for bends in the motor cable.

Maintenance

⚠ Warning

1. Ensure that the power supply is stopped and the workpiece is removed before starting maintenance work or replacement of the product.

LEFS LEFB
LEJS LEJB
LEL
LEM
LEY LEYG
LES LESH
LEPY LEPS
LER
LEH
LEY-X5
11-LEFS
11-LEJS
25A-
LEC□
LECS□
LECSS-T LECST
LECYM LECYU
Motorless
LAT3