Electric Actuators

New

Rod Type | Guide Rod Type

Step Motor (Servo/24 VDC) | Servo Motor (24 VDC) Type

Rod Type *Series LEY*

Size: 16, 25, 32, 40

Long stroke:

Max. 500 mm (LEY32, 40)

Mounting variations

- Direct mounting: 3 directions, Bracket mounting: 3 types
- Either positioning or pushing control can be selected.
  Possible to hold the actuator with the rod pushing to a workpiece, etc.

Dust/Drip proof (IP65) specification: **-X5**

∗ Size: 25, 32

Guide Rod Type *Series LEYG*

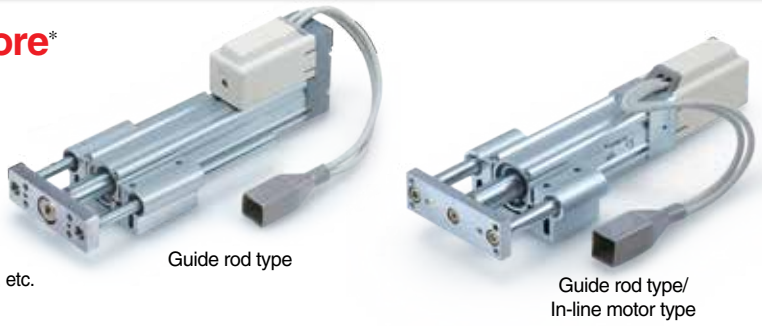
Size: 16, 25, 32, 40

Lateral end load: 5 times more∗

∗ Compared with rod type, size 25 and 100 stroke

Compatible with sliding bearing and ball bushing bearing.
Compatible with moment load and stopper (sliding bearing).

- Either positioning or pushing control can be selected.
  Possible to hold the actuator with the rod pushing to a workpiece, etc.



AC Servo Motor Type

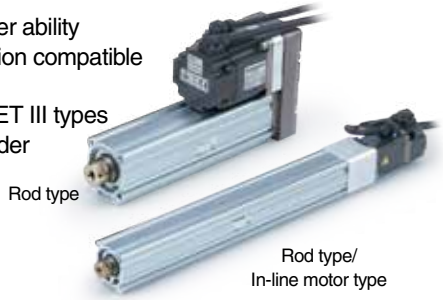
∗ Not applicable to UL.

Rod Type *Series LEY*

Size: 25, 32, 63 Note)

- High output motor (100/200/400 W)
- Improved high speed transfer ability
- High acceleration/deceleration compatible (5,000 mm/s²)
- Pulse input/CC-Link/SSCNET III types
- With internal absolute encoder (For LECSB/C/S)

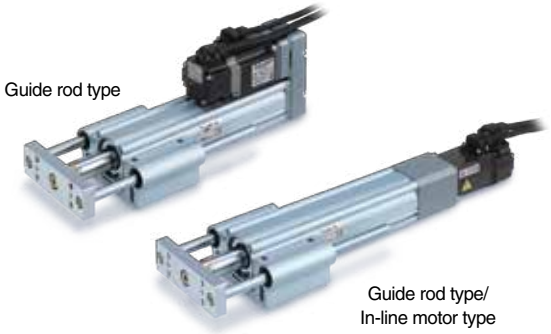
Dust/Drip proof (IP65) specification: **-X5**



Note) LEY63 is applicable only to the in-line motor type

Guide Rod Type *Series LEYG*

Size: 25, 32



Step Motor (Servo/24 VDC) | Servo Motor (24 VDC) **Controller/ Driver**

- **Step data input type**
  Series LECP6/LECA6
  64 points positioning
- **Programless type**
  Series LECP1
  14 points positioning
- **Pulse input type**
  Series LECPA

AC Servo Motor **Driver**

∗ Not applicable to UL.

- **For absolute encoder**
  - **Pulse input type**
    Series LECSB
  - **CC-Link direct input type**
    Series LECSC
  - **SSCNET III type**
    Series LECSS

- **For incremental encoder**
  - **Pulse input type/ Positioning type**
    Series LECSA

Series LEY

SMC

CAT.NAS100-83D

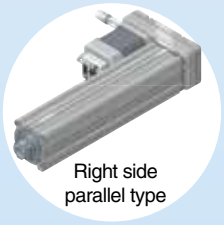
Step Motor (Servo/24 VDC) **Servo Motor** (24 VDC) **Type**

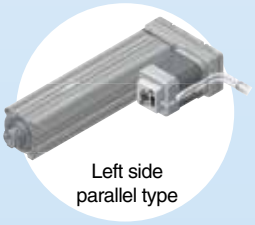
Rod Type *Series LEY* /Size: 16, 25, 32, 40

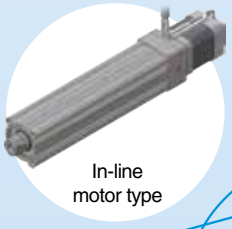
Control of intermediate positioning and pushing is possible.
High precision with ball screws (Positioning repeatability: ±0.02 mm)

Motor mounting position selectable

Top mounting type is the standard product.

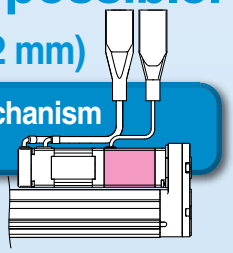

Right side parallel type


Left side parallel type


In-line motor type

Non-magnetizing lock mechanism (Option)

Prevents a workpiece from dropping. (Holding)



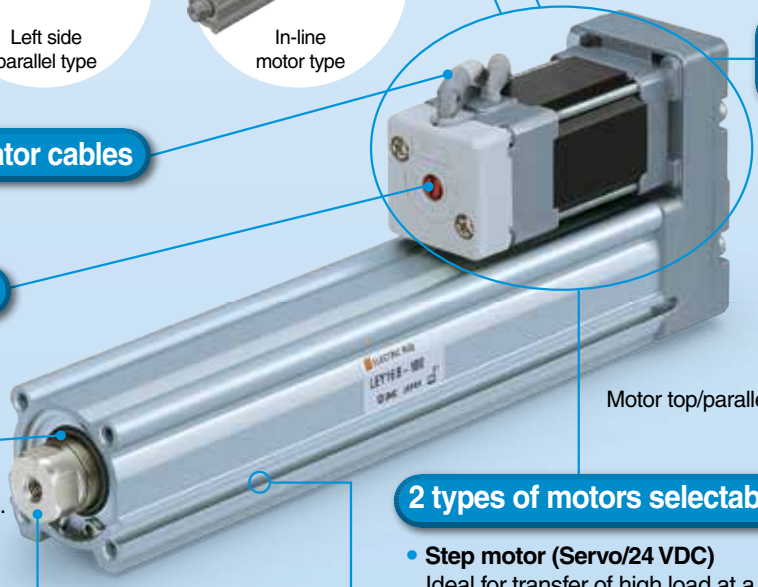
Motor cover available (Option)

Offering 2 types of actuator cables

- Standard cable
- Robotic cable (Flexible cable)

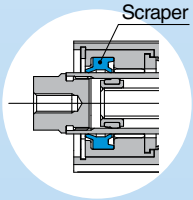
Manual override screw

For manual piston rod operation
Adjustment operation possible when power OFF


Motor top/parallel type

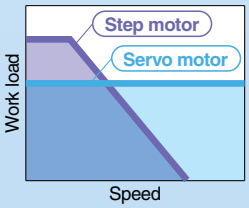
Scraper

Prevents foreign matter from entering.



2 types of motors selectable

- **Step motor (Servo/24 VDC)**
  Ideal for transfer of high load at a low speed and pushing operation
- **Servo motor (24 VDC)**
  Stable at high speed and silent operation



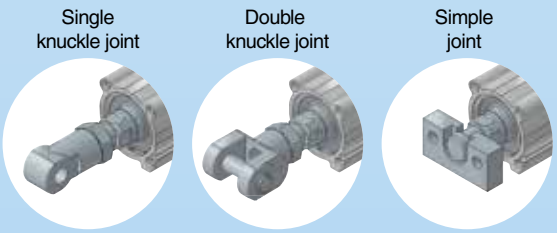
Groove for auto switch

For checking the limit and intermediate signal
Applicable to the D-M9□ and D-M9□W (2-color indication)

* The auto switches should be ordered separately.
  Refer to pages 20 and 21 for details.

Pages 18, 19

Rod end brackets

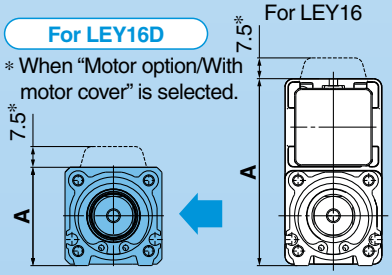


In-line motor type

Height dimension shortened by up to 49%

For LEY16D

* When "Motor option/With motor cover" is selected.



A Dimension (mm)

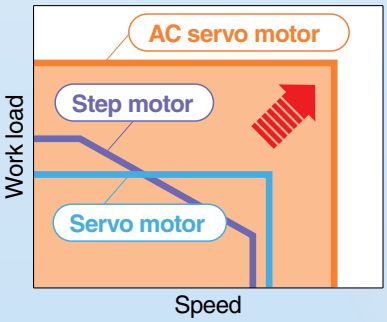
Size	In-line motor	Motor top mounting
16	35.5	67.5
25	46.5	92
32, 40	61	118

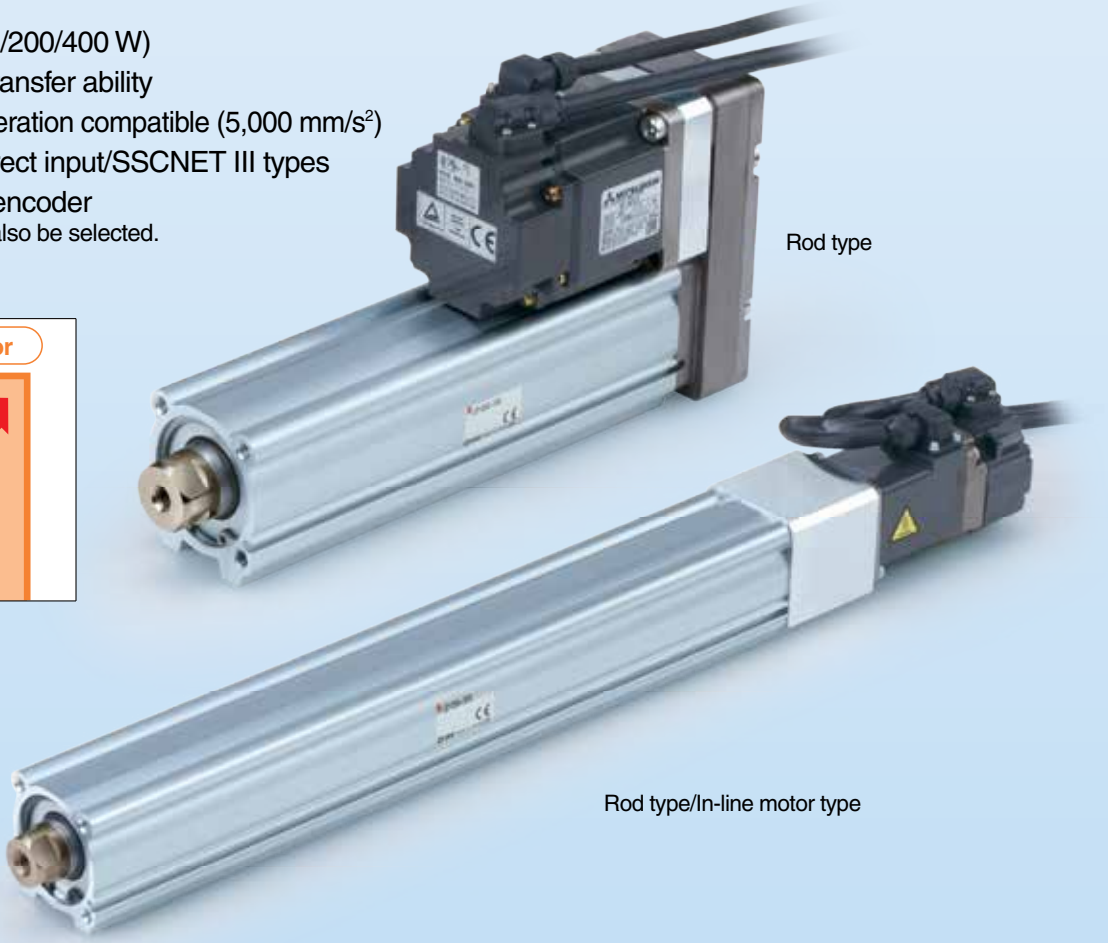
SMC

AC Servo Motor Type

Rod Type *Series LEY* /Size: 25, 32, 63

- High output motor (100/200/400 W)
- Improved high speed transfer ability
- High acceleration/deceleration compatible (5,000 mm/s^2)
- Pulse input/CC-Link direct input/SSCNET III types
- With internal absolute encoder
  * Incremental encoder can also be selected.





Rod type

Rod type/In-line motor type

Added large bore size 63!

- **Work load** Horizontal **80 kg**
  Vertical **72 kg**
- **High output motor: 400 w**
- **Max. speed: 1,000 mm/s**
  * 500 stroke
- **Max. pushing force: 429 lbf (1,910 N)**
- **Dust/Drip proof specification (IP65)**

Rod type/In-line motor type

Step Motor (Servo/24 VDC) **Servo Motor** (24 VDC) **Type**

Guide Rod Type *Series LEYG* /Size: 16, 25, 32, 40

Compact integrated guide rods

Lateral load resistance and high non-rotating accuracy

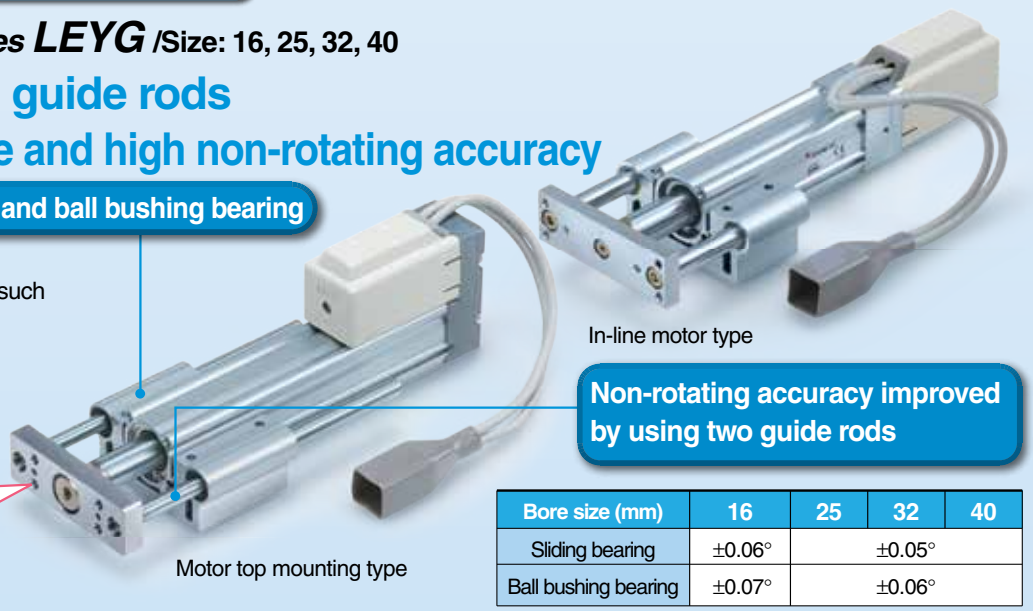
Compatible with sliding bearing and ball bushing bearing

- **Sliding bearing**
  Suitable for lateral load applications such as a stopper where shock is applied
- **Ball bushing bearing**
  Smooth operation suitable for pusher and lifter

Improved rigidity

Lateral end load: 5 times more ＊

＊ Compared with rod type, size 25 and 100 stroke



In-line motor type

Motor top mounting type

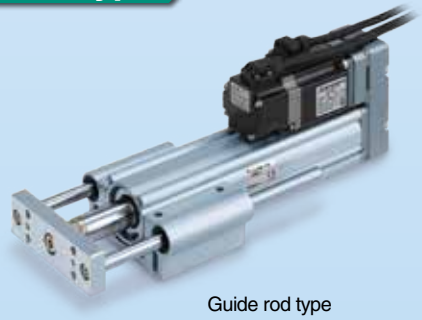
Non-rotating accuracy improved by using two guide rods

Bore size (mm)	16	25	32	40
Sliding bearing	±0.06°	±0.05°		
Ball bushing bearing	±0.07°	±0.06°		

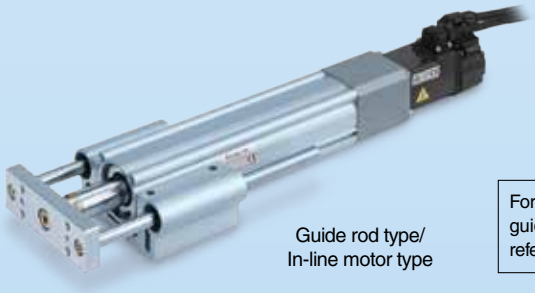
When the cylinder is retracted (initial value), the non-rotating accuracy without a load or deflection of the guide rods will be below the values shown in the table.

AC Servo Motor **Type**

Guide Rod Type *Series LEYG* /Size: 25, 32



Guide rod type

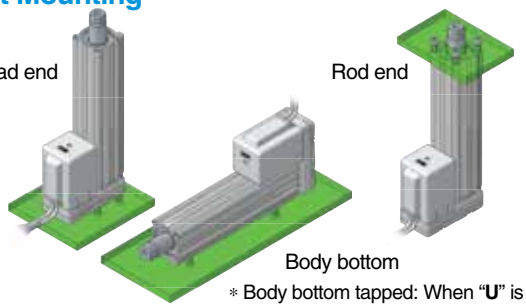


Guide rod type/
In-line motor type

For use of auto switches for the guide rod type LEYG series, refer to page 117.

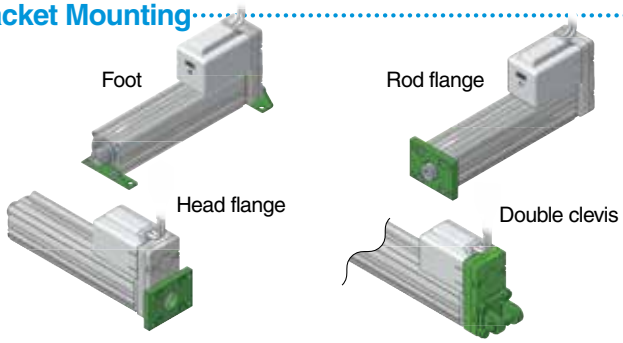
Mounting Variations

Direct Mounting

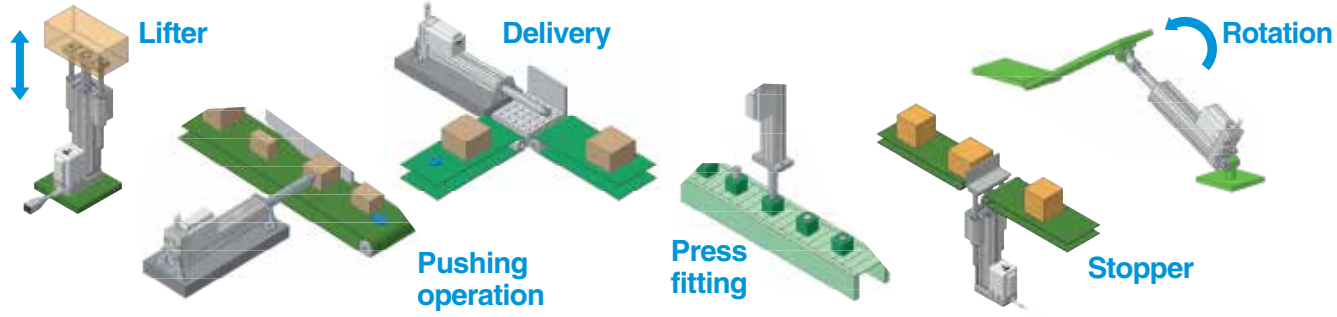


＊ Body bottom tapped: When "**U**" is selected

Bracket Mounting



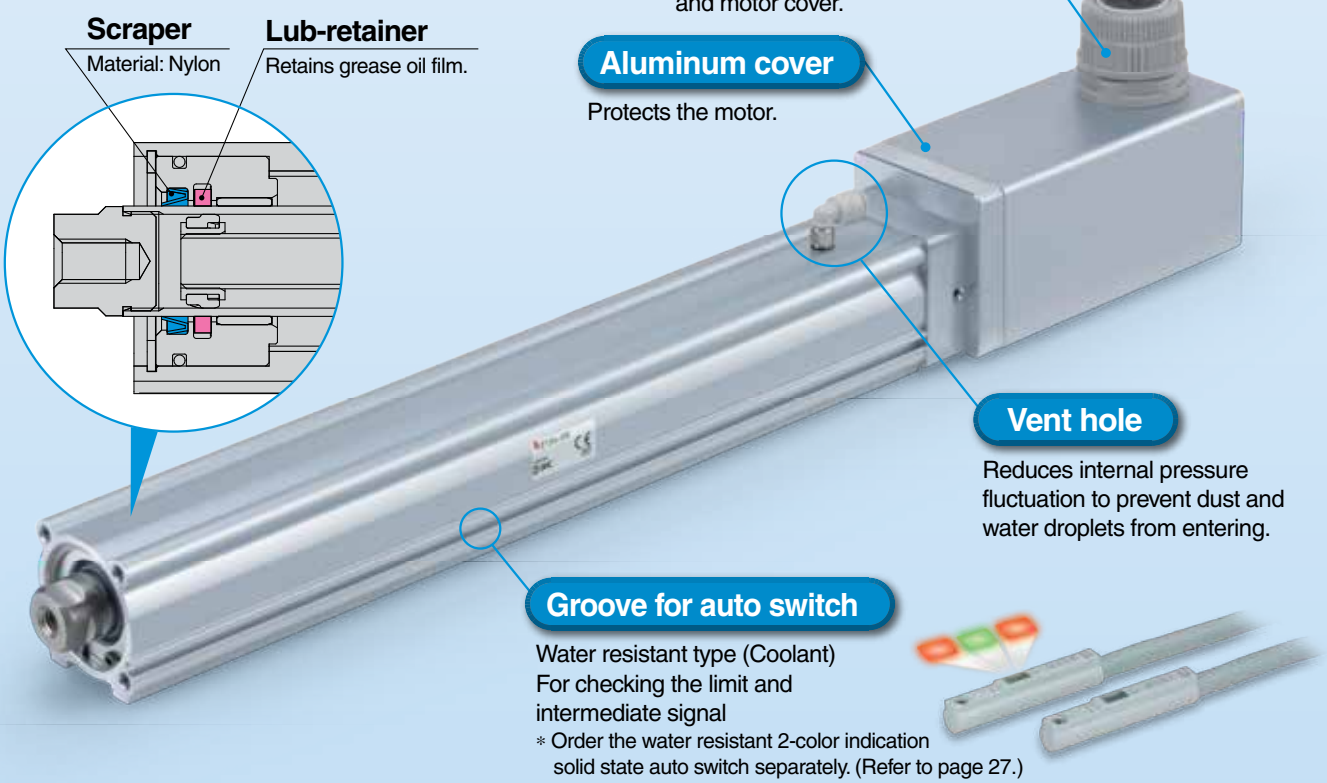
Application Examples



Dust/Drip proof (IP65) specification

- **Enclosure: IP65**
- **Max. stroke: 500 mm***

* For size 32

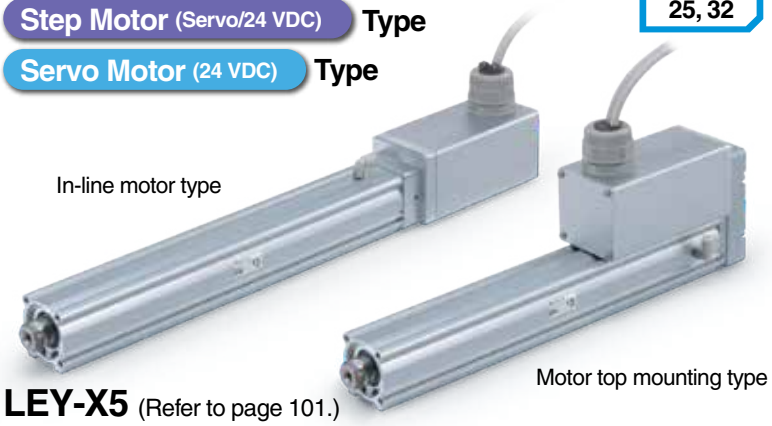


LEY-X5 (Refer to page 22.)

Size: 25, 32

Step Motor (Servo/24 VDC) Type

Servo Motor (24 VDC) Type



LEY-X5 (Refer to page 101.)

AC Servo Motor (100/200 W) Type

LEY63D□□-□P

(Refer to page 96./Option)

Size: 63

AC Servo Motor (400 W) Type

Step Data Input Type Series LECP6/LECA6

Simple Setting to Use Straight Away

◎Easy Mode for Simple Setting

If you want to use it right away, select "Easy Mode."

Step motor
(Servo/24 VDC)
LECP6

Servo motor
(24 VDC)
LECA6

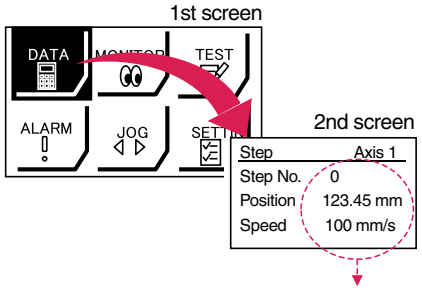
<When a PC is used>
Controller setting software

- Step data setting, test operation, move jog and move for the constant rate can be set and operated on one screen.

<When a TB (teaching box) is used>

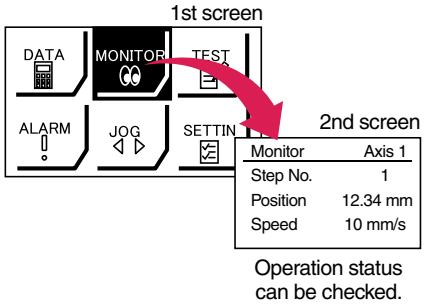
- Simple screen without scrolling promotes ease of setting and operating.
- Pick up an icon from the first screen to select a function.
- Set up the step data and check the monitor on the second screen.

Example of setting the step data



It can be registered by "SET" after entering the values.

Example of checking the operation status



Operation status can be checked.

Teaching box screen

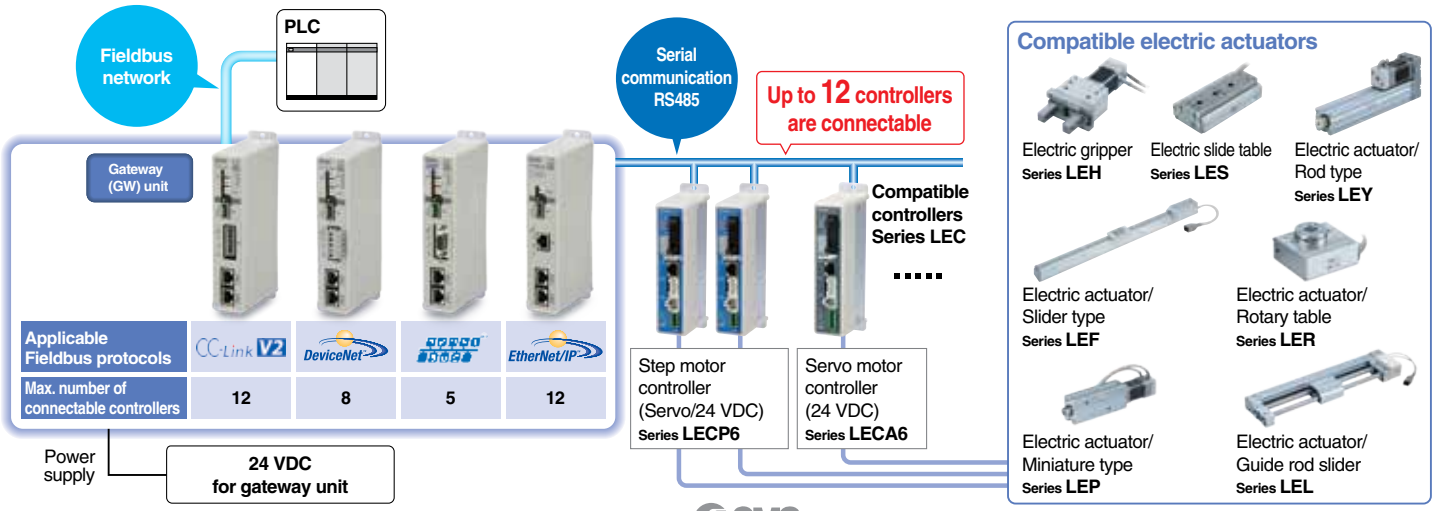
- **Data can be set with position and speed.** (Other conditions are already set.)

Step	Axis 1
Step No.	0
Position	50.00 mm
Speed	200 mm/s

Step	Axis 1
Step No.	1
Position	80.00 mm
Speed	100 mm/s

Gateway Unit Series LEC-G

- Unit linking the LECP6/LECA6 series and Fieldbus network
- Two methods of operation
  Step data input: Operate using preset step data in the controller.
  Numerical data input: The actuator operates using values such as position and speed from the PLC.



SMC

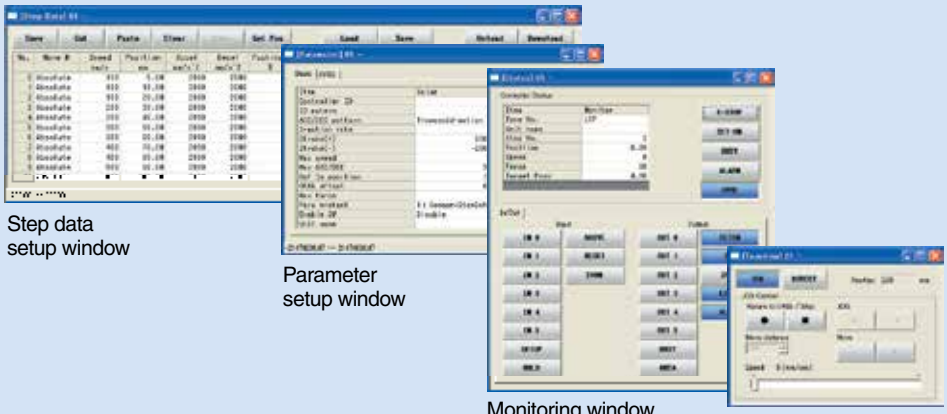
◎Normal Mode for Detailed Setting

Select normal mode when detailed setting is required.

- Step data can be set in detail.
- Signals and terminal status can be monitored.
- Parameters can be set.
- JOG and constant rate movement, return to origin, test operation and testing of forced output can be performed.

<When a PC is used> Controller setting software

- Step data setting, parameter setting, monitor, teaching, etc., are indicated in different windows.



Step data setup window

Parameter setup window

Monitoring window

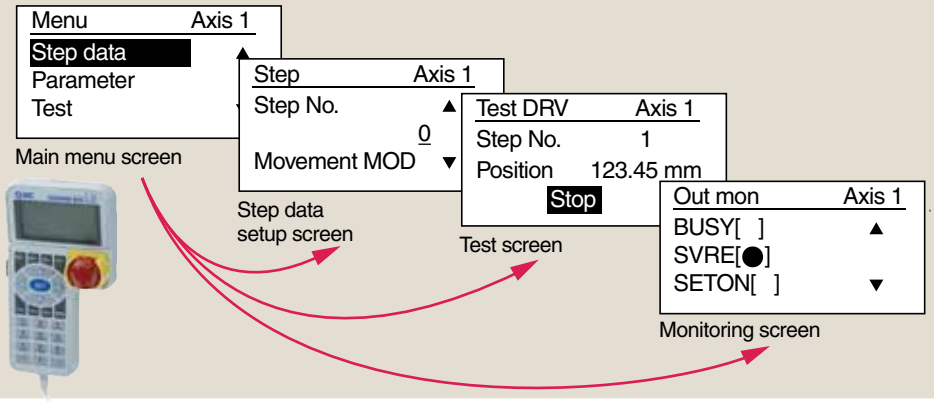
Teaching window

<When a TB (teaching box) is used>

- Multiple step data can be stored in the teaching box, and transferred to the controller.
- Continuous test operation by up to 5 step data.

Teaching box screen

- Each function (step data setting, test, monitor, etc.) can be selected from the main menu.



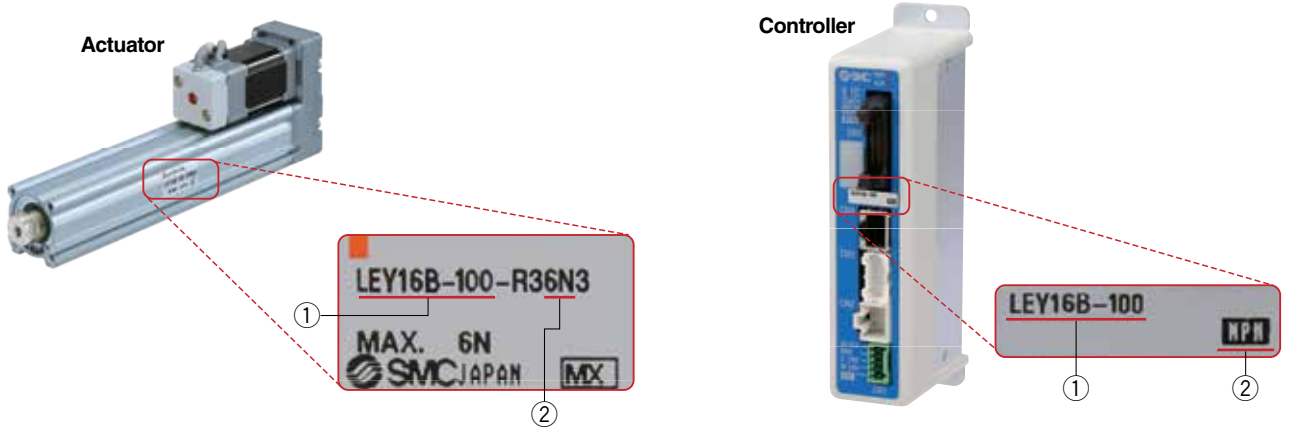
The actuator and controller are provided as a set. (They can be ordered separately.)

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

<Check the following before use.>

① Check the actuator label for model number. This matches the controller.

② Check Parallel I/O configuration matches (NPN or PNP).



Programless Type Series LECP1

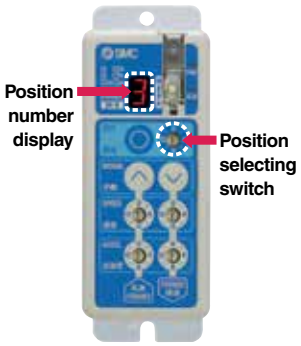
Step motor
(Servo/24 VDC)
LECP1

No programming

Capable of setting up an electric actuator operation without using a PC or teaching box

1 Setting position number

Setting a registered number for the stop position
Maximum 14 points

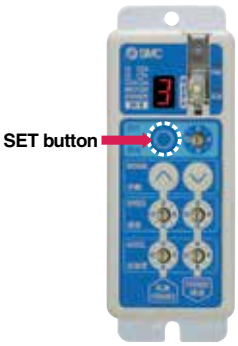


2 Setting a stop position

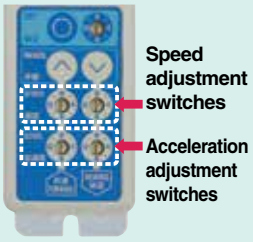
Moving the actuator to a stop position using FORWARD and REVERSE buttons

3 Registration

Registering the stop position using SET button

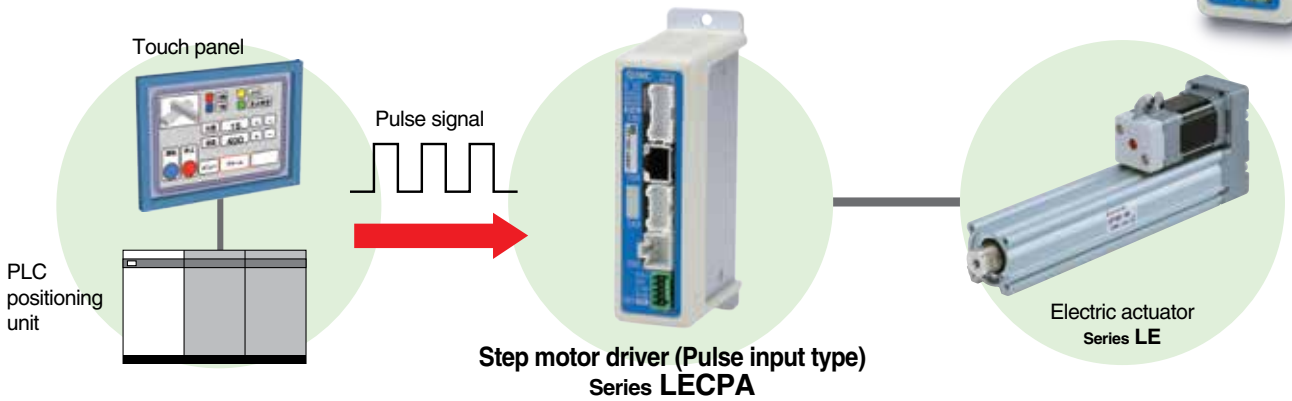


Speed/Acceleration 16-level adjustment



Pulse Input Type Series LECPA

- **A driver that uses pulse signals to allow positioning at any position. The actuator can be controlled from the customers' positioning unit.**



- **Return-to-origin command signal**
  Enables automatic return-to-origin action.

- **With force limit function (Pushing force/Gripping force operation available)**
  Pushing force/Positioning operation possible by switching signals.

Function

Item	Step data input type LECP6/LECA6	Programless type LECP1	Pulse input type LECPA
Step data and parameter setting	• Input from controller setting software (PC) • Input from teaching box	• Select using controller operation buttons	• Input from controller setting software (PC) • Input from teaching box
Step data "position" setting	• Input the numerical value from controller setting software (PC) or teaching box • Input the numerical value • Direct teaching • JOG teaching	• Direct teaching • JOG teaching	• No "position" setting required Position and speed set by pulse signal
Number of step data	64 points	14 points	—
Operation command (I/O signal)	Step No. [IN*] input ⇒ [DRIVE] input	Step No. [IN*] input only	Pulse signal
Completion signal	[INP] output	[OUT*] output	[INP] output

Setting Items

TB: Teaching box PC: Controller setting software

Item		Contents	Easy mode		Normal mode	Step data input type LECP6/LECA6	Pulse input type LECPA	Programless type LECP1*
			TB	PC	TB/PC			
Step data setting (Excerpt)	Movement MOD	Selection of "absolute position" and "relative position"	△	●	●	Set at ABS/INC	No setting required	Fixed value (ABS)
	Speed	Transfer speed	●	●	●	Set in units of 1 mm/s		Select from 16-level
	Position	[Position]: Target position [Pushing]: Pushing start position	●	●	●	Set in units of 0.01 mm		Direct teaching JOG teaching
	Acceleration/Deceleration	Acceleration/deceleration during movement	●	●	●	Set in units of 1 mm/s²		Select from 16-level
	Pushing force	Rate of force during pushing operation	●	●	●	Set in units of 1%	Set in units of 1%	Select from 3-level (weak, medium, strong)
	Trigger LV	Target force during pushing operation	△	●	●	Set in units of 1%	Set in units of 1%	No setting required (same value as pushing force)
	Pushing speed	Speed during pushing operation	△	●	●	Set in units of 1 mm/s	Set in units of 1 mm/s	No setting required
	Moving force	Force during positioning operation	△	●	●	Set to 100%	Set to (Different values for each actuator)%	
	Area output	Conditions for area output signal to turn ON	△	●	●	Set in units of 0.01 mm	Set in units of 0.01 mm	
	In position	[Position]: Width to the target position [Pushing]: How much it moves during pushing	△	●	●	Set to 0.5 mm or more (Units: 0.01 mm)	Set to (Different values for each actuator) or more (Units: 0.01 mm)	
Parameter setting (Excerpt)	Stroke (+)	+ side limit of position	×	×	●	Set in units of 0.01 mm	Set in units of 0.01 mm	
	Stroke (–)	– side limit of position	×	×	●	Set in units of 0.01 mm	Set in units of 0.01 mm	
	ORIG direction	Direction of the return to origin can be set.	×	×	●	Compatible	Compatible	Compatible
	ORIG speed	Speed during return to origin position	×	×	●	Set in units of 1 mm/s	Set in units of 1 mm/s	No setting required
	ORIG ACC	Acceleration during return to origin position	×	×	●	Set in units of 1 mm/s²	Set in units of 1 mm/s	
Test	JOG		●	●	●	Continuous operation at the set speed can be tested while the switch is being pressed.	Continuous operation at the set speed can be tested while the switch is being pressed.	Hold down MANUAL button (⌃⌄) for uniform sending (speed is specified value)
	MOVE		×	●	●	Operation at the set distance and speed from the current position can be tested.	Operation at the set distance and speed from the current position can be tested.	Press MANUAL button (⌃⌄) once for sizing operation (speed, sizing amount are specified values)
	Return to ORIG		●	●	●	Compatible	Compatible	Compatible
	Test drive	Operation of the specified step data	●	●	● (Continuous operation)	Compatible	Not compatible	Compatible
	Forced output	ON/OFF of the output terminal can be tested.	×	×	●	Compatible	Compatible	Not compatible
Monitor	DRV mon	Current position, speed, force and the specified step data can be monitored.	●	●	●	Compatible	Compatible	
	In/Out mon	Current ON/OFF status of the input and output terminal can be monitored.	×	×	●	Compatible	Compatible	
ALM	Status	Alarm currently being generated can be confirmed.	●	●	●	Compatible	Compatible	Compatible (display alarm group)
	ALM Log record	Alarm generated in the past can be confirmed.	×	×	●	Compatible	Compatible	Not compatible
File	Save/Load	Step data and parameter can be saved, forwarded and deleted.	×	×	●	Compatible	Compatible	
Other	Language	Can be changed to Japanese or English.	●	●	●	Compatible	Compatible	

△: Can be set from TB Ver. 2.** (The version information is displayed on the initial screen)
* Programless type LECP1 cannot be used with the teaching box and controller setting kit.

System Construction/General Purpose I/O

●Electric actuator/
Rod type

Provided by customer

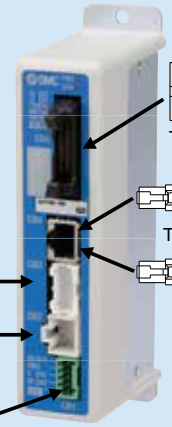
PLC

Power supply for I/O signal
24 VDC Note)

●I/O cable Pages 56, 69

Controller type	Part no.
LECP6/LECA6	LEC-CN5-□
LECP1 (Programless)	LEC-CK4-□

●Controller* Page 47



To CN5

To CN4

To CN3

To CN2

To CN1

Programless type
LECP1
Page 63

Note) The teaching box, controller setting kit and Touch Operator Interface cannot be connected.

Provided by customer

Power supply for controller
24 VDC Note)

Step data input type
LECP6/LECA6
Page 48

●Power supply plug
(Accessory)
<Applicable cable size>
AWG20 (0.5 mm²)

Note) When conformity to UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.

● Touch Operator Interface (Provided by customer)
GP4501T/GP3500T
Manufactured by Digital Electronics Corp.

Pro-face
for the best interface

Cockpit parts can be downloaded free via the Pro-face website. Using cockpit parts makes adjustment from the Touch Operator Interface possible.

●Actuator cable* Pages 54, 68

Controller type	Standard cable	Robotic cable
LECP6 (Step data input type)	LE-CP-□-S	LE-CP-□
LECA6 (Step data input type)	—	LE-CA-□
LECP1 (Programless type)	LE-CP-□-S	LE-CP-□

The * mark: Can be included in the "How to Order" for the actuator.

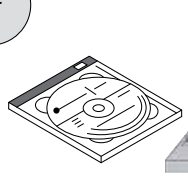
Option

● Teaching box Page 58
(With 3 m cable)
Part no.: LEC-T1-3JG□

Or

● Controller setting kit Page 57
Controller setting kit
(Communication cable, conversion unit and USB cable are included.)
Part no.: LEC-W2

Communication cable ●
(3 m)

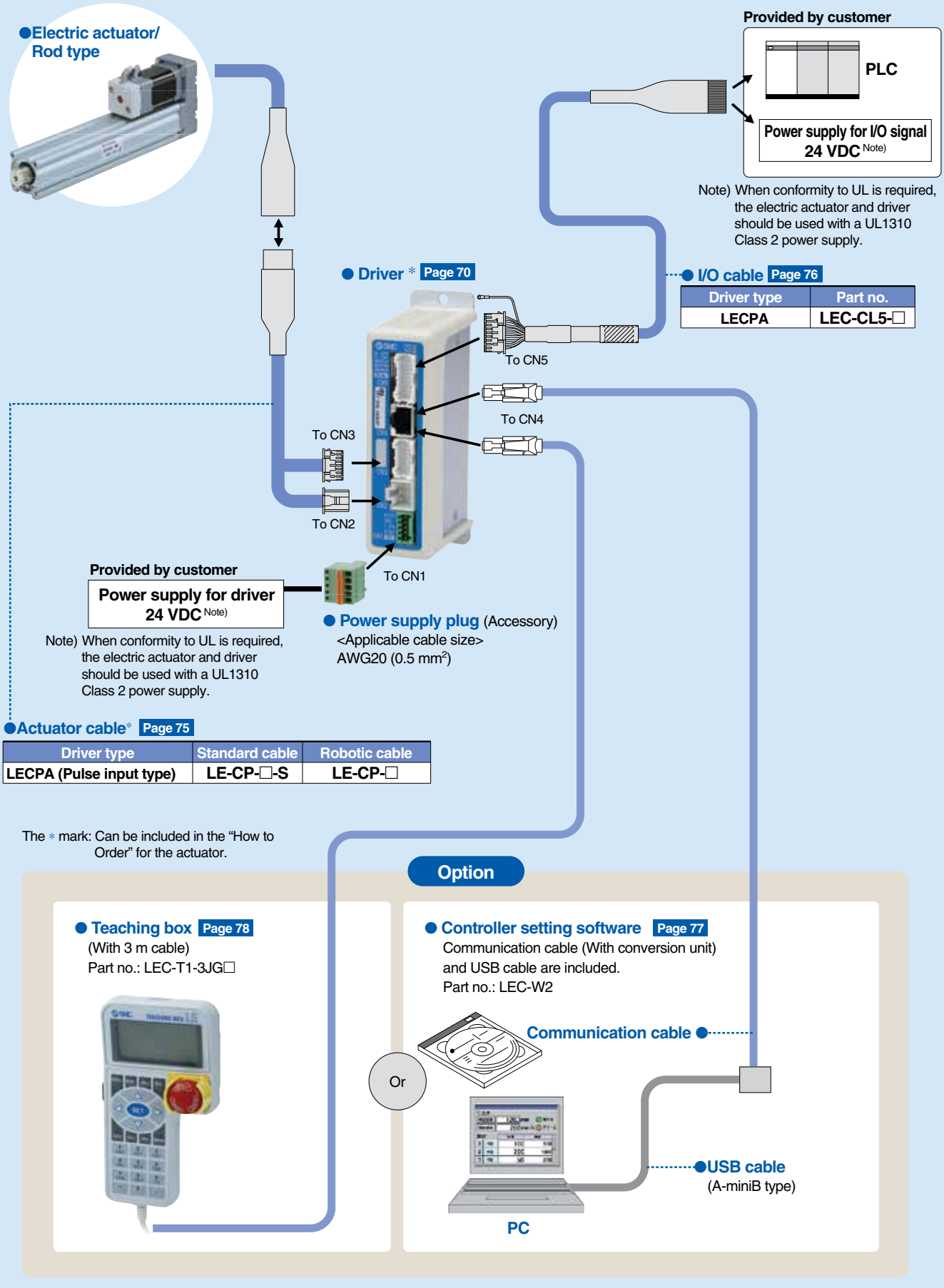


●USB cable
(A-miniB type)
(0.3 m)

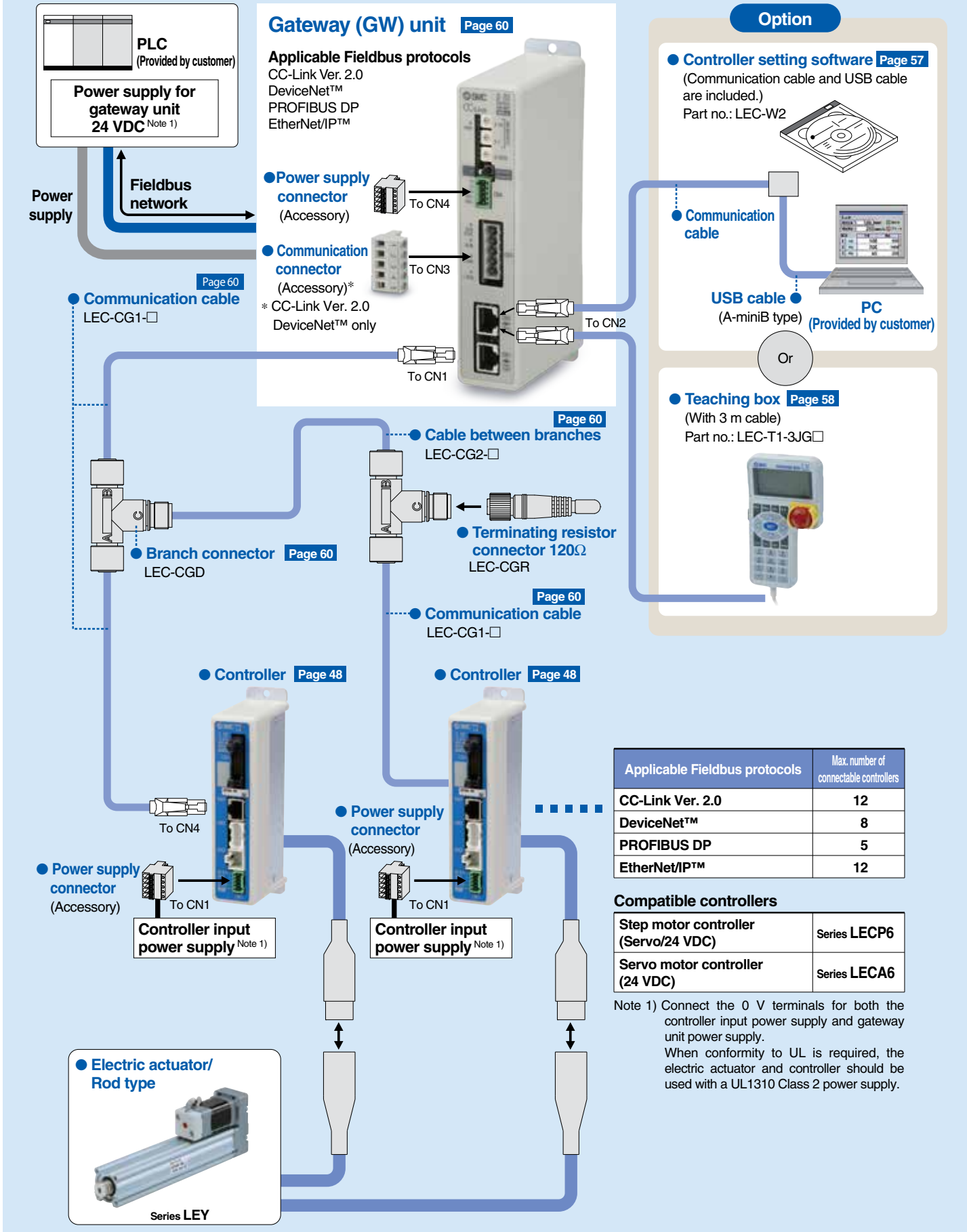
PC

Note) Cannot be used with the programless type (LECP1).

System Construction/Pulse Signal



System Construction/Fieldbus Network



Applicable Fieldbus protocols	Max. number of connectable controllers
CC-Link Ver. 2.0	12
DeviceNet™	8
PROFIBUS DP	5
EtherNet/IP™	12

Compatible controllers

Step motor controller (Servo/24 VDC)	Series LECP6
Servo motor controller (24 VDC)	Series LECA6

Note 1) Connect the 0 V terminals for both the controller input power supply and gateway unit power supply.
When conformity to UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.

AC Servo Motor Driver

Series LECS□

Series LECS□ list

	Series	Compatible motor (100/200 VAC)			Control method			Application/ Function	Compatible option
		100 W	200 W	400 W	Note 1) Positioning	Pulse	Network direct input	Note 2) Synchronous	Setup software LEC-MR-SETUP221
Incremental Type	**LECSA** (Pulse input type/ Positioning type)	●	●	●	Up to 7 points ●	●			●
Absolute Type	**LECSB** (Pulse input type)	●	●	●		●			●
	LECSC (CC-Link direct input type)	●	●	●	Up to 255 points ●		CC-Link Ver. 1.10 ●		●
	LECSS (SSCNET III type) Compatible with Mitsubishi Electric's servo system controller network	●	●	●			SSCNET III ●	●	●

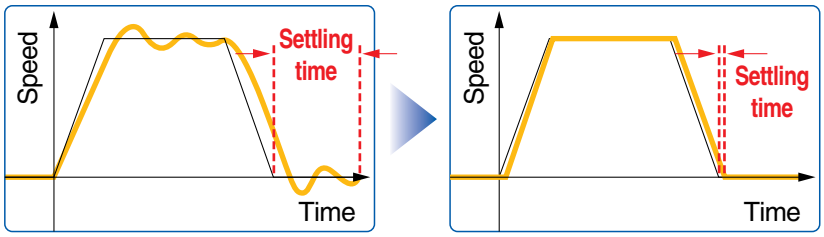
Note 1) For positioning type, setting needs to be changed to use with maximum set values.
Setup software (MR Configurator) LEC-MR-SETUP221 is required.
Note 2) Available when the Mitsubishi motion controller is used for the master equipment.

AC Servo Motor Driver — Series LECS□

Servo adjustment using auto gain tuning

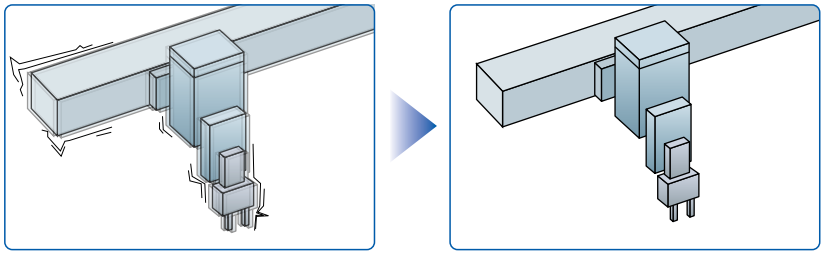
Auto resonant filter function

- Control the difference between command value and actual action



Auto damping control function

- Automatically suppress low frequency machine vibrations (up to 100 Hz)



With display setting function

One-touch adjustment button

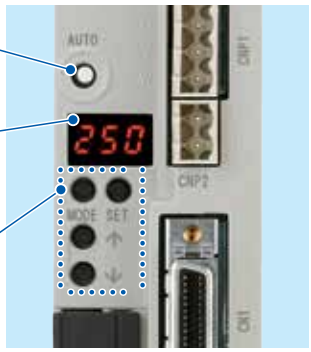
One-touch servo adjustment

Display

Display the monitor, parameter and alarm.

Settings

Set parameters and monitor display, etc. with push buttons.



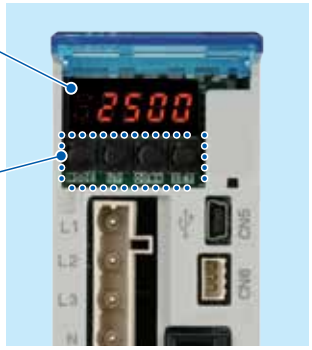
LECSA

Display

Display the monitor, parameter and alarm.

Settings

Set parameters and monitor display, etc. with push buttons.



(With the front cover opened)

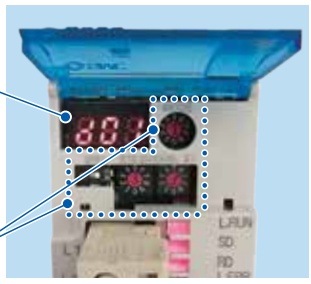
LECSB

Display

Display the communication status with the driver, the alarm and the point table No.

Settings

Control Baud rate, station number and the occupied station count.



(With the front cover opened)

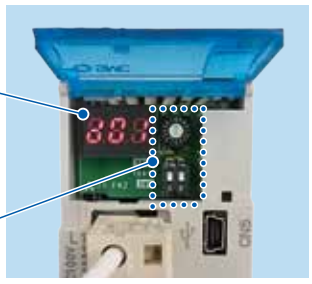
LECSC

Display

Display the communication status with the driver and the alarm.

Settings

Switches for selecting axis and switching to the test operation



(With the front cover opened)

LECSS

System Construction

Incremental encoder compatible *Series* LECSA

(Pulse input type/Positioning type)

Provided by customer

Power supply

Single phase 100 to 120 VAC (50/60 Hz)
200 to 230 VAC (50/60 Hz)

◎Option — Page 131
Regeneration option
Part no.: **LEC-MR-RB-□**

Main circuit power supply connector (Accessory) — Page 125

Driver

Motor cable — Page 131

Standard cable	Robotic cable
LE-CSM-S□□	LE-CSM-R□□

Lock cable — Page 131

Standard cable	Robotic cable
LE-CSB-S□□	LE-CSB-R□□

Electric actuator — Pages 88, 110

Rod type
Series LEY

Guide rod type/
In-line motor type
Series LEYG

Encoder cable — Page 131

Standard cable	Robotic cable
LE-CSE-S□□	LE-CSE-R□□

Provided by customer

Control circuit power supply
24 VDC

Control circuit power supply connector (Accessory) — Page 125

◎Option

Setup software — Page 132
(MR Configurator™)
Part no.: **LEC-MR-SETUP221□**

PC

∗ Order USB cable (Part no.: LEC-MR-J3USB) separately to use this software.

USB cable — Page 132
Part no.: **LEC-MR-J3USB**

◎ Option — Page 131
I/O connector
Part no.: **LE-CSNA**

Provided by customer

PLC (Positioning unit)

Power supply for I/O signal 24 VDC

Absolute encoder compatible *Series* LECSB

(Pulse input type)

Provided by customer

Power supply

Single phase 100 to 120 VAC (50/60 Hz)
200 to 230 VAC (50/60 Hz)

Three phase 200 to 230 VAC (50/60 Hz)

◎Option — Page 131
Regeneration option
Part no.: **LEC-MR-RB-□**

Main circuit power supply connector (Accessory) — Page 126

Driver

Motor cable — Page 131

Standard cable	Robotic cable
LE-CSM-S□□	LE-CSM-R□□

Lock cable — Page 131

Standard cable	Robotic cable
LE-CSB-S□□	LE-CSB-R□□

Control circuit power supply connector (Accessory) — Page 126

Motor connector (Accessory) — Page 126

Electric actuator — Pages 88, 110

Rod type
Series LEY

Guide rod type/
In-line motor type
Series LEYG

Encoder cable — Page 131

Standard cable	Robotic cable
LE-CSE-S□□	LE-CSE-R□□

Battery (Accessory) — Page 132
Part no.: **(LEC-MR-J3BAT)**

USB cable — Page 132
Part no.: **LEC-MR-J3USB**

◎ Option

Setup software — Page 132
(MR Configurator™)
Part no.: **LEC-MR-SETUP221□**

PC

∗ Order USB cable (Part no.: LEC-MR-J3USB) separately to use this software.

Analog monitor output

RS-422 communication

◎ Option — Page 131
I/O connector
Part no.: **LE-CSNB**

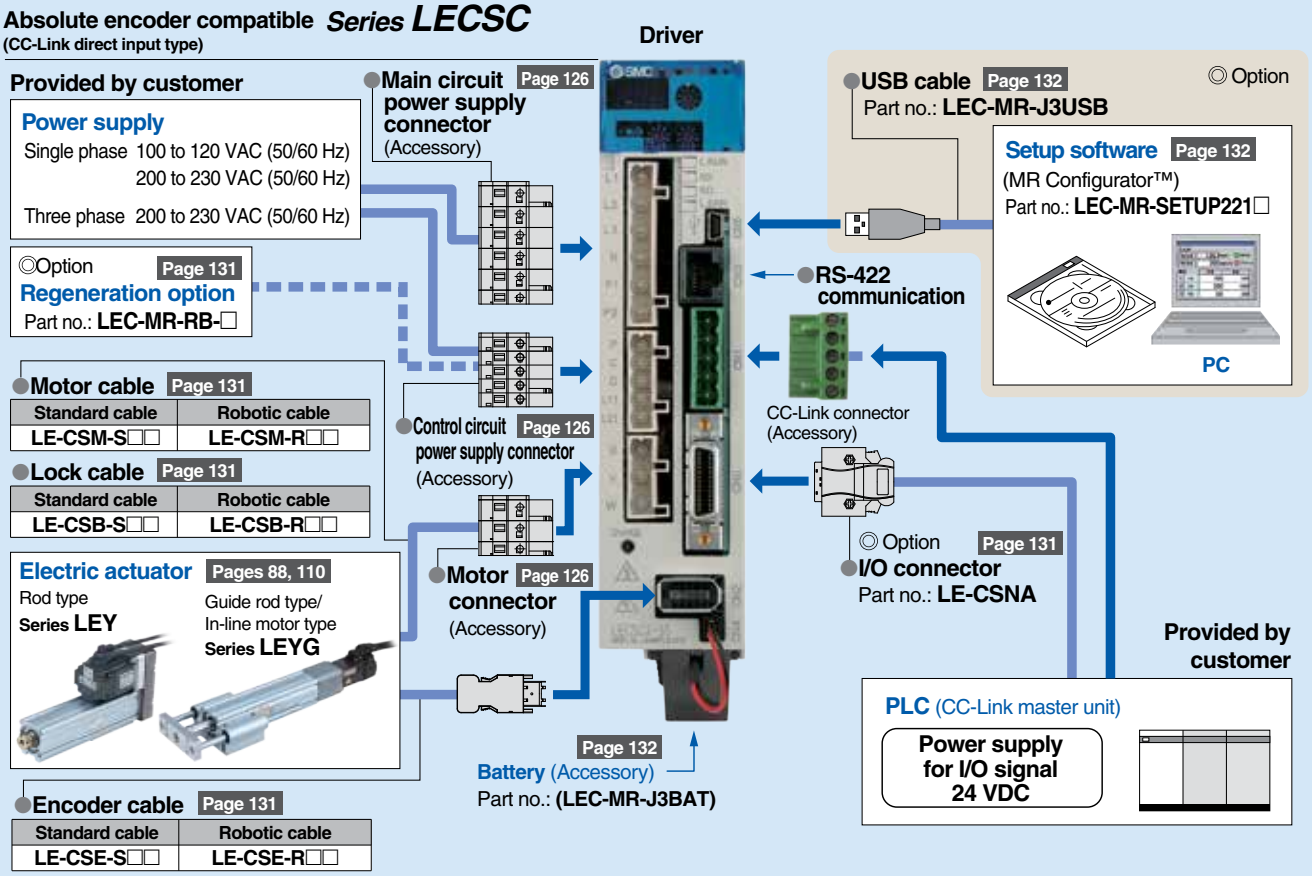
Provided by customer

PLC (Positioning unit)

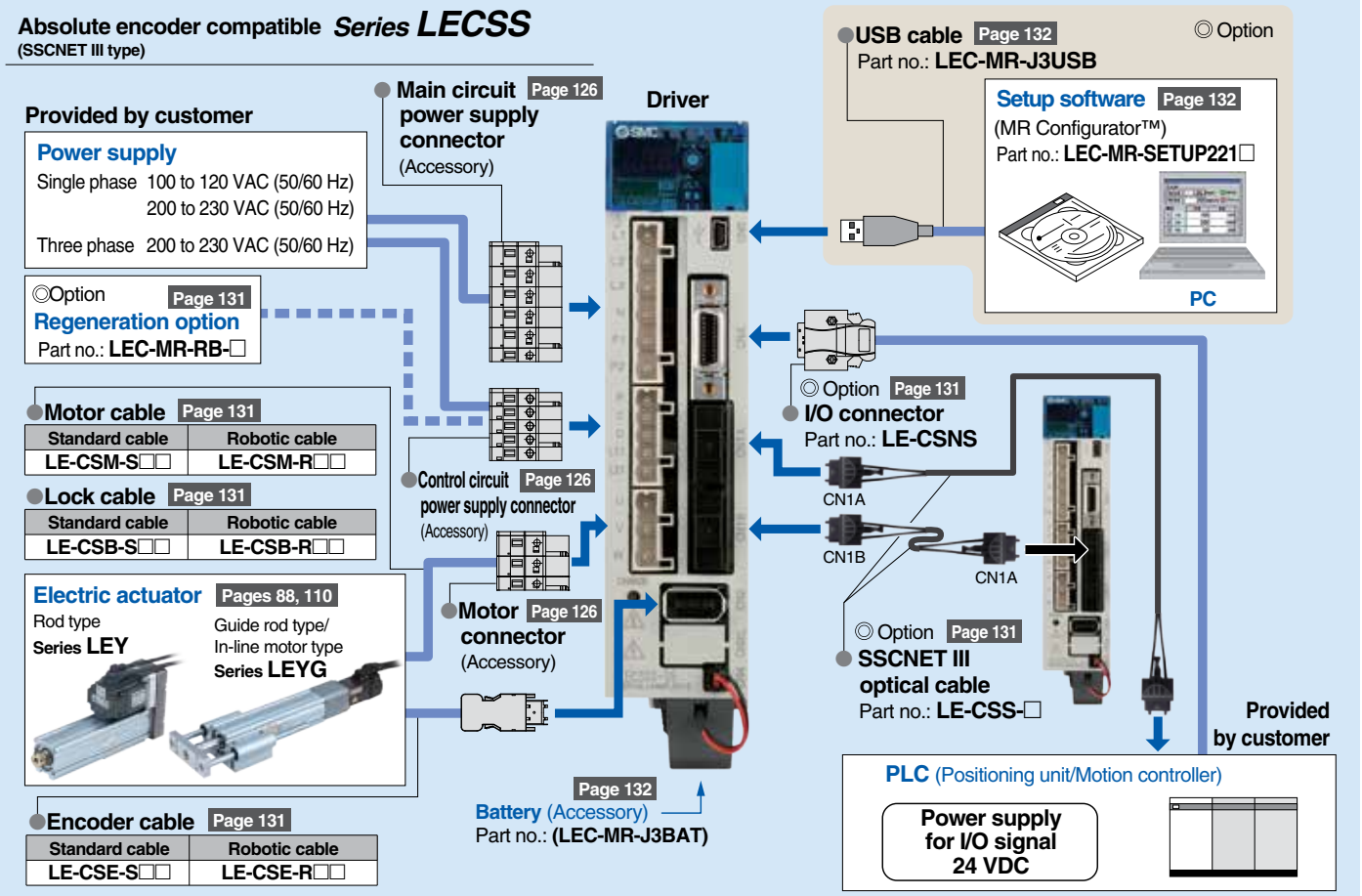
Power supply for I/O signal 24 VDC

System Construction

Absolute encoder compatible Series LECSC
(CC-Link direct input type)



Absolute encoder compatible Series LECSS
(SSCNET III type)



SMC Electric Actuators

Slider Type

Step Motor (Servo/24 VDC) | Servo Motor (24 VDC) | AC Servo Motor

CAT.NAS100-87

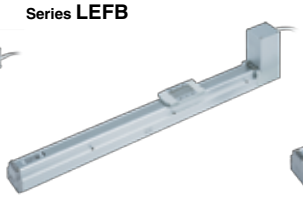
Ball screw drive
Series LEFS

Clean room compatible

Series LEFS

Size	Max. work load lb (kg)	Stroke (mm)
16	22 (10)	Up to 400
25	44 (20)	Up to 600
32	99 (45)	Up to 800
40	132 (60)	Up to 1000

Belt drive
Series LEFB

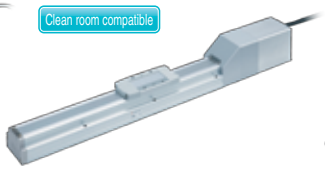


Series LEFB

Size	Max. work load lb (kg)	Stroke (mm)
16	2.2 (1)	Up to 1000
25	11 (5)	Up to 2000
32	31 (14)	Up to 2000

Ball screw drive
Series LEFS

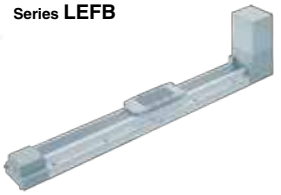
Clean room compatible



Series LEFS

Size	Max. work load lb (kg)	Stroke (mm)
25	44 (20)	Up to 600
32	99 (45)	Up to 800
40	132 (60)	Up to 1000

Belt drive
Series LEFB



Series LEFB

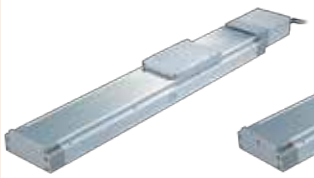
Size	Max. work load lb (kg)	Stroke (mm)
25	11 (5)	Up to 2000
32	33 (15)	Up to 2500
40	55 (25)	Up to 3000

High Rigidity Slider Type

AC Servo Motor

CAT.NAS100-104

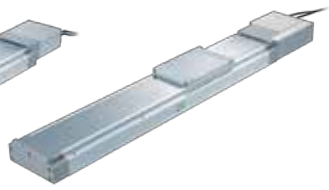
Ball screw drive
Series LEJS



Series LEJS

Size	Max. work load lb (kg)	Stroke (mm)
40	121 (55)	200 to 1200
63	187 (85)	300 to 1500

Belt drive
Series LEJB



Series LEJB

Size	Max. work load lb (kg)	Stroke (mm)
40	44 (20)	200 to 2000
63	66 (30)	300 to 3000

Guide Rod Slider

Step Motor (Servo/24 VDC)

CAT.NAS100-101

Belt drive
Series LEL

Series LEL25M
Sliding bearing

Size	Max. work load lb (kg)	Stroke (mm)
25	6.6 (3)	Up to 1000

Series LEL25L
Ball bushing bearing

Size	Max. work load lb (kg)	Stroke (mm)
25	11 (5)	Up to 1000

Rod Type

Step Motor (Servo/24 VDC) | Servo Motor (24 VDC)

CAT.NAS100-83

Basic type
Series LEY

Dust/Drip proof compatible

Series LEY

Size	Pushing force lbf (N)	Stroke (mm)
16	31.7 (141)	Up to 300
25	101.6 (452)	Up to 400
32	158.9 (707)	Up to 500
40	237.8 (1058)	Up to 500

In-line motor type
Series LEY□D

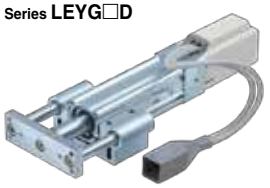
Dust/Drip proof compatible

Guide rod type
Series LEYG

Series LEYG

Size	Pushing force lbf (N)	Stroke (mm)
16	31.7 (141)	Up to 200
25	101.6 (452)	Up to 300
32	158.9 (707)	Up to 300
40	237.8 (1058)	Up to 300

Guide rod type /In-line motor type
Series LEYG□D



AC Servo Motor

Basic type
Series LEY

Dust/Drip proof compatible

Series LEY

Size	Pushing force lbf (N)	Stroke (mm)
25	109 (485)	Up to 400
32	132 (588)	Up to 500

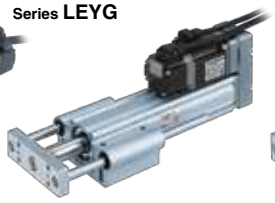
In-line motor type
Series LEY□D

Dust/Drip proof compatible

Series LEY

Size	Pushing force lbf (N)	Stroke (mm)
25	109 (485)	Up to 400
32	166 (736)	Up to 500
63	429 (1910)	Up to 800

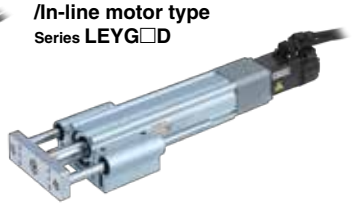
Guide rod type
Series LEYG



Series LEYG

Size	Pushing force lbf (N)	Stroke (mm)
25	109 (485)	300
32	132 (588)	

Guide rod type /In-line motor type
Series LEYG□D



Series LEYG

Size	Pushing force lbf (N)	Stroke (mm)
25	109 (485)	300
32	166 (736)	

SMC Electric Actuators

Slide Table
Step Motor (Servo/24 VDC) | Servo Motor (24 VDC)


CAT.NAS100-78

Compact type Series LES

Basic type/R type
Series LES□R

Size	Max. work load lb (kg)	Stroke (mm)
8	2.2 (1)	30, 50, 75
16	6.6 (3)	30, 50 75, 100
25	11 (5)	30, 50, 75 100, 125, 150

Symmetrical type/L type
Series LES□L

In-line motor type/D type
Series LES□D

High rigidity type Series LESH

Basic type/R type
Series LESH□R

Size	Max. work load lb (kg)	Stroke (mm)
8	2.2 (2)	50, 75
16	13 (6)	50, 100
25	20 (9)	50, 100 150

Symmetrical type/L type
Series LESH□L

In-line motor type/D type
Series LESH□D

Miniature
Step Motor (Servo/24 VDC)


CAT.NAS100-92

Rod type
Series LEPY

Series LEPY

Size	Max. work load lb (kg)	Stroke (mm)
6	2.2 (1)	25, 50, 75
10	4.4 (2)	

Slide table type
Series LEPS

Series LEPS

Size	Max. work load lb (kg)	Stroke (mm)
6	2.2 (1)	25
10	4.4 (2)	50

Rotary Table
Step Motor (Servo/24 VDC)


CAT.NAS100-94

Basic type
Series LER

High precision type
Series LERH

Series LER

Size	Rotating torque lbf·ft (N·m)		Max. speed (°/s)	
	Basic	High torque	Basic	High torque
10	0.04 (0.2)	0.07 (0.3)	420	280
30	0.18 (0.8)	0.27 (1.2)		
50	1.48 (6.6)	2.25 (10)		

Gripper
Step Motor (Servo/24 VDC)


CAT.NAS100-77

2-finger type
Series LEHZ

Series LEHZ

Size	Max. gripping force lbf (N)		Stroke/both sides (mm)
	Basic	Compact	
10	3.1 (14)	1.3 (6)	4
16		1.8 (8)	6
20	9.0 (40)	6.3 (28)	10
25			14
32	29 (130)	—	22
40	47 (210)	—	30

2-finger type
With dust cover
Series LEHZJ

Series LEHZJ

Size	Max. gripping force lbf (N)		Stroke/both sides (mm)
	Basic	Compact	
10	3.1 (14)	1.3 (6)	4
16		1.8 (8)	6
20	9.0 (40)	6.3 (28)	10
25			14

2-finger type
Long stroke
Series LEHF

Series LEHF

Size	Max. gripping force lbf (N)	Stroke/both sides (mm)
10	1.6 (7)	16 (32)
20	6.3 (28)	24 (48)
32	27 (120)	32 (64)
40	40 (180)	40 (80)

Note) ( ): Long stroke

3-finger type
Series LEHS

Series LEHS

Size	Max. gripping force lbf (N)		Stroke/both sides (mm)
	Basic	Compact	
10	1.2 (5.5)	0.8 (3.5)	4
20	4.9 (22)	3.8 (17)	6
32	20 (90)	—	8
40	29 (130)	—	12

Controller/Driver

Controller

Step data input type
For step motor
Series LECP6

Control motor
Step motor (Servo/24 VDC)

Step data input type
For servo motor
Series LECA6

Control motor
Servo motor (24 VDC)

Programless type
Series LECP1

Control motor
Step motor (Servo/24 VDC)

Driver

Pulse input type
Series LECPA

Control motor
Step motor (Servo/24 VDC)

Gateway Unit

Fieldbus-compatible gateway (GW) unit
Series LEC-G

Applicable Fieldbus protocols	CC-Link V2	DeviceNet	PROFIBUS	EtherNet/IP
Max. number of connectable controllers	12	8	5	12

Driver

AC Servo Motor Driver

Pulse input type/
Positioning type
Series LECSA
(Incremental type)

Control motor
AC servo motor (100/200/400 W)

Pulse input type
Series LECSB
(Absolute type)

Control motor
AC servo motor (100/200/400 W)

CC-Link direct input type
Series LECSC
(Absolute type)

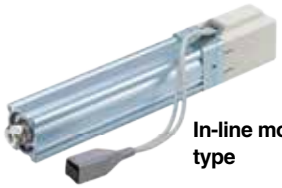
Control motor
AC servo motor (100/200/400 W)

SSCNET III type
Series LECSS
(Absolute type)

Control motor
AC servo motor (100/200/400 W)

Electric Actuator Rod Type *Series LEY*

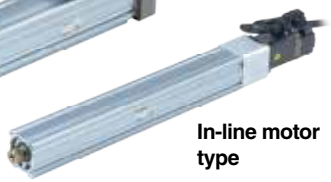
Motor top/parallel type



In-line motor type

Specifications	Series	Stroke (mm)	Pushing force (N)	Vertical work load (kg)	Speed (mm/s)	Screw lead (mm)	Positioning repeatability (mm)	Controller /Driver series	Reference page
Step motor (Servo/24 VDC)	LEY16□	30 to 300	38	2	15 to 500	10	±0.02 or less	Series LECP6 Series LECP1 Series LECPA	Page 2
			74	4	8 to 250	5			
			141	8	4 to 125	2.5			
	LEY25□	30 to 400	122	8	18 to 500	12			
			238	16	9 to 250	6			
			452	30	5 to 125	3			
	LEY32□	30 to 500	189	11	24 to 500	16			
			370	22	12 to 250	8			
			707	43	6 to 125	4			
	LEY40□	30 to 500	283	13	24 to 300	16			
			553	27	12 to 150	8			
			1058	53	6 to 75	4			
Servo motor (24 VDC)	LEY16□A	50 to 300	30	2	15 to 500	10		Series LECA6	
			58	4	8 to 250	5			
			111	8	4 to 125	2.5			
	LEY25□A	50 to 400	35	3	18 to 500	12			
			72	6	9 to 250	6			
			130	12	5 to 125	3			

Motor top/parallel type



In-line motor type

Specifications	Series	Stroke (mm)	Pushing force (N)	Vertical work load (kg)	Speed (mm/s)	Screw lead (mm)	Positioning repeatability (mm)	Driver series	Reference page
AC servo motor	LEY25□S	30 to 400	131	8	900	12	±0.02 or less	Series LECSA Series LECSB Series LECSC Series LECSS	Page 82
			255	16	450	6			
			485	30	225	3			
	LEY32□S	30 to 500	157 (197)	9 (12)	1200 (1000)	20 (16)			
			308 (385)	19 (24)	600 (500)	10 (8)			
			588 (736)	37 (46)	300 (250)	5 (4)			
	LEY63□S	100 to 800	521	19	1000	20			
			1012	38	500	10			
			1910	72	250	5			

(1 N = 0.22 lbf, 1 Kg = 2.2 lb) The values shown in ( ): In-line motor type

Controller/Driver *LEC*

LECP6

LECA6

LECP1

LECPA

Type	Series	Compatible motor	Power supply voltage	Parallel I/O		Number of positioning pattern points	Reference page
				Input	Output		
Step data input type	LECP6	Step motor (Servo/24 VDC)	24 VDC ±10%	11 inputs (Photo-coupler isolation)	13 outputs (Photo-coupler isolation)	64	Page 47
	LECA6	Servo motor (24 VDC)					
Programless type	LECP1	Step motor (Servo/24 VDC)	24 VDC ±10%	6 inputs (Photo-coupler isolation)	6 outputs (Photo-coupler isolation)	14	
Pulse input type	LECPA	Step motor (Servo/24 VDC)	24 VDC ±10%	5 inputs (Photo-coupler isolation)	9 outputs (Photo-coupler isolation)	—	

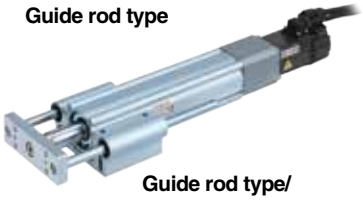
Electric Actuator Guide Rod Type *Series LEYG*

Motor top mounting type

In-line motor type

Specifications	Series	Stroke (mm)	Pushing force (N)	Vertical work load (kg)	Speed (mm/s)	Screw lead (mm)	Controller /Driver series	Reference page
Step motor (Servo/24 VDC)	LEYG16□	30 to 200	38	1.5	15 to 500	10	Series LECP6 Series LECP1 Series LECPA	Page 28
			74	3.5	8 to 250	5		
			141	7.5	4 to 125	2.5		
	LEYG25□	30 to 300	122	7	18 to 500	12		
			238	15	9 to 250	6		
			452	29	5 to 125	3		
	LEYG32□	30 to 300	189	9	24 to 500	16		
			370	20	12 to 250	8		
			707	41	6 to 125	4		
	LEYG40□	30 to 300	283	11	24 to 300	16		
			553	25	12 to 150	8		
			1058	51	6 to 75	4		
Servo motor (24 VDC)	LEYG16□A	30 to 200	30	1.5	15 to 500	10	Series LECA6	
			58	3.5	8 to 250	5		
			111	7.5	4 to 125	2.5		
	LEYG25□A	30 to 300	35	2	18 to 500	12		
			72	5	9 to 250	6		
			130	11	5 to 125	3		

Guide rod type



Guide rod type/
In-line motor type

Specifications	Series	Stroke (mm)	Pushing force (N)	Vertical work load (kg)	Speed (mm/s)	Screw lead (mm)	Positioning repeatability (mm)	Driver series	Reference page
AC servo motor	LEYG25□S	30 to 300	131	7	900	12	±0.02 or less	Series LECSA Series LECSB Series LECSC Series LECSS	Page 106
			255	15	450	6			
			485	29	225	3			
	LEYG32□S	30 to 300	157 (197)	7 (10)	1200 (1000)	20 (16)			
			308 (385)	17 (22)	600 (500)	10 (8)			
			588 (736)	35 (44)	300 (250)	5 (4)			

(1 N = 0.22 lbf, 1 Kg = 2.2 lb) The values shown in ( ): In-line motor type

Driver *LEC*

LECSA

LECSB

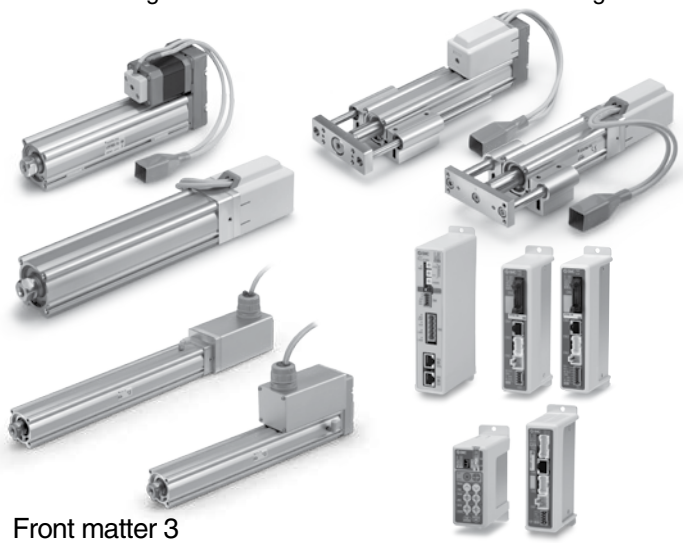
LECSC

LECSS

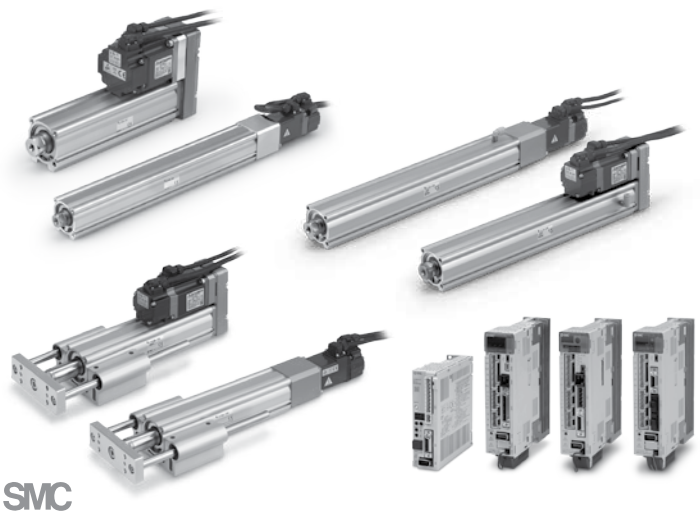
Type	Series	Compatible motor	Power supply voltage	Parallel I/O		Number of positioning pattern points	Reference page
				Input	Output		
Pulse input type (For incremental encoder)	LECSA	AC servo motor (100/200/400 W)	100 to 120 VAC (50/60 Hz) 200 to 230 VAC (50/60 Hz)	6 inputs (Photo-coupler isolation)	4 outputs (Photo-coupler isolation)	7	Page 120
Pulse input type (For absolute encoder)	LECSB			10 inputs (Photo-coupler isolation)	6 outputs (Photo-coupler isolation)	—	
CC-Link direct input type (For absolute encoder)	LECSC			4 inputs (Photo-coupler isolation)	3 outputs (Photo-coupler isolation)	255	
SSCNET III type (For absolute encoder)	LECSS			4 inputs (Photo-coupler isolation)	3 outputs (Photo-coupler isolation)	—	

INDEX

Step Motor (Servo/24 VDC)/ Servo Motor (24 VDC) Type



AC Servo Motor Type



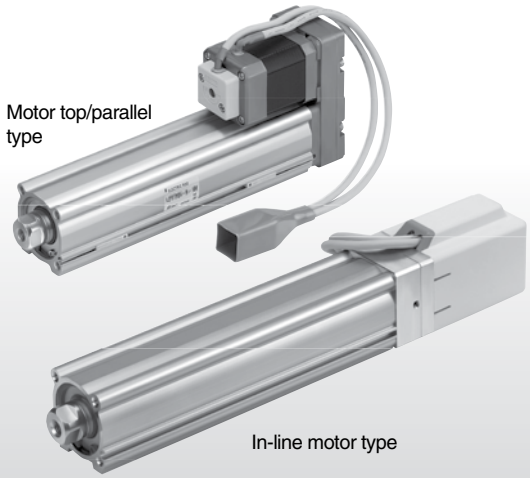
SMC

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

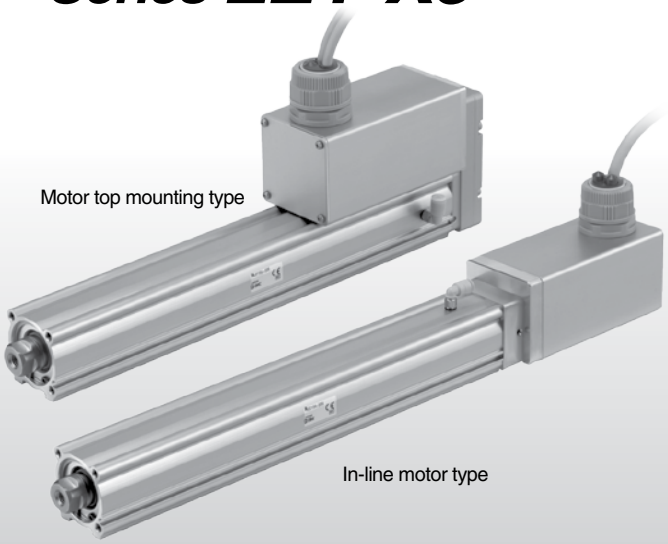
Rod Type Page 2

Series LEY



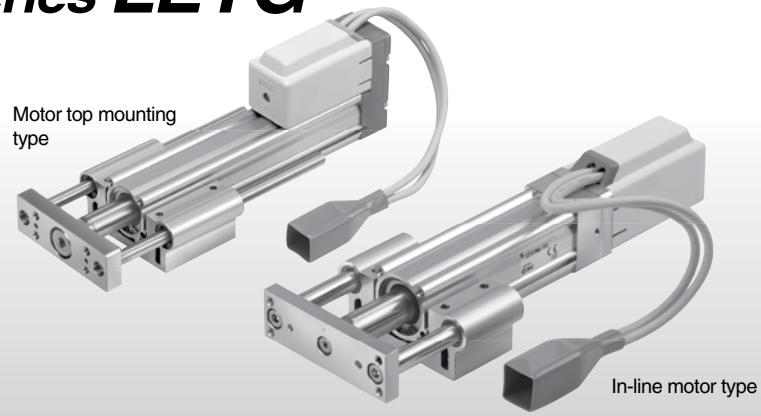
Dust/Drip proof (IP65) specification Page 22

Series LEY-X5



Guide Rod Type Page 28

Series LEYG



Step Motor/Servo Motor Controller Page 47

Step Motor Driver

Series LECP6/LECA6
Series LEC-G
Series LECP1
Series LECPA

Model Selection

Selection Procedure

Positioning Control Selection Procedure

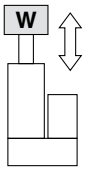
Step 1 Check the work load–speed. (Vertical transfer) → **Step 2** Check the cycle time.

Selection Example

(1 Kg = 2.2 lb)

Operating conditions

- Workpiece mass: 4 [kg]
- Speed: 100 [mm/s]
- Acceleration/Deceleration: 3,000 [mm/s^2]
- Stroke: 200 [mm]
- Workpiece mounting condition: Vertical upward / downward transfer

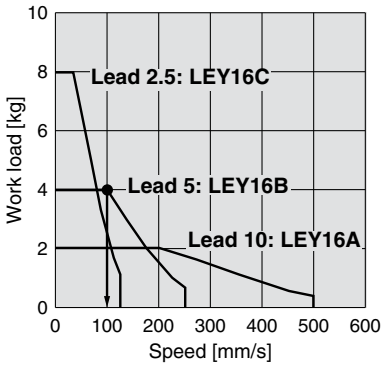


Step 1 **Check the work load–speed. <Speed–Vertical work load graph>**

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

Selection example) The **LEY16B** 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 10 for the horizontal work load in the specifications, and page 43 for the precautions.



<Speed–Vertical work load graph> (LEY16/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.

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

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

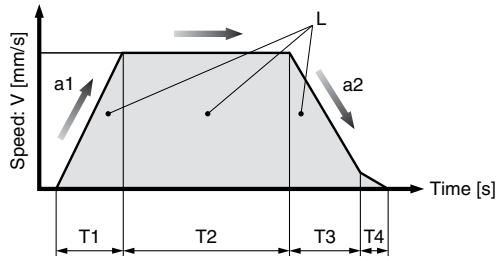
$$T1 = V/a1 \text{ [s]} \qquad T3 = V/a2 \text{ [s]}$$

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

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

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

$$T4 = 0.2 \text{ [s]}$$



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 in position is completed

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

$T1 = V/a1 = 100/3000 = 0.033$ [s], $T3 = V/a2 = 100/3000 = 0.033$ [s]

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} = \frac{200 - 0.5 \cdot 100 \cdot (0.033 + 0.033)}{100} = 1.97 \text{ [s]}$$

$T4 = 0.2$ [s]

Therefore, the cycle time can be obtained as follows.
$T = T1 + T2 + T3 + T4 = 0.033 + 1.967 + 0.033 + 0.2 =$ **2.233 [s]**

Based on the above calculation result, the LEY16B-200 is selected.

Pushing Control Selection Procedure

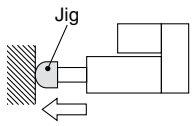
Step 1 Check the duty ratio. → **Step 2** Check the pushing force. → **Step 3** Check the lateral load on the rod end.

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

Selection Example

Operating conditions

- Mounting condition: Horizontal (pushing)
- Jig weight: 0.2 [kg]
- Pushing force: 60 [N]
- Duty ratio: 20 [%]
- Speed: 100 [mm/s]
- Stroke: 200 [mm]



(1 N = 0.22 lbf, 1 Kg = 2.2 lb)

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>.

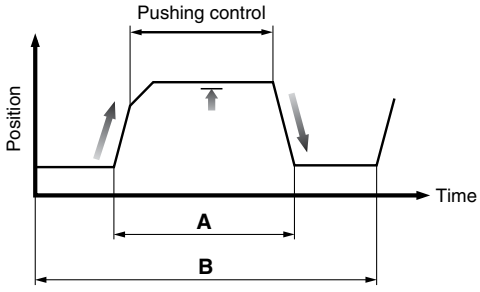
Selection example)
Based on the table below,
- Duty ratio: 20 [%]

Therefore, the set value of pushing force will be 70 [%].

<Conversion table of pushing force–duty ratio> (LEY16/Step motor)

Set value of pushing force [%]	Duty ratio (%)	Continuous pushing time (minute)
40 or less	100	—
50	70	12
70	20	1.3
85	15	0.8

∗ [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.



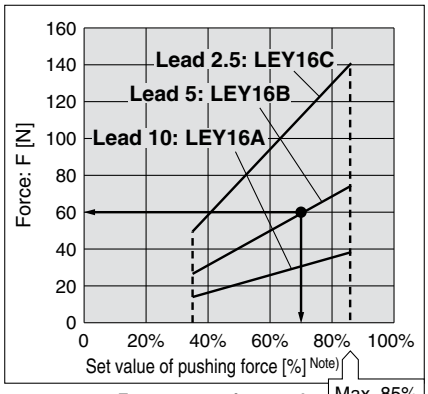
Duty ratio = A/B x 100 [%]

Step 2 Check the pushing force. <Force conversion graph>

Select the target model based on the set value of pushing force and force with reference to the <Force conversion graph>.

Selection example)
Based on the graph shown on the right side,
- Set value of pushing force: 70 [%]
- Pushing force: 60 [N]

Therefore, the **LEY16B** is temporarily selected.



<Force conversion graph> (LEY16/Step motor)

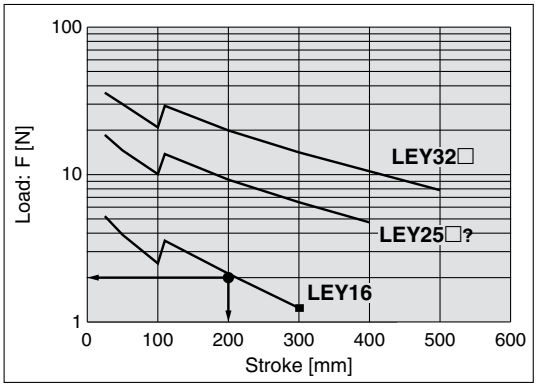
Note) Set values for the controller.

Step 3 Check the lateral load on the rod end.
<Graph of allowable lateral load on the rod end>

Confirm the allowable lateral load on the rod end of the actuator: LEY16□, which has been selected temporarily with reference to the <Graph of allowable lateral load on the rod end>.

Selection example)
Based on the graph shown on the right side,
- Jig weight: 0.2 [kg] ≈ 2 [N]
- Product stroke: 200 [mm]

Therefore, the lateral load on the rod end is in the allowable range.



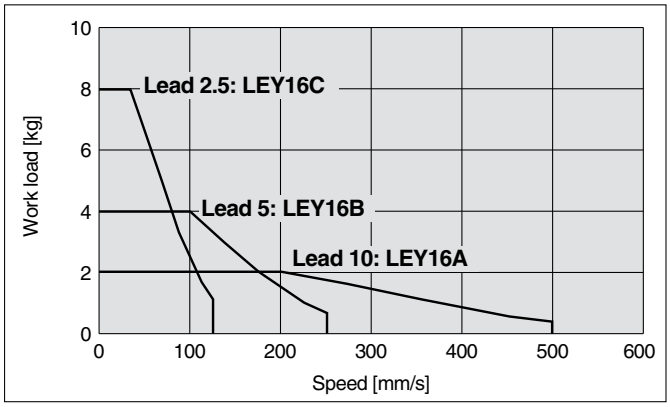
<Graph of allowable lateral load on the rod end>

Based on the above calculation result, the LEY16B-200 is selected.

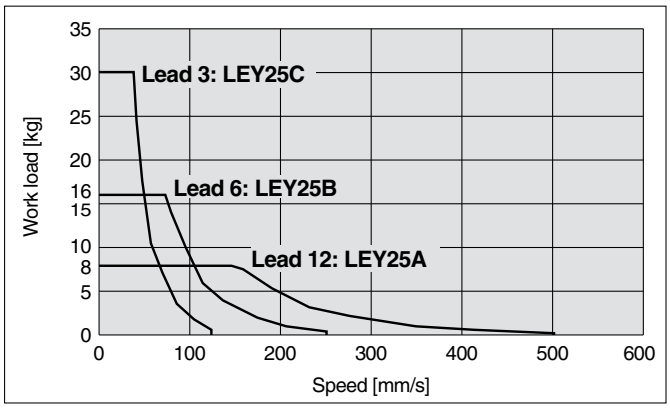
Speed–Vertical Work Load Graph (Guide)

Step Motor (Servo/24 VDC)

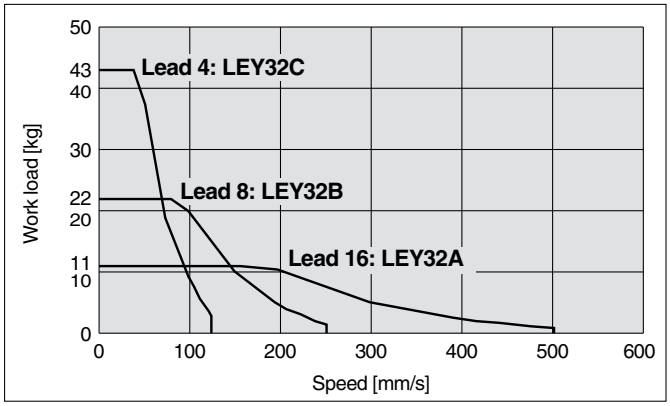
LEY16



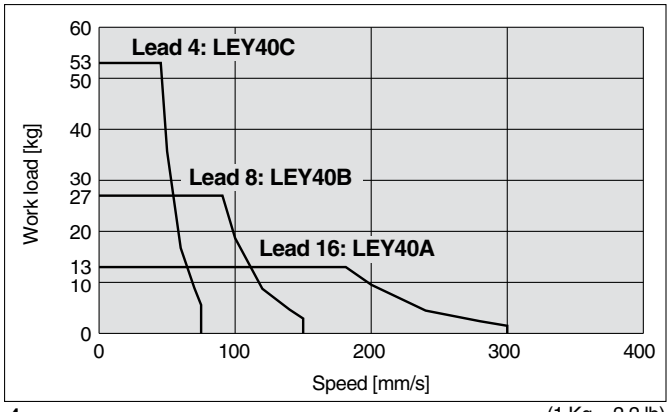
LEY25



LEY32



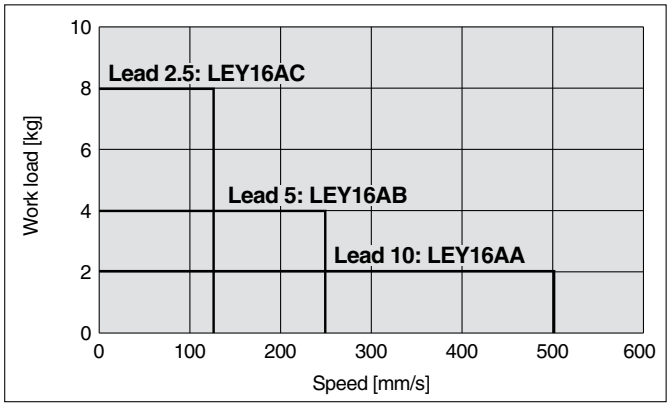
LEY40



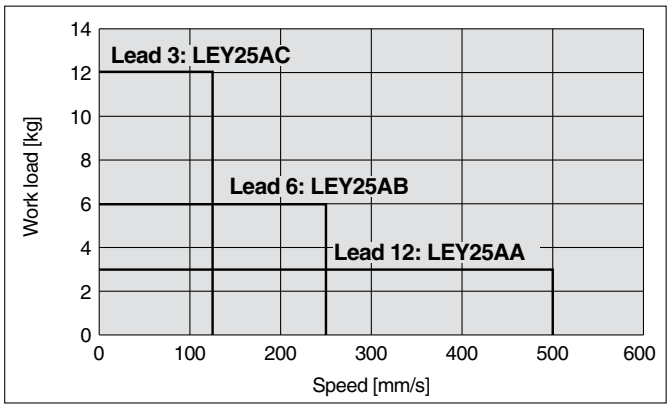
(1 Kg = 2.2 lb)

Servo Motor (24 VDC)

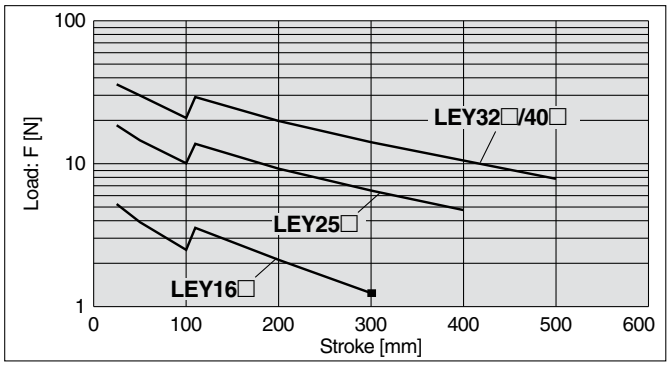
LEY16



LEY25

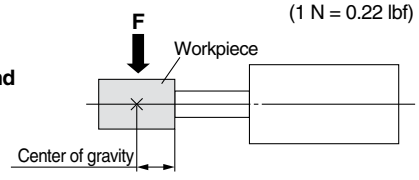


Graph of Allowable Lateral Load on the Rod End (Guide)



(1 N = 0.22 lbf)

[Stroke]
= [Product stroke] +
[Distance from the rod end to the center of gravity of the workpiece]

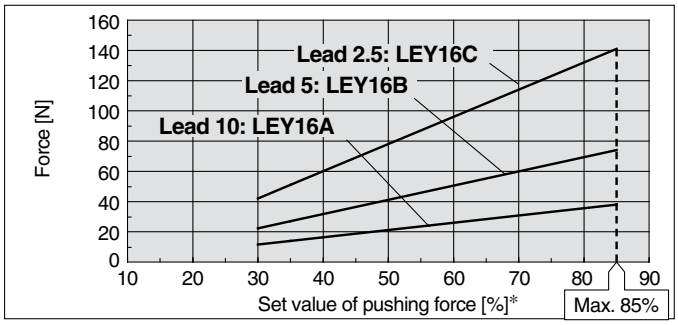


Force Conversion Graph (Guide)

(1 N = 0.22 lbf)

Step Motor (Servo/24 VDC)

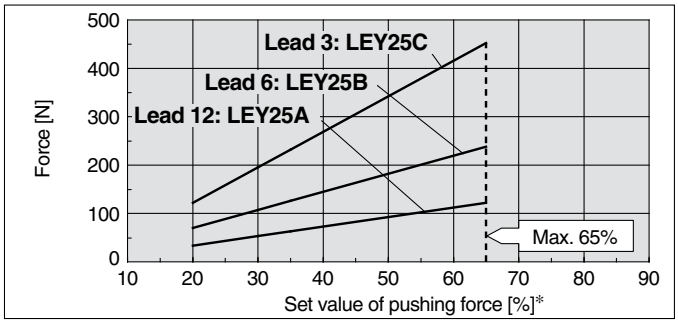
LEY16



Ambient temperature	Set value of pushing force [%]	Duty ratio [%]	Continuous pushing time [minute]
25°C or less	85 or less	100	—
40°C	40 or less	100	—
	50	70	12
	70	20	1.3
	85	15	0.8

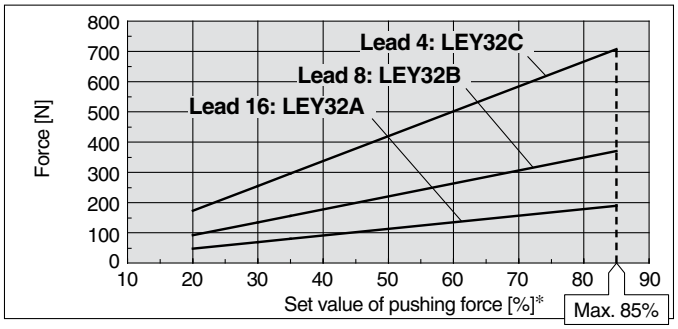
77°F (25°C), 104°F (40°C)

LEY25

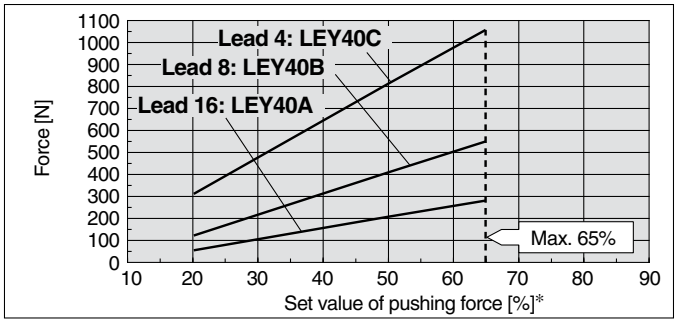


Ambient temperature	Set value of pushing force [%]	Duty ratio [%]	Continuous pushing time [minute]
40°C or less	65 or less	100	—

LEY32



LEY40

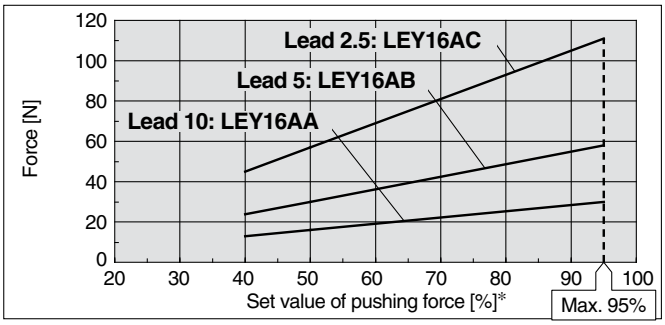


Ambient temperature	Set value of pushing force [%]	Duty ratio [%]	Continuous pushing time [minute]
25°C or less	85 or less	100	—
40°C	65 or less	100	—
	85	50	15

* Set values for the controller.

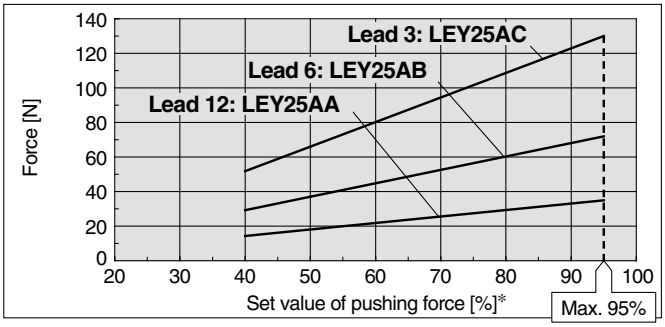
Servo Motor (24 VDC)

LEY16



Ambient temperature	Set value of pushing force [%]	Duty ratio [%]	Continuous pushing time [minute]
40°C or less	95 or less	100	—

LEY25



Ambient temperature	Set value of pushing force [%]	Duty ratio [%]	Continuous pushing time [minute]
40°C or less	95 or less	100	—

<Pushing Force and Trigger Level Range> Without Load

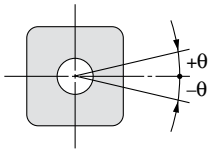
Model	Pushing speed [mm/s]	Pushing force (Setting input value)
LEY16□	1 to 4	30% to 85%
	5 to 20	35% to 85%
	21 to 50	60% to 85%
LEY25□	1 to 4	20% to 65%
	5 to 20	35% to 65%
	21 to 35	50% to 65%
LEY32□	1 to 4	20% to 85%
	5 to 20	35% to 85%
	21 to 30	60% to 85%
LEY40□	1 to 4	20% to 65%
	5 to 20	35% to 65%
	21 to 30	50% to 65%

Model	Pushing speed [mm/s]	Pushing force (Setting input value)
LEY16□A	1 to 4	40% to 95%
	5 to 20	60% to 95%
	21 to 50	80% to 95%
LEY25□A	1 to 4	40% to 95%
	5 to 20	60% to 95%
	21 to 35	80% to 95%

Note) For vertical loads (upward), set the pushing force to the maximum value shown below, and operate at the work load or less.

Model	LEY16□			LEY25□			LEY32□			LEY40□			LEY16□A			LEY25□A		
Lead	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Work load [kg]	1	1.5	3	2.5	5	10	4.5	9	18	7	14	28	1	1.5	3	1.2	2.5	5
Pushing force	85%			65%			85%			65%			95%			95%		

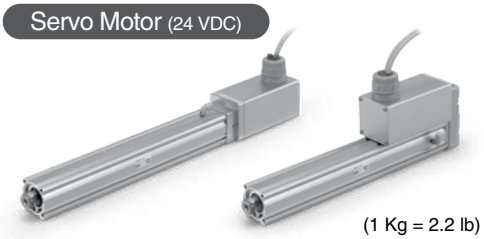
Non-rotating Accuracy of Rod



Size	Non-rotating accuracy θ
16	±1.1°
25	±0.8°
32	±0.7°
40	

* Avoid using the electric actuator in such a way that rotational torque would be applied to the piston rod.
This may cause deformation of the non-rotating guide, abnormal responses of the auto switch, play in the internal guide or an increase in the sliding resistance.

Model Selection

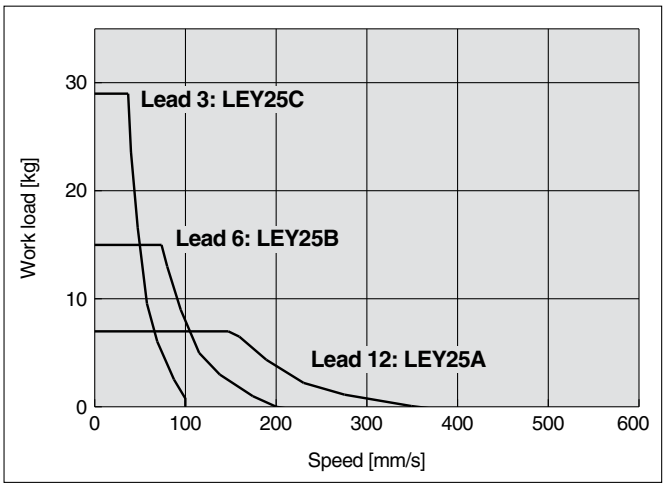


Speed–Vertical Work Load Graph

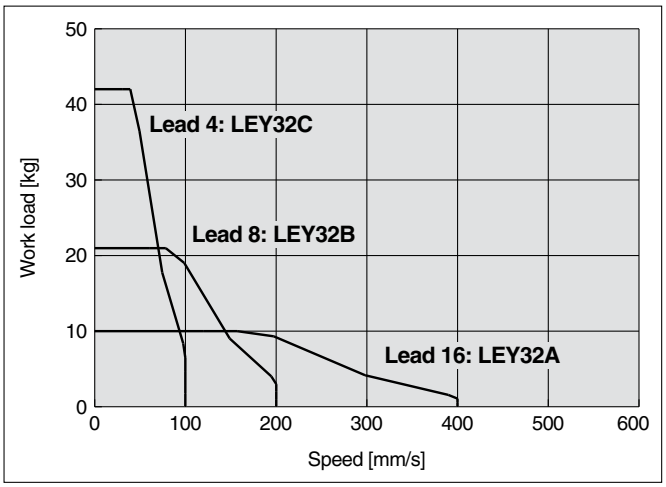
(1 Kg = 2.2 lb)

Step Motor (Servo/24 VDC)

LEY25□

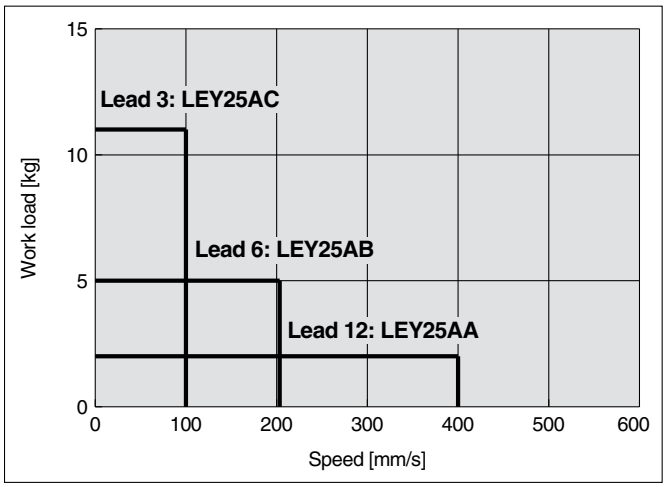


LEY32□

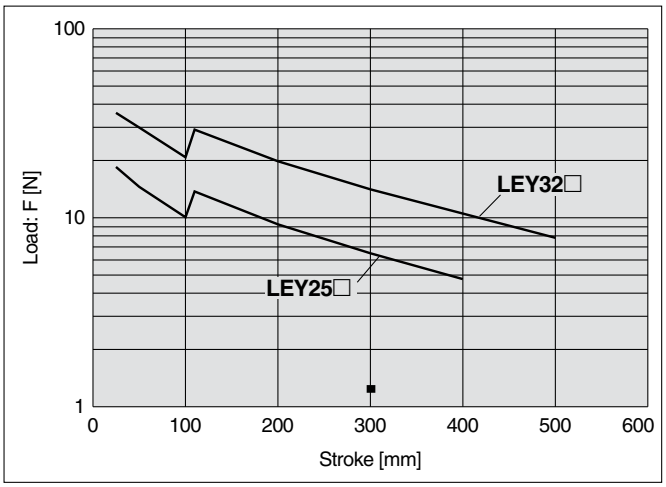


Servo Motor (24 VDC)

LEY25A□

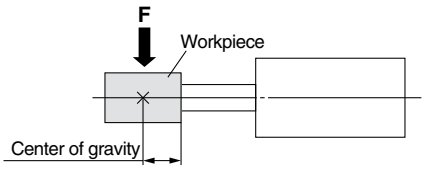


Graph of Allowable Lateral Load on the Rod End (Guide)



(1 N = 0.22 lbf)

[Stroke] = [Product stroke] + [Distance from the rod end to the center of gravity of the workpiece]

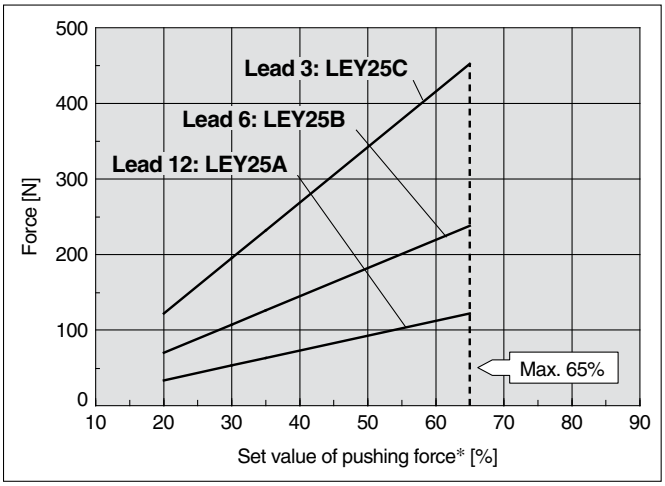


Force Conversion Graph

(1 N = 0.22 lbf)

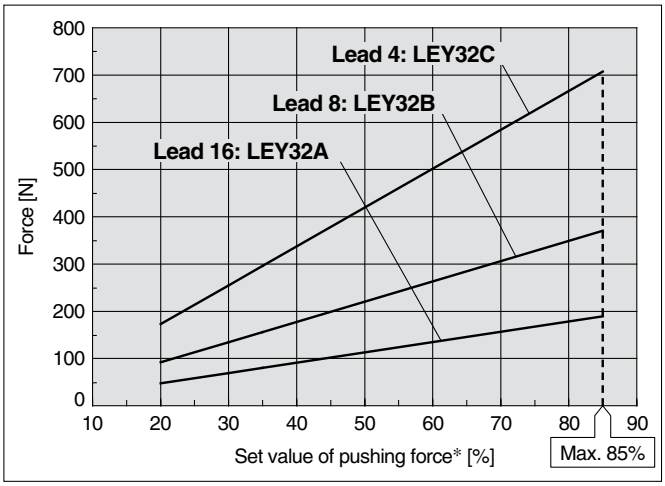
Step Motor (Servo/24 VDC)

LEY25



Ambient temperature	Set value of pushing force* [%]	Duty ratio [%]	Continuous pushing time [minute]
40°C or less	65 or less	100	—

LEY32

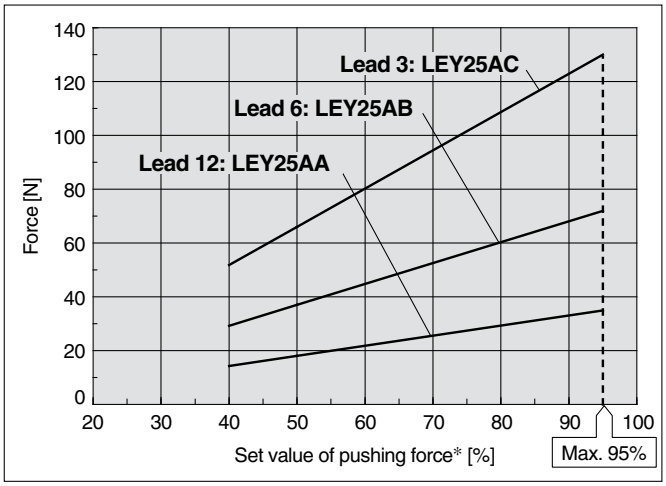


Ambient temperature	Set value of pushing force* [%]	Duty ratio [%]	Continuous pushing time [minute]
25°C or less	85 or less	100	—
40°C	65 or less	100	—
	85	50	15

77°F (25°C), 104°F (40°C)

Servo Motor (24 VDC)

LEY25



Ambient temperature	Set value of pushing force* [%]	Duty ratio [%]	Continuous pushing time [minute]
40°C or less	95 or less	100	—

<Pushing Force and Trigger Level Range> Without Load

Model	Pushing speed [mm/s]	Pushing force (Setting input value)
LEY25□	1 to 4	20% to 65%
	5 to 20	35% to 65%
	21 to 35	50% to 65%
LEY32□	1 to 4	20% to 85%
	5 to 20	35% to 85%
	21 to 30	60% to 85%

Model	Pushing speed [mm/s]	Pushing force (Setting input value)
LEY25□A	1 to 4	40% to 95%
	5 to 20	60% to 95%
	21 to 35	80% to 95%

Note) For vertical loads (upward), set the pushing force to the maximum value shown below, and operate at the work load or less.

Model	LEY25□			LEY32□			LEY25□A		
Lead	A	B	C	A	B	C	A	B	C
Work load [kg]	2.5	5	10	4.5	9	18	1.2	2.5	5
Pushing force	65%			85%			95%		

∗ Set values for the controller.

Electric Actuator/Rod Type

Step Motor (Servo/24 VDC) | Servo Motor (24 VDC)

Series LEY

LEY16, 25, 32, 40

RoHS

How to Order

LEY 16 ❶ ❷ B ❹ – 30 ❺ ❻ ❼ ❽ – S ❾ 1 ❿ 6N ⓫ 1 ⓬ ⓭

❶ Size

16
25
32
40

❷ Motor mounting position

Nil	Top mounting
R	Right side parallel
L	Left side parallel
D	In-line

❸ Motor type

Symbol	Type	Size			Compatible controllers/driver
		LEY16	LEY25	LEY32/40	
Nil	Step motor (Servo/24 VDC)	●	●	●	LECP6 LECP1 LECPA
A	Servo motor (24 VDC)	●	●	—	LECA6

❹ Lead [mm]

Symbol	LEY16	LEY25	LEY32/40
A	10	12	16
B	5	6	8
C	2.5	3	4

❺ Stroke [mm]

30	30
to	to
500	500

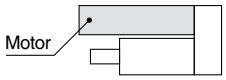
∗ Refer to the applicable stroke table.

❻ Motor option∗1

Nil	Without option
C	With motor cover
B	With lock∗2

∗1 When [With lock] is selected, [With motor cover] cannot be selected.

∗2 When "With lock" is selected for the top mounting and right/left side parallel types, the motor body will stick out of the end of the body for size 16 with strokes 30 or less. Check for interference with workpieces before selecting a model.



❼ Rod end thread

Nil	Rod end female thread
M	Rod end male thread (1 rod end nut is included.)

⚠ Caution

[CE-compliant products]

① EMC compliance was tested by combining the electric actuator LEY 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 For the servo motor (24 VDC) specification, EMC compliance was tested by installing a noise filter set (LEC-NFA). Refer to page 56 for the noise filter set.
Refer to the LECA Operation Manual for installation.

[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.

∗ Applicable stroke table ● Standard

Model \ Stroke [mm]	30	50	100	150	200	250	300	350	400	450	500	Manufacturable stroke range [mm]
LEY16	●	●	●	●	●	●	●	—	—	—	—	10 to 300
LEY25	●	●	●	●	●	●	●	●	●	—	—	15 to 400
LEY32/40	●	●	●	●	●	●	●	●	●	●	●	20 to 500

∗ Consult with SMC for non-standard strokes as they are produced as special orders.

For auto switches, refer to pages 20 and 21.

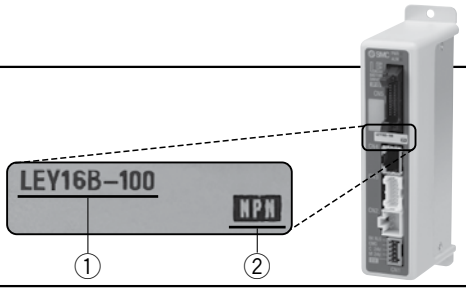
The actuator and controller/driver are sold as a package.

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

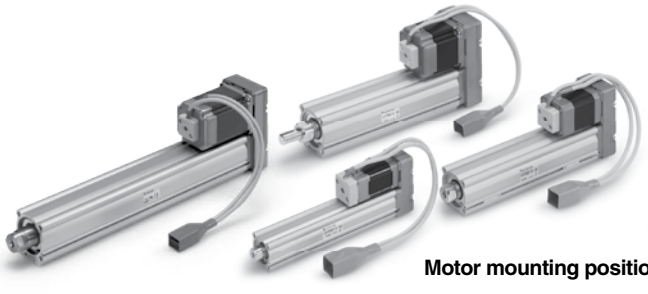
<Check the following before use.>

① Check the actuator label for model number. This matches the controller/driver.

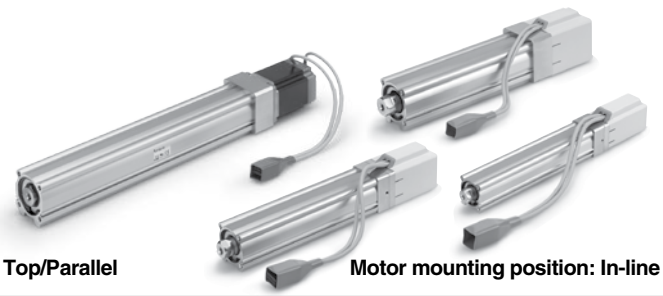
② Check Parallel I/O configuration matches (NPN or PNP)



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



Motor mounting position: Top/Parallel



Motor mounting position: In-line

⑧ Mounting*1

Symbol	Type	Motor mounting position	
		Top/Parallel	In-line
Nil	Ends tapped (Standard)*2	●	●
U	Body bottom tapped	●	●
L	Foot	●	—
F	Rod flange*2	●	●
G	Head flange*2	●*4	—
D	Double clevis*3	●	—

*1 Mounting bracket is shipped together, (but not assembled).
*2 For horizontal cantilever mounting with the rod flange, head flange and ends tapped, use the actuator within the following stroke range.
•LEY25: 200 or less
•LEY32/40: 100 or less
*3 For mounting with the double clevis, use the actuator within the following stroke range.
•LEY16: 100 or less
•LEY25: 200 or less
•LEY32/40: 200 or less
*4 Head flange is not available for the LEY32/40.

⑨ Actuator cable type*1

Nil	Without cable
S	Standard cable*2
R	Robotic cable (Flexible cable)

*1 The standard cable should be used on fixed parts. For using on moving parts, select the robotic cable.
*2 Only available for the motor type "Step motor."

⑩ Actuator cable length [m]

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

* Produced upon receipt of order (Robotic cable only) Refer to the specifications Note 5) on page 10.

⑪ Controller/Driver type*1

Nil	Without controller/driver	
6N	**LECP6/LECA6** (Step data input type)	NPN
6P		PNP
1N	**LECP1***2 (Programless type)	NPN
1P		PNP
AN	**LECPA***2 (Pulse input type)	NPN
AP		PNP

*1 For details about controller/drivers and compatible motors, refer to the compatible controller/drivers below.
*2 Only available for the motor type "Step motor."

⑫ I/O cable length [m]*1

Nil	Without cable
1	1.5
3	3*2
5	5*2

*1 When "Without controllers/driver" is selected for controller/driver types, I/O cable cannot be selected. Refer to page 56 (For LECP6/ LECA6), page 69 (For LECP1) or page 76 (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.

⑬ Controller/Driver mounting

Nil	Screw mounting
D	DIN rail mounting*1

*1 DIN rail is not included. Order it separately.

Compatible Controllers/Driver

Type	**Step data input type** 	**Step data input type** 	**Programless type** 	**Pulse input type** 
Series	**LECP6**	**LECA6**	**LECP1**	**LECPA**
Features	Value (Step data) input Standard controller		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)	Servo motor (24 VDC)	Step motor (Servo/24 VDC)	
Max. number of step data	64 points		14 points	—
Power supply voltage	24 VDC			
Reference page	Page 48	Page 48	Page 63	Page 70

Specifications

(1 N = 0.22 lbf, 1 Kg = 2.2 lb)

Step Motor (Servo/24 VDC)

Model				LEY16			LEY25			LEY32			LEY40		
Actuator specifications	Stroke [mm] Note 1)			30, 50, 100, 150 200, 250, 300			30, 50, 100, 150, 200 250, 300, 350, 400			30, 50, 100, 150, 200, 250 300, 350, 400, 450, 500			30, 50, 100, 150, 200, 250 300, 350, 400, 450, 500		
	Work load [kg] Note 2)	Horizontal	(3000 [mm/s²])	4	11	20	12	30	30	20	40	40	30	60	60
			(2000 [mm/s²])	6	17	30	18	50	50	30	60	60	—	—	—
		Vertical	(3000 [mm/s²])	2	4	8	8	16	30	11	22	43	13	27	53
	Pushing force [N] Note 3) 4) 5)			14 to 38	27 to 74	51 to 141	63 to 122	126 to 238	232 to 452	80 to 189	156 to 370	296 to 707	132 to 283	266 to 553	562 to 1058
	Speed [mm/s] Note 5)			15 to 500	8 to 250	4 to 125	18 to 500	9 to 250	5 to 125	24 to 500	12 to 250	6 to 125	24 to 300	12 to 150	6 to 75
	Max. acceleration/deceleration [mm/s²]			3000											
	Pushing speed [mm/s] Note 6)			50 or less			35 or less			30 or less			30 or less		
	Positioning repeatability [mm]			±0.02											
	Screw lead [mm]			10	5	2.5	12	6	3	16	8	4	16	8	4
	Impact/Vibration resistance [m/s²] Note 7)			50/20											
	Actuation type			Ball screw + Belt (LEY□)/Ball screw (LEY□D)											
	Guide type			Sliding bushing (Piston rod)											
	Operating temprature range			41 to 104°F (5 to 40°C)											
	Operating humidity range [%RH]			90 or less (No condensation)											
Electric specifications	Motor size			□28			□42			□56.4			□56.4		
	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 8)			23			40			50			50		
	Standby power consumption when operating [W] Note 9)			16			15			48			48		
	Max. instantaneous power consumption [W] Note 10)			43			48			104			106		
Lock unit specifications	Type Note 11)			Non-magnetizing lock											
	Holding force [N]			20	39	78	78	157	294	108	216	421	127	265	519
	Power consumption [W] Note 12)			2.9			5			5			5		
	Rated voltage [V]			24 VDC ±10%											

Note 1) Consult with SMC for non-standard strokes as they are produced as special orders.

Note 2) Horizontal: The maximum value of the work load. 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.
Vertical: Speed changes according to the work load. Check “Model Selection” on page 2.
The values shown in ( ) are the acceleration/deceleration.
Set these values to be 3000 [mm/s²] or less.

Note 3) Pushing force accuracy is ±20% (F.S.).

Note 4) The pushing force values for LEY16□ is 35% to 85%, for LEY25□ is 35% to 65%, for LEY32□ is 35% to 85% and for LEY40□ is 35% to 65%.
The pushing force values change according to the duty ratio and pushing speed. Check “Model Selection” on page 3.

Note 5) 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 6) The allowable speed for pushing operation. When push conveying a workpiece, operate at the vertical work load or less.

Note 7) 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 8) The power consumption (including the controller) is for when the actuator is operating.

Note 9) The standby power consumption when operating (including the controller) is for when the actuator is stopped in the set position during the operation. Except during the pushing operation.

Note 10) 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.

Note 11) With lock only

Note 12) For an actuator with lock, add the power consumption for the lock.

Specifications

Servo Motor (24 VDC)

Model			LEY16A			LEY25A		
Actuator specifications	Stroke [mm] Note 1)		30, 50, 100, 150 200, 250, 300			30, 50, 100, 150, 200 250, 300, 350, 400		
	Work load [kg] Note 2)	Horizontal (3000 [mm/s²])	3	6	12	7	15	30
		Vertical (3000 [mm/s²])	2	4	8	3	6	12
	Pushing force [N] Note 3) 4)		16 to 30	30 to 58	57 to 111	18 to 35	37 to 72	66 to 130
	Speed [mm/s]		15 to 500	8 to 250	4 to 125	18 to 500	9 to 250	5 to 125
	Max. acceleration/deceleration [mm/s²]		3000					
	Pushing speed [mm/s] Note 5)		50 or less			35 or less		
	Positioning repeatability [mm]		±0.02					
	Screw lead [mm]		10	5	2.5	12	6	3
	Impact/Vibration resistance [m/s²] Note 6)		50/20					
	Actuation type		Ball screw + Belt (LEY□)/Ball screw (LEY□D)					
	Guide type		Sliding bushing (Piston rod)					
	Operating temperature range [°C]		5 to 40					
	Operating humidity range [%RH]		90 or less (No condensation)					
Electric specifications	Motor size		□28			□42		
	Motor output [W]		30			36		
	Motor type		Servo motor (24 VDC)					
	Encoder		Incremental A/B phase (800 pulse/rotation)/Z phase					
	Rated voltage [V]		24 VDC ±10%					
	Power consumption [W] Note 7)		40			86		
	Standby power consumption when operating [W] Note 8)		4 (Horizontal)/6 (Vertical)			4 (Horizontal)/12 (Vertical)		
	Max. instantaneous power consumption [W] Note 9)		59			96		
Lock unit specifications	Type Note 10)		Non-magnetizing lock					
	Holding force [N]		20	39	78	78	157	294
	Power consumption [W] Note 11)		2.9			5		
	Rated voltage [V]		24 VDC ±10%					

Note 1) Consult with SMC for non-standard strokes as they are produced as special orders.
Note 2) Horizontal: The maximum value of the work load. 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.
Vertical: Check "Model Selection" on page 2 for details. The values shown in ( ) are the acceleration/deceleration.
Set these values to be 3000 [mm/s^2] or less.
Note 3) Pushing force accuracy is ±20% (F.S.).
Note 4) The pushing force values for LEY16A□ is 50% to 95% and for LEY25A□ is 50% to 95%. The pushing force values change according to the duty ratio and pushing speed. Check "Model Selection" on page 3.
Note 5) The allowable speed for pushing operation. When push conveying a workpiece, operate at the vertical work load or less.
Note 6) 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 7) The power consumption (including the controller) is for when the actuator is operating.
Note 8) The standby power consumption when operating (including the controller) is for when the actuator is stopped in the set position during the operation. Except during the pushing operation.
Note 9) 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.
Note 10) With lock only
Note 11) For an actuator with lock, add the power consumption for the lock.

Weight

Weight: Motor Top/Parallel Type

(1 Kg = 2.2 lb)

Series		LEY16							LEY25									LEY32										
Stroke [mm]		30	50	100	150	200	250	300	30	50	100	150	200	250	300	350	400	30	50	100	150	200	250	300	350	400	450	500
Product weight [kg]	Step motor	0.58	0.62	0.73	0.87	0.98	1.09	1.20	1.18	1.25	1.42	1.68	1.86	2.03	2.21	2.38	2.56	2.09	2.20	2.49	2.77	3.17	3.46	3.74	4.03	4.32	4.60	4.89
	Servo motor	0.58	0.62	0.73	0.87	0.98	1.09	1.20	1.14	1.21	1.38	1.64	1.82	1.99	2.17	2.34	2.52	—	—	—	—	—	—	—	—	—	—	—

Series		LEY40										
Stroke [mm]		30	50	100	150	200	250	300	350	400	450	500
Product weight [kg]	Step motor	2.39	2.50	2.79	3.07	3.47	3.76	4.04	4.33	4.62	4.90	5.19
	Servo motor	—	—	—	—	—	—	—	—	—	—	—

Weight: In-line Motor Type

Series		LEY16D							LEY25D									LEY32D										
Stroke [mm]		30	50	100	150	200	250	300	30	50	100	150	200	250	300	350	400	30	50	100	150	200	250	300	350	400	450	500
Product weight [kg]	Step motor	0.58	0.62	0.73	0.87	0.98	1.09	1.20	1.17	1.24	1.41	1.67	1.85	2.02	2.20	2.37	2.55	2.08	2.19	2.48	2.76	3.16	3.45	3.73	4.02	4.31	4.59	4.88
	Servo motor	0.58	0.62	0.73	0.87	0.98	1.09	1.20	1.13	1.20	1.37	1.63	1.81	1.98	2.16	2.33	2.51	—	—	—	—	—	—	—	—	—	—	—

Series		LEY40D										
Stroke [mm]		30	50	100	150	200	250	300	350	400	450	500
Product weight [kg]	Step motor	2.38	2.49	2.78	3.06	3.46	3.75	4.03	4.32	4.61	4.89	5.18
	Servo motor	—	—	—	—	—	—	—	—	—	—	—

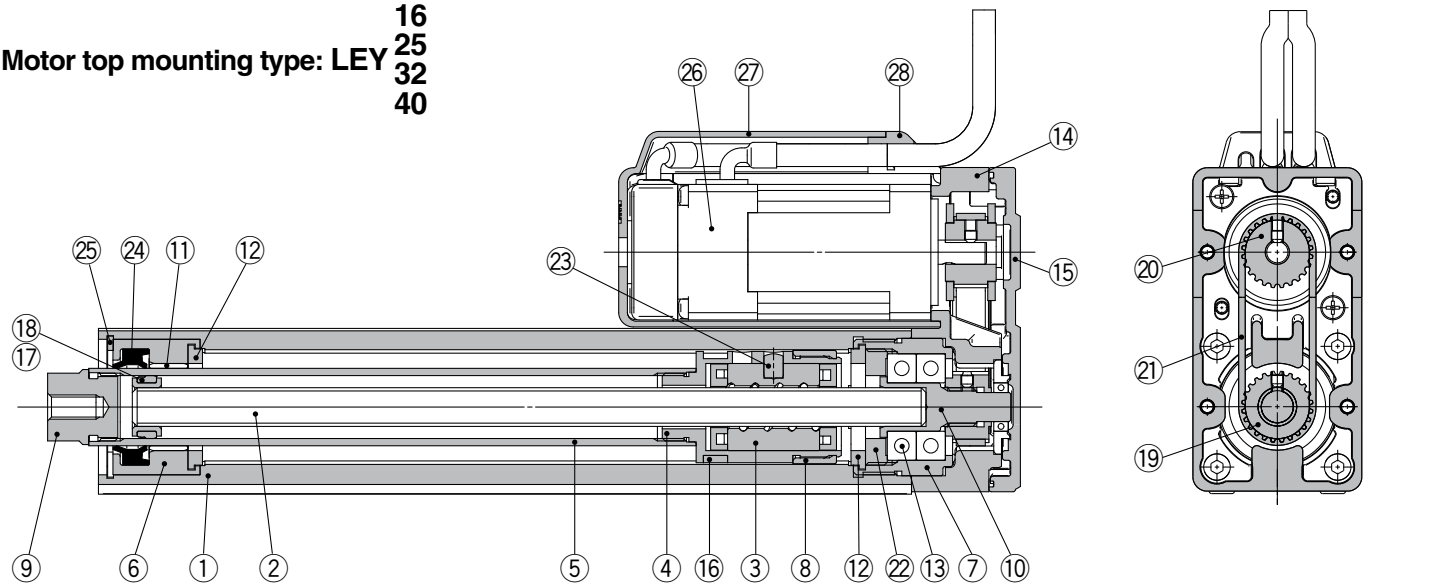
Additional Weight

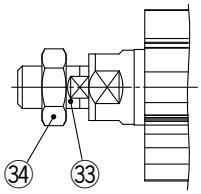
[kg]

Size		16	25	32	40
Lock		0.12	0.26	0.53	0.53
Motor cover		0.02	0.03	0.04	0.05
Rod end male thread	Male thread	0.01	0.03	0.03	0.03
	Nut	0.01	0.02	0.02	0.02
Foot (2 sets including mounting bolt)		0.06	0.08	0.14	0.14
Rod flange (including mounting bolt)		0.13	0.17	0.20	0.20
Head flange (including mounting bolt)					
Double clevis (including pin, retaining ring and mounting bolt)		0.08	0.16	0.22	0.22

Construction

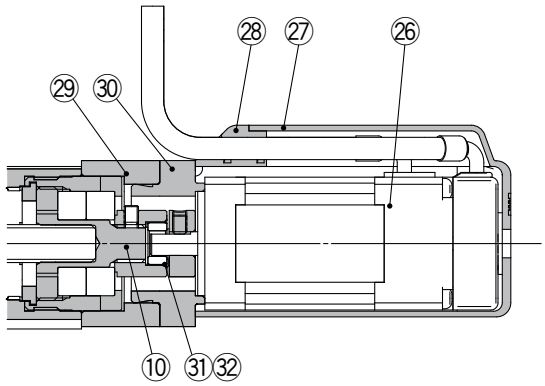
Motor top mounting type: LEY 16 25 32 40





When rod end male thread selected

In-line motor type: LEY 16 25 32 40D



Component Parts

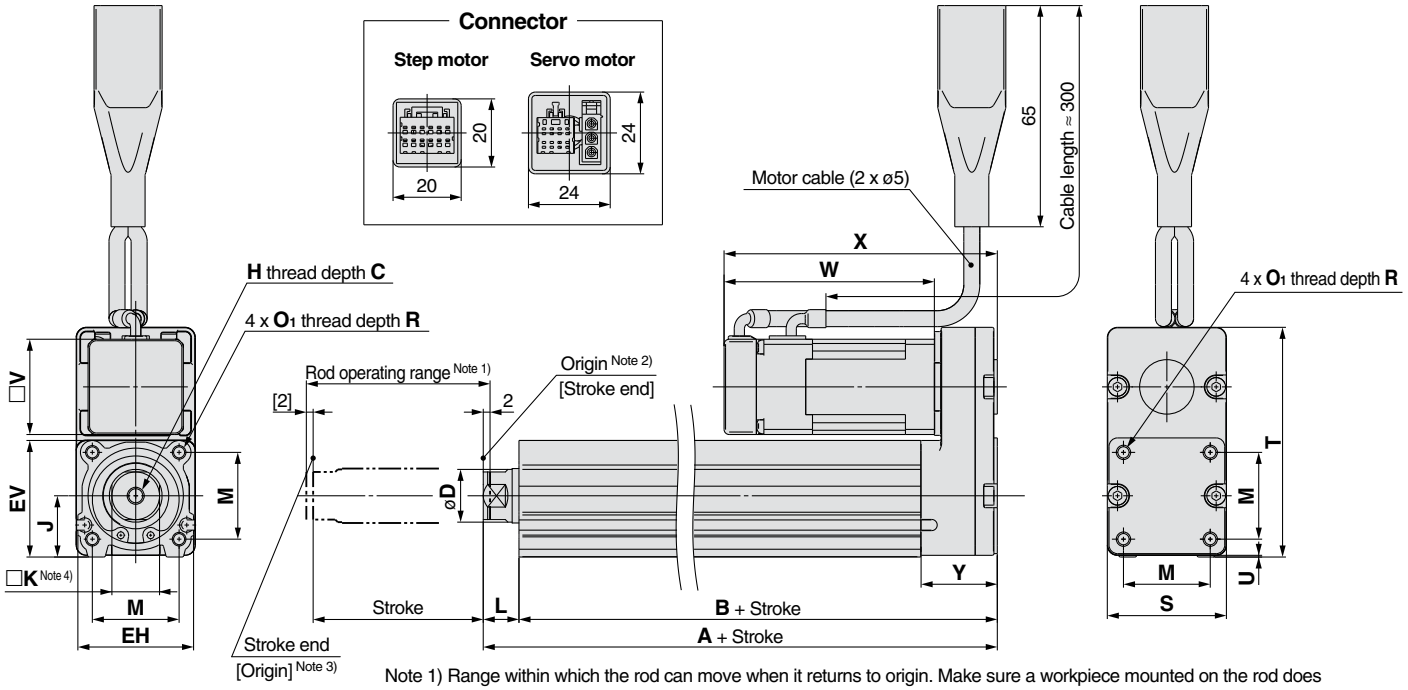
No.	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Ball screw (shaft)**	Alloy steel	
3	**Ball screw nut**	Resin/Alloy steel	
4	**Piston**	Aluminum alloy	
5	**Piston rod**	Stainless steel	Hard chrome anodized
6	**Rod cover**	Aluminum alloy	
7	**Housing**	Aluminum alloy	
8	**Rotation stopper**	POM	
9	**Socket**	Free cutting carbon steel	Nickel plated
10	**Connected shaft**	Free cutting carbon steel	Nickel plated
11	**Bushing**	Lead bronze cast	
12	**Bumper**	Urethane	
13	**Bearing**	—	
14	**Return box**	Aluminum die-cast	Trivalent chromated
15	**Return plate**	Aluminum die-cast	Trivalent chromated
16	**Magnet**	—	
17	**Wear ring holder**	Stainless steel	Stroke 101 mm or more
18	**Wear ring**	POM	Stroke 101 mm or more
19	**Screw shaft pulley**	Aluminum alloy	
20	**Motor pulley**	Aluminum alloy	

No.	Description	Material	Note
21	**Belt**	—	
22	**Bearing stopper**	Aluminum alloy	
23	**Parallel pin**	Stainless steel	
24	**Seal**	NBR	
25	**Retaining ring**	Steel for spring	Phosphate coated
26	**Motor**	—	
27	**Motor cover**	Synthetic resin	Only “With motor cover”
28	**Grommet**	Synthetic resin	Only “With motor cover”
29	**Motor block**	Aluminum alloy	Anodized
30	**Motor adapter**	Aluminum alloy	Anodized/LEY16, 25 only
31	**Hub**	Aluminum alloy	
32	**Spider**	NBR	
33	**Socket (Male thread)**	Free cutting carbon steel	Nickel plated
34	**Nut**	Alloy steel	

Replacement Parts (Top/Parallel only)/Belt

No.	Size	Order no.
21	**16**	LE-D-2-1
	25	LE-D-2-2
	32, 40	LE-D-2-3

Dimensions: Motor Top/Parallel

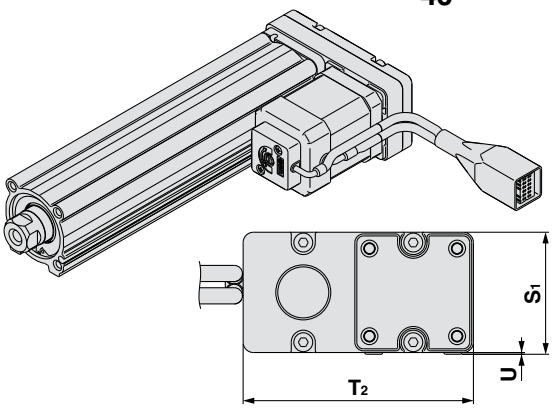


Note 1) Range within which the rod can move when it returns to origin. Make sure a workpiece mounted on the rod does not interfere with the workpieces and facilities around the rod.
Note 2) Position after return to origin.
Note 3) The number in brackets indicates when the direction of return to origin has changed.
Note 4) The direction of rod end width across flats (□K) differs depending on the products.

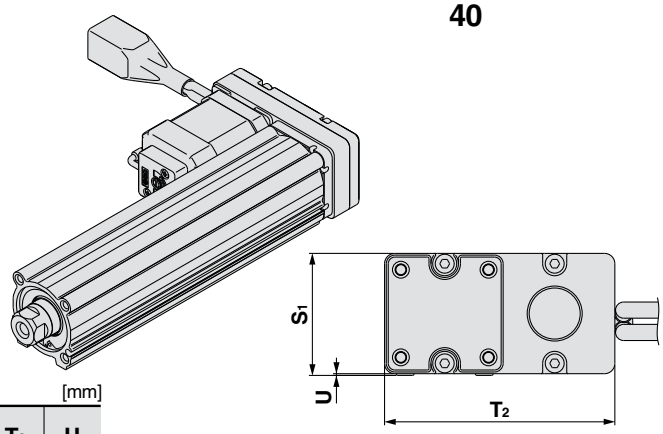
[mm]

Size	Stroke range (mm)	A	B	C	D	EH	EV	H	J	K	L	M	O_1	R	S	T	U	V	Step motor W	Step motor X	Servo motor W	Servo motor X	Y
16	10 to 100	101	90.5	10	16	34	34.3	M5 x 0.8	18	14	10.5	25.5	M4 x 0.7	7	35	67.5	0.5	28	61.8	80.3	62.5	81	22.5
	101 to 300	121	110.5																				
25	15 to 100	130.5	116	13	20	44	45.5	M8 x 1.25	24	17	14.5	34	M5 x 0.8	8	46	92	1	42	63.4	85.4	59.6	81.6	26.5
	101 to 400	155.5	141																				
32	20 to 100	148.5	130	13	25	51	56.5	M8 x 1.25	31	22	18.5	40	M6 x 1.0	10	60	118	1	56.4	68.4	95.4	—	—	34
	101 to 500	178.5	160																				
40	20 to 100	148.5	130	13	25	51	56.5	M8 x 1.25	31	22	18.5	40	M6 x 1.0	10	60	118	1	56.4	90.4	117.4	—	—	34
	101 to 500	178.5	160																				

Motor left side parallel type: LEY16/25/32/40L



Motor right side parallel type: LEY16/25/32/40R

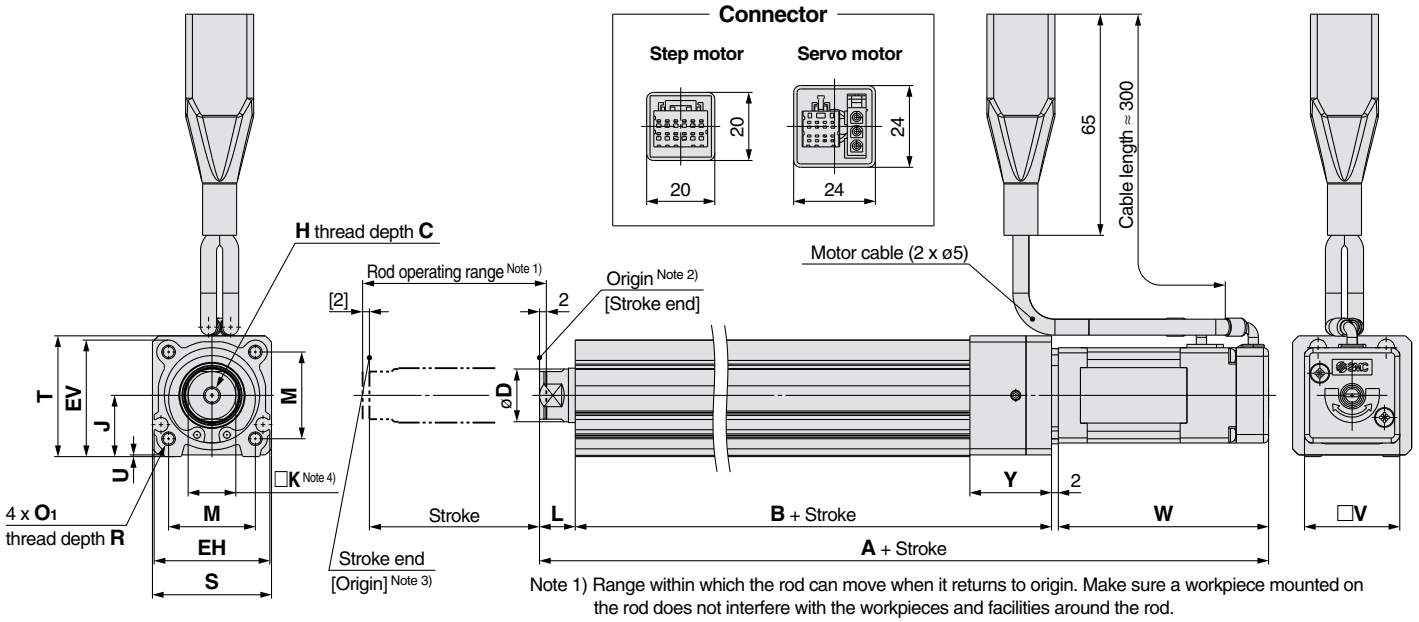


[mm]

Size	S_1	T_2	U
16	35.5	67	0.5
25	47	91	1
32, 40	61	117	1

Note) When the motor is mounted on the left or right side in parallel, the groove for auto switch on the side to which the motor is mounted is hidden.

Dimensions: In-line Motor



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) The number in brackets indicates when the direction of return to origin has changed.
Note 4) The direction of rod end width across flats (□K) differs depending on the products.

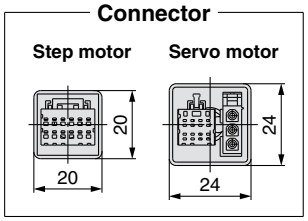
[mm]

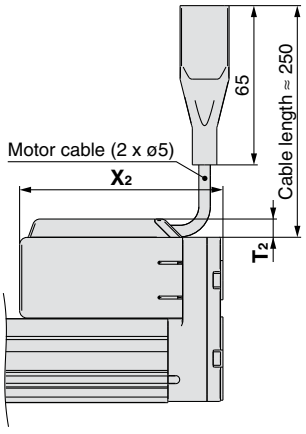
Size	Stroke range (mm)	Step motor	Servo motor	B	C	D	EH	EV	H	J	K	L	M	O_1	R	S	T	U
		A																
16	10 to 100	166.3	167	92	10	16	34	34.3	M5 x 0.8	18	14	10.5	25.5	M4 x 0.7	7	35	35.5	0.5
	101 to 300	186.3	187	112														
25	15 to 100	195.4	191.6	115.5	13	20	44	45.5	M8 x 1.25	24	17	14.5	34	M5 x 0.8	8	45	46.5	1.5
	101 to 400	220.4	216.6	140.5														
32	20 to 100	216.9	—	128	13	25	51	56.5	M8 x 1.25	31	22	18.5	40	M6 x 1	10	60	61	1
	101 to 500	246.9	—	158														
40	20 to 100	238.9	—	128	13	25	51	56.5	M8 x 1.25	31	22	18.5	40	M6 x 1	10	60	61	1
	101 to 500	268.9	—	158														

Size	Stroke range (mm)	V	Step motor	Servo motor	Y
			W		
16	10 to 100	28	61.8	62.5	24
	101 to 300				
25	15 to 100	42	63.4	59.6	26
	101 to 400				
32	20 to 100	56.4	68.4	—	32
	101 to 500				
40	20 to 100	56.4	90.4	—	32
	101 to 500				

Dimensions

Motor top/parallel type / With motor cover: LEY16/25/32/40□□A/B/C-□C



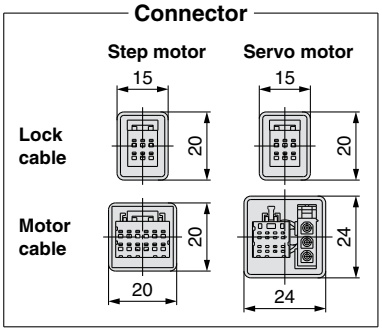


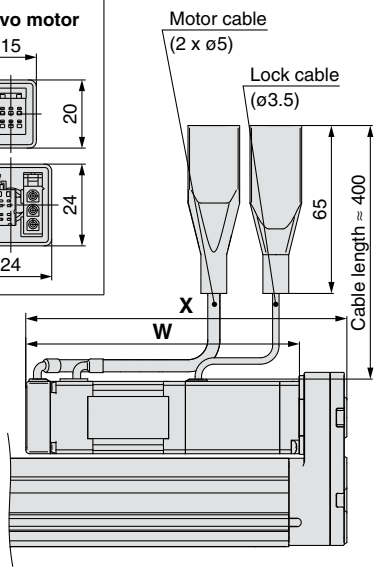
[mm]

Size	T2	X2
16	7.5	83
25	7.5	88.5
32	7.5	98.5
40	7.5	120.5

Motor cover material: Synthetic resin

With lock: LEY16/25/32/40□□A/B/C-□B

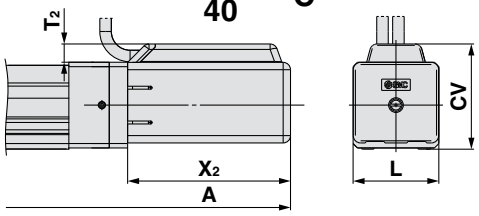




[mm]

Size	Step motor		Servo motor	
	W	X	W	X
16	103.3	121.8	104.0	122.5
25	103.9	125.9	100.1	122.1
32	111.4	138.4	—	—
40	133.4	160.4	—	—

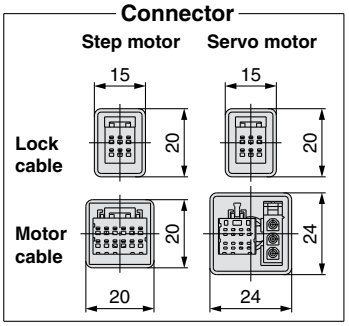
In-line motor type / With motor cover: LEY16/25/32/40D□A/B/C-□C

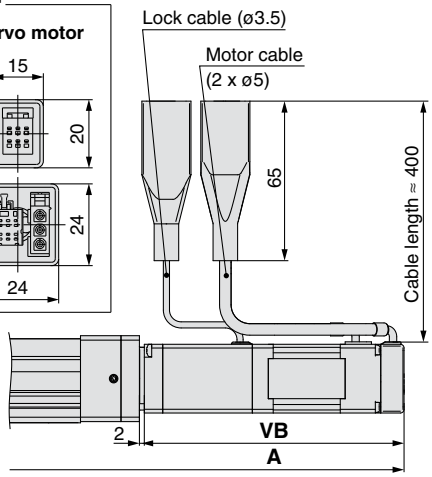


[mm]

Size	Stroke range	A	T2	X2	L	CV
16	100st or less	169	7.5	66.5	35	43
	101st or more, 200st or less	189				
25	100st or less	198.5	7.5	68.5	46	54.5
	101st or more, 400st or less	223.5				
32	100st or less	220	7.5	73.5	60	68.5
	101st or more, 500st or less	250				
40	100st or less	242	7.5	95.5	60	68.5
	101st or more, 500st or less	272				

With lock: LEY16/25/32/40D□A/B/C-□B

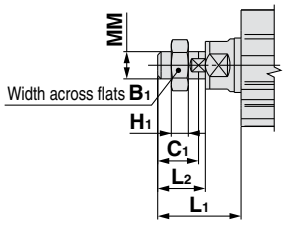




[mm]

Size	Stroke range	Step motor	Servo motor	Step motor	Servo motor
		A		VB	
16	100st or less	207.8	208.5	103.3	104
	101st or more, 200st or less	227.8	228.5		
25	100st or less	235.9	232.1	103.9	100.1
	101st or more, 400st or less	260.9	257.1		
32	100st or less	259.9	—	111.4	—
	101st or more, 500st or less	289.9	—		
40	100st or less	281.9	—	133.4	—
	101st or more, 500st or less	311.9	—		

End male thread: LEY16/25/32/40□□A/B/C-□□M



∗ Refer to page 18 for details about the rod end nut and mounting bracket.
Note) Refer to the "Handling" precautions on pages 44 and 45 when mounting end brackets such as knuckle joint or work pieces.

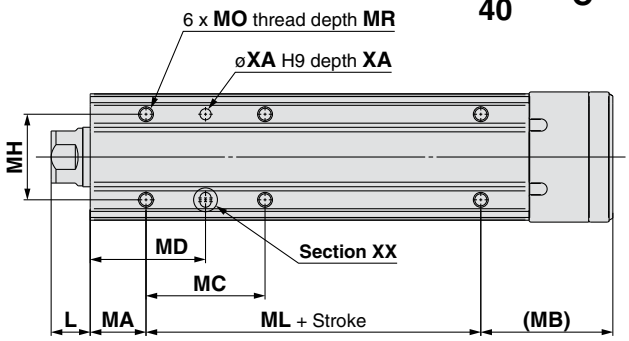
[mm]

Size	B1	C1	H1	L1	L2	MM
16	13	12	5	24.5	14	M8 x 1.25
25	22	20.5	8	38	23.5	M14 x 1.5
32, 40	22	20.5	8	42.0	23.5	M14 x 1.5

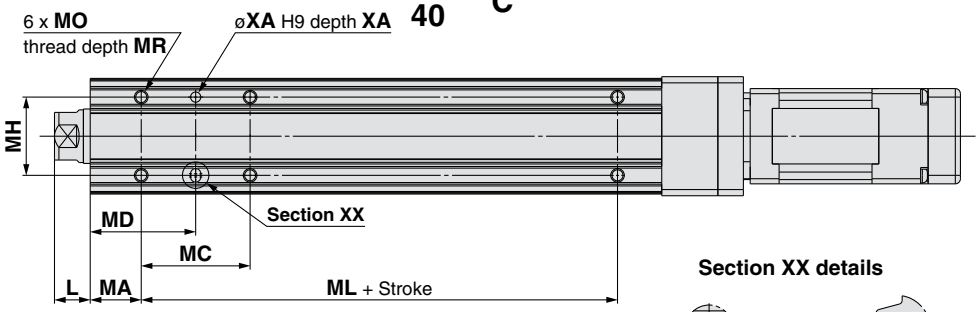
∗ The L1 measurement is when the unit is in the original position. At this position, 2 mm at the end.

Dimensions

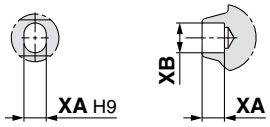
Body bottom tapped
Motor top/parallel: LEY16/25/32/40 □□ A/B/C -□□□U



Body bottom tapped
In-line motor: LEY16/25/32/40 D□ A/B/C -□□□U



Section XX details



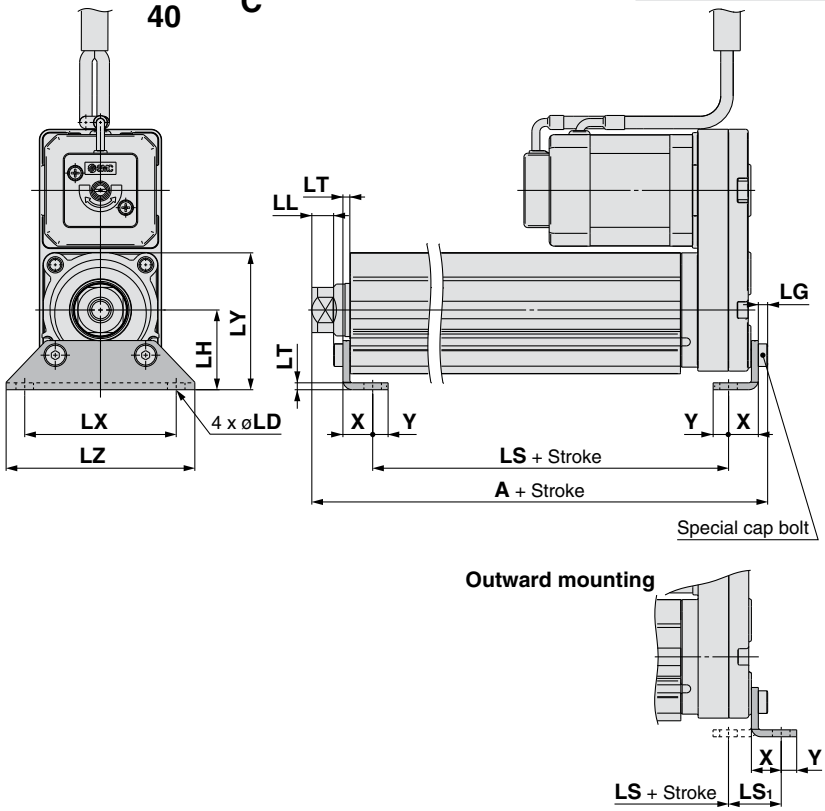
Body Bottom Tapped

[mm]

Size	Stroke range (mm)	L	MA	MB	MC	MD	MH	ML
16	10 to 39	10.5	15	35.5	17	23.5	23	40
	40 to 100				32	31		
	101 to 300				62	46		60
25	15 to 39	14.5	20	46	24	32	29	50
	40 to 100				42	41		
	101 to 124							75
	125 to 200				59	49.5		
	201 to 400				76	58		
32 40	20 to 39	18.5	25	55	22	36	30	50
	40 to 100				36	43		
	101 to 124							80
	125 to 200				53	51.5		
	201 to 500				70	60		

Size	Stroke range (mm)	MO	MR	XA	XB
16	10 to 39	M4 x 0.7	5.5	3	4
	40 to 100				
	101 to 300				
25	15 to 39	M5 x 0.8	6.5	4	5
	40 to 100				
	101 to 124				
	125 to 200				
	201 to 400				
32 40	20 to 39	M6 x 1	8.5	5	6
	40 to 100				
	101 to 124				
	125 to 200				
	201 to 500				

Foot
LEY16/25/32/40 □□ A/B/C -□□□L



Outward mounting

Included parts
- Foot
- Body mounting bolt

Foot

[mm]

Size	Stroke range (mm)	A	LS	LS1	LL	LD	LG
16	10 to 100	106.1	76.5	16.1	5.4	6.6	2.8
	101 to 300	126.1	96.5				
25	15 to 100	136.6	99	19.8	8.4	6.6	3.5
	101 to 400	161.6	124				
32 40	20 to 100	155.7	114	19.2	11.3	6.6	4
	101 to 500	185.7	144				

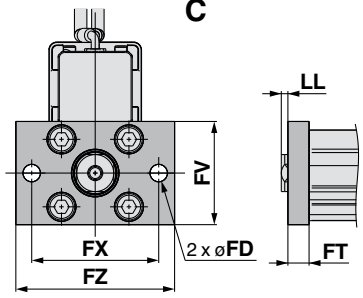
Size	Stroke range (mm)	LH	LT	LX	LY	LZ	X	Y
16	10 to 100	24	2.3	48	40.3	62	9.2	5.8
	101 to 300							
25	15 to 100	30	2.6	57	51.5	71	11.2	5.8
	101 to 400							
32 40	20 to 100	36	3.2	76	61.5	90	11.2	7
	101 to 500							

Material: Carbon steel (Chromate treated)

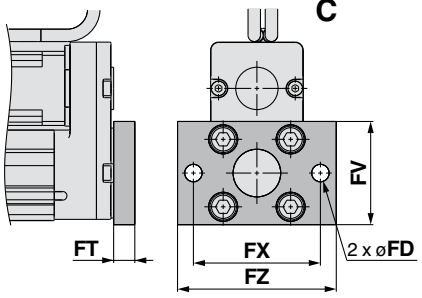
∗ The A measurement is when the unit is in the original position. At this position, 2 mm at the end.

Note) When the motor mounting is the right or left side parallel type, the head side foot should be mounted outwards.

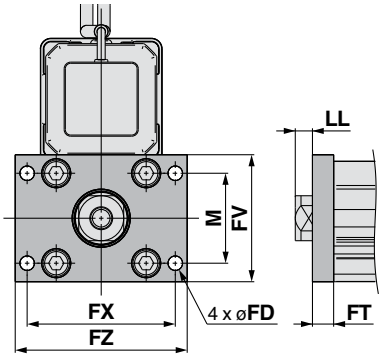
Rod flange: LEY16□□ A/B/C-□□□F



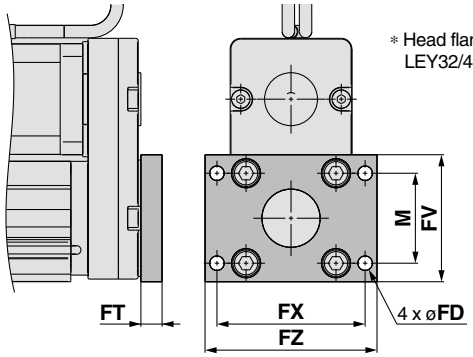
Head flange: LEY16□□ A/B/C-□□□G



Rod flange: LEY 25/32/40□□ A/B/C□□□F



Head flange: LEY25□□ A/B/C□□□G



∗ Head flange is not available for the LEY32/40.

Included parts
- Flange
- Body mounting bolt

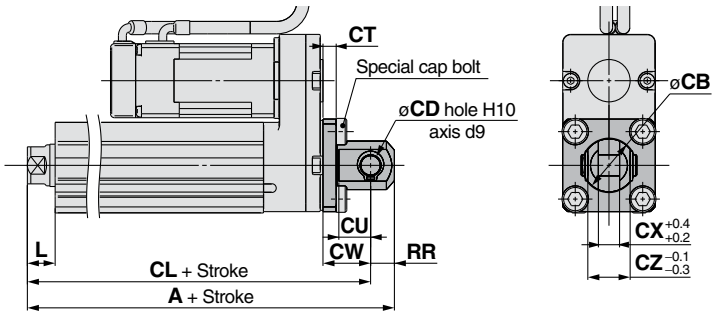
Rod/Head Flange

[mm]

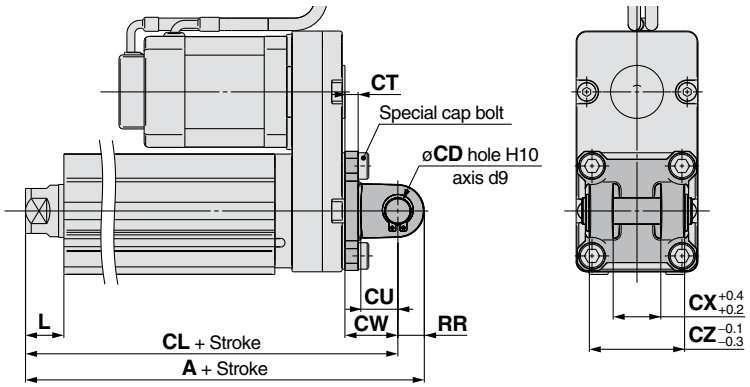
Size	FD	FT	FV	FX	FZ	LL	M
16	6.6	8	39	48	60	2.5	—
25	5.5	8	48	56	65	6.5	34
32, 40	5.5	8	54	62	72	10.5	40

Material: Carbon steel (Nickel plated)

Double clevis: LEY16□□ A/B/C-□□□D



Double clevis: LEY 25/32/40□□ A/B/C□□□D



Included parts
- Double clevis
- Body mounting bolt
- Clevis pin
- Retaining ring

∗ Refer to page 18 for details about the rod end nut and mounting bracket.

Double Clevis

[mm]

Size	Stroke range (mm)	A	CL	CB	CD	CT
16	10 to 100	128	119	20	8	5
25	10 to 100	160.5	150.5	—	10	5
	101 to 200	185.5	175.5			
32	10 to 100	180.5	170.5	—	10	6
40	101 to 200	210.5	200.5			

Size	Stroke range (mm)	CU	CW	CX	CZ	L	RR
16	10 to 100	12	18	8	16	10.5	9
25	10 to 100	14	20	18	36	14.5	10
	101 to 200						
32	10 to 100	14	22	18	36	18.5	10
40	101 to 200						

Material: Cast iron (Coating)

∗ The A and CL measurements are when the unit is in the original position. At this position, 2 mm at the end.

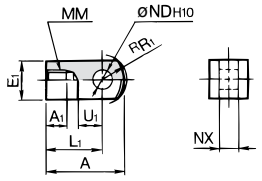
Accessory Mounting Brackets

Accessory Brackets/Support Brackets

Single Knuckle Joint

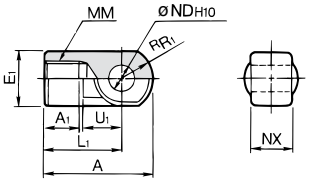
∗ If a knuckle joint is used, select the body option [end male thread].

I-G02



Material: Carbon steel
Surface treatment: Nickel plated

I-G04



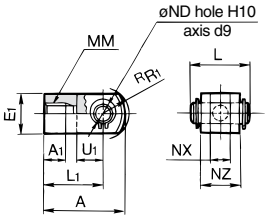
Material: Cast iron
Surface treatment: Nickel plated

[mm]

Part no.	Applicable size	A	A_1	E_1	L_1	MM	R_1	U_1	ND_{H10}	NX
I-G02	**16**	34	8.5	□16	25	M8 x 1.25	10.3	11.5	$8^{+0.058}_{0}$	$8^{-0.2}_{-0.4}$
I-G04	**25, 32, 40**	42	14	ø22	30	M14 x 1.5	12	14	$10^{+0.058}_{0}$	$18^{-0.3}_{-0.5}$

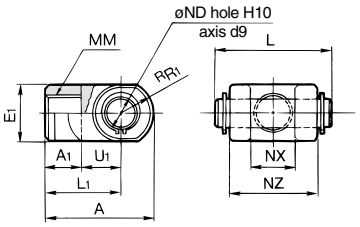
Double Knuckle Joint

Y-G02



Material: Carbon steel
Surface treatment: Nickel plated

Y-G04



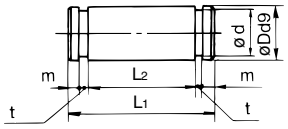
Material: Cast iron
Surface treatment: Nickel plated

∗ Knuckle pin and retaining ring are included. [mm]

Part no.	Applicable size	A	A_1	E_1	L_1	MM	R_1
Y-G02	**16**	34	8.5	□16	25	M8 x 1.25	10.3
Y-G04	**25, 32, 40**	42	16	ø22	30	M14 x 1.5	12

Part no.	Applicable size	U_1	ND_{H10}	NX	NZ	L	Applicable pin part no.
Y-G02	**16**	11.5	$8^{+0.058}_{0}$	$8^{+0.4}_{+0.2}$	16	21	**IY-G02**
Y-G04	**25, 32, 40**	14	$10^{+0.058}_{0}$	$18^{+0.5}_{+0.3}$	36	41.6	**IY-G04**

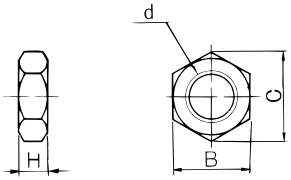
Knuckle Pin (Common with double clevis pin)



Material: Carbon steel
[mm]

Part no.	Applicable size	Dd9	L_1	L_2	d	m	t	Retaining ring
IY-G02	**16**	$8^{-0.040}_{-0.076}$	21	16.2	7.6	1.5	0.9	Type C retaining ring 8
IY-G04	**25, 32, 40**	$10^{-0.040}_{-0.076}$	41.6	36.2	9.6	1.55	1.15	Type C retaining ring 10

Rod End Nut



Material: Carbon steel (Nickel plated)
[mm]

Part no.	Applicable size	d	H	B	C
NT-02	**16**	M8 x 1.25	5	13	15.0
NT-04	**25, 32, 40**	M14 x 1.5	8	22	25.4

Mounting Brackets/Part No.

Applicable size	Foot	Flange	Double clevis
16	LEY-L016	LEY-F016	LEY-D016
25	LEY-L025	LEY-F025	LEY-D025
32, 40	LEY-L032	LEY-F032	LEY-D032

∗ When ordering foot brackets, order 2 pieces per cylinder.
∗ Parts belonging to each bracket are as follows.
Foot: Body mounting bolt
Flange: Body mounting bolt
Double clevis: Clevis pin, Type C retaining ring for axis, Body mounting bolt

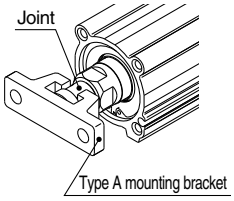
Simple Joint Brackets
∗ The joint is not included in type A and type B mounting brackets. Therefore, it must be ordered separately.

Joint and Mounting Bracket (Type A/B)/Part No.

Joint **LEY-U025**

Applicable size

025	25, 32, 40



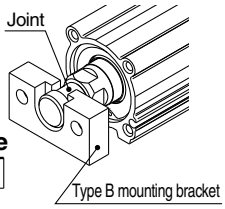
Mounting bracket **YA-03**

Mounting bracket

YA	Type A mounting bracket
YB	Type B mounting bracket

Applicable size

03	25, 32, 40



Allowable Eccentricity [mm]

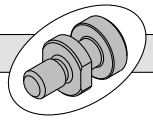
Applicable size	25	32	40
Eccentricity tolerance	±1		
Backlash	0.5		

<How to Order>
- The joint is not included in type A and type B mounting brackets. Therefore, it must be ordered separately.

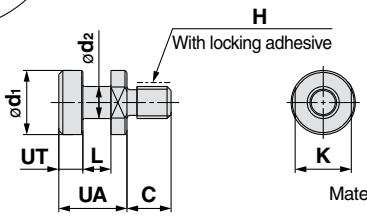
Example) Order no.
- Joint LEY-U025
- Type A mounting bracket YA-03

Joint and Mounting Bracket (Type A/B)/Part No.

Applicable size	Joint part no.	Applicable mounting bracket part no.	
		Type A mounting bracket	Type B mounting bracket
25, 32, 40	LEY-U025	YA-03	YB-03



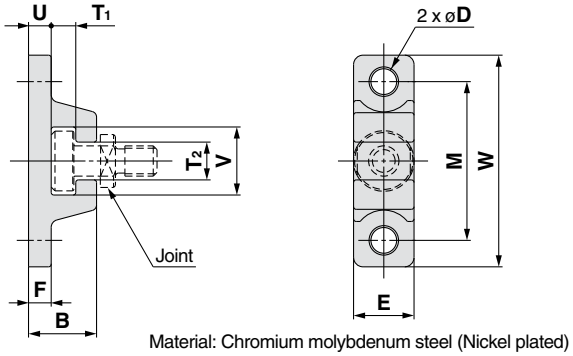
Joint



Material: Stainless steel
[mm]

Part no.	Applicable size	UA	C	d1	d2	H	K	L	UT	Weight (g)
LEY-U025	**25, 32, 40**	17	11	16	8	M8 x 1.25	14	7	6	22

Type A Mounting Bracket

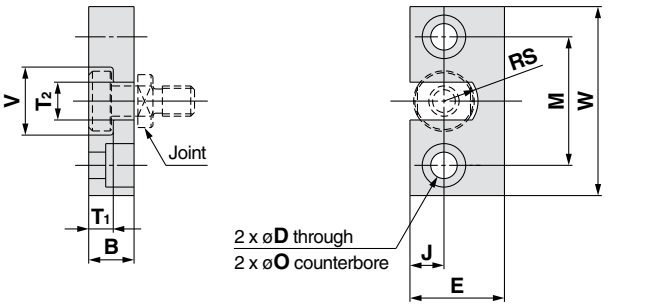


Material: Chromium molybdenum steel (Nickel plated)
[mm]

Part no.	Applicable size	B	D	E	F	M	T1	T2	U
YA-03	**25, 32, 40**	18	6.8	16	6	42	6.5	10	6

Part no.	Applicable size	V	W	Weight (g)
YA-03	**25, 32, 40**	18	56	55

Type B Mounting Bracket



Material: Stainless steel
[mm]

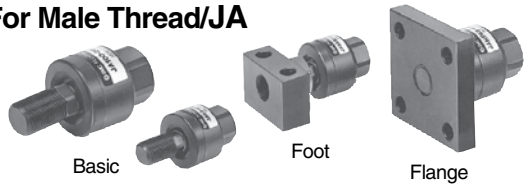
Part no.	Applicable size	B	D	E	J	M	øO
YB-03	**25, 32, 40**	12	7	25	9	34	11.5 depth 7.5

Part no.	Applicable size	T1	T2	V	W	RS	Weight (g)
YB-03	**25, 32, 40**	6.5	10	18	50	9	80

Floating Joints (Refer to Best Pneumatics No. 2 for details.)

● For Male Thread/JC (Light weight type)
- **With the aluminum case**

● For Male Thread/JA



● For Male Thread/JS (Stainless steel)
- **Stainless steel 304 (Appearance)**
- **Dust cover**
  Fluororubber/Silicone rubber

Applicable size	Thread size
16	M8 x 1.25
25, 32, 40	M14 x 1.5

● For Female Thread/JB

Applicable size	Thread size
16	M5 x 0.8
25, 32, 40	M8 x 1.25

Solid State Auto Switch
Direct Mounting Style
D-M9N(V)/D-M9P(V)/D-M9B(V)

CE RoHS

Grommet

- **2-wire load current is reduced (2.5 to 40 mA).**
- **Flexibility is 1.5 times greater than the conventional model (SMC comparison).**
- **Using flexible cable as standard.**

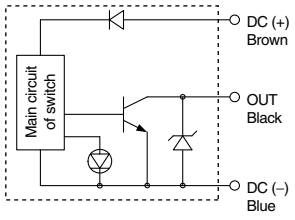
⚠Caution

Precautions

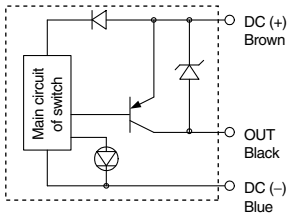
Fix the auto switch with the existing screw installed on the auto switch body. The auto switch may be damaged if a screw other than the one supplied is used.

Auto Switch Internal Circuit

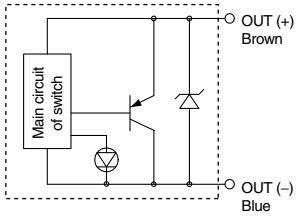
D-M9N/M9NV



D-M9P/M9PV



D-M9B/M9BV



Auto Switch Specifications

Refer to SMC website for details about products conforming to the international standards.

PLC: Programmable Logic Controller

D-M9□, D-M9□V (With indicator light)						
Auto switch model	D-M9N	D-M9NV	D-M9P	D-M9PV	D-M9B	D-M9BV
Electrical entry	In-line	Perpendicular	In-line	Perpendicular	In-line	Perpendicular
Wiring type	3-wire				2-wire	
Output type	NPN		PNP		—	
Applicable load	IC circuit, Relay, PLC				24 VDC relay, PLC	
Power supply voltage	5, 12, 24 VDC (4.5 to 28 V)				—	
Current consumption	10 mA or less				—	
Load voltage	28 VDC or less		—		24 VDC (10 to 28 VDC)	
Load current	40 mA or less				2.5 to 40 mA	
Internal voltage drop	0.8 V or less at 10 mA (2 V or less at 40 mA)				4 V or less	
Leakage current	100 μA or less at 24 VDC				0.8 mA or less	
Indicator light	Red LED lights up when turned ON.					
Standards	CE marking, RoHS					

- Lead wires — Oilproof flexible heavy-duty vinyl cord: ø2.7 x 3.2 ellipse, 0.15 mm², 2 cores (D-M9B(V)), 3 cores (D-M9N(V)/D-M9P(V))

Note) Refer to Best Pneumatics No. 2 for solid state auto switch common specifications.

Weight

[g]

Auto switch model		D-M9N(V)	D-M9P(V)	D-M9B(V)
Lead wire length (m)	0.5	8	8	7
	1	14	14	13
	3	41	41	38
	5	68	68	63

How to Order

D-M9 N □ □

- Series
- Wiring/Output type

N	3-wire NPN
P	3-wire PNP
B	2-wire

- Electrical entry

Nil	In-line
V	Perpendicular

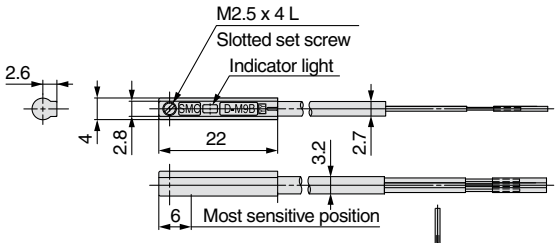
- Lead wire length

Nil	0.5 m
M	1 m
L	3 m
Z	5 m

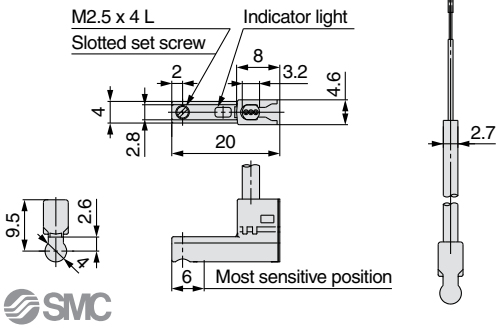
Dimensions

[mm]

D-M9□



D-M9□V



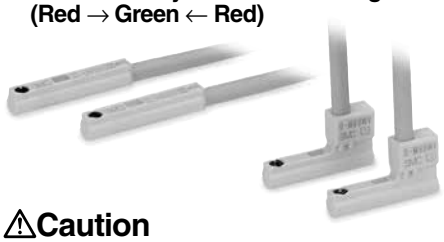
SMC

2-Color Indication Solid State Auto Switch
Direct Mounting Style
D-M9NW(V)/D-M9PW(V)/D-M9BW(V)

CE RoHS

Grommet

- **2-wire load current is reduced (2.5 to 40 mA).**
- **Flexibility is 1.5 times greater than the conventional model (SMC comparison).**
- **Using flexible cable as standard.**
- **The optimum operating range can be determined by the color of the light. (Red → Green ← Red)**



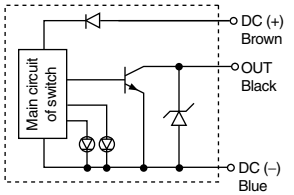
⚠Caution

Precautions

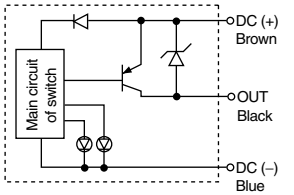
Fix the auto switch with the existing screw installed on the auto switch body. The auto switch may be damaged if a screw other than the one supplied is used.

Auto Switch Internal Circuit

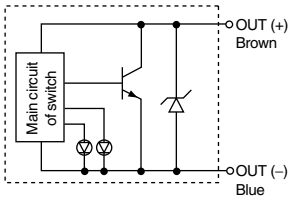
D-M9NW/M9NWV



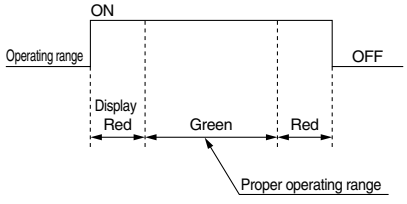
D-M9PW/M9PWV



D-M9BW/M9BWV



Indicator light/Indication method



Auto Switch Specifications

Refer to SMC website for details about products conforming to the international standards.

PLC: Programmable Logic Controller

D-M9□W, D-M9□WV (With indicator light)						
Auto switch model	D-M9NW	D-M9NWV	D-M9PW	D-M9PWV	D-M9BW	D-M9BWV
Electrical entry	In-line	Perpendicular	In-line	Perpendicular	In-line	Perpendicular
Wiring type	3-wire				2-wire	
Output type	NPN		PNP		—	
Applicable load	IC circuit, Relay, PLC				24 VDC relay, PLC	
Power supply voltage	5, 12, 24 VDC (4.5 to 28 V)				—	
Current consumption	10 mA or less				—	
Load voltage	28 VDC or less		—		24 VDC (10 to 28 VDC)	
Load current	40 mA or less				2.5 to 40 mA	
Internal voltage drop	0.8 V or less at 10 mA (2 V or less at 40 mA)				4 V or less	
Leakage current	100 μA or less at 24 VDC				0.8 mA or less	
Indicator light	Operating range ····· Red LED lights up. Optimum operating range ····· Green LED lights up.					
Standards	CE marking, RoHS					

•Lead wires — Oilproof flexible heavy-duty vinyl cord: ø2.7 x 3.2 ellipse, 0.15 mm², 2 cores (D-M9BW(V)), 3 cores (D-M9NW(V), D-M9PW(V))

Note) Refer to Best Pneumatics No. 2 for solid state auto switch common specifications.

Weight

[g]

Auto switch model		D-M9NW(V)	D-M9PW(V)	D-M9BW(V)
Lead wire length (m)	0.5	8	8	7
	1	14	14	13
	3	41	41	38
	5	68	68	63

How to Order

D-M9 N W V L

Series

Wiring/Output type

N	3-wire NPN
P	3-wire PNP
B	2-wire

Electrical entry

Nil	In-line
V	Perpendicular

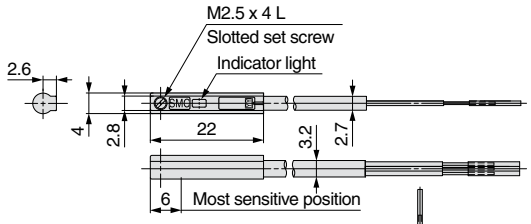
Lead wire length

Nil	0.5 m
M	1 m
L	3 m
Z	5 m

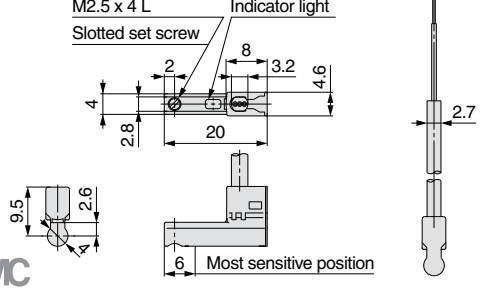
Dimensions

[mm]

D-M9□W



D-M9□WV



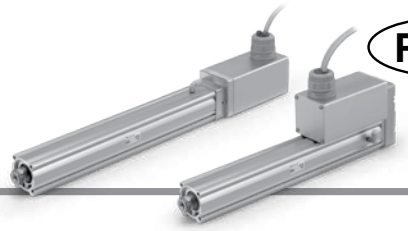
Electric Actuator/Rod Type

Step Motor (Servo/24 VDC) | Servo Motor (24 VDC)

Series LEY-X5

Size: 25, 32

Dust/Drip proof (IP65) specification



How to Order

LEY 25 D ❑ B – 50 ❑ ❑ ❑ – R 1 6N 1 ❑ – X5

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫ ⓬ ⓭

● Dust/Drop proof specification

❶ Size

25	
32	

❷ Motor mounting position

Nil	Top mounting
D	In-line

❸ Motor type

Symbol	Type	Size 25	Size 32	Compatible controllers/driver
Nil	Step motor (Servo/24 VDC)	●	●	LECP6 LECP1 LECPA
A	Servo motor (24 VDC)	●	—	LECA6

❹ Lead [mm]

Symbol	LEY25	LEY32
A	12	16
B	6	8
C	3	4

❺ Stroke [mm]

30	30
to	to
500	500

∗ Refer to the applicable stroke table.

❻ Motor option

Nil	Without option
B	With lock

❼ Rod end thread

Nil	Rod end female thread
M	Rod end male thread (1 rod end nut is included.)

❽ Mounting∗1

Symbol	Type	Motor mounting position: Top mounting	Motor mounting position: In-line
Nil	Ends tapped (Standard)∗2	●	●
U	Body bottom tapped	●	●
L	Foot	●	—
F	Rod flange∗2	●	●
G	Head flange∗2	●∗3	—

∗1 Mounting bracket is shipped together, (but not assembled).

∗2 For horizontal cantilever mounting with the rod flange, head flange and ends tapped, use the actuator within the following stroke range.
•LEY25: 200 or less •LEY32: 100 or less

∗3 Head flange is not available for the LEY32.

❾ Actuator cable type

R	Robotic cable (Flexible cable)

∗ Cable is shipped assembled.

❿ Actuator cable length [m]

1	1.5	A	10
3	3	B	15
5	5	C	20
8	8		

⓫ Controller/Driver type

Nil	Without controller/driver	
6N	LECP6/LECA6 (Step data input type)	NPN
6P		PNP
1N∗	LECP1 (Programless type)	NPN
1P∗		PNP
AN∗	LECPA (Pulse input type)	NPN
AP∗		PNP

∗ Only available for the motor type “Step motor”.

⓬ I/O cable length [m]∗1

Nil	Without cable
1	1.5
3	3∗2
5	5∗2

∗1 When “Without controller/driver” is selected for controller/driver types, I/O cable cannot be selected. Refer to page 56 (For LECP6/LECA6), page 69 (For LECP1) or page 76 (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.

⓭ Controller/Driver mounting

Nil	Screw mounting
D	DIN rail mounting∗

∗ DIN rail is not included. Order it separately.

⚠ Caution

[CE-compliant products]

① EMC compliance was tested by combining the electric actuator LEY 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 For the servo motor (24 VDC) specification, EMC compliance was tested by installing a noise filter set (LEC-NFA). Refer to page 56 for the noise filter set. Refer to the LECA Operation Manual for installation.

[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.

Applicable stroke table

●Standard

Model \ Stroke	30	50	100	150	200	250	300	350	400	450	500	Manufacturable stroke range [mm]
LEY25	●	●	●	●	●	●	●	●	●	—	—	15 to 400
LEY32	●	●	●	●	●	●	●	●	●	●	●	20 to 500

∗ Consult with SMC for non-standard strokes as they are produced as special orders.

∗ For auto switches, refer to page 27.

∗ “-X5” is not added to an actuator model with a controller/driver part number suffix.
Example) “LEY25DB-100” for the LEY25DB-100BMU-P16NID-X5

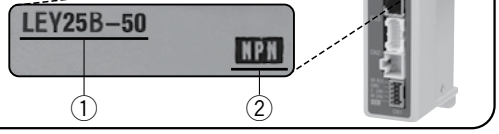
The actuator and controller/driver are sold as a package. (Controller/Driver → Page 47)

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).



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

Specifications

(1 N = 0.22 lbf, 1 Kg = 2.2 lb)

Step Motor (Servo/24 VDC)

Model				LEY25			LEY32		
Actuator specifications	Stroke [mm] Note 1)			30, 50, 100, 150, 200 250, 300, 350, 400			30, 50, 100, 150, 200 250, 300, 350, 400, 450, 500		
	Work load [kg] Note 2)	Horizontal	(3000 [mm/s²])	12	30	30	20	40	40
			(2000 [mm/s²])	18	50	50	30	60	60
		Vertical	(3000 [mm/s²])	7	15	29	10	21	42
	Pushing force [N] Note 3) Note 4) Note 5)			63 to 122	126 to 238	232 to 452	80 to 189	156 to 370	296 to 707
	Speed [mm/s] Note 5)			18 to 400	9 to 200	5 to 100	24 to 400	12 to 200	6 to 100
	Max. acceleration/deceleration [mm/s²]			3,000					
	Pushing speed [mm/s] Note 6)			35 or less			30 or less		
	Positioning repeatability [mm]			±0.02					
	Screw lead [mm]			12	6	3	16	8	4
	Impact/Vibration resistance [m/s²] Note 7)			50/20					
	Actuation type			Ball screw + Belt (LEY□) Ball screw (LEY□D)					
	Guide type			Sliding bushing (Piston rod)					
	Enclosure			IP65					
	Operating temprature range			41 to 104°F (5 to 40°C)					
	Operating humidity range [%RH]			90 or less (No condensation)					
Electric specifications	Motor size			□42			□56.4		
	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 8)			40			50		
	Standby power consumption when operating [W] Note 9)			15			48		
	Max. instantaneous power consumption [W] Note 10)			48			104		
Lock unit specifications	Type Note 11)			Non-magnetizing lock					
	Holding force lbf [N]			17.5 (78)	35.5 (157)	66.1 (294)	24.3 (108)	48.6 (216)	94.6 (421)
	Power consumption [W] Note 12)			5			5		
	Rated voltage [V]			24 VDC ±10%					

Note 1) Consult with SMC for non-standard strokes as they are produced as special orders.

Note 2) Horizontal: The maximum value of the work load. 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.

Vertical: Speed changes according to the work load. Check "Model Selection" on page 6.

The values shown in ( ) are the acceleration/deceleration. Set these values to be 3000 [mm/s²] or less.

Note 3) Pushing force accuracy is ±20% (F.S.).

Note 4) The pushing force values for LEY25□ is 35% to 65% and for LEY32□ is 35% to 85%. The pushing force values change according to the duty ratio and pushing speed. Check "Model Selection" on page 7.

Note 5) 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 6) The allowable speed for pushing operation. When push conveying a workpiece, operate at the vertical work load or less.

Note 7) 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 8) The power consumption (including the controller) is for when the actuator is operating.

Note 9) The standby power consumption when operating (including the controller) is for when the actuator is stopped in the set position during the operation. Except during the pushing operation.

Note 10) 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.

Note 11) With lock only

Note 12) For an actuator with lock, add the power consumption for the lock.

Dust/Drip proof (IP65) specification

Specifications

Servo Motor (24 VDC)

Model			LEY25A		
Actuator specifications	Stroke [mm] Note 1)		30, 50, 100, 150, 200 250, 300, 350, 400		
	Work load [kg] Note 2) Horizontal	(3000 [mm/s²])	7	15	30
	Work load [kg] Note 2) Vertical	(3000 [mm/s²])	2	5	11
	Pushing force [N] Note 3) Note 4)		18 to 35	37 to 72	66 to 130
	Speed [mm/s]		18 to 400	9 to 200	5 to 100
	Max. acceleration/deceleration [mm/s²]		3,000		
	Pushing speed [mm/s] Note 5)		35 or less		
	Positioning repeatability [mm]		±0.02		
	Screw lead [mm]		12	6	3
	Impact/Vibration resistance [m/s²] Note 6)		50/20		
	Actuation type		Ball screw + Belt (LEY□) Ball screw (LEY□D)		
	Guide type		Sliding bushing (Piston rod)		
	Enclosure		IP65		
	Operating temprature range		41 to 104 °F (5 to 40°C)		
	Operating humidity range [%RH]		90 or less (No condensation)		
Electric specifications	Motor size		□42		
	Motor type		Servo motor (24 VDC)		
	Encoder		Incremental A/B phase (800 pulse/rotation)/Z phase		
	Rated voltage [V]		24 VDC ±10%		
	Power consumption [W] Note 7)		86		
	Standby power consumption when operating [W] Note 8)		4 (Horizontal)/12 (Vertical)		
	Max. instantaneous power consumption [W] Note 9)		96		
Lock unit specifications	Type Note 10)		Non-magnetizing lock		
	Holding force lbf [N]		17.5 (78)	35.3 (157)	66.1 (294)
	Power consumption [W] Note 11)		5		
	Rated voltage [V]		24 VDC ±10%		

(1 Kg = 2.2 lb, 1 N = 0.22 lbf)

Note 1) Consult with SMC for non-standard strokes as they are produced as special orders.

Note 2) Horizontal: The maximum value of the work load. 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.
Vertical: Speed changes according to the work load. Check "Model Selection" on page 6. The values shown in ( ) are the acceleration/deceleration.
Set these values to be 3000 [mm/s²] or less.

Note 3) Pushing force accuracy is ±20% (F.S.).

Note 4) The pushing force values for LEY25A□ is 50% to 95%. The pushing force values change according to the duty ratio and pushing speed. Check "Model Selection" on page 7.

Note 5) The allowable speed for pushing operation. When push conveying a workpiece, operate at the vertical work load or less.

Note 6) 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 7) The power consumption (including the controller) is for when the actuator is operating.

Note 8) The standby power consumption when operating (including the controller) is for when the actuator is stopped in the set position during the operation with the maximum work load. Except during the pushing operation.

Note 9) 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.

Note 10) With lock only

Note 11) For an actuator with lock, add the power consumption for the lock.

Weight

Weight: Motor Top Mounting Type

Model		LEY25									LEY32										
Stroke [mm]		30	50	100	150	200	250	300	350	400	30	50	100	150	200	250	300	350	400	450	500
Product weight [kg]	Step motor	1.45	1.52	1.69	1.95	2.13	2.30	2.48	2.65	2.83	2.48	2.59	2.88	3.35	3.64	3.91	4.21	4.49	4.76	5.04	5.32
	Servo motor	1.41	1.48	1.65	1.91	2.09	2.26	2.44	2.61	2.79	—	—	—	—	—	—	—	—	—	—	—

Weight: In-line Motor Type

Model		LEY25D									LEY32D										
Stroke [mm]		30	50	100	150	200	250	300	350	400	30	50	100	150	200	250	300	350	400	450	500
Product weight [kg]	Step motor	1.46	1.53	1.70	1.96	2.14	2.31	2.49	2.66	2.84	2.49	2.60	2.89	3.36	3.65	3.92	4.22	4.50	4.77	5.05	5.33
	Servo motor	1.42	1.49	1.66	1.92	2.10	2.27	2.45	2.62	2.80	—	—	—	—	—	—	—	—	—	—	—

Additional Weight

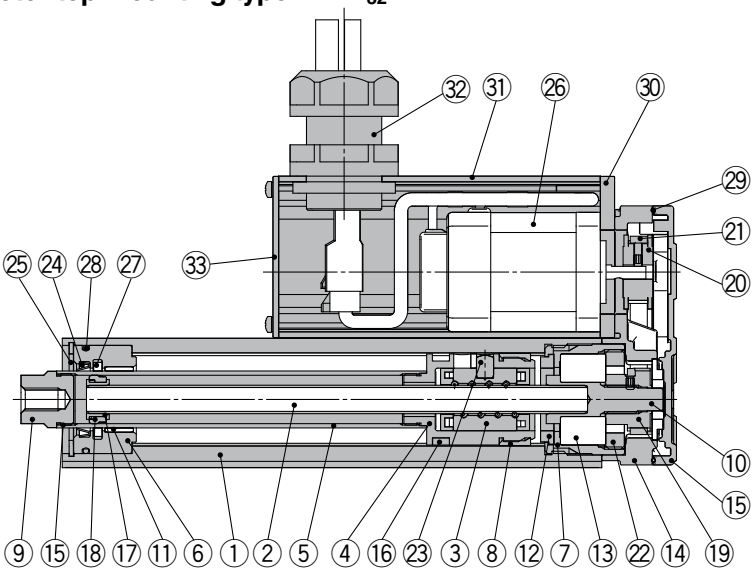
[kg]

Size		25	32
Lock		0.33	0.63
Rod end male thread	Male thread	0.03	0.03
	Nut	0.02	0.02
Foot (2 sets including mounting bolt)		0.08	0.14
Rod flange (including mounting bolt)		0.17	0.20
Head flange (including mounting bolt)			

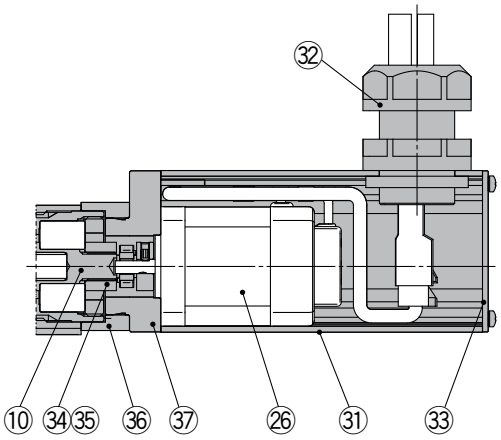
(1 Kg 2.2 lb)

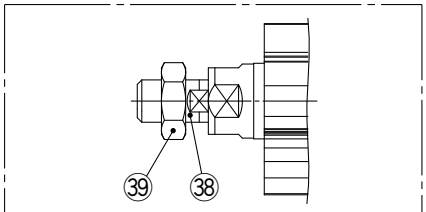
Construction

Motor top mounting type: LEY $^{25}_{32}$



In-line motor type: LEY$^{25}_{32}$D





When rod end male thread selected

Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Ball screw (shaft)**	Alloy steel	
3	**Ball screw nut**	Resin/Alloy steel	
4	**Piston**	Aluminum alloy	
5	**Piston rod**	Stainless steel	Hard chrome anodized
6	**Rod cover**	Aluminum alloy	
7	**Housing**	Aluminum alloy	
8	**Rotation stopper**	POM	
9	**Socket**	Free cutting carbon steel	Nickel plated
10	**Connected shaft**	Free cutting carbon steel	Nickel plated
11	**Bushing**	Lead bronze cast	
12	**Bumper**	Urethane	
13	**Bearing**	—	
14	**Return box**	Aluminum die-cast	Trivalent chromated
15	**Return plate**	Aluminum die-cast	Trivalent chromated
16	**Magnet**	—	
17	**Wear ring holder**	Stainless steel	Stroke 101 mm or more
18	**Wear ring**	POM	Stroke 101 mm or more
19	**Screw shaft pulley**	Aluminum alloy	
20	**Motor pulley**	Aluminum alloy	

No.	Description	Material	Note
21	**Belt**	—	
22	**Bearing stopper**	Aluminum alloy	
23	**Parallel pin**	Stainless steel	
24	**Scraper**	Nylon	
25	**Retaining ring**	Steel for spring	Nickel plated
26	**Motor**	—	
27	**Lub-retainer**	Felt	
28	**O-ring**	NBR	
29	**Gasket**	NBR	
30	**Motor adapter**	Aluminum alloy	Anodized
31	**Motor cover**	Aluminum alloy	Anodized
32	**Seal connector**	—	
33	**End cover**	Aluminum alloy	Anodized
34	**Hub**	Aluminum alloy	
35	**Spider**	NBR	
36	**Motor block**	Aluminum alloy	Anodized
37	**Motor adapter**	Aluminum alloy	LEY25 only
38	**Socket (Male thread)**	Free cutting carbon steel	Nickel plated
39	**Nut**	Alloy steel	

Replacement Parts (Top mounting only)/Belt

No.	Size	Order no.
21	**25**	LE-D-2-2
	32	LE-D-2-3

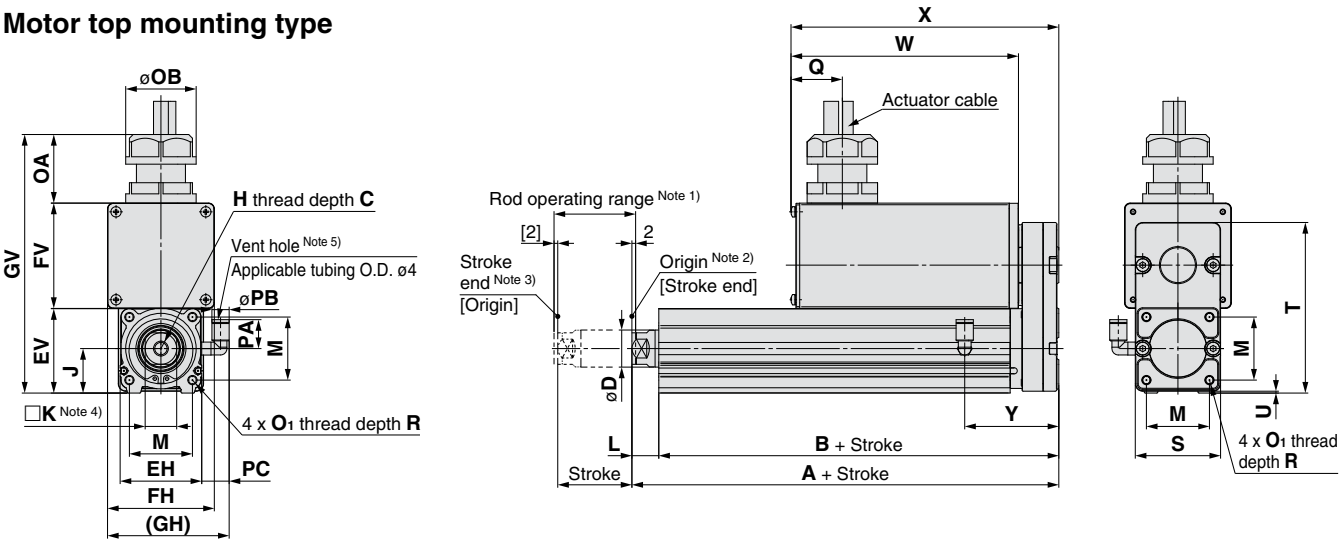
Replacement Parts/Grease Pack

Applied portion	Order no.
Piston rod	GR-S-010 (10 g) GR-S-020 (20 g)

∗ Apply grease on the piston rod periodically.
Grease should be applied at 1 million cycles or 200 km, whichever comes sooner.

Dimensions

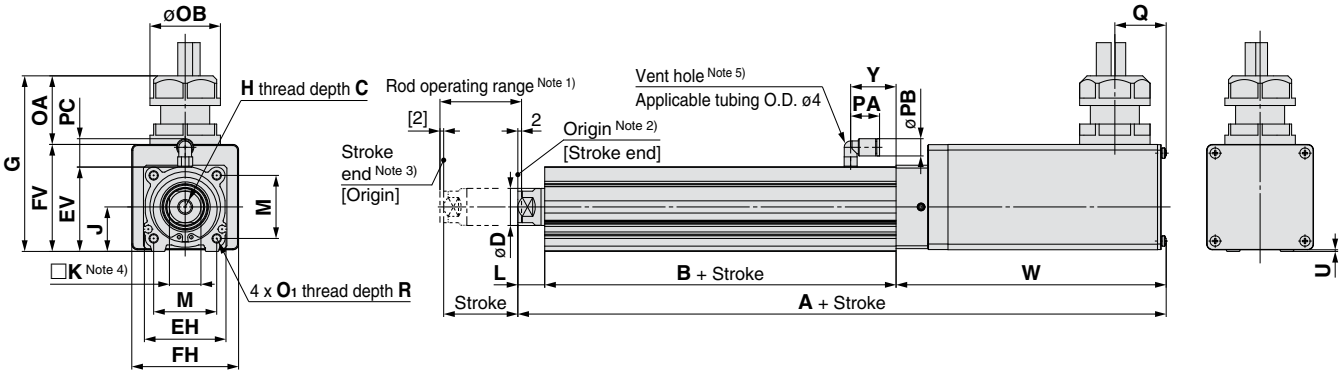
Motor top mounting type



Size	Stroke range (mm)	A	B	C	D	EH	EV	FH	FV	GH	GV	H	J	K	L	M	O1
25	15 to 100	130.5	116	13	20	44	45.5	57.6	56.8	65.6	139.5	M8 x 1.25	24	17	14.5	34	M5 x 0.8
	101 to 400	155.5	141														
32	20 to 100	148.5	130	13	25	51	56.5	69.6	78.6	75.6	173.5	M8 x 1.25	31	22	18.5	40	M6 x 1.0
	101 to 500	178.5	160														

Size	Stroke range (mm)	R	OA	OB	PA	PB	Q	S	T	U	PC	W		X		Y
												Without lock	With lock	Without lock	With lock	
25	15 to 100	8	37	38	15.6	9.3	28	46	92	1	14.8	123	173	145	195	51
	101 to 400															
32	20 to 100	10	37	38	15.6	9.3	28	60	118	1	15.3	123	173	150	200	61
	101 to 500															

In-line motor type



Size	Stroke range (mm)	A		B	C	D	EH	EV	FH	FV	G	H	J	K	L
		Without lock	With lock												
25	15 to 100	250	300	89.5	13	20	44	45.5	57.6	57.7	94.7	M8 x 1.25	24	17	14.5
	101 to 400	275	325	124.5											
32	20 to 100	265.5	315.5	96	13	25	51	56.5	69.6	79.6	116.6	M8 x 1.25	31	22	18.5
	101 to 500	295.5	345.5	126											

Size	Stroke range (mm)	M	O1	R	OA	OB	PA	PB	Q	U	PC	W		Y
												Without lock	With lock	
25	15 to 100	34	M5 x 0.8	8	37	38	15.6	9.3	28	0.9	15.3	146	196	24.5
	101 to 400													
32	20 to 100	40	M6 x 1.0	10	37	38	15.6	9.3	28	1	15.3	151	201	26
	101 to 500													

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) The number in brackets indicates when the direction of return to origin has changed.
Note 4) The direction of rod end width across flats (□K) differs depending on the products.
Note 5) The vent hole is the port for releasing to atmosphere. Do not apply pressure to this hole.
Attach tubing to the vent hole and place the end of the tubing so it is not exposed to dust or water.

For the rod end male thread, refer to page 15.
For the mounting dimensions, refer to page 18.

Water Resistant 2-Color Indication Solid State Auto Switch: Direct Mounting Style
D-M9NA(V)/D-M9PA(V)/D-M9BA(V) CE RoHS

Grommet

- **Water (coolant) resistant type**
- **2-wire load current is reduced (2.5 to 40 mA).**
- **The optimum operating range can be determined by the color of the light. (Red → Green ← Red)**
- **Using flexible cable as standard.**

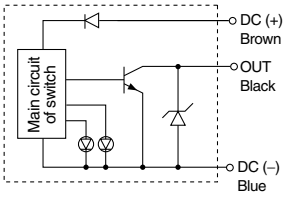
⚠Caution

Precautions

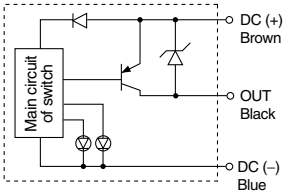
Fix the auto switch with the existing screw installed on the auto switch body. The auto switch may be damaged if a screw other than the one supplied is used.

Auto Switch Internal Circuit

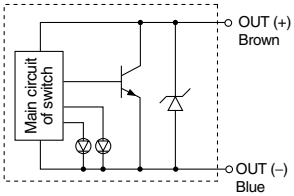
D-M9NA/M9NAV



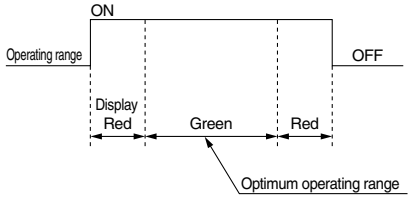
D-M9PA/M9PAV



D-M9BA/M9BAV



Indicator light/Indication method



Auto Switch Specifications

PLC: Programmable Logic Controller

D-M9□A, D-M9□AV (With indicator light)						
Auto switch model	D-M9NA	D-M9NAV	D-M9PA	D-M9PAV	D-M9BA	D-M9BAV
Electrical entry	In-line	Perpendicular	In-line	Perpendicular	In-line	Perpendicular
Wiring type	3-wire				2-wire	
Output type	NPN		PNP		—	
Applicable load	IC circuit, Relay, PLC				24 VDC relay, PLC	
Power supply voltage	5, 12, 24 VDC (4.5 to 28 V)				—	
Current consumption	10 mA or less				—	
Load voltage	28 VDC or less		—		24 VDC (10 to 28 VDC)	
Load current	40 mA or less				2.5 to 40 mA	
Internal voltage drop	0.8 V or less at 10 mA (2 V or less at 40 mA)				4 V or less	
Leakage current	100 μA or less at 24 VDC				0.8 mA or less	
Indicator light	Operating range ····· Red LED lights up. Optimum operating range ····· Green LED lights up.					
Standards	CE marking, RoHS					

• Lead wires — Oilproof flexible heavy-duty vinyl cord: ø2.7 x 3.2 ellipse, 0.15 mm², 2 cores (D-M9BA(V)), 3 cores (D-M9NA(V), D-M9PA(V))

Note 1) Refer to Best Pneumatics No. 2 for solid state auto switch common specifications.

Note 2) Refer to Best Pneumatics No. 2 for lead wire length.

Weight

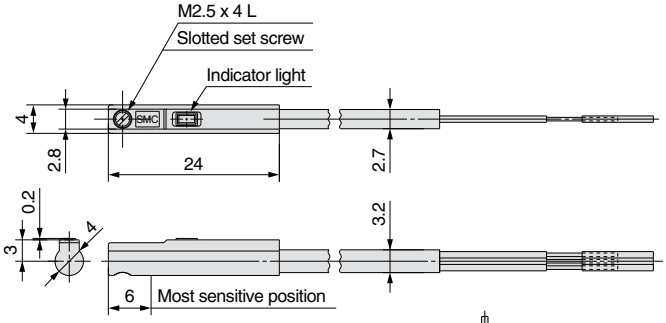
[g]

Auto switch model		D-M9NA(V)	D-M9PA(V)	D-M9BA(V)
Lead wire length (m)	0.5	8	8	7
	1	14	14	13
	3	41	41	38
	5	68	68	63

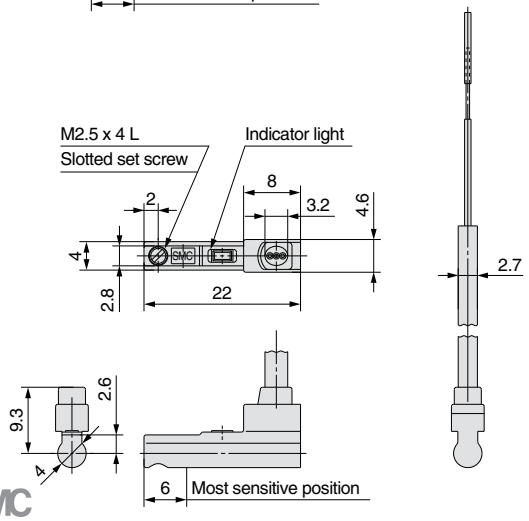
Dimensions

[mm]

D-M9□A



D-M9□AV

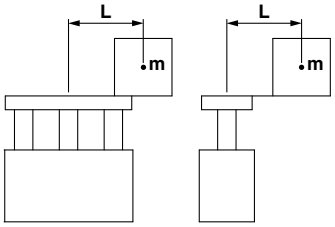
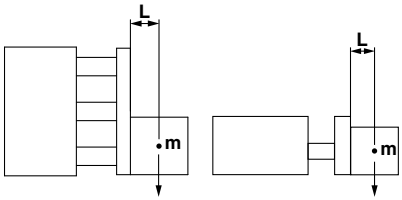


Model Selection

Step Motor (Servo/24 VDC) Servo Motor (24 VDC)

Moment Load Graph

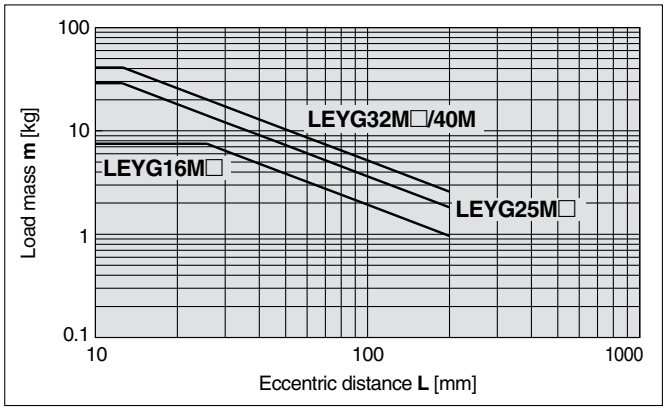
Selection conditions

	Vertical	Horizontal	
Mounting position			
Max. speed [mm/s]	"Speed–Vertical Work Load Graph"	200 or less	Over 200
Graph (Sliding bearing type)	①, ②	⑤, ⑥*	—
Graph (Ball bushing bearing type)	③, ④	⑦, ⑧	⑨, ⑩

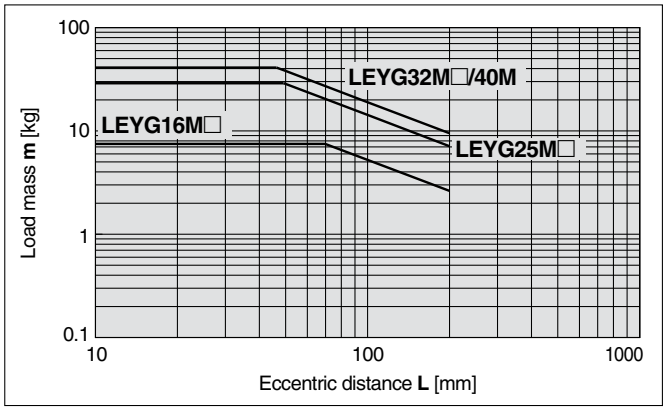
* For the sliding bearing type, the speed is restricted with a horizontal/moment load.

Vertical Mounting, Sliding Bearing

① **70 stroke or less**



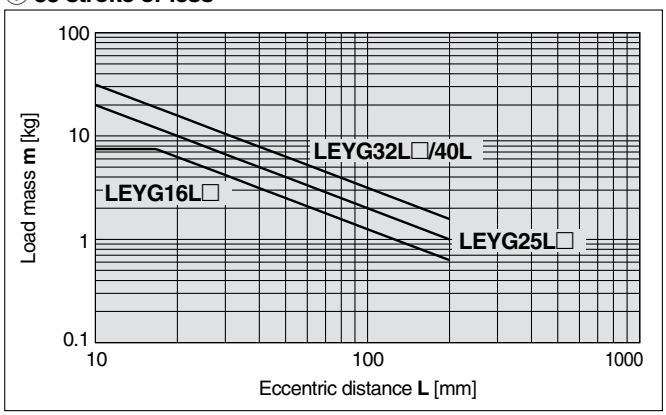
② **Over 75 stroke**



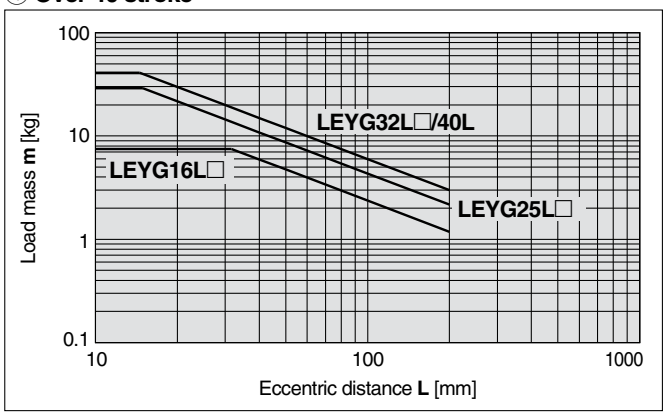
* The limit of vertical load mass varies depending on "lead" and "speed".
Check "Speed–Vertical Work Load Graph" on page 30.

Vertical Mounting, Ball Bushing Bearing

③ **35 stroke or less**



④ **Over 40 stroke**

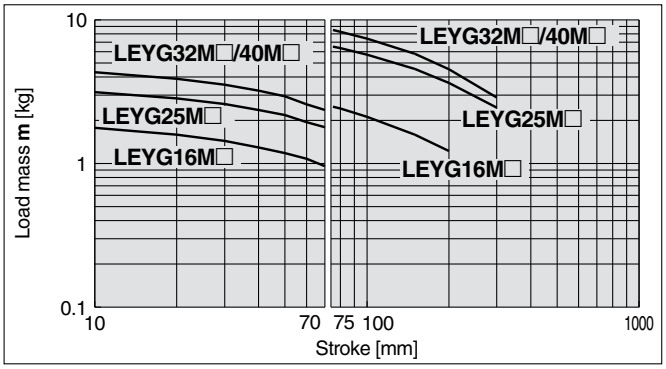


* The limit of vertical load mass varies depending on "lead" and "speed".
Check "Speed–Vertical Work Load Graph" on page 30.

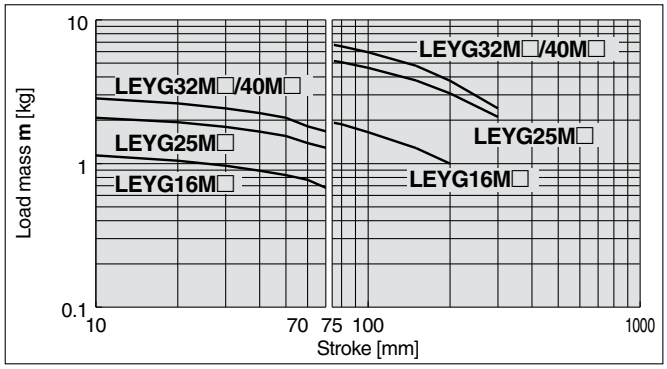
Moment Load Graph

Horizontal Mounting, Sliding Bearing

⑤ **L = 50 mm**



⑥ **L = 100 mm**



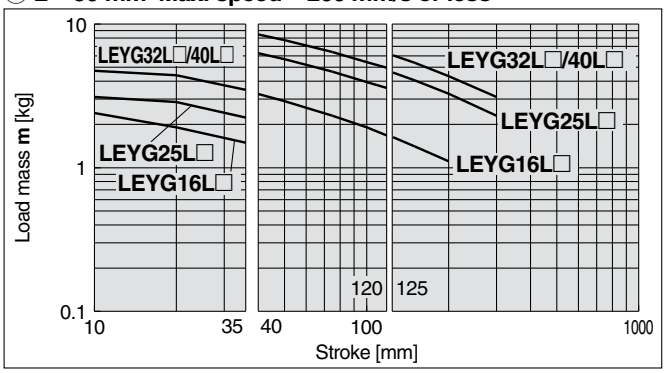
∗ Set the speed to less than or equal to the values shown below.

Motor type	LEYG□M□A	LEYG□M□B	LEYG□M□C
Step motor (Servo/24 VDC)	200 mm/s	125 mm/s	75 mm/s
Servo motor (24 VDC)	200 mm/s	200 mm/s	125 mm/s

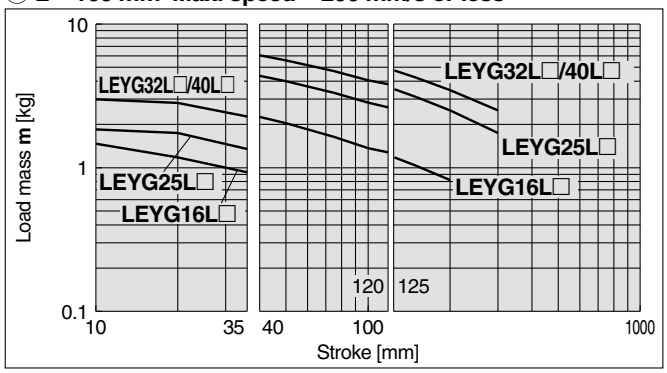
∗ For the specifications below, operate the system at the "load mass" shown in the graph x 80%.
- LEYG25MAA/Servo motor (24 VDC), Lead 12

Horizontal Mounting, Ball Bushing Bearing

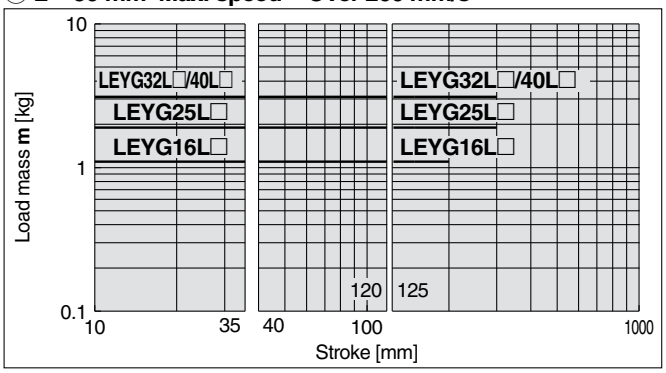
⑦ **L = 50 mm Max. speed = 200 mm/s or less**



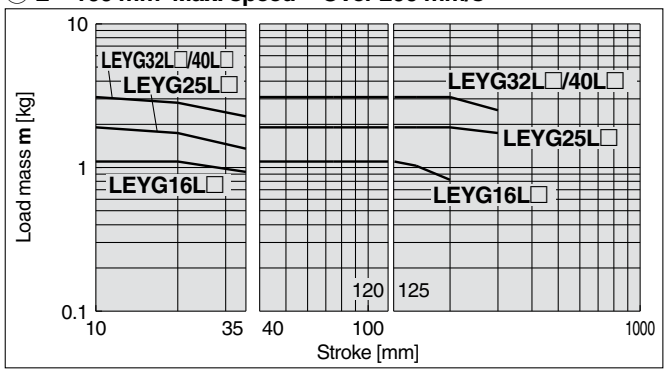
⑧ **L = 100 mm Max. speed = 200 mm/s or less**



⑨ **L = 50 mm Max. speed = Over 200 mm/s**

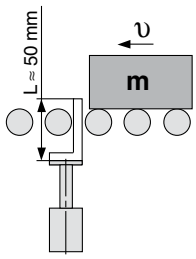


⑩ **L = 100 mm Max. speed = Over 200 mm/s**



Operating Range when Used as Stopper

LEYG□M (Sliding bearing)



⚠Caution

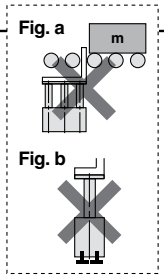
Handling Precautions

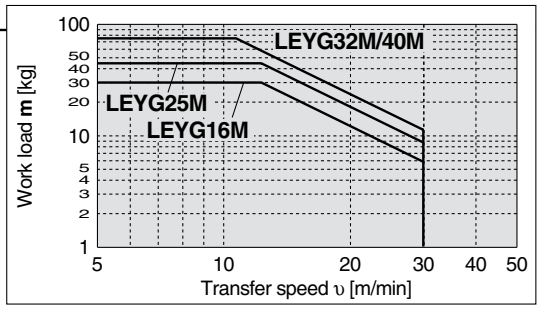
Note 1) When used as a stopper, select a model with 30 stroke or less.

Note 2) LEYG□L (ball bushing bearing) cannot be used as a stopper.

Note 3) Workpiece collision in series with guide rod cannot be permitted (**Fig. a**).

Note 4) The body should not be mounted on the end. It must be mounted on the top or bottom (**Fig. b**).

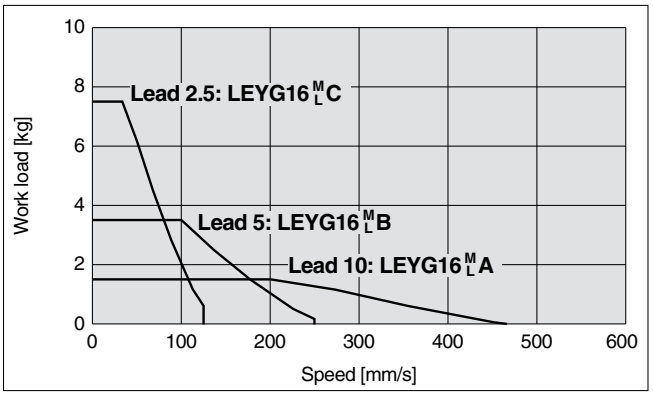




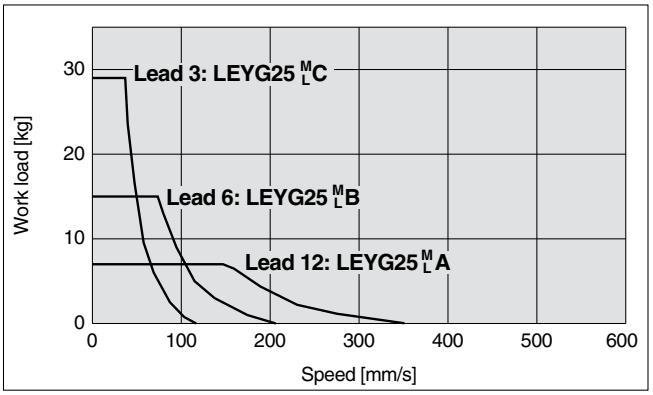
Speed–Vertical Work Load Graph (Guide)

Step Motor (Servo/24 VDC)

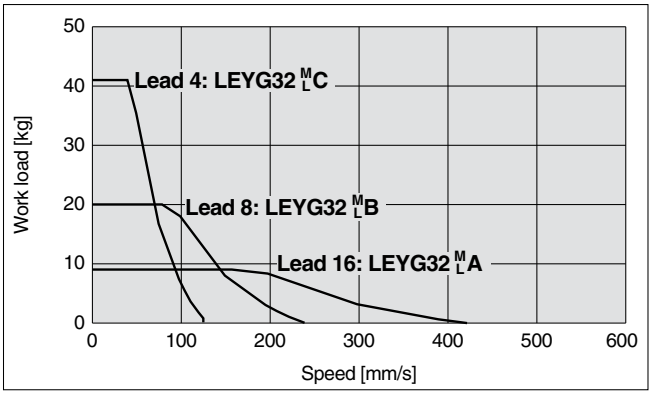
LEYG16 $^{M}_{L}$□



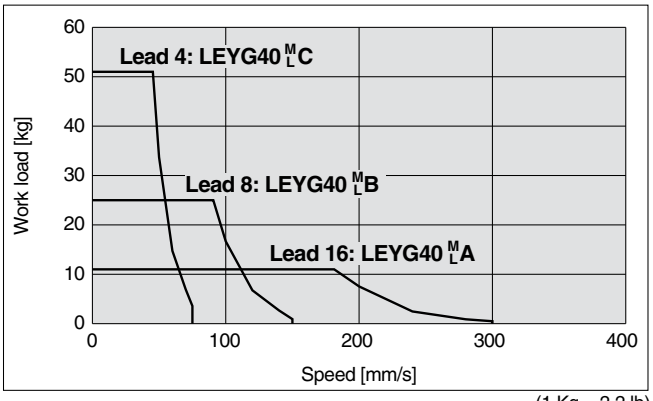
LEYG25 $^{M}_{L}$□



LEYG32 $^{M}_{L}$□



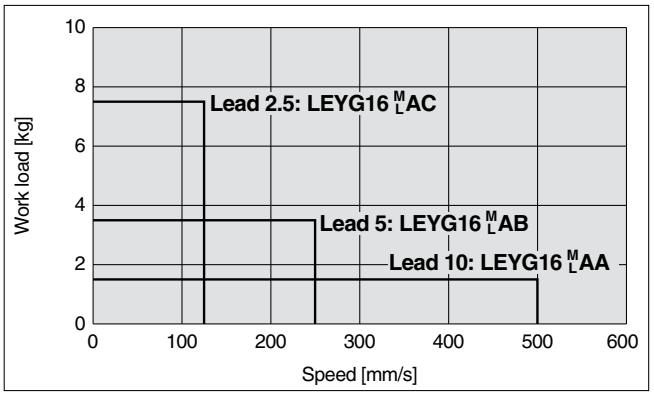
LEYG40 $^{M}_{L}$□



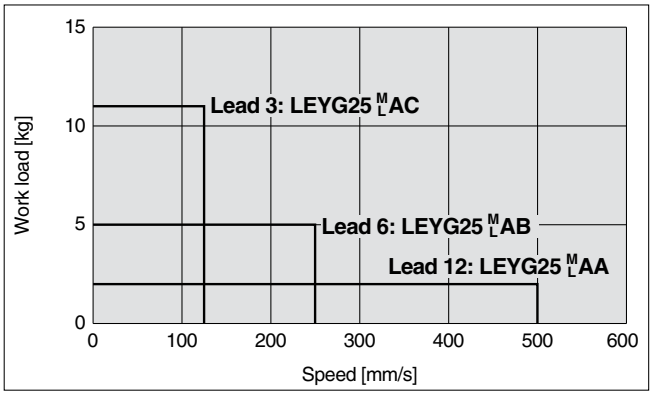
(1 Kg = 2.2 lb)

Servo Motor (24 VDC)

LEYG16 $^{M}_{L}$A□



LEYG25 $^{M}_{L}$A□

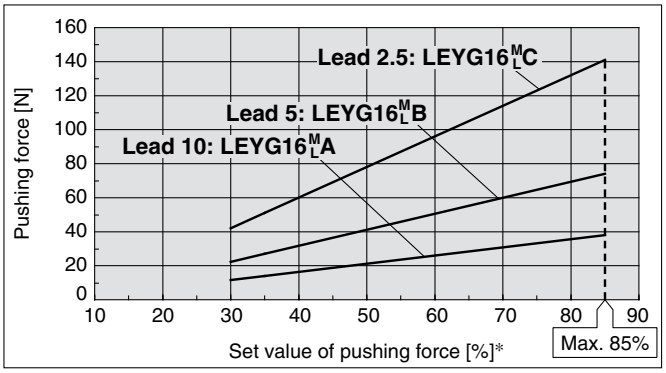


Force Conversion Graph (Guide)

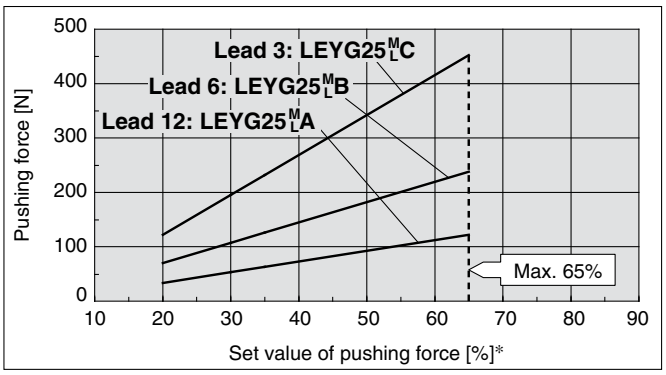
(1 N = 0.22 lbf)

Step Motor (Servo/24 VDC)

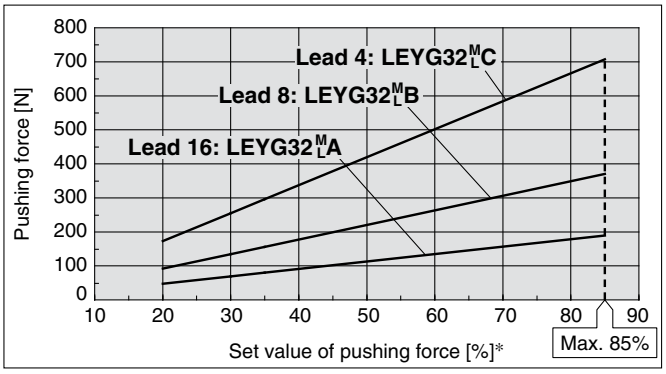
LEYG16$^{M}_{L}$□



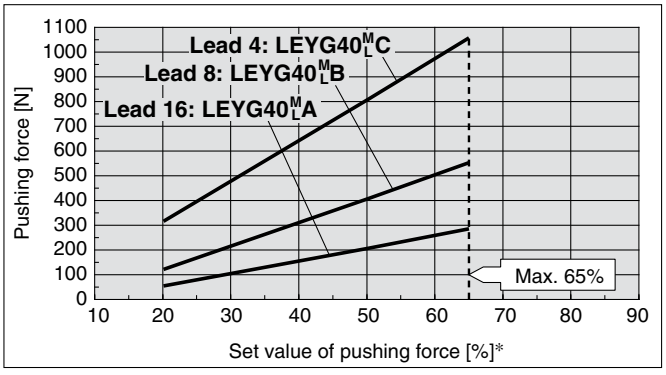
LEYG25$^{M}_{L}$□



LEYG32$^{M}_{L}$□



LEYG40$^{M}_{L}$□

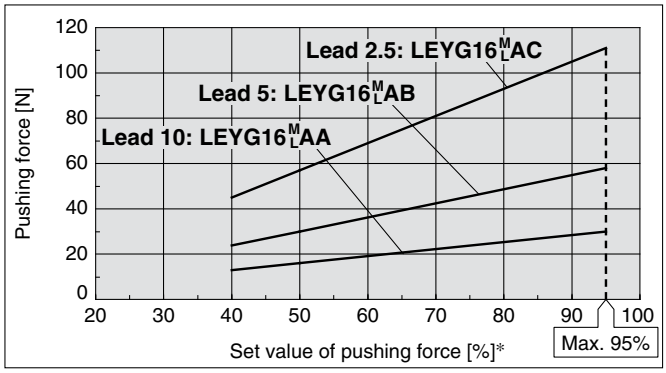


Ambient temperature	Set value of pushing force [%]	Duty ratio [%]	Continuous pushing time [minute]
104°F (40°C) or less	85 or less	100	—

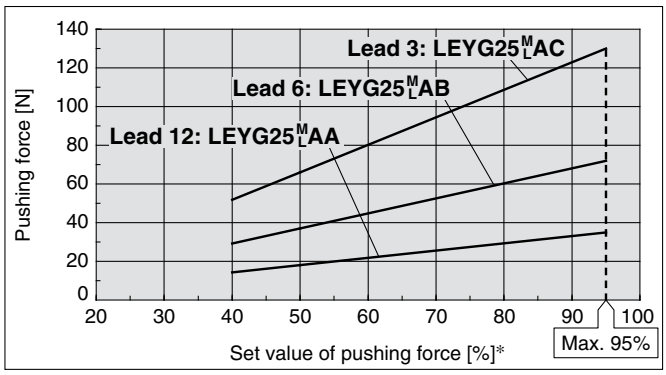
∗ Set values for the controller.

Servo Motor (24 VDC)

LEYG16$^{M}_{L}$A□



LEYG25$^{M}_{L}$A□



<Pushing Force and Trigger Level Range> Without Load

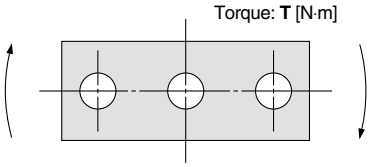
Model	Pushing speed [mm/s]	Pushing force (Setting input value)
LEYG16$^{M}_{L}$□	1 to 4	30% to 85%
	5 to 20	35% to 85%
	21 to 50	60% to 85%
LEYG25$^{M}_{L}$□	1 to 4	20% to 65%
	5 to 20	35% to 65%
	21 to 35	50% to 65%
LEYG32$^{M}_{L}$□	1 to 4	20% to 85%
	5 to 20	35% to 85%
	21 to 30	60% to 85%
LEYG40$^{M}_{L}$□	1 to 4	20% to 65%
	5 to 20	35% to 65%
	21 to 30	50% to 65%

Model	Pushing speed [mm/s]	Pushing force (Setting input value)
LEYG16$^{M}_{L}$□A	1 to 4	40% to 95%
	5 to 20	60% to 95%
	21 to 50	80% to 95%
LEYG25$^{M}_{L}$□A	1 to 4	40% to 95%
	5 to 20	60% to 95%
	21 to 35	80% to 95%

Note) For vertical loads (upward), set the pushing force to the maximum value shown below, and operate at the work load or less.

Model	LEYG16$^{M}_{L}$□			LEYG25$^{M}_{L}$□			LEYG32$^{M}_{L}$□			LEYG40$^{M}_{L}$□			LEYG16$^{M}_{L}$□A			LEYG25$^{M}_{L}$□A		
Lead	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Work load [kg]	0.5	1	2.5	1.5	4	9	2.5	7	16	5	12	26	0.5	1	2.5	0.5	1.5	4
Pushing force	85%			65%			85%			65%			95%			95%		

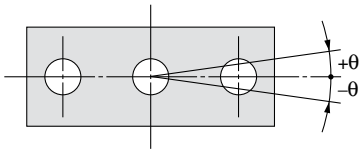
Allowable Rotational Torque of Plate



T lbf·ft [N·m]

Model	Stroke [mm]				
	30	50	100	200	300
LEYG16M	0.52 [0.70]	0.42 [0.57]	0.77 [1.05]	0.41 [0.56]	—
LEYG16L	0.60 [0.82]	1.09 [1.48]	0.72 [0.97]	0.42 [0.57]	—
LEYG25M	1.15 [1.56]	0.95 [1.29]	2.58 [3.50]	1.61 [2.18]	1.00 [1.36]
LEYG25L	1.12 [1.52]	2.63 [3.57]	1.82 [2.47]	1.51 [2.05]	1.06 [1.44]
LEYG32M	1.88 [2.55]	1.54 [2.09]	3.98 [5.39]	2.40 [3.26]	1.39 [1.88]
LEYG32L	2.07 [2.80]	4.25 [5.76]	2.99 [4.05]	2.38 [3.23]	1.71 [2.32]
LEYG40M	1.88 [2.55]	1.54 [2.09]	3.98 [5.39]	2.40 [3.26]	1.39 [1.88]
LEYG40L	2.07 [2.80]	4.25 [5.76]	2.99 [4.05]	2.38 [3.23]	1.71 [2.32]

Non-rotating Accuracy of Plate



Size	Non-rotating accuracy θ	
	LEYG□M	**LEYG□L**
16	0.06°	0.07°
25	0.05°	0.06°
32		
40		

Electric Actuator/Guide Rod Type

Step Motor (Servo/24 VDC) | Servo Motor (24 VDC)

Series LEYG

LEYG16, 25, 32, 40

How to Order

LEYG 16 M ☐ ☐ B – 50 ☐ ☐ – S 1 6N 1 ☐

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫ ⓬ ⓭

❶ Size

16
25
32
40

❷ Bearing type

M	Sliding bearing
L	Ball bushing bearing

∗ When [M: Sliding bearing] is selected, the maximum speed of lead [A] is 400 mm/s (at no-load, horizontal mounting). The speed is also restricted with a horizontal/moment load. Refer to "Model Selection" on page 28.

❹ Motor type

Symbol	Type	Size			Compatible controllers/driver
		LEYG16	LEYG25	LEYG32/40	
Nil	Step motor (Servo/24 VDC)	●	●	●	LECP6 LECP1 LECPA
A	Servo motor (24 VDC)	●	●	—	LECA6

❸ Motor mounting position

Nil	Top mounting
D	In-line

❺ Lead [mm]

Symbol	LEYG16	LEYG25	LEYG32/40
A	10	12	16
B	5	6	8
C	2.5	3	4

❻ Stroke [mm]

30	30
to	to
300	300

∗ Refer to the applicable stroke table.

❼ Motor option∗

Nil	Without option
C	With motor cover
B	With lock

∗ When [With lock] is selected, [With motor cover] cannot be selected.

❽ Guide option

Nil	Without option
F	With grease retaining function

∗ Only available for size 25 and 32 sliding bearings. (Refer to "Construction" on page 38.)

∗ Applicable stroke table

●Standard

Model \ Stroke [mm]	30	50	100	150	200	250	300	Manufacturable stroke range [mm]
LEYG16	●	●	●	●	●	—	—	10 to 200
LEYG25	●	●	●	●	●	●	●	15 to 300
LEYG32/40	●	●	●	●	●	●	●	20 to 300

∗ Consult with SMC for non-standard strokes as they are produced as special orders.

⚠ Caution

[CE-compliant products]

① EMC compliance was tested by combining the electric actuator LEYG 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 For the servo motor (24 VDC) specification, EMC compliance was tested by installing a noise filter set (LEC-NFA). Refer to page 56 for the noise filter set. Refer to the LECA Operation Manual for installation.

[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.

For auto switches, refer to pages 20 and 21.

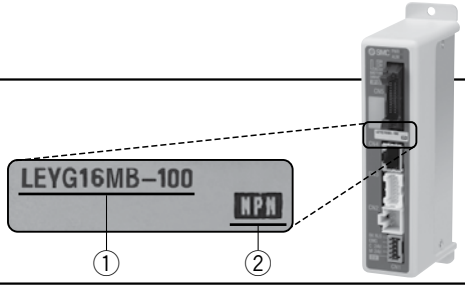
The actuator and controller/driver are sold as a package.

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

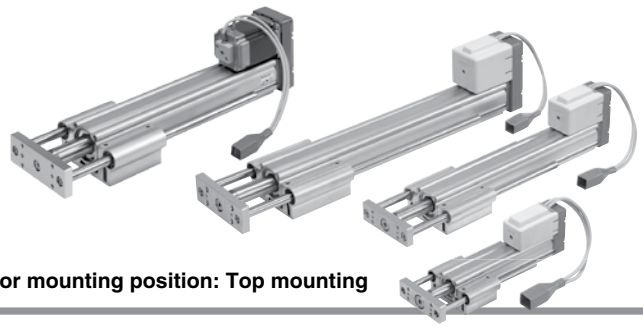
<Check the following before use.>

① Check the actuator label for model number. This matches the controller/driver.

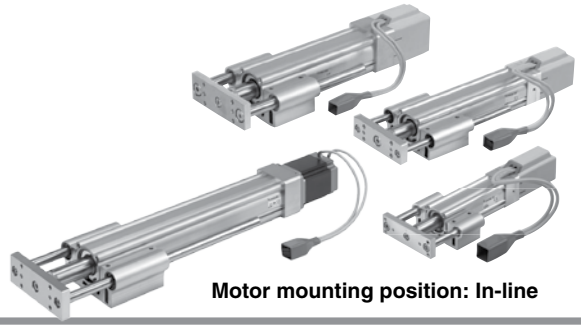
② Check Parallel I/O configuration matches (NPN or PNP).



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



Motor mounting position: Top mounting



Motor mounting position: In-line

⑨ Actuator cable type*1

Nil	Without cable
S	Standard cable*2
R	Robotic cable (Flexible cable)

*1 The standard cable should be used on fixed parts. For using on moving parts, select the robotic cable.
*2 Only available for the motor type "Step motor".

⑩ Actuator cable length [m]

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

* Produced upon receipt of order (Robotic cable only) Refer to the specifications Note 5) on page 36.

⑪ Controller/Driver type*1

Nil	Without controller/driver	
6N	**LECP6/LECA6** (Step data input type)	NPN
6P		PNP
1N	**LECP1***2 (Programless type)	NPN
1P		PNP
AN	**LECPA***2 (Pulse input type)	NPN
AP		PNP

*1 For details about controllers/driver and compatible motors, refer to the compatible controller/drivers below.
*2 Only available for the motor type "Step motor".

⑫ I/O cable length [m]*1

Nil	Without cable
1	1.5
3	3*2
5	5*2

*1 If "Without controller/driver" is selected for controller/driver types, I/O cable cannot be selected. Refer to page 56 (For LECP6/LECA6), page 69 (For LECP1) or page 76 (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.

⑬ Controller/Driver mounting

Nil	Screw mounting
D	DIN rail mounting*1, 2

*1 Only available for the controller/driver types "6N" and "6P".
*2 DIN rail is not included. Order it separately.

Use of auto switches for the guide rod type LEYG series
- Insert the auto switch from the front side with rod (plate) sticking out.
- For the parts hidden behind the guide attachment (Rod stick out side), the auto switch cannot be fixed.
- Consult with SMC when using auto switch on the rod stick out side.

Compatible Controllers/Driver

Type	**Step data input type** 	**Step data input type** 	**Programless type** 	**Pulse input type** 
Series	**LECP6**	**LECA6**	**LECP1**	**LECPA**
Features	Value (Step data) input Standard controller		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)	Servo motor (24 VDC)	Step motor (Servo/24 VDC)	
Maximum number of step data	64 points		14 points	—
Power supply voltage	24 VDC			
Reference page	Page 48	Page 48	Page 63	Page 70

Specifications

Step Motor (Servo/24 VDC)

(1 Kg = 2.2 lb, 1N = 0.22 lbf)

Model				LEYG16 M/L			LEYG25 M/L			LEYG32 M/L			LEYG40 M/L		
Actuator specifications	Stroke [mm] Note 1)			30, 50, 100, 150, 200			30, 50, 100, 150, 200, 250, 300			30, 50, 100, 150, 200, 250, 300			30, 50, 100, 150, 200, 250, 300		
	Work load [kg] Note 2)	Horizontal	Acceleration/Deceleration at 3000 [mm/s²]	4	11	20	12	30	30	20	40	40	30	60	60
			Acceleration/Deceleration at 2000 [mm/s²]	6	17	30	18	50	50	30	60	60	—	—	—
		Vertical	Acceleration/Deceleration at 3000 [mm/s²]	1.5	3.5	7.5	7	15	29	9	20	41	11	25	51
	Pushing force [N] Note 3) 4) 5)			14 to 38	27 to 74	51 to 141	63 to 122	126 to 238	232 to 452	80 to 189	156 to 370	296 to 707	132 to 283	266 to 553	562 to 1058
	Speed [mm/s] Note 5)			15 to 500	8 to 250	4 to 125	18 to 500	9 to 250	5 to 125	24 to 500	12 to 250	6 to 125	24 to 300	12 to 150	6 to 75
	Max. acceleration/deceleration [mm/s²]			3000											
	Pushing speed [mm/s] Note 6)			50 or less			35 or less			30 or less			30 or less		
	Positioning repeatability [mm]			±0.02											
	Screw lead [mm]			10	5	2.5	12	6	3	16	8	4	16	8	4
	Impact/Vibration resistance [m/s²] Note 7)			50/20											
	Actuation type			Ball screw + Belt (LEYG□□), Ball screw (LEYG□□D)											
	Guide type			Sliding bearing (LEYG□M), Ball bushing bearing (LEYG□L)											
	Operating temp. range			41 to 104 °F (5 to 40°C)											
	Operating humidity range [%RH]			90 or less (No condensation)											
Electric specifications	Motor size			□28			□42			□56.4			□56.4		
	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 8)			23			40			50			50		
	Standby power consumption when operating [W] Note 9)			16			15			48			48		
	Max. instantaneous power consumption [W] Note 10)			43			48			104			106		
Lock unit specifications	Type Note 11)			Non-magnetizing lock											
	Holding force [N]			4.4(20)	8.8 (39)	17.5 (78)	17.5 (78)	35.3 (157)	66.1 (294)	24.3 (108)	48.6 (216)	94.6 (421)	28.6 (127)	59.6 (265)	117 (519)
	Power consumption [W] Note 12)			2.9			5			5			5		
	Rated voltage [V]			24 VDC ±10%											

Note 1) Consult with SMC for non-standard strokes as they are produced as special orders.

Note 2) Horizontal: The maximum value of the work load for the positioning operation. The work load is the same as the vertical work load during pushing 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.
Vertical: Speed changes according to the work load. Check "Model Selection" on page 30.
Set the acceleration/deceleration values to be 3000 [mm/s²] or less.

Note 3) Pushing force accuracy is ±20% (F.S.).

Note 4) The pushing force values for LEYG16□□ is 35% to 85%, for LEYG25□□ is 35% to 65%, for LEYG32□□ is 35% to 85% and for LEYG40□□ is 35% to 65%. The pushing force values change according to the duty ratio and pushing speed. Check "Model Selection" on page 31.

Note 5) 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%)
When [M: Sliding bearing] is selected, the maximum speed of lead [A] is 400 mm/s (at no-load, horizontal mounting).
The speed is also restricted with a horizontal/moment load. Refer to "Model Selection" on page 28.

Note 6) The allowable speed for the pushing operation.

Note 7) Impact resistance: No malfunction occurred when it 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 8) The power consumption (including the controller) is for when the actuator is operating.

Note 9) The standby power consumption when operating (including the controller) is for when the actuator is stopped in the set position during the operation. Except during the pushing operation.

Note 10) 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.

Note 11) With lock only

Note 12) For an actuator with lock, add the power consumption for the lock.

Specifications

Servo Motor (24 VDC)

(1 Kg = 2.2 lb, 1N = 0.22 lbf)

	Model			LEYG16$^{M}_{L}$A			LEYG25$^{M}_{L}$A		
Actuator specifications	Stroke [mm] Note 1)			30, 50, 100, 150, 200			30, 50, 100, 150, 200, 250, 300		
	Work load [kg] Note 2)	Horizontal	Acceleration/Deceleration at 3000 [mm/s^2]	3	6	12	7	15	30
		Vertical	Acceleration/Deceleration at 3000 [mm/s^2]	1.5	3.5	7.5	2	5	11
	Pushing force [N] Note 3) 4)			16 to 30	30 to 58	57 to 111	18 to 35	37 to 72	66 to 130
	Speed [mm/s]			15 to 500	8 to 250	4 to 125	18 to 500	9 to 250	5 to 125
	Max. acceleration/deceleration [mm/s^2]			3000					
	Pushing speed [mm/s] Note 5)			50 or less			35 or less		
	Positioning repeatability [mm]			±0.02					
	Screw lead [mm]			10	5	2.5	12	6	3
	Impact/Vibration resistance [m/s^2] Note 6)			50/20					
	Actuation type			Ball screw + Belt (LEYG□□), Ball screw (LEYG□□D)					
	Guide type			Sliding bearing (LEYG□M), Ball bushing bearing (LEYG□L)					
	Operating temp. range			41 to 104°F (5 to 40°C)					
	Operating humidity range [%RH]			90 or less (No condenstation)					
Electric specifications	Motor size			□28			□42		
	Motor output [W]			30			36		
	Motor type			Servo motor (24 VDC)					
	Encoder			Incremental A/B (800 pulse/rotation)/Z phase					
	Rated voltage [V]			24 VDC ±10%					
	Power consumption [W] Note 7)			40			86		
	Standby power consumption when operating [W] Note 8)			4 (Horizontal)/6 (Vertical)			4 (Horizontal)/12 (Vertical)		
	Max. instantaneous power consumption [W] Note 9)			59			96		
Lock unit specifications	Type Note 10)			Non-magnetizing lock					
	Holding force [N]			4.4 (20)	8.8 (39)	17.5 (78)	17.5 (78)	35.3 (157)	66.1 (294)
	Power consumption [W] Note 11)			2.9			5		
	Rated voltage [V]			24 VDC ±10%					

Note 1) Consult with SMC for non-standard strokes as they are produced as special orders.

Note 2) Horizontal: The maximum value of the work load for the positioning operation. The work load is the same as the vertical work load during pushing 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.
Vertical: Check "Model Selection" on page 30 for details.
Set the acceleration/deceleration values to be 3000 [mm/s^2] or less.

Note 3) Pushing force accuracy is ±20% (F.S.).

Note 4) The pushing force values for LEYG16□A□ is 50% to 95% and for LEYG25□A□ is 50% to 95%. The pushing force values change according to the duty ratio and pushing speed. Check "Model Selection" on page 31.

Note 5) The allowable speed for the pushing operation.

Note 6) Impact resistance: No malfunction occurred when it 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 7) The power consumption (including the controller) is for when the actuator is operating.

Note 8) The standby power consumption when operating (including the controller) is for when the actuator is stopped in the set position during the operation. Except during the pushing operation.

Note 9) 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.

Note 10) With lock only

Note 11) For an actuator with lock, add the power consumption for the lock.

Weight

Weight: Motor Top Mounting Type

(1Kg = 2.2 lb)

Model		LEYG16M					LEYG25M							LEYG32M						
Stroke [mm]		30	50	100	150	200	30	50	100	150	200	250	300	30	50	100	150	200	250	300
Product weight [kg]	Step motor	0.83	0.97	1.20	1.49	1.66	1.67	1.86	2.18	2.60	2.94	3.28	3.54	2.91	3.17	3.72	4.28	4.95	5.44	5.88
	Servo motor	0.83	0.97	1.20	1.49	1.66	1.63	1.82	2.14	2.56	2.90	3.24	3.50	—	—	—	—	—	—	—

Model		LEYG16L					LEYG25L							LEYG32L						
Stroke [mm]		30	50	100	150	200	30	50	100	150	200	250	300	30	50	100	150	200	250	300
Product weight [kg]	Step motor	0.84	0.97	1.14	1.43	1.58	1.68	1.89	2.13	2.56	2.82	3.14	3.38	2.91	3.18	3.57	4.12	4.66	5.17	5.56
	Servo motor	0.84	0.97	1.14	1.43	1.58	1.64	1.85	2.09	2.52	2.78	3.10	3.34	—	—	—	—	—	—	—

Model		LEYG40M							LEYG40L						
Stroke [mm]		30	50	100	150	200	250	300	30	50	100	150	200	250	300
Product weight [kg]	Step motor	3.21	3.47	4.02	4.58	5.25	5.74	6.18	3.21	3.48	3.87	4.42	4.96	5.47	5.86
	Servo motor	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Weight: In-line Motor Type

Model		LEYG16M					LEYG25M							LEYG32M						
Stroke [mm]		30	50	100	150	200	30	50	100	150	200	250	300	30	50	100	150	200	250	300
Product weight [kg]	Step motor	0.83	0.97	1.20	1.49	1.66	1.66	1.85	2.17	2.59	2.93	3.27	3.53	2.90	3.16	3.71	4.27	4.94	5.43	5.87
	Servo motor	0.83	0.97	1.20	1.49	1.66	1.62	1.81	2.13	2.55	2.89	3.23	3.49	—	—	—	—	—	—	—

Model		LEYG16L					LEYG25L							LEYG32L						
Stroke [mm]		30	50	100	150	200	30	50	100	150	200	250	300	30	50	100	150	200	250	300
Product weight [kg]	Step motor	0.84	0.97	1.14	1.43	1.58	1.67	1.88	2.12	2.55	2.81	3.13	3.37	2.90	3.17	3.56	4.11	4.65	5.16	5.55
	Servo motor	0.84	0.97	1.14	1.43	1.58	1.63	1.84	2.08	2.51	2.77	3.09	3.33	—	—	—	—	—	—	—

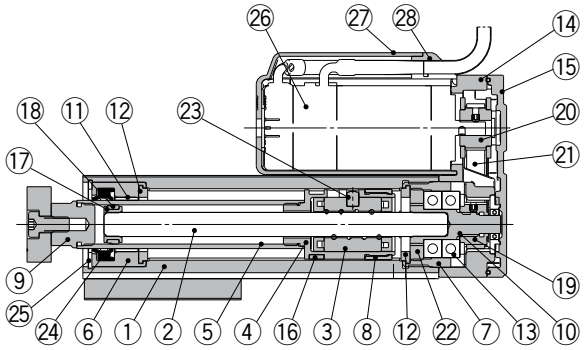
Model		LEYG40M							LEYG40L						
Stroke [mm]		30	50	100	150	200	250	300	30	50	100	150	200	250	300
Product weight [kg]	Step motor	3.20	3.46	4.01	4.57	5.24	5.73	6.17	3.20	3.47	3.86	4.41	4.95	5.46	5.85
	Servo motor	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Additional Weight

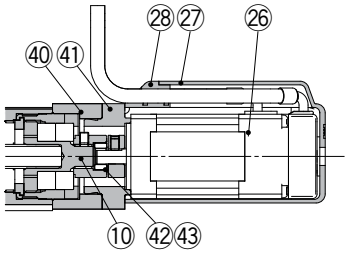
[kg]

Size	16	25	32	40
Lock	0.12	0.26	0.53	0.53
Motor cover	0.02	0.03	0.04	0.05

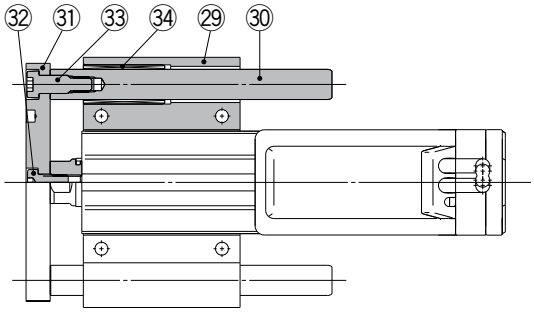
Construction



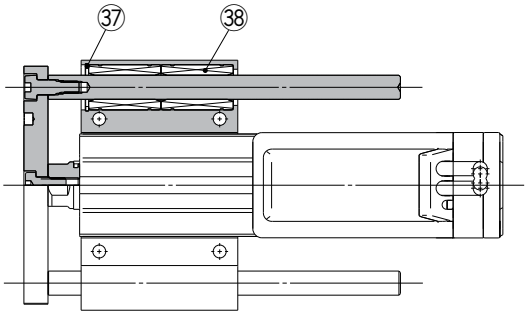
For in-line motor



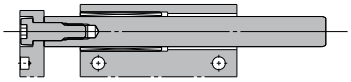
LEYG□M



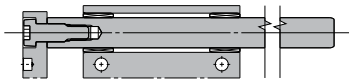
LEYG□L



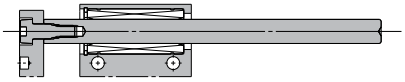
LEYG$^{16}_{25}_{32}_{40}$M: 50st or less



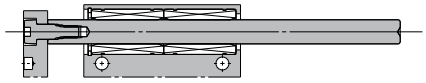
LEYG$^{16}_{25}_{32}_{40}$M: Over 50st



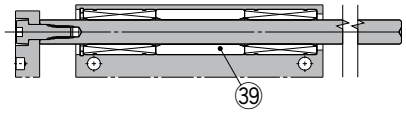
LEYG16L: 30st or less
LEYG$^{25}_{32}_{40}$L: 100st or less



LEYG16L: Over 30st, 100st or less

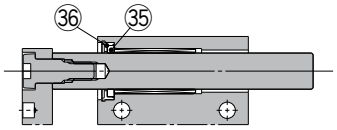


LEYG$^{16}_{25}_{32}_{40}$L: Over 100st



When grease retaining function selected

LEYG$^{25}_{32}_{40}$M□□$^{A}_{B}_{C}$-□□F: 50st or less



LEYG$^{25}_{32}_{40}$M□□$^{A}_{B}_{C}$-□□F: Over 50st

Note) Felt material is inserted to retain grease at the sliding part of the sliding bearing. This lengthens the life of the sliding part, but does not guarantee it permanently.

Replacement Parts/Belt

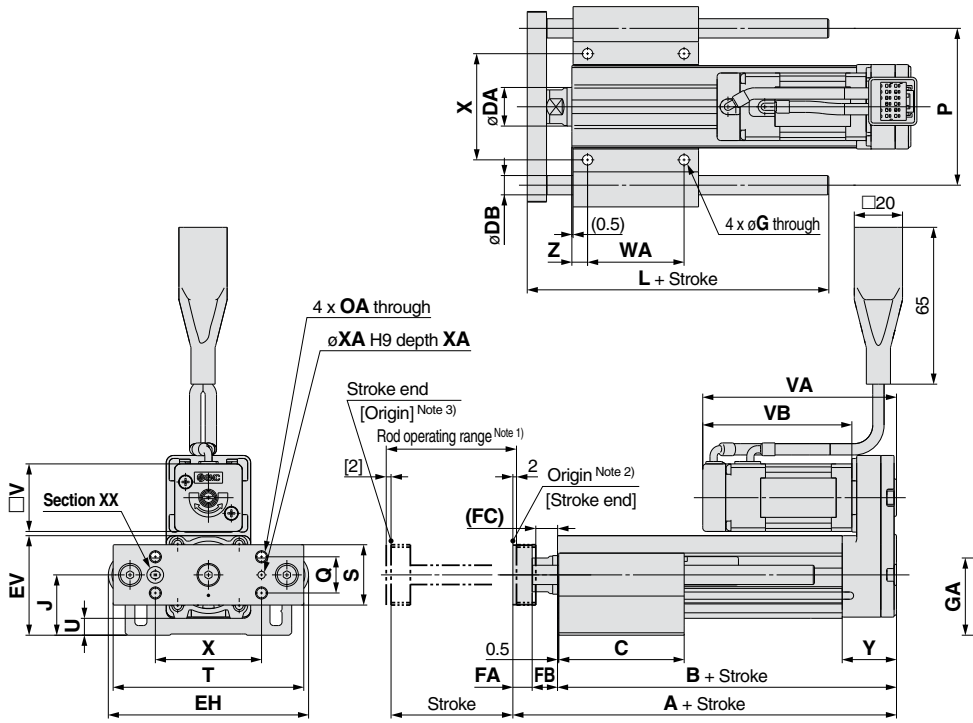
No.	Size	Order no.
21	**16**	LE-D-2-1
	25	LE-D-2-2
	32, 40	LE-D-2-3

Component Parts

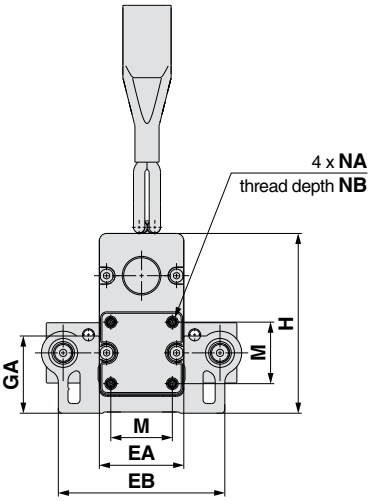
No.	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Ball screw (shaft)**	Alloy steel	
3	**Ball screw nut**	Resin/Alloy steel	
4	**Piston**	Aluminum alloy	
5	**Piston rod**	Stainless steel	Hard chrome anodized
6	**Rod cover**	Aluminum alloy	
7	**Housing**	Aluminum alloy	
8	**Rotation stopper**	POM	
9	**Socket**	Free cutting carbon steel	Nickel plated
10	**Connected shaft**	Free cutting carbon steel	Nickel plated
11	**Bushing**	Lead bronze cast	
12	**Bumper**	Urethane	
13	**Bearing**	—	
14	**Return box**	Aluminum die-cast	Trivalent chromated
15	**Return plate**	Aluminum die-cast	Trivalent chromated
16	**Magnet**	—	
17	**Wear ring holder**	Stainless steel	Stroke 101 mm or more
18	**Wear ring**	POM	Stroke 101 mm or more
19	**Screw shaft pulley**	Aluminum alloy	
20	**Motor pulley**	Aluminum alloy	
21	**Belt**	—	
22	**Bearing stopper**	Aluminum alloy	

No.	Description	Material	Note
23	**Parallel pin**	Stainless steel	
24	**Seal**	NBR	
25	**Retaining ring**	Steel for spring	Phosphate coated
26	**Motor**	—	
27	**Motor cover**	Synthetic resin	
28	**Grommet**	Synthetic resin	
29	**Guide attachment**	Aluminum alloy	Anodized
30	**Guide rod**	Carbon steel	
31	**Plate**	Aluminum alloy	Anodized
32	**Plate mounting bolt**	Carbon steel	Nickel plated
33	**Guide bolt**	Carbon steel	Nickel plated
34	**Sliding bearing**	—	
35	**Lub-retainer**	Felt	
36	**Holder**	Resin	
37	**Retaining ring**	Steel for spring	Phosphate coated
38	**Ball bushing**	—	
39	**Spacer**	Aluminum alloy	Chromated
40	**Motor block**	Aluminum alloy	Anodized
41	**Motor adapter**	Aluminum alloy	Anodized/LEY16, 25 only
42	**Hub**	Aluminum alloy	
43	**Spider**	NBR	

Dimensions: Motor Top Mounting



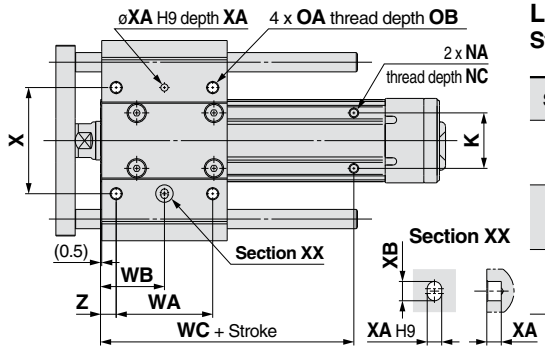
Note 1) Range within which the rod can move when it returns to origin. Make sure a workpiece mounted on the rod does not interfere with the work pieces and facilities around the rod.
Note 2) Position after return to origin.
Note 3) The number in brackets indicates when the direction of return to origin has changed.



LEYG□L (Ball bushing bearing)
Standard stroke: 50, 100, 200

[mm]

Size	Stroke range	L	DB
16	90st or less	75	8
	91st or more, 200st or less	105	
25	114st or less	91	10
	115st or more, 190st or less	115	
	191st or more, 300st or less	133	
32 40	114st or less	97.5	13
	115st or more, 190st or less	116.5	
	191st or more, 300st or less	134	



LEYG□M (Sliding bearing)
Standard stroke: 30, 50, 100

[mm]

Size	Stroke range	L	DB
16	64st or less	51.5	10
	65st or more, 90st or less	74.5	
	91st or more, 200st or less	105	
25	59st or less	67.5	12
	60st or more, 185st or less	100.5	
	186st or more, 300st or less	138	
32 40	54st or less	74	16
	55st or more, 180st or less	107	
	181st or more, 300st or less	144	

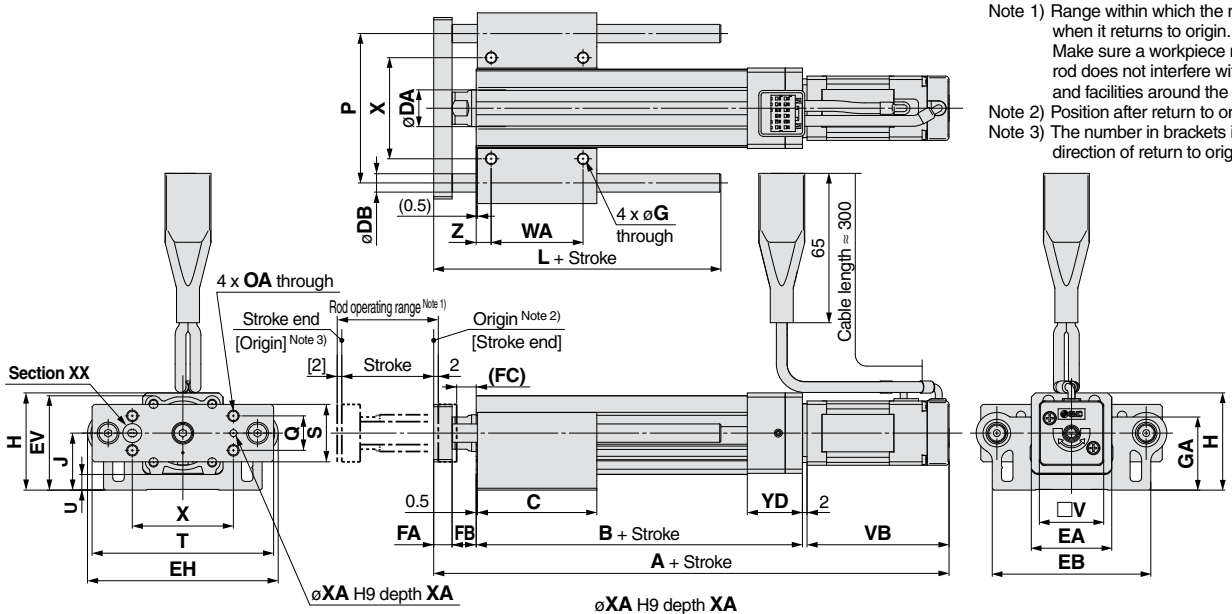
LEYG□M, LEYG□L Common

[mm]

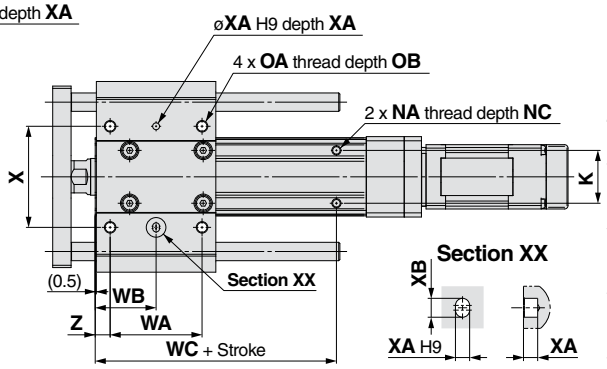
Size	Stroke range	A	B	C	DA	EA	EB	EH	EV	FA	FB	FC	G	GA	H	J	K	M	NA	NB	NC
16	39st or less	109	90.5	37	16	35	69	83	41.3	8	10.5	8.5	4.3	32	74.5	25	23	25.5	M4 x 0.7	7	5.5
	40st or more, 100st or less			52																	
	101st or more, 200st or less	129	110.5	82																	
25	39st or less	141.5	116	50	20	46	85	103	52.5	11	14.5	12.5	5.4	40.5	99	31	29	34	M5 x 0.8	8	6.5
	40st or more, 100st or less			67.5																	
	101st or more, 124st or less																				
	125st or more, 200st or less	166.5	141	84.5																	
	201st or more, 300st or less			102																	
32 40	39st or less	160.5	130	55	25	60	101	123	64	12	18.5	16.5	5.4	50.5	125.5	38.5	30	40	M6 x 1.0	10	8.5
	40st or more, 100st or less			68																	
	101st or more, 124st or less																				
	125st or more, 200st or less	190.5	160	85																	
	201st or more, 300st or less			102																	

Size	Stroke range	OA	OB	P	Q	S	T	U	V	Step motor VA	Step motor VB	Servo motor VA	Servo motor VB	WA	WB	WC	X	XA	XB	Y	Z
16	39st or less	M5 x 0.8	10	65	15	25	79	7	28	80.3	61.8	81	62.5	25	19	55	44	3	4	22.5	6.5
	40st or more, 100st or less													40	26.5						
	101st or more, 200st or less													70	41.5	75					
25	39st or less	M6 x 1.0	12	80	18	30	95	7	42	85.4	63.4	81.6	59.6	35	26	70	54	4	5	26.5	8.5
	40st or more, 100st or less													50	33.5						
	101st or more, 124st or less															95					
	125st or more, 200st or less													70	43.5						
	201st or more, 300st or less													85	51						
32	39st or less	M6 x 1.0	12	95	28	40	117	7.5	56.4	95.4	68.4	—	—	40	28.5	75	64	5	6	34	8.5
	40st or more, 100st or less													50	33.5						
	101st or more, 124st or less															105					
	125st or more, 200st or less													70	43.5						
	201st or more, 300st or less													85	51						
40	39st or less	M6 x 1.0	12	95	28	40	117	7.5	56.4	117.4	90.4	—	—	40	28.5	75	64	5	6	34	8.5
	40st or more, 100st or less													50	33.5						
	101st or more, 124st or less															105					
	125st or more, 200st or less													70	43.5						
	201st or more, 300st or less													85	51						

Dimensions: In-line Motor



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) The number in brackets indicates when the direction of return to origin has changed.



LEYG□L (Ball bushing bearing)
Standard stroke: 50, 100, 200 [mm]

Size	Stroke range	L	DB
16	90st or less	75	8
	91st or more, 200st or less	105	
25	114st or less	91	10
	115st or more, 190st or less	115	
	191st or more, 300st or less	133	
32 40	114st or less	97.5	13
	115st or more, 190st or less	116.5	
	191st or more, 300st or less	134	

LEYG□M (Sliding bearing)
Standard stroke: 30, 50, 100 [mm]

Size	Stroke range	L	DB
16	64st or less	51.5	10
	65st or more, 90st or less	74.5	
	91st or more, 200st or less	105	
25	59st or less	67.5	12
	60st or more, 185st or less	100.5	
	186st or more, 300st or less	138	
32 40	54st or less	74	16
	55st or more, 180st or less	107	
	181st or more, 300st or less	144	

LEYG□M, LEYG□L Common
[mm]

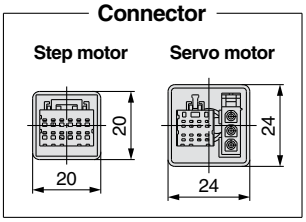
Size	Stroke range	Step motor / Servo motor A		B	C	DA	EA	EB	EH	EV	FA	FB	FC	G	GA	H	J	K	NA	NC
16	39st or less	174.3	175	92	37	16	35	69	83	41.3	8	10.5	8.5	4.3	32	42.5	25	23	M4 x 0.7	5.5
	40st or more, 100st or less				52															
	101st or more, 200st or less	194.3	195	112	82															
25	39st or less	206.4	202.6	115.5	50	20	45	85	103	52.5	11	14.5	12.5	5.4	40.5	53.5	31	29	M5 x 0.8	6.5
	40st or more, 100st or less				67.5															
	101st or more, 124st or less	231.4	227.6	140.5																
	125st or more, 200st or less				84.5															
	201st or more, 300st or less				102															
32	39st or less	228.9	—	128	55	25	60	101	123	64	12	18.5	16.5	5.4	50.5	68.5	38.5	30	M6 x 1.0	8.5
	40st or more, 100st or less				68															
	101st or more, 124st or less	258.9	—	158																
	125st or more, 200st or less				85															
	201st or more, 300st or less				102															
40	39st or less	250.9	—	128	55	25	60	101	123	64	12	18.5	16.5	5.4	50.5	68.5	38.5	30	M6 x 1.0	8.5
	40st or more, 100st or less				68															
	101st or more, 124st or less	280.9	—	158																
	125st or more, 200st or less				85															
	201st or more, 300st or less				102															

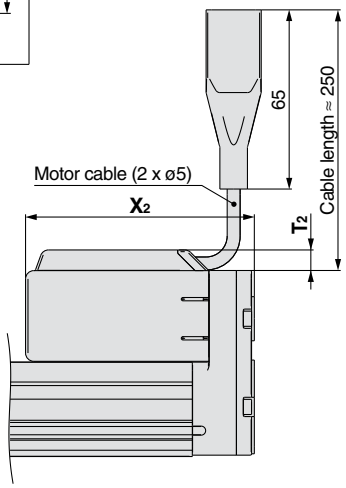
Size	Stroke range	OA	OB	P	Q	S	T	U	V	Step motor / Servo motor VB		WA	WB	WC	X	XA	XB	YD	Z
16	39st or less	M5 x 0.8	10	65	15	25	79	7	28	61.8	62.5	25	19	55	44	3	4	24	6.5
	40st or more, 100st or less											40	26.5						
	101st or more, 200st or less											70	41.5	75					
25	39st or less	M6 x 1.0	12	80	18	30	95	7	42	63.4	59.6	35	26	70	54	4	5	26	8.5
	40st or more, 100st or less											50	33.5						
	101st or more, 124st or less													95					
	125st or more, 200st or less											70	43.5						
	201st or more, 300st or less											85	51						
32	39st or less	M6 x 1.0	12	95	28	40	117	7.5	56.4	68.4	—	40	28.5	75	64	5	6	32	8.5
	40st or more, 100st or less											50	33.5						
	101st or more, 124st or less													105					
	125st or more, 200st or less											70	43.5						
	201st or more, 300st or less											85	51						
40	39st or less	M6 x 1.0	12	95	28	40	117	7.5	56.4	90.4	—	40	28.5	75	64	5	6	32	8.5
	40st or more, 100st or less											50	33.5						
	101st or more, 124st or less													105					
	125st or more, 200st or less											70	43.5						
	201st or more, 300st or less											85	51						

Dimensions

Motor top mounting type

With motor cover: LEYG 16/25/32/40 □□ A/B/C -□C



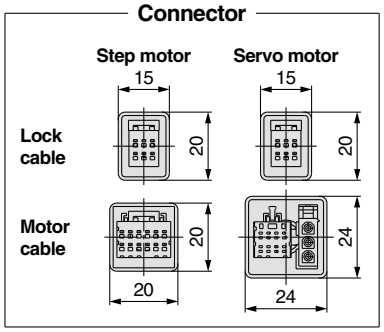


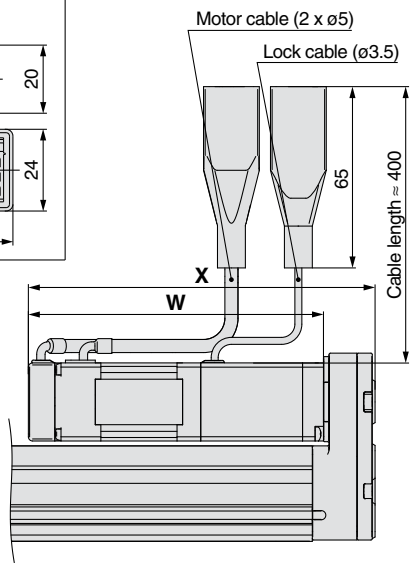
[mm]

Size	T_2	X_2
16	7.5	83
25	7.5	88.5
32	7.5	98.5
40	7.5	120.5

Motor cover material:
Synthetic resin

With lock: LEYG 16/25/32/40 □□ A/B/C -□B



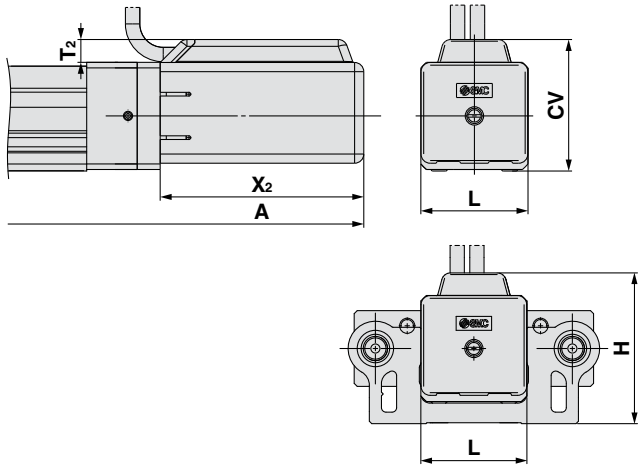


[mm]

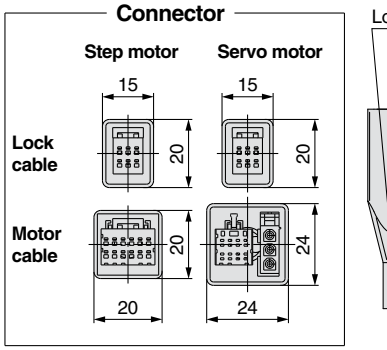
Size	Step motor		Servo motor	
	W	**X**	**W**	**X**
16	103.3	121.8	104.0	122.5
25	103.9	125.9	100.1	122.1
32	111.4	138.4	—	—
40	133.4	160.4	—	—

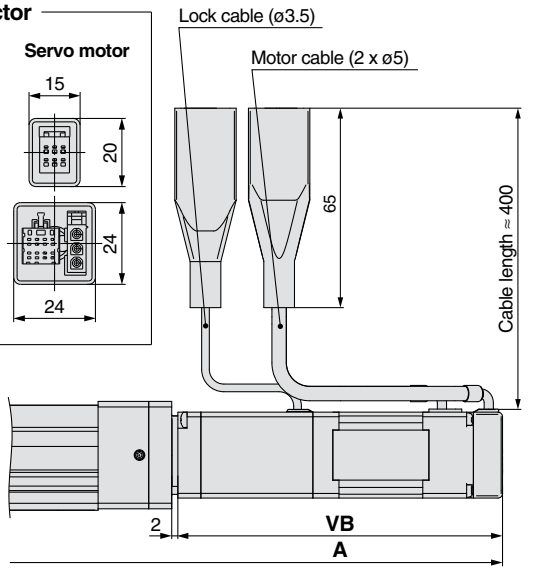
In-line motor type

With motor cover: LEYG 16/25/32/40 □D□ A/B/C -□C



With lock: LEYG 16/25/32/40 □D□ A/B/C -□B





[mm]

Size	Stroke range	A	T_2	X_2	L	H	CV
16	100st or less	177	7.5	66.5	35	50	43
	101st or more, 200st or less	197					
25	100st or less	209.5	7.5	68.5	46	61.5	54.5
	101st or more, 300st or less	234.5					
32	100st or less	232	7.5	73.5	60	76	68.5
	101st or more, 300st or less	262					
40	100st or less	254	7.5	95.5	60	76	68.5
	101st or more, 300st or less	284					

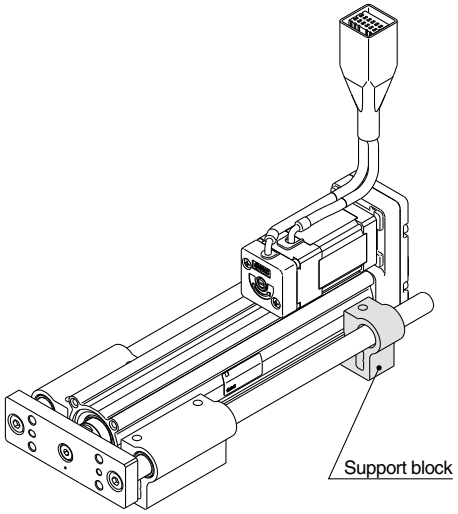
[mm]

Size	Stroke range	Step motor	Servo motor	Step motor	Servo motor
		A		**VB**	
16	100st or less	207.8	208.5	103.3	104
	101st or more, 200st or less	227.8	228.5		
25	100st or less	246.9	243.1	103.9	100.1
	101st or more, 300st or less	271.9	268.1		
32	100st or less	271.9	—	111.4	—
	101st or more, 300st or less	301.9	—		
40	100st or less	293.9	—	133.4	—
	101st or more, 300st or less	323.9	—		

Support Block

● Guide for support block application

When the stroke exceeds 100 mm and the lateral load is applied, the body will be bent based on the load. Mounting the support block is recommended. (Please order it separately from the models shown below.)

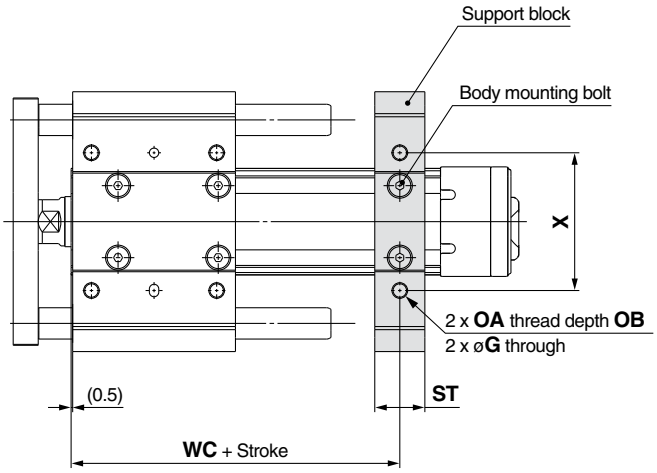


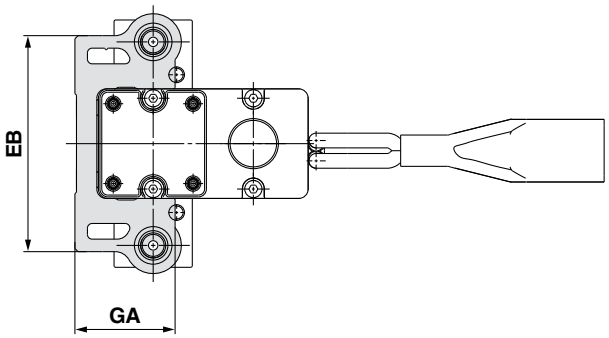
Support Block Model

LEYG-S016

● **Size**

016	For size 16
025	For size 25
032	For size 32, 40





⚠Caution

Do not install the body using only a support block.
The support block should be used only for support.

[mm]

Size	Model	Stroke range	EB	G	GA	OA	OB	ST	WC	X
16	**LEYG-S016**	100st or less	69	4.3	32	M5 x 0.8	10	16	55	44
		101st or more, 200st or less							75	
25	**LEYG-S025**	100st or less	85	5.4	40.5	M6 x 1.0	12	20	70	54
		101st or more, 300st or less							95	
32 40	**LEYG-S032**	100st or less	101	5.4	50.5	M6 x 1.0	12	22	75	64
		101st or more, 300st or less							105	

∗ Two body mounting bolts are included with the support block.

Electric Actuators/ Specific Product Precautions 1

Be sure to read before handling. Refer to back cover for Safety Instructions and the Operation Manual for Electric Actuator Precautions. Please download it via our website, http://www.smcworld.com

Design/Selection

⚠Warning

1. Do not apply a load in excess of the operating limit.

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

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

This can cause failure.

3. When used as a stopper, select the LEYG series "Sliding bearing".

4. When used as a stopper, fix the main body with a guide attachment ("Top mounting" or "Bottom mounting").

If the end of the actuator is used to fix the main body (end mounting), the excessive load acts on the actuator, which adversely affects the operation and life of the product.

Handling

⚠Caution

1. 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 force exceeds step data [Trigger LV], the INP output signal will turn on.

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) When the [Pushing force] and [Trigger LV] are set less than the specified range, the INP output signal will turn on from the pushing start position.

Handling

⚠Caution

<Pushing Force and Trigger Level Range> Without load/With lateral load on rod end

Model	Pushing speed [mm/s]	Pushing force (Setting input value)
LEY□16□	1 to 4	30% to 85%
	5 to 20	35% to 85%
	21 to 50	60% to 85%
LEY□25□	1 to 4	20% to 65%
	5 to 20	35% to 65%
	21 to 35	50% to 65%
LEY□32□	1 to 4	20% to 85%
	5 to 20	35% to 85%
	21 to 30	60% to 85%
LEY□40□	1 to 4	20% to 65%
	5 to 20	35% to 65%
	21 to 30	50% to 65%

Model	Pushing speed [mm/s]	Pushing force (Setting input value)
LEY□16□A	1 to 4	40% to 95%
	5 to 20	60% to 95%
	21 to 50	80% to 95%
LEY□25□A	1 to 4	40% to 95%
	5 to 20	60% to 95%
	21 to 35	80% to 95%

∗ For vertical loads (upward), set the pushing force to the maximum value shown below, and operate at the work load or less.

Model	LEY16□			LEY25□			LEY32□			LEY40□		
Lead	A	B	C	A	B	C	A	B	C	A	B	C
Work load [kg]	1	1.5	3	2.5	5	10	4.5	9	18	7	14	28
Pushing force	85%			65%			85%			65%		

Model	LEY16□A			LEY25□A		
Lead	A	B	C	A	B	C
Work load [kg]	1	1.5	3	1.2	2.5	5
Pushing force	95%			95%		

Model	LEYG16$^{M}_{L}$□			LEYG25$^{M}_{L}$□			LEYG32$^{M}_{L}$□			LEYG40$^{M}_{L}$□		
Lead	A	B	C	A	B	C	A	B	C	A	B	C
Work load [kg]	0.5	1	2.5	1.5	4	9	2.5	7	16	5	12	26
Pushing force	85%			65%			85%			65%		

Model	LEYG16$^{M}_{L}$□A			LEYG25$^{M}_{L}$□A		
Lead	A	B	C	A	B	C
Work load [kg]	0.5	1	2.5	0.5	1.5	4
Pushing force	95%			95%		

2. 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 malfunction.

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

It may lead to damage and malfunction.

4. The moving force should be the initial value (LEY16□/25□/32□/40□: 100%, LEY16A□: 150%, LEY25A□: 200%).

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

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

Check the model selection section of the catalog.

6. Do not apply a load, impact or resistance in addition to the transferred load during return to origin.

Otherwise, the origin can be displaced since it is based on detected motor torque.

Electric Actuators/ Specific Product Precautions 2

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Handling

⚠Caution

7. In pushing operation, set the product to a position of at least 2 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 target position.

b. "Pushing ALM" alarm is generated.

The product is pushed back from a pushing start position after starting to push.

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

The piston rod and guide rod are manufactured to precise tolerances, even a slight deformation may cause malfunction.

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

Use a freely moving connector (such as a floating joint).

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

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

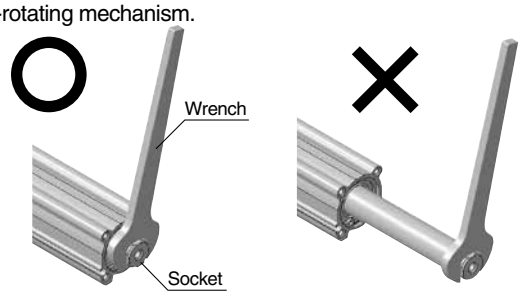
11. Avoid using the electric actuator in such a way that rotational torque would be applied to the piston rod.

This may cause deformation of the non-rotating guide, abnormal responses of the auto switch, play 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 lbf ft (N·m) or less	LEY16□□	LEY25□□	LEY32/40□□
	0.59 (0.8)	0.81 (1.1)	1.03 (1.4)

When screwing in a bracket or nut to the end of the piston rod, hold the flats of the rod end with a wrench (the piston rod should be fully retracted). Do not apply tightening torque to the non-rotating mechanism.



12. When rotational torque is applied to the end of the plate, use it within the allowable range. [Series LEYG]

This may cause deformation of the guide rod and bushing, play in the guide or an increase in the sliding resistance.

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

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

• Step motor (Servo/24 VDC) 77°F (25°C),104°F (40°C)

LEY16□

Pushing force [%]	Ambient temperature: 25°C or less		Ambient temperature: 40°C	
	Duty ratio [%]	Continuous pushing time [minute]	Duty ratio [%]	Continuous pushing time [minute]
40 or less	100	—	100	—
50			70	12
70			20	1.3
85			15	0.8

LEY25□

Pushing force [%]	Ambient temperature: 25°C or less		Ambient temperature: 40°C	
	Duty ratio [%]	Continuous pushing time [minute]	Duty ratio [%]	Continuous pushing time [minute]
65 or less	100	—	100	—

LEY32□/40□

Pushing force [%]	Ambient temperature: 25°C or less		Ambient temperature: 40°C	
	Duty ratio [%]	Continuous pushing time [minute]	Duty ratio [%]	Continuous pushing time [minute]
65 or less	100	—	100	—
85			50	15

• Servo motor (24 VDC)

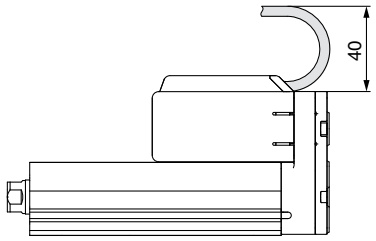
LEY16A□

Pushing force [%]	Ambient temperature: 25°C or less		Ambient temperature: 40°C	
	Duty ratio [%]	Continuous pushing time [minute]	Duty ratio [%]	Continuous pushing time [minute]
95 or less	100	—	100	—

LEY25A□

Pushing force [%]	Ambient temperature: 25°C or less		Ambient temperature: 40°C	
	Duty ratio [%]	Continuous pushing time [minute]	Duty ratio [%]	Continuous pushing time [minute]
95 or less	100	—	100	—

14. When mounting the product, keep the 40 mm or more for bending the cable.



15. When mounting a bolt, workpiece or jig, hold the flats of the piston rod end with a wrench so that the piston rod does not rotate. The bolt should be tightened within the specified torque range.

This may cause abnormal responses of the auto switch, play in the internal guide or an increase in the sliding resistance.

Electric Actuators/ Specific Product Precautions 3

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Handling

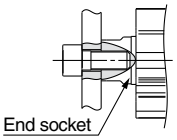
⚠Caution

16. When mounting the product and/or workpiece, tighten the mounting screws within the specified torque range.

Tightening with higher torque than the specified range may cause malfunction while the tightening with lower torque can cause the displacement of gripping position or dropping a workpiece.

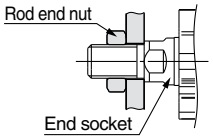
<Series LEY>

Workpiece fixed/Rod end female thread

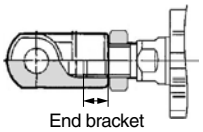


Model	Bolt	Max. tightening torque (N·m)	Max. screw-in depth (mm)	End socket width across flats (mm)
LEY16	M5 x 0.8	3.0	10	14
LEY25	M8 x 1.25	12.5	13	17
LEY32/40	M8 x 1.25	12.5	13	22

Workpiece fixed/Rod end male thread (When "Rod end male thread" is selected.)



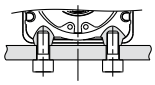
Model	Thread size	Max. tightening torque (N·m)	Effective thread length (mm)	End socket width across flats (mm)
LEY16	M8 x 1.25	12.5	12	14
LEY25	M14 x 1.5	65.0	20.5	17
LEY32/40	M14 x 1.5	65.0	20.5	22



Model	Rod end nut		End bracket screw-in depth (mm)
	Width across flats (mm)	Length (mm)	
LEY16	13	5	5 or more
LEY25	22	8	8 or more
LEY32/40	22	8	8 or more

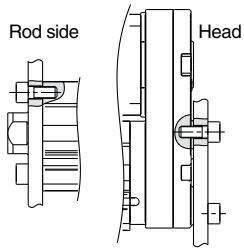
∗ Rod end nut is an accessary.

Body fixed/Body bottom tapped style (When "Body bottom tapped" is selected.)



Model	Bolt	Max. tightening torque (N·m)	Max. screw-in depth (mm)
LEY16	M4 x 0.7	1.5	5.5
LEY25	M5 x 0.8	3.0	6.5
LEY32/40	M6 x 1.0	5.2	8.8

Body fixed/Rod side/Head side tapped style

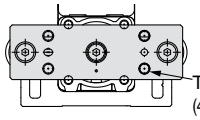


Model	Bolt	Max. tightening torque (N·m)	Max. screw-in depth (mm)
LEY16	M4 x 0.7	1.5	7
LEY25	M5 x 0.8	3.0	8
LEY32/40	M6 x 1.0	5.2	10

∗ Except the LEY□D.

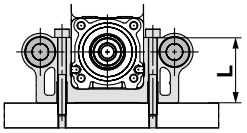
<Series LEYG>

Workpiece fixed/Plate tapped style



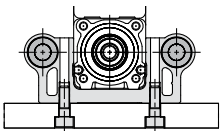
Model	Bolt	Max. tightening torque (N·m)	Max. screw-in depth (mm)
LEYG16 M/L	M5 x 0.8	3.0	8
LEYG25 M/L	M6 x 1.0	5.2	11
LEYG 32M/40L	M6 x 1.0	5.2	12

Body fixed/Top mounting (1 N·m = 0.73lbf·ft)



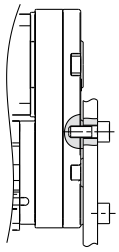
Model	Bolt	Max. tightening torque (N·m)	Length: L (mm)
LEYG16 M/L	M4 x 0.7	1.5	32
LEYG25 M/L	M5 x 0.8	3.0	40.5
LEYG 32M/40L	M5 x 0.8	3.0	50.5

Body fixed/Bottom mounting



Model	Bolt	Max. tightening torque (N·m)	Max. screw-in depth (mm)
LEYG16 M/L	M5 x 0.8	3.0	10
LEYG25 M/L	M6 x 1.0	5.2	12
LEYG 32M/40L	M6 x 1.0	5.2	12

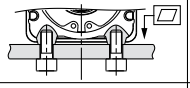
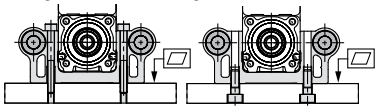
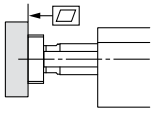
Body fixed/Head side tapped style



Model	Bolt	Max. tightening torque (N·m)	Max. screw-in depth (mm)
LEYG16 M/L	M4 x 0.7	1.5	7
LEYG25 M/L	M5 x 0.8	3.0	8
LEYG 32M/40L	M6 x 1.0	5.2	10

17. Keep the flatness of the mounting surface within the following ranges when mounting the actuator body and workpiece.

Unevenness of a workpiece or base mounted on the body of the product may cause an increase in the sliding resistance.

Model	Mounting position	Flatness
LEY□	Body/Body bottom 	0.1 mm or less
LEYG□	Top mounting/Bottom mounting 	0.05 mm or less
	Workpiece/Plate mounting 	0.05 mm or less

18. When using auto switch with the guide rod type LEYG series, the following limits will be in effect. Please select the product while paying attention to this.

- Insert the auto switch from the front side with rod (plate) sticking out.
- For the parts hidden behind the guide attachment (Rod stick out side), the auto switch cannot be fixed.
- Consult with SMC when using auto switch on the rod stick out side.

Electric Actuators/ Specific Product Precautions 4

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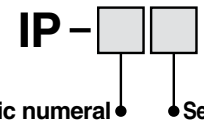
Enclosure



• First Characteristics:
Degrees of protection against solid foreign objects

0	Non-protected
1	Protected against solid foreign objects of 50 mmø and greater
2	Protected against solid foreign objects of 12 mmø and greater
3	Protected against solid foreign objects of 2.5 mmø and greater
4	Protected against solid foreign objects of 1.0 mmø and greater
5	Dust-protected
6	Dust-tight

• Second Characteristics:
Degrees of protection against water

0	Non-protected	—
1	Protected against vertically falling water drops	Dripproof type 1
2	Protected against vertically falling water drops when enclosure tilted up to 15°	Dripproof type 2
3	Protected against rainfall when enclosure tilted up to 60°	Rainproof type
4	Protected against splashing water	Splashproof type
5	Protected against water jets	Water-jet-proof type
6	Protected against powerful water jets	Powerful water-jet-proof type
7	Protected against the effects of temporary immersion in water	Immersible type
8	Protected against the effects of continuous immersion in water	Submersible type

Example) In the case of stipulated as IP65, we can know the degrees of protection is dust-tight and water-jet-proof on the grounds that the first characteristic numeral is "6" and the second characteristic numeral is "5" respectively, that gives it will not be adversely affected by direct water jets from any direction.
(∗ The water jets which are "5" of the second characteristic numeral based on JIS C 0920 (2003) indicates a flow of water for 3 minutes at 12.5 L per minute.)

Maintenance

⚠ Warning

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

• Maintenance frequency

Perform maintenance according to the table below.

Frequency	Appearance check	Belt check
Inspection before daily operation	○	—
Inspection every 6 months/ 250 km/5 million cycles∗	○	○

∗ Select whichever comes sooner.

• Items for visual appearance check

1. Loose set screws, Abnormal dirt
2. Check of flaw and cable joint
3. Vibration, Noise

• Belt replacement (Guide)

It is recommended that the belt be replaced after being in service for 2 years, or before reaching the following distance.

Model	Distance	Model	Distance	Model	Distance
LEY16□A	2,000 km	**LEY25□A**	2,500 km	**LEY32A**	4,000 km
LEY16□B	1,000 km	**LEY25□B**	1,200 km	**LEY32B**	2,000 km
LEY16□C	500 km	**LEY25□C**	600 km	**LEY32C**	1,000 km

Model	Distance
LEY40A	4,000 km
LEY40B	2,000 km
LEY40C	1,000 km

• Items for belt check

Stop operation immediately and replace the belt when belt appear to be below. Further, ensure your operating environment and conditions satisfy the requirements specified for the product.

a. Tooth shape canvas is worn out
Canvas fiber becomes fuzzy. Rubber is removed and the fiber becomes whitish. Lines of fibers become unclear.

b. Peeling off or wearing of the side of the belt
Belt corner becomes round and frayed thread sticks out.

c. Belt partially cut
Belt is partially cut. Foreign matter caught in teeth other than cut part causes flaw.

d. Vertical line of belt teeth
Flaw which is made when the belt runs on the flange.

e. Rubber back of the belt is softened and sticky

f. Crack on the back of the belt

Controller/Driver

Step Data Input Type ····· **Page 48**

Step Motor (Servo/24 VDC)

Series LECP6

Servo Motor (24 VDC)

Series LECA6

Gateway Unit ····· **Page 60**

Series LEC-G

Programless Type ····· **Page 63**

Step Motor (Servo/24 VDC)

Series LECP1

Pulse Input Type ····· **Page 70**

Step Motor (Servo/24 VDC)

Series LECPA

Controller (Step Data Input Type)

Step Motor (Servo/24 VDC)

Series LECP6

Servo Motor (24 VDC)

Series LECA6

Series ***LECP6*** *Series* ***LECA6***

How to Order

LE C P 6 N □ □ – □

Controller

Compatible motor

P	Step motor (Servo/24 VDC)
A	Servo motor (24 VDC)

Number of step data (Points)

6	64

Parallel I/O type

N	NPN
P	PNP

I/O cable length [m]

Nil	Without cable
1	1.5
3	3
5	5

Actuator part number

(Except cable specifications and actuator options)
Example: Enter "LEY16B-100" for the LEY16B-100B-R16N1.

Option

Nil	Screw mounting
D Note)	DIN rail mounting

Note) DIN rail is not included. Order it separately.

∗ When controller equipped type is selected when ordering the LE series, you do not need to order this controller.

⚠Caution

[CE-compliant products]

① EMC compliance was tested by combining the electric actuator LEY 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 For the LECA6 series (servo motor controller), EMC compliance was tested by installing a noise filter set (LEC-NFA). Refer to page 56 for the noise filter set. Refer to the LECA Operation Manual for installation.

[UL-compliant products]

When conformity to UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.

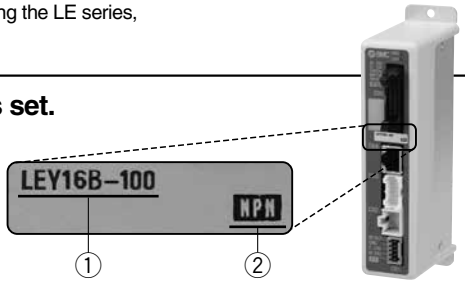
The controller is sold as single unit after the compatible actuator is set.

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

<Check the following before use.>

① Check the actuator label for model number. This matches the controller.

② Check Parallel I/O configuration matches (NPN or PNP).



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

Specifications

Basic Specifications

Item	LECP6	LECA6
Compatible motor	Step motor (Servo/24 VDC)	Servo motor (24 VDC)
Power supply Note 1)	Power voltage: 24 VDC ±10% Current consumption: 3 A (Peak 5 A) Note 2) [Including motor drive power, control power, stop, lock release]	Power voltage: 24 VDC ±10% Current consumption: 3 A (Peak 10 A) Note 2) [Including motor drive power, control power, stop, lock release]
Parallel input	11 inputs (Photo-coupler isolation)	
Parallel output	13 outputs (Photo-coupler isolation)	
Compatible encoder	Incremental A/B phase (800 pulse/rotation)	Incremental A/B/Z phase (800 pulse/rotation)
Serial communication	RS485 (Modbus protocol compliant)	
Memory	EEPROM	
LED indicator	LED (Green/Red) one of each	
Lock control	Forced-lock release terminal Note 3)	
Cable length [m]	I/O cable: 5 or less, Actuator cable: 20 or less	
Cooling system	Natural air cooling	
Operating temperature range	32 to 104°F (0 to 40°C) (No freezing)	
Operating humidity range [%RH]	90 or less (No condensation)	
Storage temperature range	14 to 140°F (–10 to 60°C) (No freezing)	
Storage humidity range [%RH]	90 or less (No condensation)	
Insulation resistance [MΩ]	Between the housing and SG terminal 50 (500 VDC)	
Weight [g]	150 (Screw mounting) 170 (DIN rail mounting)	

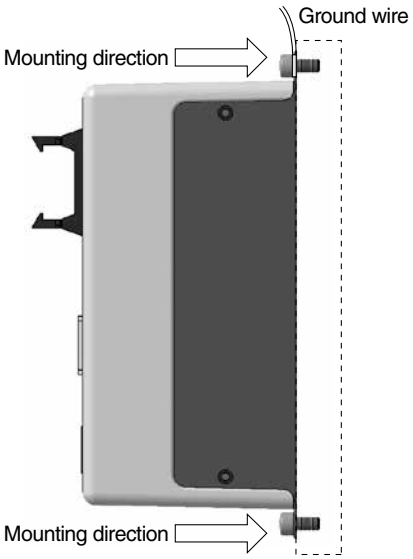
Note 1) Do not use the power supply of "inrush current prevention type" for the controller power supply. When conformity to UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.

Note 2) The power consumption changes depending on the actuator model. Refer to the specifications of actuator for more details.

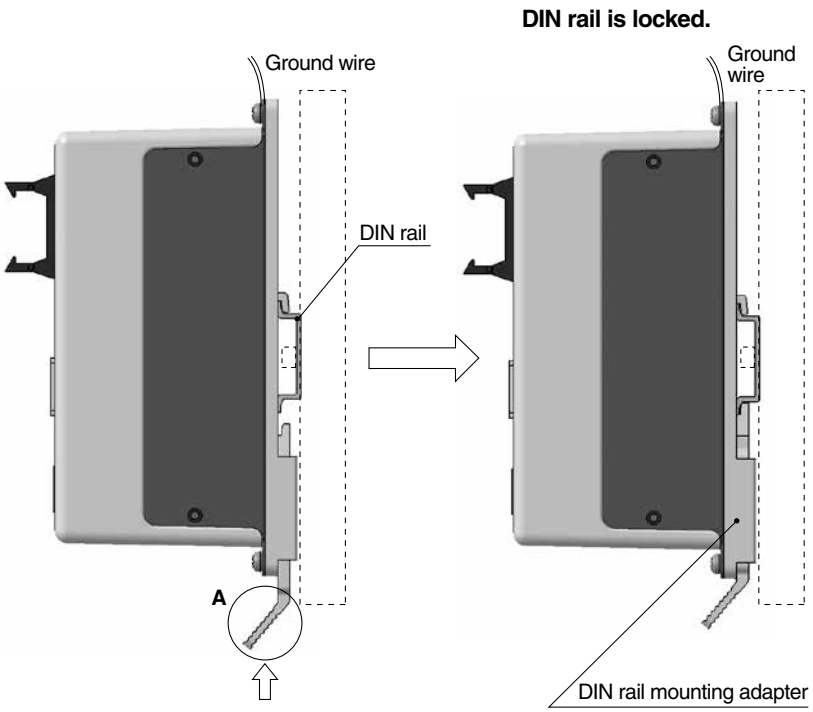
Note 3) Applicable to non-magnetizing lock.

How to Mount

a) Screw mounting (LEC□6□□-□)
(Installation with two M4 screws)



b) DIN rail mounting (LEC□6□□D-□)
(Installation with the DIN rail)

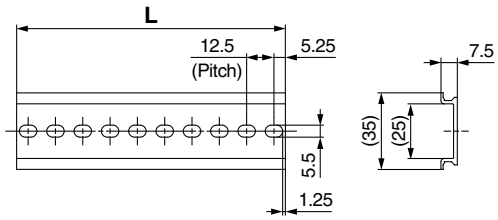


Hook the controller on the DIN rail and press the lever of section **A** in the arrow direction to lock it.

Note) When size 25 or more of the LEY series are used, the space between the controllers should be 10 mm or more.

DIN rail
AXT100-DR-□

∗ For □, enter a number from the "No." line in the table below.
Refer to the dimensions on page 50 for the mounting dimensions.



L Dimension [mm]

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L	23	35.5	48	60.5	73	85.5	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5	223	235.5	248	260.5

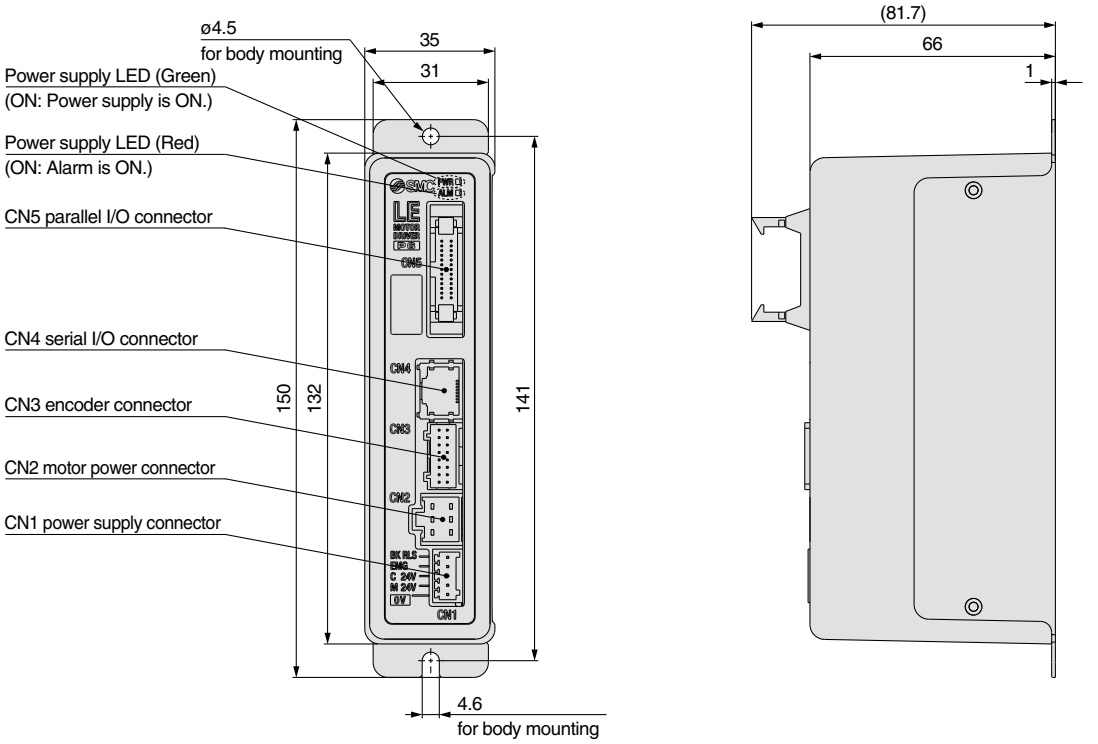
No.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
L	273	285.5	298	310.5	323	335.5	348	360.5	373	385.5	398	410.5	423	435.5	448	460.5	473	485.5	498	510.5

DIN rail mounting adapter
LEC-D0 (with 2 mounting screws)

This should be used when the DIN rail mounting adapter is mounted onto the screw mounting type controller afterwards.

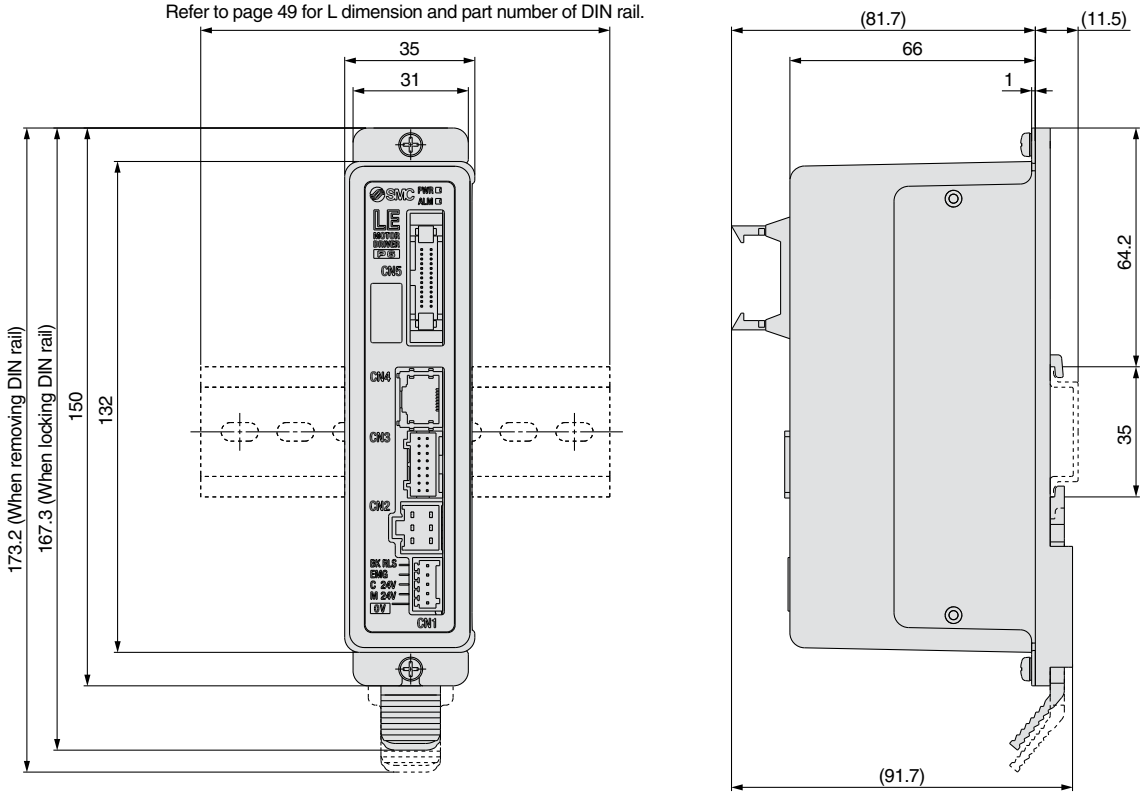
Dimensions

a) Screw mounting (LEC□6□□-□)



b) DIN rail mounting (LEC□6□□D-□)

Refer to page 49 for L dimension and part number of DIN rail.



Wiring Example 1

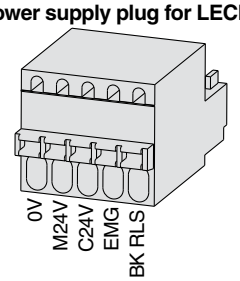
Power Supply Connector: CN1

∗ Power supply plug is an accessory.

CN1 Power Supply Connector Terminal for LECP6 (PHOENIX CONTACT FK-MC0.5/5-ST-2.5)

Terminal name	Function	Details
0V	Common supply (–)	M24V terminal/C24V terminal/EMG terminal/BK RLS terminal are common (–).
M24V	Motor power supply (+)	Motor power supply (+) supplied to the controller
C24V	Control power supply (+)	Control power supply (+) supplied to the controller
EMG	Stop (+)	Input (+) for releasing the stop
BK RLS	Lock release (+)	Input (+) for releasing the lock

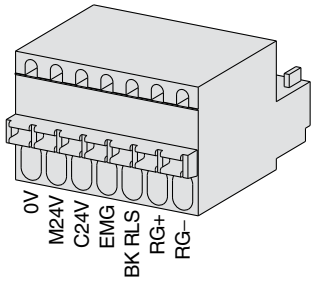
Power supply plug for LECP6



CN1 Power Supply Connector Terminal for LECA6 (PHOENIX CONTACT FK-MC0.5/7-ST-2.5)

Terminal name	Function	Details
0V	Common supply (–)	M24V terminal/C24V terminal/EMG terminal/BK RLS terminal are common (–).
M24V	Motor power supply (+)	Motor power supply (+) supplied to the controller
C24V	Control power supply (+)	Control power supply (+) supplied to the controller
EMG	Stop (+)	Input (+) for releasing the stop
BK RLS	Lock release (+)	Input (+) for releasing the lock
RG+	Regenerative output 1	Regenerative output terminals for external connection (Not necessary to connect them in the combination with the LE series standard specifications.)
RG–	Regenerative output 2	

Power supply plug for LECA6



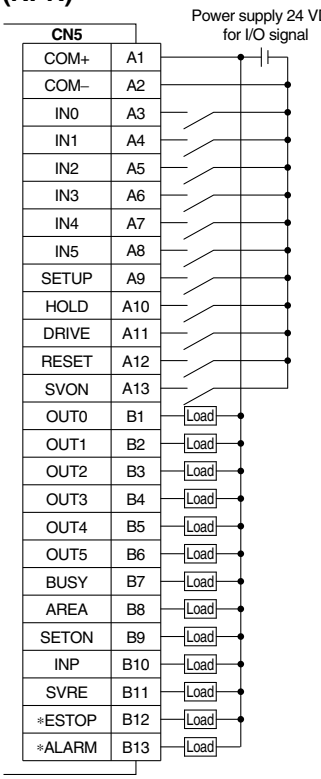
Wiring Example 2

Parallel I/O Connector: CN5

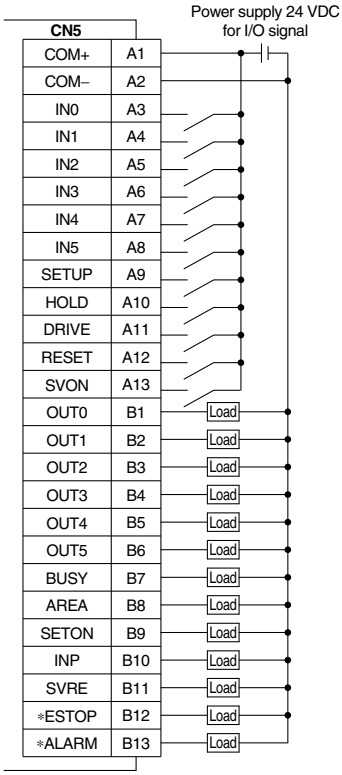
∗ When you connect a PLC, etc., to the CN5 parallel I/O connector, please use the I/O cable (LEC-CN5-□).
∗ The wiring should be changed depending on the type of the parallel I/O (NPN or PNP).

Wiring diagram

LEC□6N□□-□ (NPN)



LEC□6P□□-□ (PNP)



Input Signal

Name	Details
COM+	Connects the power supply 24 V for input/output signal
COM–	Connects the power supply 0 V for input/output signal
IN0 to IN5	Step data specified Bit No. (Input is instructed in the combination of IN0 to 5.)
SETUP	Instruction to return to origin
HOLD	Operation is temporarily stopped
DRIVE	Instruction to drive
RESET	Alarm reset and operation interruption
SVON	Servo ON instruction

Output Signal

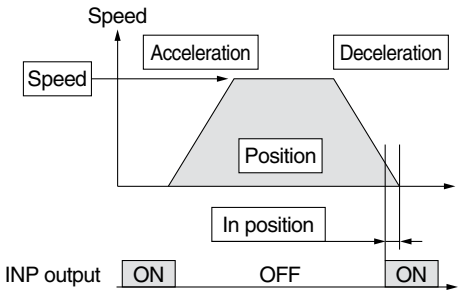
Name	Details
OUT0 to OUT5	Outputs the step data no. during operation
BUSY	Outputs when the actuator is moving
AREA	Outputs within the step data area output setting range
SETON	Outputs when returning to origin
INP	Outputs when target position or target force is reached (Turns on when the positioning or pushing is completed.)
SVRE	Outputs when servo is on
∗ESTOP Note)	Not output when EMG stop is instructed
∗ALARM Note)	Not output when alarm is generated

Note) Signal of negative-logic circuit (N.C.)

Step Data Setting

1. Step data setting for positioning

In this setting, the actuator moves toward and stops at the target position.
The following diagram shows the setting items and operation.
The setting items and set values for this operation are stated below.



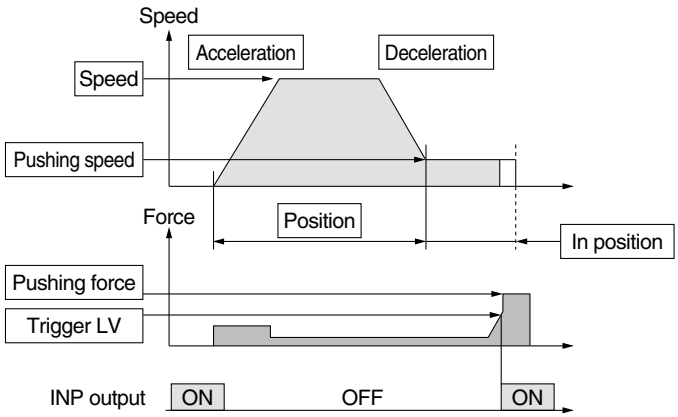
○○ : Need to be set.
○ : Need to be adjusted as required.
—: Setting is not required.

Step Data (Positioning)

Necessity	Item	Details
○○	Movement MOD	When the absolute position is required, set Absolute. When the relative position is required, set Relative.
○○	Speed	Transfer speed to the target position
○○	Position	Target position
○	Acceleration	Parameter which defines how rapidly the actuator reaches the speed set. The higher the set value, the faster it reaches the speed set.
○	Deceleration	Parameter which defines how rapidly the actuator comes to stop. The higher the set value, the quicker it stops.
○○	Pushing force	Set 0. (If values 1 to 100 are set, the operation will be changed to the pushing operation.)
—	Trigger LV	Setting is not required.
—	Pushing speed	Setting is not required.
○	Moving force	Max. torque during the positioning operation (No specific change is required.)
○	Area 1, Area 2	Condition that turns on the AREA output signal.
○	In position	Condition that turns on the INP output signal. When the actuator enters the range of [in position], the INP output signal turns on. (It is unnecessary to change this from the initial value.) When it is necessary to output the arrival signal before the operation is completed, make the value larger.

2. Step data setting for pushing

The actuator moves toward the pushing start position, and when it reaches that position, it starts pushing with the set force or less.
The following diagram shows the setting items and operation.
The setting items and set values for this operation are stated below.



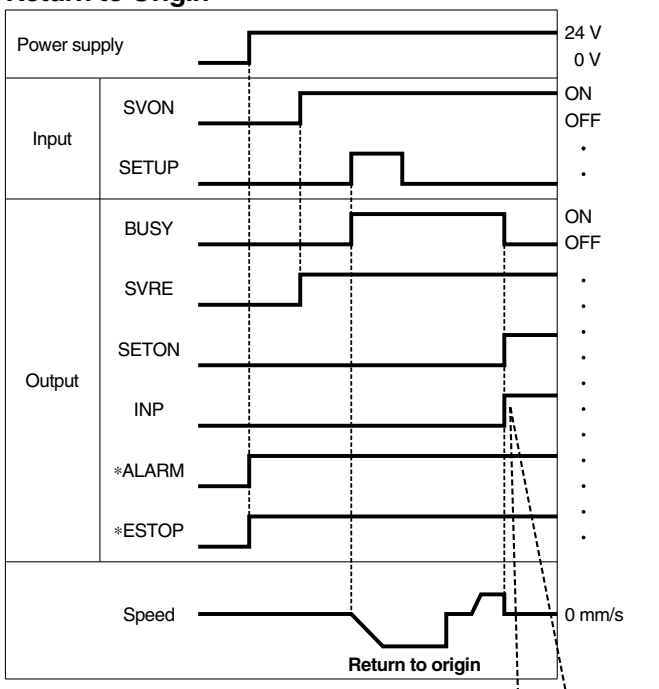
○○ : Need to be set.
○ : Need to be adjusted as required.

Step Data (Pushing)

Necessity	Item	Details
○○	Movement MOD	When the absolute position is required, set Absolute. When the relative position is required, set Relative.
○○	Speed	Transfer speed to the pushing start position
○○	Position	Pushing start position
○	Acceleration	Parameter which defines how rapidly the actuator reaches the speed set. The higher the set value, the faster it reaches the speed set.
○	Deceleration	Parameter which defines how rapidly the actuator comes to stop. The higher the set value, the quicker it stops.
○○	Pushing force	Pushing force ratio is defined. The setting range differs depending on the electric actuator type. Refer to the operation manual for the electric actuator.
○○	Trigger LV	Condition that turns on the INP output signal. The INP output signal turns on when the generated force exceeds the value. Trigger level should be the pushing force or less.
○	Pushing speed	Pushing speed during pushing. When the speed is set fast, the electric actuator and workpieces might be damaged due to the impact when they hit the end, so this set value should be smaller. Refer to the operation manual for the electric actuator.
○	Moving force	Max. torque during the positioning operation (No specific change is required.)
○	Area 1, Area 2	Condition that turns on the AREA output signal.
○○	In position	Transfer distance during pushing. If the transferred distance exceeds the setting, it stops even if it is not pushing. If the transfer distance is exceeded, the INP output signal will not turn on.

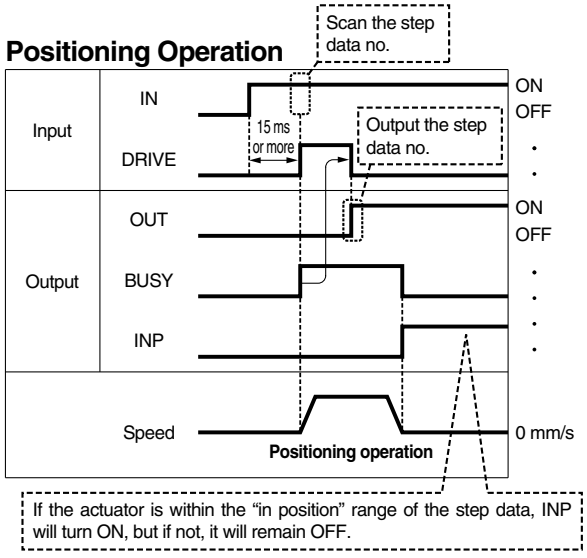
Signal Timing

Return to Origin



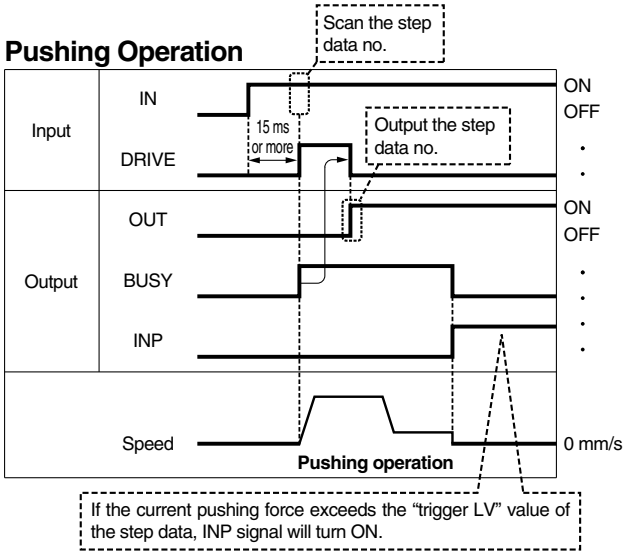
∗ "∗ALARM" and "∗ESTOP" are expressed as negative-logic circuit.

Positioning Operation

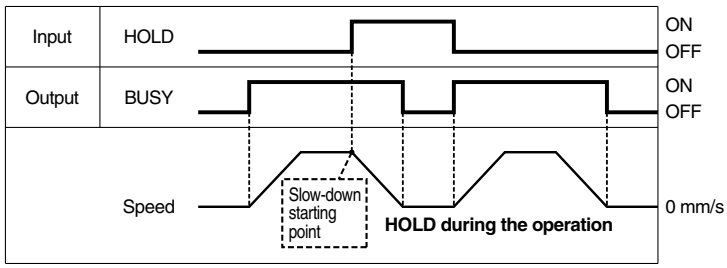


∗ "OUT" is output when "DRIVE" is changed from ON to OFF.
(When power supply is applied, "DRIVE" or "RESET" is turned ON or "∗ESTOP" is turned OFF, all of the "OUT" outputs are OFF.)

Pushing Operation

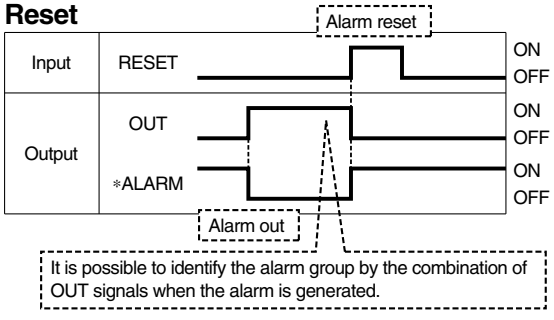


HOLD



∗ When the actuator is in the positioning range in the pushing operation, it does not stop even if HOLD signal is input.

Reset



∗ "∗ALARM" is expressed as negative-logic circuit.

Options: Actuator Cable

[Robotic cable, standard cable for step motor (Servo/24 VDC)]

LE – CP – 1 – □

Cable length (L) [m]

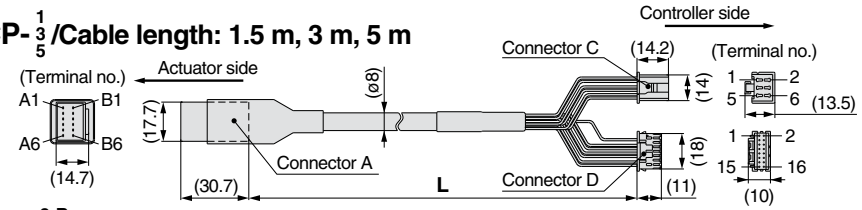
1	1.5
3	3
5	5
8	8*
A	10*
B	15*
C	20*

* Produced upon receipt of order (Robotic cable only)

Cable type

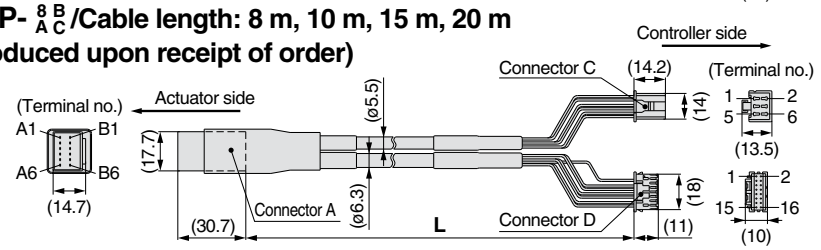
Nil	Robotic cable (Flexible cable)
S	Standard cable

LE-CP- $\begin{smallmatrix}1\\3\\5\end{smallmatrix}$ **/Cable length: 1.5 m, 3 m, 5 m**



LE-CP- $\begin{smallmatrix}8\\A\\C\end{smallmatrix}$ **/Cable length: 8 m, 10 m, 15 m, 20 m**

(* Produced upon receipt of order)



Signal	Connector A terminal no.
A	B-1
$\overline{A}$	A-1
B	B-2
$\overline{B}$	A-2
COM-A/COM	B-3
COM-B/—	A-3
Vcc	B-4
GND	A-4
$\overline{A}$	B-5
A	A-5
$\overline{B}$	B-6
B	A-6

Shield

Cable color	Connector C terminal no.
Brown	2
Red	1
Orange	6
Yellow	5
Green	3
Blue	4

Cable color	Connector D terminal no.
Brown	12
Black	13
Red	7
Black	6
Orange	9
Black	8
—	3

[Robotic cable, standard cable with lock and sensor for step motor (Servo/24 VDC)]

LE – CP – 1 – B – □

Cable length (L) [m]

1	1.5
3	3
5	5
8	8*
A	10*
B	15*
C	20*

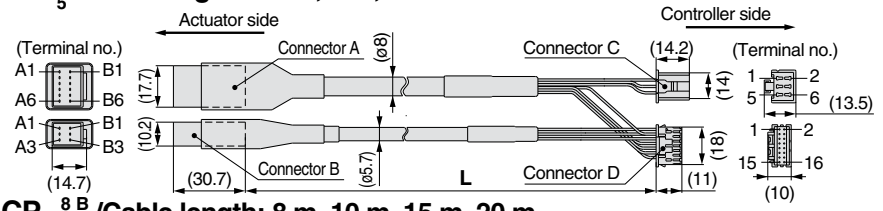
* Produced upon receipt of order (Robotic cable only)

With lock and sensor

Cable type

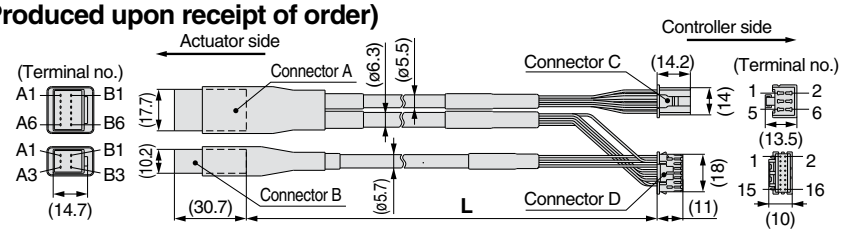
Nil	Robotic cable (Flexible cable)
S	Standard cable

LE-CP- $\begin{smallmatrix}1\\3\\5\end{smallmatrix}$ **/Cable length: 1.5 m, 3 m, 5 m**



LE-CP- $\begin{smallmatrix}8\\A\\C\end{smallmatrix}$ **/Cable length: 8 m, 10 m, 15 m, 20 m**

(* Produced upon receipt of order)



Signal	Connector A terminal no.
A	B-1
$\overline{A}$	A-1
B	B-2
$\overline{B}$	A-2
COM-A/COM	B-3
COM-B/—	A-3
Vcc	B-4
GND	A-4
$\overline{A}$	B-5
A	A-5
$\overline{B}$	B-6
B	A-6

Shield

Cable color	Connector C terminal no.
Brown	2
Red	1
Orange	6
Yellow	5
Green	3
Blue	4

Cable color	Connector D terminal no.
Brown	12
Black	13
Red	7
Black	6
Orange	9
Black	8
—	3

Signal	Connector B terminal no.
Lock (+)	B-1
Lock (–)	A-1
Sensor (+) Note)	B-3
Sensor (–) Note)	A-3

Cable color	Connector D terminal no.
Red	4
Black	5
Brown	1
Blue	2

Note) Not used for the LE series.

[Robotic cable for servo motor (24 VDC)]

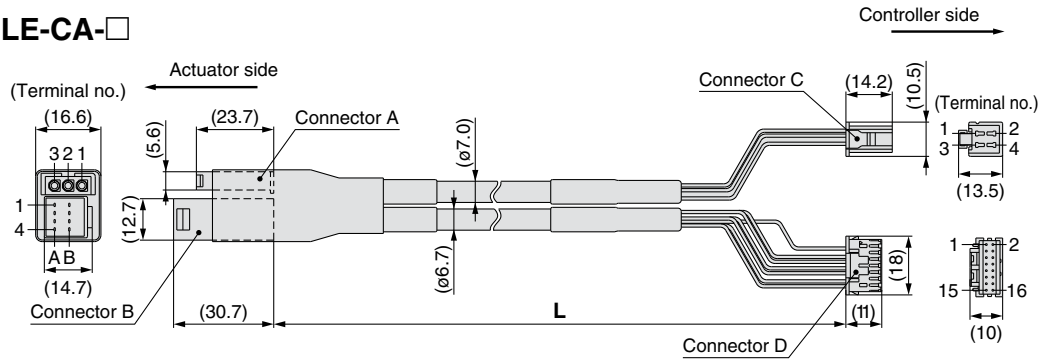
LE − CA − 1

Cable length (L) [m]

1	1.5
3	3
5	5
8	8*
A	10*
B	15*
C	20*

* Produced upon receipt of order

LE-CA-□



Signal	Connector A terminal no.	Cable color	Connector C terminal no.
U	1	Red	1
V	2	White	2
W	3	Black	3

Signal	Connector B terminal no.	Cable color	Connector D terminal no.
Vcc	B-1	Brown	12
GND	A-1	Black	13
$\overline{A}$	B-2	Red	7
A	A-2	Black	6
$\overline{B}$	B-3	Orange	9
B	A-3	Black	8
$\overline{Z}$	B-4	Yellow	11
Z	A-4	Black	10
		—	3

Shield

Connection of shield material

[Robotic cable with lock and sensor for servo motor (24 VDC)]

LE − CA − 1 − B

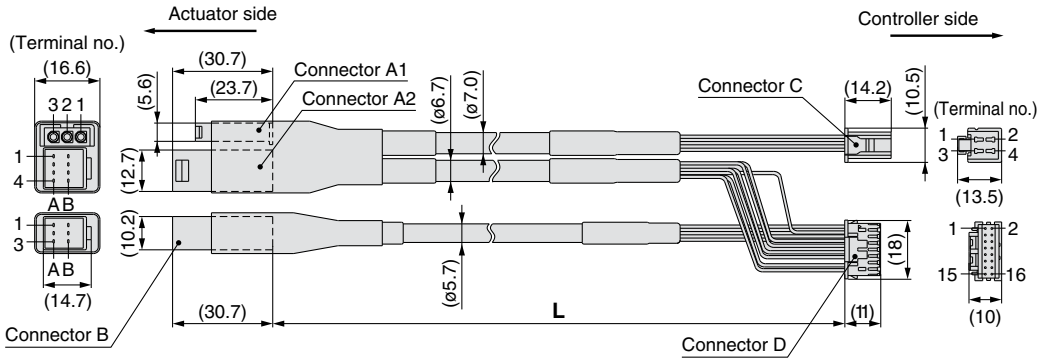
Cable length (L) [m]

1	1.5
3	3
5	5
8	8*
A	10*
B	15*
C	20*

* Produced upon receipt of order

With lock and sensor

LE-CA-□-B



Signal	Connector A1 terminal no.	Cable color	Connector C terminal no.
U	1	Red	1
V	2	White	2
W	3	Black	3

Signal	Connector A2 terminal no.	Cable color	Connector D terminal no.
Vcc	B-1	Brown	12
GND	A-1	Black	13
$\overline{A}$	B-2	Red	7
A	A-2	Black	6
$\overline{B}$	B-3	Orange	9
B	A-3	Black	8
$\overline{Z}$	B-4	Yellow	11
Z	A-4	Black	10
		—	3

Shield

Connection of shield material

Signal	Connector B terminal no.		
Lock (+)	B-1	Red	4
Lock (–)	A-1	Black	5
Sensor (+) Note)	B-3	Brown	1
Sensor (–) Note)	A-3	Black	2

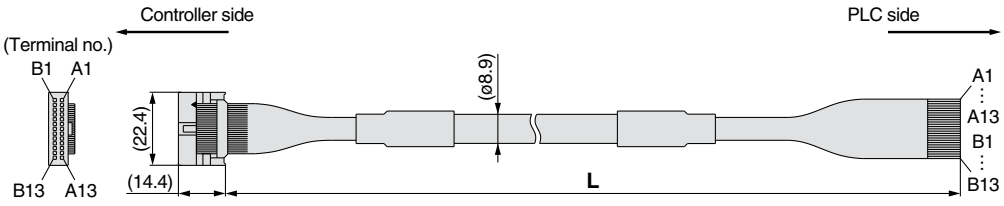
Note) Not used for the LE series.

Option: I/O Cable

LEC − CN5 − 1

Cable length (L) [m]

1	1.5
3	3
5	5



∗ Conductor size: AWG28

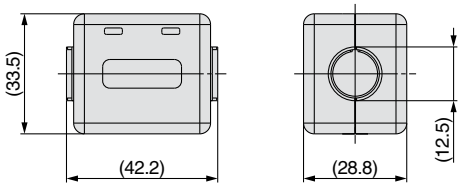
Connector pin no.	Insulation color	Dot mark	Dot color
A1	Light brown	■	Black
A2	Light brown	■	Red
A3	Yellow	■	Black
A4	Yellow	■	Red
A5	Light green	■	Black
A6	Light green	■	Red
A7	Gray	■	Black
A8	Gray	■	Red
A9	White	■	Black
A10	White	■	Red
A11	Light brown	■ ■	Black
A12	Light brown	■ ■	Red
A13	Yellow	■ ■	Black

Connector pin no.	Insulation color	Dot mark	Dot color
B1	Yellow	■ ■	Red
B2	Light green	■ ■	Black
B3	Light green	■ ■	Red
B4	Gray	■ ■	Black
B5	Gray	■ ■	Red
B6	White	■ ■	Black
B7	White	■ ■	Red
B8	Light brown	■ ■ ■	Black
B9	Light brown	■ ■ ■	Red
B10	Yellow	■ ■ ■	Black
B11	Yellow	■ ■ ■	Red
B12	Light green	■ ■ ■	Black
B13	Light green	■ ■ ■	Red
—	Shield		

Option: Noise Filter Set for Servo Motor (24 VDC)

LEC − NFA

Contents of the set: 2 noise filters (Manufactured by WURTH ELEKTRONIK: 74271222)

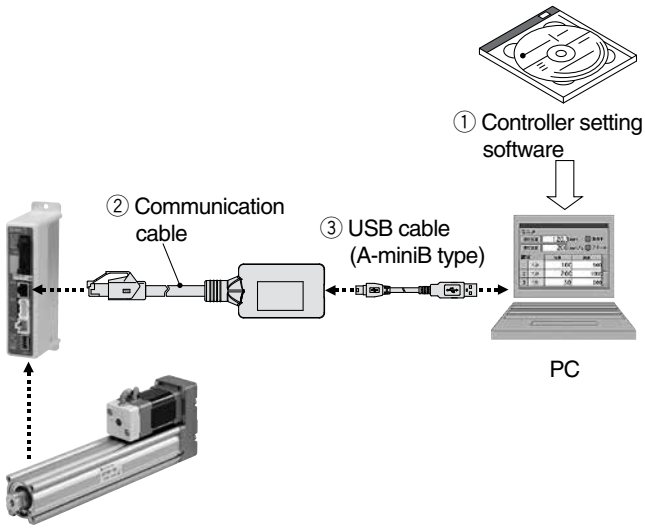


∗ Refer to the LECA6 series Operation Manual for installation.

Series LEC

Windows®XP, Windows®7 compatible

Controller Setting Kit/LEC-W2



How to Order

LEC – W2

Controller setting kit
(Japanese and English are available.)

Contents

① **Controller setting software (CD-ROM)**
② **Communication cable**
③ **USB cable**
(Cable between the PC and the conversion unit)

Compatible Controllers/Driver

Step motor controller (Servo/24 VDC)	**Series LECP6**
Servo motor controller (24 VDC)	**Series LECA6**
Step motor driver (Pulse input type)	**Series LECPA**

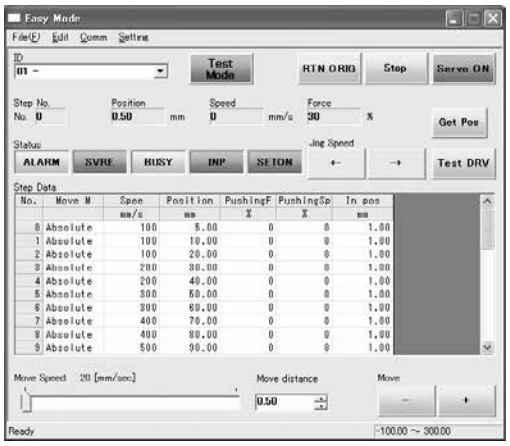
Hardware Requirements

OS	IBM PC/AT compatible machine running Windows®XP (32-bit), Windows®7 (32-bit and 64-bit).
Communication interface	USB 1.1 or USB 2.0 ports
Display	XGA (1024 x 768) or more

∗ Windows® and Windows®7 are registered trademarks of Microsoft Corporation in the United States.
∗ Refer to SMC website for version update information, http://www.smcworld.com

Screen Example

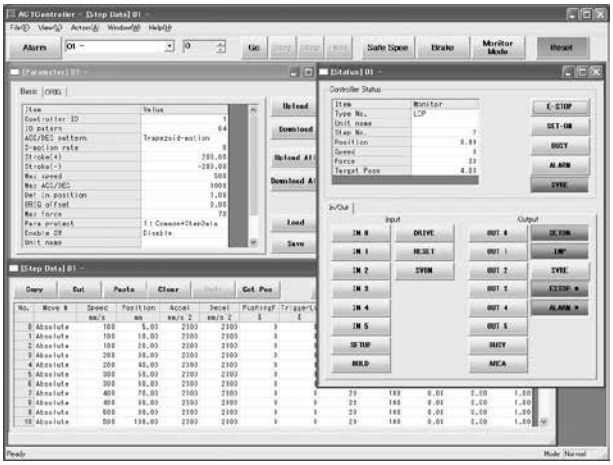
Easy mode screen example



Easy operation and simple setting

- Allowing to set and display actuator step data such as position, speed, force, etc.
- Setting of step data and testing of the drive can be performed on the same page.
- Can be used to jog and move at a constant rate.

Normal mode screen example



Detailed setting

- Step data can be set in detail.
- Signals and terminal status can be monitored.
- Parameters can be set.
- JOG and constant rate movement, return to origin, test operation and testing of forced output can be performed.

Series LEC
Teaching Box/LEC-T1

How to Order

LEC – T1 – 3 J G

Teaching box

Cable length [m]

3	3

Initial language

J	Japanese
E	English

∗ The displayed language can be changed to English or Japanese.

Enable switch

Nil	None
S	Equipped with enable switch

∗ Interlock switch for jog and test function

Stop switch

G	Equipped with stop switch

Standard functions
- **Chinese character display**
- **Stop switch is provided.**

Option
- **Enable switch is provided.**

Specifications

Item	Description
Switch	Stop switch, Enable switch (Option)
Cable length [m]	3
Enclosure	IP64 (Except connector)
Operating temperature range	41 to 122°F (5 to 50°C)
Operating humidity range [%RH]	90 or less (No condensation)
Weight [g]	350 (Except cable)

[CE-compliant products]
The EMC compliance of the teaching box was tested with the LECP6 series step motor controller (servo/24 VDC) and an applicable actuator.
[UL-compliant products]
When conformity to UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.

Easy Mode

Function	Details
Step data	• Setting of step data
Jog	• Jog operation • Return to origin
Test	• 1 step operation • Return to origin
Monitor	• Display of axis and step data no. • Display of two items selected from Position, Speed, Force.
ALM	• Active alarm display • Alarm reset
TB setting	• Reconnection of axis (Ver. 1.∗∗) • Displayed language setting (Ver. 2.∗∗) • Setting of easy/normal mode • Setting step data and selection of items from easy mode monitor

Menu Operations Flowchart

Menu
- Data
- Monitor
- Jog
- Test
- ALM
- TB setting

Data
Step data no.
Setting of two items selected below
Ver. 1.∗∗:
Position, Speed, Force, Acceleration, Deceleration
Ver. 2.∗∗:
Position, Speed, Pushing force, Acceleration, Deceleration, Movement MOD, Trigger LV, Pushing speed, Moving force, Area 1, Area 2, In position

Monitor
Display of step no.
Display of two items selected below
(Position, Speed, Force)

Jog
Return to origin
Jog operation

Test
1 step operation

ALM
Active alarm display
Alarm reset

TB setting
Reconnection of axis (Ver. 1.∗∗)
Japanese/English (Ver. 2.∗∗)
Easy/Normal
Set item

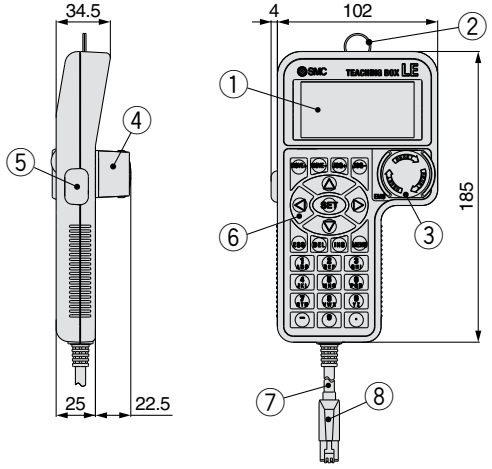
Normal Mode

Function	Details
Step data	• Step data setting
Parameter	• Parameters setting
Test	• Jog operation/Constant rate movement • Return to origin • Test drive (Specify a maximum of 5 step data and operate.) • Forced output (Forced signal output, Forced terminal output)
Monitor	• Drive monitor • Output signal monitor • Input signal monitor • Output terminal monitor • Input terminal monitor
ALM	• Active alarm display (Alarm reset) • Alarm log record display
File	• Data saving Save the step data and parameters of the controller which is being used for communication (it is possible to save four files, with one set of step data and parameters defined as one file). • Load to controller Loads the data which is saved in the teaching box to the controller which is being used for communication. • Delete the saved data. • File protection (Ver. 2.**)
TB setting	• Display setting (Easy/Normal mode) • Language setting (Japanese/English) • Backlight setting • LCD contrast setting • Beep sound setting • Max. connection axis • Distance unit (mm/inch)
Reconnect	• Reconnection of axis

Menu Operations Flowchart

- **Menu**: Step data, Parameter, Monitor, Test, ALM, File, TB setting, Reconnect
- **Step data**: Step data no., Movement MOD, Speed, Position, Acceleration, Deceleration, Pushing force, Trigger LV, Pushing speed, Moving force, Area 1, 2, In position
- **Parameter**: Basic, ORIG
  - **Basic setting**
  - **ORIG setting**
- **Monitor**: Drive, Output signal, Input signal, Output terminal, Input terminal
  - **DRV monitor**: Position, Speed, Torque, Step no., Last step no.
  - **Output signal monitor**
  - **Input signal monitor**
  - **Output terminal monitor**
  - **Input terminal monitor**
- **Test**: JOG/MOVE, Return to ORIG, Test drive, Forced output
- **ALM**: Status, ALM Log record
  - **Status**: Active alarm display, Alarm reset
  - **ALM Log record display**: Log entry display
- **File**: Data saving, Load to controller, File deletion, File protection (Ver. 2.**)
- **TB setting**: Easy/Normal, Language, Backlight, LCD contrast, Beep, Max. connection axis, Password, Distance unit
- **Reconnect**

Dimensions



No.	Description	Function
1	**LCD**	A screen of liquid crystal display (with backlight)
2	**Ring**	A ring for hanging the teaching box
3	**Stop switch**	When switch is pushed in, the switch locks and stops. The lock is released when it is turned to the right.
4	**Stop switch guard**	A guard for the stop switch
5	**Enable switch (Option)**	Prevents unintentional operation (unexpected operation) of the jog test function. Other functions such as data change are not covered.
6	**Key switch**	Switch for each input
7	**Cable**	Length: 3 meters
8	**Connector**	A connector connected to CN4 of the controller

Gateway Unit
Series LEC-G

How to Order

⚠ Caution

[CE-compliant products]
EMC compliance was tested by combining the electric actuator LE series and the controller LE 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.

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

Gateway unit — LEC – G [MJ2] [ ]

Applicable Fieldbus protocols

MJ2	CC-Link Ver. 2.0
DN1	DeviceNet™
PR1	PROFIBUS DP
EN1	EtherNet/IP™

Mounting

Nil	Screw mounting
D Note)	DIN rail mounting

Note) DIN rail is not included. Order it separately.

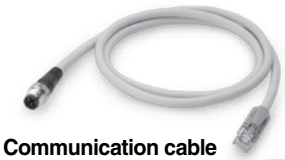
Cable — LEC – CG [1] – [L]

Cable type

1	Communication cable
2	Cable between branches

Cable length

K	0.3 m
L	0.5 m
1	1 m



Communication cable

Cable between branches

Branch connector — LEC – CGD

Branch connector

Terminating resistor — LEC – CGR

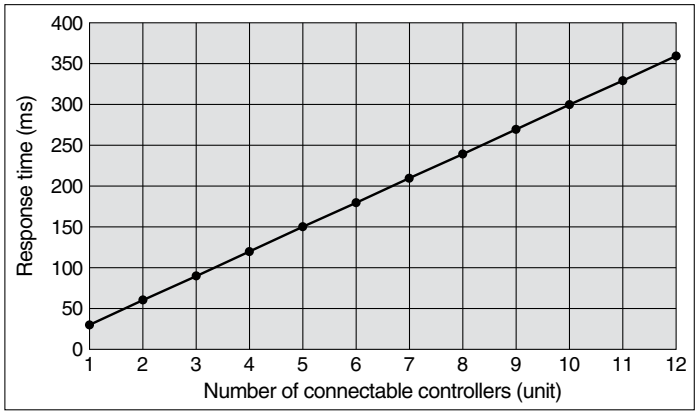
Specifications

Model			LEC-GMJ2□	LEC-GDN1□	LEC-GPR1□	LEC-GEN1□
Communication specifications	Applicable system	Fieldbus	CC-Link	DeviceNet™	PROFIBUS DP	EtherNet/IP™
		Version Note 1)	Ver. 2.0	Release 2.0	V1	Release 1.0
	Communication speed [bps]		156 k/625 k/2.5 M /5 M/10 M	125 k/250 k/500 k	9.6 k/19.2 k/45.45 k/ 93.75 k/187.5 k/500 k/ 1.5 M/3 M/6 M/12 M	10 M/100 M
	Configuration file Note 2)		—	EDS file	GSD file	EDS file
	I/O occupation area		4 stations occupied (8 times setting) Input 896 points 108 words Output 896 points 108 words	Input 200 bytes Output 200 bytes	Input 57 words Output 57 words	Input 256 bytes Output 256 bytes
	Power supply for communication	Power supply voltage [V] Note 6)	—	11 to 25 VDC	—	—
		Internal current consumption [mA]	—	100	—	—
	Communication connector specifications		Connector (Accessory)	Connector (Accessory)	D-sub	RJ45
	Terminating resistor		Not included	Not included	Not included	Not included
Power supply voltage [V] Note 6)			24 VDC ±10%			
Current consumption [mA]	Not connected to teaching box		200			
	Connected to teaching box		300			
EMG output terminal			30 VDC 1 A			
Controller specifications	Applicable controllers		Series LECP6, Series LECA6			
	Communication speed [bps] Note 3)		115.2 k/230.4 k			
	Max. number of connectable controllers Note 4)		12	8 Note 5)	5	12
Accessories			Power supply connector, communication connector		Power supply connector	
Operating temperature range			32 to 104°F (0 to 40°C) (No freezing)			
Operating humidity range [%RH]			90 or less (No condensation)			
Storage temperature range			14 to 10°F (–10 to 60°C) (No freezing)			
Storage humidity range [%RH]			90 or less (No condensation)			
Weight [g]			200 (Screw mounting), 220 (DIN rail mounting)			

Note 1) Please note that the version is subject to change.
Note 2) Each file can be downloaded from the SMC website, http://www.smcworld.com
Note 3) When using a teaching box (LEC-T1-□), set the communication speed to 115.2 kbps.
Note 4) A communication response time for 1 controller is approximately 30 ms.
Refer to "Communication Response Time Guideline" for response times when several controllers are connected.
Note 5) For step data input, up to 12 controllers connectable.
Note 6) When conformity to UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.

Communication Response Time Guideline

Response time between gateway unit and controllers depends on the number of controllers connected to the gateway unit.
For response time, refer to the graph below.

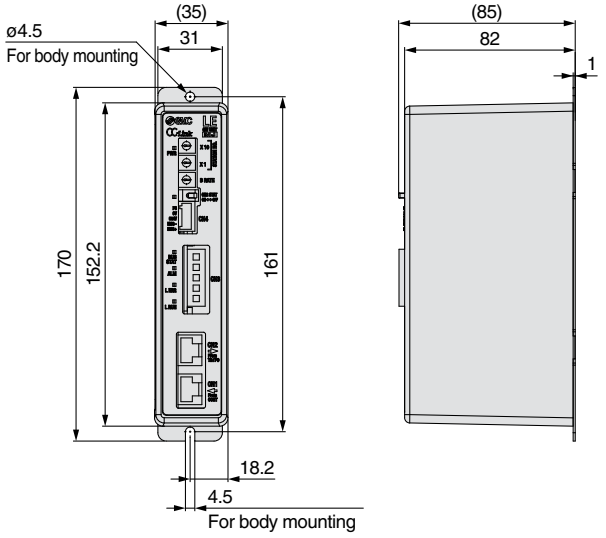


∗ This graph shows delay times between gateway unit and controllers.
Fieldbus network delay time is not included.

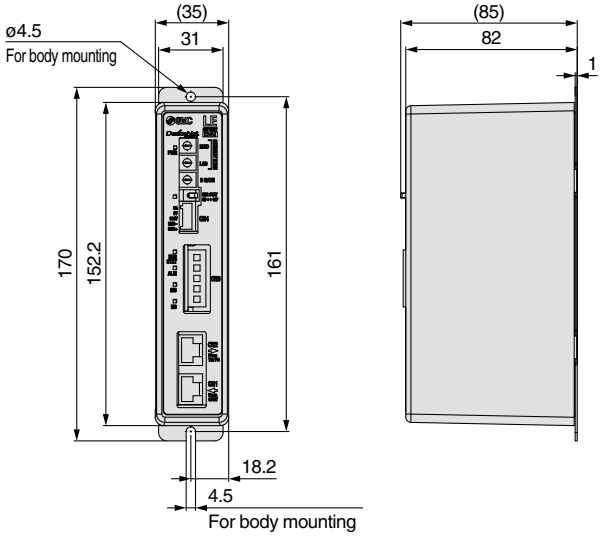
Dimensions

Screw mounting (LEC-G□□□)

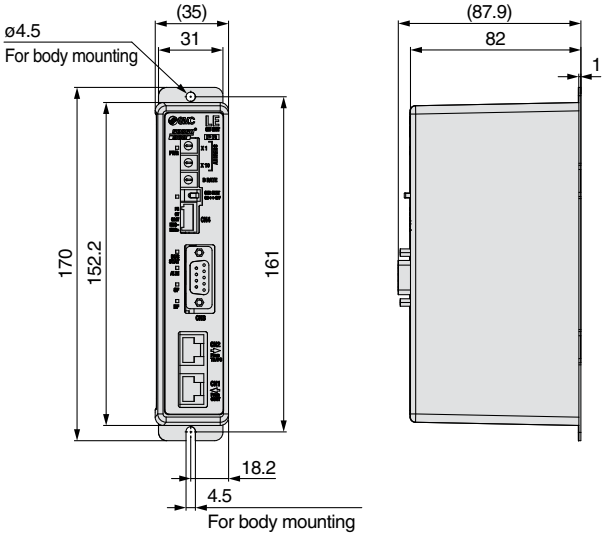
Applicable Fieldbus protocol: CC-Link Ver. 2.0



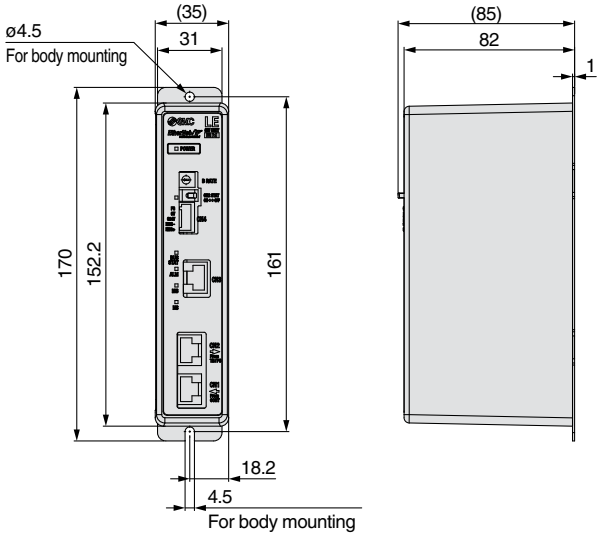
Applicable Fieldbus protocol: DeviceNet™



Applicable Fieldbus protocol: PROFIBUS DP



Applicable Fieldbus protocol: EtherNet/IP™

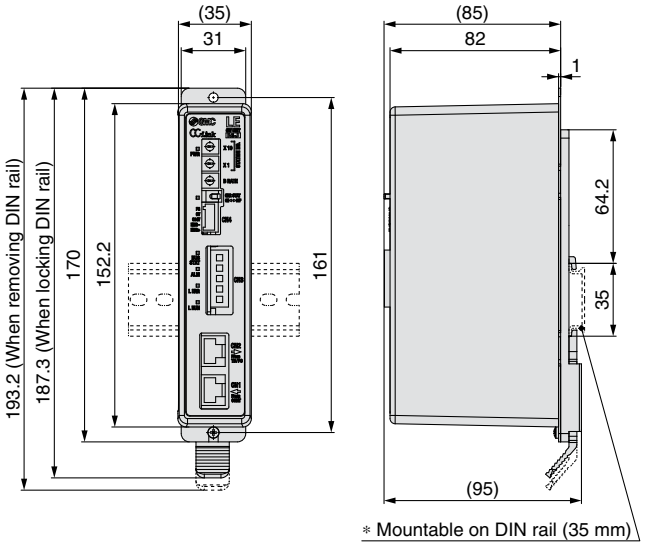


■ **Trademark** DeviceNet™ is a trademark of ODVA. EtherNet/IP™ is a trademark of ODVA.

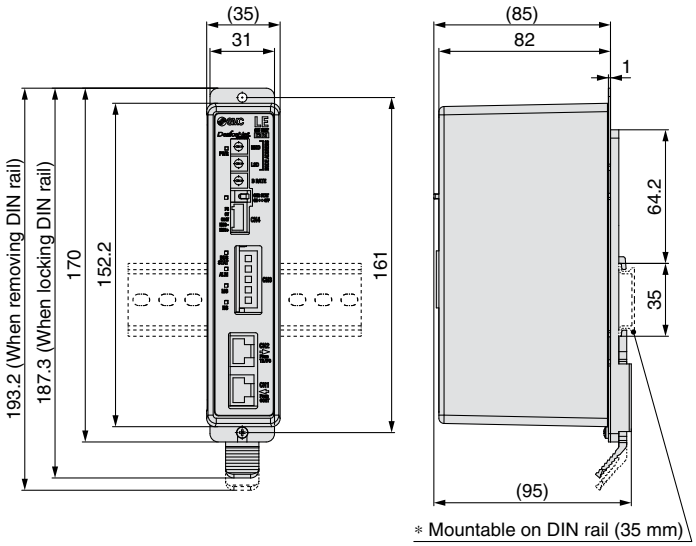
Dimensions

DIN rail mounting (LEC-G□□□D)

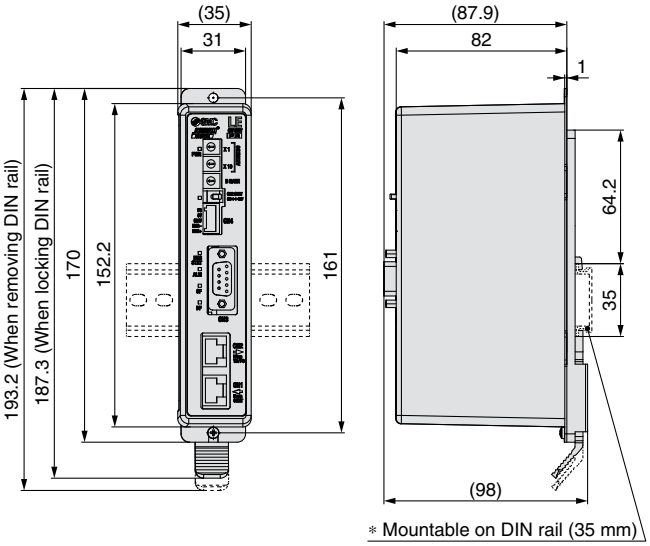
Applicable Fieldbus protocol: CC-Link Ver. 2.0



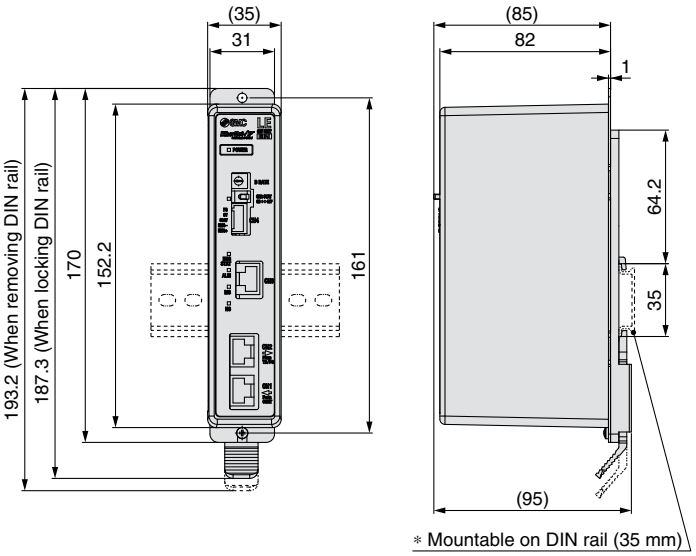
Applicable Fieldbus protocol: DeviceNet™



Applicable Fieldbus protocol: PROFIBUS DP

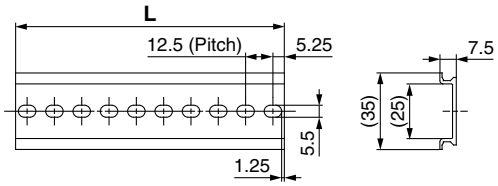


Applicable Fieldbus protocol: EtherNet/IP™



DIN rail
AXT100-DR-□

∗ For □, enter a number from the "No." line in the table below.
Refer to the dimensions above for the mounting dimensions.



L Dimension [mm]

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L	23	35.5	48	60.5	73	85.5	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5	223	235.5	248	260.5

No.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
L	273	285.5	298	310.5	323	335.5	348	360.5	373	385.5	398	410.5	423	435.5	448	460.5	473	485.5	498	510.5

Programless Controller

Series LECP1

How to Order

LE C P 1 N 1 ☐ – LEY16B-100

Controller

Compatible motor

P	Step motor (Servo/24 VDC)

Number of step data (Points)

1	14 (Programless)

Parallel I/O type

N	NPN
P	PNP

I/O cable length [m]

Nil	Without cable
1	1.5
3	3
5	5

Option

Nil	Screw mounting
D Note)	DIN rail mounting

Note) DIN rail is not included. Order it separately.

Actuator part number

(Except cable specifications and actuator options)
Example: Enter "LEY16B-100" for the LEY16B-100B-R11N1.

∗ **When controller equipped type is selected when ordering the LE series, you do not need to order this controller.**

⚠Caution

[CE-compliant products]
EMC compliance was tested by combining the electric actuator LEY 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.
[UL-compliant products]
When conformity to UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.

The controller is sold as single unit after the compatible actuator is set.
Confirm that the combination of the controller and the actuator is correct.

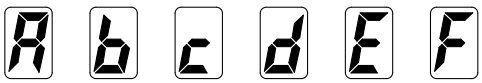
∗ Refer to the operation manual for using the products. Please download it via our website, http://www.smcworld.com

Specifications

Basic Specifications

Item	LECP1
Compatible motor	Step motor (Servo/24 VDC)
Power supply Note 1)	Power supply voltage: 24 VDC ±10%, Max. current consumption: 3A (Peak 5A) Note 2) [Including the motor drive power, control power supply, stop, lock release]
Parallel input	6 inputs (Photo-coupler isolation)
Parallel output	6 outputs (Photo-coupler isolation)
Stop points	14 points (Position number 1 to 14(E))
Compatible encoder	Incremental A/B phase (800 pulse/rotation)
Memory	EEPROM
LED indicator	LED (Green/Red) one of each
7-segment LED display Note 3)	1 digit, 7-segment display (Red) Figures are expressed in hexadecimal ("10" to "15" in decimal number are expressed as "A" to "F")
Lock control	Forced-lock release terminal Note 4)
Cable length [m]	I/O cable: 5 or less, Actuator cable: 20 or less
Cooling system	Natural air cooling
Operating temperature range	0 to 40 (No freezing)
Operating humidity range [%RH]	90 or less (No condensation)
Storage temperature range	–10 to 60 (No freezing)
Storage humidity range [%RH]	90 or less (No condensation)
Insulation resistance [MΩ]	Between the housing and SG terminal: 50 (500 VDC)
Weight [g]	130 (Screw mounting), 150 (DIN rail mounting)

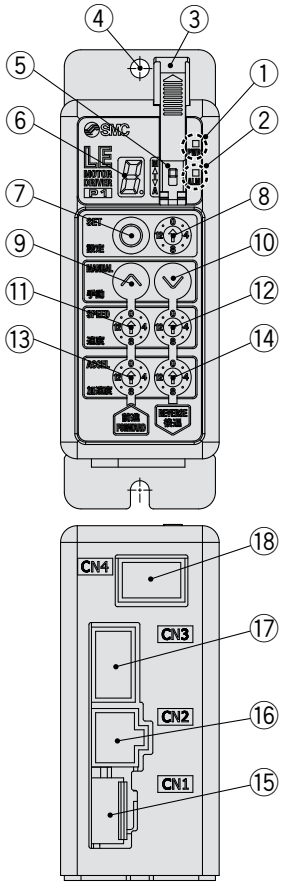
Note 1) Do not use the power supply of "inrush current prevention type" for the controller input power supply. When conformity to UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.
Note 2) The power consumption changes depending on the actuator model. Refer to the each actuator's operation manual etc. for details.
Note 3) "10" to "15" in decimal number are displayed as follows in the 7-segment LED.



Decimal display	10	11	12	13	14	15
Hexadecimal display	A	b	c	d	E	F

Note 4) Applicable to non-magnetizing lock.

Controller Details



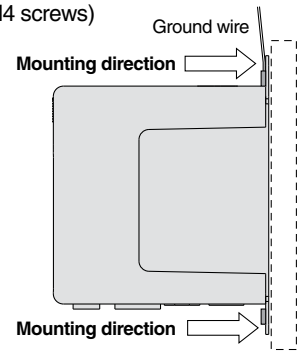
No.	Display	Description	Details
①	**PWR**	Power supply LED	Power supply ON/Servo ON : Green turns on Power supply ON/Servo OFF: Green flashes
②	**ALM**	Alarm LED	With alarm : Red turns on Parameter setting : Red flashes
③	—	Cover	Change and protection of the mode switch (Close the cover after changing switch)
④	—	FG	Frame ground (Tighten the bolt with the nut when mounting the controller. Connect the ground wire.)
⑤	—	Mode switch	Switch the mode between manual and auto.
⑥	—	7-segment LED	Stop position, the value set by ⑧ and alarm information are displayed.
⑦	**SET**	Set button	Decide the settings or drive operation in Manual mode.
⑧	—	Position selecting switch	Assign the position to drive (1 to 14), and the origin position (15).
⑨	**MANUAL**	Manual forward button	Perform forward jog and inching.
⑩		Manual reverse button	Perform reverse jog and inching.
⑪	**SPEED**	Forward speed switch	16 forward speeds are available.
⑫		Reverse speed switch	16 reverse speeds are available.
⑬	**ACCEL**	Forward acceleration switch	16 forward acceleration steps are available.
⑭		Reverse acceleration switch	16 reverse acceleration steps are available.
⑮	**CN1**	Power supply connector	Connect the power supply cable.
⑯	**CN2**	Motor connector	Connect the motor connector.
⑰	**CN3**	Encoder connector	Connect the encoder connector.
⑱	**CN4**	I/O connector	Connect I/O cable.

How to Mount

Controller mounting shown below.

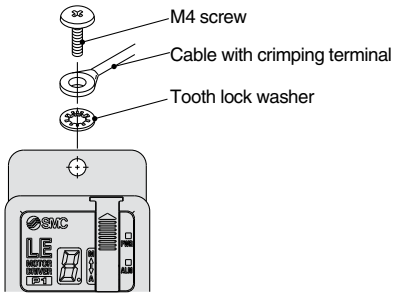
1. Mounting screw (LECP1□□-□)

(Installation with two M4 screws)



2. Grounding

Tighten the bolt with the nut when mounting the ground wire as shown below.



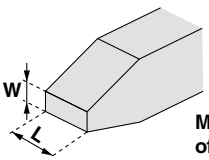
Controller

Note) When size 25 or more of the LEY series are used, the space between the controllers should be 10 mm or more.

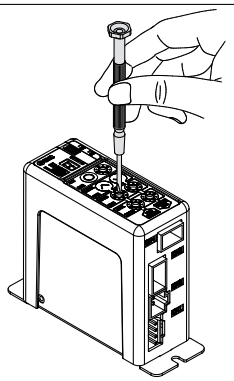
⚠Caution

- M4 screws, cable with crimping terminal and tooth lock washer are not included. Be sure to carry out grounding earth in order to ensure the noise tolerance.
- Use a watchmaker's screwdriver of the size shown below when changing position switch ⑧ and the set value of the speed/acceleration switch ⑪ to ⑭.

Size
End width **L**: 2.0 to 2.4 [mm]
End thickness **W**: 0.5 to 0.6 [mm]

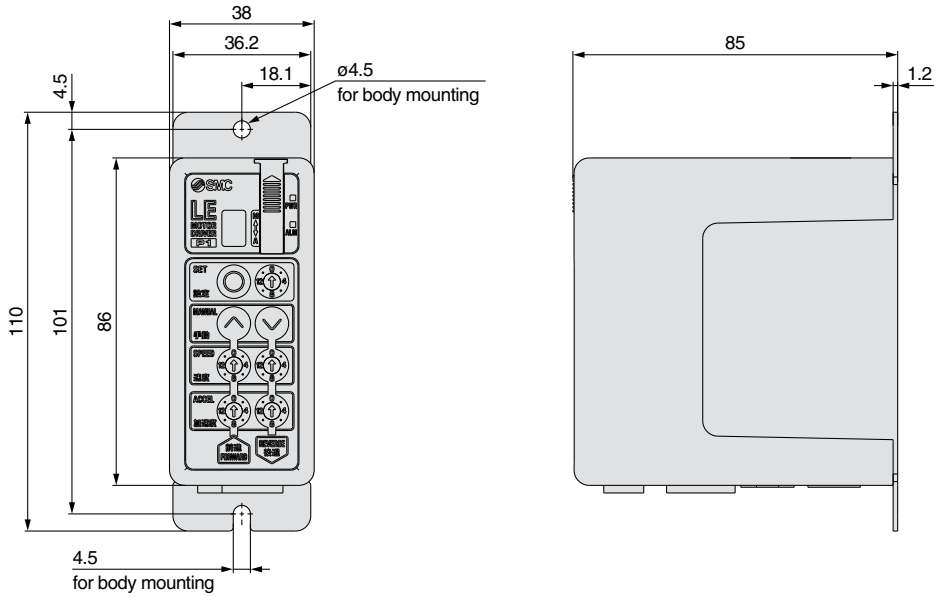


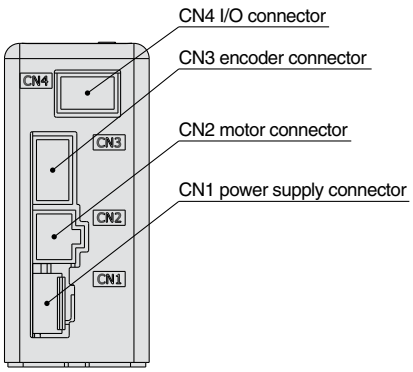
Magnified view of the end of the screwdriver



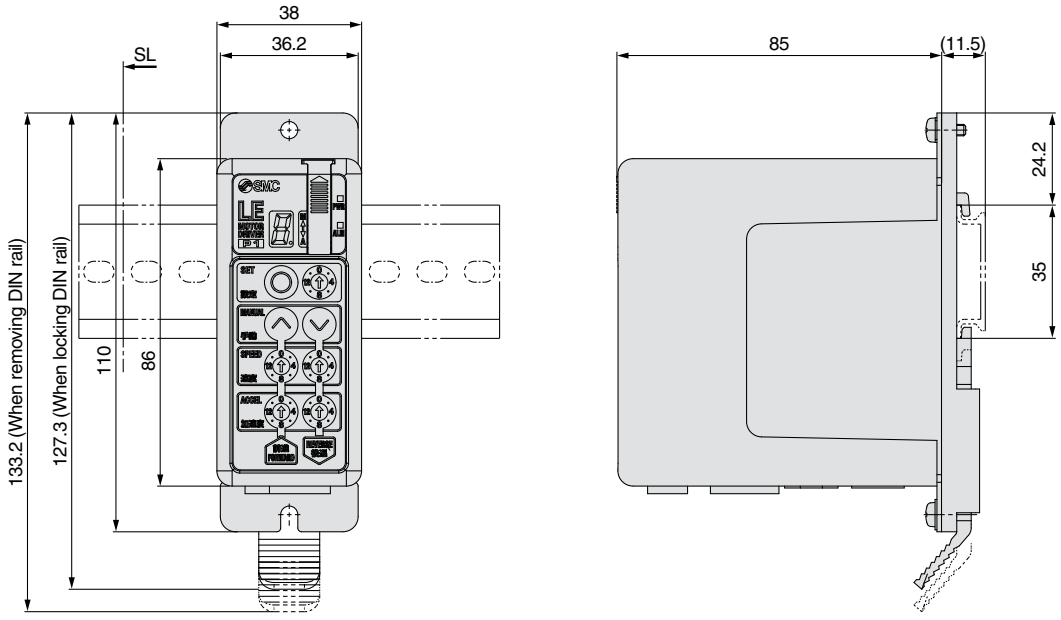
Dimensions

Screw mounting (LEC□1□□-□)





DIN rail mounting (LEC□1□□D-□)



Wiring Example 1

Power Supply Connector: CN1

* When you connect a CN1 power supply connector, please use the power supply cable (LEC-CK1-1).
* Power supply cable (LEC-CK1-1) is an accessory.

CN1 Power Supply Connector Terminal for LECP1

Terminal name	Cable color	Function	Details
0V	Blue	Common supply (–)	M24V terminal/C24V terminal/BK RLS terminal are common (–).
M24V	White	Motor power supply (+)	Motor power supply (+) supplied to the controller
C24V	Brown	Control power supply (+)	Control power supply (+) supplied to the controller
BK RLS	Black	Lock release (+)	Input (+) for releasing the lock

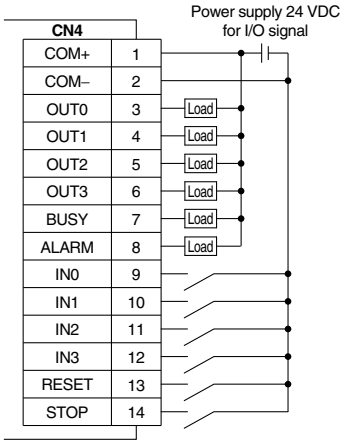
Power supply cable for LECP1 (LEC-CK1-1)

Wiring Example 2

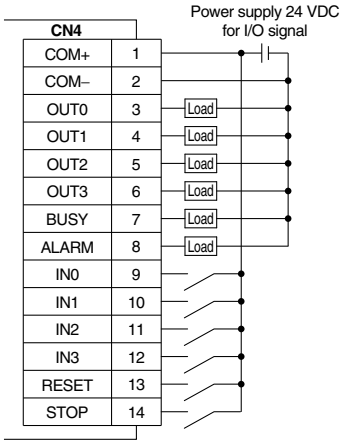
Parallel I/O Connector: CN4

* When you connect a PLC, etc., to the CN4 parallel I/O connector, please use the I/O cable (LEC-CK4-□).
* The wiring should be changed depending on the type of the parallel I/O (NPN or PNP).

■ NPN



■ PNP



Input Signal

Name	Details
COM+	Connects the power supply 24 V for input/output signal
COM–	Connects the power supply 0 V for input/output signal
IN0 to IN3	• Instruction to drive (input as a combination of IN0 to IN3) • Instruction to return to origin (IN0 to IN3 all ON simultaneously) Example - (instruction to drive for position no. 5) IN3: OFF, IN2: ON, IN1: OFF, IN0: ON
RESET	Alarm reset and operation interruption During operation: deceleration stop from position at which signal is input (servo ON maintained) While alarm is active: alarm reset
STOP	Instruction to stop (after maximum deceleration stop, servo OFF)

Output Signal

Name	Details
OUT0 to OUT3	Turns on when the positioning or pushing is completed. (Output is instructed in the combination of OUT0 to 3.) Example - (operation complete for position no. 3) OUT3: OFF, OUT2: OFF, OUT1: ON, OUT0: ON
BUSY	Outputs when the actuator is moving
*ALARM Note)	Not output when alarm is active or servo OFF

Note) Signal of negative-logic circuit (N.C.)

Input Signal [IN0 - IN3] Position Number Chart ○: OFF ●: ON

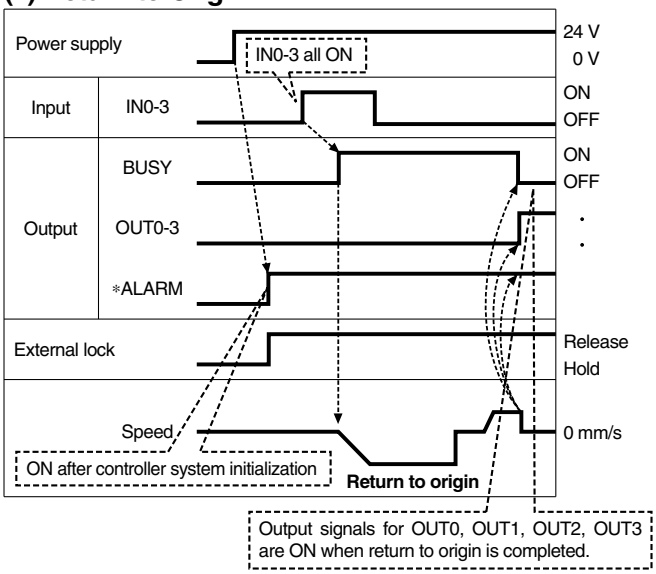
Position number	IN3	IN2	IN1	IN0
1	○	○	○	●
2	○	○	●	○
3	○	○	●	●
4	○	●	○	○
5	○	●	○	●
6	○	●	●	○
7	○	●	●	●
8	●	○	○	○
9	●	○	○	●
10 (A)	●	○	●	○
11 (B)	●	○	●	●
12 (C)	●	●	○	○
13 (D)	●	●	○	●
14 (E)	●	●	●	○
Retun to origin	●	●	●	●

Output Signal [OUT0 - OUT3] Position Number Chart ○: OFF ●: ON

Position number	OUT3	OUT2	OUT1	OUT0
1	○	○	○	●
2	○	○	●	○
3	○	○	●	●
4	○	●	○	○
5	○	●	○	●
6	○	●	●	○
7	○	●	●	●
8	●	○	○	○
9	●	○	○	●
10 (A)	●	○	●	○
11 (B)	●	○	●	●
12 (C)	●	●	○	○
13 (D)	●	●	○	●
14 (E)	●	●	●	○
Retun to origin	●	●	●	●

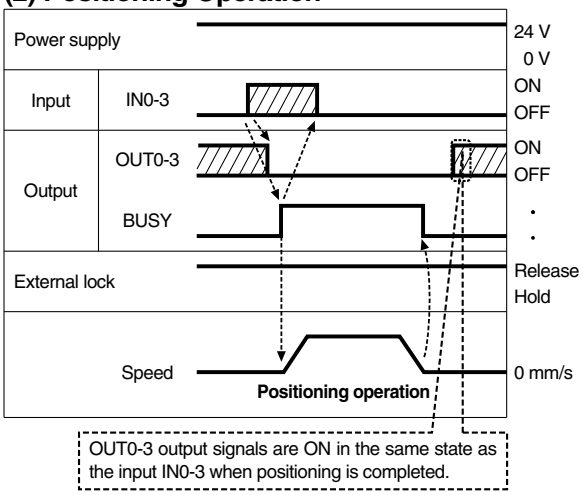
Signal Timing

(1) Return to Origin

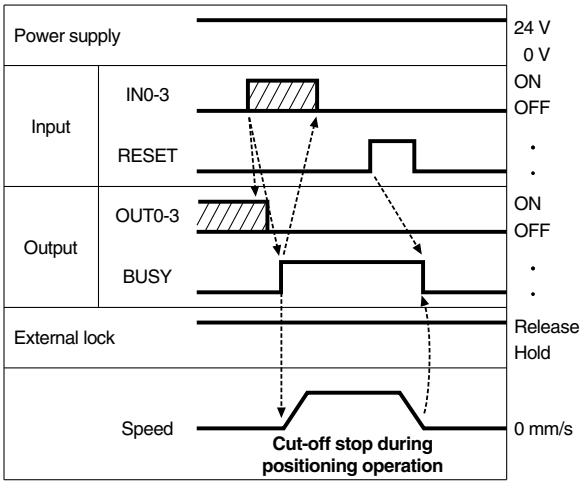


∗ "∗ALARM" is expressed as negative-logic circuit.

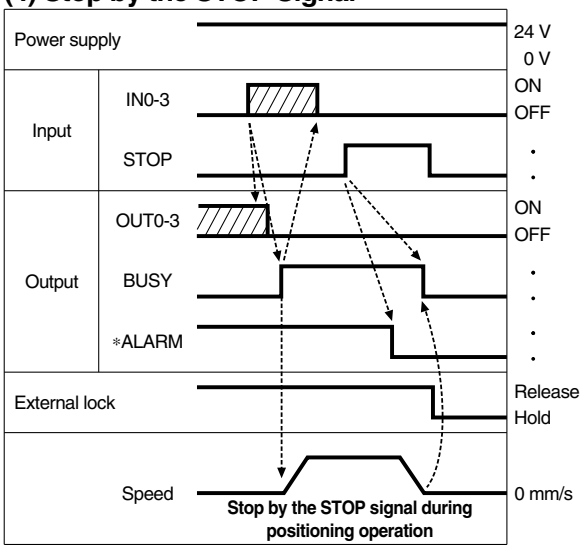
(2) Positioning Operation



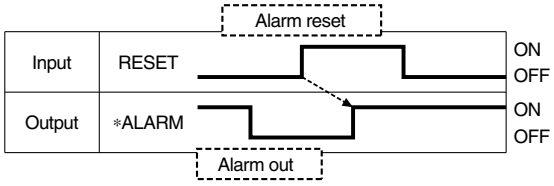
(3) Cut-off Stop (Reset Stop)



(4) Stop by the STOP Signal



(5) Alarm Reset



∗ "∗ALARM" is expressed as negative-logic circuit.

Options: Actuator Cable

[Robotic cable, standard cable for step motor (Servo/24 VDC)]

LE – CP – 1 – ☐

Cable length (L) [m]

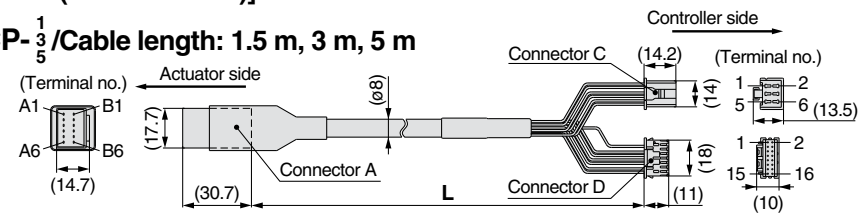
1	1.5
3	3
5	5
8	8*
A	10*
B	15*
C	20*

∗ Produced upon receipt of order (Robotic cable only)

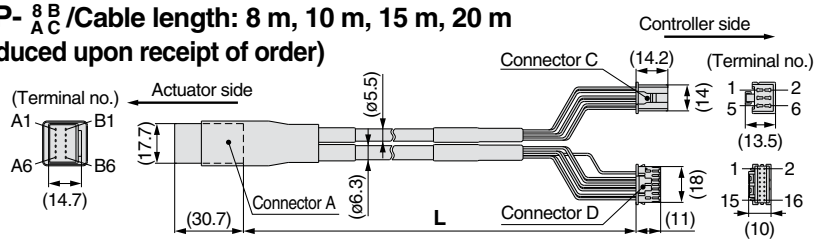
Cable type

Nil	Robotic cable (Flexible cable)
S	Standard cable

LE-CP-1/3/5 /Cable length: 1.5 m, 3 m, 5 m



LE-CP-8/A/C /Cable length: 8 m, 10 m, 15 m, 20 m
(∗ Produced upon receipt of order)



Signal	Connector A terminal no.	Cable color	Connector C terminal no.
A	B-1	Brown	2
$\overline{A}$	A-1	Red	1
B	B-2	Orange	6
$\overline{B}$	A-2	Yellow	5
COM-A/COM	B-3	Green	3
COM-B/—	A-3	Blue	4
		Shield	
Vcc	B-4	Brown	12
GND	A-4	Black	13
$\overline{A}$	B-5	Red	7
A	A-5	Black	6
$\overline{B}$	B-6	Orange	9
B	A-6	Black	8
		—	3

Cable color	Connector D terminal no.
Brown	12
Black	13
Red	7
Black	6
Orange	9
Black	8
—	3

[Robotic cable, standard cable with lock and sensor for step motor (Servo/24 VDC)]

LE – CP – 1 – B – ☐

Cable length (L) [m]

1	1.5
3	3
5	5
8	8*
A	10*
B	15*
C	20*

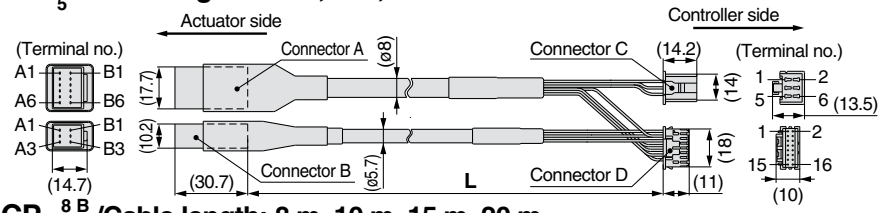
∗ Produced upon receipt of order (Robotic cable only)

With lock and sensor

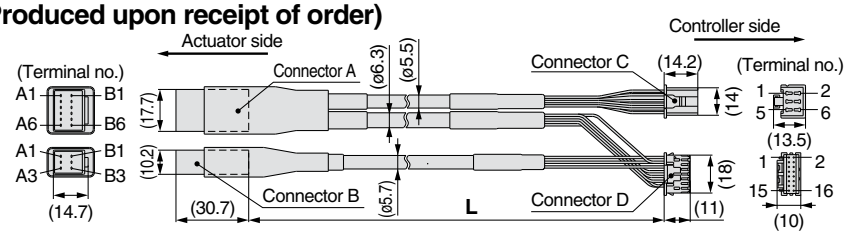
Cable type

Nil	Robotic cable (Flexible cable)
S	Standard cable

LE-CP-1/3/5 /Cable length: 1.5 m, 3 m, 5 m



LE-CP-8/A/C /Cable length: 8 m, 10 m, 15 m, 20 m
(∗ Produced upon receipt of order)



Signal	Connector A terminal no.	Cable color	Connector C terminal no.
A	B-1	Brown	2
$\overline{A}$	A-1	Red	1
B	B-2	Orange	6
$\overline{B}$	A-2	Yellow	5
COM-A/COM	B-3	Green	3
COM-B/—	A-3	Blue	4
		Shield	
Vcc	B-4	Brown	12
GND	A-4	Black	13
$\overline{A}$	B-5	Red	7
A	A-5	Black	6
$\overline{B}$	B-6	Orange	9
B	A-6	Black	8
		—	3

Cable color	Connector D terminal no.
Brown	12
Black	13
Red	7
Black	6
Orange	9
Black	8
—	3

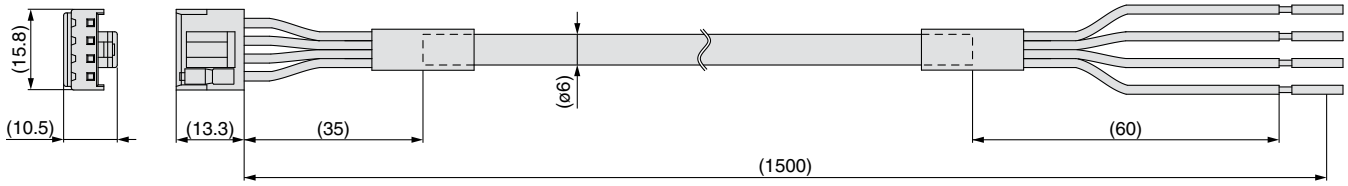
Signal	Connector B terminal no.	Cable color	Connector C terminal no.
Lock (+)	B-1	Red	4
Lock (–)	A-1	Black	5
Sensor (+) Note)	B-3	Brown	1
Sensor (–) Note)	A-3	Blue	2

Note) Not used for the LE series.

Options

[Power supply cable]

LEC−CK1−1



Terminal name	Covered color	Function
0V	Blue	Common supply (−)
M24V	White	Motor power supply (+)
C24V	Brown	Control power supply (+)
BK RLS	Black	Lock release (+)

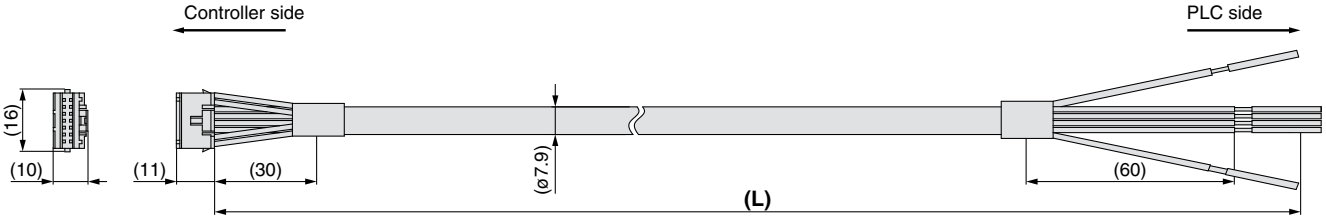
∗ Conductor size: AWG20

[I/O cable]

LEC−CK4−□

Cable length (L) [m]

1	1.5
3	3
5	5



Terminal no.	Insulation color	Dot mark	Dot color	Function
1	Light brown	■	Black	COM+
2	Light brown	■	Red	COM−
3	Yellow	■	Black	OUT0
4	Yellow	■	Red	OUT1
5	Light green	■	Black	OUT2
6	Light green	■	Red	OUT3
7	Gray	■	Black	BUSY
8	Gray	■	Red	ALARM
9	White	■	Black	IN0
10	White	■	Red	IN1
11	Light brown	■ ■	Black	IN2
12	Light brown	■ ■	Red	IN3
13	Yellow	■ ■	Black	RESET
14	Yellow	■ ■	Red	STOP

∗ Conductor size: AWG26

∗ Parallel I/O signal is valid in auto mode. While the test function operates at manual mode, only the output is valid.

Step Motor Driver
Series LECPA

How to Order

LECP [AN] [1] [ ] – [LEY16B-100]

Driver type

AN	Pulse input type (NPN)
AP	Pulse input type (PNP)

Driver mounting

Nil	Screw mounting
D Note)	DIN rail mounting

Note) DIN rail is not included. Order it separately.

I/O cable length [m]

Nil	None
1	1.5
3	3*
5	5*

* Pulse input usable only with differential. Only 1.5 m cables usable with open collector.

Actuator part number

(Except cable specifications and actuator options)
Example: Enter "LEY16B-100" for the LEY16B-100B-R1AN1D.

* When controller equipped type is selected when ordering the LE series, you do not need to order this driver.

⚠Caution

[CE-compliant products]

① EMC compliance was tested by combining the electric actuator LE series and the LECPA 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 For the LECPA series (step motor driver), EMC compliance was tested by installing a noise filter set (LEC-NFA).
Refer to page 76 for the noise filter set. Refer to the LECPA Operation Manual for installation.

[UL-compliant products]

When conformity to UL is required, the electric actuator and driver should be used with a UL1310 Class 2 power supply.

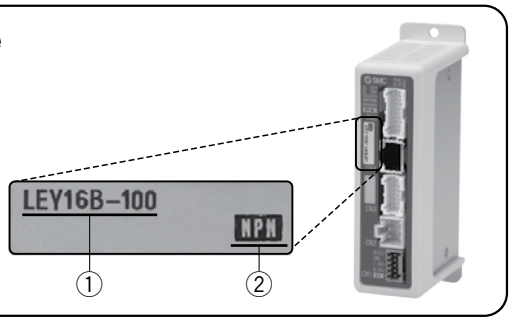
The driver is sold as single unit after the compatible actuator is set.

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

<Check the following before use.>

① Check the actuator label for model number.
This matches the driver.

② Check Parallel I/O configuration matches (NPN or PNP).



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

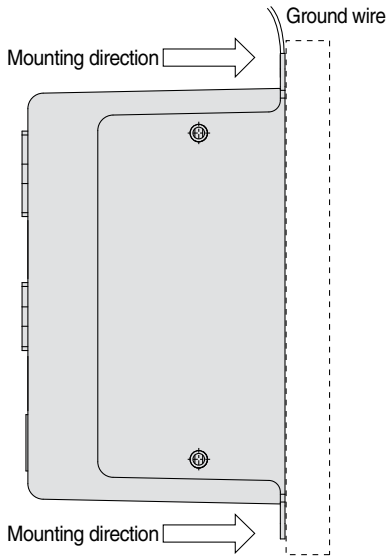
Specifications

Item	LECPA
Compatible motor	Step motor (Servo/24 VDC)
Power supply Note 1)	Power voltage: 24 VDC ±10% Maximum current consumption: 3 A (Peak 5 A) Note 2) [Including motor drive power, control power, stop, lock release]
Parallel input	5 inputs (Except photo-coupler isolation, pulse input terminal, COM terminal)
Parallel output	9 outputs (Photo-coupler isolation)
Pulse signal input	Maximum frequency: 60 kpps (Open collector), 200 kpps (Differential) Input method: 1 pulse mode (Pulse input in direction), 2 pulse mode (Pulse input in differing directions)
Compatible encoder	Incremental A/B phase (Encoder resolution: 800 pulse/rotation)
Serial communication	RS485 (Modbus protocol compliant)
Memory	EEPROM
LED indicator	LED (Green/Red) one of each
Lock control	Forced-lock release terminal Note 3)
Cable length [m]	I/O cable: 1.5 or less (Open collector), 5 or less (Differential) Actuator cable: 20 or less
Cooling system	Natural air cooling
Operating temperature range	32 to 40°F (0 to 40°C) (No freezing)
Operating humidity range [%RH]	90 or less (No condensation)
Storage temperature range	14 to 140°F (–10 to 60°C) (No freezing)
Storage humidity range [%RH]	90 or less (No condensation)
Insulation resistance [MΩ]	Between the housing and SG terminal: 50 (500 VDC)
Weight [g]	120 (Screw mounting), 140 (DIN rail mounting)

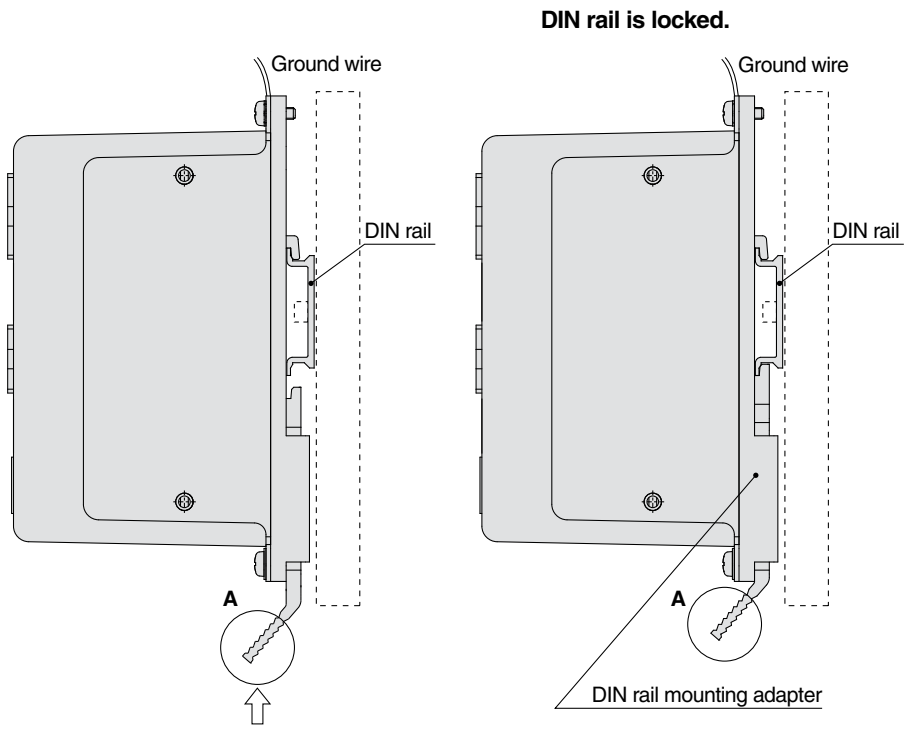
Note 1) Do not use the power supply of "inrush current prevention type" for the driver power supply. When conformity to UL is required, the electric actuator and driver should be used with a UL1310 Class 2 power supply.
Note 2) The power consumption changes depending on the actuator model. Refer to the specifications of actuator for more details.
Note 3) Applicable to non-magnetizing lock.

How to Mount

a) Screw mounting (LECPA□□-□) (Installation with two M4 screws)



b) DIN rail mounting (LECPA□□D-□) (Installation with the DIN rail)

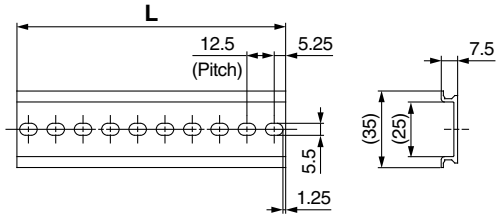


Hook the driver on the DIN rail and press the lever of section **A** in the arrow direction to lock it.

Note) The space between the drivers should be 10 mm or more.

DIN rail
AXT100-DR-□

∗ For □, enter a number from the "No." line in the table below.
Refer to the dimensions on page 72 for the mounting dimensions.



L Dimension [mm]

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L	23	35.5	48	60.5	73	85.5	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5	223	235.5	248	260.5

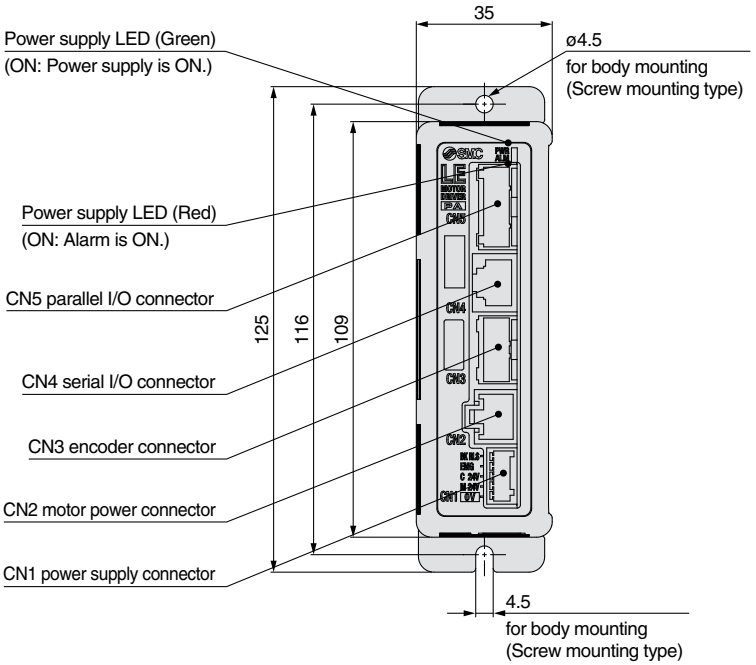
No.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
L	273	285.5	298	310.5	323	335.5	348	360.5	373	385.5	398	410.5	423	435.5	448	460.5	473	485.5	498	510.5

DIN rail mounting adapter
LEC-2-D0 (with 2 mounting screws)

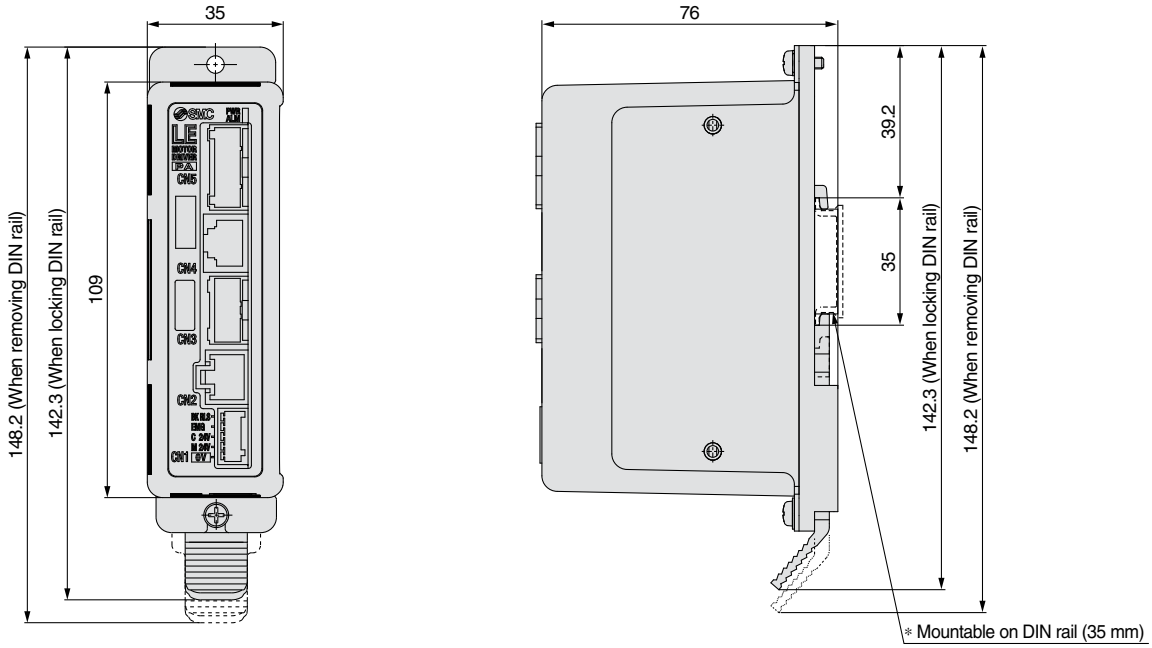
This should be used when the DIN rail mounting adapter is mounted onto the screw mounting type driver afterwards.

Dimensions

a) Screw mounting (LECPA□□-□)



b) DIN rail mounting (LECPA□□D-□)



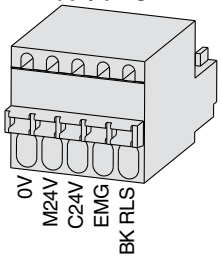
Wiring Example 1

Power Supply Connector: CN1 * Power supply plug is an accessory.

CN1 Power Supply Connector Terminal for LECPA (PHOENIX CONTACT FK-MC0.5/5-ST-2.5)

Terminal name	Function	Details
0V	Common supply (–)	M24V terminal/C24V terminal/EMG terminal/BK RLS terminal are common (–).
M24V	Motor power supply (+)	Motor power supply (+) supplied to the driver
C24V	Control power supply (+)	Control power supply (+) supplied to the driver
EMG	Stop (+)	Input (+) for releasing the stop
BK RLS	Lock release (+)	Input (+) for releasing the lock

Power supply plug for LECPA



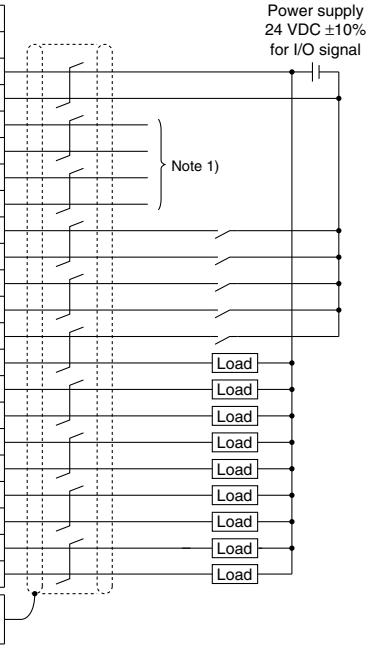
Wiring Example 2

Parallel I/O Connector: CN5

∗ When you connect a PLC, etc., to the CN5 parallel I/O connector, please use the I/O cable (LEC-CL5-□).
∗ The wiring should be changed depending on the type of the parallel I/O (NPN or PNP).

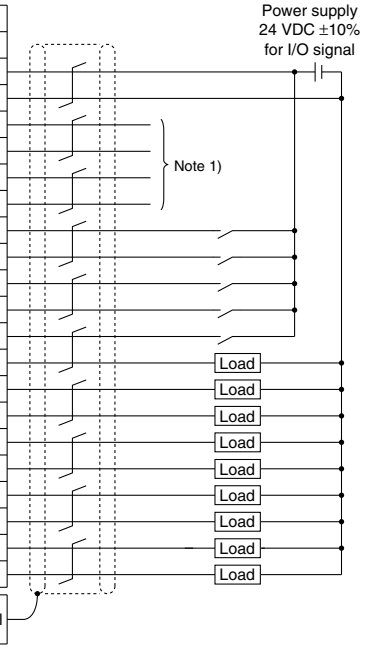
LECPAN□□-□ (NPN)

CN5		
Terminal name	Function	Pin no.
COM+	24 V	1
COM–	0 V	2
NP+	Pulse signal	3
NP–	Pulse signal	4
PP+	Pulse signal	5
PP–	Pulse signal	6
SETUP	Input	7
RESET	Input	8
SVON	Input	9
CLR	Input	10
TL	Input	11
TLOUT	Output	12
WAREA	Output	13
BUSY	Output	14
SETON	Output	15
INP	Output	16
SVRE	Output	17
∗ESTOP Note 2)	Output	18
∗ALARM Note 2)	Output	19
AREA	Output	20
FG	Round terminal 0.5-5	



LECPAP□□-□ (PNP)

CN5		
Terminal name	Function	Pin no.
COM+	24 V	1
COM–	0 V	2
NP+	Pulse signal	3
NP–	Pulse signal	4
PP+	Pulse signal	5
PP–	Pulse signal	6
SETUP	Input	7
RESET	Input	8
SVON	Input	9
CLR	Input	10
TL	Input	11
TLOUT	Output	12
WAREA	Output	13
BUSY	Output	14
SETON	Output	15
INP	Output	16
SVRE	Output	17
∗ESTOP Note 2)	Output	18
∗ALARM Note 2)	Output	19
AREA	Output	20
FG	Round terminal 0.5-5	



Note 1) For pulse signal wiring method, refer to "Pulse Signal Wiring Details".
Note 2) Output when the power supply of the driver is ON. (N.C.)

Input Signal

Name	Details
COM+	Connects the power supply 24 V for input/output signal
COM–	Connects the power supply 0 V for input/output signal
SETUP	Instruction to return to origin
RESET	Alarm reset
SVON	Servo ON instruction
CLR	Deviation reset
TL	Instruction to pushing operation

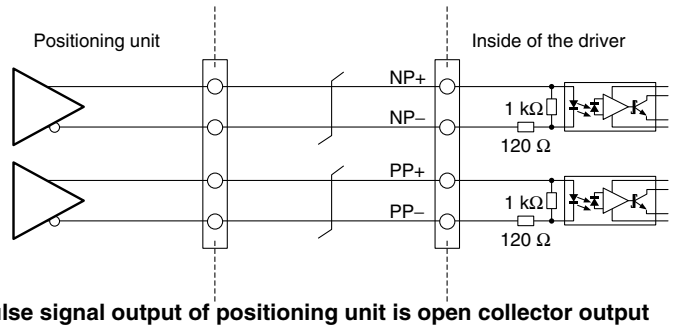
Output Signal

Name	Details
BUSY	Outputs when the actuator is operating
SETON	Outputs when returning to origin
INP	Outputs when target position is reached
SVRE	Outputs when servo is on
∗ESTOP Note 3)	Not output when EMG stop is instructed
∗ALARM Note 3)	Not output when alarm is generated
AREA	Outputs within the area output setting range
WAREA	Outputs within W-AREA output setting range
TLOUT	Outputs during pushing operation

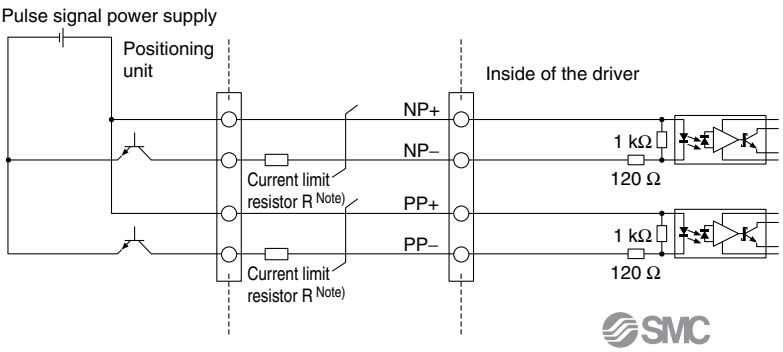
Note 3) Signal of negative-logic circuit ON (N.C.)

Pulse Signal Wiring Details

•Pulse signal output of positioning unit is differential output



•Pulse signal output of positioning unit is open collector output

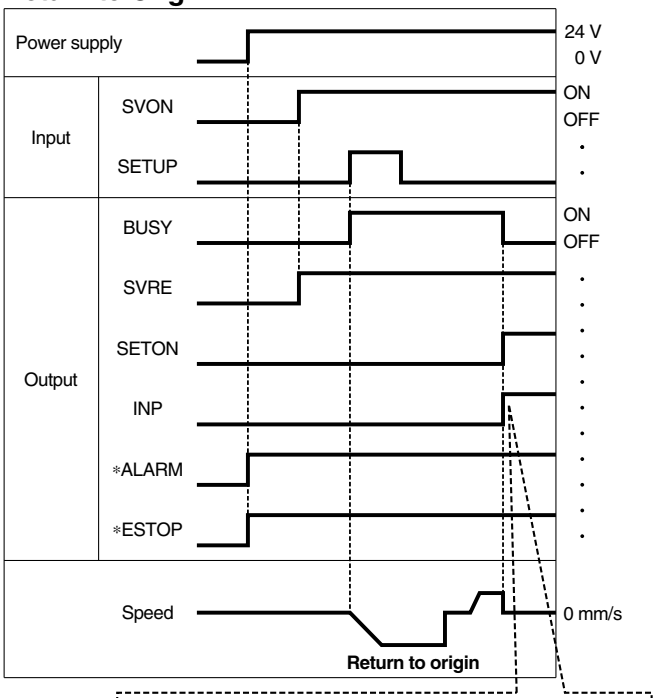


Note) Connect the current limit resistor R in series to correspond to the pulse signal voltage.

Pulse signal power supply voltage	Current limit resistor R specifications
24 VDC ±10%	3.3 kΩ ±5% (0.5 W or more)
5 VDC ±5%	390 Ω ±5% (0.1 W or more)

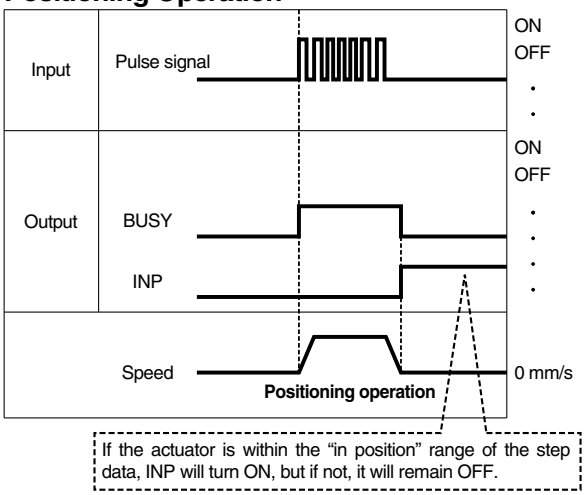
Signal Timing

Return to Origin

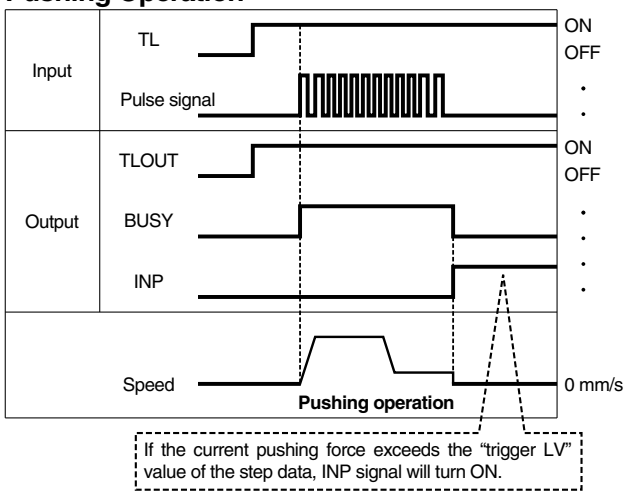


∗ "∗ALARM" and "∗ESTOP" are expressed as negative-logic circuit.

Positioning Operation

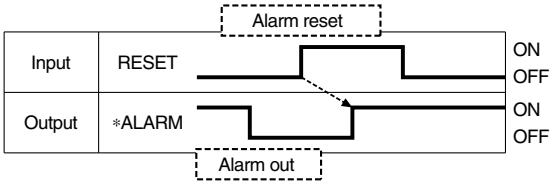


Pushing Operation



Note) If pushing operation is stopped when there is no pulse deviation, the moving part of the actuator may pulsate.

Alarm Reset



∗ "∗ALARM" is expressed as negative-logic circuit.

Options: Actuator Cable

[Robotic cable, standard cable for step motor (Servo/24 VDC)]

LE – CP – 1 – ☐

Cable length (L) [m]

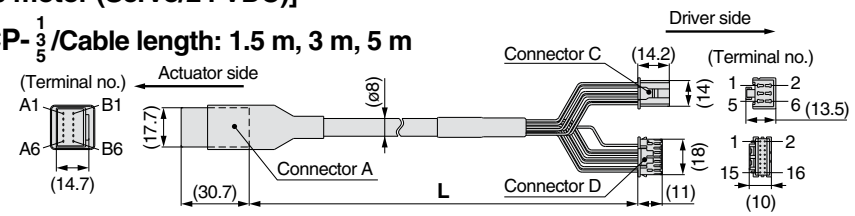
1	1.5
3	3
5	5
8	8*
A	10*
B	15*
C	20*

* Produced upon receipt of order (Robotic cable only)

Cable type

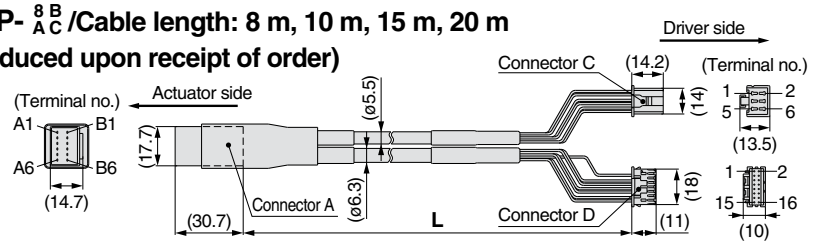
Nil	Robotic cable (Flexible cable)
S	Standard cable

LE-CP- $\frac{1}{3}_{5}$**/Cable length: 1.5 m, 3 m, 5 m**



LE-CP- $\frac{8}{A}\frac{B}{C}$**/Cable length: 8 m, 10 m, 15 m, 20 m**

(* Produced upon receipt of order)



Signal	Connector A terminal no.
A	B-1
$\overline{A}$	A-1
B	B-2
$\overline{B}$	A-2
COM-A/COM	B-3
COM-B/—	A-3
Vcc	B-4
GND	A-4
$\overline{A}$	B-5
A	A-5
$\overline{B}$	B-6
B	A-6

Shield

Cable color	Connector C terminal no.
Brown	2
Red	1
Orange	6
Yellow	5
Green	3
Blue	4

Cable color	Connector D terminal no.
Brown	12
Black	13
Red	7
Black	6
Orange	9
Black	8
—	3

[Robotic cable, standard cable with lock and sensor for step motor (Servo/24 VDC)]

LE – CP – 1 – B – ☐

Cable length (L) [m]

1	1.5
3	3
5	5
8	8*
A	10*
B	15*
C	20*

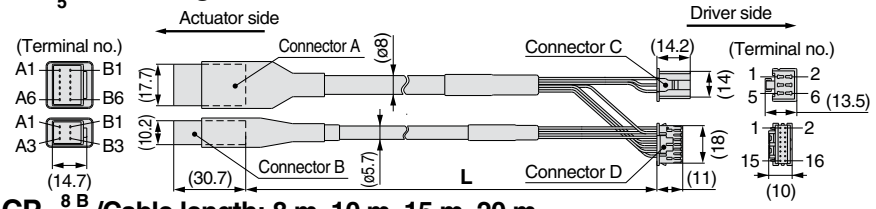
* Produced upon receipt of order (Robotic cable only)

With lock and sensor

Cable type

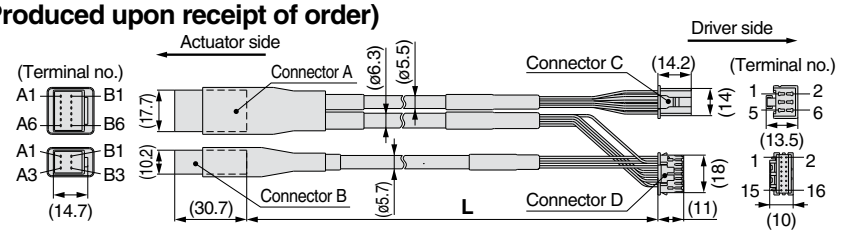
Nil	Robotic cable (Flexible cable)
S	Standard cable

LE-CP- $\frac{1}{3}_{5}$**/Cable length: 1.5 m, 3 m, 5 m**



LE-CP- $\frac{8}{A}\frac{B}{C}$**/Cable length: 8 m, 10 m, 15 m, 20 m**

(* Produced upon receipt of order)



Signal	Connector A terminal no.
A	B-1
$\overline{A}$	A-1
B	B-2
$\overline{B}$	A-2
COM-A/COM	B-3
COM-B/—	A-3
Vcc	B-4
GND	A-4
$\overline{A}$	B-5
A	A-5
$\overline{B}$	B-6
B	A-6

Shield

Cable color	Connector C terminal no.
Brown	2
Red	1
Orange	6
Yellow	5
Green	3
Blue	4

Cable color	Connector D terminal no.
Brown	12
Black	13
Red	7
Black	6
Orange	9
Black	8
—	3

Signal	Connector B terminal no.
Lock (+)	B-1
Lock (–)	A-1
Sensor (+) Note)	B-3
Sensor (–) Note)	A-3

Red	4
Black	5
Brown	1
Blue	2

Note) Not used for the LE series.

Options

[I/O cable]

LEC-C L5-1

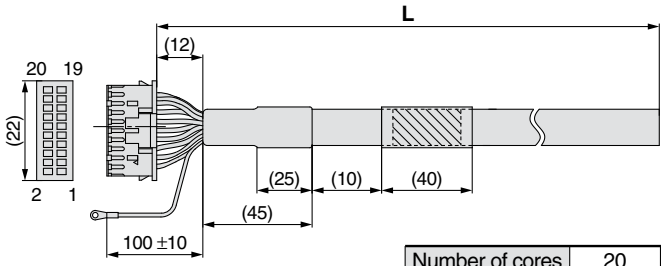
I/O cable type

L5	For LECPA

I/O cable length (L)

1	1.5 m
3	3 m*
5	5 m*

* Pulse input usable only with differential. Only 1.5 m cables usable with open collector.



Number of cores	20
AWG size	24

Pin no.	Insulation color	Dot mark	Dot color
1	Light brown	■	Black
2	Light brown	■	Red
3	Yellow	■	Black
4	Yellow	■	Red
5	Light green	■	Black
6	Light green	■	Red
7	Gray	■	Black
8	Gray	■	Red
9	White	■	Black
10	White	■	Red
11	Light brown	■■	Black

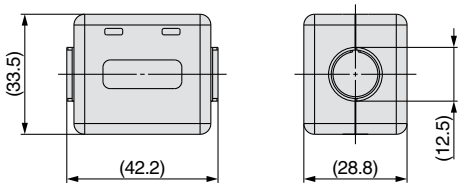
Pin no.	Insulation color	Dot mark	Dot color
12	Light brown	■■	Red
13	Yellow	■■	Black
14	Yellow	■■	Red
15	Light green	■■	Black
16	Light green	■■	Red
17	Gray	■■	Black
18	Gray	■■	Red
19	White	■■	Black
20	White	■■	Red

Round terminal 0.5-5	Green

[Noise filter set]
Step Motor Driver (Pulse Input Type)

LEC-NFA

Contents of the set: 2 noise filters
(Manufactured by WURTH ELEKTRONIK: 74271222)

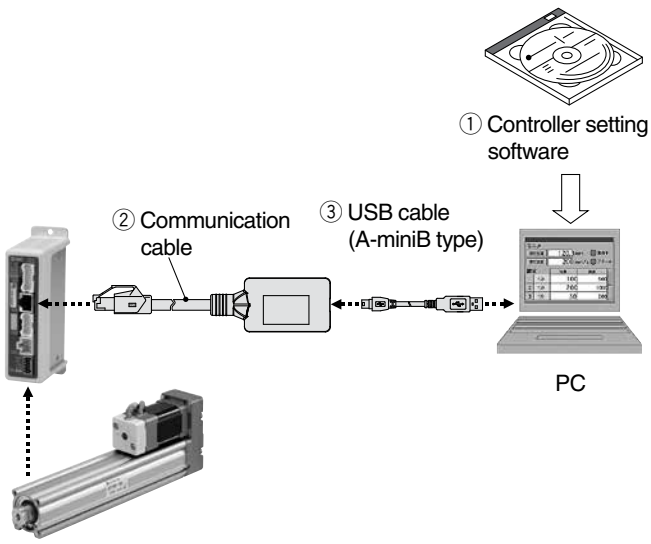


* Refer to the LECPA series Operation Manual for installation.

Series LEC

Windows®XP, Windows®7 compatible

Controller Setting Kit/LEC-W2



How to Order

LEC – W2

Controller setting kit
(Japanese and English are available.)

Contents

① **Controller setting software (CD-ROM)**
② **Communication cable**
③ **USB cable**
(Cable between the PC and the conversion unit)

Compatible Controllers/Driver

Step motor controller (Servo/24 VDC)	**Series LECP6**
Servo motor controller (24 VDC)	**Series LECA6**
Step motor driver (Pulse input type)	**Series LECPA**

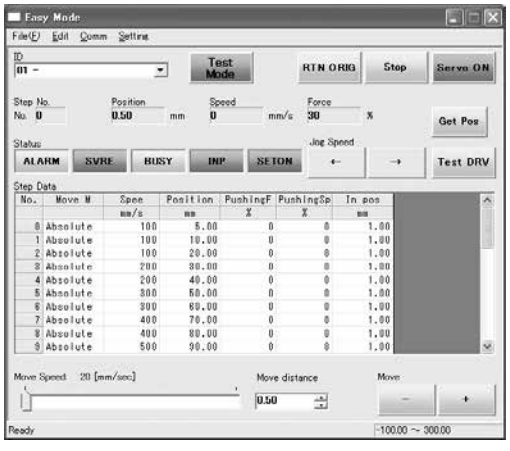
Hardware Requirements

OS	IBM PC/AT compatible machine running Windows®XP (32-bit), Windows®7 (32-bit and 64-bit).
Communication interface	USB 1.1 or USB 2.0 ports
Display	XGA (1024 x 768) or more

∗ Windows® and Windows®7 are registered trademarks of Microsoft Corporation in the United States.
∗ Refer to SMC website for version update information, http://www.smcworld.com

Screen Example

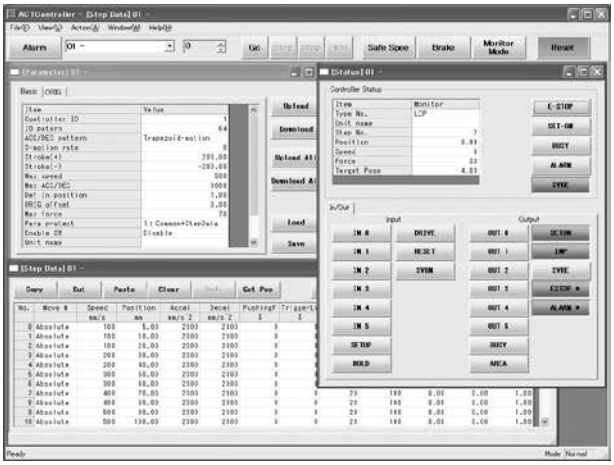
Easy mode screen example



Easy operation and simple setting

- Allowing to set and display actuator step data such as position, speed, force, etc.
- Setting of step data and testing of the drive can be performed on the same page.
- Can be used to jog and move at a constant rate.

Normal mode screen example



Detailed setting

- Step data can be set in detail.
- Signals and terminal status can be monitored.
- Parameters can be set.
- JOG and constant rate movement, return to origin, test operation and testing of forced output can be performed.

Series LEC
Teaching Box/LEC-T1

How to Order

LEC – T1 – 3 J G

Teaching box

Cable length [m]

3	3

Initial language

J	Japanese
E	English

∗ The displayed language can be changed to English or Japanese.

Enable switch

Nil	None
S	Equipped with enable switch

∗ Interlock switch for jog and test function

Stop switch

G	Equipped with stop switch

Standard functions
- **Chinese character display**
- **Stop switch is provided.**

Option
- **Enable switch is provided.**

Specifications

Item	Description
Switch	Stop switch, Enable switch (Option)
Cable length [m]	3
Enclosure	IP64 (Except connector)
Operating temperature range	41 to 122°F (5 to 50°C)
Operating humidity range [%RH]	90 or less (No condensation)
Weight [g]	350 (Except cable)

[CE-compliant products]
The EMC compliance of the teaching box was tested with the LECP6 series step motor controller (servo/24 VDC) and an applicable actuator.
[UL-compliant products]
When conformity to UL is required, the electric actuator and driver should be used with a UL1310 Class 2 power supply.

Easy Mode

Function	Details
Step data	• Setting of step data
Jog	• Jog operation • Return to origin
Test	• 1 step operation Note 1) • Return to origin
Monitor	• Display of axis and step data no. • Display of two items selected from Position, Speed, Force.
ALM	• Active alarm display • Alarm reset
TB setting	• Reconnection of axis (Ver. 1.∗∗) • Displayed language setting (Ver. 2.∗∗) • Setting of easy/normal mode • Setting step data and selection of items from easy mode monitor

Menu Operations Flowchart

Menu
- Data
- Monitor
- Jog
- Test
- ALM
- TB setting

Data
Step data no.
Setting of two items selected below
Ver. 1.∗∗:
Position, Speed, Force, Acceleration, Deceleration
Ver. 2.∗∗:
Position, Speed, Pushing force, Acceleration, Deceleration, Movement MOD, Trigger LV, Pushing speed, Moving force, Area 1, Area 2, In position

Monitor
Display of step no.
Display of two items selected below
(Position, Speed, Force)

Jog
Return to origin
Jog operation

Test Note 1)
1 step operation

ALM
Active alarm display
Alarm reset

TB setting
Reconnection of axis (Ver. 1.∗∗)
Japanese/English (Ver. 2.∗∗)
Easy/Normal
Set item

Note 1) Not compatible with the LECPA.

Normal Mode

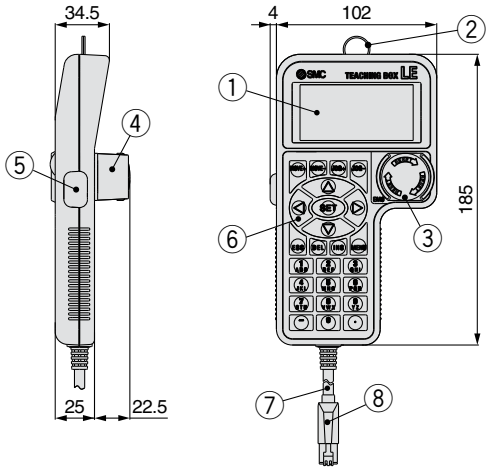
Function	Details
Step data	• Step data setting
Parameter	• Parameters setting
Test	• Jog operation/Constant rate movement • Return to origin • Test drive Note 1) (Specify a maximum of 5 step data and operate.) • Forced output (Forced signal output, Forced terminal output) Note 2)
Monitor	• Drive monitor • Output signal monitor Note 2) • Input signal monitor Note 2) • Output terminal monitor • Input terminal monitor
ALM	• Active alarm display (Alarm reset) • Alarm log record display
File	• Data saving Save the step data and parameters of the driver which is being used for communication (it is possible to save four files, with one set of step data and parameters defined as one file). • Load to driver Loads the data which is saved in the teaching box to the driver which is being used for communication. • Delete the saved data. • File protection (Ver. 2.**)
TB setting	• Display setting (Easy/Normal mode) • Language setting (Japanese/English) • Backlight setting • LCD contrast setting • Beep sound setting • Max. connection axis • Distance unit (mm/inch)
Reconnect	• Reconnection of axis

Menu Operations Flowchart

- **Menu**: Step data, Parameter, Monitor, Test, ALM, File, TB setting, Reconnect
- **Step data**: Step data no., Movement MOD, Speed, Position, Acceleration, Deceleration, Pushing force, Trigger LV, Pushing speed, Moving force, Area 1, 2, In position
- **Parameter**: Basic, ORIG
  - **Basic setting**
  - **ORIG setting**
- **Monitor**: Drive, Output signal Note 2), Input signal Note 2), Output terminal, Input terminal
  - **DRV monitor**: Position, Speed, Torque, Step no., Last step no.
  - **Output signal monitor**
  - **Input signal monitor**
  - **Output terminal monitor**
  - **Input terminal monitor**
- **Test**: JOG/MOVE, Return to ORIG, Test drive Note 1), Forced output Note 2)
- **ALM**: Status, ALM Log record
  - **Status**: Active alarm display, Alarm reset
  - **ALM Log record display**: Log entry display
- **File**: Data saving, Load to driver, File deletion, File protection (Ver. 2.**)
- **TB setting**: Easy/Normal, Language, Backlight, LCD contrast, Beep, Max. connection axis, Password, Distance unit
- **Reconnect**

Note 1) Not compatible with the LECPA.
Note 2) The following signals are not compatible with the LECPA.
Input: CLR, TL
Output: TLOUT

Dimensions

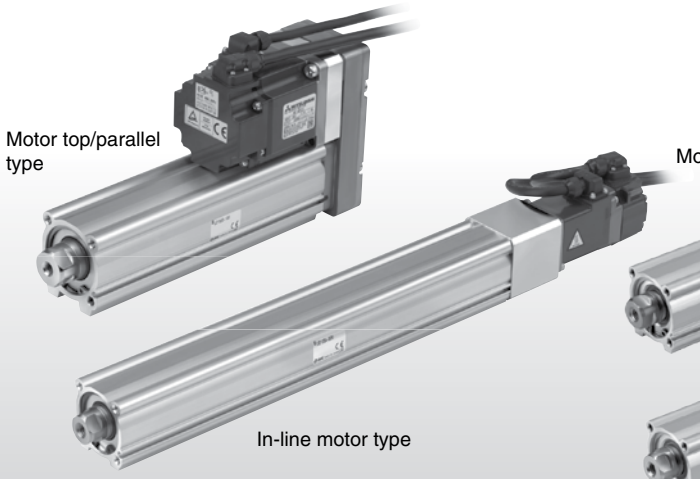


No.	Description	Function
1	**LCD**	A screen of liquid crystal display (with backlight)
2	**Ring**	A ring for hanging the teaching box
3	**Stop switch**	When switch is pushed in, the switch locks and stops. The lock is released when it is turned to the right.
4	**Stop switch guard**	A guard for the stop switch
5	**Enable switch (Option)**	Prevents unintentional operation (unexpected operation) of the jog test function. Other functions such as data change are not covered.
6	**Key switch**	Switch for each input
7	**Cable**	Length: 3 meters
8	**Connector**	A connector connected to CN4 of the driver

AC Servo Motor

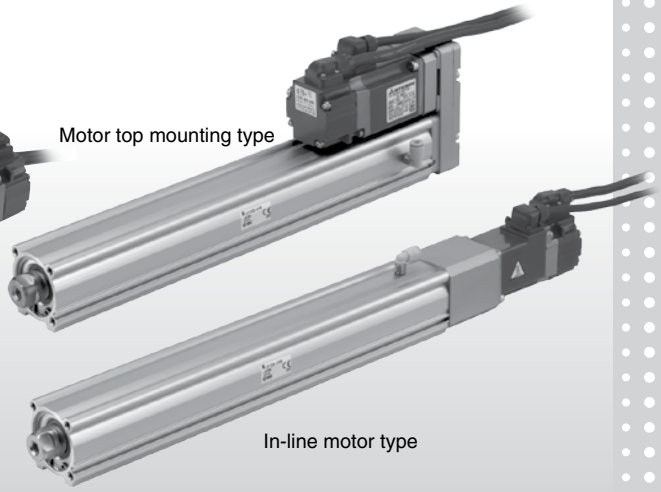
Rod Type Page 82

Series LEY



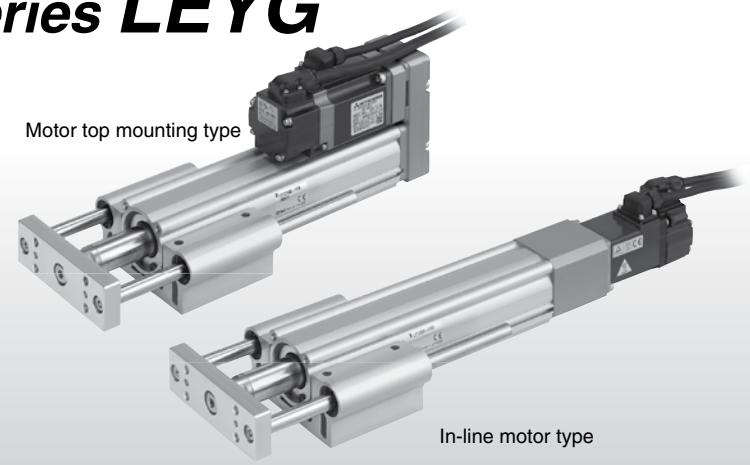
Dust/Drip proof (IP65) specification Page 101

Series LEY-X5



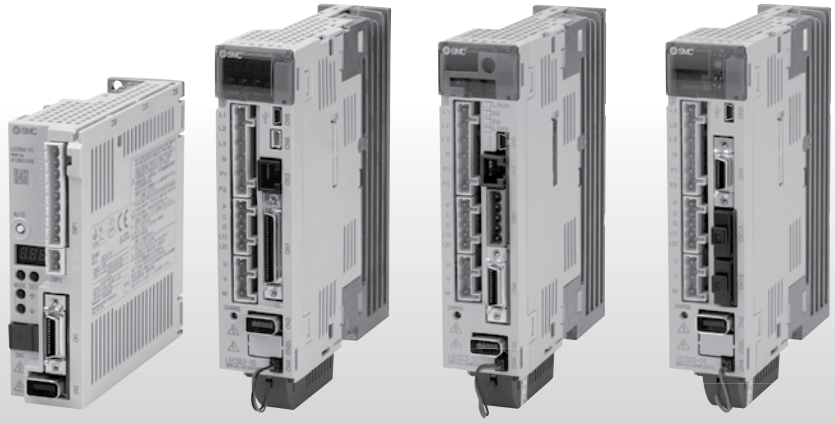
Guide Rod Type Page 106

Series LEYG



AC Servo Motor Driver Page 119

Series LECS□



Model Selection

Selection Procedure

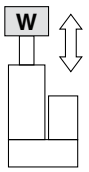
Positioning Control Selection Procedure

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

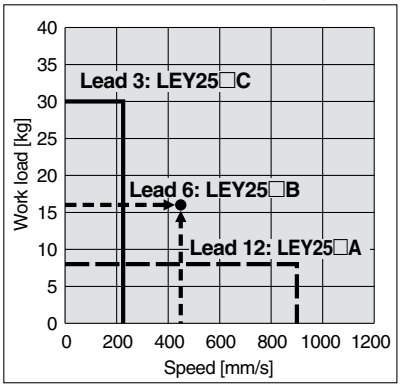
Selection Example

Operating conditions

- Workpiece mass: 16 [kg]
- Speed: 300 [mm/s]
- Acceleration/Deceleration: 5,000 [mm/s²]
- Stroke: 300 [mm]
- Workpiece mounting condition: Vertical upward downward transfer



(1 kg = 2.2 lb)



<Speed–Vertical work load graph> (LEY25□)

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

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

Selection example) The **LEY25□B** 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 pages 90, 97 and 102 for the horizontal work load in the specifications, and page 117 for the precautions.

The regeneration option may be necessary. Refer to pages 84, 85 and 87 for "Required Conditions for Regeneration Option".

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.

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

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

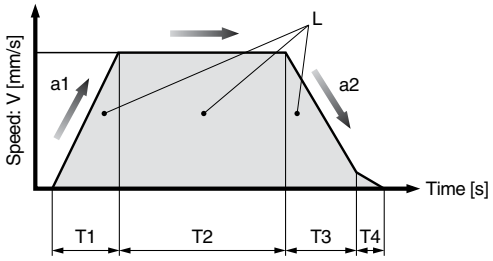
$$T1 = V/a1 \text{ [s]} \qquad T3 = V/a2 \text{ [s]}$$

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

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

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

$$T4 = 0.05 \text{ [s]}$$



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 in position is completed

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

$T1 = V/a1 = 300/5000 = 0.06$ [s], $T3 = V/a2 = 300/5000 = 0.06$ [s]

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} = \frac{300 - 0.5 \cdot 300 \cdot (0.06 + 0.06)}{300} = 0.94 \text{ [s]}$$

$T4 = 0.05$ [s]

Therefore, the cycle time can be obtained as follows.
$T = T1 + T2 + T3 + T4 = 0.06 + 0.94 + 0.06 + 0.05 =$ **1.11 [s]**

Based on the above calculation result, the LEY25□B-300 is selected.

Selection Procedure

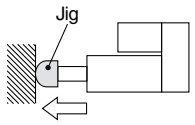
Pushing Control Selection Procedure

Step 1 Check the pushing force. → **Step 2** Check the lateral load on the rod end.

Selection Example

Operating conditions

- Mounting condition: Horizontal (pushing)
- Jig weight: 0.5 [kg]
- Pushing force: 200 [N]
- Speed: 100 [mm/s]
- Stroke: 300 [mm]

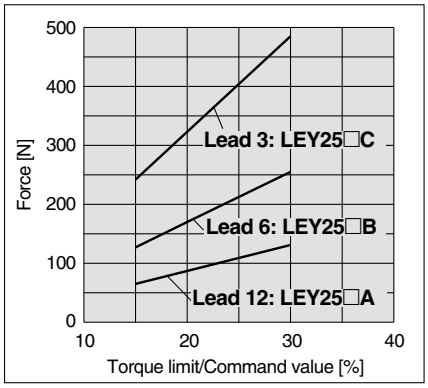


Step 1 **Check the pushing force. <Force conversion graph>**

Select the target model based on the torque limit/command value and pushing force with reference to the <Force conversion graph>.

Selection example)
Based on the graph shown on the right side,
- Torque limit/Command value: 24 [%]
- Pushing force: 200 [N]

Therefore, the **LEY25B** is temporarily selected.



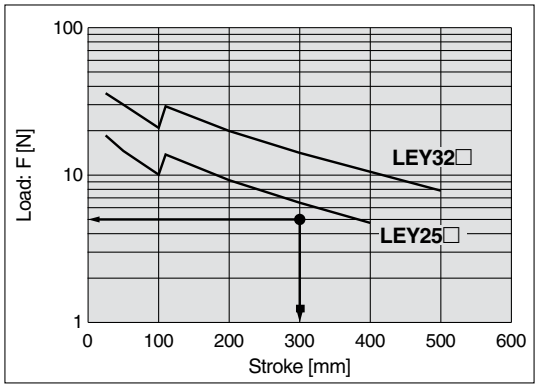
<Force conversion graph> (LEY25□)

Step 2 **Check the lateral load on the rod end. <Graph of allowable lateral load on the rod end>**

Confirm the allowable lateral load on the rod end of the actuator: LEY25B, which has been selected temporarily with reference to the <Graph of allowable lateral load on the rod end>.

Selection example)
Based on the graph shown on the right side,
- Jig weight: 0.2 [kg] ≈ 2 [N]
- Product stroke: 200 [mm]

Therefore, the lateral load on the rod end is in the allowable range.

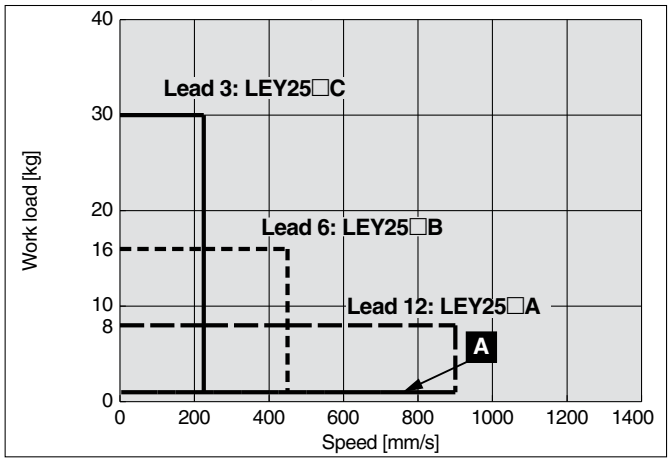


<Graph of allowable lateral load on the rod end>

Based on the above calculation result, the LEY25B-300 is selected.

Speed–Vertical Work Load Graph/Required Conditions for "Regeneration Option"

LEY25□ (Motor mounting position: Top/Parallel, In-line)



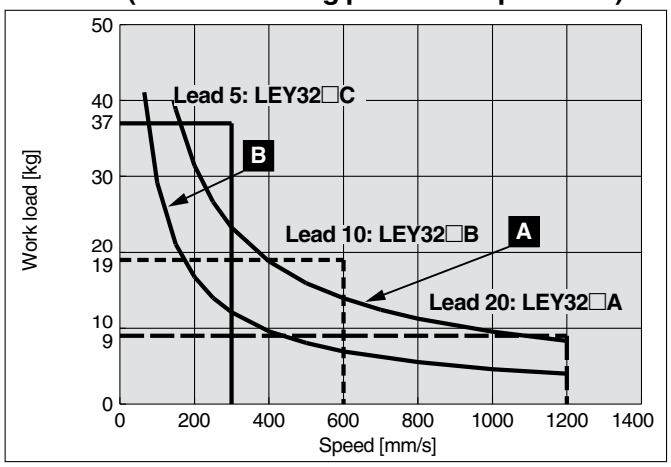
Required conditions for "Regeneration option"

∗ Regeneration option required when using product above "Regeneration" line in graph. (Order separately)

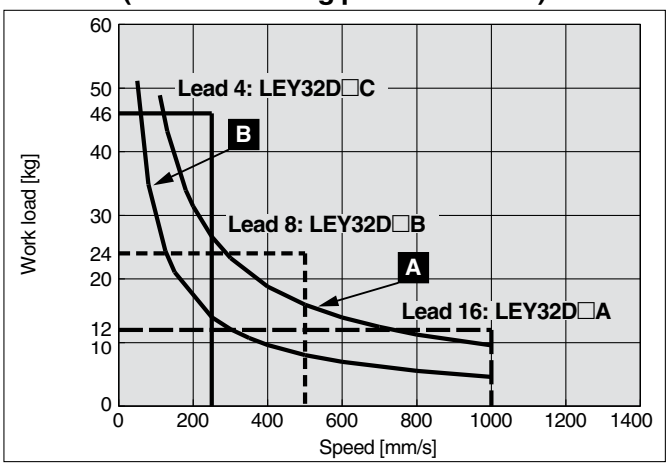
"Regeneration Option" Models

Operating conditions	Regenerative conditions	Vertical transfer
A	Duty ratio 50% or more	LEC-MR-RB032
B	Duty ratio 100%	

LEY32□ (Motor mounting position: Top/Parallel)

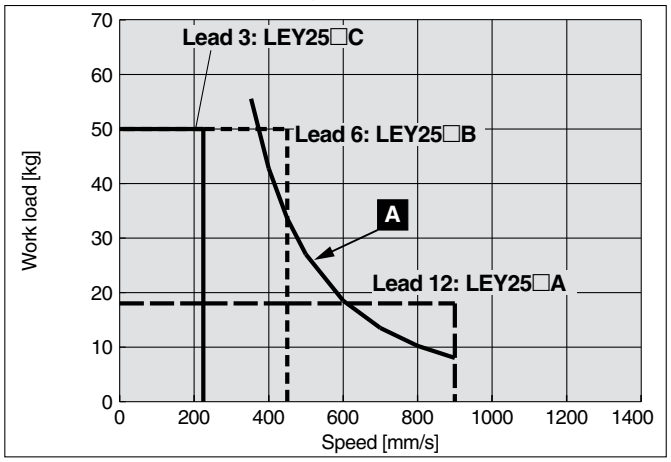


LEY32D (Motor mounting position: In-line)



Speed–Horizontal Work Load Graph/Required Conditions for "Regeneration Option"

LEY25□ (Motor mounting position: Top/Parallel, In-line)



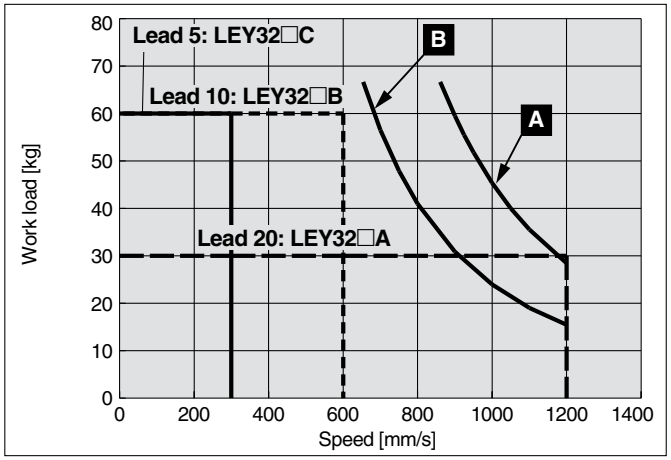
Required conditions for "Regeneration option"

∗ Regeneration option required when using product above "Regeneration" line in graph. (Order separately)

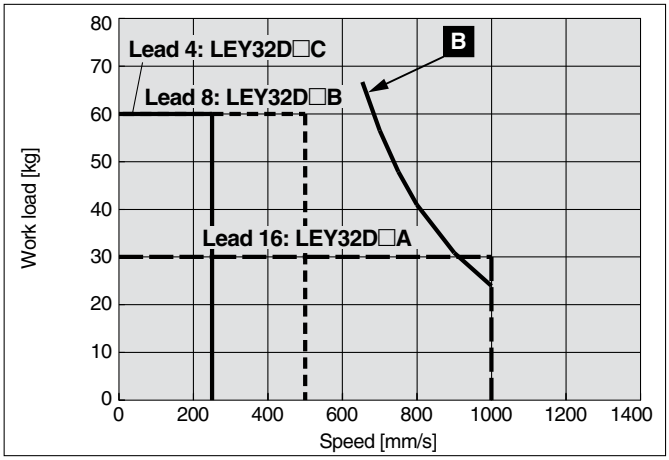
"Regeneration Option" Models

Operating conditions	Regenerative conditions	Horizontal transfer
A	Duty ratio 50% or more	LEC-MR-RB032
B	Duty ratio 100%	

LEY32□ (Motor mounting position: Top/Parallel)



LEY32D (Motor mounting position: In-line)



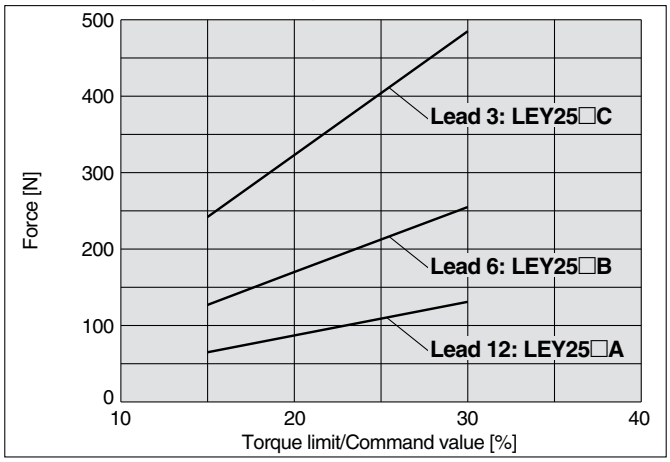
Allowable Stroke Speed

[mm/s]

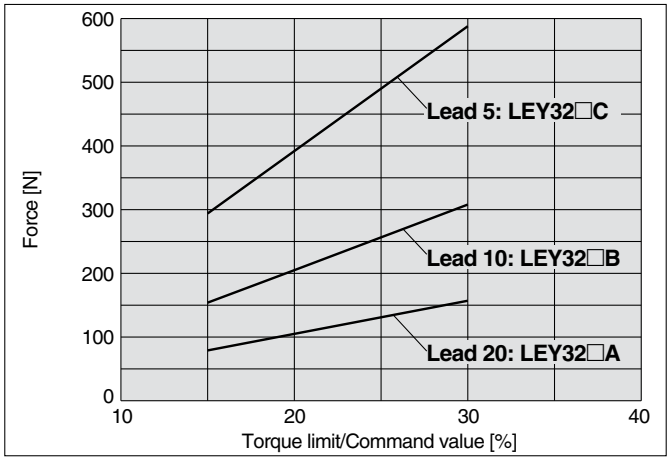
Model	AC servo motor	Lead		Stroke [mm]										
		Symbol	[mm]	30	50	100	150	200	250	300	350	400	450	500
LEY25□ (Motor mounting position: Top/Parallel, In-line)	100 W /□40	**A**	12	900							600		—	—
		B	6	450							300		—	—
		C	3	225							150		—	—
		(Motor rotation speed)		(4500 rpm)							(3000 rpm)		—	—
LEY32□ (Motor mounting position: Top/Parallel)	200 W /□60	**A**	20	1200									800	
		B	10	600									400	
		C	5	300									200	
		(Motor rotation speed)		(3600 rpm)									(2400 rpm)	
LEY32D (Motor mounting position: In-line)	200 W /□60	**A**	16	1000									640	
		B	8	500									320	
		C	4	250									160	
		(Motor rotation speed)		(3750 rpm)									(2400 rpm)	

Force Conversion Graph (Guide)

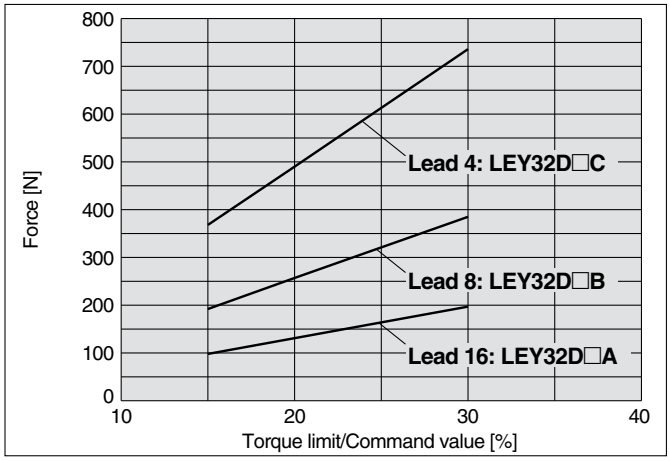
LEY25□ (Motor mounting position: Top/Parallel, In-line)



LEY32□ (Motor mounting position: Top/Parallel)

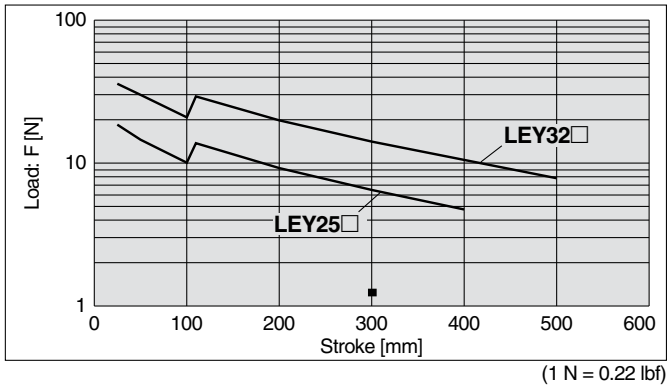


LEY32D□ (Motor mounting position: In-line)



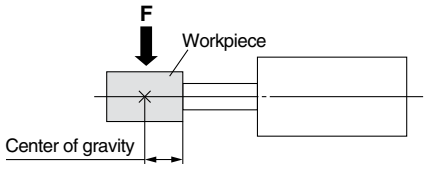
∗1 Motor type: When limiting torque with incremental encoder, parameter No. PC12/the value of the internal torque command should be set 30% or less.
∗2 Motor type: When limiting torque with absolute encoder, parameter No. PC13/the value of the maximum output command for analog torque should be set 30% or less.

Graph of Allowable Lateral Load on the Rod End (Guide)



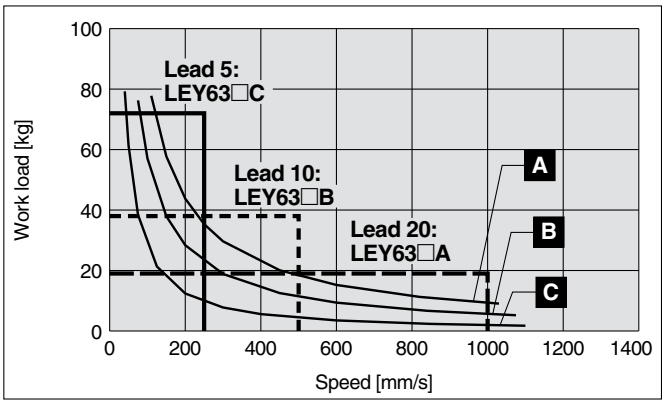
(1 N = 0.22 lbf)

[Stroke] = [Product stroke] + [Distance from the rod end to the center of gravity of the workpiece]

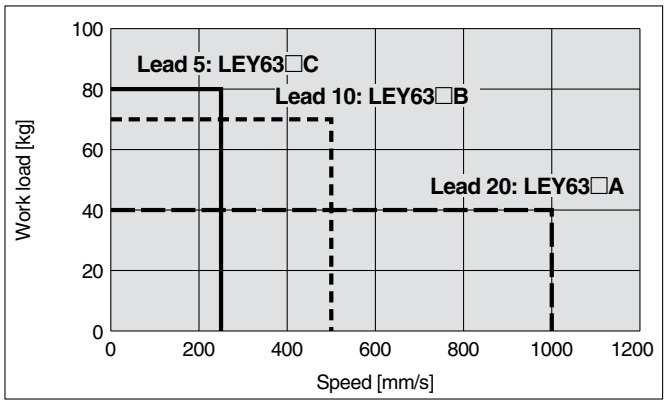


Speed–Work Load Graph/Required Conditions for "Regeneration Option"

Vertical transfer
LEY63□



Horizontal transfer
LEY63□



Required conditions for "Regeneration option"

∗ Regeneration option required when using product above "Regeneration" line in graph. (Order separately)

"Regeneration Option" Models

Operating conditions	Regenerative conditions	Vertical transfer	Horizontal transfer
A	Duty ratio 50% or more	LEC-MR-RB-032	Not required
B	Duty ratio 100%		
C		LEC-MR-RB-12	

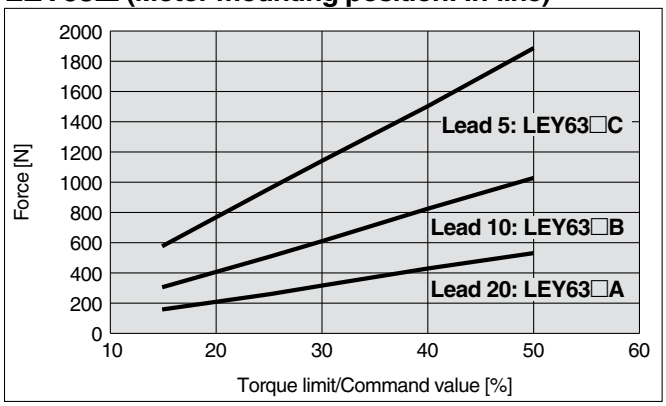
Allowable Stroke Speed

[mm/s]

Model	AC servo motor	Lead		Stroke [mm]							
		Symbol	[mm]	100	200	300	400	500	600	700	800
LEY63□	400 W/□60	A	20	1000					800	600	500
		B	10	500					400	300	250
		C	5	250					200	150	125
		(Motor rotation speed)		(3000 rpm)					(2400 rpm)	(1800 rpm)	(1500 rpm)

Force Conversion Graph

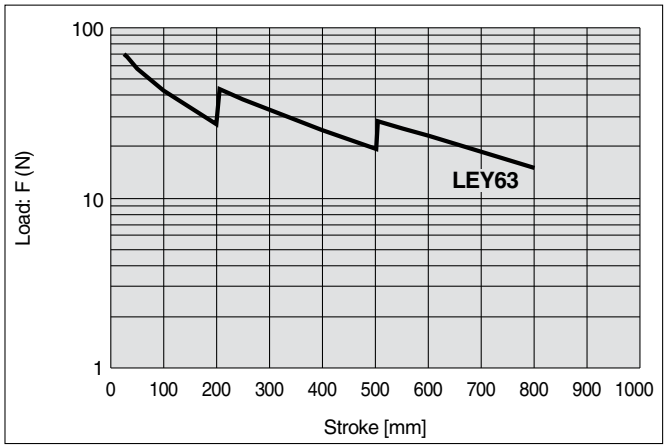
LEY63□ (Motor mounting position: In-line)



Torque limit/Command value [%]	Duty ratio [%]	Continuous pushing time [minute]
25 or less	100	—
30	100 (60)	— (1.5)
40	50 (30)	1.5 (0.5)
50	30 (20)	0.5 (0.16)

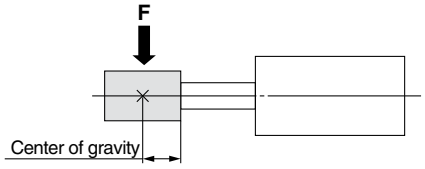
∗1 The values in ( ) are for a closely-mounted driver.
∗2 Motor type: When limiting torque with incremental encoder, parameter No. PC12/the value of the internal torque command should be set 50% or less.
∗3 Motor type: When limiting torque with absolute encoder, parameter No. PC13/the value of the maximum output command for analog torque should be set 50% or less.

Graph of Allowable Lateral Load on the Rod End



(1 N = 0.22 lbf)

[Stroke] = [Product stroke] + [Distance from the rod end to the center of gravity of the workpiece]



Electric Actuator/Rod Type

AC Servo Motor

Series LEY

LEY25, 32

Size 25, 32

RoHS

How to Order

LEY 25 ❷ S2 ❸ B ❹ – 100 ❺ ❻ ❼ ❽ – S ❾ 2 ❿ A1 ⓫ ⓬

❶ Size

25
32

❷ Motor mounting position

Nil	Top mounting
R	Right side parallel
L	Left side parallel
D	In-line

❸ Motor type*1

Symbol	Type	Output [W]	Actuator size	Compatible drivers*2
S2	AC servo motor (Incremental encoder)	100	25	LECSA□-S1
S3	AC servo motor (Incremental encoder)	200	32	LECSA□-S3
S6	AC servo motor (Absolute encoder)	100	25	LECSB□-S5 LECSC□-S5 LECSS□-S5
S7	AC servo motor (Absolute encoder)	200	32	LECSB□-S7 LECSC□-S7 LECSS□-S7

*1: For motor type S2 and S6, the compatible driver part number suffixes are S1 and S5 respectively.
*2: For details about the driver, refer to page 120.

❹ Lead [mm]

Symbol	LEY25	LEY32*
A	12	16 (20)
B	6	8 (10)
C	3	4 (5)

* The values shown in ( ) are the lead for size 32 top mounting, right/left side parallel types. (Equivalent lead which includes the pulley ratio [1.25:1])

❺ Stroke [mm]

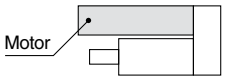
30	30
to	to
500	500

* Refer to the table below for details.

❻ Motor option

Nil	Without option
B	With lock*

* When "With lock" is selected for the top mounting and right/left side parallel types, the motor body will stick out of the end of the body for size 25 with strokes 30 or less. Check for interference with workpieces before selecting a model.



❼ Rod end thread

Nil	Rod end female thread
M	Rod end male thread (1 rod end nut is included.)

❽ Mounting*1

Symbol	Type	Motor mounting position	
		Top/Parallel	In-line
Nil	Ends tapped (Standard)*2	●	●
U	Body bottom tapped	●	●
L	Foot	●	—
F	Rod flange*2	●	●
G	Head flange*2	●*4	—
D	Double clevis*3	●	—

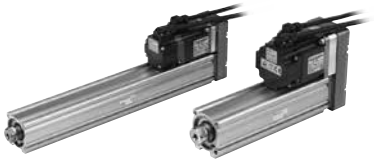
*1 Mounting bracket is shipped together, (but not assembled).
*2 For horizontal cantilever mounting with the rod flange, head flange and ends tapped, use the actuator within the following stroke range.
• LEY25: 200 or less • LEY32: 100 or less
*3 For mounting with the double clevis, use the actuator within the following stroke range.
• LEY25: 200 or less • LEY32: 200 or less
*4 Head flange is not available for the LEY32.

* Applicable stroke table ● Standard

Model \ Stroke (mm)	30	50	100	150	200	250	300	350	400	450	500	Manufacturable stroke range
LEY25	●	●	●	●	●	●	●	●	●	—	—	15 to 400
LEY32	●	●	●	●	●	●	●	●	●	●	●	20 to 500

Note) Consult with SMC for non-standard strokes as they are produced as special orders.

For auto switches, refer to pages 20 and 21.



Motor mounting position: Top/Parallel

Motor mounting position: In-line

⑨ Cable type*

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

* The motor and encoder cables are included. (The lock cable is also included when the motor with lock option is selected.)
* Standard cable entry direction is
  - Top/Parallel: (A) Axis side
  - In-line: (B) Counter axis side

(Refer to page 131 for details.)

⑩ Cable length* [m]

Nil	Without cable
2	2
5	5
A	10

* The length of the encoder, motor and lock cables are the same.

⑪ Driver type*

	Compatible drivers	Power supply voltage (V)
Nil	Without driver	—
A1	LECSA1-S□	100 to 120
A2	LECSA2-S□	200 to 230
B1	LECSB1-S□	100 to 120
B2	LECSB2-S□	200 to 230
C1	LECSC1-S□	100 to 120
C2	LECSC2-S□	200 to 230
S1	LECSS1-S□	100 to 120
S2	LECSS2-S□	200 to 230

* When the driver type is selected, the cable is included. Select cable type and cable length.
  Example)
  S2S2: Standard cable (2 m) + Driver (LECSS2)
  S2 : Standard cable (2 m)
  Nil : Without cable and driver

⑫ I/O connector

Nil	Without connector
H	With connector

Compatible Drivers

Driver type	**Pulse input type /Positioning type** 	**Pulse input type** 	**CC-Link direct input type** 	**SSCNET III type** 
Series	**LECSA**	**LECSB**	**LECSC**	**LECSS**
Number of point tables	Up to 7	—	Up to 255 (2 stations occupied)	—
Pulse input	○	○	—	—
Applicable network	—	—	CC-Link	SSCNET III
Control encoder	Incremental 17-bit encoder	Absolute 18-bit encoder	Absolute 18-bit encoder	Absolute 18-bit encoder
Communication function	USB communication	USB communication, RS422 communication	USB communication, RS422 communication	USB communication
Power supply voltage (V)	100 to 120 VAC (50/60 Hz) 200 to 230 VAC (50/60 Hz)			
Reference page	Page 120			

Specifications

(1 N = 0.22 lbf)

Model				LEY25S$^{2}_{6}$ (Top/Parallel)/LEY25DS$^{2}_{6}$ (In-line)			LEY32S$^{3}_{7}$ (Top/Parallel)			LEY32DS$^{3}_{7}$ (In-line)		
Actuator specifications	Stroke [mm] Note 1)			30, 50, 100, 150, 200, 250, 300, 350, 400			30, 50, 100, 150, 200, 250, 300, 350, 400, 450, 500			30, 50, 100, 150, 200, 250, 300, 350, 400, 450, 500		
	Work load [kg]		Horizontal Note 2)	18	50	50	30	60	60	30	60	60
			Vertical	8	16	30	9	19	37	12	24	46
	Pushing force [N] Note 3) (Set value: 15 to 30%)			65 to 131	127 to 255	242 to 485	79 to 157	154 to 308	294 to 588	98 to 197	192 to 385	368 to 736
	Max. speed [mm/s] Note 4)	Stroke range	Up to 300	900	450	225	1200	600	300	1000	500	250
			305 to 400	600	300	150						
			405 to 500	—	—	—	800	400	200	640	320	160
	Pushing speed [mm/s²] Note 5)			35 or less			30 or less			30 or less		
	Max. acceleration/deceleration [mm/s²]			5,000			5,000					
	Positioning repeatability [mm]			±0.02			±0.02					
	Lead [mm] (including pulley ratio)			12	6	3	20	10	5	16	8	4
	Impact/Vibration resistance [m/s²] Note 6)			50/20			50/20					
	Actuation type			Ball screw + Belt (LEY□)/Ball screw (LEY□D)			Ball screw + Belt [1.25:1]			Ball screw		
	Guide type			Sliding bushing (Piston rod)			Sliding bushing (Piston rod)					
	Operating temperature range [°C]			5 to 40			5 to 40					
	Operating humidity range [%RH]			90 or less (No condensation)			90 or less (No condensation)					
	Required conditions for "Regeneration option" [kg] Note 7)		Horizontal	8 or more	31 or more	Not required	15 or more	Not required	Not required	23 or more	Not required	Not required
			Vertical	3 or more	2 or more	2 or more	6 or more	7 or more	11 or more	6 or more	7 or more	12 or more
Electric specifications	Motor output/Size			100 W/□40			200 W/□60					
	Motor type			AC servo motor (100/200 VAC)			AC servo motor (100/200 VAC)					
	Encoder			Motor type S2, S3: Incremental 17-bit encoder (Resolution: 131072 p/rev) Motor type S6, S7: Absolute 18-bit encoder (Resolution: 262144 p/rev)								
	Power consumption [W] Note 8)		Horizontal	45			65			65		
			Vertical	145			175			175		
	Standby power consumption when operating [W] Note 9)		Horizontal	2			2			2		
			Vertical	8			8			8		
	Max. instantaneous power consumption [W] Note 10)			445			724			724		
Lock unit specifications	Type Note 11)			Non-magnetizing lock								
	Holding force [N]			131	255	485	157	308	588	197	385	736
	Power consumption [W] at 20°C Note 12)			6.3			7.9			7.9		
	Rated voltage [V]			24 VDC $^{0}_{-10\%}$								

Note 1) Consult with SMC for non-standard strokes as they are produced as special orders.
Note 2) The maximum value of the horizontal work load. An external guide is necessary to support the load. The actual work load changes according to the condition of the external guide. Please confirm using actual device.
Note 3) The force setting range (set values for the driver) for the pushing operation with the torque control mode, etc. Set it with reference to "Force Conversion Graph" on page 86.
Note 4) The allowable speed changes according to the stroke.
Note 5) The allowable collision speed for the pushing operation with the torque control mode, etc.
Note 6) 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 7) The work load conditions which require "Regeneration option" when operating at the maximum speed (Duty ratio: 100%). Order the regeneration option separately. For details and order numbers, refer to "Required Conditions for Regeneration Option" on pages 84 and 85.
Note 8) The power consumption (including the driver) is for when the actuator is operating.
Note 9) The standby power consumption when operating (including the driver) is for when the actuator is stopped in the set position during the operation.
Note 10) The maximum instantaneous power consumption (including the driver) is for when the actuator is operating.
Note 11) Only when motor option "With lock" is selected.
Note 12) For an actuator with lock, add the power consumption for the lock.

Weight

Product Weight

[kg]

Series		LEY25S□ (Motor mounting position: Top/Parallel)									LEY32S□ (Motor mounting position: Top/Parallel)										
Stroke [mm]		30	50	100	150	200	250	300	350	400	30	50	100	150	200	250	300	350	400	450	500
Motor type	Incremental encoder	1.31	1.38	1.55	1.81	1.99	2.16	2.34	2.51	2.69	2.42	2.53	2.82	3.29	3.57	3.85	4.14	4.42	4.70	4.98	5.26
	Absolute encoder	1.37	1.44	1.61	1.87	2.05	2.22	2.40	2.57	2.75	2.36	2.47	2.76	3.23	3.51	3.79	4.08	4.36	4.64	4.92	5.20

Series		LEY25DS□ (Motor mounting position: In-line)									LEY32DS□ (Motor mounting position: In-line)										
Stroke [mm]		30	50	100	150	200	250	300	350	400	30	50	100	150	200	250	300	350	400	450	500
Motor type	Incremental encoder	1.34	1.41	1.58	1.84	2.02	2.19	2.37	2.54	2.72	2.44	2.55	2.84	3.31	3.59	3.87	4.16	4.44	4.72	5.00	5.28
	Absolute encoder	1.40	1.47	1.64	1.90	2.08	2.25	2.43	2.60	2.78	2.38	2.49	2.78	3.25	3.53	3.81	4.10	4.38	4.66	4.94	5.22

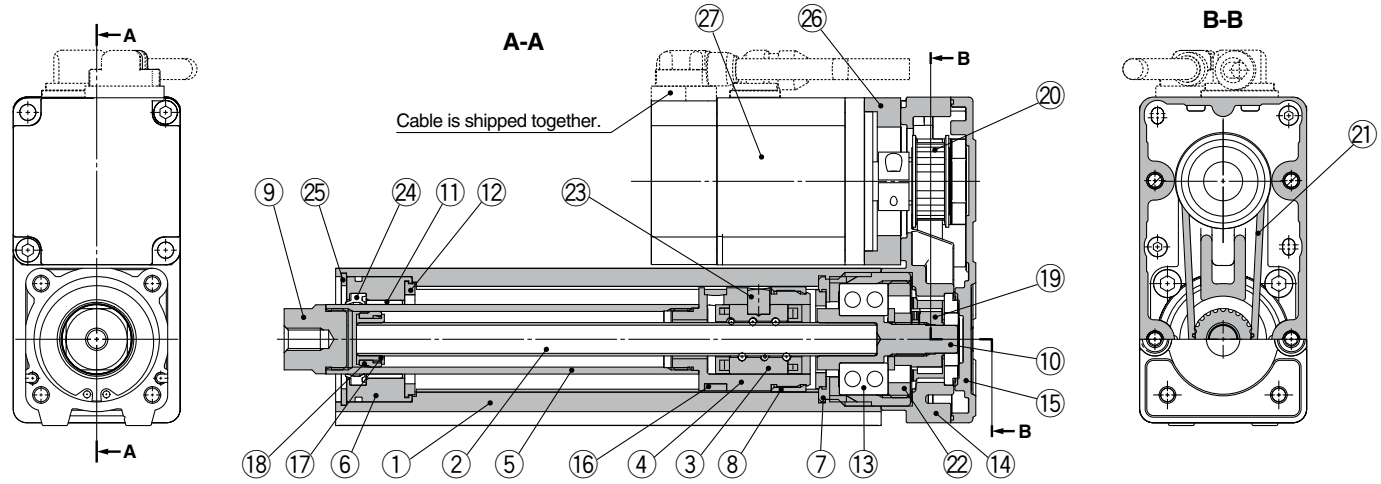
Additional Weight

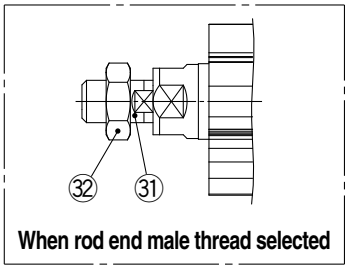
[kg]

Size		25	32
Lock	Incremental encoder	0.20	0.40
	Absolute encoder	0.30	0.66
Rod end male thread	Male thread	0.03	0.03
	Nut	0.02	0.02
Foot (2 sets including mounting bolt)		0.08	0.14
Rod flange (including mounting bolt)		0.17	0.20
Head flange (including mounting bolt)			
Double clevis (including pin, retaining ring and mounting bolt)		0.16	0.22

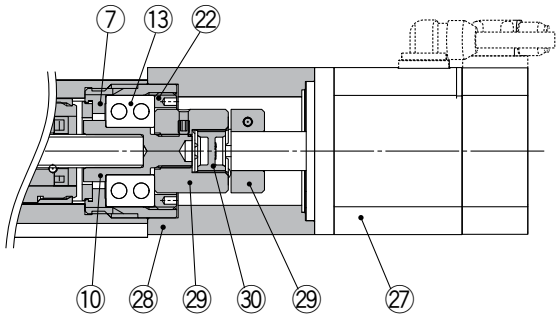
Construction

Motor top mounting type: LEY$^{25}_{32}$





In-line motor type: LEY$^{25}_{32}$D



Component Parts

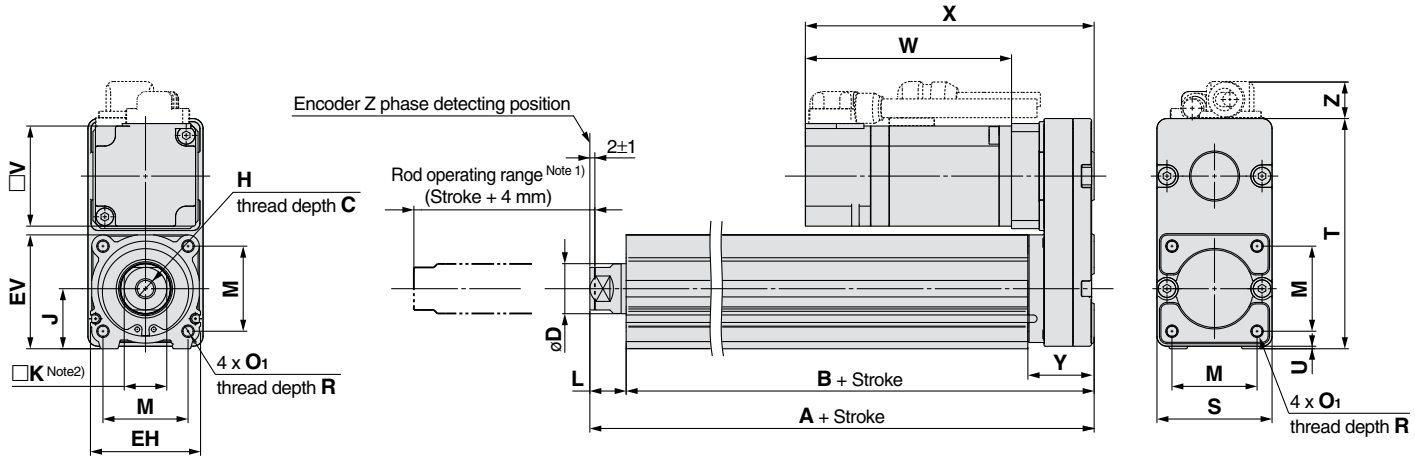
No.	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Ball screw (shaft)**	Alloy steel	
3	**Ball screw nut**	Resin/Alloy steel	
4	**Piston**	Aluminum alloy	
5	**Piston rod**	Stainless steel	Hard chrome anodized
6	**Rod cover**	Aluminum alloy	
7	**Housing**	Aluminum alloy	
8	**Rotation stopper**	POM	
9	**Socket**	Free cutting carbon steel	Nickel plated
10	**Connected shaft**	Free cutting carbon steel	Nickel plated
11	**Bushing**	Lead bronze cast	
12	**Bumper**	Urethane	
13	**Bearing**	—	
14	**Return box**	Aluminum die-cast	Coating
15	**Return plate**	Aluminum die-cast	Coating
16	**Magnet**	—	
17	**Wear ring holder**	Stainless steel	Stroke 101 mm or more
18	**Wear ring**	POM	Stroke 101 mm or more
19	**Screw shaft pulley**	Aluminum alloy	

No.	Description	Material	Note
20	**Motor pulley**	Aluminum alloy	
21	**Belt**	—	
22	**Bearing stopper**	Aluminum alloy	
23	**Parallel pin**	Stainless steel	
24	**Seal**	NBR	
25	**Retaining ring**	Steel for spring	Phosphate coated
26	**Motor adapter**	Aluminum alloy	Coating
27	**Motor**	—	
28	**Motor block**	Aluminum alloy	Coating
29	**Hub**	Aluminum alloy	
30	**Spider**	Urethane	
31	**Socket (Male thread)**	Free cutting carbon steel	Nickel plated
32	**Nut**	Alloy steel	Zinc chromated

Replacement Parts (Top/Parallel only)/Belt

No.	Size	Order no.
21	**25**	LE-D-2-2
	32	LE-D-2-4

Dimensions: Motor Top/Parallel



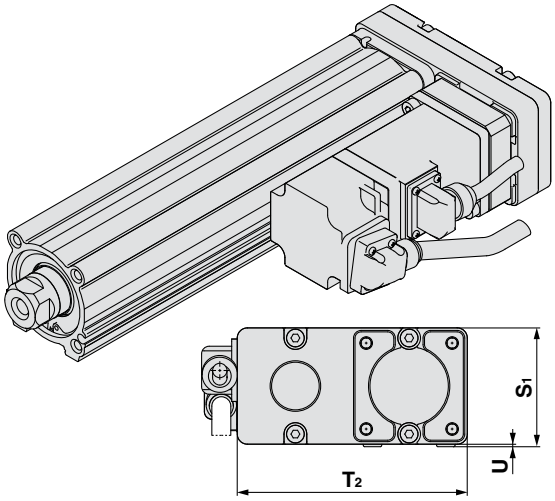
Note 1) Range within which the rod can move. Make sure a workpiece mounted on the rod does not interfere with the workpieces and facilities around the rod.
Note 2) The direction of rod end width across flats (□K) differs depending on the products.

[mm]

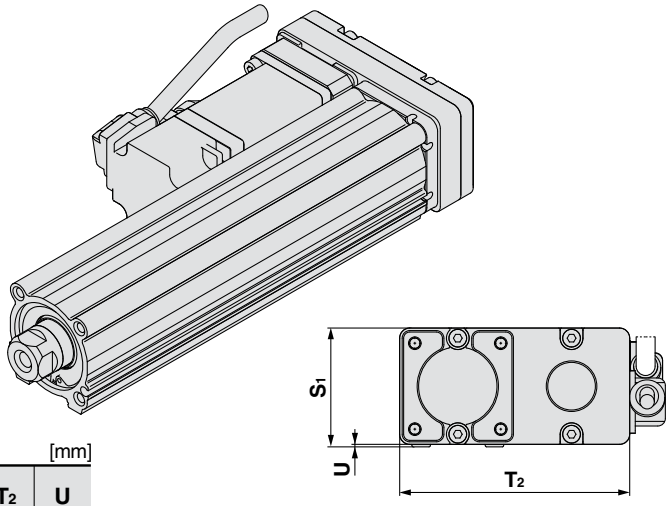
Size	Stroke range (mm)	A	B	C	D	EH	EV	H	J	K	L	M	O_1	R	S
25	15 to 100	130.5	116	13	20	44	45.5	M8 x 1.25	24	17	14.5	34	M5 x 0.8	8	46
	105 to 400	155.5	141												
32	20 to 100	148.5	130	13	25	51	56.5	M8 x 1.25	31	22	18.5	40	M6 x 1.0	10	60
	105 to 500	178.5	160												

Size	Stroke range (mm)	T	U	Y	V	Incremental encoder						Absolute encoder					
						Without lock			With lock			Without lock			With lock		
						W	X	Z	W	X	Z	W	X	Z	W	X	Z
25	15 to 100	92	1	26.5	40	87	120	14.1	123.9	156.9	15.8	82.4	115.4	14.1	123.5	156.5	15.8
	105 to 400																
32	20 to 100	118	1	34	60	88.2	128.2	17.1	116.8	156.8	17.1	76.6	116.6	17.1	116.1	156.1	17.1
	105 to 500																

Motor left side parallel type: LEY$^{25}_{32}$L



Motor right side parallel type: LEY$^{25}_{32}$R

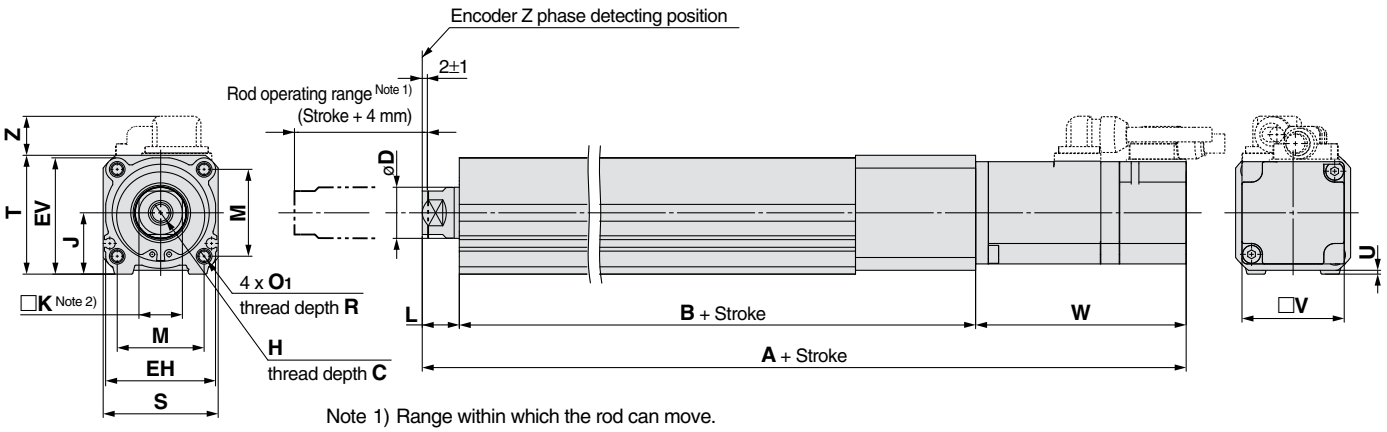


[mm]

Size	S_1	T_2	U
25	47	91	1
32	61	117	1

Note) When the motor is mounted on the left or right side in parallel, the groove for auto switch on the side to which the motor is mounted is hidden.

Dimensions: In-line Motor



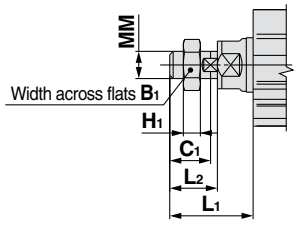
Note 1) Range within which the rod can move.
Make sure a workpiece mounted on the rod does not interfere with the workpieces and facilities around the rod.
Note 2) The direction of rod end width across flats (□K) differs depending on the products.

[mm]

Size	Stroke range (mm)	C	D	EH	EV	H	J	K	L	M	O1	R	S	T	U
25	15 to 100	13	20	44	45.5	M8 x 1.25	24	17	14.5	34	M5 x 0.8	8	45	46.5	1.5
	105 to 400														
32	20 to 100	13	25	51	56.5	M8 x 1.25	31	22	18.5	40	M6 x 1.0	10	60	61	1
	105 to 500														

Size	Stroke range (mm)	B	V	Incremental encoder						Absolute encoder					
				Without lock			With lock			Without lock			With lock		
				A	W	Z	A	W	Z	A	W	Z	A	W	Z
25	15 to 100	136.5	40	238	87	14.6	274.9	123.9	16.3	233.4	82.4	14.6	274.5	123.5	16.3
	105 to 400	161.5		263			299.9			258.4			299.5		
32	20 to 100	156	60	262.7	88.2	17.1	291.3	116.8	17.1	251.1	76.6	17.1	290.6	116.1	17.1
	105 to 500	186		292.7			321.3			281.1			320.6		

End male thread: LEY 25/32 □□A/B/C-□□M



* Refer to page 18 for details about the rod end nut and mounting bracket.
Note) Refer to the "Handling" precautions on page 118 when mounting end brackets such as knuckle joint or work pieces.

[mm]

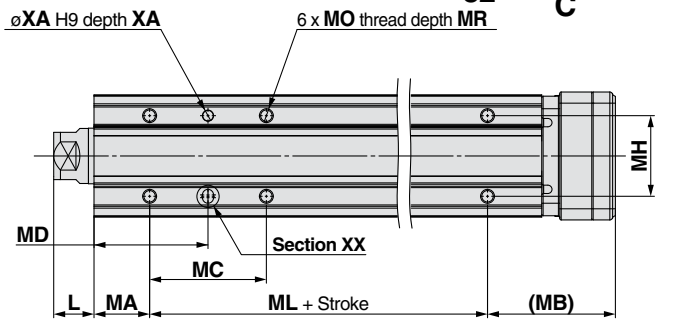
Size	B1	C1	H1	L1	L2	MM
25	22	20.5	8	38	23.5	M14 x 1.5
32	22	20.5	8	42.0	23.5	M14 x 1.5

* The L1 measurement is when the unit is in the original position. At this position, 2 mm at the end.

Dimensions

Body bottom tapped

Motor top/parallel: LEY$^{25}_{32}$□□$^{A}_{B}$-□□□U

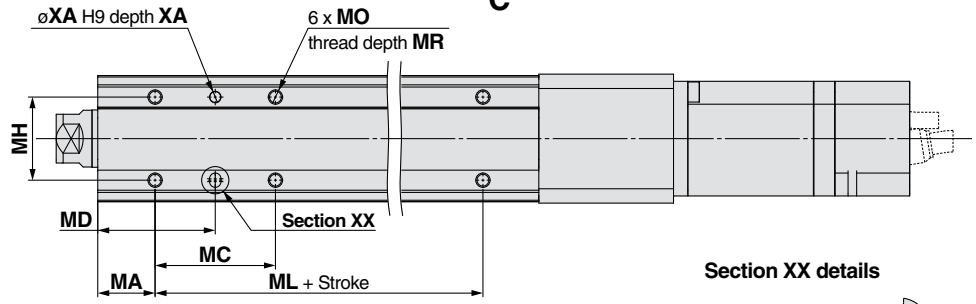


Body Bottom Tapped [mm]

Size	Stroke range (mm)	L	MA	MB	MC	MD	MH	ML
25	15 to 39	14.5	20	46	24	32	29	50
	40 to 100				42	41		
	101 to 124							75
	125 to 200				59	49.5		
	201 to 400				76	58		
32	20 to 39	18.5	25	55	22	36	30	50
	40 to 100				36	43		
	101 to 124							80
	125 to 200				53	51.5		
	201 to 500				70	60		

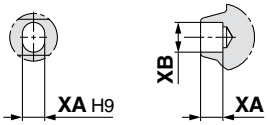
Body bottom tapped

In-line motor: LEY$^{25}_{32}$D□$^{A}_{B}$-□□□U



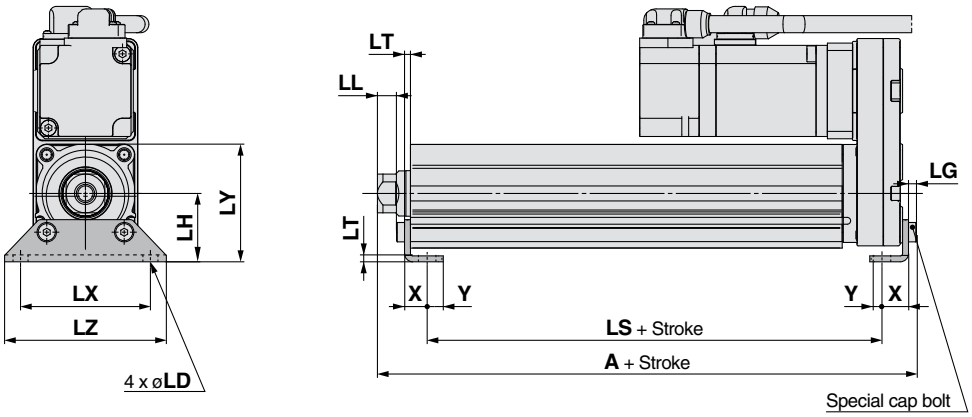
Size	Stroke range (mm)	MO	MR	XA	XB
25	15 to 39	M5 x 0.8	6.5	4	5
	40 to 100				
	101 to 124				
	125 to 200				
	201 to 400				
32	20 to 39	M6 x 1	8.5	5	6
	40 to 100				
	101 to 124				
	125 to 200				
	201 to 500				

Section XX details

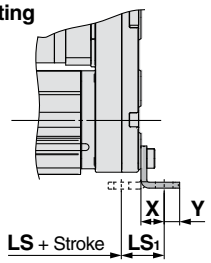


Foot: LEY$^{25}_{32}$□□$^{A}_{B}$-□□□L

Included parts
- Foot
- Body mounting bolt



Outward mounting



Foot [mm]

Size	Stroke range (mm)	A	LS	LS1	LL	LD	LG	LH	LT	LX	LY	LZ	X	Y
25	15 to 100	136.6	99	19.8	8.4	6.6	3.5	30	2.6	57	51.5	71	11.2	5.8
	101 to 400	161.6	124											
32	20 to 100	155.7	114	19.2	11.3	6.6	4	36	3.2	76	61.5	90	11.2	7
	101 to 500	185.7	144											

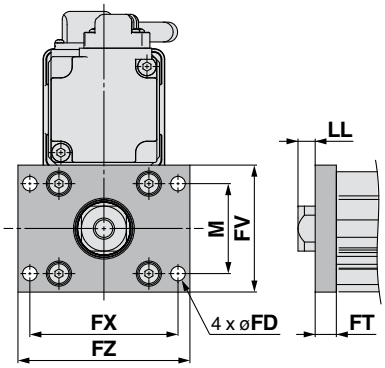
Material: Carbon steel (Chromate treated)

∗ The A measurement is when the unit is in the Z phase first detcting position. At this position, 2 mm at the end.

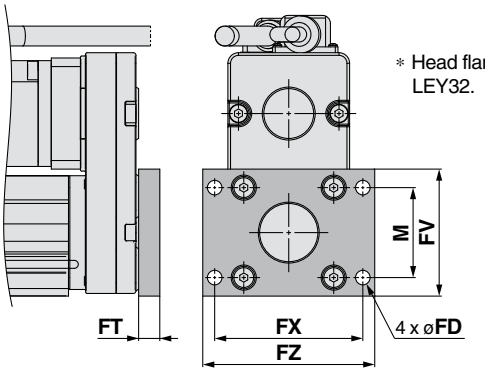
Note) When the motor mounting is the right or left side parallel type, the head side foot should be mounted outwards.

Dimensions

Rod flange: LEY$^{25}_{32}$□□$^{A}_{C}$B-□□□F



Head flange: LEY25□□$^{A}_{C}$B-□□□G



∗ Head flange is not available for the LEY32.

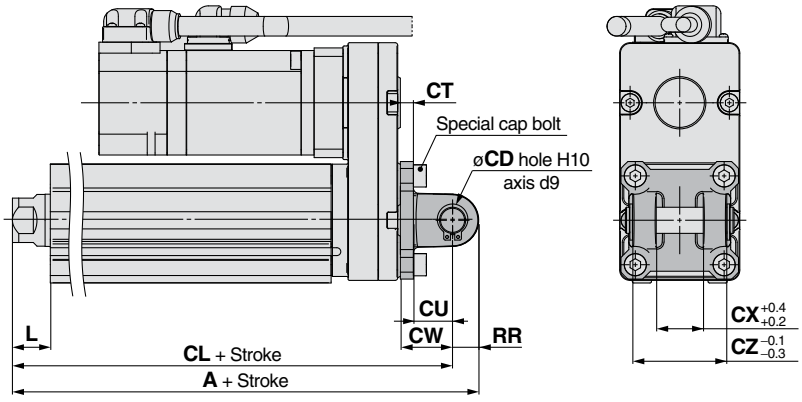
Included parts
- Flange
- Body mounting bolt

Rod/Head Flange [mm]

Size	FD	FT	FV	FX	FZ	LL	M
25	5.5	8	48	56	65	6.5	34
32	5.5	8	54	62	72	10.5	40

Material: Carbon steel (Nickel plated)

Double clevis: LEY$^{25}_{32}$□□$^{A}_{C}$B-□□□D



Included parts
- Double clevis
- Body mounting bolt
- Clevis pin
- Retaining ring

∗ Refer to page 18 for details about the rod end nut and mounting bracket.

Double Clevis [mm]

Size	Stroke range (mm)	A	CL	CD	CT
25	10 to 100	160.5	150.5	10	5
	101 to 200	185.5	175.5		
32	10 to 100	180.5	170.5	10	6
	101 to 200	210.5	200.5		

Size	Stroke range (mm)	CU	CW	CX	CZ	L	RR
25	10 to 100	14	20	18	36	14.5	10
	101 to 200						
32	10 to 100	14	22	18	36	18.5	10
	101 to 200						

Material: Cast iron (Coating)

∗ The A and CL measurements are when the unit is in the Z phase first detecting position. At this position, 2 mm at the end.

Electric Actuator/Rod Type

AC Servo Motor

Series LEY

LEY63

Size 63 | Dust/Drip proof (IP65) specification

(Select options)

How to Order

LEY 63 D S4 B – 200 □ □ □ □ – S 2 A2 □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫ ⓬ ⓭

❶ Size

63

❷ Motor mounting position

D	In-line

❸ Motor type

Symbol	Type	Output [W]	Actuator size	Compatible drivers
S4	AC servo motor (Incremental encoder)	400	63	LECSA2-S4
S8	AC servo motor (Absolute encoder)	400	63	LECSB2-S8 LECSC2-S8 LECSS2-S8

❹ Lead [mm]

Symbol	LEY63
A	20
B	10
C	5

❺ Stroke [mm]

100	100
to	to
800	800

❻ Dust/Drip proof

Nil	IP5x (Dust proof specification)
P	IP65 (Dust/Drip proof specification)/With vent hole tap

∗ When using the dust/drip proof (IP65), correctly mount the fitting and tubing to the vent hole tap, and then place the end of the tubing in an area not exposed to dust or water.

∗ The fitting and tubing should be provided separately by the customer. Select [Applicable tubing O.D.: ø4 or more, Connection thread: Rc1/8].

❼ Motor option

Nil	Without option
B	With lock

❽ Rod end thread

Nil	Rod end female thread
M	Rod end male thread (1 rod end nut is included.)

❾ Mounting∗1

Symbol	Type	Motor mounting position
		In-line
Nil	Ends tapped (Standard)∗2	●
U	Body bottom tapped	●
F	Rod flange∗2	●

∗1 Mounting bracket is shipped together, (but not assembled).

∗2 For horizontal cantilever mounting with the rod flange and ends tapped, use the actuator within the following stroke range.
- LEY63: 100 or less

❿ Cable type∗

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

∗ The motor and encoder cables are included. (The lock cable is also included when the motor with lock option is selected.)

∗ Standard cable entry direction is "(B) Counter axis side". (Refer to page 131 for details.)

⓫ Cable length∗ [m]

Nil	Without cable
2	2
5	5
A	10

∗ The length of the encoder, motor and lock cables are the same.

⓬ Driver type∗

	Compatible drivers	Power supply voltage
Nil	Without driver	
A2	LECSA2/Pulse input (Incremental encoder)	200 V to 230 V
B2	LECSB2/Pulse input (Absolute encoder)	200 V to 230 V
C2	LECSC2/CC-Link (Absolute encoder)	200 V to 230 V
S2	LECSS2/SSCNET III (Absolute encoder)	200 V to 230 V

∗ When the driver type is selected, the cable is included. Select cable type and cable length.
Example)
S2S2: Standard cable (2 m) + Driver (LECSS2)
S2 : Standard cable (2 m)
Nil : Without cable and driver

⓭ I/O connector

Nil	Without connector
H	With connector

∗ Applicable stroke table

●Standard

Model \ Stroke (mm)	100	200	300	400	500	600	700	800	Manufacturable stroke range
LEY63	●	●	●	●	●	●	●	●	50 to 800

Note) Consult with SMC for non-standard strokes as they are produced as special orders.

Specifications

Model				LEY63DS$^{4}_{8}$□		
Actuator specifications	Stroke [mm] Note 1)			100, 200, 300, 400, 500, 600, 700, 800		
	Work load [kg]		Horizontal Note 2)	40	70	80
			Vertical	19	38	72
	Pushing force [N]/Set value Note 3): 15 to 50% Note 4)			156 to 521	304 to 1,012	573 to 1,910
	Max. speed [mm/s] Note 5)	Stroke range	Up to 500	1000	500	250
			505 to 600	800	400	200
			605 to 700	600	300	150
			705 to 800	500	250	125
	Pushing speed [mm/s] Note 6)			30 or less		
	Max. acceleration/deceleration [mm/s²]			5,000		
	Positioning repeatability [mm]			±0.02		
	Screw lead [mm] (including pulley ratio)			20	10	5
	Impact/Vibration resistance [m/s²] Note 7)			50/20		
	Actuation type			Ball screw + Belt [1:1]/Ball screw		
	Guide type			Sliding bushing (Piston rod)		
	Operating temperature range			41 to 104°F (5 to 40°C)		
	Operating humidity range [%RH]			90 or less (No condensation)		
	Required conditions for "Regeneration option" [kg] Note 8)		Horizontal	Not required	Not required	Not required
			Vertical	2 or more	5 or more	12 or more
Electric specifications	Motor output/Size			400 W/□60		
	Motor type			AC servo motor (200 VAC)		
	Encoder			Motor type S4: Incremental 17-bit encoder (Resolution: 131072 p/rev) Motor type S8: Absolute 18-bit encoder (Resolution: 262144 p/rev)		
	Power consumption [W] Note 9)		Horizontal	210		
			Vertical	230		
	Standby power consumption when operating [W] Note 10)		Horizontal	2		
			Vertical	18		
	Max. instantaneous power consumption [W] Note 11)			1275		
Lock unit specifications	Type Note 12)			Non-magnetizing lock		
	Holding force [N]			313	607	1,146
	Power consumption [W] at 68°F (20°C) Note 13)			7.9		
	Rated voltage [V]			24 VDC$^{0}_{-10\%}$		

Note 1) Consult with SMC for non-standard strokes as they are produced as special orders.

Note 2) The maximum value of the horizontal work load. An external guide is necessary to support the load. The actual work load changes according to the condition of the external guide. Please confirm using actual device.

Note 3) Set values for the driver.

Note 4) The force setting range (set values for the driver) for the pushing operation with the torque control mode, etc. The pushing force and duty ratio change according to the set value. Set it with reference to "Force Conversion Graph" on page 87.

Note 5) The allowable speed changes according to the stroke.

Note 6) The allowable collision speed for the pushing operation with the torque control mode, etc.

Note 7) 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 8) The work load conditions which require "Regeneration option" when operating at the maximum speed (Duty ratio: 100%).

Note 9) The power consumption (including the driver) is for when the actuator is operating.

Note 10) The standby power consumption when operating (including the driver) is for when the actuator is stopped in the set position during the operation.

Note 11) The maximum instantaneous power consumption (including the driver) is for when the actuator is operating.

Note 12) Only when motor option "With lock" is selected.

Note 13) For an actuator with lock, add the power consumption for the lock.

Weight

Product Weight

[kg]

Series		LEY63DS□□							
Stroke [mm]		100	200	300	400	500	600	700	800
Motor type	Incremental encoder	5.6	6.7	8.4	9.6	10.7	12.4	13.5	14.7
	Absolute encoder	5.7	6.8	8.5	9.7	10.8	12.5	13.6	14.8

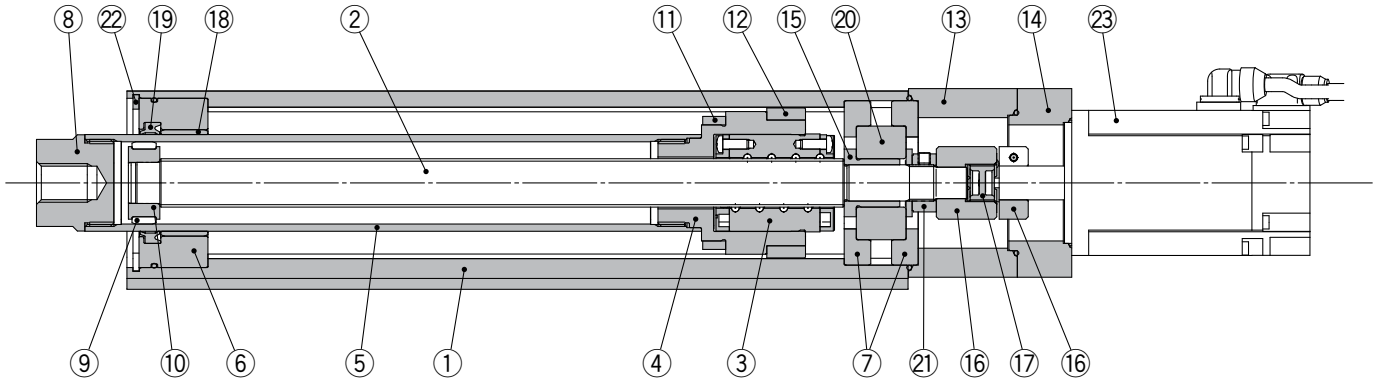
Additional Weight

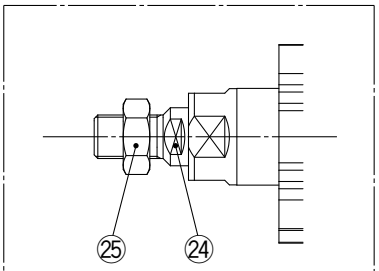
[kg]

Size		63
Lock	Incremental encoder	0.4
	Absolute encoder	0.6
Rod end male thread	Male thread	0.12
	Nut	0.04
Rod flange (including mounting bolt)		0.51

Construction

In-line motor type: LEY63





When rod end male thread selected

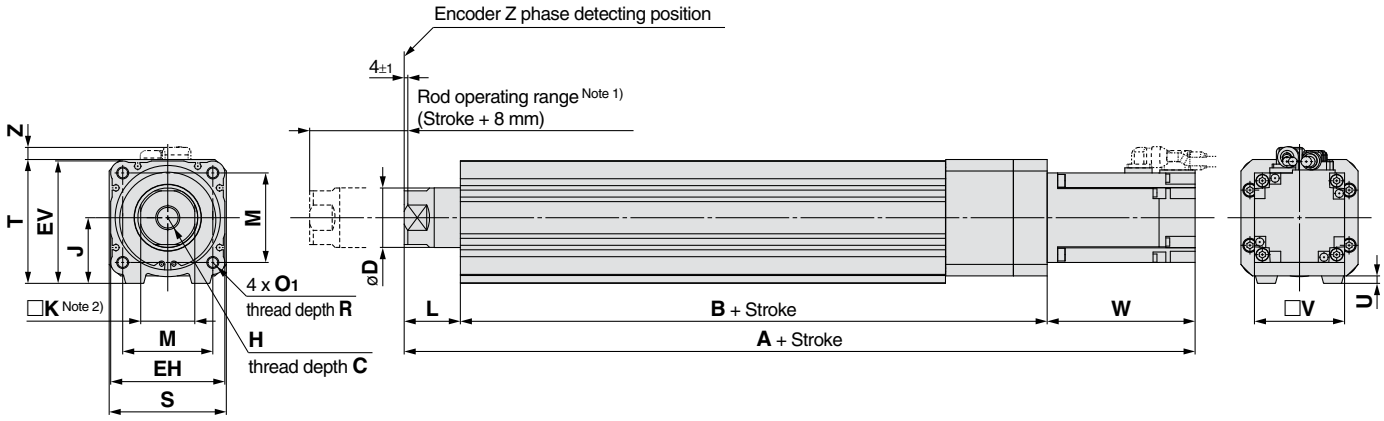
Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Ball screw shaft**	Alloy steel	
3	**Ball screw nut**	Resin/Alloy steel	
4	**Piston**	Aluminum alloy	
5	**Piston rod**	Stainless steel	Hard chrome anodized
6	**Rod cover**	Aluminum alloy	
7	**Bearing holder**	Aluminum alloy	
8	**Socket**	Free cutting carbon steel	Nickel plated
9	**Wear ring**	Resin	
10	**Wear ring holder**	Stainless steel	
11	**Magnet**	—	
12	**Rotation stopper**	Resin	
13	**Motor block**	Aluminum alloy	Coating

No.	Description	Material	Note
14	**Motor adapter**	Aluminum alloy	Coating
15	**Spacer A**	Stainless steel	
16	**Hub**	Aluminum alloy	
17	**Spider**	Urethane	
18	**Bushing**	Lead bronze cast	
19	**Seal**	NBR	
20	**Bearing**	—	
21	**Lock nut**	Alloy steel	Hard chrome anodized
22	**Retaining ring**	Steel for spring	Phosphate coated
23	**Motor**	—	
24	**Socket (Male thread)**	Free cutting carbon steel	Nickel plated
25	**Nut**	Alloy steel	Trivalent chromated

Dimensions: In-line Motor

LEY63D□



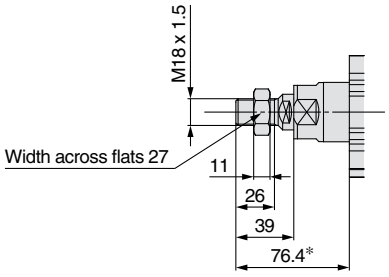
Note 1) Range within which the rod can move. Make sure a workpiece mounted on the rod does not interfere with the workpieces and facilities around the rod.
Note 2) The direction of rod end width across flats (□K) differs depending on the products.

[mm]

Size	Stroke range [mm]	C	D	EH	EV	H	J	K	L	M	O1	R	S	T	U
63	Up to 200	21	40	76	82	M16 x 2	44	36	37.4	60	M8 x 1.25	16	78	83	5
	205 to 500														
	505 to 800														

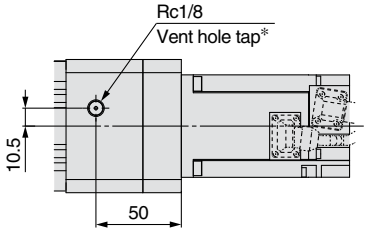
Size	Stroke range [mm]	B	V	Incremental encoder						Absolute encoder					
				Without lock			With lock			Without lock			With lock		
				A	W	Z	A	W	Z	A	W	Z	A	W	Z
63	Up to 200	190.7	60	338.3	110.2	8.1	366.9	138.8	8.1	326.6	98.5	8.1	366.1	138	8.1
	205 to 500	225.7		373.3			401.9			361.6			401.1		
	505 to 800	260.7		408.3			436.9			396.6			436.1		

End male thread: LEY63□□□-□□M



* The measurement 76.4 is when the unit is in the encoder Z phase detecting position. At this position, 4 mm at the end.

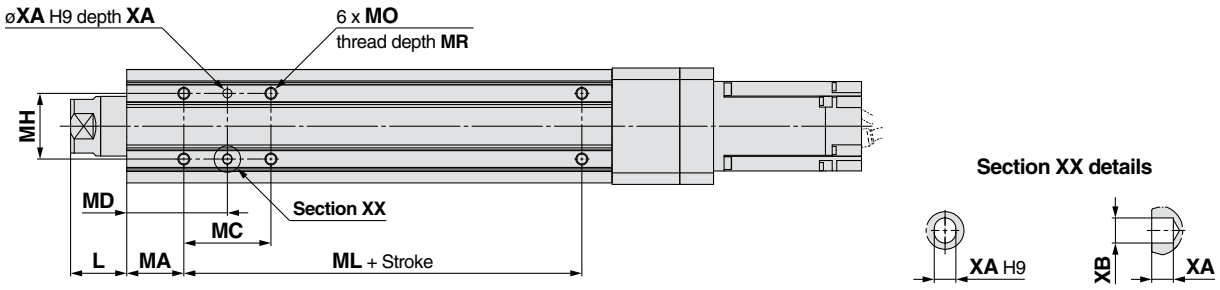
IP65 (Dust/Drip proof specification): LEY63D□□-□P



* When using the dust/drip proof (IP65), correctly mount the fitting and tubing to the vent hole tap, and then place the end of the tubing in an area not exposed to dust or water. The fitting and tubing should be provided separately by the customer.
Select [Applicable tubing O.D.: ø4 or more, Connection thread: Rc1/8].

Dimensions: In-line Motor

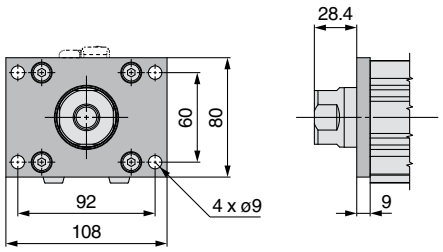
Body bottom tapped: LEY63□□□-□□U



[mm]

Size	Stroke range [mm]	L	MA	MC	MD	MH	ML	MO	MR	XA	XB
63	20 to 74	37.4	38	24	50	44	65	M8 x 1.25	10	6	7
	75 to 124			45	60.5						
	125 to 200			58	67						
	201 to 500			86	81		100				
	501 to 800						135				

Rod flange: LEY63□□□-□□F



Included parts
- Flange
- Body mounting bolt

Material: Carbon steel (Nickel plated)

Electric Actuator/Rod Type

AC Servo Motor

Series LEY-X5

LEY25, 32

Dust/Drip proof (IP65) specification

How to Order

LEY 25 ❶ S2 ❷ B ❸ – 100 ❹ ❺ ❻ ❼ – S ❽ 2 ❾ A1 ❿ – X5 ⓫

⓫ Dust/Drip proof specification

❶ Size

25
32

❷ Motor mounting position

Nil	Top mounting
D	In-line

❸ Motor type*

Symbol	Type	Output [W]	Actuator size	Compatible drivers
S2	AC servo motor (Incremental encoder)	100	25	LECSA□-S1
S3	AC servo motor (Incremental encoder)	200	32	LECSA□-S3
S6	AC servo motor (Absolute encoder)	100	25	LECSB□-S5 LECSC□-S5 LECSS□-S5
S7	AC servo motor (Absolute encoder)	200	32	LECSB□-S7 LECSC□-S7 LECSS□-S7

* For motor type S2 and S6, the compatible driver part number suffixes are S1 and S5 respectively.

❹ Lead [mm]

Symbol	LEY25□	LEY32□*
A	12	16 (20)
B	6	8 (10)
C	3	4 (5)

* The values shown in ( ) are the equivalent lead which includes the pulley ratio for size 32 top mounting type.

❺ Stroke [mm]

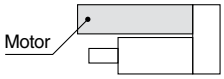
30	30
to	to
500	500

* Refer to the applicable stroke table.

❻ Motor option

Nil	Without option
B	With lock*

* When "With lock" is selected for the top mounting type, the motor body will stick out of the end of the body for size 25 with strokes 30 or less. Check for interference with workpieces before selecting a model.



❼ Rod end thread

Nil	Rod end female thread
M	Rod end male thread (1 rod end nut is included.)

❽ Mounting*1

Symbol	Type	Motor mounting position	
		Top mounting	In-line
Nil	Ends tapped (Standard)*2	●	●
U	Body bottom tapped	●	●
L	Foot	●	—
F	Rod flange*2	●	●
G	Head flange*2	●*3	—

*1 Mounting bracket is shipped together, (but not assembled).

*2 For horizontal cantilever mounting with the rod flange, head flange and ends tapped, use the actuator within the following stroke range.
- LEY25: 200 or less
- LEY32: 100 or less

*3 Head flange is not available for the LEY32.

❾ Cable type*

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

* The motor and encoder cables are included. (The lock cable is also included when the motor with lock option is selected.)
* Standard cable entry direction is
  - Top mounting: (A) Axis side
  - In-line: (B) Counter axis side

(Refer to page 131 for details.)

❿ Cable length [m]*

Nil	Without cable
2	2
5	5
A	10

* The length of the encoder, motor and lock cables are the same.

⓫ Driver type*

	Compatible drivers	Power supply voltage [V]
Nil	Without driver	—
A1	LECSA1	100 to 120
A2	LECSA2	200 to 230
B1	LECSB1	100 to 120
B2	LECSB2	200 to 230
C1	LECSC1	100 to 120
C2	LECSC2	200 to 230
S1	LECSS1	100 to 120
S2	LECSS2	200 to 230

* When the driver type is selected, the cable is included. Select cable type and cable length.
Example)
S2S2: Standard cable (2 m) + Driver (LECSS2)
S2 : Standard cable (2 m)
Nil : Without cable and driver

* For auto switches, refer to page 27.

⓬ I/O connector

Nil	Without connector
H	With connector

* Applicable stroke table ●Standard

Model \ Stroke	30	50	100	150	200	250	300	350	400	450	500	Manufacturable stroke range [mm]
LEY25	●	●	●	●	●	●	●	●	●	—	—	15 to 400
LEY32	●	●	●	●	●	●	●	●	●	●	●	20 to 500

* Consult with SMC for non-standard strokes as they are produced as special orders.

Dust/Drip proof (IP65) specification

Specifications

(1 N = 0.22 lbf)

Model				LEY25S$^{2}_{6}$/LEY25DS$^{2}_{6}$			LEY32S$^{3}_{7}$ (Top mounting)			LEY32DS$^{3}_{7}$ (In-line)		
Actuator specifications	Stroke [mm] Note 1)			30, 50, 100, 150, 200 250, 300, 350, 400			30, 50, 100, 150, 200, 250 300, 350, 400, 450, 500			30, 50, 100, 150, 200, 250 300, 350, 400, 450, 500		
	Work load [kg]		Horizontal Note 2)	18	50	50	30	60	60	30	60	60
			Vertical	8	16	30	9	19	37	12	24	46
	Pushing force [N] Note 3) (Set value: 15 to 30%)			65 to 131	127 to 255	242 to 485	79 to 157	154 to 308	294 to 588	98 to 197	192 to 385	368 to 736
	Max. speed Note 4) [mm/s]	Stroke range	Up to 300	900	450	225	1200	600	300	1000	500	250
			305 to 400	600	300	150						
			405 to 500	—	—	—	800	400	200	640	320	160
	Pushing speed [mm/s] Note 5)			35 or less			30 or less			30 or less		
	Max. acceleration/deceleration [mm/s²]			5,000			5,000					
	Positioning repeatability [mm]			±0.02			±0.02					
	Lead [mm]			12	6	3	20 Note 6)	10 Note 6)	5 Note 6)	16	8	4
	Impact/Vibration resistance [m/s²] Note 7)			50/20			50/20					
	Actuation type			Ball screw + Belt/Ball screw			Ball screw + Belt			Ball screw		
	Guide type			Sliding bushing (Piston rod)			Sliding bushing (Piston rod)					
	Enclosure			IP65								
	Operating temperature range [°C]			5 to 40			5 to 40					
	Operating humidity range [%RH]			90 or less (No condensation)			90 or less (No condensation)					
	Required conditions for Note 8) "Regeneration option" [kg]		Horizontal	8 or more	31 or more	Not required	15 or more	Not required	Not required	23 or more	Not required	Not required
			Vertical	3 or more	2 or more	2 or more	6 or more	7 or more	11 or more	6 or more	7 or more	12 or more
Electric specifications	Motor output/Size			100 W/□40			200 W/□60					
	Motor type			AC servo motor (100/200 VAC)			AC servo motor (100/200 VAC)					
	Encoder			Motor type S2, S3: Incremental 17-bit encoder (Resolution: 131072 p/rev) Motor type S6, S7: Absolute/incremental dual 18-bit encoder (Resolution: 262144 p/rev)								
	Power consumption [W] Note 9)		Horizontal	45			65			65		
			Vertical	145			175			175		
	Standby power consumption when operating [W] Note 10)		Horizontal	2			2			2		
			Vertical	8			8			8		
	Max. instantaneous power consumption [W] Note 11)			445			724			724		
Lock unit specifications	Type Note 12)			Non-magnetizing lock								
	Holding force [N]			131	255	485	157	308	588	197	385	736
	Power consumption [W] at 20°C Note 13)			6.3			7.9			7.9		
	Rated voltage [V]			24 VDC $^{0}_{-10\%}$								

Note 1) Consult with SMC for non-standard strokes as they are produced as special orders.
Note 2) The maximum value of the horizontal work load. An external guide is necessary to support the load. The actual work load changes according to the condition of the external guide. Please confirm using actual device.
Note 3) The force setting range (set values for the driver) for the pushing operation with the torque control mode, etc. Set it with reference to "Force Conversion Graph" on page 86.
Note 4) The allowable speed changes according to the stroke.
Note 5) The allowable collision speed for the pushing operation with the torque control mode, etc.
Note 6) Equivalent lead which includes the pulley ratio [1.25:1]
Note 7) 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 8) The work load conditions which require "Regeneration option" when operating at the maximum speed (Duty ratio: 100%). Order the regeneration option separately. For details and order numbers, refer to "Required Conditions for Regeneration Option" on pages 84 and 85.
Note 9) The power consumption (including the driver) is for when the actuator is operating.
Note 10) The standby power consumption when operating (including the driver) is for when the actuator is stopped in the set position during the operation.
Note 11) The maximum instantaneous power consumption (including the driver) is for when the actuator is operating.
Note 12) Only when motor option "With lock" is selected.
Note 13) For an actuator with lock, add the power consumption for the lock.

Weight

Product Weight

[kg]

Series		LEY25S□ (Motor mounting position: Top mounting)									LEY32S□ (Motor mounting position: Top mounting)										
Stroke [mm]		30	50	100	150	200	250	300	350	400	30	50	100	150	200	250	300	350	400	450	500
Motor type	Incremental encoder	1.31	1.38	1.55	1.81	1.99	2.16	2.34	2.51	2.69	2.42	2.53	2.82	3.29	3.57	3.85	4.14	4.42	4.70	4.98	5.26
	Absolute encoder	1.37	1.44	1.61	1.87	2.05	2.22	2.40	2.57	2.75	2.36	2.47	2.76	3.23	3.51	3.79	4.08	4.36	4.64	4.92	5.20

Series		LEY25DS□ (Motor mounting position: In-line)									LEY32DS□ (Motor mounting position: In-line)										
Stroke [mm]		30	50	100	150	200	250	300	350	400	30	50	100	150	200	250	300	350	400	450	500
Motor type	Incremental encoder	1.34	1.41	1.58	1.84	2.02	2.19	2.37	2.54	2.72	2.44	2.55	2.84	3.31	3.59	3.87	4.16	4.44	4.72	5.00	5.28
	Absolute encoder	1.40	1.47	1.64	1.90	2.08	2.25	2.43	2.60	2.78	2.38	2.49	2.78	3.25	3.53	3.81	4.10	4.38	4.66	4.94	5.22

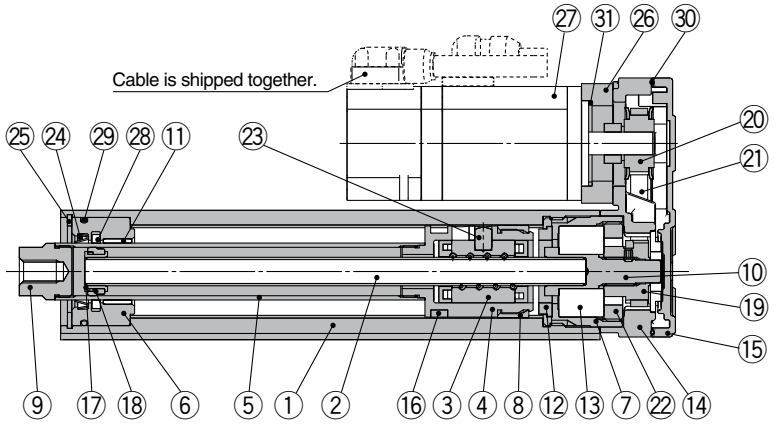
Additional Weight

[kg]

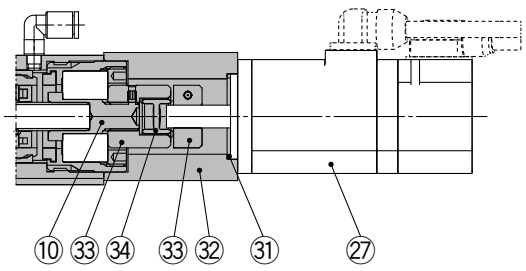
Size		25	32
Lock	Incremental encoder	0.20	0.40
	Absolute encoder	0.30	0.66
Rod end male thread	Male thread	0.03	0.03
	Nut	0.02	0.02
Foot (2 sets including mounting bolt)		0.08	0.14
Rod flange (including mounting bolt)		0.17	0.20
Head flange (including mounting bolt)			

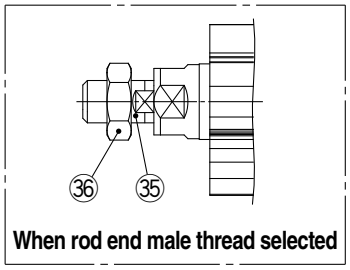
Construction

Motor top mounting type: LEY$^{25}_{32}$



In-line motor type: LEY$^{25}_{32}$D





When rod end male thread selected

Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Ball screw (shaft)**	Alloy steel	
3	**Ball screw nut**	Resin/Alloy steel	
4	**Piston**	Aluminum alloy	
5	**Piston rod**	Stainless steel	Hard chrome anodized
6	**Rod cover**	Aluminum alloy	
7	**Housing**	Aluminum alloy	
8	**Rotation stopper**	POM	
9	**Socket**	Free cutting carbon steel	Nickel plated
10	**Connected shaft**	Free cutting carbon steel	Nickel plated
11	**Bushing**	Lead bronze cast	
12	**Bumper**	Urethane	
13	**Bearing**	—	
14	**Return box**	Aluminum die-cast	Coating
15	**Return plate**	Aluminum die-cast	Coating
16	**Magnet**	—	
17	**Wear ring holder**	Stainless steel	Stroke 101 mm or more
18	**Wear ring**	POM	Stroke 101 mm or more

No.	Description	Material	Note
19	**Screw shaft pulley**	Aluminum alloy	
20	**Motor pulley**	Aluminum alloy	
21	**Belt**	—	
22	**Bearing stopper**	Aluminum alloy	
23	**Parallel pin**	Stainless steel	
24	**Scraper**	Nylon	
25	**Retaining ring**	Steel for spring	Nickel plated
26	**Motor adapter**	Aluminum alloy	Coating
27	**Motor**	—	
28	**Lub-retainer**	Felt	
29	**O-ring**	NBR	
30	**Gasket**	NBR	
31	**O-ring**	NBR	
32	**Motor block**	Aluminum alloy	Coating
33	**Hub**	Aluminum alloy	
34	**Spider**	Urethane	
35	**Socket (Male thread)**	Free cutting carbon steel	Nickel plated
36	**Nut**	Alloy steel	Zinc chromated

Replacement Parts (Top mounting only)/Belt

No.	Size	Order no.
21	**25**	LE-D-2-2
	32	LE-D-2-4

Replacement Parts/Grease Pack

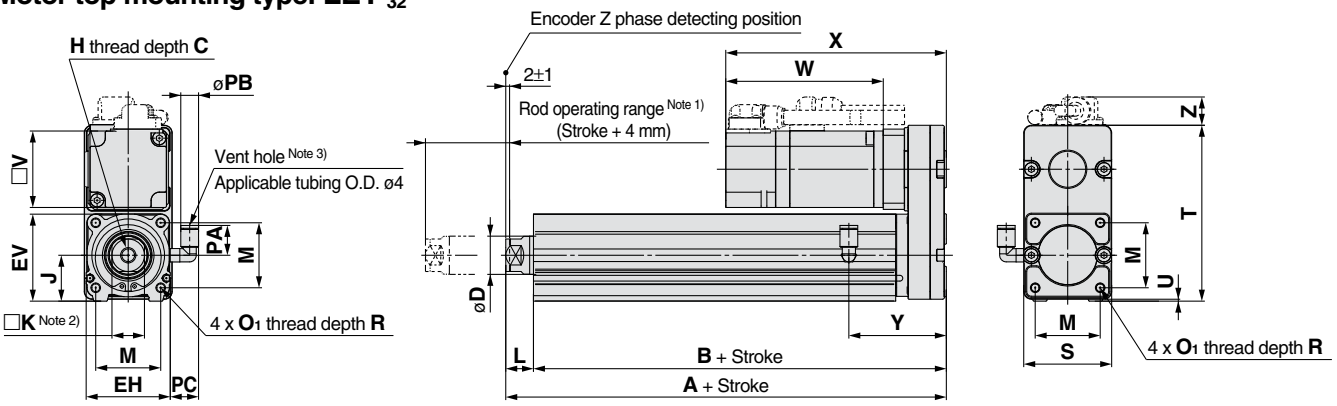
Applied portion	Order no.
Piston rod	GR-S-010 (10 g) GR-S-020 (20 g)

∗ Apply grease on the piston rod periodically.
Grease should be applied at 1 million cycles or 200 km, whichever comes sooner.

Dust/Drip proof (IP65) specification

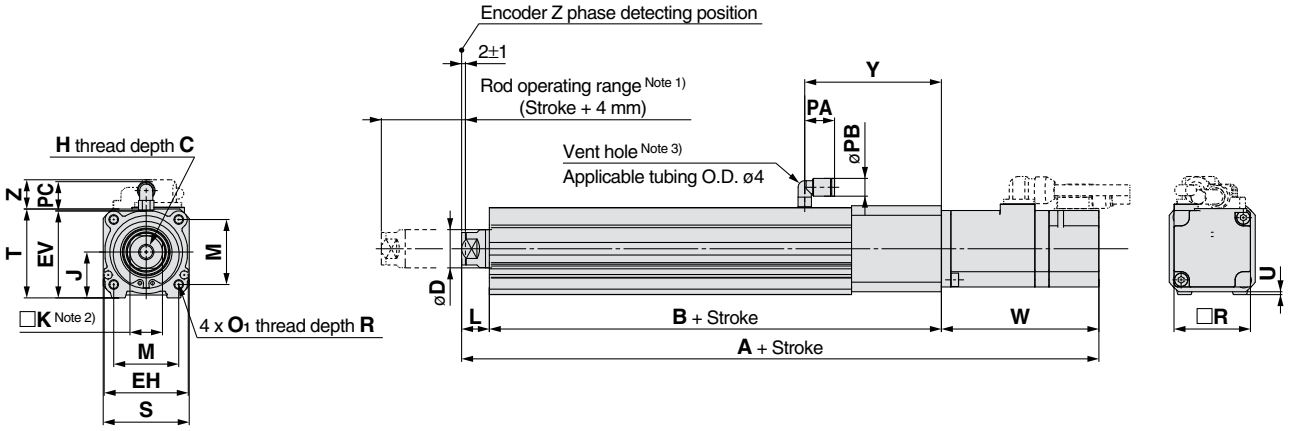
Dimensions

Motor top mounting type: LEY $^{25}_{32}$



Size	Stroke range (mm)	A	B	C	D	EH	EV	H	J	K	L	M	O_1	R	PA	PB	V
25	15 to 100	130.5	116	13	20	44	45.5	M8 x 1.25	24	17	14.5	34	M5 x 0.8	8	15.6	9.3	40
	101 to 400	155.5	141														
32	20 to 100	148.5	130	13	25	51	56.5	M8 x 1.25	31	22	18.5	40	M6 x 1.0	10	15.6	9.3	60
	101 to 500	178.5	160														

Size	Stroke range (mm)	S	T	U	PC	Incremental encoder						Absolute encoder						Y
						Without lock			With lock			Without lock			With lock			
						W	X	Z	W	X	Z	W	X	Z	W	X	Z	
25	15 to 100	46	92	1	14.8	87	120	14.1	123.9	156.9	15.8	82.4	115.4	14.1	123.5	156.5	15.8	51
	101 to 400																	
32	20 to 100	60	118	1	15.3	88.2	128.2	17.1	116.8	156.8	17.1	76.6	116.6	17.1	116.1	156.1	17.1	61
	101 to 500																	



Size	Stroke range (mm)	Incremental encoder						Absolute encoder						B	C	D	EH	EV
		Without lock			With lock			Without lock			With lock							
		A	W	Z	A	W	Z	A	W	Z	A	W	Z					
25	15 to 100	238	87	14.6	274.9	123.9	16.3	233.4	82.4	14.6	274.5	123.5	16.3	136.5	13	20	44	45.5
	101 to 400	263			299.9			258.4			299.5			161.5				
32	20 to 100	262.7	88.2	17.1	291.3	116.8	17.1	251.1	76.6	17.1	290.6	116.1	17.1	156	13	25	51	56.5
	101 to 500	292.7			321.3			281.1			320.6			186				

Size	Stroke range (mm)	H	J	K	L	M	O_1	R	PA	PB	V	S	T	U	PC	Y
25	15 to 100	M8 x 1.25	24	17	14.5	34	M5 x 0.8	8	15.6	9.3	40	45	46.5	1.5	15.3	71.5
	101 to 400															
32	20 to 100	M8 x 1.25	31	22	18.5	40	M6 x 1.0	10	15.6	9.3	60	60	61	1	15.3	87
	101 to 500															

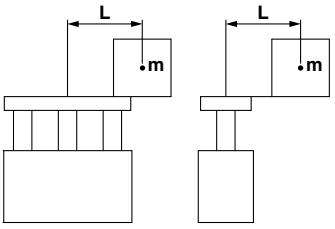
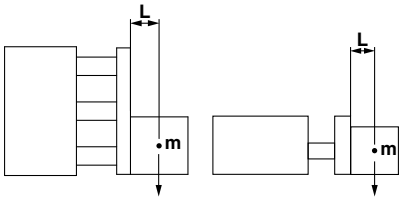
Note 1) Range within which the rod can move. Make sure a workpiece mounted on the rod does not interfere with the workpieces and facilities around the rod.
Note 2) The direction of rod end width across flats (□K) differs depending on the products.
Note 3) The vent hole is the port for releasing to atmosphere. Do not apply pressure to this hole.
Attach tubing to the vent hole and place the end of the tubing so it is not exposed to dust or water.

For the rod end male thread, refer to page 93.
For the mounting dimensions, refer to page 18.

Model Selection

Moment Load Graph

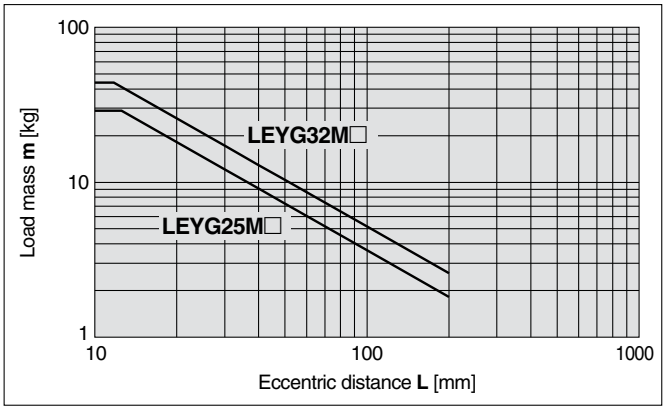
Selection conditions

	Vertical	Horizontal	
Mounting position			
Max. speed [mm/s]	"Speed–Vertical Work Load Graph"	200 or less	Over 200
Graph (Sliding bearing type)	①, ②	⑤, ⑥*	⑦, ⑧
Graph (Ball bushing bearing type)	③, ④	⑨, ⑩	⑪, ⑫

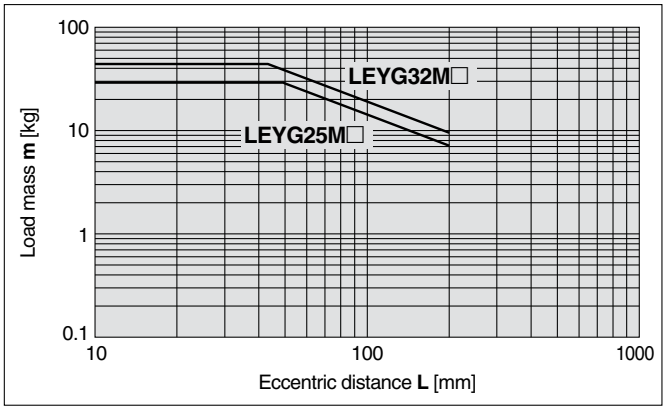
∗ For the sliding bearing type, the speed is restricted with a horizontal/moment load.

Vertical Mounting, Sliding Bearing

① **70 stroke or less**



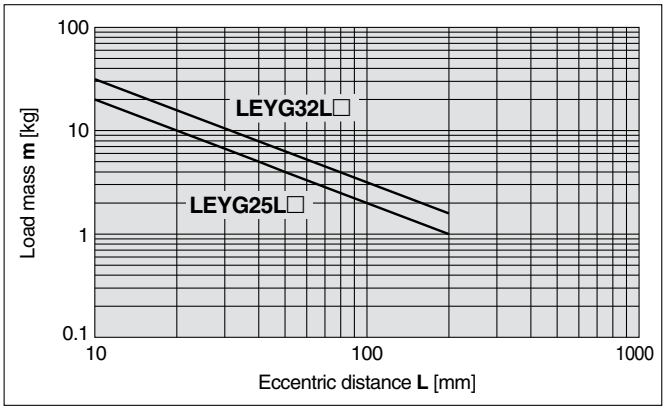
② **Over 75 stroke**



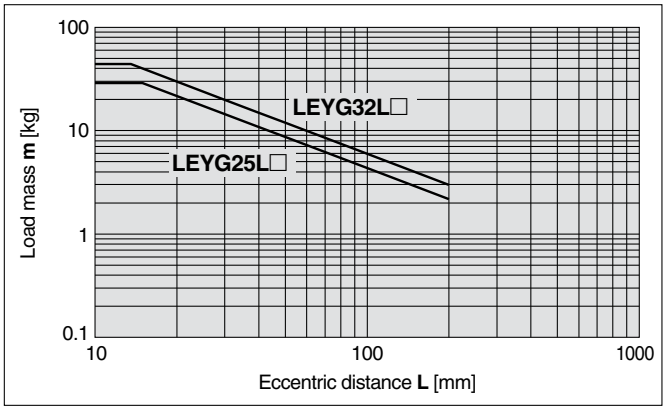
∗ The limit of vertical load mass varies depending on "lead" and "speed".
Check "Speed–Vertical Work Load Graph" on page 108.

Vertical Mounting, Ball Bushing Bearing

③ **35 stroke or less**



④ **Over 40 stroke**

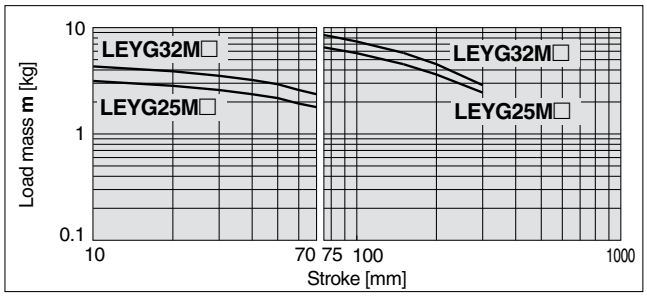


∗ The limit of vertical load mass varies depending on "lead" and "speed".
Check "Speed–Vertical Work Load Graph" on page 108.

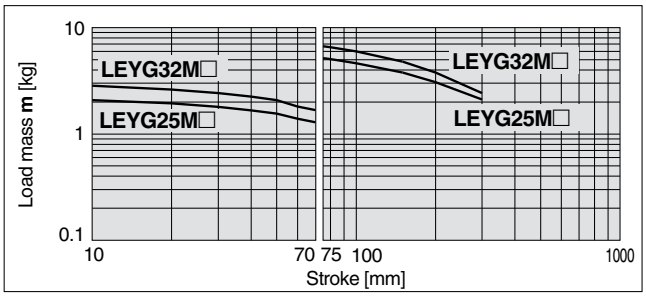
Moment Load Graph

Horizontal Mounting, Sliding Bearing

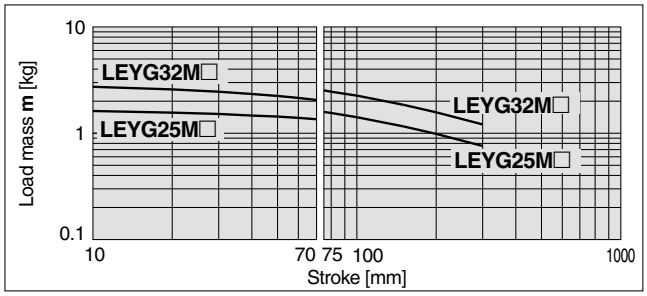
⑤ **L = 50 mm Max. speed = 200 mm/s or less**



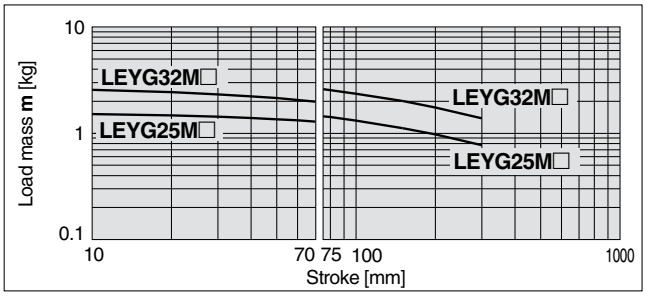
⑥ **L = 100 mm Max. speed = 200 mm/s or less**



⑦ **L = 50 mm Max. speed = Over 200 mm/s**

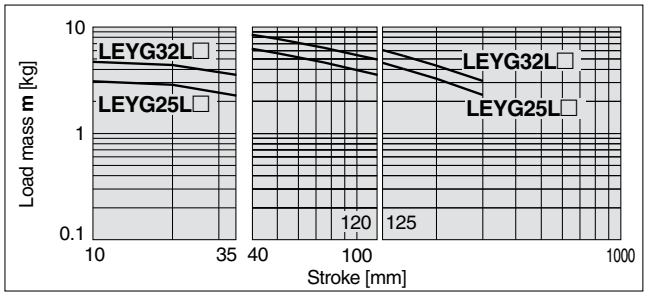


⑧ **L = 100 mm Max. speed = Over 200 mm/s**

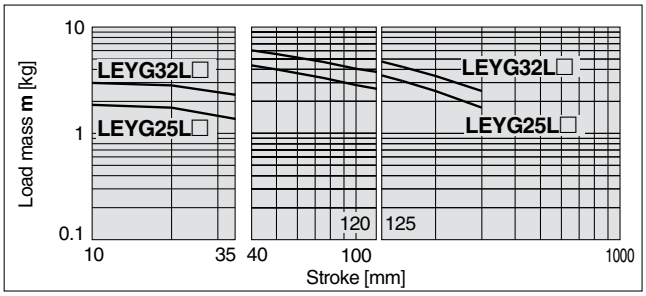


Horizontal Mounting, Ball Bushing Bearing

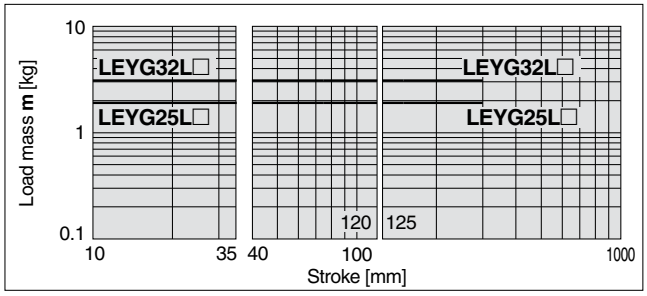
⑨ **L = 50 mm Max. speed = 200 mm/s or less**



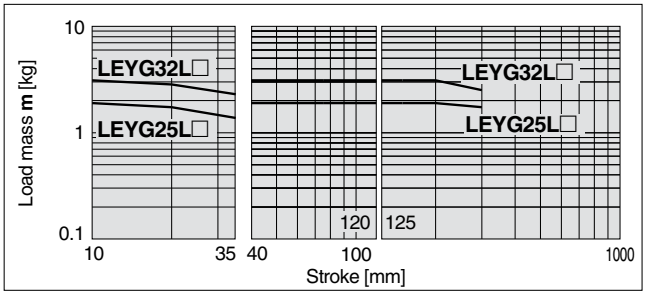
⑩ **L = 100 mm Max. speed = 200 mm/s or less**



⑪ **L = 50 mm Max. speed = Over 200 mm/s**

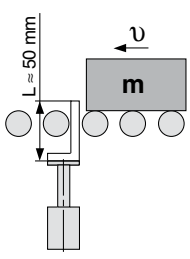


⑫ **L = 100 mm Max. speed = Over 200 mm/s**



Operating Range when Used as Stopper

LEYG□M (Sliding bearing)



⚠Caution

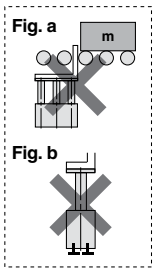
Handling Precautions

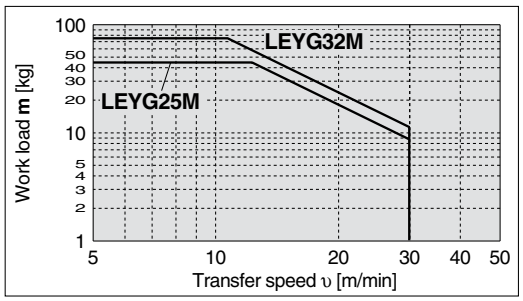
Note 1) When used as a stopper, select a model with 30 stroke or less.

Note 2) LEYG□L (ball bushing bearing) cannot be used as a stopper.

Note 3) Workpiece collision in series with guide rod cannot be permitted (**Fig. a**).

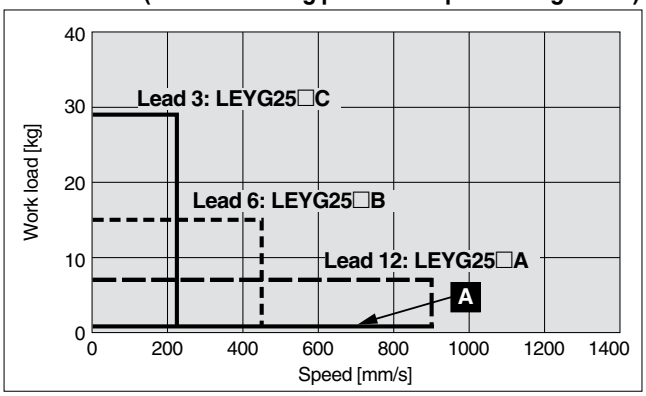
Note 4) The body should not be mounted on the end. It must be mounted on the top or bottom (**Fig. b**).





Speed–Vertical Work Load Graph/Required Conditions for "Regeneration Option"

LEYG25□ (Motor mounting position: Top mounting/In-line)



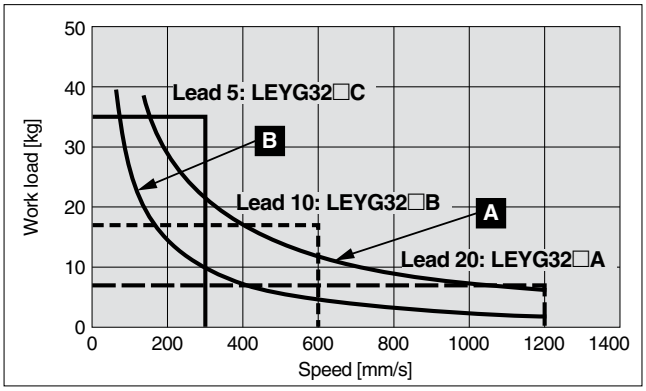
Required conditions for "Regeneration option"

∗ Regeneration option required when using product above "Regeneration" line in graph. (Order separately)

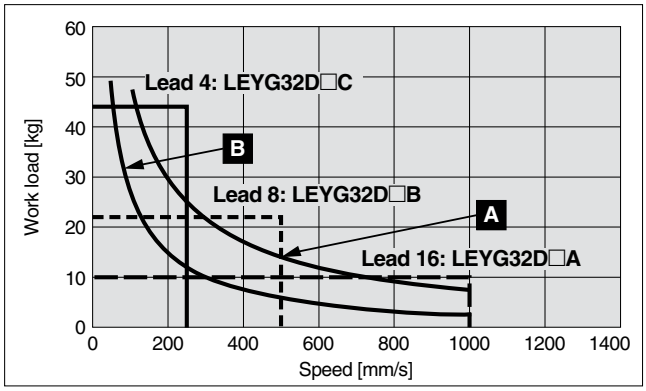
"Regeneration Option" Models

Operating conditions	Regenerative conditions	Vertical transfer
A	Duty ratio 50% or more	LEC-MR-RB032
B	Duty ratio 100%	

LEYG32□ (Motor mounting position: Top mounting)

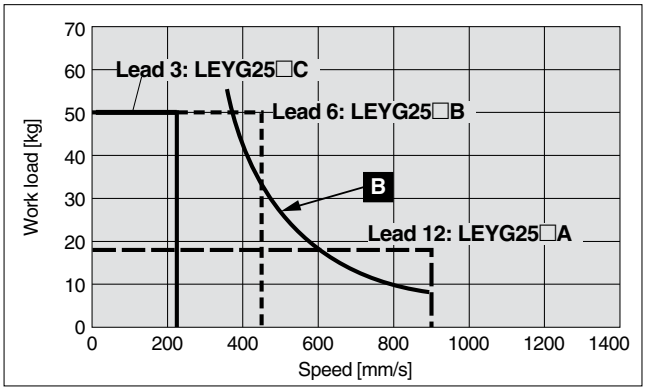


LEYG32D (Motor mounting position: In-line)



Speed–Horizontal Work Load Graph/Required Conditions for "Regeneration Option"

LEYG25□ (Motor mounting position: Top mounting/In-line)



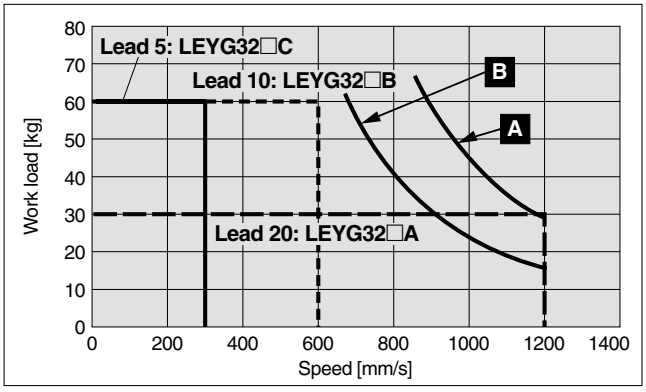
Required conditions for "Regeneration option"

∗ Regeneration option required when using product above "Regeneration" line in graph. (Order separately)

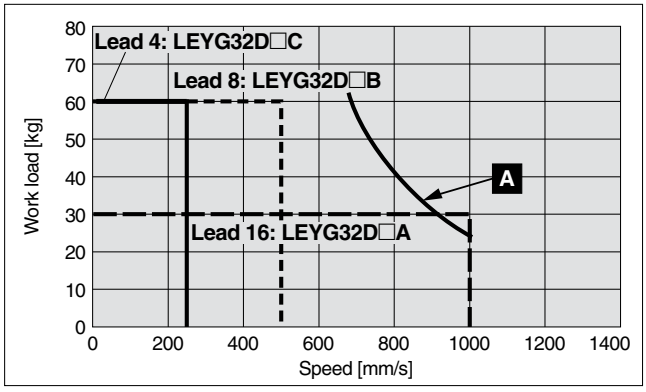
"Regeneration Option" Models

Operating conditions	Regenerative conditions	Horizontal transfer
A	Duty ratio 50% or more	LEC-MR-RB032
B	Duty ratio 100%	

LEYG32□ (Motor mounting position: Top mounting)

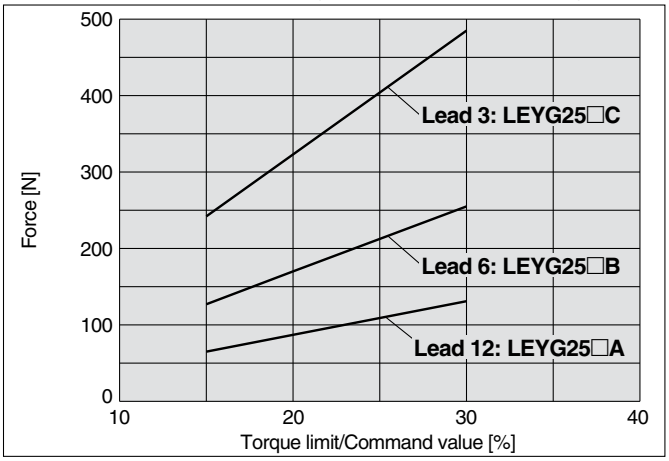


LEYG32D (Motor mounting position: In-line)

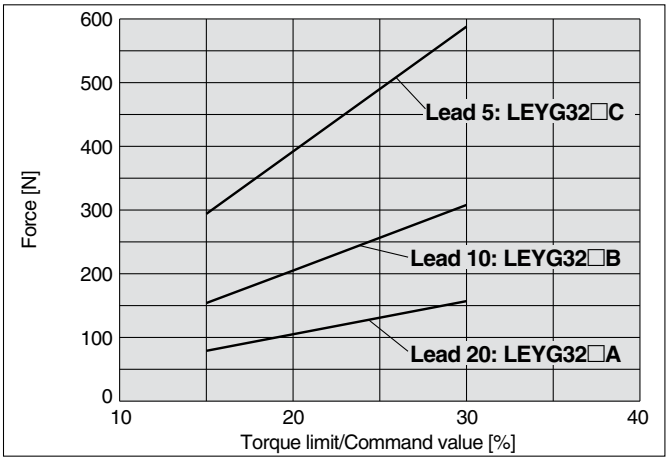


Force Conversion Graph

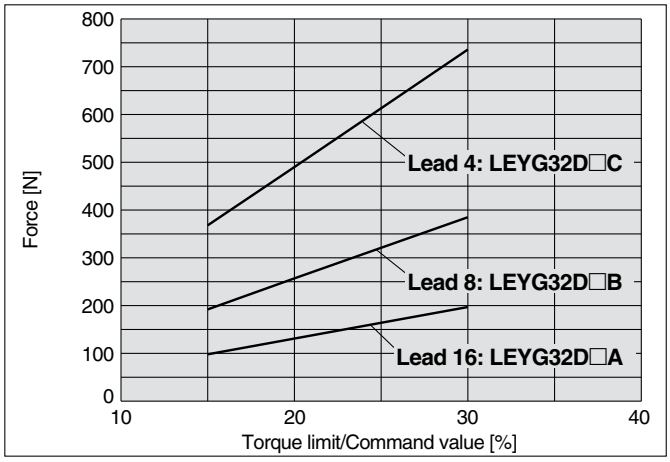
LEYG25□ (Motor mounting position: Top mounting/In-line)



LEYG32□ (Motor mounting position: Top mounting)



LEYG32D (Motor mounting position: In-line)



∗1 Motor type: When limiting torque with incremental encoder, parameter No. PC12/the value of the internal torque command should be set 30% or less.
∗2 Motor type: When limiting torque with absolute encoder, parameter No. PC13/the value of the maximum output command for analog torque should be set 30% or less.

Electric Actuator/Guide Rod Type

AC Servo Motor

Series LEYG

LEYG25, 32

CE

RoHS

How to Order

LEYG 25 M □ S2 B – 100 □ □ – S 2 A1 □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫ ⓬

❶ Size

25
32

❷ Bearing type

M	Sliding bearing
L	Ball bushing bearing

❸ Motor mounting position

Nil	Top mounting
D	In-line

❹ Motor type*1

Symbol	Type	Output [W]	Actuator size	Compatible drivers*2
S2	AC servo motor (Incremental encoder)	100	25	LECSA□-S1
S3	AC servo motor (Incremental encoder)	200	32	LECSA□-S3
S6	AC servo motor (Absolute encoder)	100	25	LECSB□-S5 LECSC□-S5 LECSS□-S5
S7	AC servo motor (Absolute encoder)	200	32	LECSB□-S7 LECSC□-S7 LECSS□-S7

∗1: For motor type S2 and S6, the compatible driver part number suffixes are S1 and S5 respectively.

∗2: For details about the driver, refer to page 120.

❺ Lead [mm]

Symbol	LEYG25	LEYG32∗
A	12	16 (20)
B	6	8 (10)
C	3	4 (5)

∗ The values shown in ( ) are the lead for size 32 top mounting types. (Equivalent lead which includes the pulley ratio [1.25:1])

❻ Stroke [mm]

30	30
to	to
300	300

∗ Refer to the table below for details.

❼ Motor option

Nil	Without option
B	With lock

❽ Guide option

Nil	Without option
F	With grease retaining function

∗ Only available for size 25 and 32 sliding bearings. (Refer to "Construction" on page 113.)

❾ Cable type∗

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

∗ The motor and encoder cables are included. (The lock cable is also included when the motor with lock option is selected.)

∗ Standard cable entry direction is
- Top mounting: (A) Axis side
- In-line: (B) Counter axis side

(Refer to page 131 for details.)

❿ Cable length∗ [m]

Nil	Without cable
2	2
5	5
A	10

∗ The length of the encoder, motor and lock cables are the same.

∗ Applicable stroke table ● Standard

Model \ Stroke (mm)	30	50	100	150	200	250	300	Manufacturable stroke range
LEYG25	●	●	●	●	●	●	●	15 to 300
LEYG32	●	●	●	●	●	●	●	20 to 300

Note) Consult with SMC for non-standard strokes as they are produced as special orders.

For auto switches, refer to pages 20 and 21.

Motor mounting position: Top mounting

Motor mounting position: In-line

⓫ Driver type*

	Compatible drivers	Power supply voltage (V)
Nil	Without driver	—
A1	LECSA1-S□	100 to 120
A2	LECSA2-S□	200 to 230
B1	LECSB1-S□	100 to 120
B2	LECSB2-S□	200 to 230
C1	LECSC1-S□	100 to 120
C2	LECSC2-S□	200 to 230
S1	LECSS1-S□	100 to 120
S2	LECSS2-S□	200 to 230

* When the driver type is selected, the cable is included. Select cable type and cable length.
Example)
S2S2: Standard cable (2 m) + Driver (LECSS2)
S2 : Standard cable (2 m)
Nil : Without cable and driver

⓬ I/O connector

Nil	Without connector
H	With connector

Use of auto switches for the guide rod type LEYG series
· Insert the auto switch from the front side with rod (plate) sticking out.
· For the parts hidden behind the guide attachment (Rod stick out side), the auto switch cannot be fixed.
· Consult with SMC when using auto switch on the rod stick out side.

Compatible Drivers

Driver type	**Pulse input type /Positioning type** 	**Pulse input type** 	**CC-Link direct input type** 	**SSCNET III type** 
Series	**LECSA**	**LECSB**	**LECSC**	**LECSS**
Number of point tables	Up to 7	—	Up to 255 (2 stations occupied)	—
Pulse input	○	○	—	—
Applicable network	—	—	CC-Link	SSCNET III type
Control encoder	Incremental 17-bit encoder	Absolute 18-bit encoder	Absolute 18-bit encoder	Absolute 18-bit encoder
Communication function	USB communication	USB communication, RS422 communication	USB communication, RS422 communication	USB communication
Power supply voltage (V)	100 to 120 VAC (50/60 Hz) 200 to 230 VAC (50/60 Hz)			
Reference page	Page 120			

Specifications

Model			LEYG25□S$^{2}_{6}$ (Top mounting) LEYG25□DS$^{2}_{6}$ (In-line)			LEYG32□S$^{3}_{7}$ (Top mounting)			LEYG32□DS$^{3}_{7}$ (In-line)		
Actuator specifications	Stroke [mm] Note 1)		30, 50, 100, 150, 200, 250, 300			30, 50, 100, 200, 250, 300			30, 50, 100, 200, 250, 300		
	Work load [kg]	Horizontal Note 2)	18	50	50	30	60	60	30	60	60
		Vertical	7	15	29	7	17	35	10	22	44
	Pushing force [N] Note 3) (Set value: 15 to 30%)		65 to 131	127 to 255	242 to 485	79 to 157	154 to 308	294 to 588	98 to 197	192 to 385	368 to 736
	Max. speed [mm/s]		900	450	225	1200	600	300	1000	500	250
	Pushing speed [mm/s²] Note 4)		35 or less			30 or less			30 or less		
	Max. acceleration/deceleration [mm/s²]		5,000			5,000					
	Positioning repeatability [mm]		±0.02			±0.02					
	Lead [mm] (including pulley ratio)		12	6	3	20	10	5	16	8	4
	Impact/Vibration resistance [m/s²] Note 5)		50/20			50/20					
	Actuation type		Ball screw + Belt [1:1]/Ball screw			Ball screw + Belt [1:1.25]			Ball screw		
	Guide type		Sliding bearing (LEYG□M), Ball bushing bearing (LEYG□L)								
	Operating temperature range [°C]		5 to 40			5 to 40					
	Operating humidity range [%RH]		90 or less (No condensation)			90 or less (No condensation)					
	Required conditions for "Regeneration option" [kg] Note 6)	Horizontal	8 or more	31 or more	Not required	15 or more	Not required	Not required	23 or more	Not required	Not required
		Vertical	2 or more	1 or more	1 or more	4 or more	5 or more	9 or more	4 or more	5 or more	9 or more
Electric specifications	Motor output/Size		100 W/□40			200 W/□60					
	Motor type		AC servo motor (100/200 VAC)			AC servo motor (100/200 VAC)					
	Encoder		Motor type S2, S3: Incremental 17-bit encoder (Resolution: 131072 p/rev) Motor type S6, S7: Absolute 18-bit encoder (Resolution: 262144 p/rev)								
	Power consumption [W] Note 7)	Horizontal	45			65			65		
		Vertical	145			175			175		
	Standby power consumption when operating [W] Note 8)	Horizontal	2			2			2		
		Vertical	8			8			8		
	Max. instantaneous power consumption [W] Note 9)		445			724			724		
Lock unit specifications	Type Note 10)		Non-magnetizing lock			Non-magnetizing lock					
	Holding force [N]		131	255	485	157	308	588	197	385	736
	Power consumption at 20°C [W] Note 11)		6.3			7.9			7.9		
	Rated voltage [V]		24 VDC $^{0}_{-10\%}$								

Note 1) Consult with SMC for non-standard strokes as they are produced as special orders.
Note 2) The maximum value of the horizontal work load. An external guide is necessary to support the load. The actual work load changes accoding to the condition of the external guide. Please confirm using actual device.
Note 3) The force setting range (set values for the driver) for the pushing operation with the torque control mode, etc. Set it with reference to "Force Conversion Graph" on page 109.
Note 4) The allowable collision speed for the pushing operation with the torque control mode, etc.
Note 5) 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 6) The work load conditions which require "Regeneration option" when operating at the maximum speed (Duty ratio: 100%). Order the regeneration option separately. For details and order numbers, refer to "Required Conditions for Regeneration Option" on page 108.
Note 7) The power consumption (including the driver) is for when the actuator is operating.
Note 8) The standby power consumption when operating (including the driver) is for when the actuator is stopped in the set position during operation.
Note 9) The maximum instantaneous power consumption (including the controller) is for when the actuator is operating.
Note 10) Only when motor option "With lock" is selected.
Note 11) For an actuator with lock, add the power consumption for the lock.

Weight

Weight: Top Mounting Type

[kg]

Series		LEYG25M							LEYG32M						
Stroke [mm]		30	50	100	150	200	250	300	30	50	100	150	200	250	300
Motor type	Incremental encoder	1.80	1.99	2.31	2.73	3.07	3.41	3.67	3.24	3.50	4.05	4.80	5.35	5.83	6.28
	Absolute encoder	1.86	2.05	2.37	2.79	3.13	3.47	3.73	3.18	3.44	3.99	4.74	5.29	5.77	6.22

Series		LEYG25L							LEYG32L						
Stroke [mm]		30	50	100	150	200	250	300	30	50	100	150	200	250	300
Motor type	Incremental encoder	1.81	2.02	2.26	2.69	2.95	3.27	3.51	3.24	3.51	3.9	4.64	5.06	5.56	5.96
	Absolute encoder	1.87	2.08	2.32	2.75	3.01	3.33	3.57	3.18	3.45	3.84	4.58	5.00	5.50	5.90

Weight: In-line Motor Type

[kg]

Series		LEYG25MD							LEYG32MD						
Stroke [mm]		30	50	100	150	200	250	300	30	50	100	150	200	250	300
Motor type	Incremental encoder	1.83	2.02	2.34	2.76	3.10	3.44	3.70	3.26	3.52	4.07	4.82	5.37	5.85	6.30
	Absolute encoder	1.89	2.08	2.40	2.82	3.16	3.50	3.76	3.20	3.46	4.01	4.76	5.31	5.79	6.24

Series		LEYG25LD							LEYG32LD						
Stroke [mm]		30	50	100	150	200	250	300	30	50	100	150	200	250	300
Motor type	Incremental encoder	1.84	2.05	2.29	2.72	2.98	3.30	3.54	3.26	3.53	3.92	4.66	5.08	5.58	5.98
	Absolute encoder	1.90	2.11	2.35	2.78	3.04	3.36	3.60	3.20	3.47	3.86	4.60	5.02	5.52	5.92

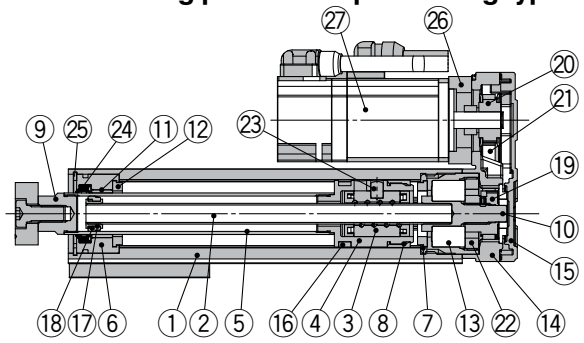
Additional Weight

[kg]

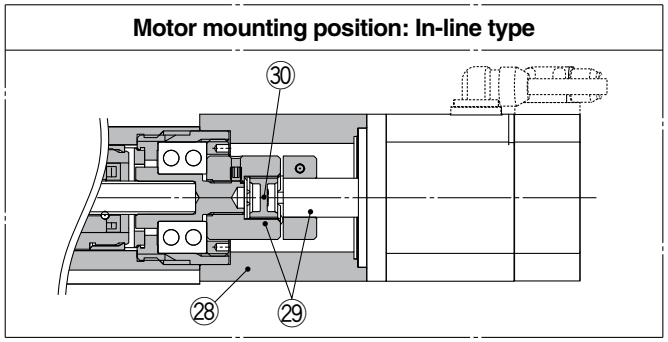
Size		25	32
Lock	Incremental encoder	0.20	0.40
	Absolute encoder	0.30	0.66

Construction

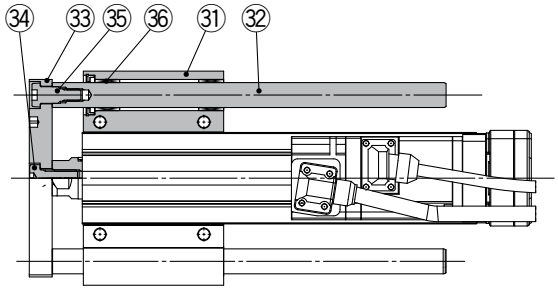
Motor mounting position: Top mounting type



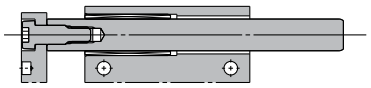
Motor mounting position: In-line type



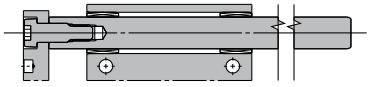
LEYG□M



LEYG25/32: 50st or less

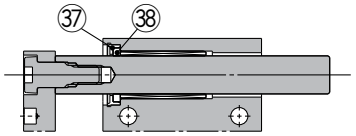


LEYG25/32: Over 50st



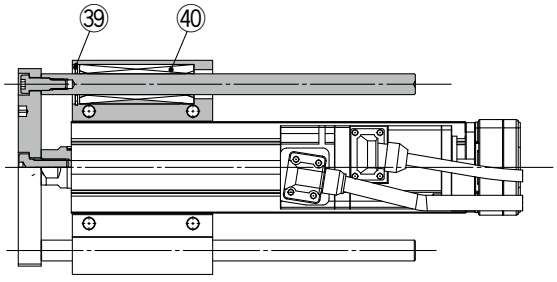
When grease retaining function selected

LEYG25/32: 50st or less

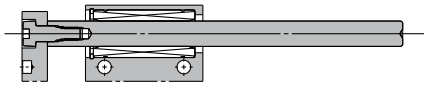


LEYG25/32: Over 50st

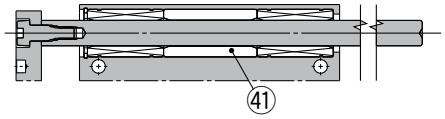
LEYG□L



LEYG25/32L: 100st or less



LEYG25/32: Over 100st



Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Ball screw shaft**	Alloy steel	
3	**Ball screw nut**	—	
4	**Piston**	Aluminum alloy	
5	**Piston rod**	Stainless steel	Hard chrome anodized
6	**Rod cover**	Aluminum alloy	
7	**Housing**	Aluminum alloy	
8	**Rotation stopper**	POM	
9	**Socket**	Free cutting carbon steel	Nickel plated
10	**Connected shaft**	Free cutting carbon steel	Nickel plated
11	**Bushing**	Lead bronze cast	
12	**Bumper**	Urethane	
13	**Bearing**	—	
14	**Return box**	Aluminum die-cast	Trivalent chromated
15	**Return plate**	Aluminum die-cast	Trivalent chromated
16	**Magnet**	—	
17	**Wear ring holder**	Stainless steel	Stroke 101 mm or more
18	**Wear ring**	POM	Stroke 101 mm or more
19	**Screw shaft pulley**	Aluminum alloy	
20	**Motor pulley**	Aluminum alloy	
21	**Belt**	—	

No.	Description	Material	Note
22	**Bearing stopper**	Aluminum alloy	
23	**Parallel pin**	Stainless steel	
24	**Seal**	NBR	
25	**Retaining ring**	Steel for spring	Phosphate coated
26	**Motor adapter**	Aluminum alloy	Anodized
27	**Motor**	—	
28	**Motor block**	Aluminum alloy	Anodized
29	**Hub**	Aluminum alloy	
30	**Spider**	Urethane	Spider
31	**Guide attachment**	Aluminum alloy	Anodized
32	**Guide rod**	Carbon steel	
33	**Plate**	Aluminum alloy	Anodized
34	**Plate mounting bolt**	Carbon steel	Nickel plated
35	**Guide bolt**	Carbon steel	Nickel plated
36	**Sliding bearing**	—	
37	**Felt**	Felt	
38	**Holder**	Resin	
39	**Retaining ring**	Steel for spring	Phosphate coated
40	**Ball bushing**	—	
41	**Spacer**	Aluminum alloy	Chromated

Support Block

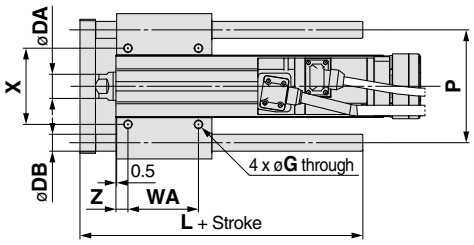
Size	Order no.
25	LEYG-S025
32	LEYG-S032

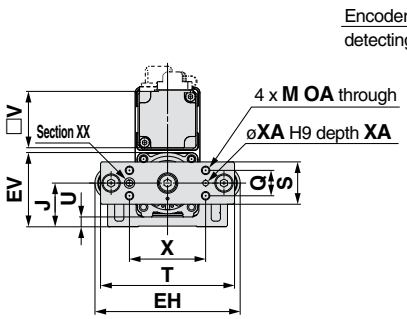
∗ Two body mounting bolts are included with the support block.

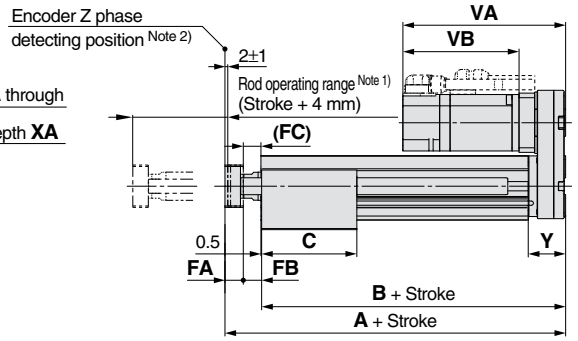
Replacement Parts /Belt

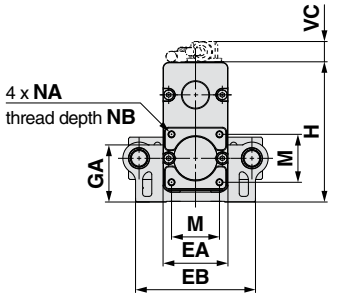
Size	Order no.
25	LE-D-2-2
32	LE-D-2-4

Dimensions: Top Mounting



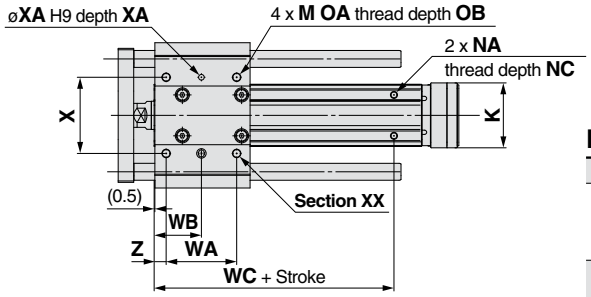


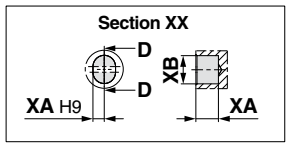




Note 1) Range within which the rod can move. Make sure a workpiece mounted on the rod does not interfere with the workpieces and facilities around the rod.

Note 2) The Z phase first detecting position from the stroke end of the motor side.





LEYG□L (Ball bushing bearing) [mm]

Size	Stroke range (mm)	L	DB
25	Up to 114	91	10
	115 to 190	115	
	191 to 300	133	
32	Up to 114	97.5	13
	115 to 190	116.5	
	191 to 300	34	

LEYG□M (Sliding bearing) [mm]

Size	Stroke range (mm)	L	DB
25	Up to 59	67.5	12
	60 to 185	100.5	
	186 to 300	138	
32	Up to 59	74	16
	60 to 185	107	
	186 to 300	144	

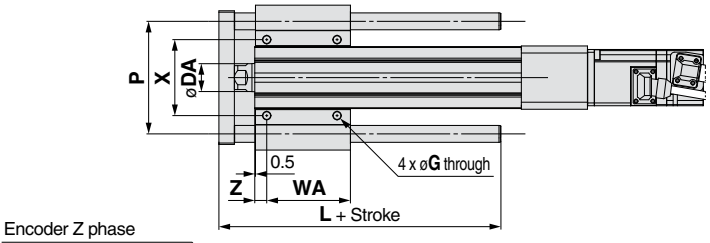
LEYG□M, LEYG□L Common [mm]

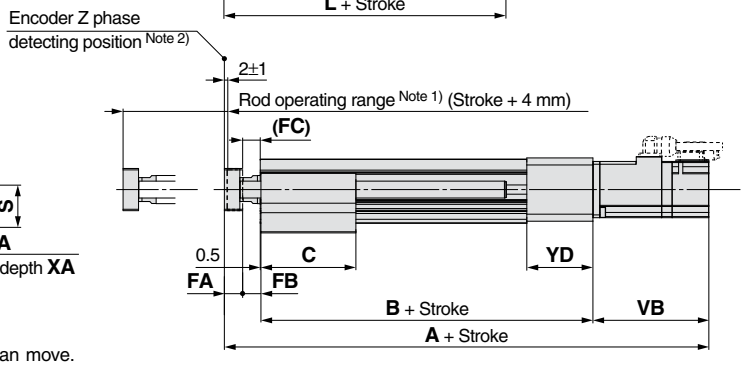
Size	Stroke range (mm)	A	B	C	DA	EA	EB	EH	EV	FA	FB	FC	G	GA	H	J	K	M	NA	NB	NC
25	Up tp 39	141.5	116	50	20	46	85	103	52.5	11	14.5	12.5	5.4	41	99	31	29	34	M5 x 0.8	8	6.5
	40 to 100			67.5																	
	101 to 124	166.5	141																		
	125 to 200			84.5																	
	201 to 300			102																	
32	Up tp 39	160.5	130	55	25	60	101	123	64	12	18.5	16.5	5.4	50.5	126	38.5	30	40	M6 x 1.0	10	8.5
	40 to 100			68																	
	101 to 124	190.5	160																		
	125 to 200			85																	
	201 to 300			102																	

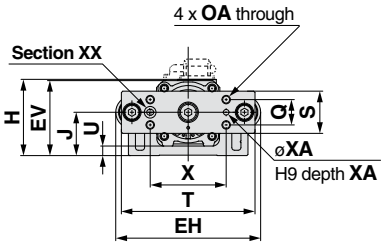
Size	Stroke range (mm)	OA	OB	P	Q	S	T	U	V	WA	WB	WC	X	XA	XB	Y	Z
25	Up tp 39	M6 x 1.0	12	80	18	30	95	7	40	35	26	70	54	4	5	26.5	8.5
	40 to 100									50	33.5						
	101 to 124											95					
	125 to 200									70	43.5						
	201 to 300									85	51						
32	Up tp 39	M6 x 1.0	12	95	28	40	117	7.5	60	40	28.5	75	64	5	6	34	8.5
	40 to 100									50	33.5						
	101 to 124											105					
	125 to 200									70	43.5						
	201 to 300									85	51						

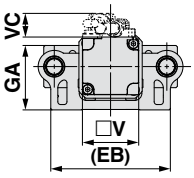
Size	Incremental encoder						Absolute encoder					
	Without lock			With lock			Without lock			With lock		
	VA	VB	VC	VA	VB	VC	VA	VB	VC	VA	VB	VC
25	120	87	14.1	156.9	123.9	15.8	115.4	82.4	14.1	156.5	123.5	15.8
32	128.2	88.2	17.1	156.8	116.8	17.1	116.6	76.6	17.1	156.1	116.1	17.1

Dimensions: In-line Motor



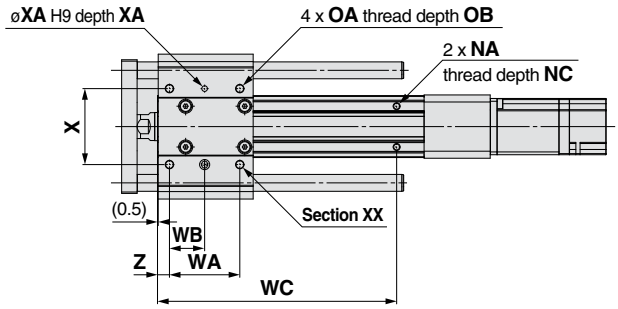


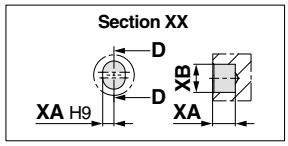




Note 1) Range within which the rod can move. Make sure a workpiece mounted on the rod does not interfere with the workpieces and facilities around the rod.

Note 2) The Z phase first detecting position from the stroke end of the motor side.





LEYG□L (Ball bushing bearing) [mm]

Size	Stroke range (mm)	L	DB
25	Up to 114	91	10
	115 to 190	115	
	191 to 300	133	
32	Up to 114	97.5	13
	115 to 190	116.5	
	191 to 300	34	

LEYG□M (Sliding bearing) [mm]

Size	Stroke range (mm)	L	DB
25	Up to 59	67.5	12
	60 to 185	100.5	
	186 to 300	138	
32	Up to 59	74	16
	60 to 185	107	
	186 to 300	144	

LEYG□M, LEYG□L Common [mm]

Size	Stroke range (mm)	B	C	DA	EA	EB	EH	EV	FA	FB	FC	G	GA	H	J	K	NA	NC
25	Up to 39	115.5	50	20	46	85	103	52.5	11	14.5	12.5	5.4	40.5	53.5	31	29	M5 x 0.8	6.5
	40 to 100		67.5															
	101 to 124	140.5																
	125 to 200		84.5															
	201 to 300		102															
32	Up to 39	128	55	25	60	101	123	64	12	18.5	16.5	5.4	50.5	68.5	38.5	30	M6 x 1.0	8.5
	40 to 100		68															
	101 to 124	158																
	125 to 200		85															
	201 to 300		102															

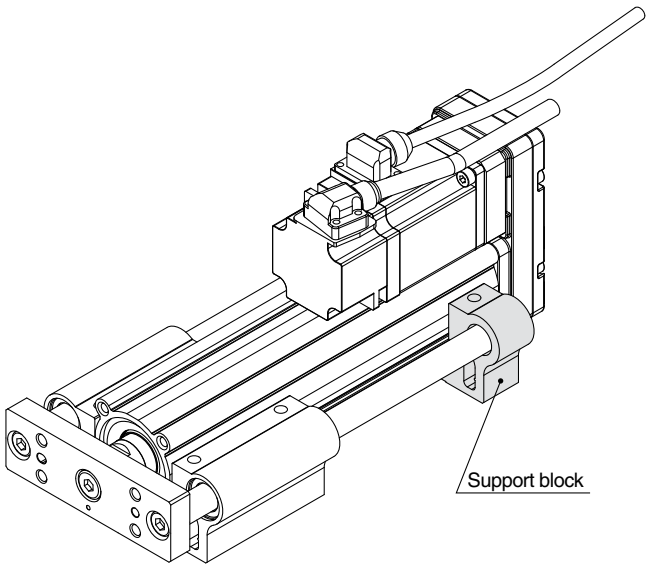
Size	Stroke range (mm)	OA	OB	P	Q	S	T	U	V	WA	WB	WC	X	XA	XB	YD	Z
25	Up to 39	M6 x 1.0	12	80	18	30	95	7	40	35	26	70	54	4	5	47	8.5
	40 to 100									50	33.5						
	101 to 124											95					
	125 to 200									70	43.5						
	201 to 300									85	51						
32	Up to 39	M6 x 1.0	12	95	28	40	117	7.5	60	40	28.5	75	64	5	6	60	8.5
	40 to 100									50	33.5						
	101 to 124											105					
	125 to 200									70	43.5						
	201 to 300									85	51						

Size	Stroke range (mm)	Incremental encoder						Absolute encoder					
		Without lock			With lock			Without lock			With lock		
		A	VB	VC	A	VB	VC	A	VB	VC	A	VB	VC
25	15 to 100	249	87	14.6	285.9	123.9	16.3	244.4	82.4	14.6	285.5	123.5	16.3
	105 to 300	274			310.9			269.4			315.5		
32	15 to 100	274.7	88.2	17.1	303.3	116.8	17.1	263.1	76.6	17.1	302.6	116.1	17.1
	105 to 300	304.7			333.3			293.1			332.6		

Support Block

●Guide for support block application

When the stroke exceeds 100 mm and the lateral load is applied, the body will be bent based on the load. Mounting the support block is recommended. (Please order it separately from the models shown below.)

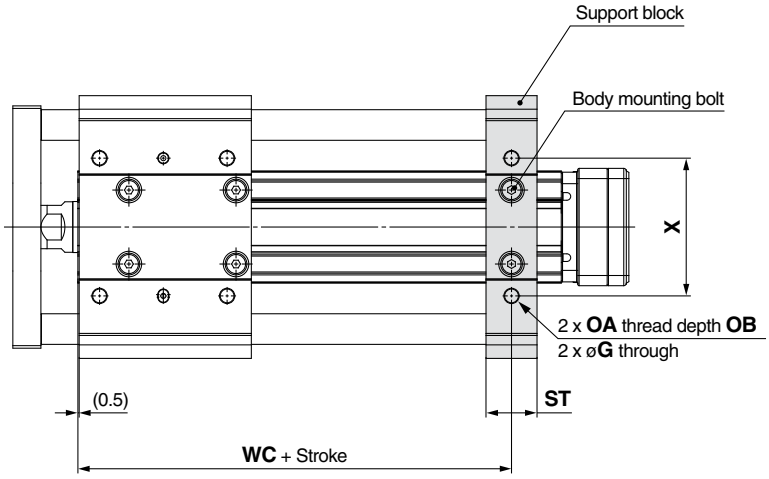


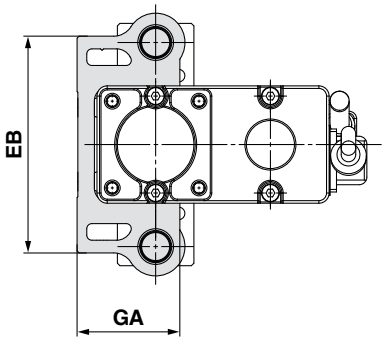
Support Block Model

LEYG-S025

Size

025	For size 25
032	For size 32





⚠Caution

Do not install the body using only a support block.
The support block should be used only for support.

[mm]

Size	Model	Stroke range	EB	G	GA	OA	OB	ST	WC	X
25	**LEYG-S025**	100st or less	85	5.4	40.5	M6 x 1.0	12	20	70	54
		101st or more, 300st or less							95	
32	**LEYG-S032**	100st or less	101	5.4	50.5	M6 x 1.0	12	22	75	64
		101st or more, 300st or less							105	

∗ Two body mounting bolts are included with the support block.

Electric Actuators/Specific Product Precautions 1

Be sure to read before handling. Refer to back cover for Safety Instructions and the Operation Manual for Electric Actuator Precautions. Please download it via our website, http://www.smcworld.com

Design/Selection

⚠Warning

1. Do not apply a load in excess of the operating limit.

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

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

This can cause failure.

3. Do not use as a stopper.

Handling

⚠Caution

1. When the pushing operation is used, be sure to set to "Torque control mode", and use within the specified pushing speed range for each series.

Do not allow the piston rod to hit the workpiece and end of the stroke in the "Position control mode", "Speed control mode" or "Positioning mode". The lead screw, bearing and internal stopper may be damaged and lead to malfunction.

2. When operating with "Torque control mode", the value of the internal torque command (LECSA) or the maximum output command for analog torque (LECSB) should be set 30% or less.

It may lead to damage and malfunction.

3. The forward/reverse torque limit is set to 100% (3 times the motor rated torque) as default.

This value is the maximum torque (the limit value) in the "Position control mode", "Speed control mode" or "Positioning mode". When the product is operated with a smaller value than the default, acceleration when driving can decrease. Set the value after confirming the actual device to be used.

4. The maximum speed of this actuator is affected by the product stroke.

Check the model selection section of the catalog.

5. 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.

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

The piston rod and guide rod are manufactured to precise tolerances, even a slight deformation may cause malfunction.

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

Use a freely moving connector (such as a floating joint).

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

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

Handling

⚠Caution

9. When an actuator is operated with one end fixed and the other free (ends tapped (standard), flange type), a bending moment may act on the actuator due to vibration generated at the stroke end, which can damage the actuator. In such a case, install a mounting bracket to suppress the vibration of the actuator body or reduce the speed so that the actuator does not vibrate.

Also, use a mounting bracket when moving the actuator body or when a long stroke actuator is mounted horizontally and fixed at one end.

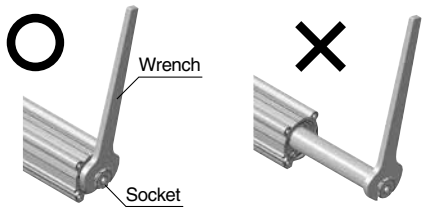
10. Avoid using the electric actuator in such a way that rotational torque would be applied to the piston rod.

This may cause deformation of the non-rotating guide, abnormal responses of the auto switch, play 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	LEY25□	LEY32
	1.1	1.4

When screwing in a bracket or nut to the end of the piston rod, hold the flats of the rod end with a wrench (the piston rod should be fully retracted). Do not apply tightening torque to the non-rotating mechanism.



11. When using auto switch with the guide rod type LEYG series, the following limits will be in effect. Please select the product while paying attention to this.

- Insert the auto switch from the front side with rod (plate) sticking out.
- For the parts hidden behind the guide attachment (Rod stick out side), the auto switch cannot be fixed.
- Consult with SMC when using auto switch on the rod stick out side.

Enclosure

IP – □□

First characteristic numeral ● ● Second characteristic numeral

• First Characteristics:
Degrees of protection against solid foreign objects

0	Non-protected
1	Protected against solid foreign objects of 50 mmø and greater
2	Protected against solid foreign objects of 12 mmø and greater
3	Protected against solid foreign objects of 2.5 mmø and greater
4	Protected against solid foreign objects of 1.0 mmø and greater
5	Dust-protected
6	Dust-tight

Electric Actuators/Specific Product Precautions 2

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Enclosure

- **Second Characteristics: Degrees of protection against water**

0	Non-protected	—
1	Protected against vertically falling water drops	Dripproof type 1
2	Protected against vertically falling water drops when enclosure tilted up to 15°	Dripproof type 2
3	Protected against rainfall when enclosure tilted up to 60°	Rainproof type
4	Protected against splashing water	Splashproof type
5	Protected against water jets	Water-jet-proof type
6	Protected against powerful water jets	Powerful water-jet-proof type
7	Protected against the effects of temporary immersion in water	Immersible type
8	Protected against the effects of continuous immersion in water	Submersible type

Example) In the case of stipulated as IP65, we can know the degrees of protection is dust-tight and water-jet-proof on the grounds that the first characteristic numeral is "6" and the second characteristic numeral is "5" respectively, that gives it will not be adversely affected by direct water jets from any direction.(∗ The water jets which are "5" of the second characteristic numeral based on JIS C 0920 (2003) indicates a flow of water for 3 minutes at 12.5 L per minute.)

Mounting

⚠Caution

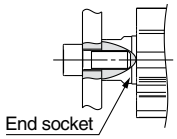
1. When mounting workpieces or jigs to the piston rod end, hold the flats of the piston rod end with a wrench so that the piston rod does not rotate. The bolt should be tightened within the specified torque range.

This may cause abnormal responses of the auto switch, play in the internal guide or an increase in the sliding resistance.

2. When mounting the product and/or workpiece, tighten the mounting screws within the specified torque range.

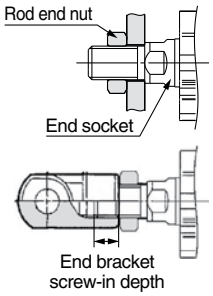
Tightening with higher torque than the specified range may cause malfunction while the tightening with lower torque can cause the displacement of gripping position or dropping a workpiece.

Workpiece fixed/Rod end female thread



Model	Bolt	Max. tightening torque (N·m)	Max. screw-in depth (mm)	End socket width across flats (mm)
LEY25	M8 x 1.25	12.5	13	17
LEY32	M8 x 1.25	12.5	13	22

Workpiece fixed/Rod end male thread (When "Rod end male thread" is selected.)



Model	Thread size	Max. tightening torque (N·m)	Effective thread length (mm)	End socket width across flats (mm)
LEY25	M14 x 1.5	65.0	20.5	17
LEY32	M14 x 1.5	65.0	20.5	22

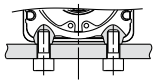
Model	Rod end nut		End bracket screw-in depth (mm)
	Width across flats (mm)	Length (mm)	
LEY25	22	8	8 or more
LEY32	22	8	8 or more

∗ Rod end nut is an accessory.

Mounting

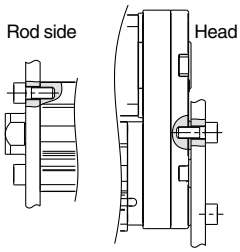
⚠Caution

Body fixed/Body bottom tapped style (When "Body bottom tapped" is selected.)



Model	Bolt	Max. tightening torque (N·m)	Max. screw-in depth (mm)
LEY25	M5 x 0.8	3.0	6.5
LEY32	M6 x 1.0	5.2	8.8

Body fixed/Rod side/Head side tapped style

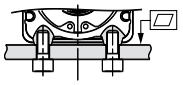


Model	Bolt	Max. tightening torque (N·m)	Max. screw-in depth (mm)
LEY25	M5 x 0.8	3.0	8
LEY32	M6 x 1.0	5.2	10

∗ Except the LEY□D.

3. Keep the flatness of the mounting surface within the following ranges when mounting the actuator body and workpiece.

Unevenness of a workpiece or base mounted on the body of the product may cause an increase in the sliding resistance.

Model	Mounting position	Flatness
LEY□	Body/Body bottom 	0.1 mm or less

Maintenance

⚠Warning

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

- **Maintenance frequency**

Perform maintenance according to the table below.

Frequency	Appearance check	Belt check
Inspection before daily operation	○	—
Inspection every 6 months/250 km/5 million cycles∗	○	○

∗ Select whichever comes sooner.

- **Items for visual appearance check**

1. Loose set screws, Abnormal dirt
2. Check of flaw and cable joint
3. Vibration, Noise

- **Items for belt check**

Stop operation immediately and replace the belt when belt appear to be below. Further, ensure your operating environment and conditions satisfy the requirements specified for the product.

a. Tooth shape canvas is worn out
Canvas fiber becomes fuzzy. Rubber is removed and the fiber becomes whitish. Lines of fibers become unclear.

b. Peeling off or wearing of the side of the belt
Belt corner becomes round and frayed thread sticks out.

c. Belt partially cut
Belt is partially cut. Foreign matter caught in teeth other than cut part causes flaw.

d. Vertical line of belt teeth
Flaw which is made when the belt runs on the flange.

e. Rubber back of the belt is softened and sticky

f. Crack on the back of the belt

AC Servo Motor Driver
Series ***LECS□***

Pulse Input Type/ Positioning Type

Incremental Type

Series LECSA

Pulse Input Type

Absolute Type

Series LECSB

CC-Link Direct Input Type

Absolute Type

Series LECSC

SSCNET III Type

Absolute Type

Series LECSS

AC Servo Motor Driver
Series LECS□

Power supply voltage	100 to 120 VAC 200 to 230 VAC
Motor capacity	100/200/400 W

Incremental Type

Series LECSA (Pulse input type/Positioning type)

- **Up to 7 positioning points by point table**
- **Input type:** Pulse input
- **Control encoder:** Incremental 17-bit encoder (Resolution: 131072 pulse/rev)
- **Parallel input:** 6 inputs
  output: 4 outputs

Absolute Type

Series LECSB (Pulse input type)

- **Input type:** Pulse input
- **Control encoder:** Absolute 18-bit encoder (Resolution: 262144 pulse/rev)
- **Parallel input:** 10 inputs
  output: 6 outputs

Series LECSC (CC-Link Direct Input Type)

CC-Link

- **Position data/speed data setting and operation start/stop**
- **Positioning by up to 255 point tables (when 2 stations occupied)**
- **Up to 32 drivers connectable (when 2 stations occupied) with CC-Link communication**
- **Applicable Fieldbus protocol:** CC-Link (Ver. 1.10, max. communication speed: 10 Mbps)
- **Control encoder:** Absolute 18-bit encoder (Resolution: 262144 pulse/rev)

Series LECSS (SSCNET III Type)

- **Compatible with Mitsubishi Electric's servo system controller network**
- **Reduced wiring and SSCNET III optical cable for one-touch connection**
- **SSCNET III optical cable provides enhanced noise resistance**
- **Up to 16 drivers connectable with SSCNET III communication**
- **Applicable Fieldbus protocol:** SSCNET III
  (High-speed optical communication, max. bidirectional communication speed: 100 Mbps)
- **Control encoder:** Absolute 18-bit encoder (Resolution: 262144 pulse/rev)

AC Servo Motor Driver

Incremental Type

Series LECSA (Pulse Input Type/Positioning Type)

Absolute Type

Series LECSB/LECSC/LECSS

(Pulse Input Type) (CC-Link Direct Input Type) (SSCNET III Type)

CE RoHS

LECSA LECSB LECSC LECSS

How to Order

Driver LECS **A** **1** – **S1**

Driver type

A	Pulse input type/Positioning type (For incremental encoder)
B	Pulse input type (For absolute encoder)
C	CC-Link direct input type (For absolute encoder)
S	SSCNET III type (For absolute encoder)

Power supply voltage

1	100 to 120 VAC, 50/60 Hz
2	200 to 230 VAC, 50/60 Hz

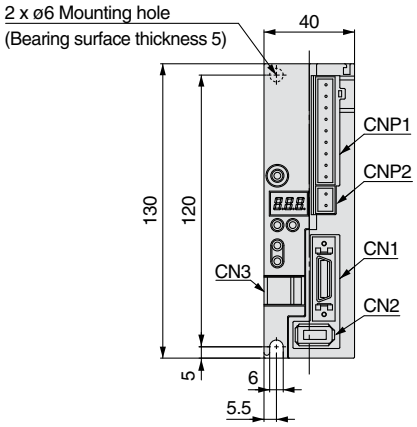
Compatible motor type

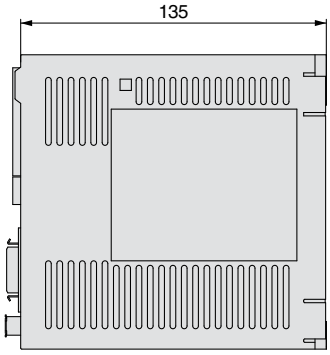
Symbol	Type	Capacity	Encoder
S1	AC servo motor (S2)	100 W	Incremental
S3	AC servo motor (S3)	200 W	
S4	AC servo motor (S4)*	400 W	
S5	AC servo motor (S6)	100 W	Absolute
S7	AC servo motor (S7)	200 W	
S8	AC servo motor (S8)*	400 W	

* Only available for power supply voltage "200 to 230 VAC".

Dimensions

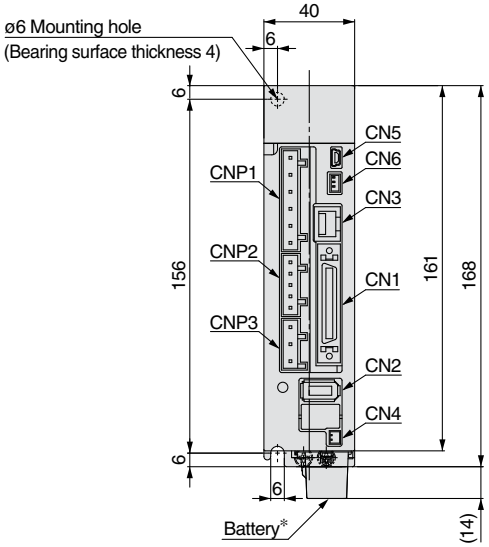
LECSA□

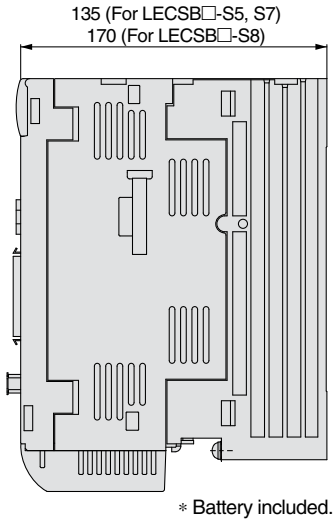




Connector name	Description
CN1	I/O signal connector
CN2	Encoder connector
CN3	USB communication connector
CNP1	Main circuit power supply connector
CNP2	Control circuit power supply connector

LECSB□



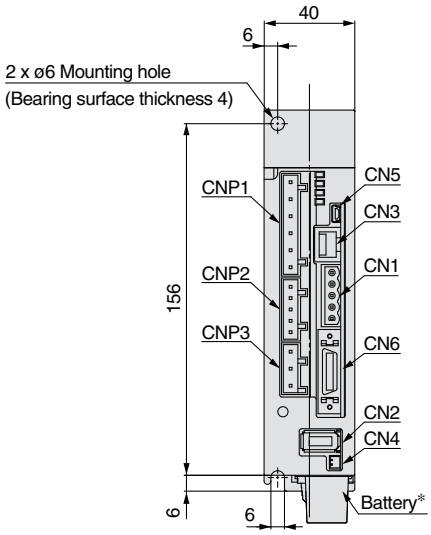


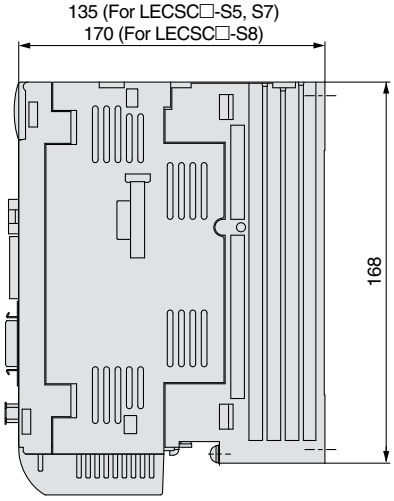
* Battery included.

Connector name	Description
CN1	I/O signal connector
CN2	Encoder connector
CN3	RS-422 communication connector
CN4	Battery connector
CN5	USB communication connector
CN6	Analog monitor connector
CNP1	Main circuit power supply connector
CNP2	Control circuit power supply connector
CNP3	Servo motor power connector

Dimensions

LECSC□

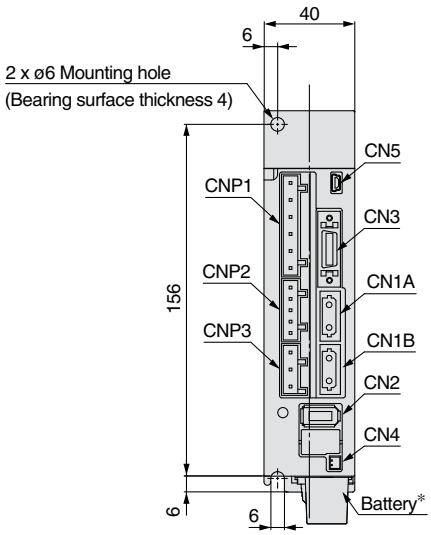


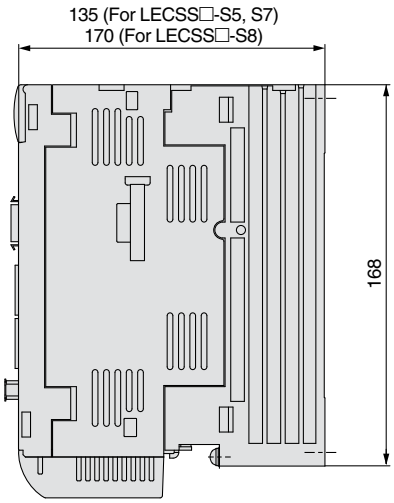


Connector name	Description
CN1	CC-Link connector
CN2	Encoder connector
CN3	RS-422 communication connector
CN4	Battery connector
CN5	USB communication connector
CN6	I/O signal connector
CNP1	Main circuit power supply connector
CNP2	Control circuit power supply connector
CNP3	Servo motor power connector

∗ Battery included.

LECSS□





Connector name	Description
CN1A	Front axis connector for SSCNET III optical cable
CN1B	Rear axis connector for SSCNET III optical cable
CN2	Encoder connector
CN3	I/O signal connector
CN4	Battery connector
CN5	USB communication connector
CNP1	Main circuit power supply connector
CNP2	Control circuit power supply connector
CNP3	Servo motor power connector

∗ Battery included.

Specifications

Series LECSA

Model		LECSA1-S1	LECSA1-S3	LECSA2-S1	LECSA2-S3	LECSA2-S4
Compatible motor capacity [W]		100	200	100	200	400
Compatible encoder		Incremental 17-bit encoder (Resolution: 131072 p/rev)				
Main power supply	**Power voltage [V]**	Single phase 100 to 120 VAC (50/60 Hz)		Single phase 200 to 230 VAC (50/60 Hz)		
	Allowable voltage fluctuation [V]	Single phase 85 to 132 VAC		Single phase 170 to 253 VAC		
	Rated current [A]	3.0	5.0	1.5	2.4	4.5
Control power supply	**Control power supply voltage [V]**	24 VDC				
	Allowable voltage fluctuation [V]	21.6 to 26.4 VDC				
	Rated current [A]	0.5				
Parallel input		6 inputs				
Parallel output		4 outputs				
Max. input pulse frequency [pps]		1 M (for differential receiver), 200 k (for open collector)				
Function	**In-position range setting [pulse]**	0 to ±65535 (Command pulse unit)				
	Error excessive	±3 rotations				
	Torque limit	Parameter setting				
	Communication	USB communication				
Operating temperature range [°C]		0 to 55 (No freezing)				
Operating humidity range [%RH]		90 or less (No condensation)				
Storage temperature range [°C]		–20 to 65 (No freezing)				
Storage humidity range [%RH]		90 or less (No condensation)				
Insulation resistance [MΩ]		Between the housing and SG: 10 (500 VDC)				
Weight [g]		600				700

Series LECSB

Model		LECSB1-S5	LECSB1-S7	LECSB2-S5	LECSB2-S7	LECSB2-S8
Compatible motor capacity [W]		100	200	100	200	400
Compatible encoder		Absolute 18-bit encoder (Resolution: 262144 p/rev)				
Main power supply	**Power voltage [V]**	Single phase 100 to 120 VAC (50/60 Hz)		Three phase 200 to 230 VAC (50/60 Hz) Single phase 200 to 230 VAC (50/60 Hz)		
	Allowable voltage fluctuation [V]	Single phase 85 to 132 VAC		Three phase 170 to 253 VAC Single phase 170 to 253 VAC		
	Rated current [A]	3.0	5.0	0.9	1.5	2.6
Control power supply	**Control power supply voltage [V]**	Single phase 100 to 120 VAC (50/60 Hz)		Three phase 200 to 230 VAC (50/60 Hz)		
	Allowable voltage fluctuation [V]	Single phase 85 to 132 VAC		Single phase 170 to 253 VAC		
	Rated current [A]	0.4		0.2		
Parallel input		10 inputs				
Parallel output		6 outputs				
Max. input pulse frequency [pps]		1 M (for differential receiver), 200 k (for open collector)				
Function	**In-position range setting [pulse]**	0 to ±10000 (Command pulse unit)				
	Error excessive	±3 rotations				
	Torque limit	Parameter setting or external analog input setting (0 to 10 VDC)				
	Communication	USB communication, RS422 communication*1				
Operating temperature range [°C]		0 to 55 (No freezing)				
Operating humidity range [%RH]		90 or less (No condensation)				
Storage temperature range [°C]		–20 to 65 (No freezing)				
Storage humidity range [%RH]		90 or less (No condensation)				
Insulation resistance [MΩ]		Between the housing and SG: 10 (500 VDC)				
Weight [g]		800				1000

*1 USB communication and RS422 communication cannot be performed at the same time.

Specifications

Series LECSC

Model			LECSC1-S5	LECSC1-S7	LECSC2-S5	LECSC2-S7	LECSC2-S8
Compatible motor capacity [W]			100	200	100	200	400
Compatible encoder			Absolute 18-bit encoder (Resolution: 262144 p/rev)				
Main power supply	Power voltage [V]		Single phase 100 to 120 VAC (50/60 Hz)		Three phase 200 to 230 VAC (50/60 Hz) Single phase 200 to 230 VAC (50/60 Hz)		
	Allowable voltage fluctuation [V]		Single phase 85 to 132 VAC		Three phase 170 to 253 VAC, Single phase 170 to 253 VAC		
	Rated current [A]		3.0	5.0	0.9	1.5	2.6
Control power supply	Control power supply voltage [V]		Single phase 100 to 120 VAC (50/60 Hz)		Single phase 200 to 230 VAC (50/60 Hz)		
	Allowable voltage fluctuation [V]		Single phase 85 to 132 VAC		Single phase 170 to 253 VAC		
	Rated current [A]		0.4		0.2		
Communication specifications	Applicable Fieldbus protocol (Version)		CC-Link communication (Ver. 1.10)				
	Connection cable		CC-Link Ver. 1.10 compliant cable (Shielded 3-core twisted pair cable)*1				
	Remote station number		1 to 64				
	Cable length	Communication speed [bps]	16 k	625 k	2.5 M	5 M	10 M
		Maximum overall cable length [m]	1200	900	400	160	100
		Cable length between stations [m]	0.2 or more				
	I/O occupation area (Inputs/Outputs)		1 station occupied (Remote I/O 32 points/32 points)/(Remote register 4 words/4 words) 2 stations occupied (Remote I/O 64 points/64 points)/(Remote register 8 words/8 words)				
	Number of connectable drivers		Up to 42 (when 1 station is occupied by 1 driver), Up to 32 (when 2 stations are occupied by 1 driver), when there are only remote device stations.				
Command method	Remote register input		Available with CC-Link communication (2 stations occupied)				
	Point table No. input		Available with CC-Link communication, RS-422 communication CC-Link communication (1 station occupied): 31 points CC-Link communication (2 stations occupied): 255 points RS-422 communication: 255 points				
	Indexer positioning input		Available with CC-Link communication CC-Link communication (1 station occupied): 31 points CC-Link communication (2 stations occupied): 255 points				
Communication function			USB communication, RS-422 communication*2				
Operating temperature range			32 to 131°F (0 to 55°C) (No freezing)				
Operating humidity range [%RH]			90 or less (No condensation)				
Storage temperature range			–4 to 149°F (–20 to 65°C) (No freezing)				
Storage humidity range [%RH]			90 or less (No condensation)				
Insulation resistance [MΩ]			Between the housing and SG: 10 (500 VDC)				
Weight [g]			800				1000

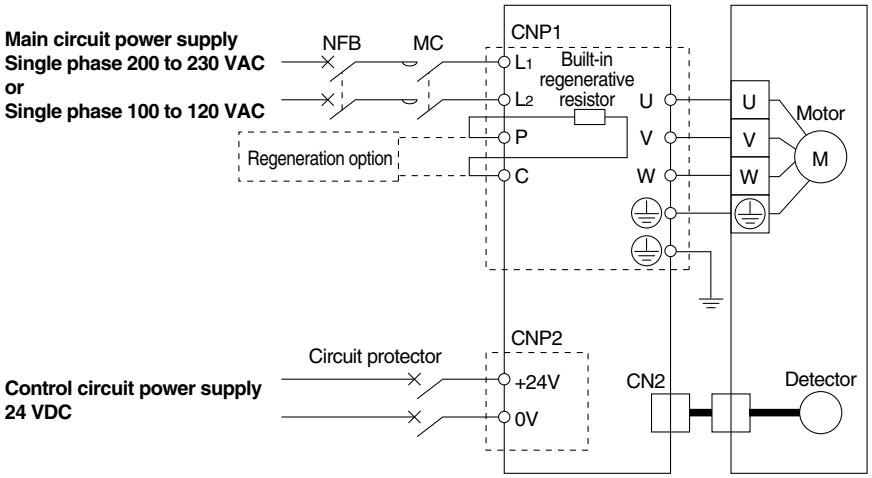
*1 If the system comprises of both CC-Link Ver. 1.00 and Ver. 1.10 compliant cables, Ver. 1.00 specifications are applied to the cable extensions and the cable length between stations.
*2 USB communication and RS422 communication cannot be performed at the same time.

Series LECSS

Model		LECSS1-S5	LECSS1-S7	LECSS2-S5	LECSS2-S7	LECSS2-S8
Compatible motor capacity [W]		100	200	100	200	400
Compatible encoder		Absolute 18-bit encoder (Resolution: 262144 p/rev)				
Main power supply	Power voltage [V]	Single phase 100 to 120 VAC (50/60 Hz)		Three phase 200 to 230 VAC (50/60 Hz) Single phase 200 to 230 VAC (50/60 Hz)		
	Allowable voltage fluctuation [V]	Single phase 85 to 132 VAC		Three phase 170 to 253 VAC, Single phase 170 to 253 VAC		
	Rated current [A]	3.0	5.0	0.9	1.5	2.6
Control power supply	Control power supply voltage [V]	Single phase 100 to 120 VAC (50/60 Hz)		Single phase 200 to 230 VAC (50/60 Hz)		
	Allowable voltage fluctuation [V]	Single phase 85 to 132 VAC		Single phase 170 to 253 VAC		
	Rated current [A]	0.4		0.2		
Applicable Fieldbus protocol		SSCNET III (High-speed optical communication)				
Communication function		USB communication				
Operating temperature range		32 to 131°F (0 to 55°C) (No freezing)				
Operating humidity range [%RH]		90 or less (No condensation)				
Storage temperature range		–4 to 149°F (–20 to 65°C) (No freezing)				
Storage humidity range [%RH]		90 or less (No condensation)				
Insulation resistance [MΩ]		Between the housing and SG: 10 (500 VDC)				
Weight [g]		800				1000

Power Supply Wiring Example: LECSA

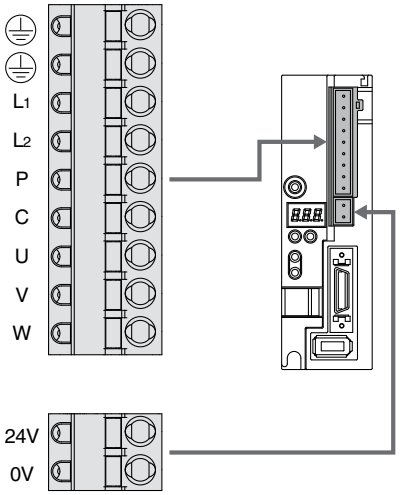
LECSA□-□



Main Circuit Power Supply Connector: CNP1

∗ Accessory

Terminal name	Function	Details
⏚	Protective earth (PE)	Should be grounded by connecting the servo motor's earth terminal and the control panel's protective earth (PE).
L_1	Main circuit power supply	Connect the main circuit power supply. LECSA1: Single phase 100 to 120 VAC, 50/60 Hz LECSA2: Single phase 200 to 230 VAC, 50/60 Hz
L_2		
P	Regeneration option	Terminal to connect regeneration option LECSA□-S1: Not connected at time of shipping. LECSA□-S3, S4: Connected at time of shipping. ∗ If regeneration option is required for "Model Selection", connect to this terminal.
C		
U	Servo motor power (U)	Connect to motor cable (U, V, W).
V	Servo motor power (V)	
W	Servo motor power (W)	



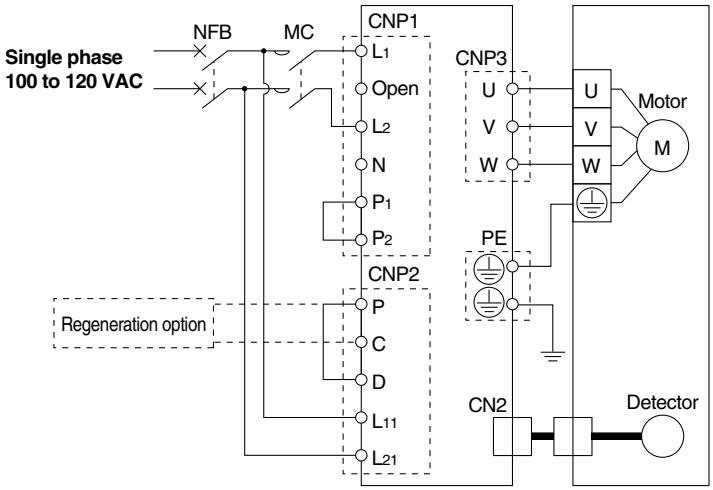
Control Circuit Power Supply Connector: CNP2

∗ Accessory

Terminal name	Function	Details
24V	Control circuit power supply (24 V)	24 V side of the control circuit power supply (24 VDC) supplied to the driver
0V	Control circuit power supply (0 V)	0 V side of the control circuit power supply (24 VDC) supplied to the driver

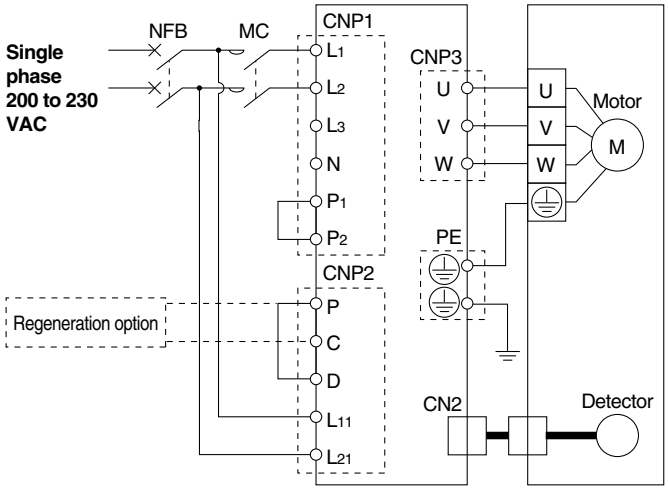
Power Supply Wiring Example: LECSB, LECSC, LECSS

LECSB1-□
LECSC1-□
LECSS1-□

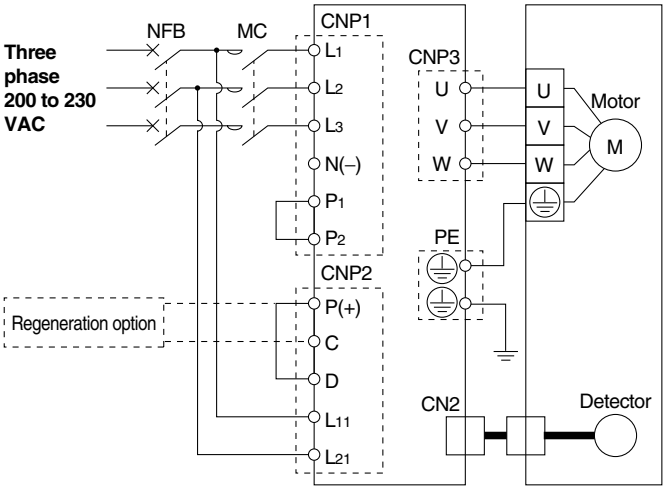


LECSB2-□
LECSC2-□
LECSS2-□

For single phase 200 VAC



For three phase 200 VAC



Note) For single phase 200 to 230 VAC, power supply should be connected to L_1 and L_2 terminals, with nothing connected to L_3.

Main Circuit Power Supply Connector: CNP1

∗ Accessory

Terminal name	Function	Details
L_1	Main circuit power supply	Connect the main circuit power supply. LECSB1/LECSC1/LECSS1: Single phase 100 to 120 VAC, 50/60 Hz Connection terminal: L_1,L_2 LECSB2/LECSC2/LECSS2: Single phase 200 to 230 VAC, 50/60 Hz Connection terminal: L_1,L_2 Three phase 200 to 230 VAC, 50/60 Hz Connection terminal: L_1,L_2,L_3
L_2		
L_3		
N	Do not connect.	
P_1	Connect between P_1 and P_2. (Connected at time of shipping.)	
P_2		

Control Circuit Power Supply Connector: CNP2

∗ Accessory

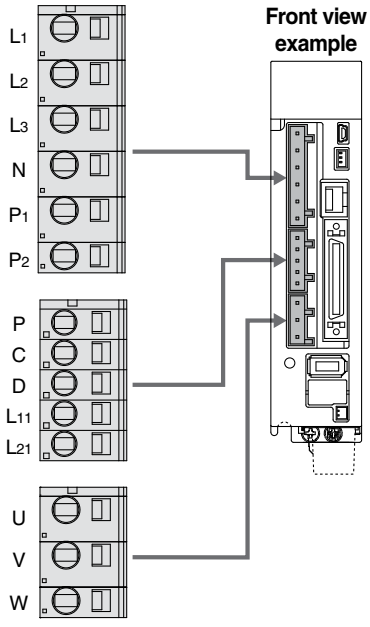
Terminal name	Function	Details
P	Regeneration option	Connect between P and D. (Connected at time of shipping.) ∗ If regeneration option is required for "Model Selection", connect to this terminal.
C		
D		
L_{11}	Control circuit power supply	Connect the control circuit power supply. LECSB1/LECSC1/LECSS1: Single phase 100 to 120 VAC, 50/60 Hz Connection terminal: L_{11},L_{21} LECSB2/LECSC2/LECSS2: Single phase 200 to 230 VAC, 50/60 Hz Connection terminal: L_{11},L_{21} Three phase 200 to 230 VAC, 50/60 Hz Connection terminal: L_{11},L_{21}
L_{21}		

Motor Connector: CNP3

∗ Accessory

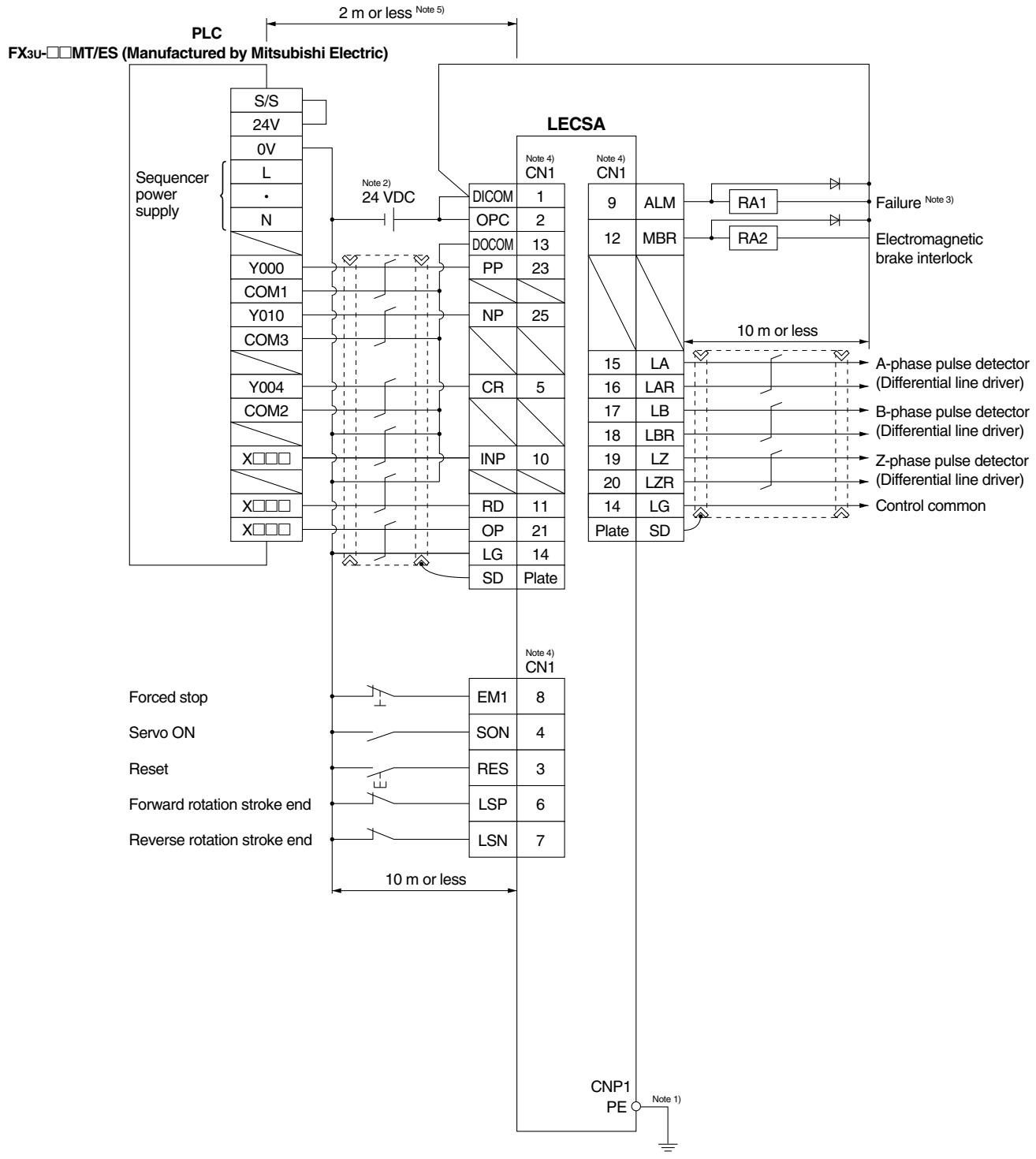
Terminal name	Function	Details
U	Servo motor power (U)	Connect to motor cable (U, V, W).
V	Servo motor power (V)	
W	Servo motor power (W)	

LECSB Front view example



Control Signal Wiring Example: LECSA

This wiring example shows connection with a PLC (FX3U-□□MT/ES) manufactured by Mitsubishi Electric as when used in position control mode. Refer to the LECSA operation manual and any technical literature or operation manuals for your PLC and positioning unit before connecting to another PLC or positioning unit.



Note 1) For preventing electric shock, be sure to connect the driver circuit power supply connector (CNP1)'s protective earth (PE) terminal to the control panel's protective earth (PE).

Note 2) For interface use, supply 24 VDC ±10% 200 mA using an external source. 200 mA is the value when all I/O command signals are used and reducing the number of inputs/outputs can decrease current capacity. Refer to "Operation Manual" for required current for interface.

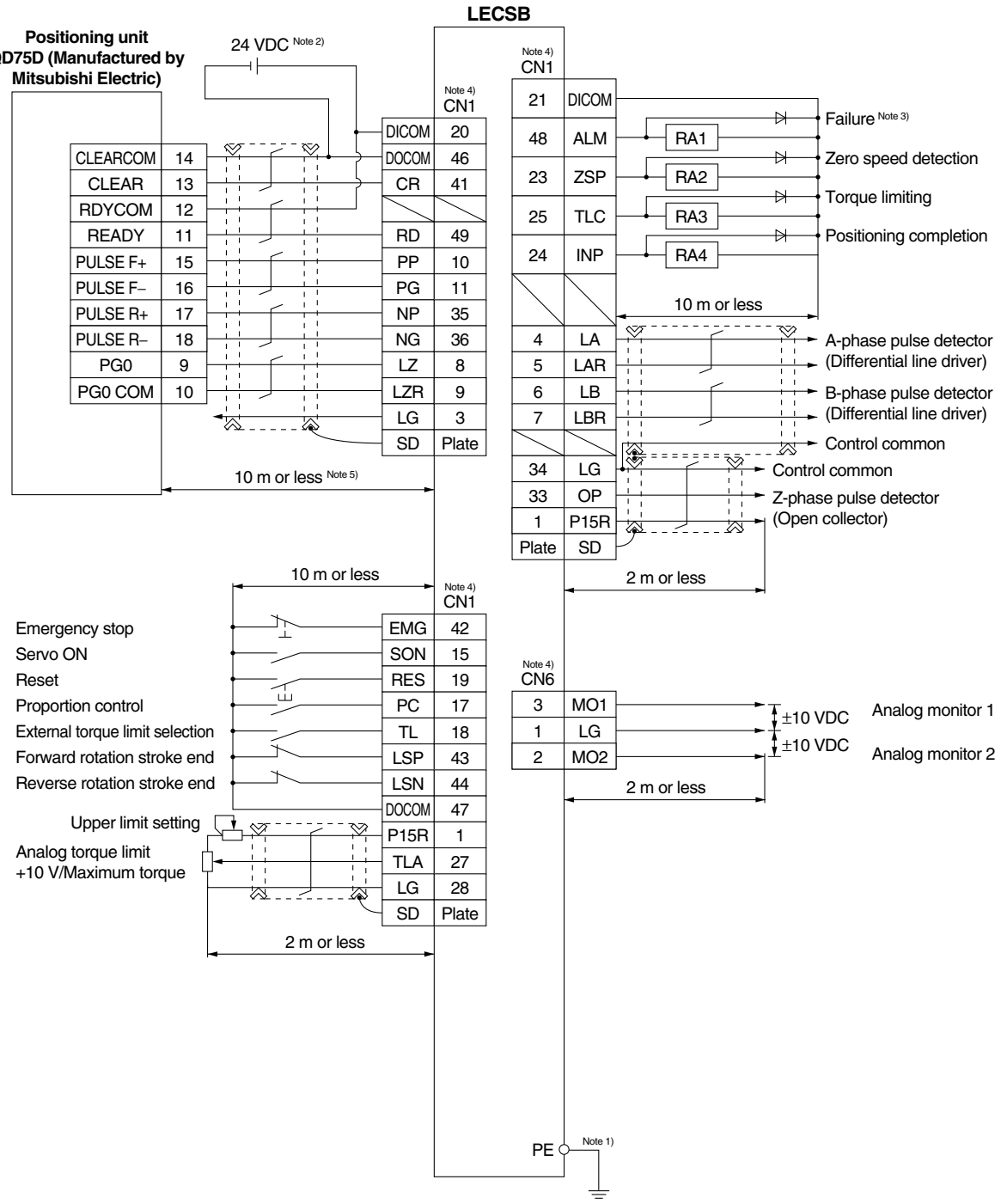
Note 3) The failure (ALM) is ON during normal conditions. When it is OFF (alarm occurs), stop the sequencer signal using the sequence program.

Note 4) The same name signals are connected inside the driver.

Note 5) For command pulse input with an open collector method. When a positioning unit loaded with a differential line driver method is used, it is 10 m or less.

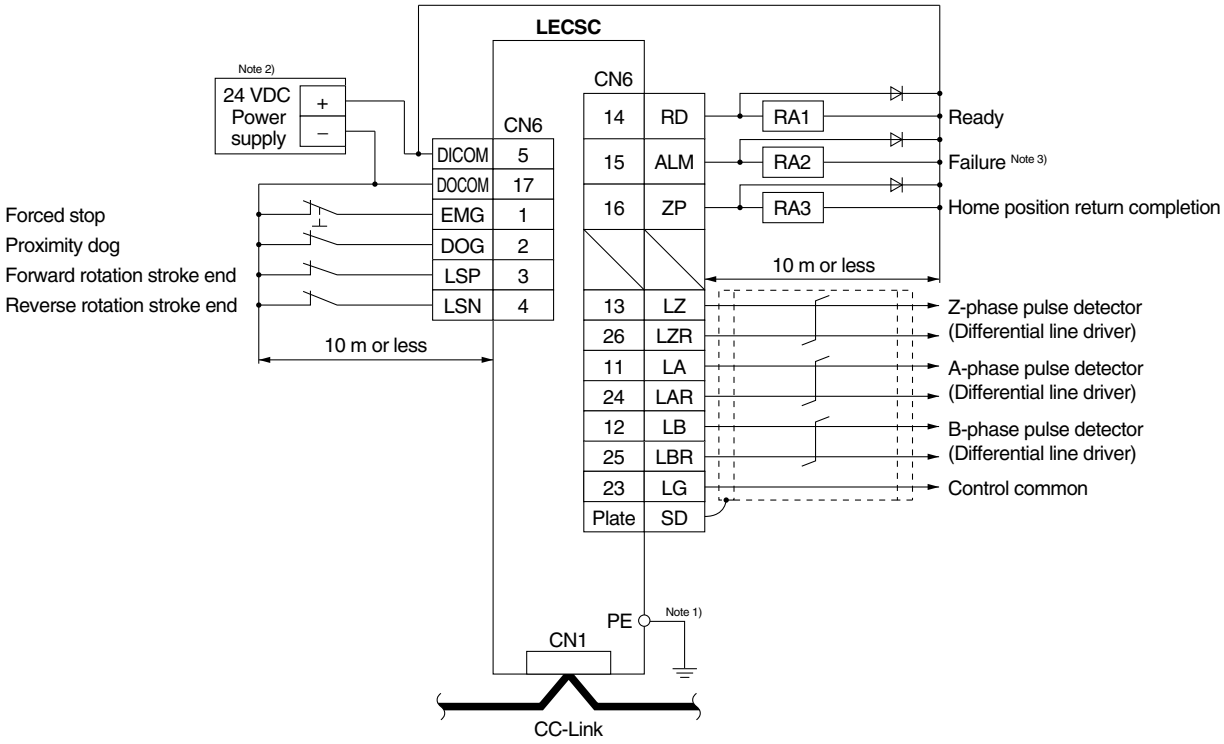
Control Signal Wiring Example: LECSB

This wiring example shows connection with a positioning unit (QD75D) manufactured by Mitsubishi Electric as when used in position control mode. Refer to the LECSB operation manual and any technical literature or operation manuals for your PLC and positioning unit before connecting to another PLC or positioning unit.



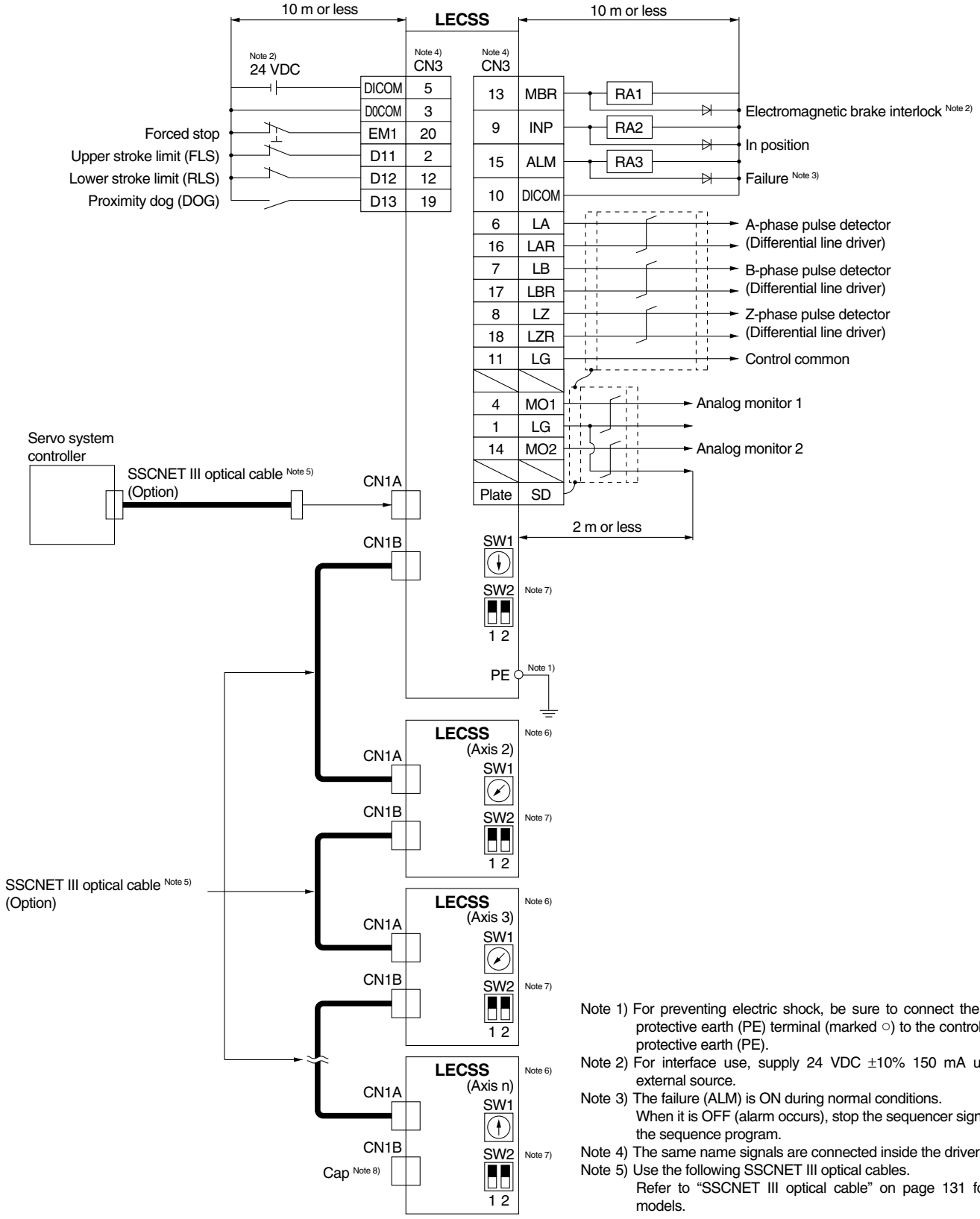
Note 1) For preventing electric shock, be sure to connect the driver circuit power supply connector (CNP1)'s protective earth (PE) terminal to the control panel's protective earth (PE).
Note 2) For interface use, supply 24 VDC ±10% 300 mA using an external source.
Note 3) The failure (ALM) is ON during normal conditions. When it is OFF (alarm occurs), stop the sequencer signal using the sequence program.
Note 4) The same name signals are connected inside the driver.
Note 5) For command pulse input with a differential line driver method. For open collector method, it is 2 m or less.

Control Signal Wiring Example: LECSC



Note 1) For preventing electric shock, be sure to connect the driver's protective earth (PE) terminal (marked ○) to the control panel's protective earth (PE).
Note 2) For interface use, supply 24 VDC ±10% 150 mA using an external source.
Note 3) The failure (ALM) is ON during normal conditions. When it is OFF (alarm occurs), stop the sequencer signal using the sequence program.

Control Signal Wiring Example: LECSS



Note 1) For preventing electric shock, be sure to connect the driver's protective earth (PE) terminal (marked ○) to the control panel's protective earth (PE).

Note 2) For interface use, supply 24 VDC ±10% 150 mA using an external source.

Note 3) The failure (ALM) is ON during normal conditions. When it is OFF (alarm occurs), stop the sequencer signal using the sequence program.

Note 4) The same name signals are connected inside the driver.

Note 5) Use the following SSCNET III optical cables. Refer to "SSCNET III optical cable" on page 131 for cable models.

Cable	Cable model	Cable length
SSCNET III optical cable	**LE-CSS-□**	0.15 m to 3 m

Note 6) Connections from Axis 2 onward are omitted.

Note 7) Up to 16 axes can be set.

Note 8) Be sure to place a cap on unused CN1A/CN1B.

Options

Motor cable, Lock cable, Encoder cable (LECS□ common)

LE − CS M − S 5 A

Motor type

S	AC servo motor

Cable description

M	Motor cable
B	Lock cable
E	Encoder cable

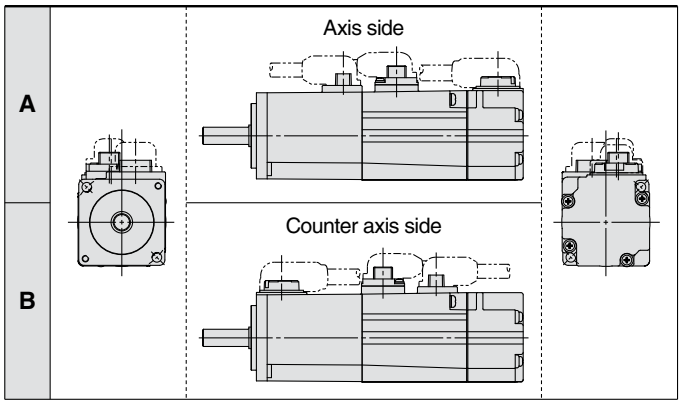
Cable type

S	Standard cable
R	Robotic cable

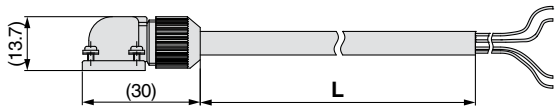
Cable length (L) [m]

2	2
5	5
A	10

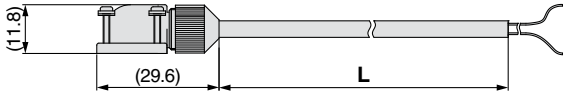
Direction of connector



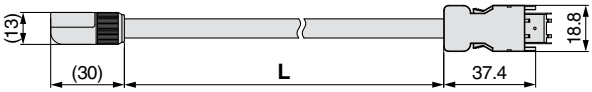
LE-CSM-□□: Motor cable



LE-CSB-□□: Lock cable



LE-CSE-□□: Encoder cable



∗ LE-CSM-S□□ is MR-PWS1CBL□M-A□-L manufactured by Mitsubishi Electric.
LE-CSB-S□□ is MR-BKS1CBL□M-A□-L manufactured by Mitsubishi Electric.
LE-CSE-S□□ is MR-J3ENCBL□M-A□-L manufactured by Mitsubishi Electric.
LE-CSM-R□□ is MR-PWS1CBL□M-A□-H manufactured by Mitsubishi Electric.
LE-CSB-R□□ is MR-BKS1CBL□M-A□-H manufactured by Mitsubishi Electric.
LE-CSE-R□□ is MR-J3ENCBL□M-A□-H manufactured by Mitsubishi Electric.

SSCNET III optical cable

LE − CSS − 1

Motor type

S	AC servo motor

Cable description

S	SSCNET III optical cable

Cable length

L	0.15 m
K	0.3 m
J	0.5 m
1	1 m
3	3 m

∗ LE-CSS-□ is MR-J3BUS□M manufactured by Mitsubishi Electric.

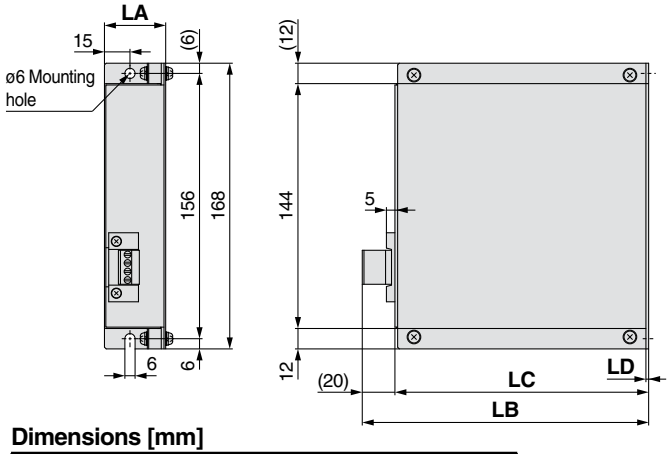
Regeneration option (LECS□ common)

LEC − MR − RB − □

Regeneration option type

032	Allowable regenerative power 30 W
12	Allowable regenerative power 100 W

∗ Confirm regeneration option to be used in "Model Selection".



Dimensions [mm]

Model	LA	LB	LC	LD
LEC-MR-RB-032	30	119	99	1.6
LEC-MR-RB-12	40	169	149	2

∗ MR-RB-□ manufactured by Mitsubishi Electric.

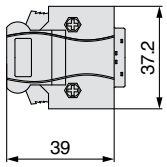
I/O connector

LE − CSN A

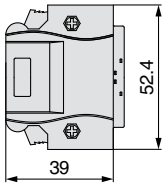
Driver type

A	LECSA□, LECSC□
B	LECSB□
S	LECSS□

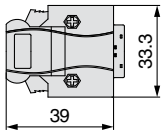
LE-CSNA



LE-CSNB

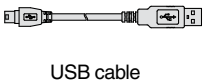


LE-CSNS

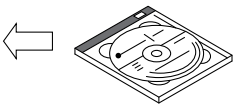


∗ LE-CSNA: 10126-3000PE (connector)/10326-52F0-008 (shell kit) manufactured by 3M or equivalent item.
LE-CSNB: 10150-3000PE (connector)/10350-52F0-008 (shell kit) manufactured by 3M or equivalent item.
LE-CSNS: 10120-3000PE (connector)/10320-52F0-008 (shell kit) manufactured by 3M or equivalent item.

Options


USB cable


PC


Setup software
(MR Configurator™)

Setup software (MR Configurator™) (LECSA, LECSB, LECSC, LECSS common)

LEC − MR − SETUP221 □

Display language

Nil	Japanese version
E	English version

∗ MRZJW3-SETUP221 manufactured by Mitsubishi Electric.
Refer to Mitsubishi Electric's website for operating environment and version update information.
MR Configurator™ is a registered trademark or trademark of Mitsubishi Electric.

Adjustment, waveform display, diagnostics, parameter read/write, and test operation can be performed upon a PC.

Compatible PC

When using setup software (MR Configurator™), use an IBM PC/AT compatible PC that meets the following operating conditions.

Hardware Requirements

Equipment		Setup software (MR Configurator™) **LEC-MR-SETUP221**□
Note 1) Note 2) Note 3) PC	OS	Windows®98, Windows®Me, Windows®2000 Professional, Windows®XP Professional / Home Edition, Windows Vista® Home Basic / Home Premium / Business / Ultimate / Enterprise Windows®7 Starter / Home Premium / Professional / Ultimate / Enterprise
	Available HD space	130 MB or more
	Communication interface	Use USB port
Display		Resolution 1024 x 768 or more Must be capable of high color (16-bit) display. The connectable with the above PC
Keyboard		The connectable with the above PC
Mouse		The connectable with the above PC
Printer		The connectable with the above PC
USB cable		LEC-MR-J3USB Note 4, 5)

Note 1) Before using a PC for setting LECSA point table method/program method or LECSC point table No. input, upgrade to version C5 (Japanese version) /version C4 (English version). Refer to Mitsubishi Electric's website for version upgrade information.
Note 2) Windows, Windows Vista, Windows 7 are registered trademarks of Microsoft Corporation in the United States and/or other countries.
Note 3) This software may not run correctly depending on the PC that you are using.
Note 4) Not compatible with 64-bit Windows® XP and 64-bit Windows Vista®.
Note 5) Order USB cable separately.

USB cable (3 m)

LEC − MR − J3USB

∗ MR-J3USB manufactured by Mitsubishi Electric.

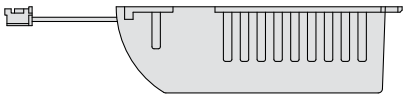
Cable for connecting PC and driver when using the setup software (MR Configurator™).
Do not use any cable other than this cable.

Battery (only for LECSB, LECSC or LECSS)

LEC − MR − J3BAT

∗ MR-J3BAT manufactured by Mitsubishi Electric.

Battery for replacement.
Absolute position data is maintained by installing the battery to the driver.



Series LECS□
Specific Product Precautions 1

Be sure to read before handling. Refer to back cover for Safety Instructions and the Operation Manual for Electric Actuator Precautions. Please download it via our website, http://www.smcworld.com

Design/Selection

⚠Warning

1. Use the specified voltage.
If the applied voltage is higher than the specified voltage, malfunction and damage to the driver may result. If the applied voltage is lower than the specified voltage, there is a possibility that the load cannot be moved due to internal voltage drop. Check the operating voltage prior to start. Also, confirm that the operating voltage does not drop below the specified voltage during operation.

2. Do not use the products outside the specifications.
Otherwise, fire, malfunction or damage to the driver/actuator can result. Check the specifications prior to use.

3. Install an emergency stop circuit.
Install an emergency stop outside the enclosure in easy reach to the operator so that the operator can stop the system operation immediately and intercept the power supply.

4. To prevent danger and damage due to a breakdown or malfunction of these products, which may occur at a certain probability, a backup system should be arranged in advance by using a multiple-layered structure or by making a fail-safe equipment design, etc.

5. If there is a risk of fire or personal injury due to abnormal heat generation, sparking, smoke generated by the product, etc., cut off the power supply from this product and the system immediately.

Handling

⚠Warning

1. Never touch the inside of the driver and its peripheral devices.
Otherwise, electric shock or failure can result.

2. Do not operate or set up this equipment with wet hands.
Otherwise, electric shock can result.

3. Do not use a product that is damaged or missing any components.
Electric shock, fire or injury can result.

4. Use only the specified combination between the electric actuator and driver.
Otherwise, it may cause damage to the driver or to the other equipment.

5. Be careful not to touch, get caught or hit by the workpiece while the actuator is moving.
An injury can result.

6. Do not connect the power supply or power up the product until it is confirmed that the workpiece can be moved safely within the area that can be reached by the workpiece.
Otherwise, the movement of the workpiece may cause an accident.

7. Do not touch the product when it is energized and for some time after the power has been disconnected, as it is very hot.
Otherwise, it may cause burns due to the high temperature.

8. Check the voltage using a tester at least 5 minutes after power-off when performing installation, wiring and maintenance.
Otherwise, electric shock, fire or injury can result.

Handling

⚠Warning

9. Static electricity may cause a malfunction or damage the driver. Do not touch the driver while power is supplied to it.
Take sufficient safety measures to eliminate static electricity when it is necessary to touch the driver for maintenance.

10. Do not use the products in an area where they could be exposed to dust, metallic powder, machining chips or splashes of water, oil or chemicals.
Otherwise, a failure or malfunction can result.

11. Do not use the products in a magnetic field.
Otherwise, a malfunction or failure can result.

12. Do not use the products in an environment where flammable, explosive or corrosive gases, liquids or other substances are present.
Otherwise, fire, explosion or corrosion can result.

13. Avoid heat radiation from strong heat sources, such as direct sunlight or a hot furnace.
Otherwise, it will cause a failure to the driver or its peripheral devices.

14. Do not use the products in an environment with cyclic temperature changes.
Otherwise, it will cause a failure to the driver or its peripheral devices.

15. Do not use the products in an environment where surges are generated.
Devices (solenoid type lifters, high frequency induction furnaces, motors, etc.) that generate a large amount of surge around the product may lead to deterioration or damage to the internal circuits of the products. Avoid supplies of surge generation and crossed lines.

16. Do not install these products in a place subject to vibration and impact.
Otherwise, a malfunction or failure can result.

17. When a surge generating load such as a relay or solenoid valve is directly driven, use a product that incorporates a surge absorption element.

Mounting

⚠Warning

1. Install the driver and its peripheral devices on fireproof material.
Direct installation on or near flammable material may cause fire.

2. Do not install these products in a place subject to vibration and impact.
Otherwise, a malfunction or failure can result.

3. The driver should be mounted on a vertical wall in a vertical direction.
Also, do not cover the driver's suction/exhaust ports.

4. Install the driver and its peripheral devices on a flat surface.
If the mounting surface is not flat or uneven, excessive force may be applied to the housing and other parts resulting in a malfunction.

Series LECS□
Specific Product Precautions 2

Be sure to read before handling. Refer to back cover for Safety Instructions and the Operation Manual for Electric Actuator Precautions. Please download it via our website, http://www.smcworld.com

Power Supply

⚠Caution

1. Use a power supply with low noise between lines and between power and ground.
In cases where noise is high, use an isolation transformer.

2. Take appropriate measures to prevent surges from lightning. Ground the surge absorber for lightning separately from the grounding of the driver and its peripheral devices.

Wiring

⚠Warning

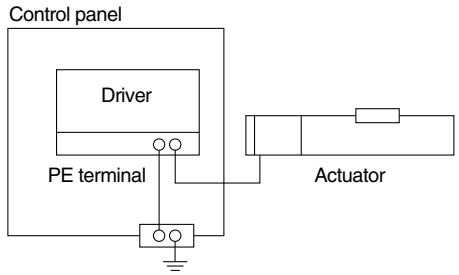
1. The driver will be damaged if a commercial power supply (100V/200V) is added to the driver's servo motor power (U, V, W). Be sure to check wiring such as wiring mistakes when the power supply is turned on.

2. Connect the ends of the U, V, W wires from the motor cable correctly to the phases (U, V, W) of the servo motor power. If these wires do not match up, it is unable to control the servo motor.

Grounding

⚠Warning

1. For grounding actuator, connect the copper wire of the actuator to the driver's protective earth (PE) terminal and connect the copper wire of the driver to the earth via the control panel's protective earth (PE) terminal.
Do not connect them directly to the control panel's protective earth (PE) terminal.



2. In the unlikely event that malfunction is caused by the ground, it may be disconnected.

Maintenance

⚠Warning

1. Perform maintenance checks periodically.
Confirm wiring and screws are not loose.
Loose screws or wires may cause unexpected malfunction.

2. Conduct an appropriate functional inspection and test after completed maintenance.
In case of any abnormalities (if the actuator does not move or the equipment does not operate properly, etc.), stop the operation of the system.
Otherwise, unexpected malfunction may occur and safety cannot be assured.
Conduct a test of the emergency stop to confirm the safety of the equipment.

3. Do not disassemble, modify or repair the driver or its peripheral devices.

4. Do not put anything conductive or flammable inside the driver.
Otherwise, fire can result.

5. Do not conduct an insulation resistance test or insulation withstand voltage test.

6. Reserve sufficient space for maintenance.
Design the system so that it allows required space for maintenance.

⚠ Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of **"Caution," "Warning"** or **"Danger."** They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)*1), and other safety regulations.

⚠ Caution: **Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

⚠ Warning: **Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

⚠ Danger : **Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

*1) ISO 4414: Pneumatic fluid power – General rules relating to systems.
ISO 4413: Hydraulic fluid power – General rules relating to systems.
IEC 60204-1: Safety of machinery – Electrical equipment of machines. (Part 1: General requirements)
ISO 10218-1: Manipulating industrial robots – Safety.
etc.

⚠ Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.
Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.
The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/ equipment until safety is confirmed.
1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.
1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalog.
3. An application which could have negative effects on people, property, or animals requiring special safety analysis.
4. Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

⚠ Caution

1. The product is provided for use in manufacturing industries.
The product herein described is basically provided for peaceful use in manufacturing industries.
If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.
If anything is unclear, contact your nearest sales branch.

Limited warranty and Disclaimer/ Compliance Requirements

The product used is subject to the following "Limited warranty and Disclaimer" and "Compliance Requirements".
Read and accept them before using the product.

Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.*2)
Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided.
This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

***2) Vacuum pads are excluded from this 1 year warranty.**
A vacuum pad is a consumable part, so it is warranted for a year after it is delivered.
Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

Revision history

Edition C	∗ Addition of in-line motor type, LEY□D series	
	∗ Addition of guide rod type, LEYG series	
	∗ Addition of guide rod type/in-line motor type, LEYG□D series	
	∗ Addition of programless controller, LECP1 series	
	∗ Addition of standard cable to actuator cable type	
	∗ Addition of AC servo motor (100/200 W) type, LEY□□S series	
	∗ Addition of AC servo motor driver, LECSA/LECSB series	
	∗ Number of pages from 40 to 96	PY
Edition D	∗ Addition of size 40 to step motor (servo/24 VDC) LEY/LEYG series	
	∗ Addition of size 63 to AC servo motor rod type LEY series	
	∗ Addition of dust/drip proof specification to rod type	
	∗ Addition of size 25, 32 AC servo motor guide rod type, LEYG series	
	∗ Addition of step motor driver, LECPA series	
	∗ Addition of gateway unit, LEC-G series	
	∗ Addition of AC servo motor driver, LECSC/LECSS series	
	∗ Addition of UL compliant	
	∗ Change of controller setting kit, LEC-W2 series	
	∗ Number of pages from 96 to 160	RP

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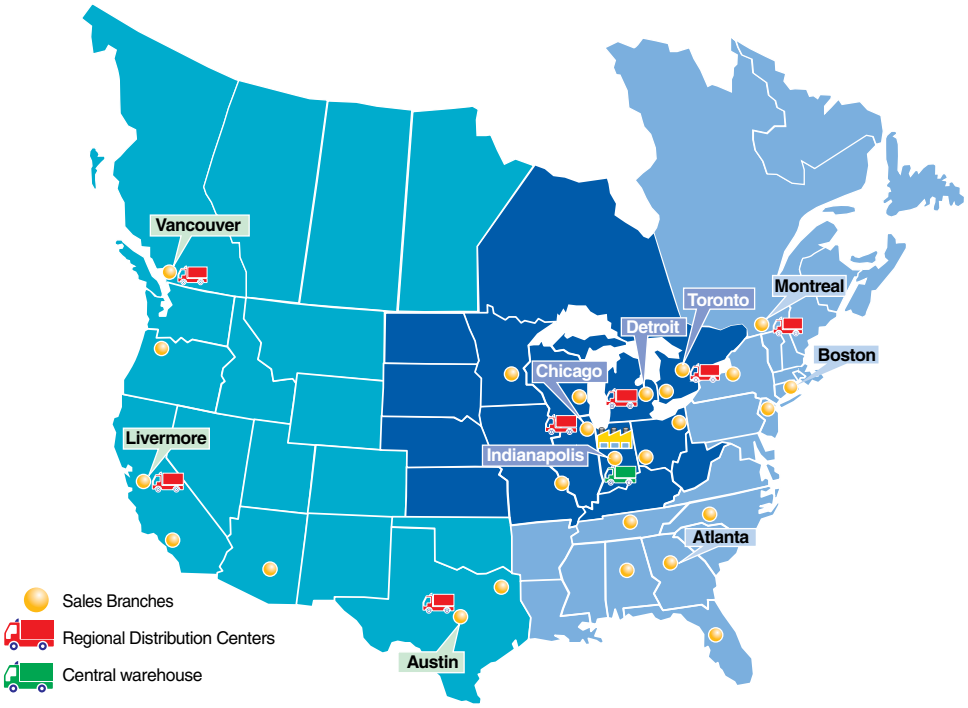

SMC Corporation of America
10100 SMC Blvd., Noblesville, IN 46060
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(800) SMC.SMC1 (762-7621)
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RO-RRD-5M

CC-Link Direct Input Type

Step Motor Controller

■ CC-Link Ver. 1.10 compliant

■ 3 types of operation mode available.

Single numerical data instructions (Occupied number of stations: 1)

[Max. number of connectable controllers: 42 units]
Can be operated by instructing the Movement MOD (movement mode) and changing another item in the preset step data.

Half numerical data instructions (Occupied number of stations: 2)

[Max. number of connectable controllers: 32 units]
Can be operated by changing up to six items in the preset step data.

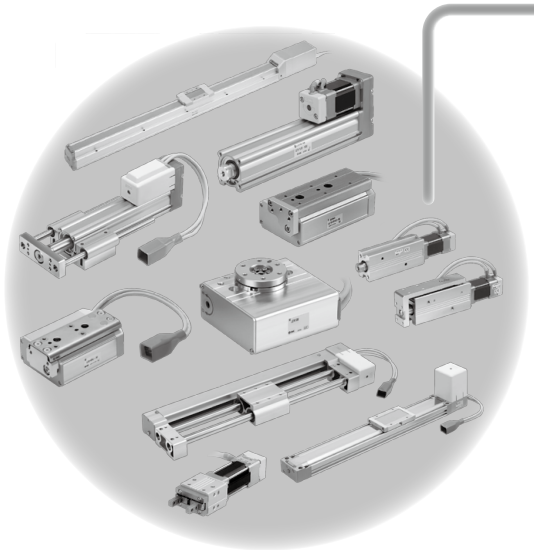
Full numerical data instructions (Occupied number of stations: 4)

[Max. number of connectable controllers: 16 units]
Can be operated by inputting numerical data to all 12 step data items from the PLC.

■ The position and speed can be monitored by the PLC.

■ Step data can be edited from the PLC.

(Except single numerical data instructions)



Function that can be executed in each mode

Mode setting	Single numerical data instructions	Half numerical data instructions	Full numerical data instructions
Number of numerical data modifiable items	1	6	12
Occupied number of stations	1	2	4
Max. number of connectable controllers	42	32	16
Step no. instructions operation	○		
Numerical data instructions operation	○		
Monitor function of position/speed	○		
Step data editing function	○		

Series LECPMJ

SMC

How to Order

Actuator + Controller

LEFS16B-100B – S1 MJ S

Actuator type

Refer to "How to Order" in the actuator catalog.
For compatible actuators, refer to the table below. Example: LEFS16B-100B-S1MJS

Compatible actuators	Catalog no.
Electric Actuator/Rod Type Series LEY	E102
Electric Actuator/Guide Rod Type Series LEYG	
Electric Actuator/Slider Type Series LEF	
Electric Slide Table Series LES/LESH	
Electric Rotary Table Series LER	
Electric Actuator/Guide Rod Slider Series LEL	
Electric Actuator/Miniature Type Series LEPY/LEPS	
Electric Gripper (2-finger Type, 3-finger Type) Series LEH	
Electric Actuator/Low Profile Slider Type Series LEM	ES100-98

Actuator cable

Controller type

MJ	CC-Link direct input type

Communication plug connector

Nil	None
S	Straight type
T	T-branch type

Controller mounting

Nil	Screw mounting
D	DIN rail mounting

∗ DIN rail is not included. Order it separately.

Controller

LE C P MJ □ □ – □

Controller

Compatible motor

P	Step motor (Servo/24 VDC)

Controller type

MJ	CC-Link direct input type

Communication plug connector

Nil	None
S	Straight type
T	T-branch type

Actuator part number

(Except cable specifications and actuator options)
Example: Enter "**LEFS16B-100**" for the LEFS16B-100B-S1MJS.

Controller mounting

Nil	Screw mounting
D	DIN rail mounting

∗ DIN rail is not included. Order it separately.

Communication plug connector

LEC – CMJ – S

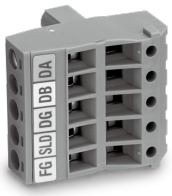
Controller type

MJ	CC-Link direct input type

Connector type

S	Straight type
T	T-branch type

Straight type
LEC-CMJ-S



T-branch type
LEC-CMJ-T

Specifications

Item			LECPMJ				
Compatible motor			Step motor (Servo/24 VDC)				
Power supply Note 1)			Power voltage: 24 VDC ±10% Maximum current consumption: 3 A (Peak 5 A) Note 2) [Including motor drive power, control power, lock release]				
Compatible encoder			Incremental A/B phase (800 pulse/rotation)				
Communication specifications	Fieldbus		CC-Link Ver. 1.10				
	Communication speed [bps]		156 k/625 k/2.5 M/5 M/10 M				
	Communication method		Broadcast polling				
	Station type		Remote device station				
	I/O occupation area		1 station (Input 32 points/4 words Output 32 points/4 words)	2 stations (Input 64 points/8 words Output 64 points/8 words)		4 stations (Input 128 points/16 words Output 128 points/16 words)	
	Applicable communication cable		CC-Link dedicated cable				
	Maximum cable length	Communication speed [bps]	156 k	625 k	2.5 M	5 M	10 M
		Total cable length [m]	1200	900	400	160	100
Serial communication			RS485 (Modbus protocol)				
Memory			EEPROM				
LED indicator			PWR, ALM, L ERR, L RUN				
Lock control			Forced-lock release terminal Note 3)				
Cable length [m]			Actuator cable: 20 or less				
Cooling system			Natural air cooling				
Operating temperature range [°C]			0 to 40 (No freezing)				
Operating humidity range [%RH]			90 or less (No condensation)				
Storage temperature range [°C]			–10 to 60 (No freezing)				
Storage humidity range [%RH]			90 (No condensation)				
Insulation resistance [MΩ]			Between the housing and FG terminal 50 (500 VDC)				
Weight [g]			170 (Screw mounting), 190 (DIN rail mounting)				

Note 1) Do not use the power supply of "inrush current prevention type" for the controller power supply. When conformity to UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.
Note 2) The power consumption changes depending on the actuator model. Refer to the specifications of actuator for more details.
Note 3) Applicable to non-magnetizing lock.

Function that can be executed in each mode

Mode setting [Occupied number of stations] Note 4)	Single numerical data instructions [1]	Half numerical data instructions [2]	Full numerical data instructions [4]
Step no. instructions operation	○		
Numerical data instructions operation	○		
Number of numerical data modifiable items	1	6	12
Monitor function of position/speed	○		
Step data editing function	○ Note 5)		
Max. number of connectable controllers Note 6)	42	32	16

Note 4) The modes can be set by registering the occupied number of stations with basic parameter "Option setting 1" of the controller.
Note 5) It is possible to edit it from teaching box/controller setting software for "Single numerical data instructions". It is possible to edit it from teaching box/controller setting software and PLC (CC-Link) for "Half numerical data instructions" and "Full numerical data instructions".
Note 6) Maximum number of units specified in CC-Link communication specifications.

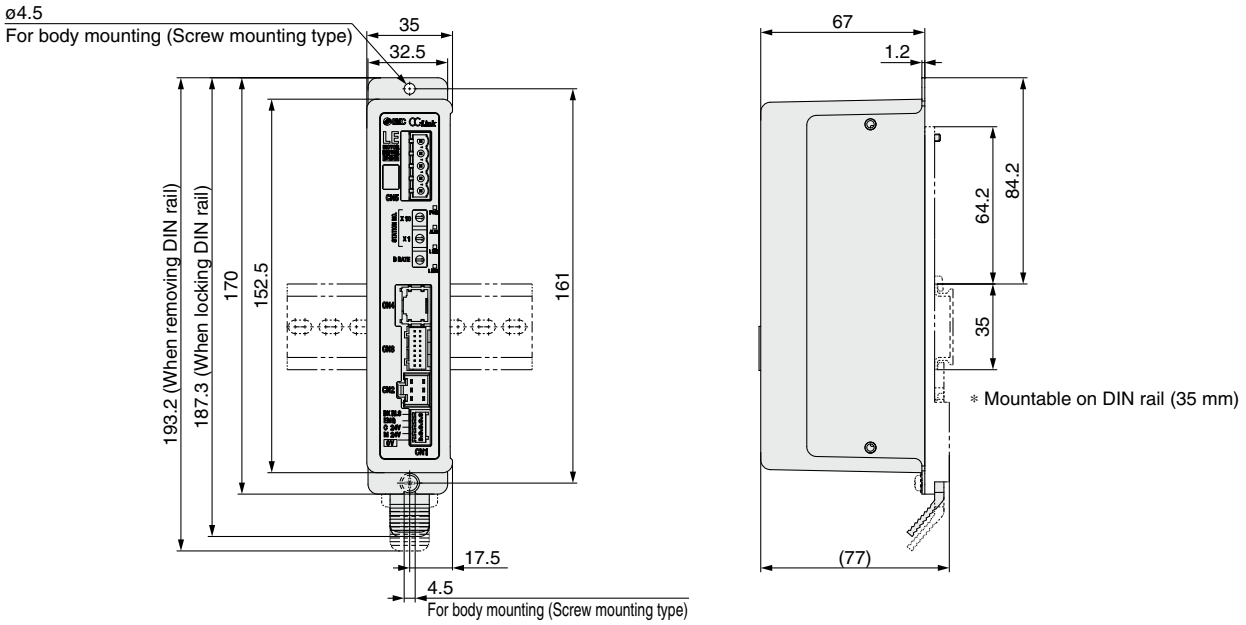
Modifiable step data item in each mode

●: Numerical data modifiable items

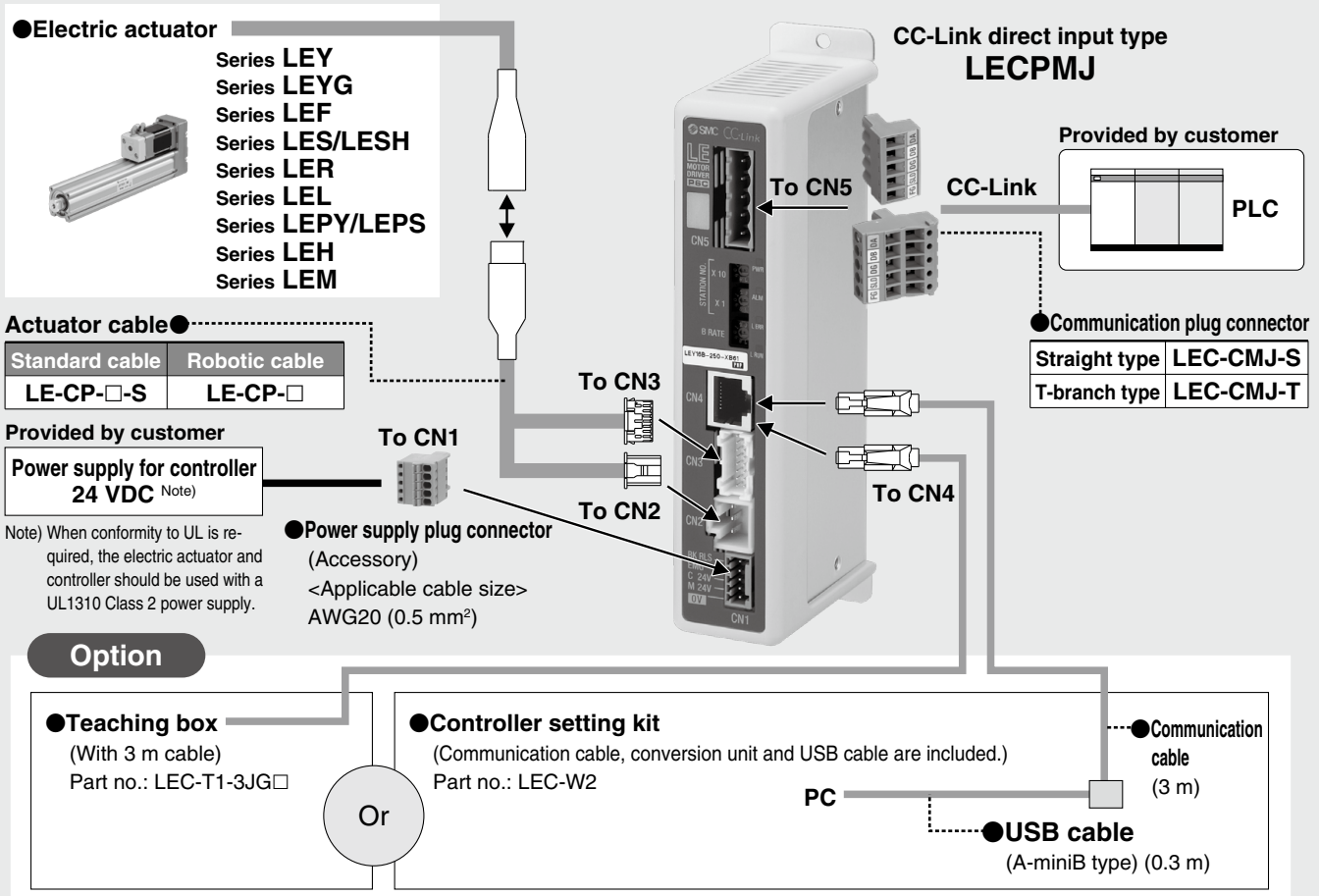
Mode setting	Step data item											
	Movement MOD	Speed	Position	Acceleration	Pushing speed	Pushing force	Deceleration	Trigger LV	Moving force	Area 1	Area 2	In position
Single numerical data instructions	●	←				Only one item can be changed from 11 items, ranging from Speed to In position.						→
Half numerical data instructions	●	●	●	← Only one item can be changed from Acceleration/Pushing speed. →		●	← Only one item can be changed from Deceleration/Trigger LV. →					
Full numerical data instructions	●	●	●	●	●	●	●	●	●	●	●	●

Note 7) Step data items, except items that have been changed, reference data registered in the controller.
Note 8) Refer to the LECPMJ operation manual for details of the step data items.

Dimensions



System Construction



SMC Corporation

Akihabara UDX 15F,
4-14-1, Sotokanda, Chiyoda-ku, Tokyo 101-0021, JAPAN
Phone: 03-5207-8249 Fax: 03-5298-5362
http://www.smcworld.com

SSCNET III/H SERVO SYSTEM CONTROLLER NETWORK Compatible

AC Servo Motor Driver

CE

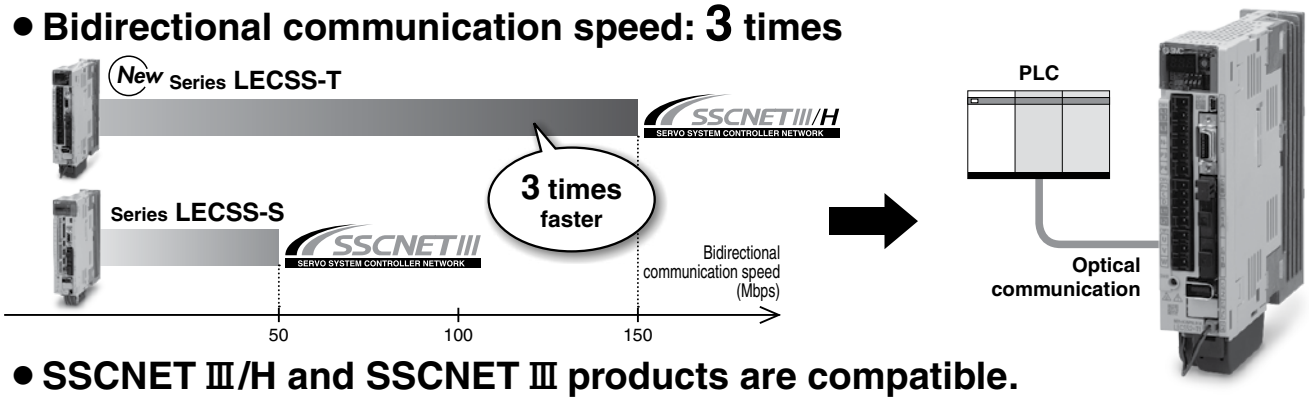
RoHS

Power supply voltage (V)
200 to 240 VAC

Motor capacity (W)
100/200/400

● Applicable Fieldbus protocol: SSCNET III/H SERVO SYSTEM CONTROLLER NETWORK (High-speed optical communication, max. bidirectional communication speed: 150 Mbps)

● Bidirectional communication speed: 3 times

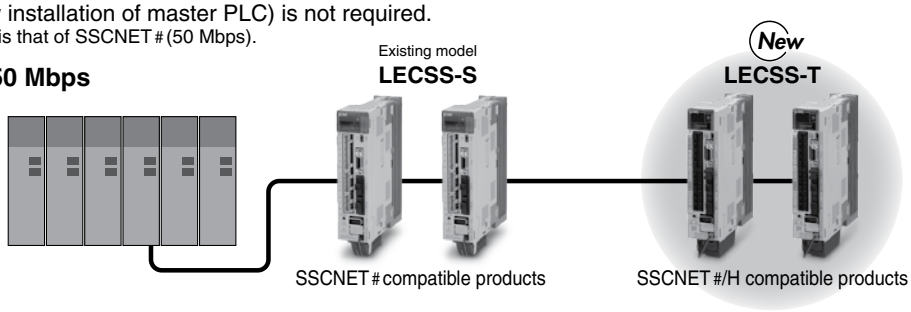


● SSCNET Ⅲ/H and SSCNET Ⅲ products are compatible.

SSCNET #/H compatible products can be added to existing SSCNET # systems for system expansion.
Reassembly of the system (new installation of master PLC) is not required.
∗ Note that the communication speed is that of SSCNET # (50 Mbps).

■ Communication speed: 50 Mbps

SSCNET#/H compatible controllers
SSCNET# compatible controllers



● Improved noise resistance ● STO (Safe Torque Off) safety function available

● Control encoder: Absolute 22-bit encoder (Resolution: 4194304 p/rev)

Compatible Actuators

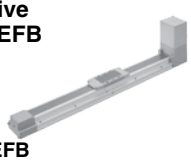
Slider Type

Ball screw drive
Series LEFS
Clean room compatible
Secondary battery compatible

Series LEFS

Size	Max. work load (kg)	Stroke (mm)
25	20	Up to 600
32	45	Up to 800
40	60	Up to 1000

Belt drive
Series LEFB

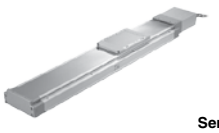


Series LEFB

Size	Max. work load (kg)	Stroke (mm)
25	5	Up to 2000
32	15	Up to 2500
40	25	Up to 3000

High Rigidity Slider Type

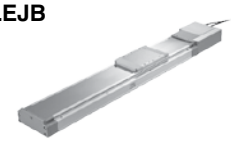
Ball screw drive
Series LEJS
Clean room compatible
Secondary battery compatible



Series LEJS

Size	Max. work load (kg)	Stroke (mm)
40	55	Up to 1200
63	85	Up to 1500

Belt drive
Series LEJB



Series LEJB

Size	Max. work load (kg)	Stroke (mm)
40	20	Up to 2000
63	30	Up to 3000

Rod Type

Basic type
Series LEY
Secondary battery compatible
Dust/Drip proof (IP65) specification

Series LEY

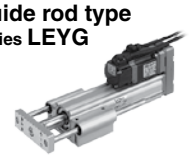
Size	Pushing force lbf (N)	Stroke (mm)
25	109 (485)	Up to 400
32	132 (588)	Up to 500
63	752 (3343)	Up to 800

In-line motor type
Series LEY□D
Secondary battery compatible
Dust/Drip proof (IP65) specification

Series LEY

Size	Pushing force lbf (N)	Stroke (mm)
25	109 (485)	Up to 400
32	165 (736)	Up to 500
63	429 (1910)	Up to 800

Guide rod type
Series LEYG



Series LEYG

Size	Pushing force lbf (N)	Stroke (mm)
25	109 (485)	Up to 300
32	132 (588)	

Guide rod type/ In-line motor type
Series LEYG□D

Series LEYG

Size	Pushing force lbf (N)	Stroke (mm)
25	109 (485)	Up to 300
32	165 (736)	

Series LECSS-T

System Construction

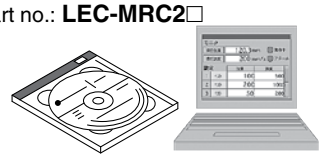
Absolute encoder compatible *Series* LECSS-T

SSCNET III/H
SERVO SYSTEM CONTROLLER NETWORK

Provided by customer

Power supply
Single phase 200 to 240 VAC (50/60 Hz)
Three phase 200 to 240 VAC (50/60 Hz)

◎Option
Setup software Page 25*
(MR Configurator2™)
Part no.: **LEC-MRC2□**



PC

USB cable Page 26
Part no.: **LEC-MR-J3USB**

Main circuit Page 22
power supply connector
(Accessory)

Driver

◎Option Page 24
Regeneration option
Part no.: **LEC-MR-RB-□**

CN3

◎Option
I/O connector Page 24
Part no.: **LE-CSNS**

Motor cable Page 24

Standard cable	Robotic cable
LE-CSM-S□□	LE-CSM-R□□

Lock cable Page 24

Standard cable	Robotic cable
LE-CSB-S□□	LE-CSB-R□□

Control circuit Page 22
power supply connector
(Accessory)

◎Option
STO cable (3 m) Page 26
Part no.: **LEC-MR-D05UDL3M**

CN1A

Motor connector Page 22
(Accessory)

◎Option Page 24
SSCNET Ⅲ
optical cable
Part no.: **LE-CSS-□**

CN1B

CN1A

Battery (Accessory) Page 26
Part no.: **(LEC-MR-BAT6V1SET)**

Encoder cable Page 24

Standard cable	Robotic cable
LE-CSE-S□□	LE-CSE-R□□

Provided by customer

PLC
(Positioning unit/Motion controller)

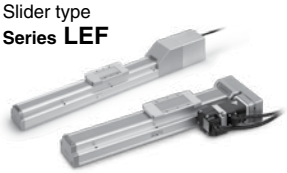
Power supply for I/O signal 24 VDC

Electric actuator Pages 3, 5, 7, 15

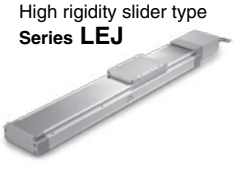
Rod type
Series LEY

Guide rod type
Series LEYG

Slider type
Series LEF



High rigidity slider type
Series LEJ



* The LECSS2-T□ cannot be used with the LEC-MR-SETUP221□.

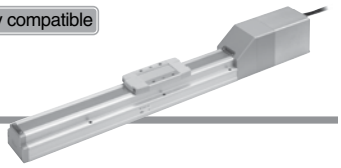
Electric Actuator/Slider Type
Ball Screw Drive
AC Servo Motor

Series LEFS
LEFS25, 32, 40

There are changes in the How to Order. Refer to the WEB catalog **or the Electric Actuators catalog (CAT.E102) for other details.**

Clean room compatible | Secondary battery compatible

Consult with SMC for details.



How to Order

LEFS 32 R T7 B – 200 B – S 5 S2 ☐

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿

❶ Size

25
32
40

❷ Motor mounting position

Nil	In-line
R	Right side parallel
L	Left side parallel

❸ Motor type *1

Symbol	Type	Output [W]	Actuator size	Compatible driver
T6	AC servo motor (Absolute encoder)	100	25	LECSS2-T5
T7		200	32	LECSS2-T7
T8		400	40	LECSS2-T8

*1 For motor type T6, the compatible driver part number suffix is T5.

❹ Lead [mm]

Symbol	LEFS25	LEFS32	LEFS40
H	20	24	30
A	12	16	20
B	6	8	10

❺ Stroke [mm] *2

50	50
to	to
1000	1000

*2 Refer to the applicable stroke table.

❼ Cable type *4, *6

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

*4 The motor and encoder cables are included. (The lock cable is also included when the motor with lock option is selected.)

❽ Cable length [m] *5, *6

Nil	Without cable
2	2
5	5
A	10

*5 The length of the encoder, motor and lock cables are the same.

❾ Driver type *6

	Compatible driver	Power supply voltage [V]
Nil	Without driver	—
S2	LECSS2-T☐	200 to 240

*6 When the driver type is selected, the cable is included. Select cable type and cable length.
Example)
S2S2: Standard cable (2 m) + Driver (LECSS2)
S2 : Standard cable (2 m)
Nil : Without cable and driver

❻ Motor option

Nil	Without option
B	With lock

❿ I/O connector

Nil	Without connector
H	With connector

Applicable Stroke Table *3

●: Standard

Model \ Stroke (mm)	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	Manufacturable stroke range [mm]
LEFS25	●	●	●	●	●	●	●	●	●	●	●	●	—	—	—	—	—	—	—	—	50 to 600
LEFS32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	—	—	—	—	50 to 800
LEFS40	—	—	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	150 to 1000

*3 Please consult with SMC for non-standard strokes as they are produced as special orders.

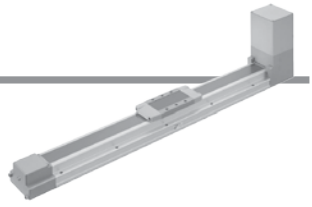
Compatible Driver

Driver type	SSCNET Ⅲ/H type 
Series	**LECSS-T**
Applicable network	SSCNET #/H
Control encoder	Absolute 22-bit encoder
Communication function	USB communication
Power supply voltage (V)	200 to 240 VAC (50/60 Hz)
Reference page	Page 21

Electric Actuator/Slider Type
Belt Drive AC Servo Motor
Series LEFB
LEFB25, 32, 40

There are changes in the How to Order. Refer to the WEB catalog **or the Electric Actuators catalog (CAT.E102) for other details.**

How to Order



LEFB 32 ❶ T7 ❸ S ❹ – 300 ❺ ❻ – S ❼ 2 ❽ S2 ❾ ❿

❶ Size

25
32
40

❷ Motor mounting position

Nil	Top mounting
U	Bottom mounting

❸ Motor type *

Symbol	Type	Output [W]	Actuator size	Compatible driver
T6	AC servo motor (Absolute encoder)	100	25	LECSS2-T5
T7		200	32	LECSS2-T7
T8		400	40	LECSS2-T8

* For motor type T6, the compatible driver part number suffix is T5.

❹ Lead [mm]

S	54

❺ Stroke [mm]

300	300
to	to
3000	3000

* Refer to the applicable stroke table.

❻ Motor option

Nil	Without option
B	With lock

❼ Cable type *1, *2

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

*1 The motor and encoder cables are included. (The lock cable is also included when the motor with lock option is selected.)
*2 Standard cable entry direction is "(A) Axis side". (Refer to page 24 for details.)

❽ Cable length [m]

Nil	Without cable
2	2
5	5
A	10

* The length of the encoder, motor and lock cables are the same.

❾ Driver type *

	Compatible driver	Power supply voltage [V]
Nil	Without driver	—
S2	LECSS2-T□	200 to 240

* When the driver type is selected, the cable is included. Select cable type and cable length.
Example)
S2S2: Standard cable (2 m) + Driver (LECSS2)
S2 : Standard cable (2 m)
Nil : Without cable and driver

❿ I/O connector

Nil	Without connector
H	With connector

Applicable Stroke Table *

●: Standard/○: Produced upon receipt of order

Model \ Stroke (mm)	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2500	3000
LEFB25	●	●	●	●	●	●	●	●	○	●	○	○	●	○	○	○	○	●	—	—
LEFB32	●	●	●	●	●	●	●	●	○	●	○	○	●	○	○	○	○	●	●	—
LEFB40	●	●	●	●	●	●	●	●	○	●	○	○	●	○	○	○	○	●	●	●

* Please consult with SMC for strokes other than those shown above as they are produced as special orders.

Compatible Driver

Driver type	SSCNETIII/H type 
Series	LECSS-T
Applicable network	SSCNET#/H
Control encoder	Absolute 22-bit encoder
Communication function	USB communication
Power supply voltage (V)	200 to 240 VAC (50/60 Hz)
Reference page	Page 21

Electric Actuator/High Rigidity Slider Type
Ball Screw Drive

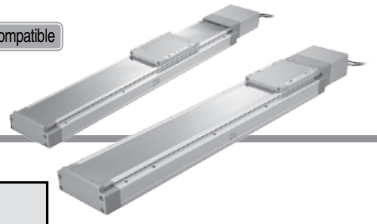
AC Servo Motor

Series LEJS
LEJS40, 63

There are changes in the How to Order. Refer to the WEB catalog **or the Electric Actuators catalog (CAT.E102) for other details.**

Clean room compatible | Secondary battery compatible

Consult with SMC for details.



How to Order

LEJS ❶40 ❷T6 ❸A – ❹500 ❺ – ❻ ❼ ❽ ❾

❶ Size

40
63

❷ Motor type *1

Symbol	Type	Output [W]	Actuator size	Compatible driver
T6	AC servo motor (Absolute encoder)	100	40	LECSS2-T5
T7		200	63	LECSS2-T7

*1 For motor type T6, the compatible driver part number suffix is T5.

❸ Lead [mm]

Symbol	LEJS40	LEJS63
H	24	30
A	16	20
B	8	10

❹ Stroke [mm] *2

200
to
1500

*2 Refer to the applicable stroke table.

❺ Motor option

Nil	Without option
B	With lock

❻ Cable type *4, *6

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

*4 The motor and encoder cables are included. (The lock cable is also included when the motor with lock option is selected.)

❼ Cable length [m] *5, *6

Nil	Without cable
2	2
5	5
A	10

* 5 The length of the encoder, motor and lock cables are the same.

❽ Driver type *6

	Compatible driver	Power supply voltage [V]
Nil	Without driver	—
S2	LECSS2-T□	200 to 240

*6 When the driver type is selected, the cable is included. Select cable type and cable length.
Example)
S2S2: Standard cable (2 m) + Driver (LECSS2)
S2 : Standard cable (2 m)
Nil : Without cable and driver

❾ I/O connector

Nil	Without connector
H	With connector

Applicable Stroke Table *3

●: Standard

Model \ Stroke (mm)	200	300	400	500	600	700	800	900	1000	1200	1500
LEJS40	●	●	●	●	●	●	●	●	●	●	—
LEJS63	—	●	●	●	●	●	●	●	●	●	●

*3 Please consult with SMC for non-standard strokes as they are produced as special orders.

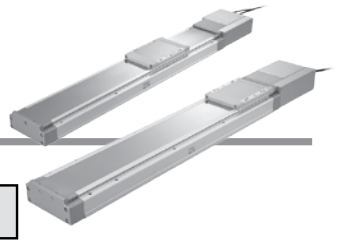
Compatible Driver

Driver type	SSCNETⅢ/H type 
Series	LECSS-T
Applicable network	SSCNET#/H
Control encoder	Absolute 22-bit encoder
Communication function	USB communication
Power supply voltage (V)	200 to 240 VAC (50/60 Hz)
Reference page	Page 21

Electric Actuator/High Rigidity Slider Type
Belt Drive AC Servo Motor

Series LEJB
LEJB40, 63

There are changes in the How to Order. Refer to the WEB catalog **or the Electric Actuators catalog (CAT.E102) for other details.**



How to Order

LEJB 40 T6 T – 500 □ – □ □ □ □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

❶ Size

40
63

❷ Motor type *1

Symbol	Type	Output [W]	Actuator size	Compatible driver
T6	AC servo motor (Absolute encoder)	100	40	LECSS2-T5
T7		200	63	LECSS2-T7

*1 For motor type T6, the compatible driver part number suffix is T5.

❸ Lead [mm]

Symbol	LEJB40	LEJB63
T	27	42

❹ Stroke [mm] *2

200
to
3000

*2 Refer to the applicable stroke table.

❺ Motor option

Nil	Without option
B	With lock

❻ Cable type *4, *6

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

*4 The motor and encoder cables are included. (The lock cable is also included when the motor with lock option is selected.)

❼ Cable length [m] *5, *6

Nil	Without cable
2	2
5	5
A	10

*5 The length of the encoder, motor and lock cables are the same.

❽ Driver type *6

	Compatible driver	Power supply voltage [V]
Nil	Without driver	—
S2	LECSS2-T□	200 to 240

*6 When the driver type is selected, the cable is included. Select cable type and cable length.
Example)
S2S2: Standard cable (2 m) + Driver (LECSS2)
S2 : Standard cable (2 m)
Nil : Without cable and driver

❾ I/O connector

Nil	Without connector
H	With connector

Applicable Stroke Table *3

●: Standard

Model \ Stroke (mm)	200	300	400	500	600	700	800	900	1000	1200	1500	2000	3000
LEJB40	●	●	●	●	●	●	●	●	●	●	●	●	—
LEJB63	—	●	●	●	●	●	●	●	●	●	●	●	●

* 3 Please consult with SMC for non-standard strokes as they are produced as special orders.

Compatible Driver

Driver type	SSCNETIII/H type 
Series	LECSS-T
Applicable network	SSCNET#/H
Control encoder	Absolute 22-bit encoder
Communication function	USB communication
Power supply voltage (V)	200 to 240 VAC (50/60 Hz)
Reference page	Page 21

Electric Actuator/Rod Type

AC Servo Motor

Series LEY

LEY25, 32, 63

There are changes in the How to Order, force conversion graph, specifications, weight and dimensions. Refer to the WEB catalog **or the Electric Actuators catalog (CAT.E102) for other details.**

Secondary battery compatible | Dust/Drip proof (IP65) specification

Consult with SMC for details.

How to Order

LEY 25 ❶ T6 ❸ B ❹ – 200 ❺ ❻ ❼ ❽ ❾ – S ❿ 2 ⓫ S2 ⓬ ⓭

❶ Size

25
32
63

❷ Motor mounting position

Nil	Top mounting
R	Right side parallel
L	Left side parallel
D	In-line

❸ Motor type *

Symbol	Type	Output [W]	Actuator size	Compatible driver
T6	AC servo motor (Absolute encoder)	100	25	LECSS2-T5
T7		200	32	LECSS2-T7
T8		400	63	LECSS2-T8

* For motor type T6, the compatible driver part number suffix is T5.

❹ Lead [mm]

Symbol	LEY25	LEY32 *1	LEY63
A	12	16 (20)	20
B	6	8 (10)	10
C	3	4 (5)	5
L	—	—	2.86 *2

*1 The values shown in ( ) are the lead for top mounting, right/left side parallel types. (Equivalent lead which includes the pulley ratio [1.25:1])

*2 Only available for top mounting and right/left side parallel types. (Equivalent lead which includes the pulley ratio [4:7])

❺ Stroke [mm]

30	30
to	to
800	800

* Refer to the applicable stroke table.

❻ Dust/Drip proof (Only available for LEY63)

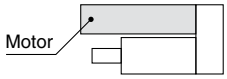
Symbol	LEY25/32	LEY63
Nil	Equivalent to IP4x	IP5x (Dust proof specification)
P	—	IP65 (Dust/Drip proof specification)/ With vent hole tap

* When using the dust/drip proof (IP65), correctly mount the fitting and tubing to the vent hole tap, and then place the end of the tubing in an area not exposed to dust or water.
* The fitting and tubing should be provided separately by the customer.
  Select [Applicable tubing O.D.: ø4 or more, Connection thread: Rc1/8].

❼ Motor option

Nil	Without option
B	With lock

* When "With lock" is selected for the top mounting and right/left side parallel types, the motor body will stick out of the end of the body for size 25 with strokes 30 or less. Check for interference with workpieces before selecting a model.



❽ Rod end thread

Nil	Rod end female thread
M	Rod end male thread (1 rod end nut is included.)

❾ Mounting *1

Symbol	Type	Motor mounting position	
		Top/Parallel	In-line
Nil	Ends tapped (Standard) *2	●	●
U	Body bottom tapped	●	●
L	Foot	●	—
F	Rod flange *2	● *4	●
G	Head flange *2	● *5	—
D	Double clevis *3	●	—

*1 Mounting bracket is shipped together, (but not assembled).

*2 For horizontal cantilever mounting with the rod flange, head flange and ends tapped, use the actuator within the following stroke range.
· LEY25: 200 or less · LEY32: 100 or less · LEY63: 400 or less

*3 For mounting with the double clevis, use the actuator within the following stroke range.
· LEY25: 200 or less · LEY32: 200 or less · LEY63: 300 or less

*4 Rod flange is not available for the LEY25 with strokes 30 and motor option "With lock".

*5 Head flange is not available for the LEY32/63.

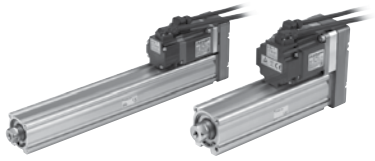
Applicable Stroke Table

●: Standard

Model \ Stroke (mm)	30	50	100	150	200	250	300	350	400	450	500	600	700	800	Manufacturable stroke range
LEY25	●	●	●	●	●	●	●	●	●	—	—	—	—	—	15 to 400
LEY32	●	●	●	●	●	●	●	●	●	●	●	—	—	—	20 to 500
LEY63	—	—	●	—	●	—	●	—	●	—	●	●	●	●	50 to 800

* Please consult with SMC for the manufacture of intermediate strokes.

SMC



Motor mounting position: Top/Parallel

Motor mounting position: In-line

⑩ Cable type

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

⑪ Cable length [m]

Nil	Without cable
2	2
5	5
A	10

⑫ Driver type

	Compatible driver	Power supply voltage (V)
Nil	Without driver	—
S2	LECSS2-T□	200 to 240

∗ When the driver type is selected, the cable is included. Select cable type and cable length.
Example)
S2S2: Standard cable (2 m) + Driver (LECSS2)
S2 : Standard cable (2 m)
Nil : Without cable and driver

⑬ I/O connector

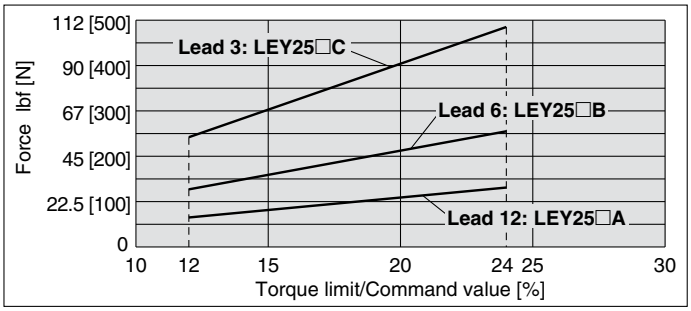
Nil	Without connector
H	With connector

Compatible Driver

Driver type	SSCNETⅢ/H type 
Series	**LECSS-T**
Applicable network	SSCNET #/H
Control encoder	Absolute 22-bit encoder
Communication function	USB communication
Power supply voltage (V)	200 to 240 VAC (50/60 Hz)
Reference page	Page 21

Force Conversion Graph (Guide)

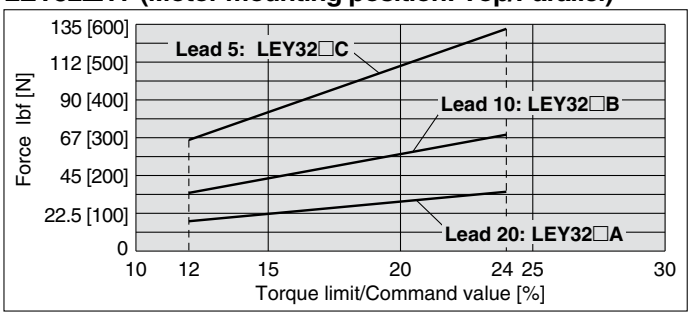
LEY25□T6 (Motor mounting position: Top/Parallel, In-line)



Torque limit/Command value [%]	Duty ratio [%]	Continuous pushing time [minute]
20 or less	100	—
24	100 (60)	— (1.5)

* The values in ( ) are for a closely-mounted driver.

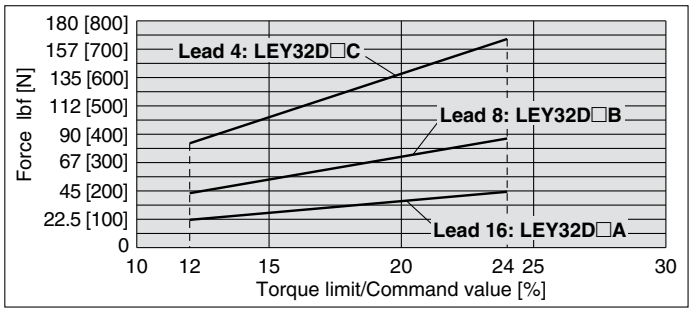
LEY32□T7 (Motor mounting position: Top/Parallel)



Torque limit/Command value [%]	Duty ratio [%]	Continuous pushing time [minute]
20 or less	100	—
24	100 (60)	— (1.5)

* The values in ( ) are for a closely-mounted driver.

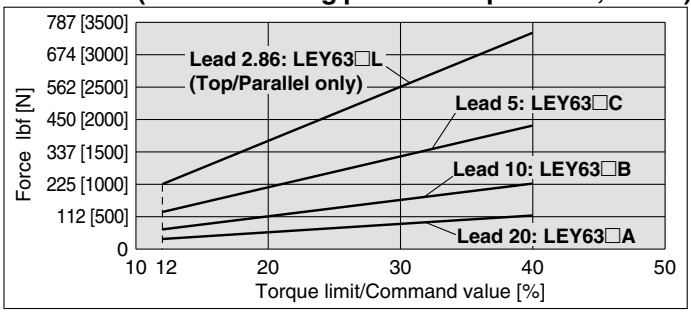
LEY32DT7 (Motor mounting position: In-line)



Torque limit/Command value [%]	Duty ratio [%]	Continuous pushing time [minute]
20 or less	100	—
24	100 (60)	— (1.5)

* The values in ( ) are for a closely-mounted driver.

LEY63□T8 (Motor mounting position: Top/Parallel, In-line)



Torque limit/Command value [%]	Duty ratio [%]	Continuous pushing time [minute]
20 or less	100	—
24	100 (60)	— (1.5)
32	50 (30)	1.5 (0.5)
40	30 (20)	0.5 (0.16)

* The values in ( ) are for a closely-mounted driver.

Specifications

Model			LEY25 (Top/Parallel)/LEY25D (In-line)			LEY32 (Top/Parallel)			LEY32D (In-line)		
Actuator specifications	Stroke [mm] Note 1)		30, 50, 100, 150, 200, 250, 300, 350, 400			30, 50, 100, 150, 200, 250, 300, 350, 400, 450, 500			30, 50, 100, 150, 200, 250, 300, 350, 400, 450, 500		
	Work load [kg]	Horizontal Note 2)	18	50	50	30	60	60	30	60	60
		Vertical	8	16	30	9	19	37	12	24	46
	Pushing force lbf [N] (Set value: 12 to 24%) Note 3)		15 to 29 [65 to 131]	28 to 57 [127 to 255]	54 to 109 [242 to 485]	18 to 35 [79 to 157]	35 to 69 [154 to 308]	67 to 132 [294 to 588]	22 to 44 [98 to 197]	43 to 87 [192 to 385]	83 to 165 [368 to 736]
	Max. speed [mm/s] Note 4) Stroke range	Up to 300	900	450	225	1200	600	300	1000	500	250
		305 to 400	600	300	150						
		405 to 500	—	—	—	800	400	200	640	320	160
	Pushing speed [mm/s] Note 5)		35 or less			30 or less			30 or less		
	Max. acceleration/deceleration [mm/s²]		5000			5000					
	Positioning repeatability [mm]		±0.02			±0.02					
	Lost motion [mm] Note 6)		0.1 or less								
	Lead [mm] (including pulley ratio)		12	6	3	20	10	5	16	8	4
	Impact/Vibration resistance [m/s²] Note 7)		50/20			50/20					
	Actuation type		Ball screw + Belt (LEY□)/Ball screw (LEY□D)			Ball screw + Belt [1.25:1]			Ball screw		
	Guide type		Sliding bushing (Piston rod)			Sliding bushing (Piston rod)					
	Operating temperature range		41 to 104°F [5 to 40°C]			41 to 104°F [5 to 40°C]					
	Operating humidity range [%RH]		90 or less (No condensation)			90 or less (No condensation)					
	Required conditions for Note 8) "Regeneration option" [kg]	Horizontal	8 or more	31 or more	Not required	15 or more	Not required	Not required	23 or more	Not required	Not required
		Vertical	3 or more	2 or more	2 or more	6 or more	7 or more	11 or more	6 or more	7 or more	12 or more
Electric specifications	Motor output/Size		100 W/□40			200 W/□60					
	Motor type		AC servo motor (200 VAC)			AC servo motor (200 VAC)					
	Encoder		Motor type T6, T7: Absolute 22-bit encoder (Resolution: 4194304 p/rev)								
	Power consumption [W] Note 9)	Horizontal	45			65			65		
		Vertical	145			175			175		
	Standby power consumption when operating [W] Note 10)	Horizontal	2			2			2		
		Vertical	8			8			8		
	Max. instantaneous power consumption [W] Note 11)		445			724			724		
Lock unit specifications	Type Note 12)		Non-magnetizing lock								
	Holding force lbf [N]		29 [131]	57 [255]	109 [485]	35 [157]	69 [308]	132 [588]	44 [197]	87 [385]	165 [736]
	Power consumption [W] at 68°F (20°C) Note 13)		6.3			7.9			7.9		
	Rated voltage [V]		24 VDC $^{0}_{-10\%}$								

Note 1) Please consult with SMC for non-standard strokes as they are produced as special orders.
Note 2) The maximum value of the horizontal work load. An external guide is necessary to support the load. The actual work load changes according to the condition of the external guide. Please confirm using actual device.
Note 3) The force setting range (set values for the driver) for the pushing operation with the torque control mode, etc. Set it with reference to "Force Conversion Graph (Guide)" on page 9.
Note 4) The allowable speed changes according to the stroke.
Note 5) The allowable collision speed for the pushing operation with the torque control mode, etc.
Note 6) A reference value for correcting an error in reciprocal operation.
Note 7) 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 8) The work load conditions which require "Regeneration option" when operating at the maximum speed (Duty ratio: 100%). Order the regeneration option separately. For details and order numbers, refer to the WEB catalog or "Required Conditions for Regeneration Option" of Series LEY in the Electric Actuators catalog (CAT.E102).
Note 9) The power consumption (including the driver) is for when the actuator is operating.
Note 10) The standby power consumption when operating (including the driver) is for when the actuator is stopped in the set position during the operation.
Note 11) The maximum instantaneous power consumption (including the driver) is for when the actuator is operating.
Note 12) Only when motor option "With lock" is selected.
Note 13) For an actuator with lock, add the power consumption for the lock.

Weight

Product Weight

[kg]

Series		LEY25□ (Motor mounting position: Top/Parallel)									LEY32□ (Motor mounting position: Top/Parallel)									
Stroke [mm]		30	50	100	150	200	250	300	350	400	30	50	100	150	200	250	300	350	400	450	500
Motor type	Absolute encoder	1.4	1.5	1.6	1.9	2.0	2.2	2.4	2.6	2.7	2.3	2.4	2.7	3.2	3.5	3.8	4.1	4.3	4.6	4.9	5.2

Series		LEY25D□ (Motor mounting position: In-line)									LEY32D□ (Motor mounting position: In-line)										
Stroke [mm]		30	50	100	150	200	250	300	350	400	30	50	100	150	200	250	300	350	400	450	500
Motor type	Absolute encoder	1.4	1.5	1.6	1.9	2.1	2.2	2.4	2.6	2.8	2.4	2.5	2.8	3.2	3.5	3.8	4.1	4.4	4.6	4.9	5.2

Additional Weight

[kg]

Size		25	32
Lock	Absolute encoder	0.3	0.4
Rod end male thread	Male thread	0.03	0.03
	Nut	0.02	0.02
Foot (2 sets including mounting bolt)		0.08	0.14
Rod flange (including mounting bolt)		0.17	0.20
Head flange (including mounting bolt)			
Double clevis (including pin, retaining ring and mounting bolt)		0.16	0.22

Specifications

Model				LEY63□ (Top/Parallel)				LEY63D□ (In-line)		
Actuator specifications	Stroke [mm] Note 1)			100, 200, 300, 400, 500, 600, 700, 800						
	Work load [kg]		Horizontal Note 2)	40	70	80	200	40	70	80
			Vertical	19	38	72	115	19	38	72
	Pushing force lbf [N] Note 3) (Set value: 12 to 40%)			35 to 117 [156 to 521]	68 to 228 [304 to 1012]	129 to 429 [573 to 1910]	225 to 752 [1003 to 3343]	35 to 117 [156 to 521]	68 to 228 [304 to 1012]	129 to 429 [573 to 1910]
	Max. speed [mm/s] Note 4)	Stroke range	Up to 500	1000	500	250	70	1000	500	250
			505 to 600	800	400	200		800	400	200
			605 to 700	600	300	150		600	300	150
			705 to 800	500	250	125		500	250	125
	Pushing speed [mm/s] Note 5)			30 or less						
	Max. acceleration/deceleration [mm/s²]			5000			3000	5000		
	Positioning repeatability [mm]			±0.02						
	Lost motion [mm] Note 6)			0.1 or less						
	Screw lead [mm] (including pulley ratio)			20	10	5	5 (2.86)	20	10	5
	Impact/Vibration resistance [m/s²] Note 7)			50/20						
	Actuation type			Ball screw + Belt			Ball screw + Belt [Pulley ratio 4:7]	Ball screw		
	Guide type			Sliding bushing (Piston rod)						
	Operating temperature range			41 to 104°F (5 to 40°C)						
	Operating humidity range [%RH]			90 or less (No condensation)						
	Required conditions for "Regeneration option" [kg] Note 8)		Horizontal	Not required	Not required	Not required	Not required	Not required	Not required	Not required
			Vertical	2 or more	5 or more	12 or more	46 or more	2 or more	5 or more	12 or more
Electric specifications	Motor output/Size			400 W/□60						
	Motor type			AC servo motor (200 VAC)						
	Encoder			Motor type T8: Absolute 22-bit encoder (Resolution: 4194304 p/rev)						
	Power consumption [W] Note 9)		Horizontal	210						
			Vertical	230						
	Standby power consumption when operating [W] Note 10)		Horizontal	2						
			Vertical	18						
	Max. instantaneous power consumption [W] Note 11)			1275						
Lock unit specifications	Type Note 12)			Non-magnetizing lock						
	Holding force lbf[N]			70 [313]	136 [607]	258 [1146]	451 [2006]	70 [313]	136 [607]	258 [1146]
	Power consumption [W] at 68°F (20°C) Note 13)			7.9						
	Rated voltage [V]			24 VDC$^{0}_{-10\%}$						

Note 1) Please consult with SMC for non-standard strokes as they are produced as special orders.
Note 2) The maximum value of the horizontal work load. An external guide is necessary to support the load. The actual work load changes according to the condition of the external guide. Please confirm using actual device.
Note 3) The force setting range (set values for the driver) for the pushing operation with the torque control mode, etc. The pushing force and duty ratio change according to the set value. Set it with reference to "Force Conversion Graph (Guide)" on page 9.
Note 4) The allowable speed changes according to the stroke.
Note 5) The allowable collision speed for the pushing operation with the torque control mode, etc.
Note 6) A reference value for correcting an error in reciprocal operation.
Note 7) 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 8) The work load conditions which require "Regeneration option" when operating at the maximum speed (Duty ratio: 100%).
Order the regeneration option separately. For details and order numbers, refer to the WEB catalog or "Required Conditions for Regeneration Option" of Series LEY in the Electric Actuators catalog (CAT.E102).
Note 9) The power consumption (including the driver) is for when the actuator is operating.
Note 10) The standby power consumption when operating (including the driver) is for when the actuator is stopped in the set position during the operation.
Note 11) The maximum instantaneous power consumption (including the driver) is for when the actuator is operating.
Note 12) Only when motor option "With lock" is selected.
Note 13) For an actuator with lock, add the power consumption for the lock.

Weight

Product Weight

[kg]

Series		LEY63□ (Motor mounting position: Top/Parallel)							
Stroke [mm]		100	200	300	400	500	600	700	800
Motor type	Absolute encoder	5.4	6.6	8.3	9.4	10.5	12.2	13.4	14.5

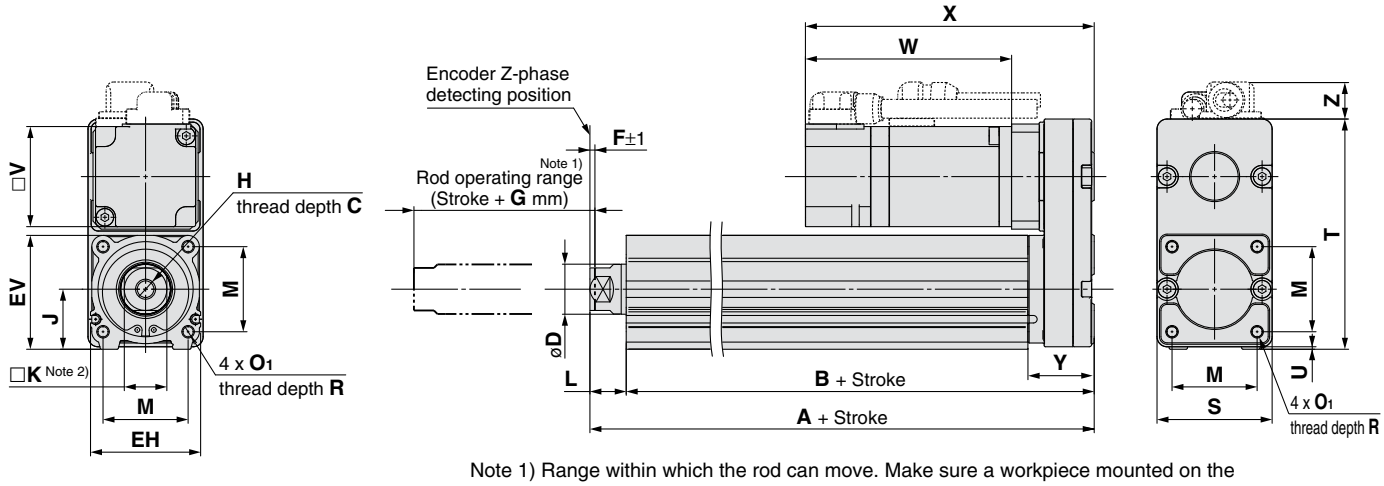
Series		LEY63D□□ (Motor mounting position: In-line)							
Stroke [mm]		100	200	300	400	500	600	700	800
Motor type	Absolute encoder	5.6	6.7	8.4	9.6	10.7	12.4	13.5	14.7

Additional Weight

[kg]

Size		63
Lock	Absolute encoder	0.4
Rod end male thread	Male thread	0.12
	Nut	0.04
Foot (2 sets including mounting bolt)		0.26
Rod flange (including mounting bolt)		0.51
Double clevis (including pin, retaining ring and mounting bolt)		0.58

Dimensions: Motor Top/Parallel



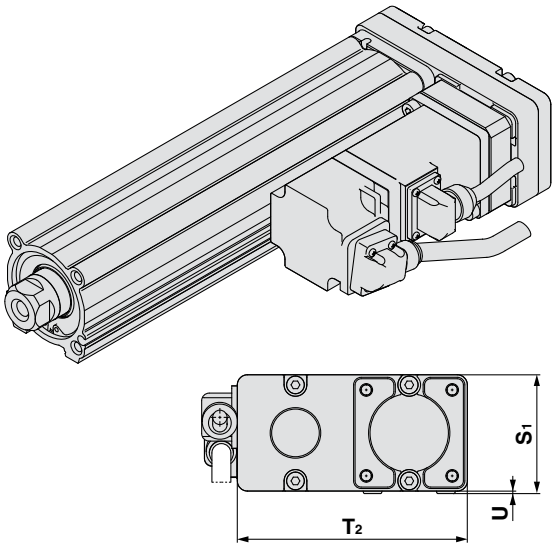
Note 1) Range within which the rod can move. Make sure a workpiece mounted on the rod does not interfere with the workpieces and facilities around the rod.
Note 2) The direction of rod end width across flats (□K) differs depending on the products.

[mm]

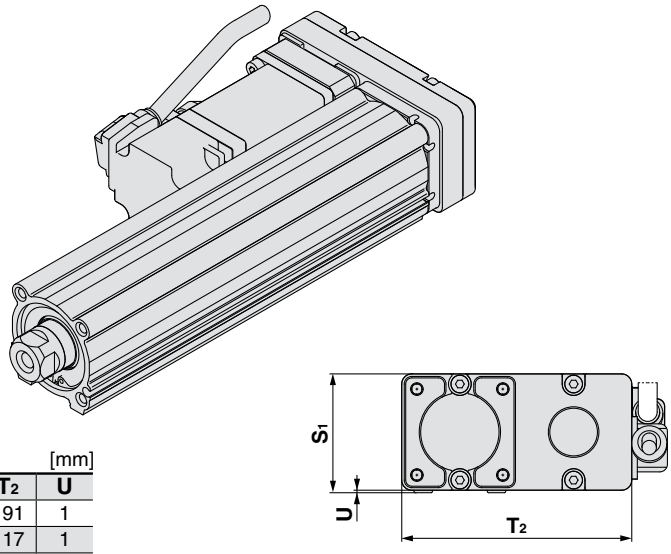
Size	Stroke range (mm)	A	B	C	D	EH	EV	F	G	H	J	K	L	M	O_1
25	15 to 100	130.5	116	13	20	44	45.5	2	4	M8 x 1.25	24	17	14.5	34	M5 x 0.8
	105 to 400	155.5	141												
32	20 to 100	148.5	130	13	25	51	56.5	2	4	M8 x 1.25	31	22	18.5	40	M6 x 1.0
	105 to 500	178.5	160												
63	Up to 200	192.6	155.2	21	40	76	82	4	8	M16 x 2	44	36	37.4	60	M8 x 1.25
	205 to 500	227.6	190.2												
	505 to 800	262.6	225.2												

Size	Stroke range (mm)	R	S	T	U	Y	V	Without lock			With lock		
								W	X	Z	W	X	Z
25	15 to 100	8	46	92	1	26.5	40	82.4	115.4	14.1	123	156	15.8
	105 to 400												
32	20 to 100	10	60	118	1	34	60	76.6	116.6	17.1	113.4	153.4	17.1
	105 to 500												
63	Up to 200	16	80	146	4	32.2	60	98.3	138.3	15.6 (16.6)	135.1	175.1	15.6 (16.6)
	205 to 500												
	505 to 800												

Motor left side parallel type: LEY32 25 63 L



Motor right side parallel type: LEY32 25 63 R

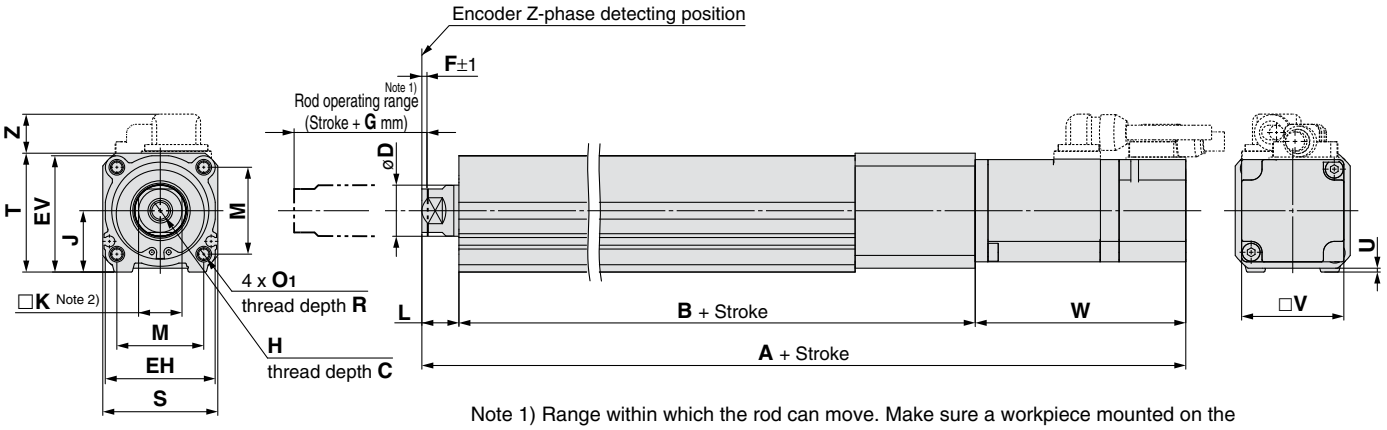


[mm]

Size	S_1	T_2	U
25	47	91	1
32	61	117	1
63	84	142	4

Note) When the motor is mounted on the left or right side in parallel, the groove for auto switch on the side to which the motor is mounted is hidden.

Dimensions: In-line Motor



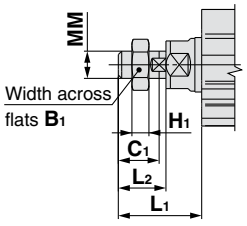
Note 1) Range within which the rod can move. Make sure a workpiece mounted on the rod does not interfere with the workpieces and facilities around the rod.
Note 2) The direction of rod end width across flats (□K) differs depending on the products.

[mm]

Size	Stroke range (mm)	C	D	EH	EV	F	G	H	J	K	L	M	O1	R	S
25	15 to 100 105 to 400	13	20	44	45.5	2	4	M8 x 1.25	24	17	14.5	34	M5 x 0.8	8	45
32	20 to 100 105 to 500	13	25	51	56.5	2	4	M8 x 1.25	31	22	18.5	40	M6 x 1.0	10	60
63	Up to 200 205 to 500 505 to 800	21	40	76	82	4	8	M16 x 2	44	36	37.4	60	M8 x 1.25	16	78

Size	Stroke range (mm)	T	U	B	V	Without lock			With lock		
						A	W	Z	A	W	Z
25	15 to 100	46.5	1.5	136.5	40	233.4	82.4	14.6	274	123	16.3
	105 to 400			161.5		258.4			299		
32	20 to 100	61	1	156	60	251.1	76.6	17.1	287.9	113.4	17.1
	105 to 500			186		281.1			317.9		
63	Up to 200	83	5	190.7	60	326.4	98.3	8.1	363.2	135.1	8.1
	205 to 500			225.7		361.4			398.2		
	505 to 800			260.7		396.4			433.2		

End male thread: LEY 25/32/63 A/C □□B-□□M



∗ Refer to **the WEB catalog** for details about the rod end nut and mounting bracket.
Note) Refer to the "Mounting" precautions on **the WEB catalog** when mounting end brackets such as knuckle joint or workpieces.

[mm]

Size	B1	C1	H1	L1∗	L2	MM
25	22	20.5	8	38	23.5	M14 x 1.5
32	22	20.5	8	42.0	23.5	M14 x 1.5
63	27	26	11	76.4	39	M18 x 1.5

∗ The L1 measurement is when the unit is in the Z-phase first detecting position. At this position, 2 mm at the end (size 25, 32) and 4 mm at the end (size 63).

Electric Actuator/Guide Rod Type

AC Servo Motor

Series LEYG

LEYG25, 32

There are changes in the How to Order, force conversion graph, specifications, weight and dimensions. Refer to the WEB catalog **or the Electric Actuators catalog (CAT.E102) for other details.**

How to Order

LEYG 25 M □ T6 B – 200 □ □ – S 2 S2 □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫ ⓬

❶ Size

25
32

❷ Bearing type

M	Sliding bearing
L	Ball bushing bearing

❸ Motor mounting position

Nil	Top mounting
D	In-line

❹ Motor type *

Symbol	Type	Output [W]	Actuator size	Compatible driver
T6	AC servo motor (Absolute encoder)	100	25	LECSS2-T5
T7		200	32	LECSS2-T7

* For motor type T6, the compatible driver part number suffix is T5.

❺ Lead [mm]

Symbol	LEYG25	LEYG32*
A	12	16 (20)
B	6	8 (10)
C	3	4 (5)

* The values shown in ( ) are the lead for top mounting type. (Equivalent lead which includes the pulley ratio [1.25:1])

❻ Stroke [mm]

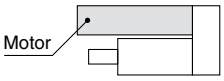
30	30
to	to
300	300

* Refer to the applicable stroke table.

❼ Motor option

Nil	Without option
B	With lock

* When "With lock" is selected for the top mounting type, the motor body will stick out of the end of the body for size 25 with strokes 30 or less. Check for interference with workpieces before selecting a model.



❽ Guide option

Nil	Without option
F	With grease retaining function

* Only available for sliding bearing.

❾ Cable type

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

❿ Cable length [m]

Nil	Without cable
2	2
5	5
A	10

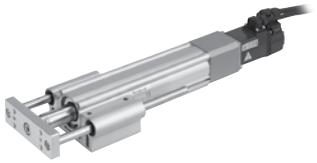
Applicable Stroke Table

●: Standard

Model \ Stroke (mm)	30	50	100	150	200	250	300	Manufacturable stroke range
LEYG25	●	●	●	●	●	●	●	15 to 300
LEYG32	●	●	●	●	●	●	●	20 to 300

* Please consult with SMC for the manufacture of intermediate strokes.

Motor mounting position: Top mounting



Motor mounting position: In-line

⓫ Driver type

	Compatible driver	Power supply voltage (V)
Nil	Without driver	—
S2	LECSS2-T□	200 to 240

∗ When the driver type is selected, the cable is included. Select cable type and cable length.
Example)
S2S2 : Standard cable (2 m) + Driver (LECSS2)
S2 : Standard cable (2 m)
Nil : Without cable and driver

⓬ I/O connector

Nil	Without connector
H	With connector

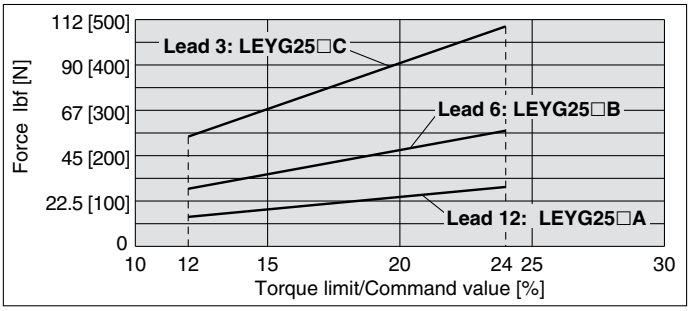
Use of auto switches for the guide rod type LEYG series
· Insert the auto switch from the front side with rod (plate) sticking out.
· For the parts hidden behind the guide attachment (Rod stick out side), the auto switch cannot be fixed.
· Consult with SMC when using auto switch on the rod stick out side.

Compatible Driver

Driver type	SSCNETⅢ/H type 
Series	**LECSS-T**
Applicable network	SSCNET#/H
Control encoder	Absolute 22-bit encoder
Communication function	USB communication
Power supply voltage (V)	200 to 240 VAC (50/60 Hz)
Reference page	Page 21

Force Conversion Graph

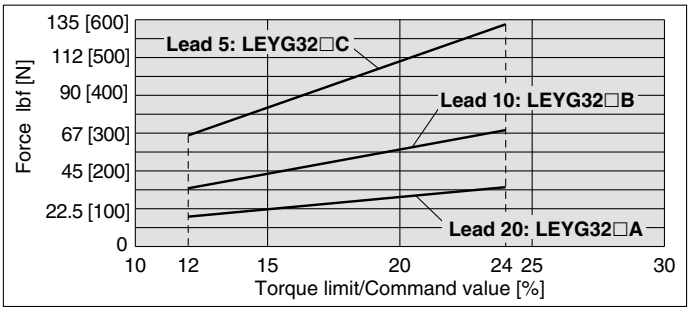
LEYG25 T6 (Motor mounting position: Top mounting, In-line)



Torque limit/Command value [%]	Duty ratio [%]	Continuous pushing time [minute]
20 or less	100	—
24	100 (60)	— (1.5)

∗ The values in ( ) are for a closely-mounted driver.

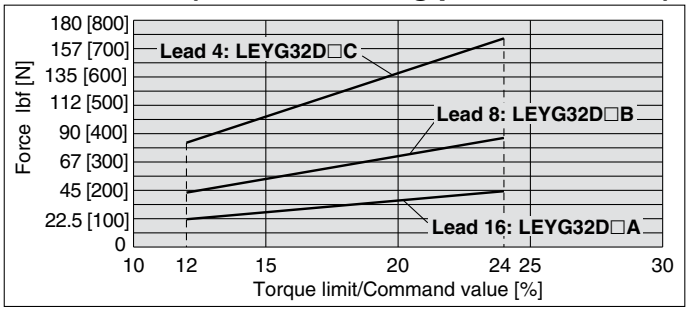
LEYG32□T7 (Motor mounting position: Top mounting)



Torque limit/Command value [%]	Duty ratio [%]	Continuous pushing time [minute]
20 or less	100	—
24	100 (60)	—(1.5)

∗ The values in ( ) are for a closely-mounted driver.

LEYG32DT7 (Motor mounting position: In-line)



Torque limit/Command value [%]	Duty ratio [%]	Continuous pushing time [minute]
20 or less	100	—
24	100 (60)	— (1.5)

∗ The values in ( ) are for a closely-mounted driver.

Specifications

Model			LEYG25$^{M}_{L}$ (Top mounting) LEYG25$^{M}_{L}$D (In-line)			LEYG32$^{M}_{L}$ (Top mounting)			LEYG32$^{M}_{L}$D (In-line)		
Actuator specifications	Stroke [mm] Note 1)		30, 50, 100, 150, 200, 250, 300			30, 50, 100, 150, 200, 250, 300			30, 50, 100, 150, 200, 250, 300		
	Work load [kg]	Horizontal Note 2)	18	50	50	30	60	60	30	60	60
		Vertical	7	15	29	7	17	35	10	22	44
	Pushing force lbf [N] Note 3) (Set value: 12 to 24%)		15 to 29 [65 to 131]	28 to 57 [127 to 255]	54 to 109 [242 to 485]	18 to 35 [79 to 157]	35 to 69 [154 to 308]	66 to 132 [294 to 588]	22 to 44 [98 to 197]	43 to 87 [192 to 385]	83 to 165 [368 to 736]
	Max. speed [mm/s]		900	450	225	1200	600	300	1000	500	250
	Pushing speed [mm/s] Note 4)		35 or less			30 or less			30 or less		
	Max. acceleration/deceleration [mm/s^2]		5000			5000					
	Positioning repeatability [mm]		±0.02			±0.02					
	Lost motion [mm] Note 5)		0.1 or less								
	Lead [mm] (including pulley ratio)		12	6	3	20	10	5	16	8	4
	Impact/Vibration resistance [m/s^2] Note 6)		50/20			50/20					
	Actuation type		Ball screw + Belt [1:1]/Ball screw			Ball screw + Belt [1:1.25]			Ball screw		
	Guide type		Sliding bearing (LEYG□M), Ball bushing bearing (LEYG□L)								
	Operating temperature range		41 to 104°F (5 to 40°C)			41 to 104°F (5 to 40°C)					
	Operating humidity range [%RH]		90 or less (No condensation)			90 or less (No condensation)					
	Required conditions for "Regeneration option" [kg] Note 7)	Horizontal	8 or more	31 or more	Not required	15 or more	Not required	Not required	23 or more	Not required	Not required
		Vertical	2 or more	1 or more	1 or more	4 or more	5 or more	9 or more	4 or more	5 or more	9 or more
Electric specifications	Motor output/Size		100 W/□40			200 W/□60					
	Motor type		AC servo motor (200 VAC)			AC servo motor (200 VAC)					
	Encoder		Motor type T6, T7: Absolute 22-bit encoder (Resolution: 4194304 p/rev)								
	Power consumption [W] Note 8)	Horizontal	45			65			65		
		Vertical	145			175			175		
	Standby power consumption when operating [W] Note 9)	Horizontal	2			2			2		
		Vertical	8			8			8		
	Max. instantaneous power consumption [W] Note 10)		445			724			724		
Lock unit specifications	Type Note 11)		Non-magnetizing lock			Non-magnetizing lock					
	Holding force lbf [N]		29 [131]	57 [255]	109 [485]	35 [157]	69 [308]	132 [588]	44 [197]	87 [385]	165 [736]
	Power consumption [W] at 68°F (20°C) Note 12)		6.3			7.9			7.9		
	Rated voltage [V]		24 VDC$^{0}_{-10\%}$								

Note 1) Please consult with SMC for non-standard strokes as they are produced as special orders.
Note 2) The maximum value of the horizontal work load. An external guide is necessary to support the load. The actual work load changes according to the condition of the external guide. Please confirm using actual device.
Note 3) The force setting range (set values for the driver) for the pushing operation with the torque control mode, etc. Set it with reference to "Force Conversion Graph" on page 17.
Note 4) The allowable collision speed for the pushing operation with the torque control mode, etc.
Note 5) A reference value for correcting an error in reciprocal operation.
Note 6) 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 7) The work load conditions which require "Regeneration option" when operating at the maximum speed (Duty ratio: 100%). Order the regeneration option separately. For details and order numbers, refer to the WEB catalog or "Required Conditions for Regeneration Option" of Series LEYG in the Electric Actuators catalog (CAT.E102).
Note 8) The power consumption (including the driver) is for when the actuator is operating.
Note 9) The standby power consumption when operating (including the driver) is for when the actuator is stopped in the set position during the operation.
Note 10) The maximum instantaneous power consumption (including the driver) is for when the actuator is operating.
Note 11) Only when motor option "With lock" is selected.
Note 12) For an actuator with lock, add the power consumption for the lock.

Weight

Weight: Top Mounting Type

[kg]

Series		LEYG25M							LEYG32M						
Stroke [mm]		30	50	100	150	200	250	300	30	50	100	150	200	250	300
Motor type	Absolute encoder	1.8	2.0	2.4	2.8	3.1	3.5	3.7	3.2	3.4	4.0	4.7	5.3	5.7	6.2

Series		LEYG25L							LEYG32L						
Stroke [mm]		30	50	100	150	200	250	300	30	50	100	150	200	250	300
Motor type	Absolute encoder	1.9	2.1	2.3	2.7	3.0	3.3	3.6	3.2	3.4	3.8	4.6	5.0	5.5	5.9

Weight: In-line Motor Type

[kg]

Series		LEYG25MD							LEYG32MD						
Stroke [mm]		30	50	100	150	200	250	300	30	50	100	150	200	250	300
Motor type	Absolute encoder	1.9	2.1	2.4	2.8	3.1	3.5	3.7	3.2	3.4	4.0	4.7	5.3	5.8	6.2

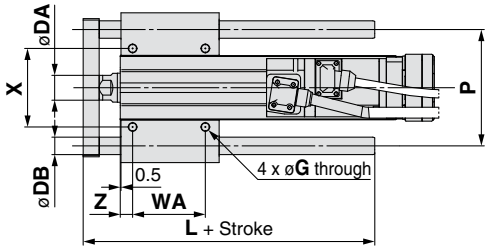
Series		LEYG25LD							LEYG32LD						
Stroke [mm]		30	50	100	150	200	250	300	30	50	100	150	200	250	300
Motor type	Absolute encoder	1.9	2.1	2.3	2.8	3.0	3.3	3.6	3.2	3.4	3.8	4.6	5.0	5.5	5.9

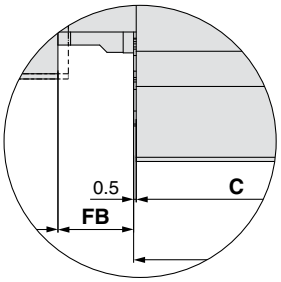
Additional Weight

[kg]

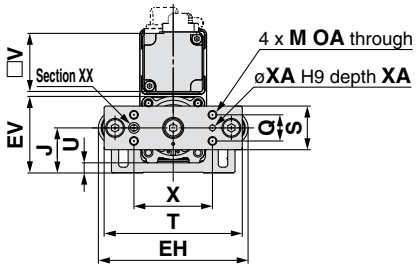
Size		25	32
Lock	Absolute encoder	0.3	0.7

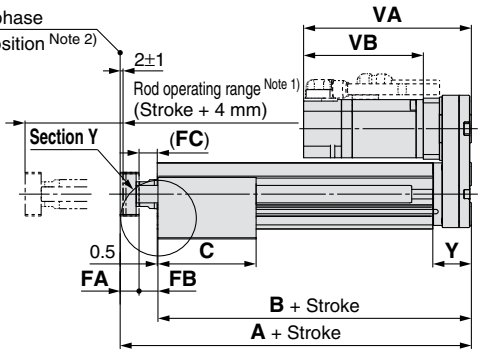
Dimensions: Top Mounting

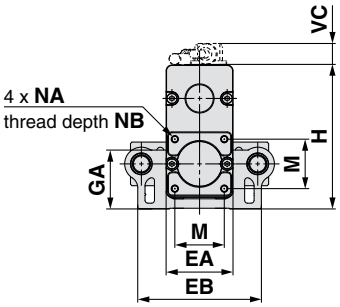




Section Y details

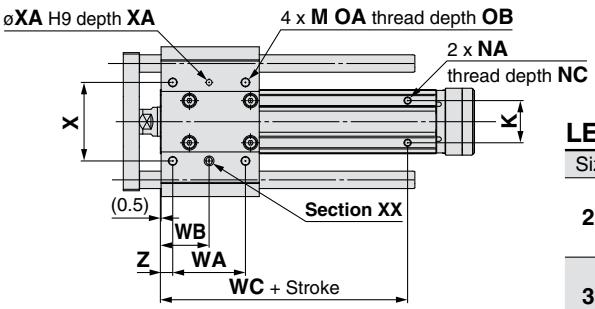


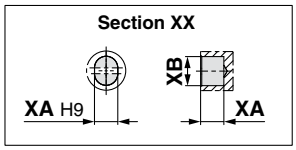




Note 1) Range within which the rod can move. Make sure a workpiece mounted on the rod does not interfere with the workpieces and facilities around the rod.

Note 2) The Z-phase first detecting position from the stroke end of the motor side.





LEYG□L (Ball bushing bearing) [mm]

Size	Stroke range (mm)	L	DB
25	15 to 110	91	10
	115 to 190	115	
	195 to 300	133	
32	20 to 110	97.5	13
	115 to 190	116.5	
	195 to 300	134	

LEYG□M (Sliding bearing) [mm]

Size	Stroke range (mm)	L	DB
25	15 to 55	67.5	12
	60 to 185	100.5	
	190 to 300	138	
32	20 to 55	74	16
	60 to 185	107	
	190 to 300	144	

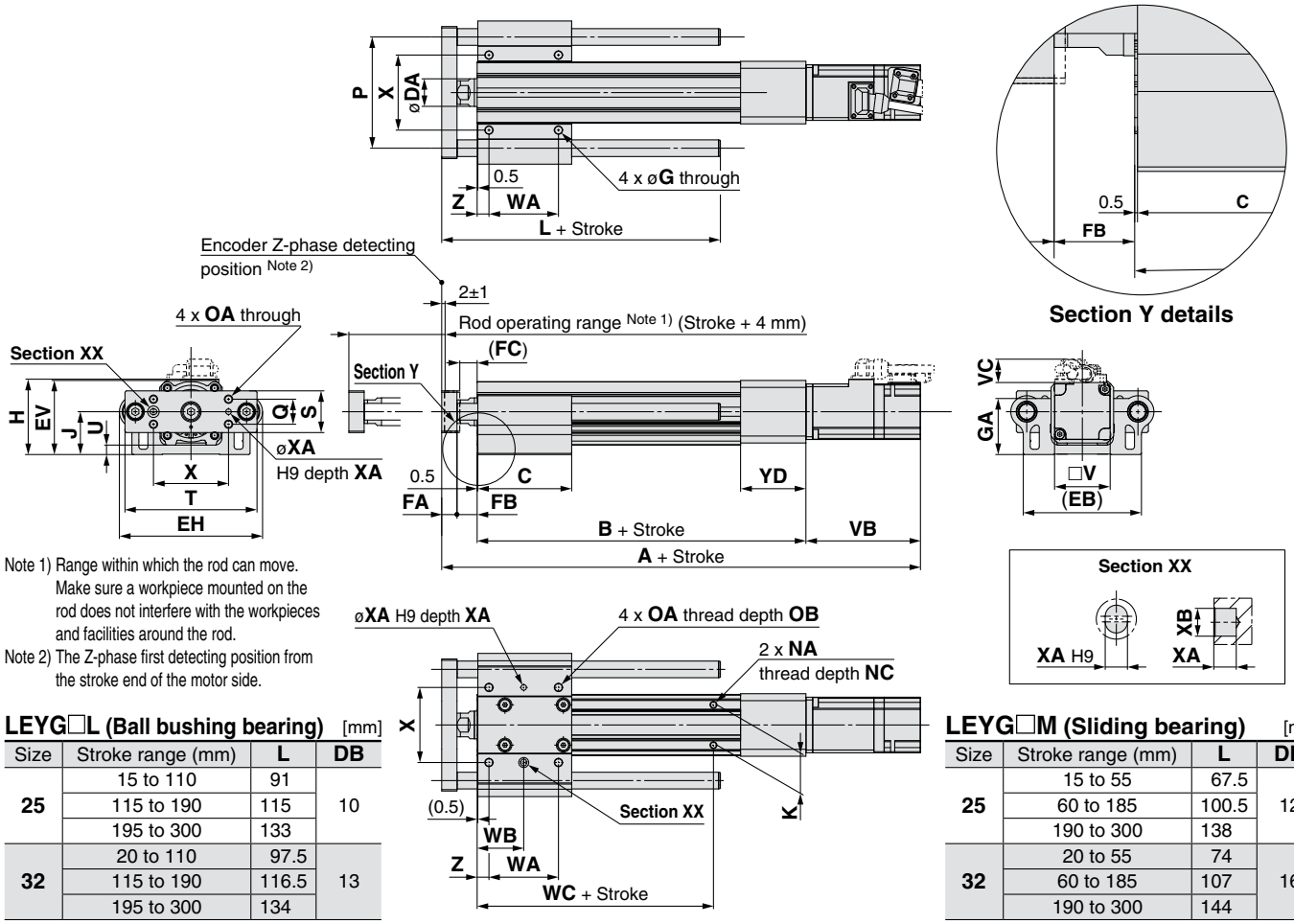
LEYG□M, LEYG□L Common [mm]

Size	Stroke range (mm)	A	B	C	DA	EA	EB	EH	EV	FA	FB	FC	G	GA	H	J	K	M	NA	NB	NC
25	15 to 35	141.5	116	50	20	46	85	103	52.3	11	14.5	12.5	5.4	40.3	98.8	30.8	29	34	M5 x 0.8	8	6.5
	40 to 100			67.5																	
	105 to 120	166.5	141																		
	125 to 200			84.5																	
	205 to 300			102																	
32	20 to 35	160.5	130	55	25	60	101	123	63.8	12	18.5	16.5	5.4	50.3	125.3	38.3	30	40	M6 x 1.0	10	8.5
	40 to 100			68																	
	105 to 120	190.5	160																		
	125 to 200			85																	
	205 to 300			102																	

Size	Stroke range (mm)	OA	OB	P	Q	S	T	U	V	WA	WB	WC	X	XA	XB	Y	Z
25	15 to 35	M6 x 1.0	12	80	18	30	95	6.8	40	35	26	70	54	4	5	26.5	8.5
	40 to 100									50	33.5						
	105 to 120											95					
	125 to 200									70	43.5						
	205 to 300									85	51						
32	20 to 35	M6 x 1.0	12	95	28	40	117	7.3	60	40	28.5	75	64	5	6	34	8.5
	40 to 100									50	33.5						
	105 to 120											105					
	125 to 200									70	43.5						
	205 to 300									85	51						

Size	Without lock			With lock		
	VA	VB	VC	VA	VB	VC
25	115.4	82.4	14.1	156	123	15.8
32	116.6	76.6	17.1	153.4	113.4	17.1

Dimensions: In-line Motor



Note 1) Range within which the rod can move. Make sure a workpiece mounted on the rod does not interfere with the workpieces and facilities around the rod.

Note 2) The Z-phase first detecting position from the stroke end of the motor side.

LEYG□L (Ball bushing bearing) [mm]

Size	Stroke range (mm)	L	DB
25	15 to 110	91	10
	115 to 190	115	
	195 to 300	133	
32	20 to 110	97.5	13
	115 to 190	116.5	
	195 to 300	134	

LEYG□M (Sliding bearing) [mm]

Size	Stroke range (mm)	L	DB
25	15 to 55	67.5	12
	60 to 185	100.5	
	190 to 300	138	
32	20 to 55	74	16
	60 to 185	107	
	190 to 300	144	

LEYG□M, LEYG□L Common [mm]

Size	Stroke range (mm)	B	C	DA	EB	EH	EV	FA	FB	FC	G	GA	H	J	K	NA	NC
25	15 to 35	136.5	50	20	85	103	52.3	11	14.5	12.5	5.4	40.3	53.3	30.8	29	M5 x 0.8	6.5
	40 to 100		67.5														
	105 to 120	161.5															
	125 to 200		84.5														
	205 to 300		102														
32	20 to 35	156	55	25	101	123	63.8	12	18.5	16.5	5.4	50.3	68.3	38.3	30	M6 x 1.0	8.5
	40 to 100		68														
	105 to 120	186															
	125 to 200		85														
	205 to 300		102														

Size	Stroke range (mm)	OA	OB	P	Q	S	T	U	V	WA	WB	WC	X	XA	XB	YD	Z
25	15 to 35	M6 x 1.0	12	80	18	30	95	6.8	40	35	26	70	54	4	5	47	8.5
	40 to 100									50	33.5						
	105 to 120											95					
	125 to 200									70	43.5						
	205 to 300									85	51						
32	20 to 35	M6 x 1.0	12	95	28	40	117	7.3	60	40	28.5	75	64	5	6	60	8.5
	40 to 100									50	33.5						
	105 to 120											105					
	125 to 200									70	43.5						
	205 to 300									85	51						

Size	Stroke range (mm)	Without lock			With lock		
		A	VB	VC	A	VB	VC
25	15 to 100	244.4	82.4	14.6	285	123	16.3
	105 to 300	269.4			310		
32	15 to 100	263.1	76.6	17.1	299.9	113.4	17.1
	105 to 300	293.1			329.9		

AC Servo Motor Driver
Absolute Type
Series LECSS-T
(SSCNET III/H Type)

How to Order

Driver **LECS S 2 – T5**

Driver type

S	SSCNET #/H type (For absolute encoder)

Power supply voltage

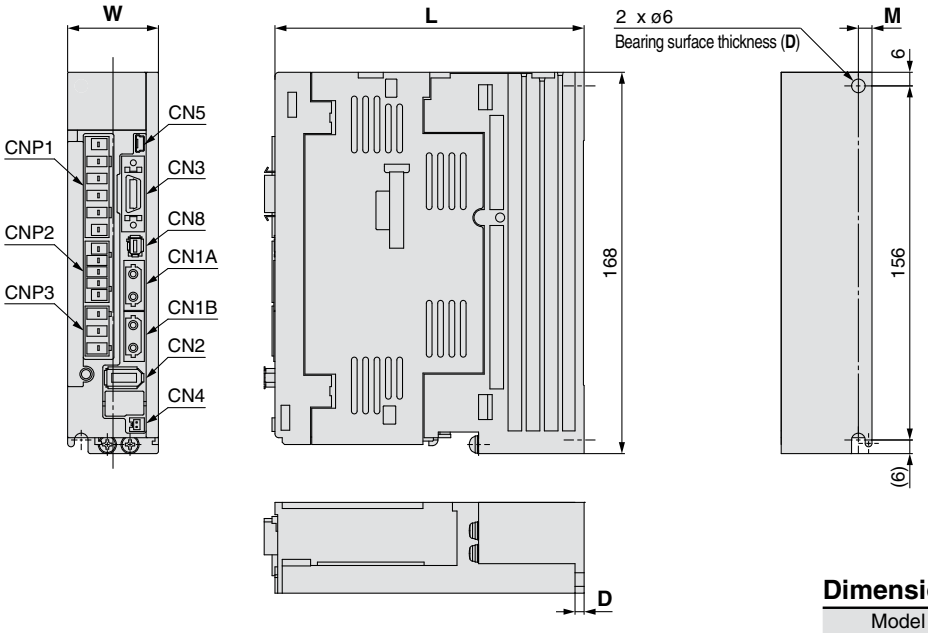
2	200 to 240 VAC, 50/60 Hz

Compatible motor type

Symbol	Type	Capacity	Encoder
T5	AC servo motor (T6)	100 W	Absolute
T7	AC servo motor (T7)	200 W	
T8	AC servo motor (T8)	400 W	

Dimensions

LECSS2-T□



Connector name	Description
CN1A	Front axis connector for SSCNET IIIH
CN1B	Rear axis connector for SSCNET IIIH
CN2	Encoder connector
CN3	I/O signal connector
CN4	Battery connector
CN5	USB communication connector
CN8	STO input signal connector
CNP1	Main circuit power supply connector
CNP2	Control circuit power supply connector
CNP3	Servo motor power connector

Dimensions (mm)

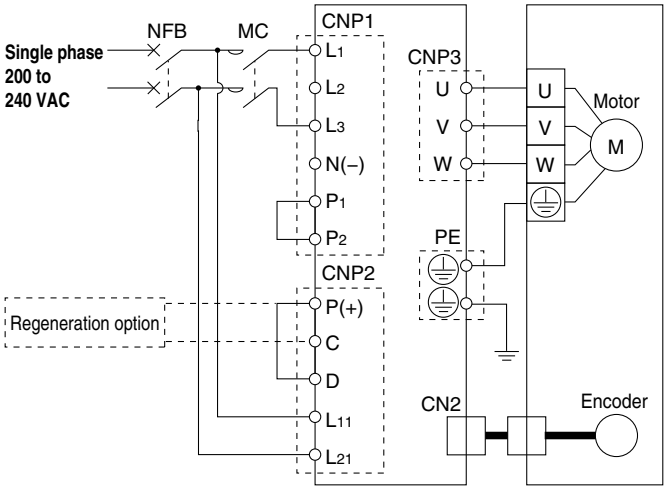
Model	W	L	D	M
LECSS2-T5	40	135	4	6
LECSS2-T7				
LECSS2-T8		170	5	

Specifications

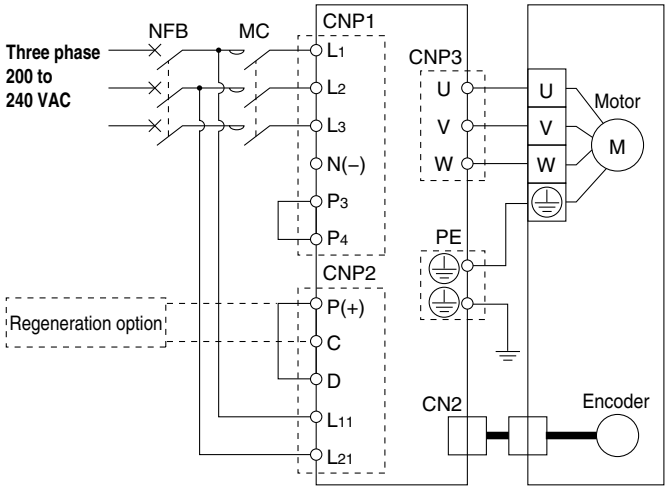
Model		LECSS2-T5	LECSS2-T7	LECSS2-T8
Compatible motor capacity [W]		100	200	400
Compatible encoder		Absolute 22-bit encoder (Resolution: 4194304 p/rev)		
Main power supply	**Power voltage [V]**	Three phase 200 to 240 VAC (50/60 Hz), Single phase 200 to 240 VAC (50/60 Hz)		
	Allowable voltage fluctuation [V]	Three phase 170 to 264 VAC (50/60 Hz), Single phase 170 to 264 VAC (50/60 Hz)		
	Rated current [A]	0.9	1.5	2.6
Control power supply	**Control power supply voltage [V]**	Single phase 200 to 240 VAC (50/60 Hz)		
	Allowable voltage fluctuation [V]	Single phase 170 to 264 VAC		
	Rated current [A]	0.2		
Applicable Fieldbus protocol		SSCNET #/H (High-speed optical communication)		
Communication function		USB communication		
Operating temperature range		32 to 131°F (0 to 55°C) (No freezing)		
Operating humidity range [%RH]		90 or less (No condensation)		
Storage temperature range		–4 to 149°F (–20 to 65°C) (No freezing)		
Storage humidity range [%RH]		90 or less (No condensation)		
Insulation resistance [MΩ]		Between the housing and SG: 10 (500 VDC)		
Weight [g]		800		1000

Power Supply Wiring Example: LECSS2-T□

For single phase 200 VAC



For three phase 200 VAC



Note) For single phase 200 to 240 VAC, power supply should be connected to L_1 and L_3 terminals, with nothing connected to L_2.

Main Circuit Power Supply Connector: CNP1 ∗ Accessory

Terminal name	Function	Details

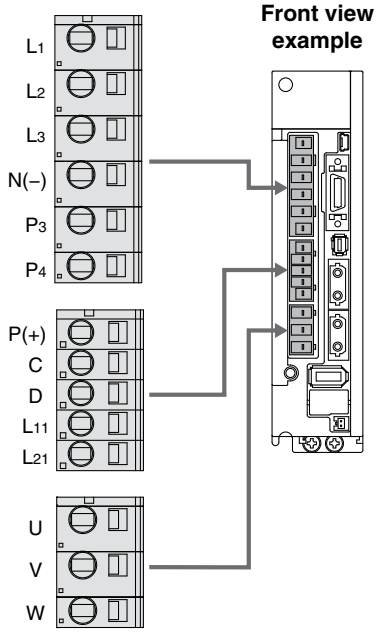
Control Circuit Power Supply Connector: CNP2 ∗ Accessory

Terminal name	Function	Details
P(+)	Regeneration option	Connect between P(+) and D. (Connected at time of shipping.) ∗ If regeneration option is required for "Model Selection", connect to this terminal.
C		
D		
L_{11}	Control circuit power supply	Connect the control circuit power supply. LECSS2: Single phase 200 to 240 VAC, 50/60 Hz Connection terminal: L_{11},L_{21} Three phase 200 to 240 VAC, 50/60 Hz Connection terminal: L_{11},L_{21}
L_{21}		

Motor Connector: CNP3 ∗ Accessory

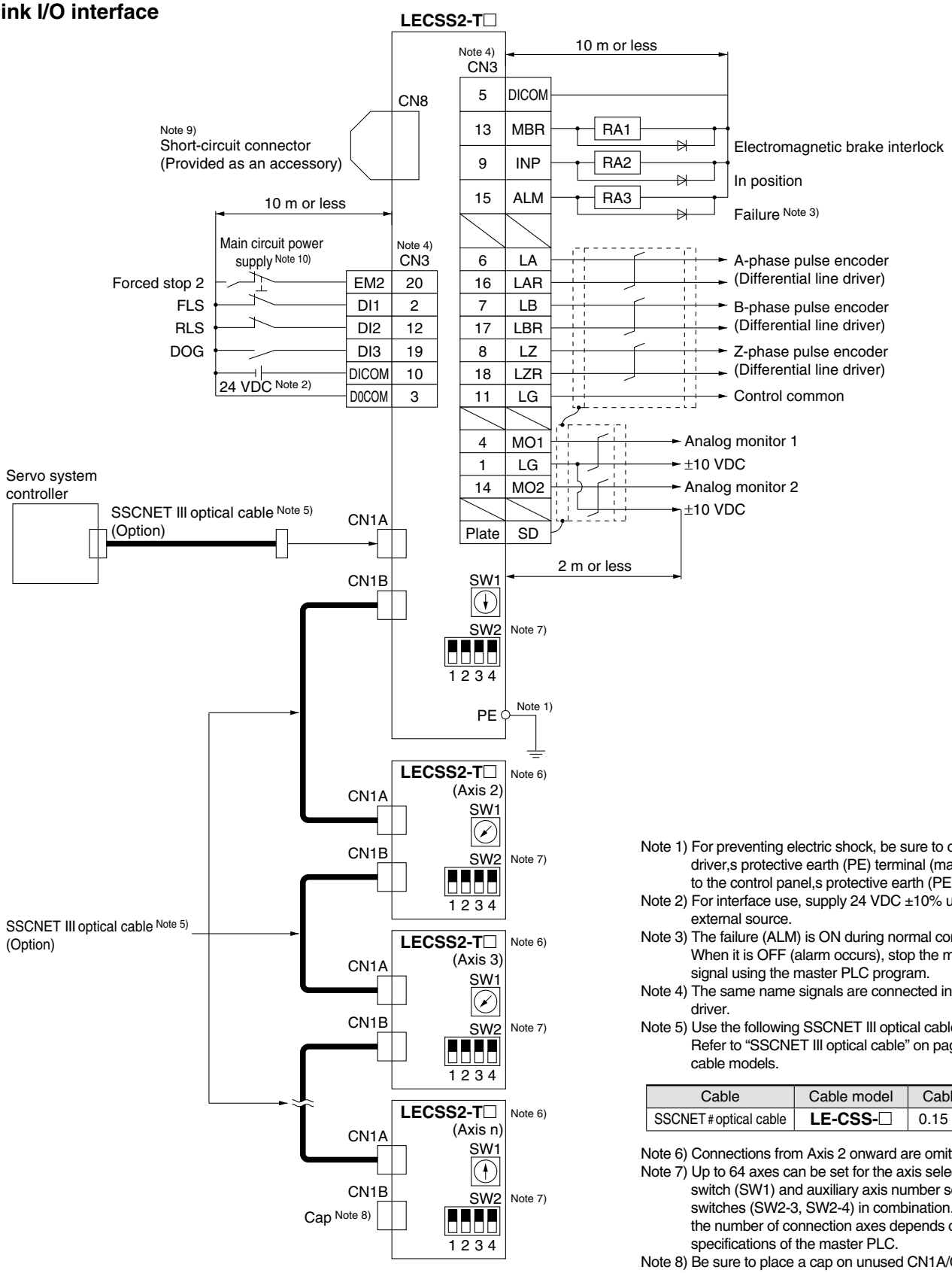
Terminal name	Function	Details
U	Servo motor power (U)	Connect to motor cable (U, V, W).
V	Servo motor power (V)	
W	Servo motor power (W)	

LECSS2-T□ Front view example



Control Signal Wiring Example: LECSS2-T□

For sink I/O interface



Note 1) For preventing electric shock, be sure to connect the driver,s protective earth (PE) terminal (marked ⏚) to the control panel,s protective earth (PE).
Note 2) For interface use, supply 24 VDC ±10% using an external source.
Note 3) The failure (ALM) is ON during normal conditions. When it is OFF (alarm occurs), stop the master PLC signal using the master PLC program.
Note 4) The same name signals are connected inside the driver.
Note 5) Use the following SSCNET III optical cables. Refer to "SSCNET III optical cable" on page 24 for cable models.

Cable	Cable model	Cable length
SSCNET # optical cable	**LE-CSS-□**	0.15 m to 3 m

Note 6) Connections from Axis 2 onward are omitted.
Note 7) Up to 64 axes can be set for the axis selection rotary switch (SW1) and auxiliary axis number setting switches (SW2-3, SW2-4) in combination. Note that the number of connection axes depends on the specifications of the master PLC.
Note 8) Be sure to place a cap on unused CN1A/CN1B.
Note 9) When not using the STO function, use the driver with the short-circuit connector (provided as an accessory) inserted.
Note 10) Configure a circuit to turn off EM2 when the main circuit power is turned off to prevent an unexpected restart of the driver.

Options

Motor cable, Lock cable, Encoder cable (LECS□ common)

LE − CS M − S 5 A

Motor type

S	AC servo motor

Cable description

M	Motor cable
B	Lock cable
E	Encoder cable

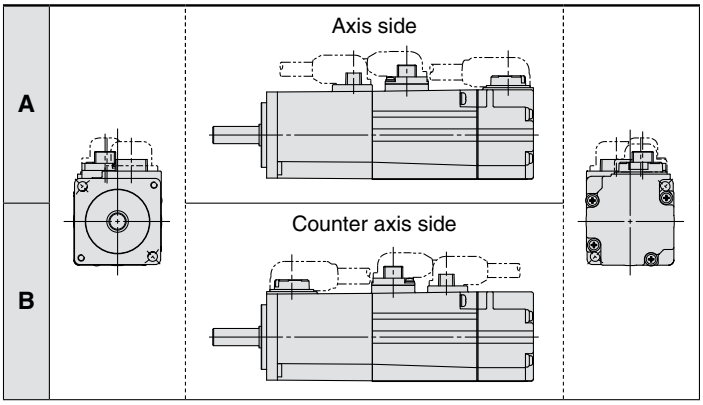
Cable type

S	Standard cable
R	Robotic cable

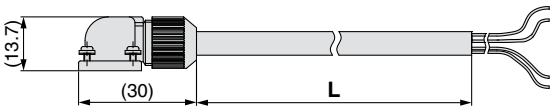
Cable length (L) [m]

2	2
5	5
A	10

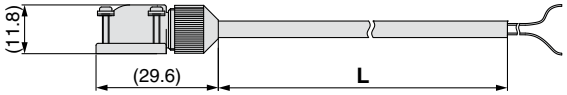
Direction of connector



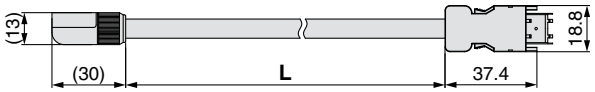
LE-CSM-□□: Motor cable



LE-CSB-□□: Lock cable



LE-CSE-□□: Encoder cable



∗ LE-CSM-S□□ is MR-PWS1CBL□M-A□-L manufactured by Mitsubishi Electric Corporation.
LE-CSB-S□□ is MR-BKS1CBL□M-A□-L manufactured by Mitsubishi Electric Corporation.
LE-CSE-S□□ is MR-J3ENCBL□M-A□-L manufactured by Mitsubishi Electric Corporation.
LE-CSM-R□□ is MR-PWS1CBL□M-A□-H manufactured by Mitsubishi Electric Corporation.
LE-CSB-R□□ is MR-BKS1CBL□M-A□-H manufactured by Mitsubishi Electric Corporation.
LE-CSE-R□□ is MR-J3ENCBL□M-A□-H manufactured by Mitsubishi Electric Corporation.

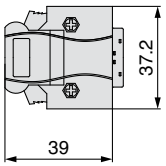
I/O connector

LE − CSN A

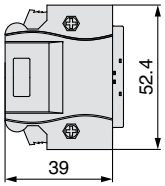
Driver type

A	**LECSA□, LECSC□**
B	**LECSB□**
S	**LECSS□-S□, LECSS2-T□**

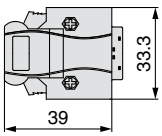
LE-CSNA



LE-CSNB



LE-CSNS



∗ LE-CSNA: 10126-3000PE (connector)/10326-52F0-008 (shell kit) manufactured by Sumitomo 3M Limited or equivalent item.
LE-CSNB: 10150-3000PE (connector)/10350-52F0-008 (shell kit) manufactured by Sumitomo 3M Limited or equivalent item.
LE-CSNS: 10120-3000PE (connector)/10320-52F0-008 (shell kit) manufactured by Sumitomo 3M Limited or equivalent item.
∗ Conductor size: AWG24 to 30

SSCNET Ⅲ optical cable (LECSS□-S□, LECSS2-T□)

LE − CSS − 1

Motor type

S	AC servo motor

Cable description

S	SSCNET Ⅲ optical cable

Cable length

L	0.15 m
K	0.3 m
J	0.5 m
1	1 m
3	3 m

∗ LE-CSS-□ is MR-J3BUS□M manufactured by Mitsubishi Electric Corporation.

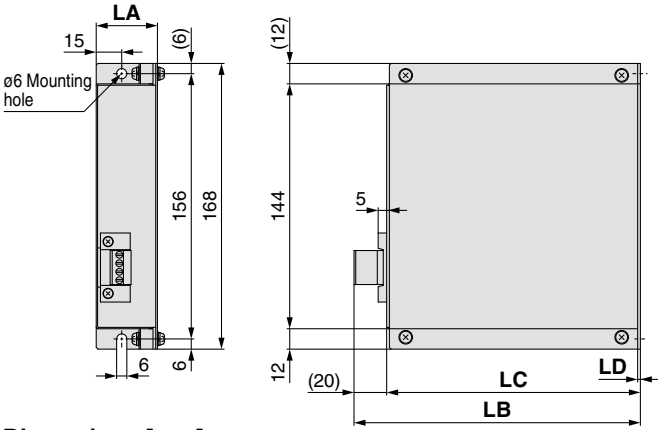
Regeneration option (LECS□ common)

LEC − MR − RB − 12

Regeneration option type

032	Allowable regenerative power 30 W
12	Allowable regenerative power 100 W

∗ Confirm regeneration option to be used in "Model Selection".

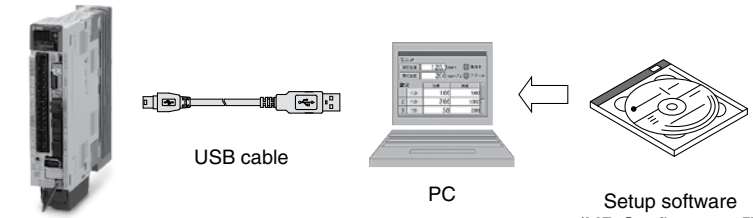


Dimensions [mm]

Model	LA	LB	LC	LD
LEC-MR-RB-032	30	119	99	1.6
LEC-MR-RB-12	40	169	149	2

∗ MR-RB□ manufactured by Mitsubishi Electric Corporation.

Options



LECSS2-T□

Setup software (MR Configurator2™) (LECSA, LECSB, LECSC, LECSS common)

LEC−MRC2□

Display language

Nil	Japanese version
E	English version
C	Chinese version

∗ SW1DNC-MRC2-□ manufactured by Mitsubishi Electric Corporation.
Refer to Mitsubishi Electric Corporation's website for operating environment and version upgrade information.
MR Configurator2™ is a registered trademark or trademark of Mitsubishi Electric Corporation.

Adjustment, waveform display, diagnostics, parameter read/write, and test operation can be performed upon a PC.

Compatible PC

When using setup software (MR Configurator2™), use an IBM PC/AT compatible PC that meets the following operating conditions.

Hardware Requirements

Equipment		Setup software (MR Configurator2™) **LEC-MRC2□**
Note 1) 2) 3) 4) 5) 6) 7) PC	OS	Microsoft® Windows®8 Enterprise Operating System Microsoft® Windows®8 Pro Operating System Microsoft® Windows®8 Operating System Microsoft® Windows®7 Enterprise Operating System Microsoft® Windows®7 Ultimate Operating System Microsoft® Windows®7 Professional Operating System Microsoft® Windows®7 Home Premium Operating System Microsoft® Windows®7 Starter Operating System Microsoft® Windows Vista® Enterprise Operating System Microsoft® Windows Vista® Ultimate Operating System Microsoft® Windows Vista® Business Operating System Microsoft® Windows Vista® Home Premium Operating System Microsoft® Windows Vista® Home Basic Operating System Microsoft® Windows®XP Professional Operating System, Service Pack 2 or later Microsoft® Windows®XP Home Edition Operating System, Service Pack 2 or later Microsoft® Windows®2000 Professional Operating System, Service Pack 4 or later
	Available HD space	1 GB or more
	Communication interface	Use USB port.
Display		Resolution 1024 x 768 or more Must be capable of high color (16-bit) display. The connectable with the above PC
Keyboard		The connectable with the above PC
Mouse		The connectable with the above PC
Printer		The connectable with the above PC
USB cable Note 8)		LEC-MR-J3USB

Note 1) Before using a PC for setting LECSA point table method/program method, upgrade to version 1.18U (Japanese version)/version 1.19V (English version). Refer to Mitsubishi Electric Corporation's website for version upgrade information.
Note 2) Windows and Windows Vista are registered trademarks of Microsoft Corporation in the United States and other countries.
Note 3) On some PCs, MR Configurator2 may not run properly.
Note 4) When Windows®XP or later is used, the following functions cannot be used.
· Windows Program Compatibility mode
· Fast User Switching
· Remote Desktop
· Large Fonts Mode (Display property)
· DPI settings other than 96 DPI (Display property)
For 64-bit operating system, this software is compatible with Windows®7 and Windows®8.
Note 5) When Windows®7 is used, the following functions cannot be used.
· Windows XP Mode
· Windows Touch
Note 6) When using this software with Windows Vista® or later, log in as a user having USER authority or higher.
Note 7) When Windows®8 is used, the following functions cannot be used.
· Hyper-V
· Modern UI style
Note 8) Order USB cable separately.

Setup Software Compatible Driver

Compatible driver	Setup software	
	MR Configurator	MR Configurator2™
	LEC-MR-SETUP221□	LEC-MRC2□
LECSA	○	○
LECSB	○	○
LECSC	○	○
LECSS□-S□	○	○
LECSS2-T□	—	○

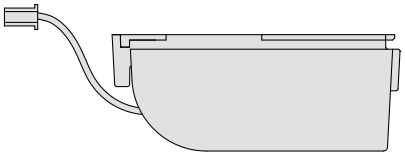
Options

Battery (only for LECSS2-T□)

LEC−MR−BAT6V1SET

∗ MR-BAT6V1SET manufactured by Mitsubishi Electric Corporation.

Battery for replacement.
Absolute position data is maintained by installing the battery to the driver.



Note) The LEC-MR-BAT6V1SET is an assembled battery that uses lithium metal battery 2CR17335A. This battery is not applicable to UN regulation Dangerous Goods (Class 9). When transporting lithium metal batteries and devices with built-in lithium metal batteries by a method subject to UN regulations, it is necessary to apply measures according to the regulations stipulated in the United Nations Recommendations on the Transport of Dangerous Goods, the Technical Instructions (ICAO-TI) of the International Civil Aviation Organization (ICAO), and the International Maritime Dangerous Goods Code (IMDG CODE) of the International Maritime Organization (IMO). If a customer is transporting products such as shown above, it is necessary to confirm the latest regulations, or the laws and regulations of the country of transport on your own, in order to apply the proper measures. Please contact SMC sales representative for details.

USB cable (3 m)

LEC−MR−J3USB

∗ MR-J3USB manufactured by Mitsubishi Electric Corporation.

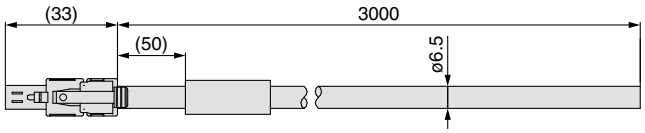
Cable for connecting PC and driver when using the setup software (MR Configurator2™).
Do not use any cable other than this cable.

STO cable (3 m)

LEC−MR−D05UDL3M

∗ MR-D05UDL3M manufactured by Mitsubishi Electric Corporation.

Cable for connecting the driver and device, when using the safety function.
Do not use any cable other than this cable.



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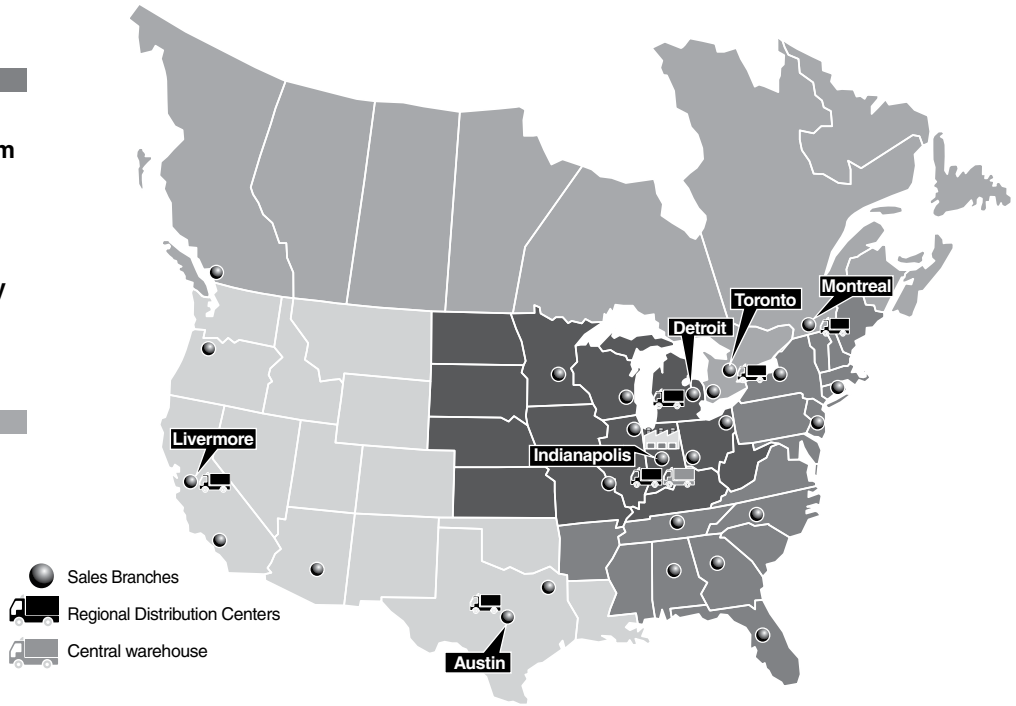

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MECHATROLINK Compatible

AC Servo Motor Driver

CE

RoHS

Power supply voltage (V)
200 to 230 VAC

Motor capacity (W)
100/200/400

- **Position control, speed control and torque control can be used.**
- **Control encoder: Absolute 20-bit encoder (Resolution: 1048576 p/rev)**

MECHATROLINK-Ⅱ Type — Series LECYM

- **Applicable Fieldbus protocol: MECHATROLINK-Ⅱ**
- **Number of connectable drivers: 30 units (Transmission distance: Max. 50 m in total)**

Max. communication speed **10 Mbps**

Max. communication speed **250 μs**

MECHATROLINK-Ⅲ Type — Series LECYU

- **Applicable Fieldbus protocol: MECHATROLINK-Ⅲ**
- **Number of connectable drivers: 62 units (Transmission distance: Max. 75 m between stations)**

Max. communication speed **100 Mbps**

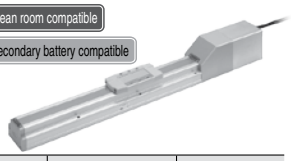
Max. communication speed **125 μs**

Compatible Actuators

Slider Type

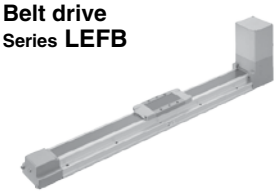
Ball screw drive
Series LEFS

Clean room compatible
Secondary battery compatible



Size	Max. work load (kg)	Stroke (mm)
25	20	Up to 600
32	45	Up to 800
40	60	Up to 1000

Belt drive
Series LEFB

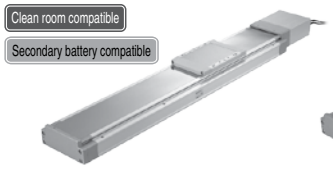


Size	Max. work load (kg)	Stroke (mm)
25	5	Up to 2000
32	15	Up to 2500
40	25	Up to 3000

High Rigidity Slider Type

Ball screw drive
Series LEJS

Clean room compatible
Secondary battery compatible



Size	Max. work load (kg)	Stroke (mm)
40	55	Up to 1200
63	85	Up to 1500

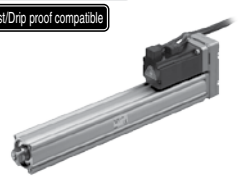
Belt drive
Series LEJB

Size	Max. work load (kg)	Stroke (mm)
40	20	Up to 2000
63	30	Up to 3000

Rod Type

Basic type
Series LEY

Secondary battery compatible
Dust/Drip proof compatible



Size	Pushing force lbf (N)	Stroke (mm)
25	109 (485)	Up to 400
32	132 (588)	Up to 500
63	752 (3343)	Up to 800

In-line motor type
Series LEY□D

Secondary battery compatible
Dust/Drip proof compatible

Size	Pushing force lbf (N)	Stroke (mm)
25	109 (485)	Up to 400
32	165 (736)	Up to 500
63	429 (1910)	Up to 800

Guide Rod Type

Guide rod type
Series LEYG

Size	Pushing force lbf (N)	Stroke (mm)
25	109 (485)	Up to 300
32	132 (588)	

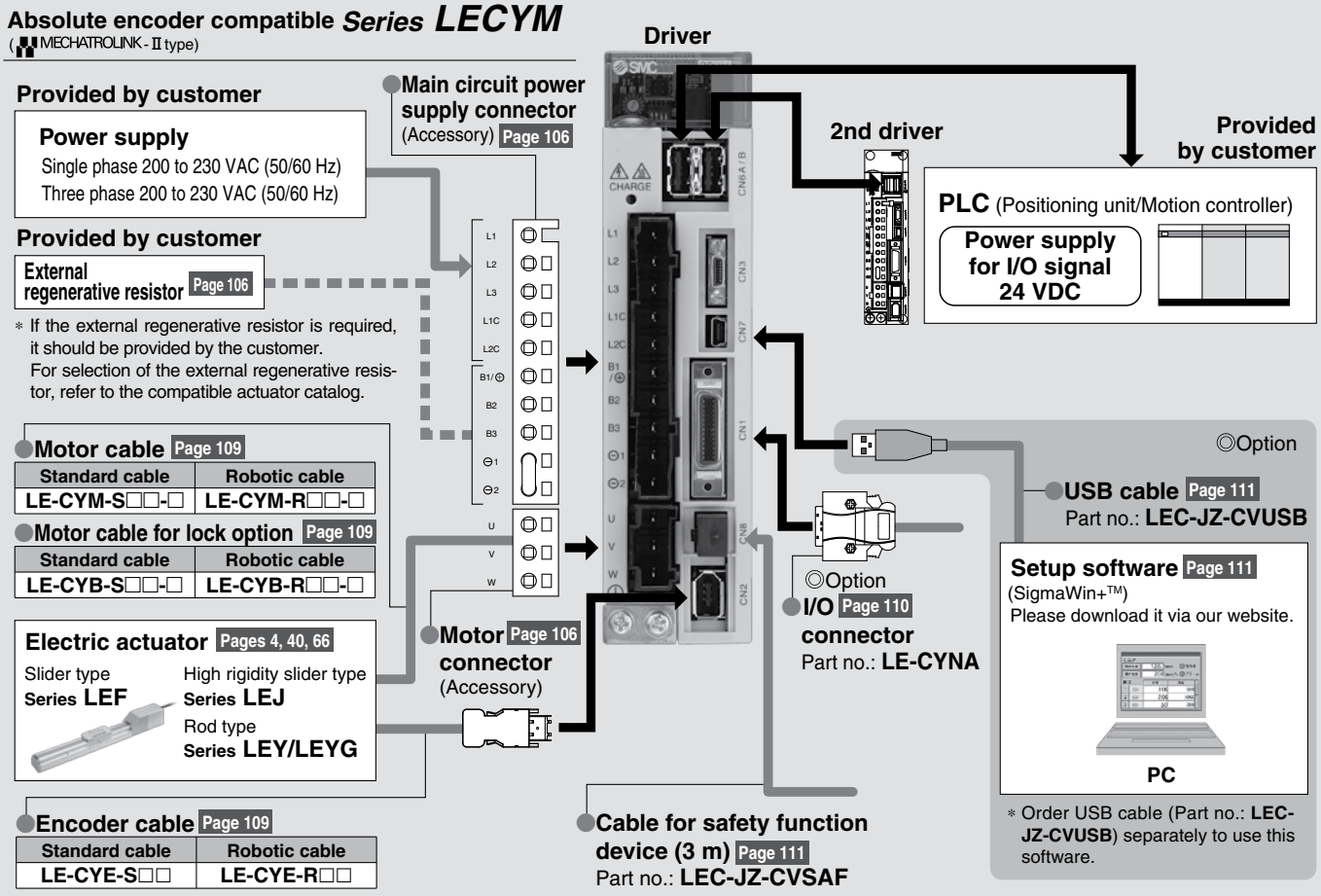
Guide rod type/ In-line motor type
Series LEYG□D

Size	Pushing force lbf (N)	Stroke (mm)
25	109 (485)	Up to 300
32	165 (736)	

System Construction

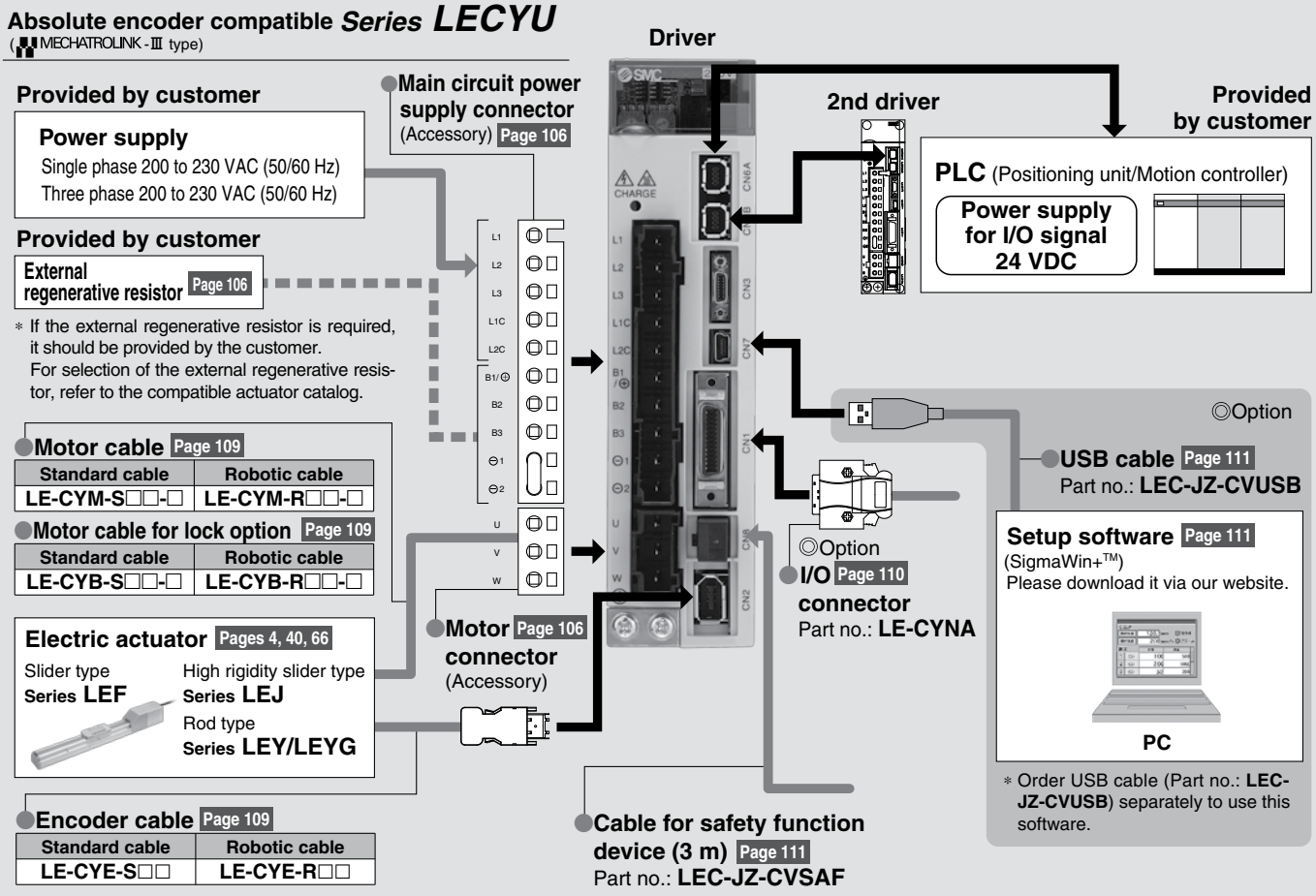
Absolute encoder compatible *Series* LECYM

(MECHATROLINK-Ⅱ type)



Absolute encoder compatible *Series* LECYU

(MECHATROLINK-Ⅲ type)



SMC

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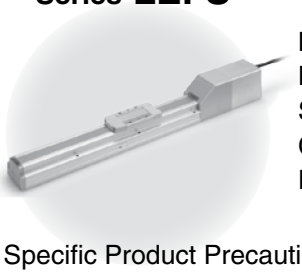
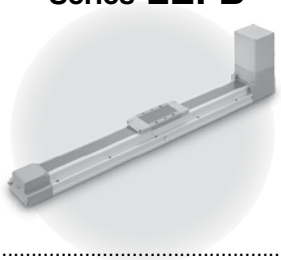
AC Servo Motor Driver

■ Electric Actuator/ Slider Type, Ball Screw Drive Series LEFS



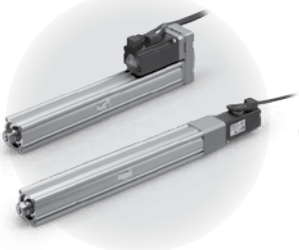
■ Electric Actuator/ Slider Type, Belt Drive Series LEFB



■ Electric Actuator/ High Rigidity Slider Type, Ball Screw Drive Series LEJS

■ Electric Actuator/ High Rigidity Slider Type, Belt Drive Series LEJB

■ Electric Actuator/Rod Type Series LEY



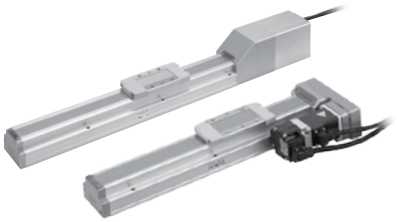
■ Electric Actuator/Guide Rod Type Series LEYG

■ AC Servo Motor Driver Series LECYM/LECYU

Electric Actuator/Slider Type AC Servo Motor

Ball Screw Drive/*Series* LEFS

Model Selection



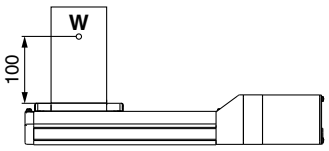
Selection Procedure

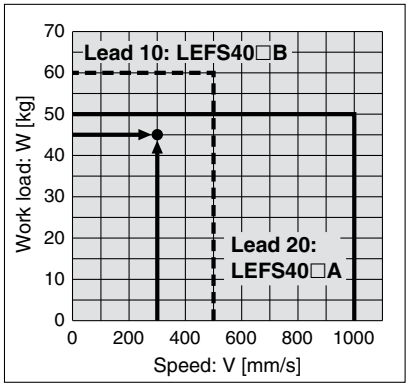
Step 1 Check the work load–speed. → **Step 2** Check the cycle time. → **Step 3** Check the allowable moment.

Selection Example

Operating conditions

- Workpiece mass: 45 [kg]
- Speed: 300 [mm/s]
- Acceleration/Deceleration: 3000 [mm/s²]
- Stroke: 200 [mm]
- Mounting position: Horizontal upward
- Workpiece mounting condition:





<Speed–Work load graph> (LEFS40)

Step 1 **Check the work load–speed. <Speed–Work load graph>** (Page 6)

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

Selection example) The **LEFS40V8B-200** 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.

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

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

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

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

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

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

$$T4 = 0.05 \text{ [s]}$$

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

$T1 = V/a1 = 300/3000 = 0.1$ [s],

$T3 = V/a2 = 300/3000 = 0.1$ [s]

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} = \frac{200 - 0.5 \cdot 300 \cdot (0.1 + 0.1)}{300} = 0.57 \text{ [s]}$$

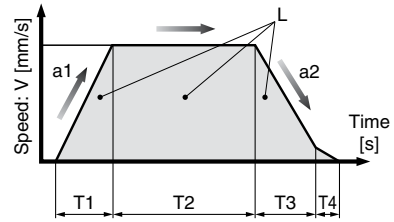
$T4 = 0.05$ [s]

Therefore, the cycle time can be obtained as follows.

$T = T1 + T2 + T3 + T4$

$= 0.1 + 0.57 + 0.1 + 0.05$

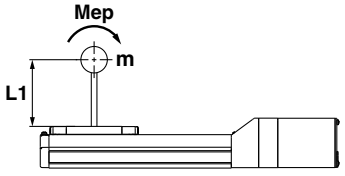
$=$ **0.82 [s]**

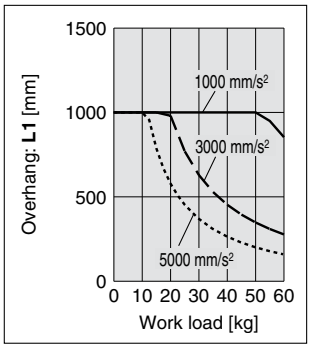


L : Stroke [mm]
··· (Operating condition)
V : Speed [mm/s]
··· (Operating condition)
a1: Acceleration [mm/s²]
··· (Operating condition)
a2: Deceleration [mm/s²]
··· (Operating condition)

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 in position is completed

Step 3 **Check the guide moment.**





Based on the above calculation result, the LEFS40V8B-200 is selected.

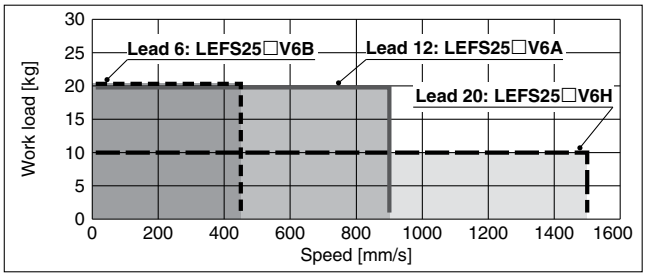
SMC

Speed–Work Load Graph/Conditions for "Regenerative Resistor" (Guide)

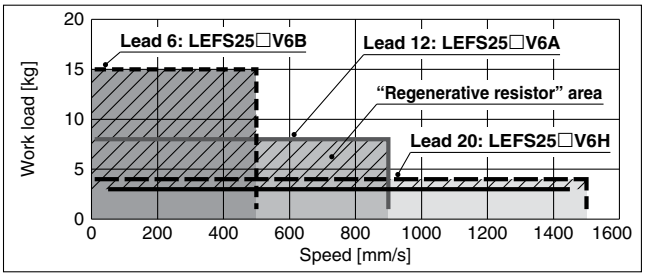
∗ The allowable speed is restricted depending on the stroke. Select it by referring to "Allowable Stroke Speed" below.

LEFS25/Ball Screw Drive

Horizontal

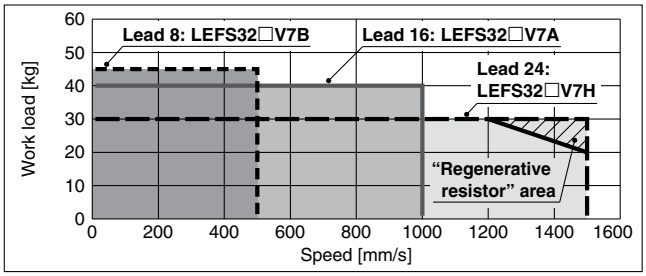


Vertical

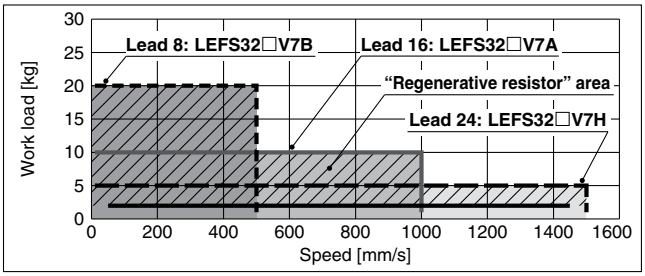


LEFS32/Ball Screw Drive

Horizontal

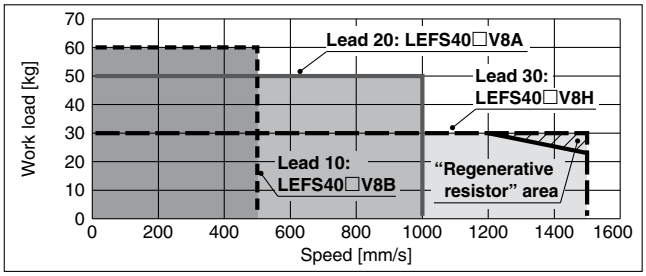


Vertical

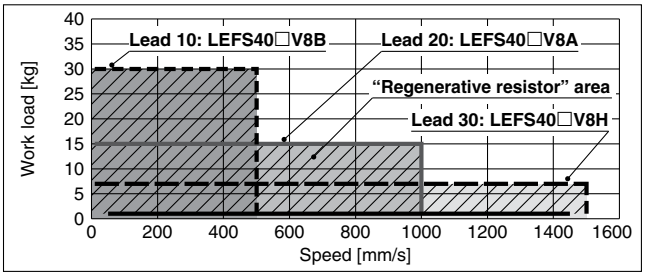


LEFS40/Ball Screw Drive

Horizontal



Vertical



"Regenerative resistor" area

∗ When using the actuator in the "Regenerative resistor" area, download the "AC servo capacity selection program/SigmaJunmaSize+" from the SMC website. Then, calculate the necessary regenerative resistor capacity to prepare an appropriate external regenerative resistor.
∗ Regenerative resistor should be provided by the customer.

Applicable Motor/Driver

Model	Applicable model	
	Motor	Servopack (SMC driver)
LEFS25□	SGMJV-01A3A	SGDV-R90A11□ (LECYM2-V5) SGDV-R90A21□ (LECYU2-V5)
LEFS32□	SGMJV-02A3A	SGDV-1R6A11□ (LECYM2-V7) SGDV-1R6A21□ (LECYU2-V7)
LEFS40□	SGMJV-04A3A	SGDV-2R8A11□ (LECYM2-V8) SGDV-2R8A21□ (LECYU2-V8)

Allowable Stroke Speed

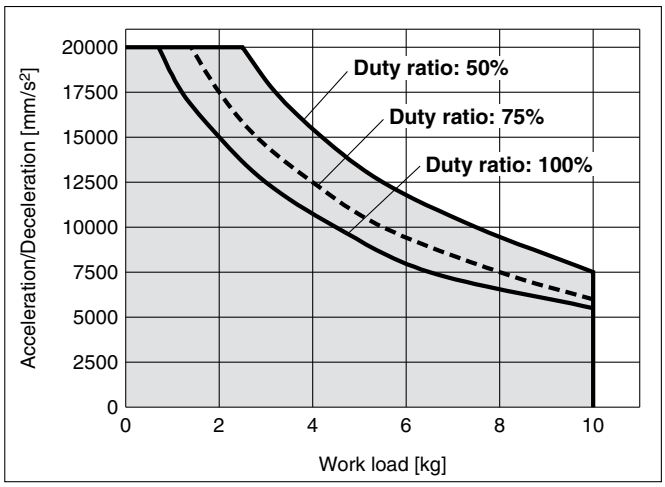
[mm/s]

Model	AC servo motor	Lead		Stroke [mm]									
		Symbol	[mm]	Up to 100	Up to 200	Up to 300	Up to 400	Up to 500	Up to 600	Up to 700	Up to 800	Up to 900	Up to 1000
LEFS25	100 W /□40	H	20	1500				1100	860	—	—	—	—
		A	12	900				720	540	—	—	—	—
		B	6	450				360	270	—	—	—	—
		(Motor rotation speed)		(4500 rpm)				(3650 rpm)	(2700 rpm)	—	—	—	—
LEFS32	200 W /□60	H	24	1500					1200	930	750	—	—
		A	16	1000					800	620	500	—	—
		B	8	500					400	310	250	—	—
		(Motor rotation speed)		(3750 rpm)					(3000 rpm)	(2325 rpm)	(1875 rpm)	—	—
LEFS40	400 W /□60	H	30	—	1500					1410	1140	930	780
		A	20	—	1000					940	760	620	520
		B	10	—	500					470	380	310	260
		(Motor rotation speed)		—	(3000 rpm)					(2820 rpm)	(2280 rpm)	(1860 rpm)	(1560 rpm)

Work Load–Acceleration/Deceleration Graph (Guide)

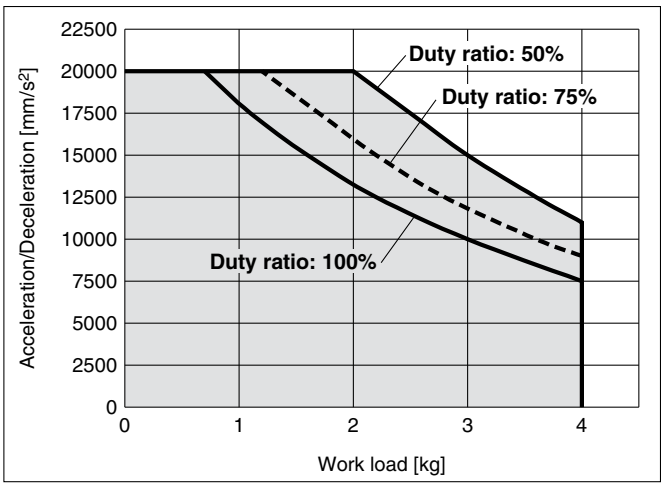
LEFS25□V6H/Ball Screw Drive

Horizontal



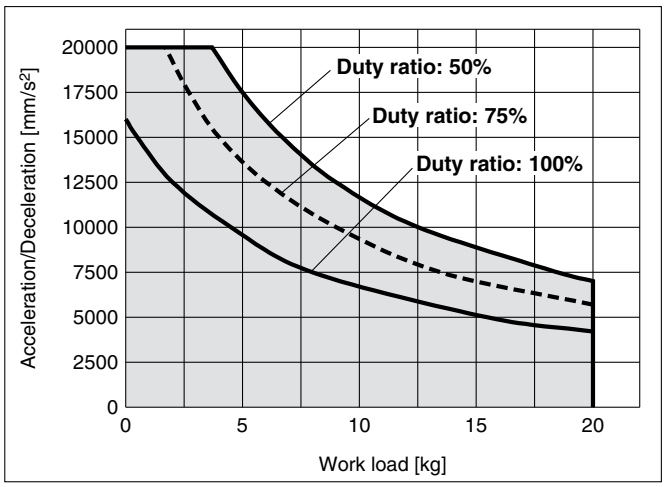
LEFS25□V6H/Ball Screw Drive

Vertical



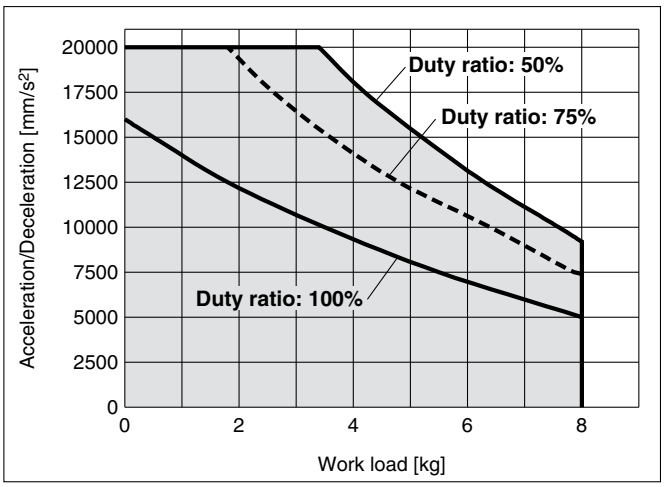
LEFS25□V6A/Ball Screw Drive

Horizontal



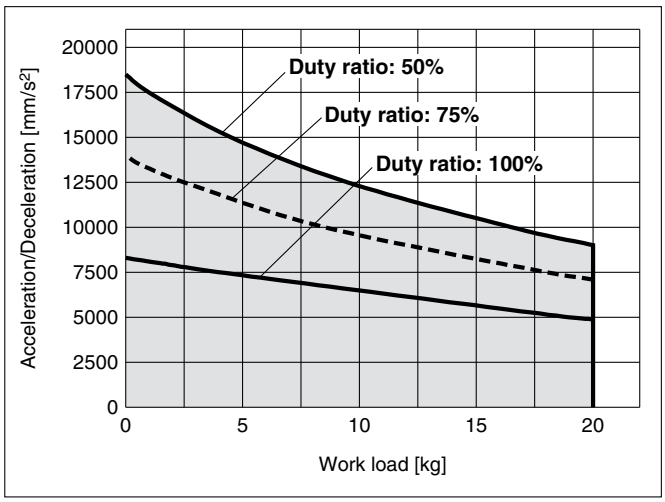
LEFS25□V6A/Ball Screw Drive

Vertical



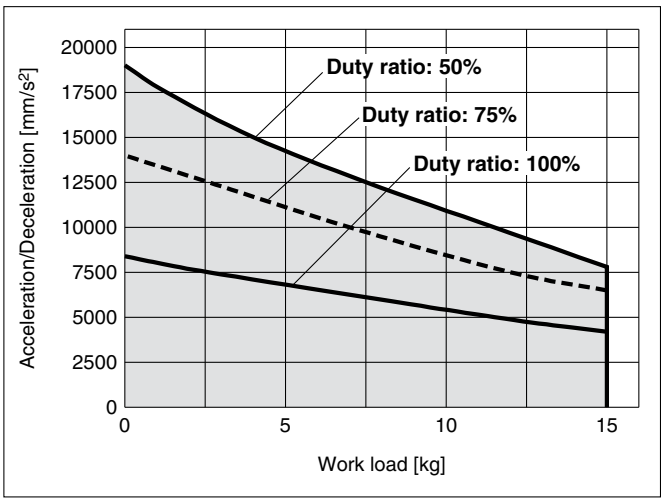
LEFS25□V6B/Ball Screw Drive

Horizontal



LEFS25□V6B/Ball Screw Drive

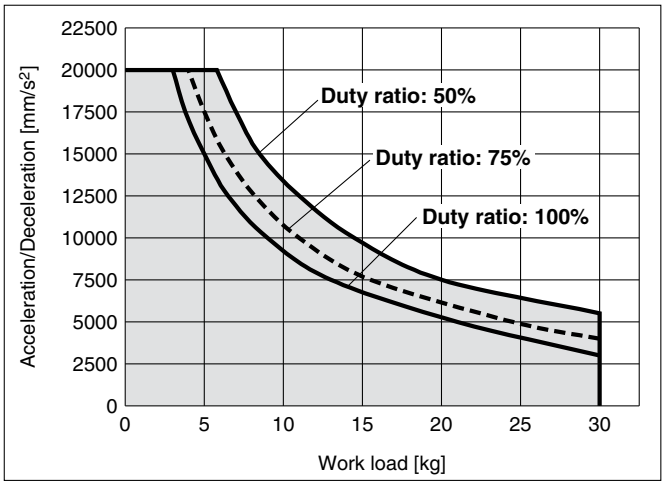
Vertical



Work Load–Acceleration/Deceleration Graph (Guide)

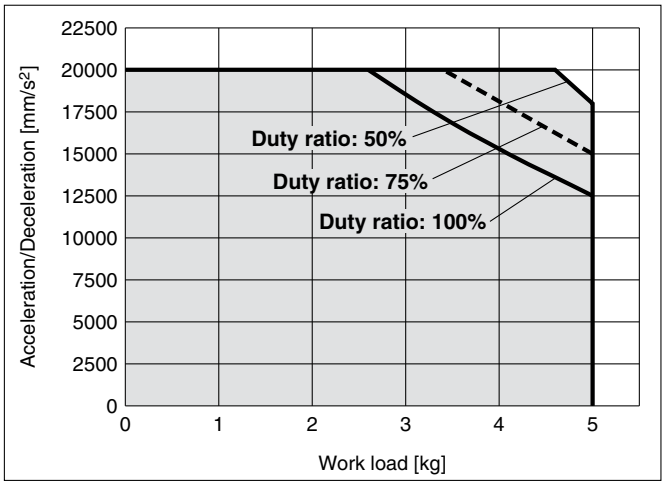
LEFS32□V7H/Ball Screw Drive

Horizontal



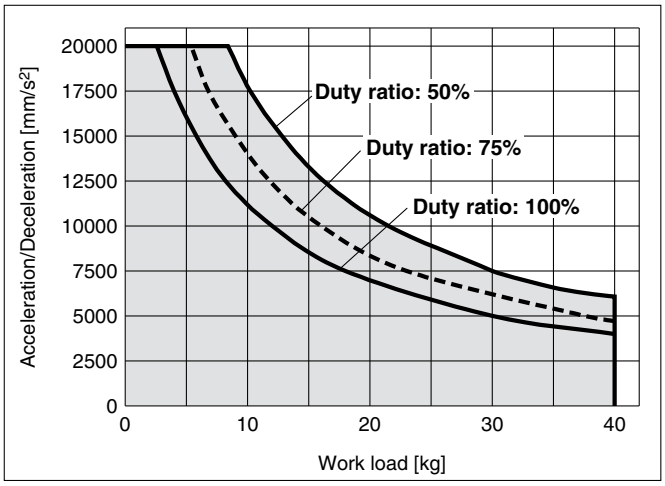
LEFS32□V7H/Ball Screw Drive

Vertical



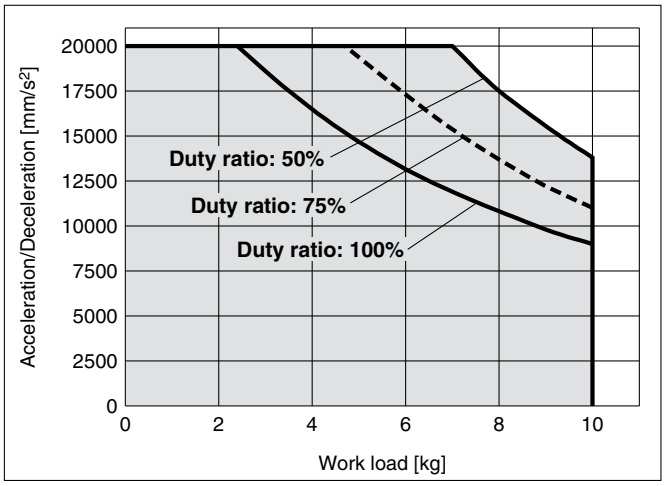
LEFS32□V7A/Ball Screw Drive

Horizontal



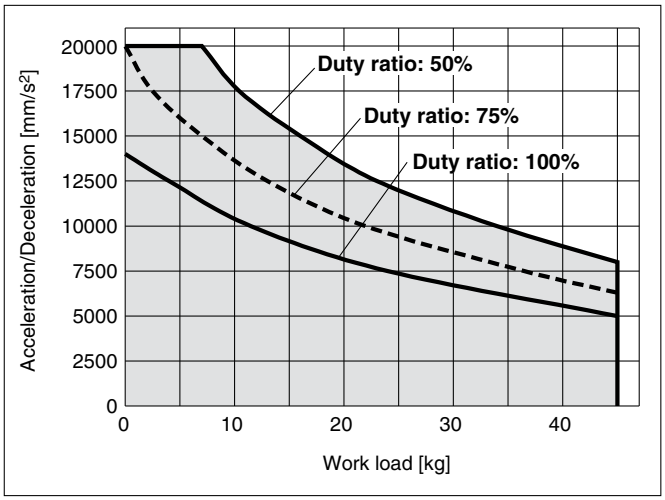
LEFS32□V7A/Ball Screw Drive

Vertical



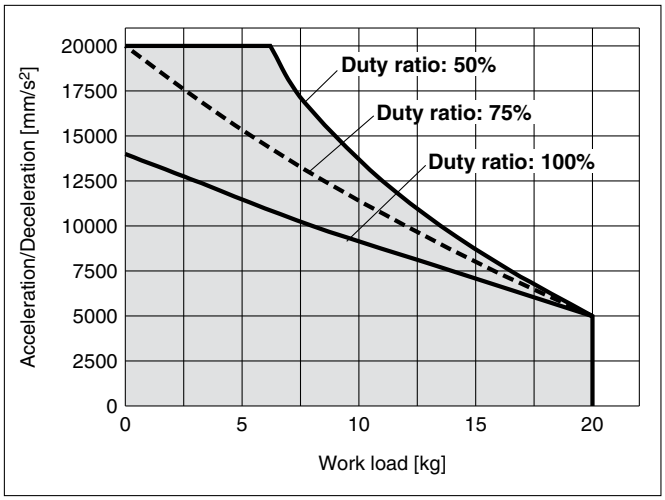
LEFS32□V7B/Ball Screw Drive

Horizontal



LEFS32□V7B/Ball Screw Drive

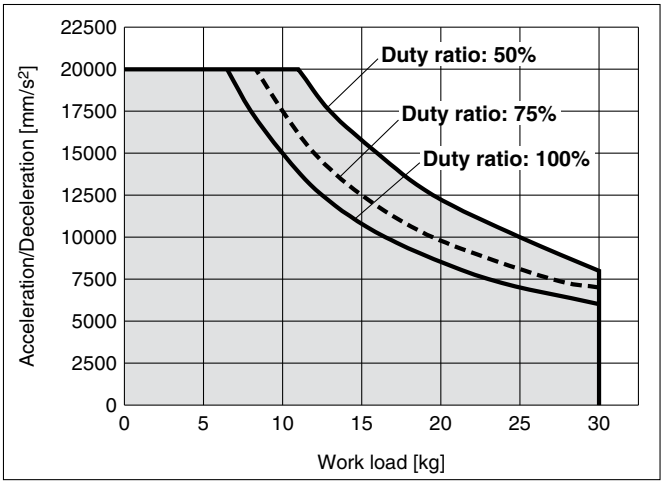
Vertical



Work Load–Acceleration/Deceleration Graph (Guide)

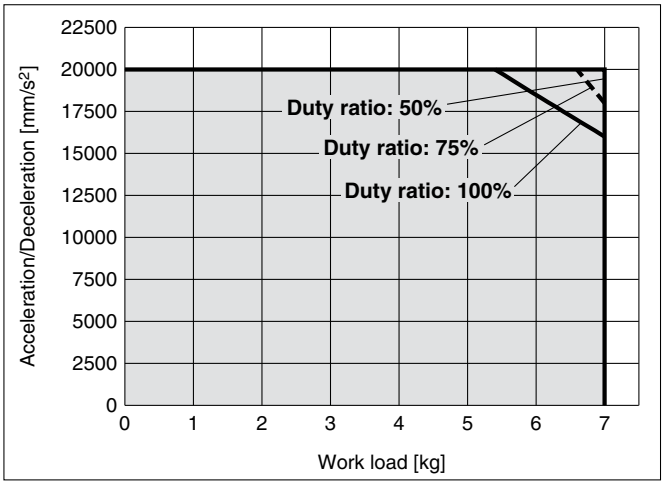
LEFS40□V8H/Ball Screw Drive

Horizontal



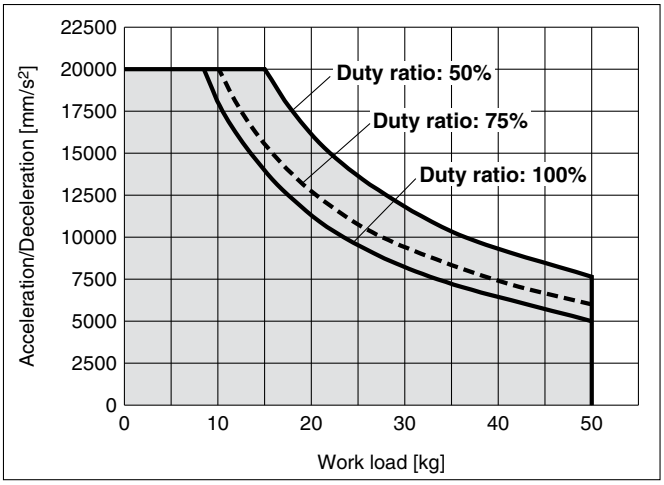
LEFS40□V8H/Ball Screw Drive

Vertical



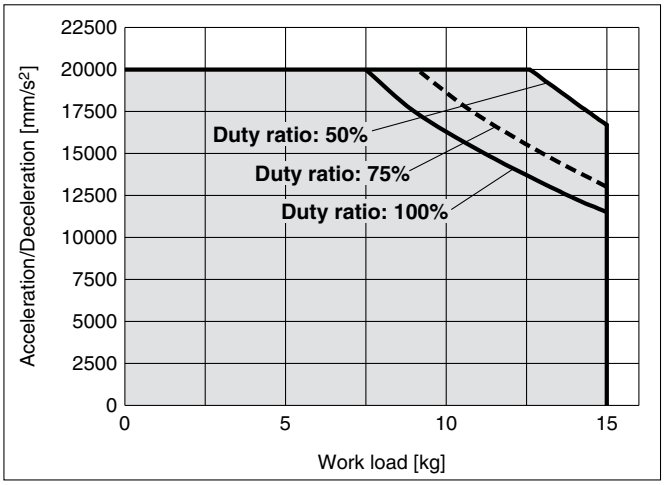
LEFS40□V8A/Ball Screw Drive

Horizontal



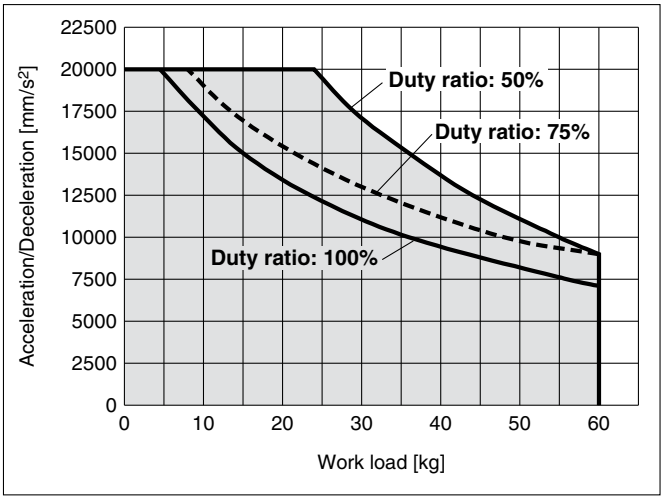
LEFS40□V8A/Ball Screw Drive

Vertical



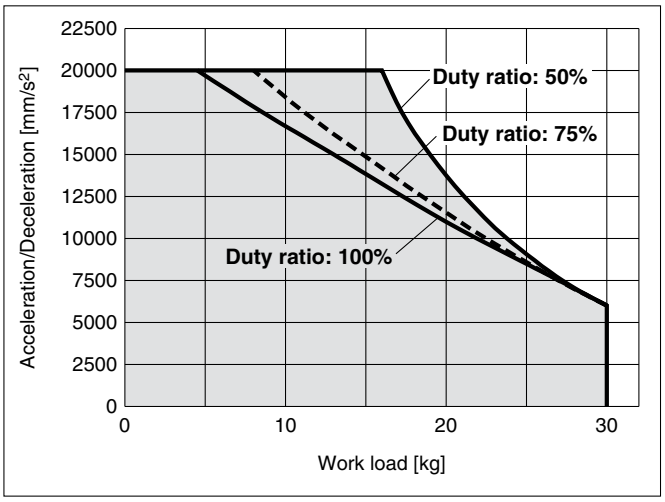
LEFS40□V8B/Ball Screw Drive

Horizontal



LEFS40□V8B/Ball Screw Drive

Vertical



Dynamic Allowable Moment

* This graph shows the amount of allowable overhang when the center of gravity of the workpiece overhangs in one direction. When the center of gravity of the workpiece overhangs in two directions, refer to the Electric Actuator Selection Software for confirmation, http://www.smcworld.com

Acceleration/Deceleration ——— 1000 mm/s² — — — 3000 mm/s² ····· 5000 mm/s² —·—·— 10000 mm/s² - - - - 20000 mm/s²

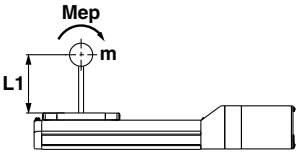
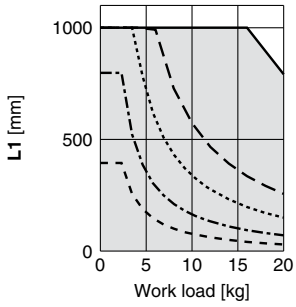
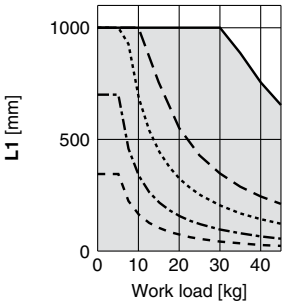
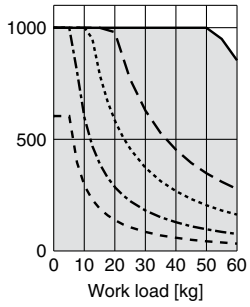
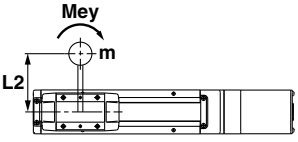
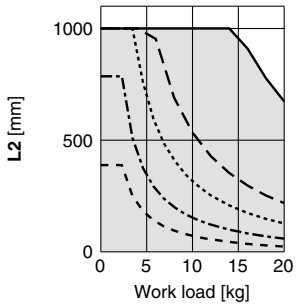
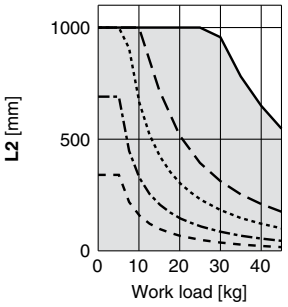
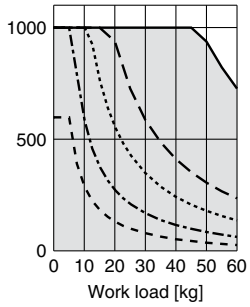
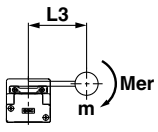
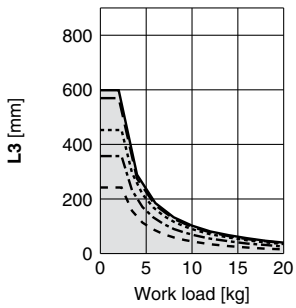
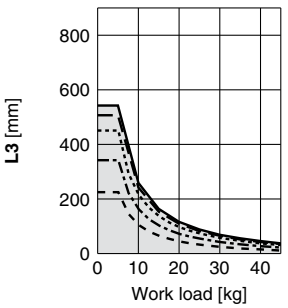
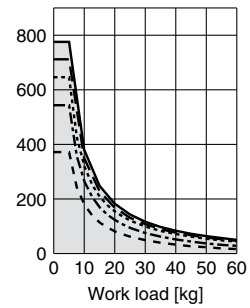
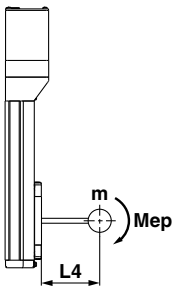
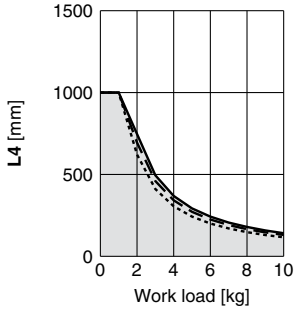
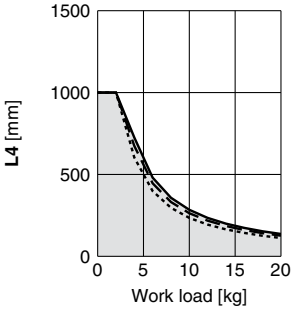
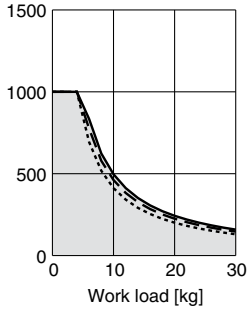
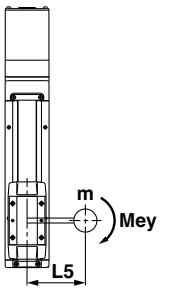
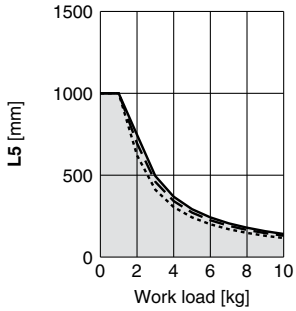
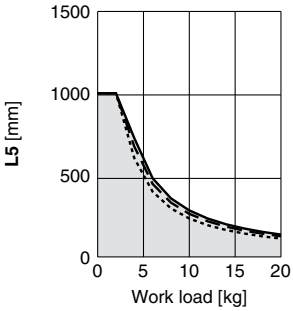
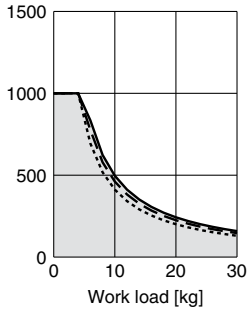
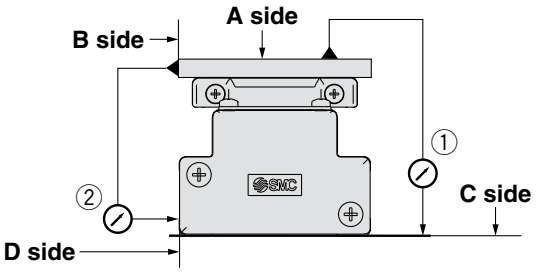
Orientation	Load overhanging direction **m**: Work load [kg] **Me**: Dynamic allowable moment [N·m] **L**: Overhang to the work load center of gravity [mm]		Model LEFS25□V6	Model LEFS32□V7	Model LEFS40□V8
Horizontal		Pitching			
		Yawing			
		Rolling			
Vertical		Pitching			
		Yawing			

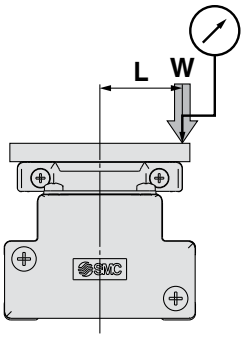
Table Accuracy

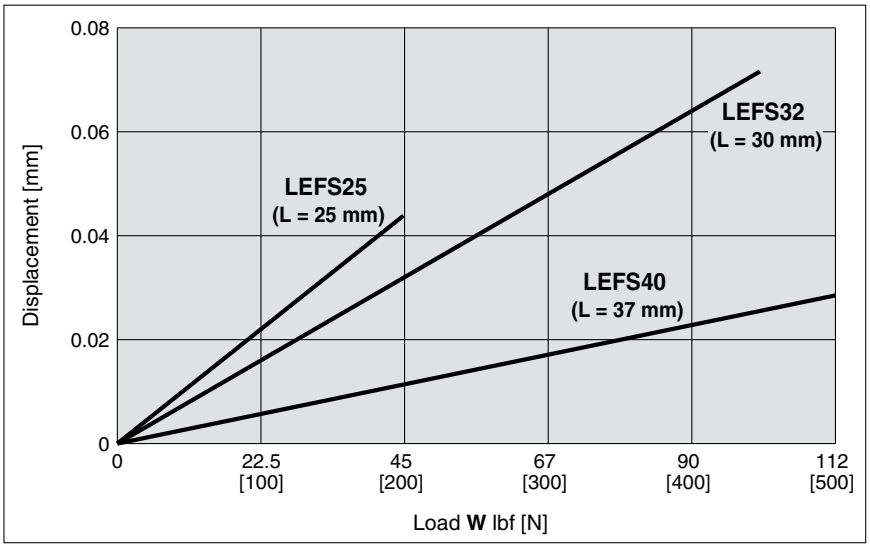


Model	Traveling parallelism [mm] (Every 300 mm)	
	① C side traveling parallelism to A side	② D side traveling parallelism to B side
LEFS25	0.05	0.03
LEFS32	0.05	0.03
LEFS40	0.05	0.03

Note) Traveling parallelism does not include the mounting surface accuracy.

Table Displacement (Reference Value)





Note 1) This displacement is measured when a 15 mm aluminum plate is mounted and fixed on the table.
Note 2) Check the clearance and play of the guide separately.

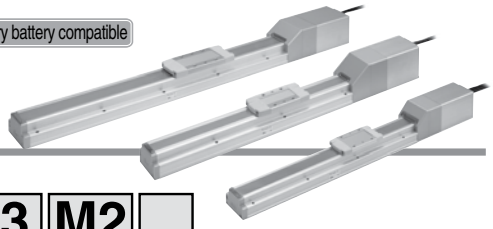
Electric Actuator/Slider Type
Ball Screw Drive
Series LEFS
LEFS25, 32, 40

AC Servo Motor

CE RoHS

Clean room compatible | Secondary battery compatible

Consult with SMC for details.



How to Order

LEFS **32** **R** **V7** **B** – **200** **B** – **S** **3** **M2** ☐

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿

❶ Size

25
32
40

❷ Motor mounting position

Nil	In-line
R	Right side parallel
L	Left side parallel

❸ Motor type

Symbol	Type	Output [W]	Size	Compatible driver
V6	AC servo motor (Absolute encoder)	100	25	LECYM2-V5/LECYU2-V5
V7		200	32	LECYM2-V7/LECYU2-V7
V8		400	40	LECYM2-V8/LECYU2-V8

❹ Lead [mm]

Symbol	LEFS25	LEFS32	LEFS40
H	20	24	30
A	12	16	20
B	6	8	10

❺ Stroke [mm]

50	50
to	to
1000	1000

❻ Motor option

Nil	Without option
B	With lock

❼ Cable type

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

❽ Actuator cable length [m]

Nil	Without cable
3	3
5	5
A	10
C	20

❾ Driver type

	Compatible driver	Power supply voltage [V]
Nil	Without driver	—
M2	LECYM2-V☐	200 to 230
U2	LECYU2-V☐	200 to 230

❿ I/O connector

Nil	Without connector
H	With connector

Applicable Stroke Table

●: Standard

Model \ Stroke (mm)	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	Manufacturable stroke range [mm]
LEFS25	●	●	●	●	●	●	●	●	●	●	●	●	—	—	—	—	—	—	—	—	50 to 600
LEFS32	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	—	—	—	—	50 to 800
LEFS40	—	—	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	150 to 1000

∗ Please consult with SMC for non-standard strokes as they are produced as special orders.

Compatible Drivers

	MECHATROLINK-Ⅱ type	MECHATROLINK-Ⅲ type
Driver type		
Series	**LECYM**	**LECYU**
Applicable network	MECHATROLINK-Ⅱ	MECHATROLINK-Ⅲ
Control encoder	Absolute 20-bit encoder	
Communication device	USB communication, RS-422 communication	
Power supply voltage (V)	200 to 230 VAC (50/60 Hz)	
Reference page	Page 103	

Specifications

LEFS25, 32, 40 AC Servo Motor

Model			LEFS25□V6			LEFS32□V7			LEFS40□V8		
Actuator specifications	Stroke [mm] Note 1)		50 to 600			50 to 800			150 to 1000		
	Work load [kg] Note 2)	Horizontal	10	20	20	30	40	45	30	50	60
		Vertical	4	8	15	5	10	20	7	15	30
	Max. speed [mm/s] Note 3)	Up to 400	1500	900	450	1500	1000	500	1500	1000	500
		401 to 500	1200	720	360	1500	1000	500	1500	1000	500
		501 to 600	900	540	270	1200	800	400	1500	1000	500
		601 to 700	—	—	—	930	620	310	1410	940	470
		701 to 800	—	—	—	750	500	250	1140	760	380
		801 to 900	—	—	—	—	—	—	930	620	310
		901 to 1000	—	—	—	—	—	—	780	520	260
	Max. acceleration/deceleration [mm/s²]		20000 (Refer to pages 7 to 9 for limit according to work load and duty ratio.)								
	Positioning repeatability [mm]		±0.02								
	Lost motion [mm] Note 4)		0.1 or less								
	Lead [mm]		20	12	6	24	16	8	30	20	10
	Impact/Vibration resistance [m/s²] Note 5)		50/20								
	Actuation type		Ball screw (LEFS□), Ball screw + Belt (LEFS□$^{R}_{L}$)								
	Guide type		Linear guide								
	Operating temperature range		41 to 104°F [5 to 40°C]								
	Operating humidity range [%RH]		90 or less (No condensation)								
Electric specifications	Motor output/Size		100 W/□40			200 W/□60			400 W/□60		
	Motor type		AC servo motor (200 VAC)								
	Encoder		Absolute 20-bit encoder (Resolution: 1048576 p/rev)								
	Power consumption [W] Note 6)	Horizontal	45			65			210		
		Vertical	145			175			230		
	Standby power consumption when operating [W] Note 7)	Horizontal	2			2			2		
		Vertical	8			8			18		
	Max. instantaneous power consumption [W] Note 8)		445			725			1275		
Lock unit	Type Note 9)		Non-magnetizing lock								
	Holding force lbf [N]		18 [78]	29 [131]	57 [255]	29 [131]	44 [197]	87 [385]	49 [220]	74 [330]	148 [660]
	Power consumption at 68°F (20°C) [W] Note 10)		5.5			6			6		
	Rated voltage [V]		24 VDC ±10%								

Note 1) Please consult with SMC for non-standard strokes as they are produced as special orders.
Note 2) For details, refer to "Speed–Work Load Graph (Guide)" on page 6.
Note 3) The allowable speed changes according to the stroke.
Note 4) A reference value for correcting an error in reciprocal operation.
Note 5) 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 6) The power consumption (including the driver) is for when the actuator is operating.
Note 7) The standby power consumption when operating (including the driver) is for when the actuator is stopped in the set position during the operation.
Note 8) The maximum instantaneous power consumption (including the driver) is for when the actuator is operating.
Note 9) Only when motor option "With lock" is selected.
Note 10) For an actuator with lock, add the power consumption for the lock.

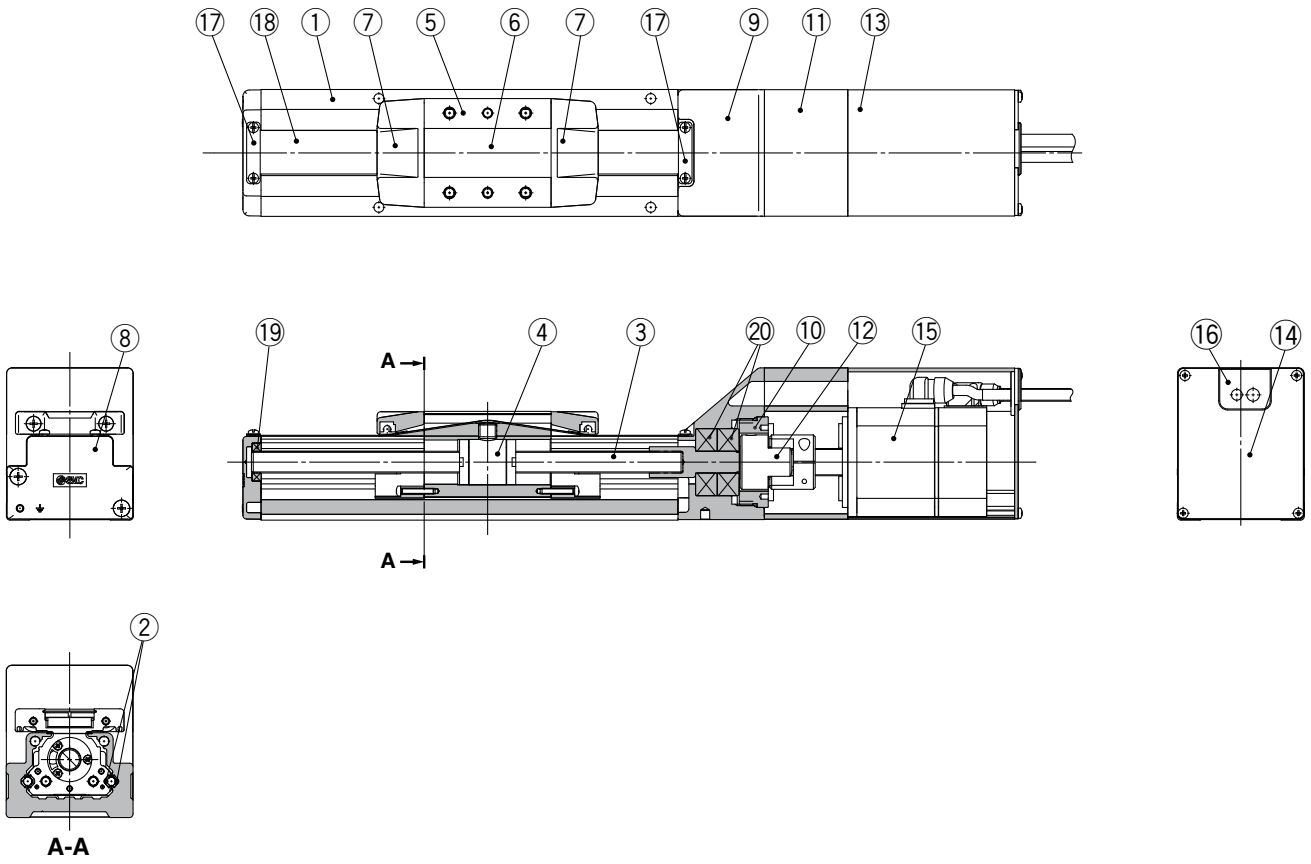
Weight

Series	LEFS25□V6											
Stroke [mm]	50	100	150	200	250	300	350	400	450	500	550	600
Product weight [kg]	2.06	2.20	2.34	2.50	2.62	2.75	2.90	3.05	3.18	3.30	3.46	3.60
Additional weight with lock [kg]	0.3											

Series	LEFS32□V7															
Stroke [mm]	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Product weight [kg]	3.40	3.60	3.80	4.00	4.20	4.40	4.60	4.80	5.00	5.20	5.40	5.60	5.80	6.00	6.20	6.40
Additional weight with lock [kg]	0.7															

Series	LEFS40□V8																	
Stroke [mm]	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000
Product weight [kg]	5.92	6.20	6.48	6.75	7.05	7.35	7.61	7.90	8.17	8.35	8.73	9.00	9.30	9.55	9.86	10.15	10.42	10.70
Additional weight with lock [kg]	0.7																	

Construction



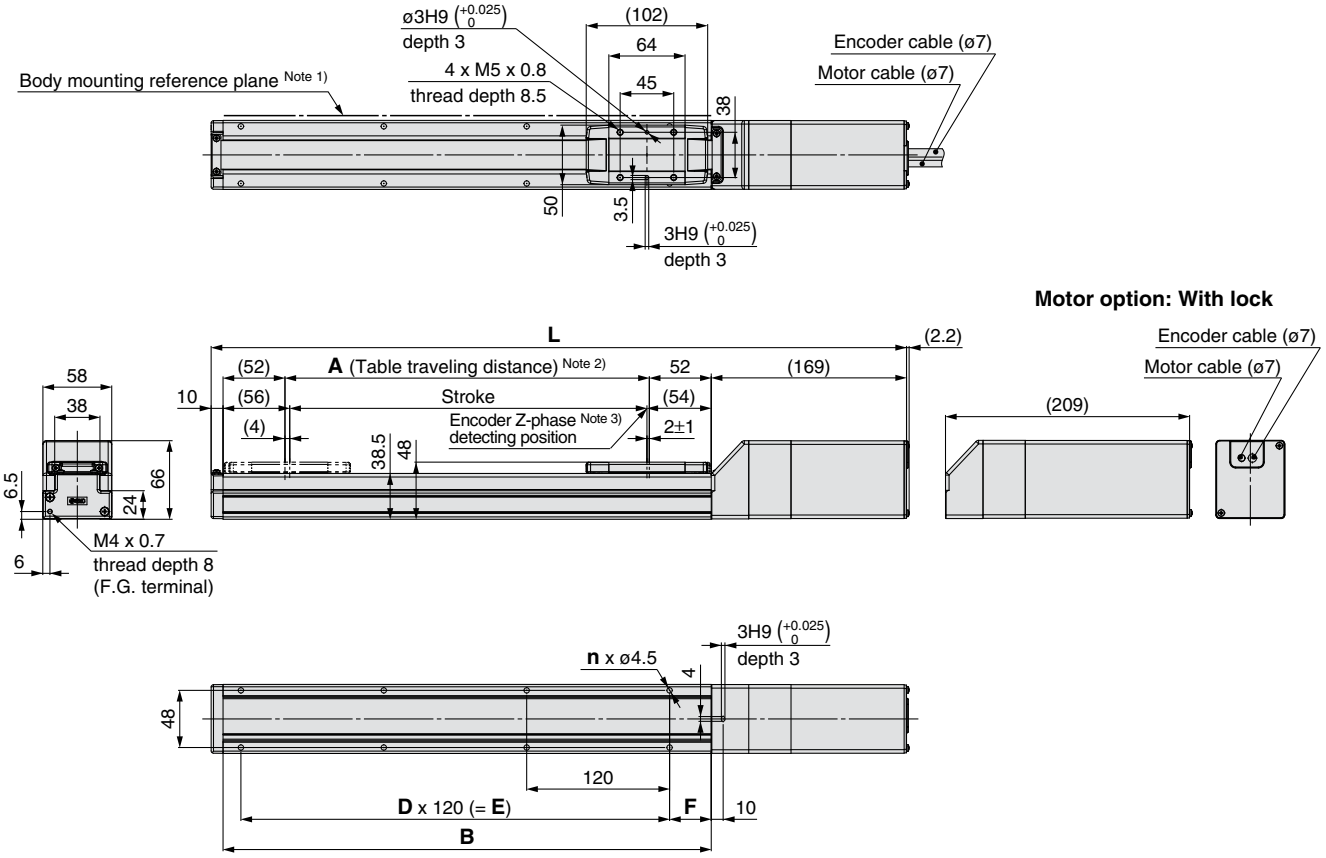
Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Rail guide**	—	
3	**Ball screw shaft**	—	
4	**Ball screw nut**	—	
5	**Table**	Aluminum alloy	Anodized
6	**Blanking plate**	Aluminum alloy	Anodized
7	**Seal band stopper**	Synthetic resin	
8	**Housing A**	Aluminum die-cast	Coating
9	**Housing B**	Aluminum die-cast	Coating
10	**Bearing stopper**	Aluminum alloy	

No.	Description	Material	Note
11	**Motor mount**	Aluminum alloy	Coating
12	**Coupling**	—	
13	**Motor cover**	Aluminum alloy	Anodized
14	**Motor end cover**	Aluminum alloy	Anodized
15	**Motor**	—	
16	**Grommet**	NBR	
17	**Band stopper**	Stainless steel	
18	**Dust seal band**	Stainless steel	
19	**Bearing**	—	
20	**Bearing**	—	

Dimensions: In-line Motor

LEFS25



Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more because of R chamfering. (Recommended height 5 mm)

Note 2) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the work pieces and facilities around the table.

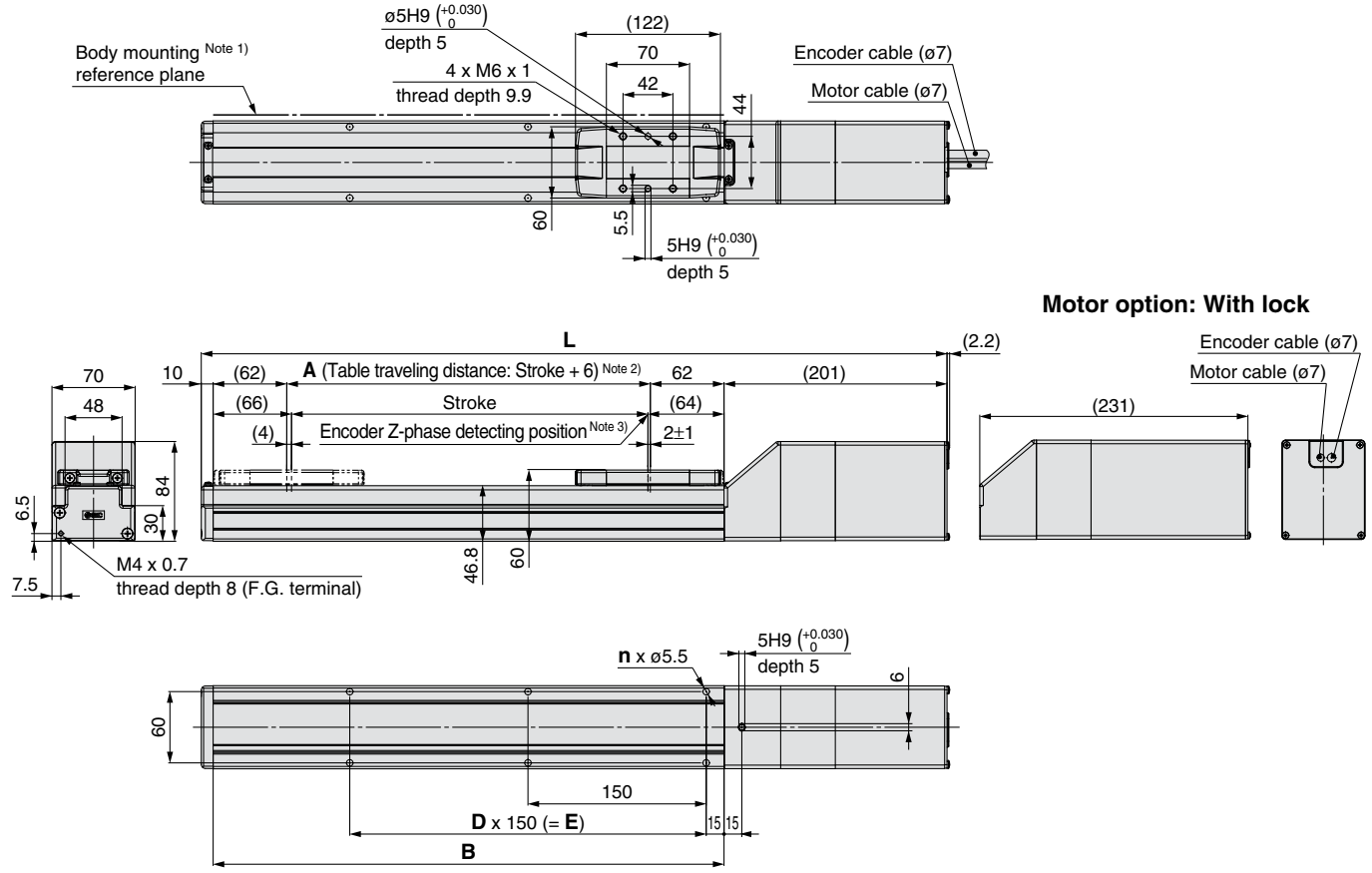
Note 3) The Z-phase first detecting position from the stroke end of the motor side.

Dimensions [mm]

Model	L		A	B	n	D	E	F
	Without	With						
LEFS25□□-50□	339	379	56	160	4	—	—	20
LEFS25□□-100□	389	429	106	210	4	—	—	35
LEFS25□□-150□	439	479	156	260	4	—	—	
LEFS25□□-200□	489	529	206	310	6	2	240	
LEFS25□□-250□	539	579	256	360	6	2	240	
LEFS25□□-300□	589	629	306	410	8	3	360	
LEFS25□□-350□	639	679	356	460	8	3	360	
LEFS25□□-400□	689	729	406	510	8	3	360	
LEFS25□□-450□	739	779	456	560	10	4	480	
LEFS25□□-500□	789	829	506	610	10	4	480	
LEFS25□□-550□	839	879	556	660	12	5	600	
LEFS25□□-600□	889	929	606	710	12	5	600	

Dimensions: In-line Motor

LEFS32



Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more because of R chamfering. (Recommended height 5 mm)

Note 2) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the work pieces and facilities around the table.

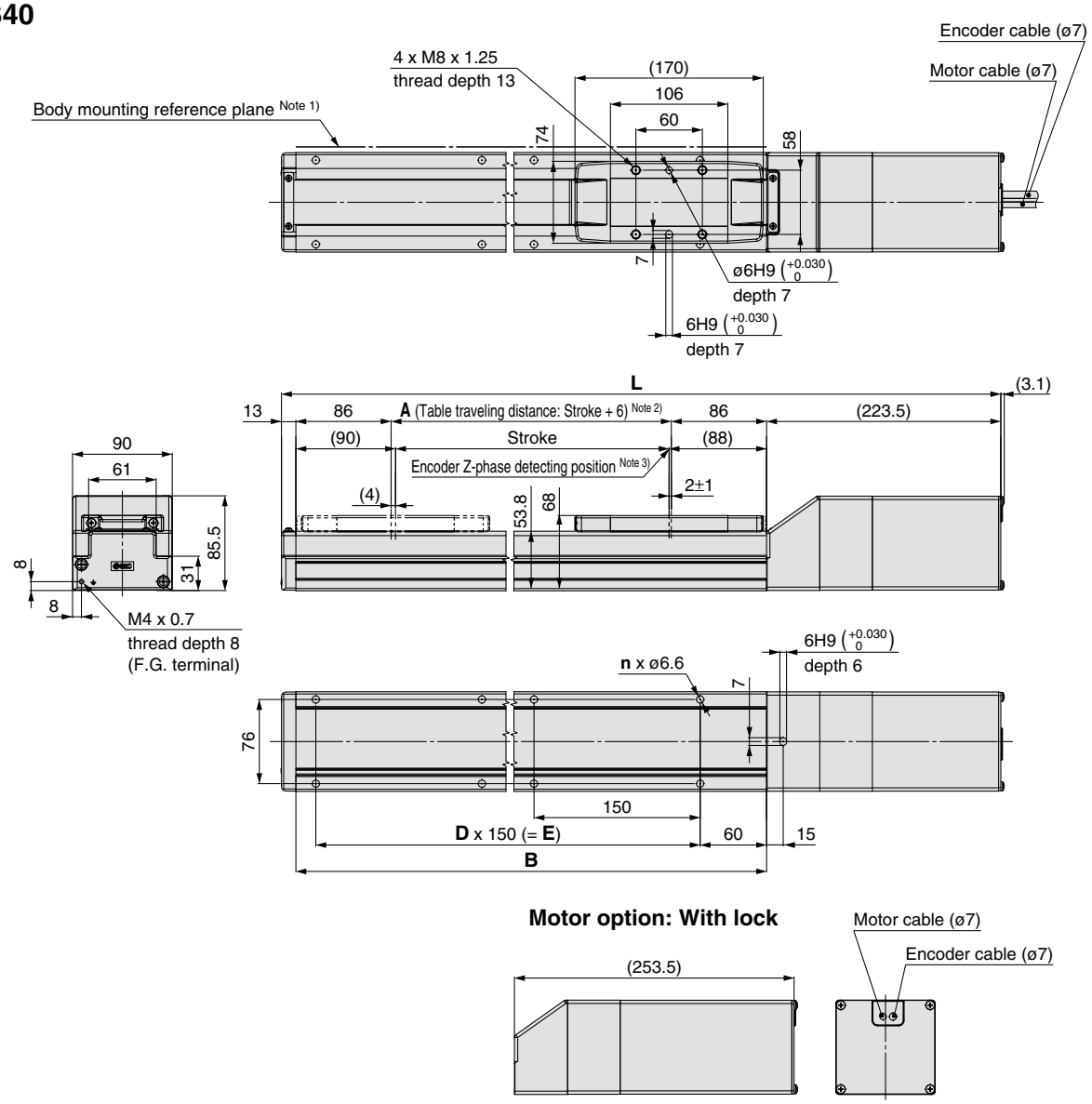
Note 3) The Z-phase first detecting position from the stroke end of the motor side.

Dimensions [mm]

Model	L		A	B	n	D	E
	Without	With					
LEFS32□□-50□	391	421	56	180	4	—	—
LEFS32□□-100□	441	471	106	230	4	—	—
LEFS32□□-150□	491	521	156	280	4	—	—
LEFS32□□-200□	541	571	206	330	6	2	300
LEFS32□□-250□	591	621	256	380	6	2	300
LEFS32□□-300□	641	671	306	430	6	2	300
LEFS32□□-350□	691	721	356	480	8	3	450
LEFS32□□-400□	741	771	406	530	8	3	450
LEFS32□□-450□	791	821	456	580	8	3	450
LEFS32□□-500□	841	871	506	630	10	4	600
LEFS32□□-550□	891	921	556	680	10	4	600
LEFS32□□-600□	941	971	606	730	10	4	600
LEFS32□□-650□	991	1021	656	780	12	5	750
LEFS32□□-700□	1041	1071	706	830	12	5	750
LEFS32□□-750□	1091	1121	756	880	12	5	750
LEFS32□□-800□	1141	1171	806	930	14	6	900

Dimensions: In-line Motor

LEFS40



Motor option: With lock

Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more because of R chamfering. (Recommended height 5 mm)

Note 2) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the work pieces and facilities around the table.

Note 3) The Z-phase first detecting position from the stroke end of the motor side.

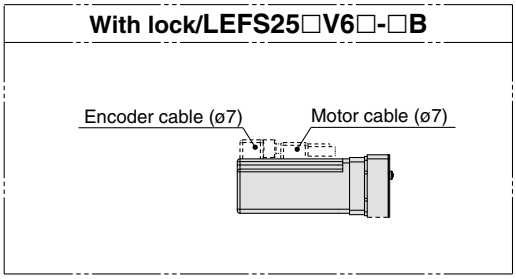
Dimensions [mm]

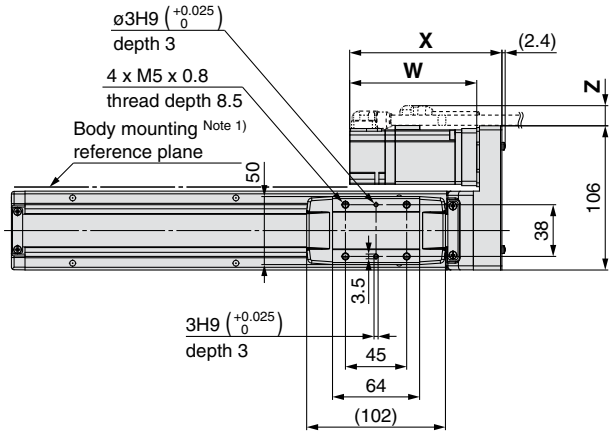
Model	L		A	B	n	D	E
	Without	With					
LEFS40□□-150□	564.5	594.5	156	328	4	—	150
LEFS40□□-200□	614.5	644.5	206	378	6	2	300
LEFS40□□-250□	664.5	694.5	256	428	6	2	300
LEFS40□□-300□	714.5	744.5	306	478	6	2	300
LEFS40□□-350□	764.5	794.5	356	528	8	3	450
LEFS40□□-400□	814.5	844.5	406	578	8	3	450
LEFS40□□-450□	864.5	894.5	456	628	8	3	450
LEFS40□□-500□	914.5	944.5	506	678	10	4	600
LEFS40□□-550□	964.5	994.5	556	728	10	4	600
LEFS40□□-600□	1014.5	1044.5	606	778	10	4	600
LEFS40□□-650□	1064.5	1094.5	656	828	12	5	750
LEFS40□□-700□	1114.5	1144.5	706	878	12	5	750
LEFS40□□-750□	1164.5	1194.5	756	928	12	5	750
LEFS40□□-800□	1214.5	1144.5	806	978	14	6	900
LEFS40□□-850□	1264.5	1294.5	856	1028	14	6	900
LEFS40□□-900□	1314.5	1344.5	906	1078	14	6	900
LEFS40□□-950□	1364.5	1394.5	956	1128	16	7	1050
LEFS40□□-1000□	1414.5	1444.5	1006	1178	16	7	1050

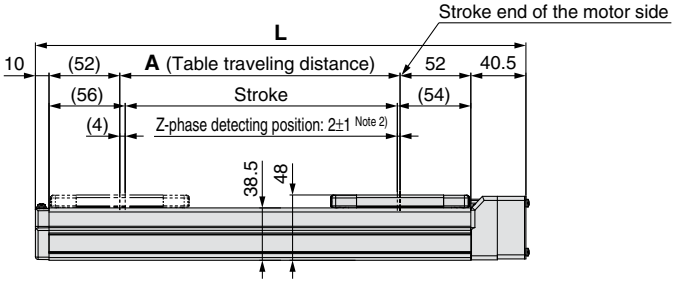
Dimensions: Motor Parallel

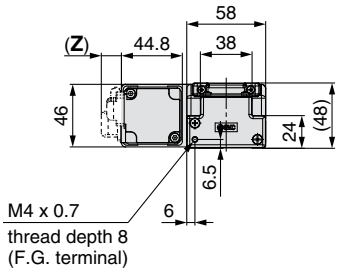
LEFS25R

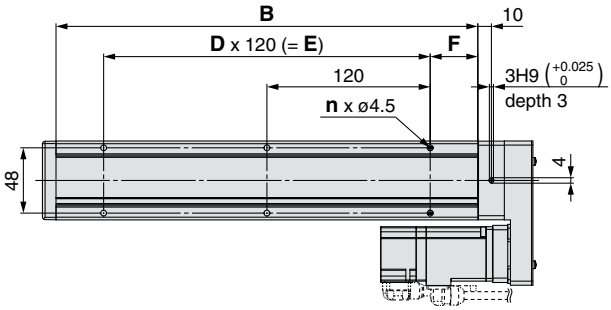
With lock/LEFS25□V6□-□B

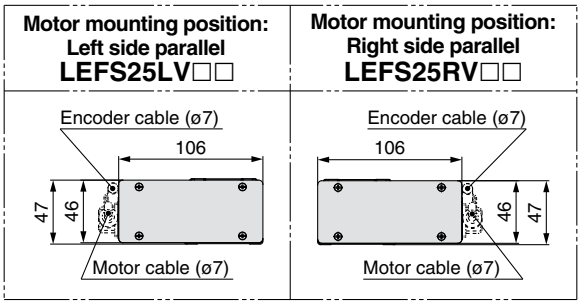












Motor Dimensions [mm]

Motor type	X		W		Z	
	Without	With	Without	With	Without	With
V6	112	157	82.5	127.5	11	

Dimensions [mm]

Model	L	A	B	n	D	E	F
LEFS25□□□-50□	210.5	56	160	4	—	—	20
LEFS25□□□-100□	260.5	106	210	4	—	—	35
LEFS25□□□-150□	310.5	156	260	4	—	—	
LEFS25□□□-200□	360.5	206	310	6	2	240	
LEFS25□□□-250□	410.5	256	360	6	2	240	
LEFS25□□□-300□	460.5	306	410	8	3	360	
LEFS25□□□-350□	510.5	356	460	8	3	360	
LEFS25□□□-400□	560.5	406	510	8	3	360	
LEFS25□□□-450□	610.5	456	560	10	4	480	
LEFS25□□□-500□	660.5	506	610	10	4	480	
LEFS25□□□-550□	710.5	556	660	12	5	600	
LEFS25□□□-600□	760.5	606	710	12	5	600	

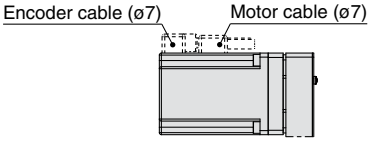
Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more. (Recommended height 5 mm)

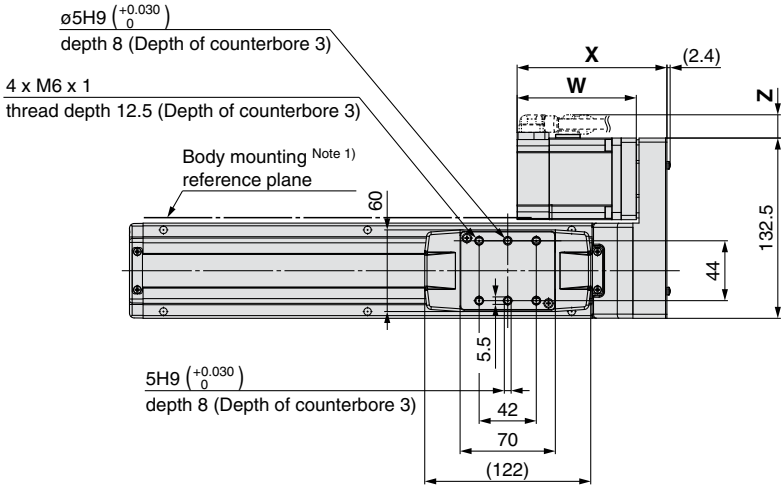
Note 2) The Z-phase first detecting position from the stroke end of the motor side. Please consult with SMC for adjusting the Z-phase detecting position at the stroke end of the end side.

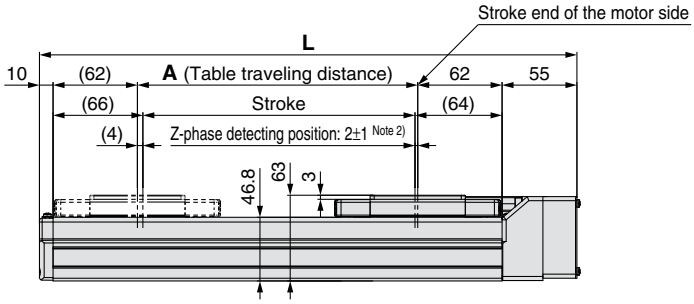
Dimensions: Motor Parallel

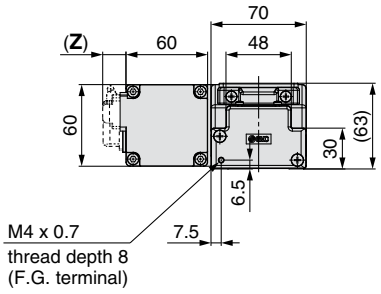
LEFS32R

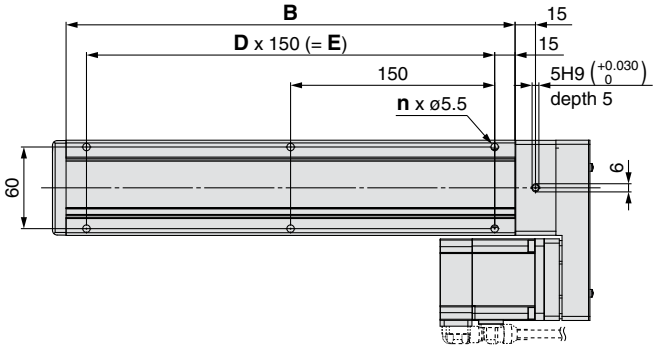
With lock/LEFS32□V7□-□B



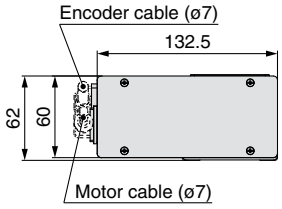




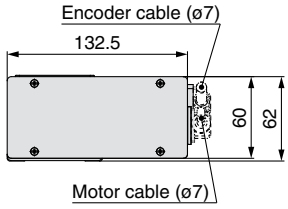




Motor mounting position: Left side parallel LEFS32LV□□



Motor mounting position: Right side parallel LEFS32RV□□



Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more. (Recommended height 5 mm)

Note 2) The Z-phase first detecting position from the stroke end of the motor side. Please consult with SMC for adjusting the Z-phase detecting position at the stroke end of the end side.

Motor Dimensions [mm]

Motor type	X		W		Z	
	Without	With	Without	With	Without	With
V7	113.5	153.5	80	120	14	14

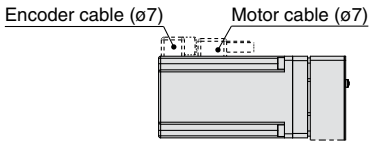
Dimensions [mm]

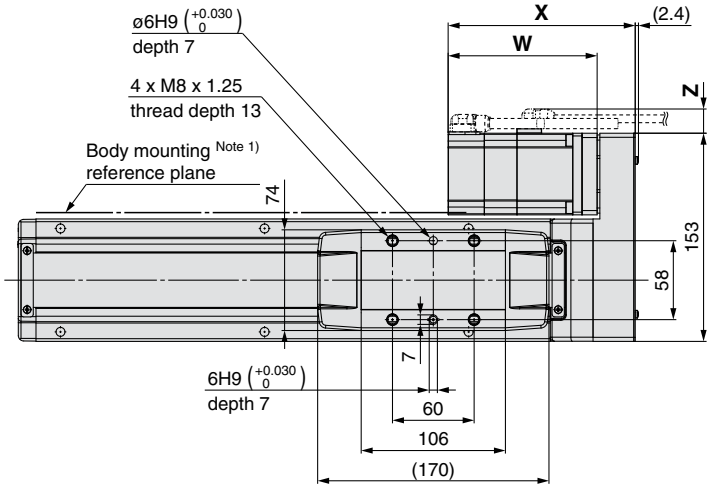
Model	L	A	B	n	D	E
LEFS32□□□-50□	245	56	180	4	—	—
LEFS32□□□-100□	295	106	230	4	—	—
LEFS32□□□-150□	345	156	280	4	—	—
LEFS32□□□-200□	395	206	330	6	2	300
LEFS32□□□-250□	445	256	380	6	2	300
LEFS32□□□-300□	495	306	430	6	2	300
LEFS32□□□-350□	545	356	480	8	3	450
LEFS32□□□-400□	595	406	530	8	3	450
LEFS32□□□-450□	645	456	580	8	3	450
LEFS32□□□-500□	695	506	630	10	4	600
LEFS32□□□-550□	745	556	680	10	4	600
LEFS32□□□-600□	795	606	730	10	4	600
LEFS32□□□-650□	845	656	780	12	5	750
LEFS32□□□-700□	895	706	830	12	5	750
LEFS32□□□-750□	945	756	880	12	5	750
LEFS32□□□-800□	995	806	930	14	6	900

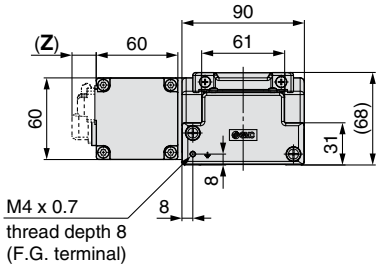
Dimensions: Motor Parallel

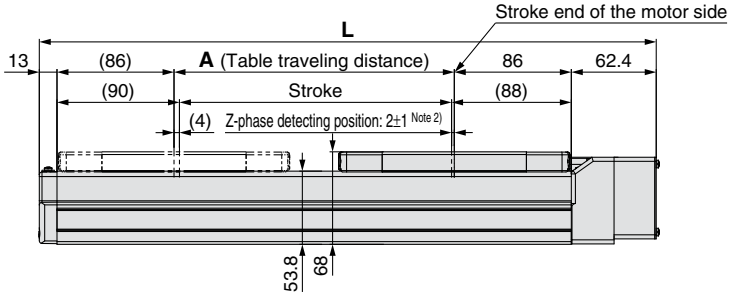
LEFS40R

With lock/LEFS40□V8□-□B

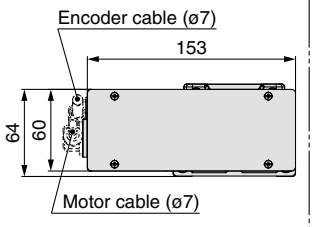




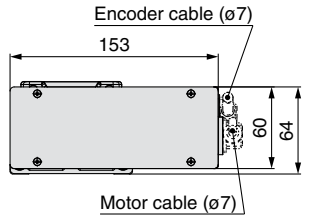


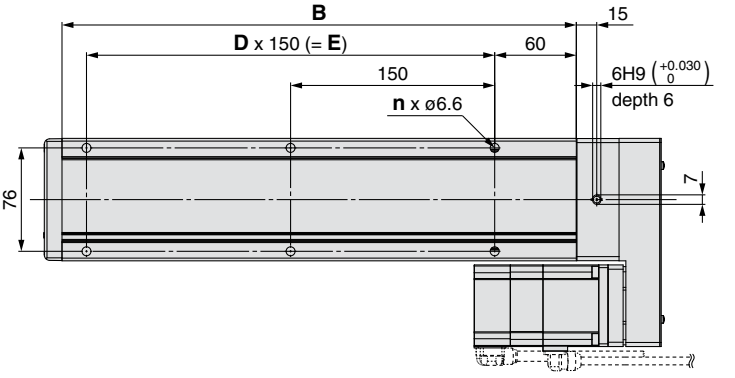


Motor mounting position: Left side parallel LEFS40LV□□



Motor mounting position: Right side parallel LEFS40RV□□





Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more. (Recommended height 5 mm)

Note 2) The Z-phase first detecting position from the stroke end of the motor side. Please consult with SMC for adjusting the Z-phase detecting position at the stroke end of the end side.

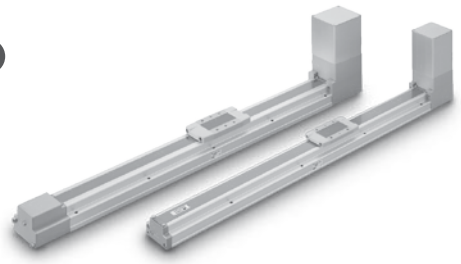
Motor Dimensions [mm]

Motor type	X		W		Z	
	Without	With	Without	With	Without	With
V8	137.5	177.5	98.5	138.5	14	14

Dimensions [mm]

Model	L	A	B	n	D	E
LEFS40□□□-150□	403.4	156	328	4	—	150
LEFS40□□□-200□	453.4	206	378	6	2	300
LEFS40□□□-250□	503.4	256	428	6	2	300
LEFS40□□□-300□	553.4	306	478	6	2	300
LEFS40□□□-350□	603.4	356	528	8	3	450
LEFS40□□□-400□	653.4	406	578	8	3	450
LEFS40□□□-450□	703.4	456	628	8	3	450
LEFS40□□□-500□	753.4	506	678	10	4	600
LEFS40□□□-550□	803.4	556	728	10	4	600
LEFS40□□□-600□	853.4	606	778	10	4	600
LEFS40□□□-650□	903.4	656	828	12	5	750
LEFS40□□□-700□	953.4	706	878	12	5	750
LEFS40□□□-750□	1003.4	756	928	12	5	750
LEFS40□□□-800□	1053.4	806	978	14	6	900
LEFS40□□□-850□	1103.4	856	1028	14	6	900
LEFS40□□□-900□	1153.4	906	1078	14	6	900
LEFS40□□□-950□	1203.4	956	1128	16	7	1050
LEFS40□□□-1000□	1253.4	1006	1178	16	7	1050

Belt Drive/*Series LEFB*
Model Selection



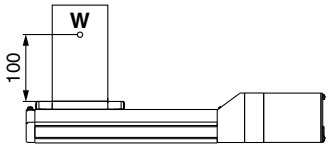
Selection Procedure

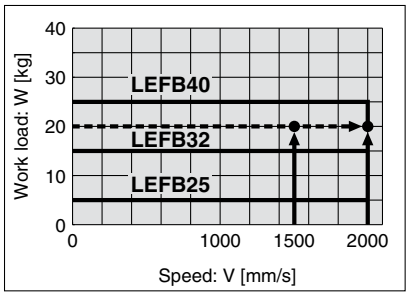
Step 1 Check the work load–speed. → **Step 2** Check the cycle time. → **Step 3** Check the allowable moment.

Selection Example

Operating conditions

- Workpiece mass: 20 [kg]
- Speed: 1500 [mm/s]
- Acceleration/Deceleration: 3000 [mm/s^2]
- Stroke: 2000 [mm]
- Mounting position: Horizontal upward
- Workpiece mounting condition:





<Speed–Work load graph> (LEFB40)

Step 1 **Check the work load–speed. <Speed–Work load graph>** (Page 24)

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

Selection example) The **LEFB40V8S-2000** 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.

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

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

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

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

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

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

$$T4 = 0.05 \text{ [s]}$$

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

$T1 = V/a1 = 1500/3000 = 0.5$ [s],

$T3 = V/a2 = 1500/3000 = 0.5$ [s]

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} = \frac{2000 - 0.5 \cdot 1500 \cdot (0.5 + 0.5)}{1500} = 0.83 \text{ [s]}$$

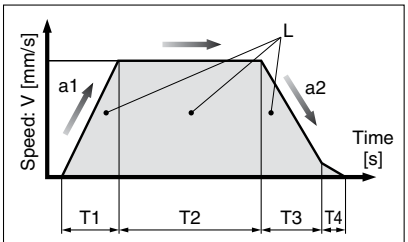
$T4 = 0.05$ [s]

Therefore, the cycle time can be obtained as follows.

$T = T1 + T2 + T3 + T4$

$= 0.5 + 0.83 + 0.5 + 0.05$

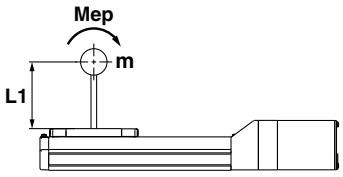
$=$ **1.88 [s]**

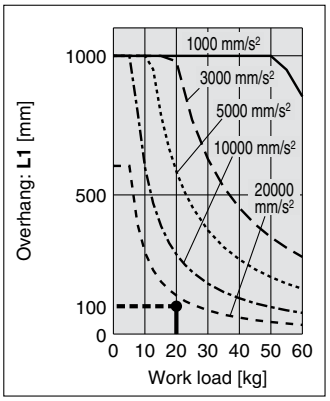


L : Stroke [mm]
··· (Operating condition)
V : Speed [mm/s]
··· (Operating condition)
a1: Acceleration [mm/s^2]
··· (Operating condition)
a2: Deceleration [mm/s^2]
··· (Operating condition)

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 in position is completed

Step 3 **Check the guide moment.**

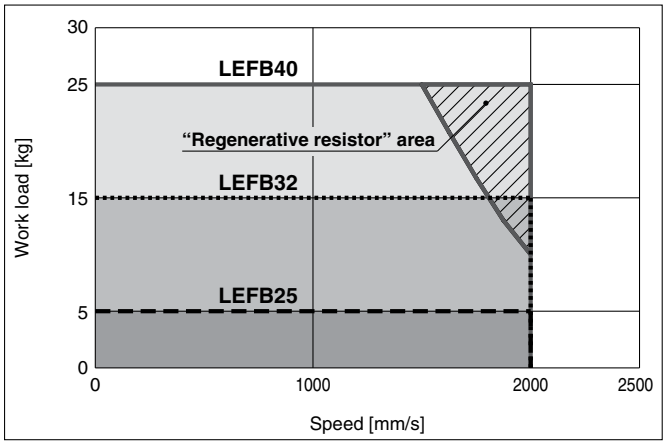




Based on the above calculation result, the LEFB40V8S-2000 is selected.

Speed–Work Load Graph (Guide)

LEFB□/Belt Drive

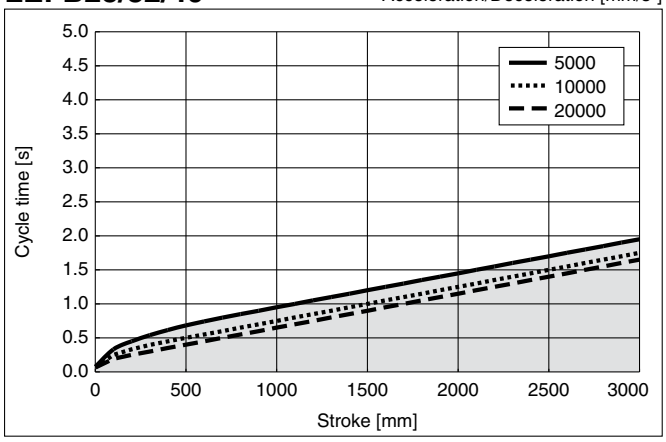


∗ The shaded area in the graph requires the regenerative resistor.

Cycle Time Graph (Guide)

LEFB□/Belt Drive

LEFB25/32/40



∗ Cycle time is for when maximum speed.
∗ Maximum stroke: LEFB25: 2000 mm
LEFB32: 2500 mm
LEFB40: 3000 mm

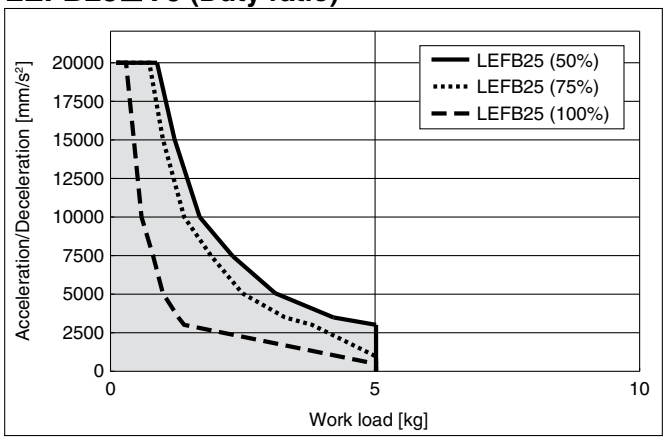
"Regenerative resistor" area

∗ When using the actuator in the "Regenerative resistor" area, download the "AC servo capacity selection program/SigmaJunmaSize+" from the SMC website. Then, calculate the necessary regenerative resistor capacity to prepare an appropriate external regenerative resistor.
∗ Regenerative resistor should be provided by the customer.

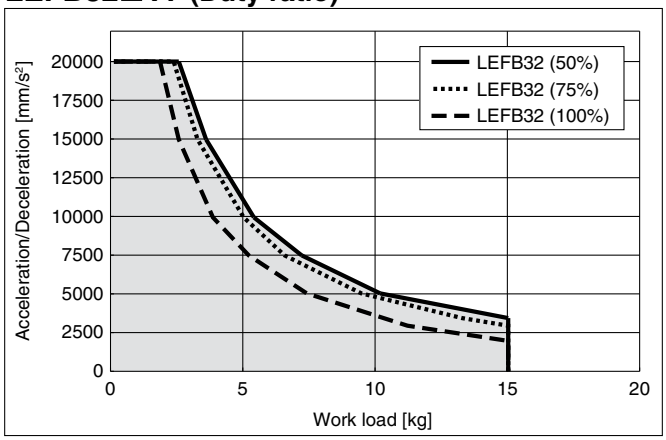
Work Load–Acceleration/Deceleration Graph (Guide)

LEFB□/Belt Drive

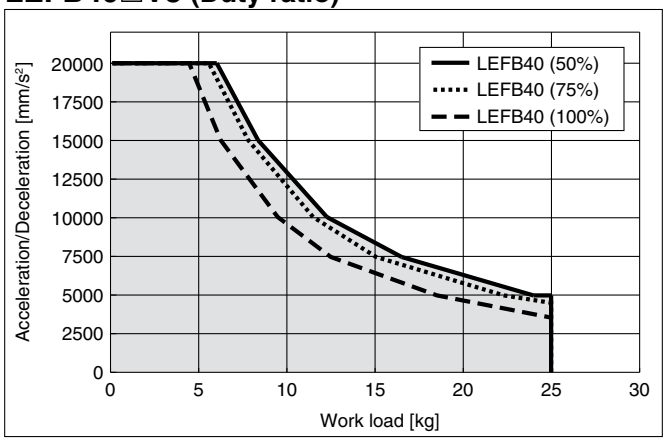
LEFB25□V6 (Duty ratio)



LEFB32□V7 (Duty ratio)



LEFB40□V8 (Duty ratio)



Applicable Motor/Driver

Model	Applicable model	
	Motor	Servopack (SMC driver)
LEFB25□	SGMJV-01A3A	SGDV-R90A11□ (LECYM2-V5) SGDV-R90A21□ (LECYU2-V5)
LEFB32□	SGMJV-02A3A	SGDV-1R6A11□ (LECYM2-V7) SGDV-1R6A21□ (LECYU2-V7)
LEFB40□	SGMJV-04A3A	SGDV-2R8A11□ (LECYM2-V8) SGDV-2R8A21□ (LECYU2-V8)

Dynamic Allowable Moment

* This graph shows the amount of allowable overhang when the center of gravity of the workpiece overhangs in one direction. When the center of gravity of the workpiece overhangs in two directions, refer to the Electric Actuator Selection Software for confirmation, http://www.smcworld.com

Acceleration/Deceleration ——1000 mm/s² – – –3000 mm/s² ·····5000 mm/s² –·–·–10000 mm/s² - - - - 20000 mm/s²

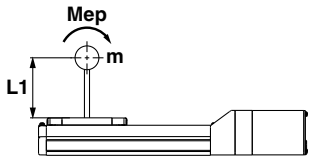
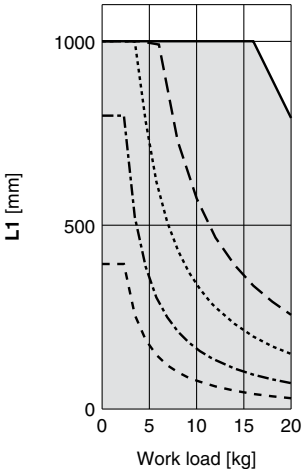
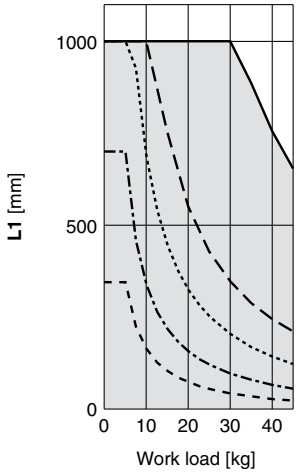
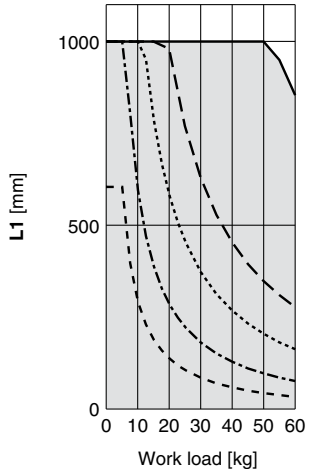
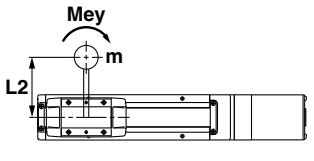
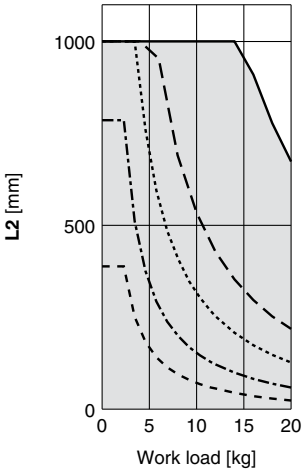
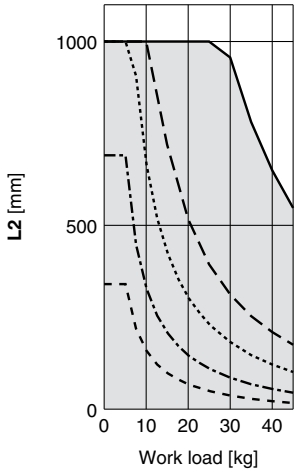
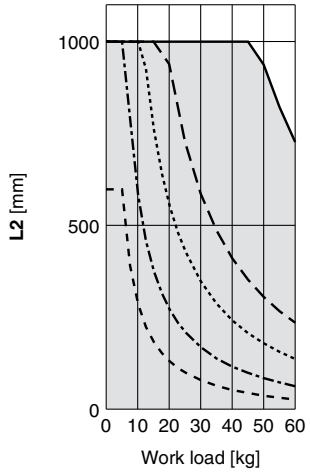
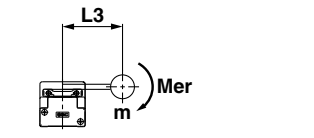
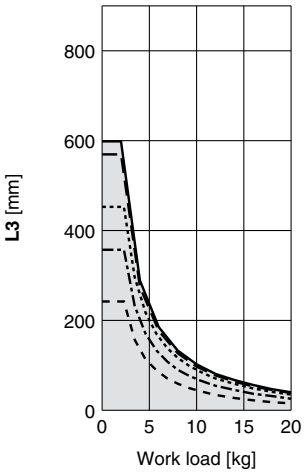
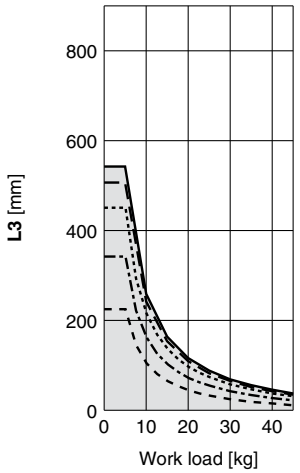
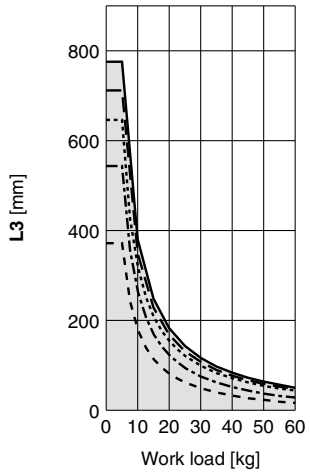
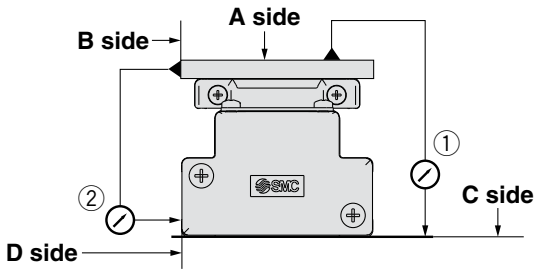
Orientation	Load overhanging direction **m**: Work load [kg] **Me**: Dynamic allowable moment [N·m] **L**: Overhang to the work load center of gravity [mm]		Model LEFB25□V6	Model LEFB32□V7	Model LEFB40□V8
Horizontal		Pitching			
		Yawing			
		Rolling			

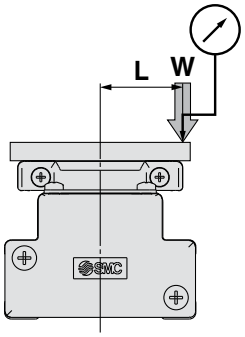
Table Accuracy

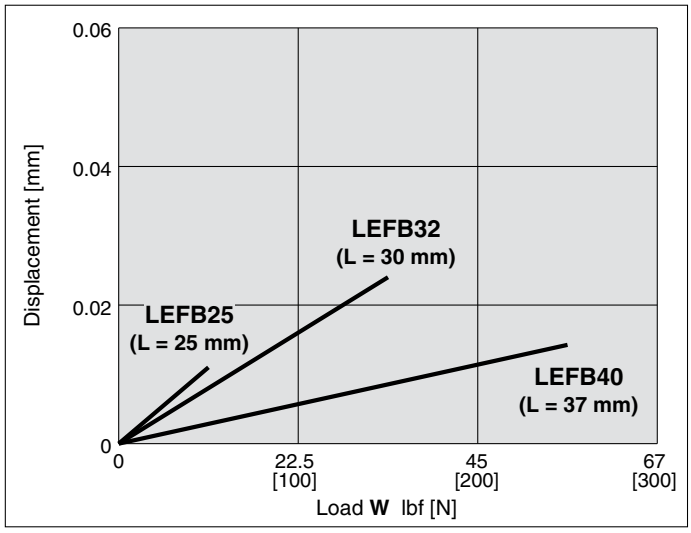


Model	Traveling parallelism [mm] (Every 300 mm)	
	① C side traveling parallelism to A side	② D side traveling parallelism to B side
LEFB25	0.05	0.03
LEFB32	0.05	0.03
LEFB40	0.05	0.03

Note) Traveling parallelism does not include the mounting surface accuracy.

Table Displacement (Reference Value)





Note 1) This displacement is measured when a 15 mm aluminum plate is mounted and fixed on the table.
Note 2) Check the clearance and play of the guide separately.

Electric Actuator/Slider Type
Belt Drive AC Servo Motor
Series LEFB
LEFS25, 32, 40

CE RoHS

How to Order

LEFB 32 ❶ ❷ V7 ❸ S ❹ – 300 ❺ B ❻ – S ❼ 3 ❽ M2 ❾ ❿

❶ Size

25
32
40

❸ Motor type

Symbol	Type	Output [W]	Size	Compatible driver
V6	AC servo motor (Absolute encoder)	100	25	LECYM2-V5/LECYU2-V5
V7		200	32	LECYM2-V7/LECYU2-V7
V8		400	40	LECYM2-V8/LECYU2-V8

❷ Motor mounting position

Nil	Top mounting
U	Bottom mounting

❾ Driver type

	Compatible driver	Power supply voltage [V]
Nil	Without driver	—
M2	LECYM2-V□	200 to 230
U2	LECYU2-V□	200 to 230

❿ I/O connector

Nil	Without connector
H	With connector

❹ Equivalent lead [mm]

S	54

❻ Motor option

Nil	Without option
B	With lock

❽ Actuator cable length [m]

Nil	Without cable
3	3
5	5
A	10
C	20

❺ Stroke [mm]

300	300
to	to
3000	3000

❼ Cable type

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

Applicable Stroke Table

●: Standard/○: Produced upon receipt of order

	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2500	3000	Manufacturable stroke range [mm]
LEFB25	●	●	●	●	●	●	●	●	○	●	○	○	●	○	○	○	○	●	—	—	300 to 2000
LEFB32	●	●	●	●	●	●	●	●	○	●	○	○	●	○	○	○	○	●	●	—	300 to 2500
LEFB40	●	●	●	●	●	●	●	●	○	●	○	○	●	○	○	○	○	●	●	●	300 to 3000

∗ Please consult with SMC for strokes other than those shown above as they are produced as special orders.

Compatible Drivers

Driver type	MECHATROLINK-Ⅱ type 	MECHATROLINK-Ⅲ type 
Series	LECYM	LECYU
Applicable network	MECHATROLINK-Ⅱ	MECHATROLINK-Ⅲ
Control encoder	Absolute 20-bit encoder	
Communication device	USB communication, RS-422 communication	
Power supply voltage (V)	200 to 230 VAC (50/60 Hz)	
Reference page	Page 103	

Specifications

LEFB25, 32, 40 AC Servo Motor

Model			LEFB25V6	LEFB32V7	LEFB40V8
Actuator specifications	Stroke [mm] Note 1)		300, 400, 500 600, 700, 800 900, 1000, (1100) 1200, (1300, 1400) 1500, (1600, 1700) (1800, 1900), 2000	300, 400, 500 600, 700, 800 900, 1000, (1100) 1200, (1300, 1400) 1500, (1600, 1700) (1800, 1900), 2000 2500	300, 400, 500 600, 700, 800 900, 1000, (1100) 1200, (1300, 1400) 1500, (1600, 1700) (1800, 1900), 2000 2500, 3000
	Work load [kg] Note 2)	Horizontal	5	15	25
	Max. speed [mm/s]		2000	2000	2000
	Max. acceleration/deceleration [mm/s²]		20000 (Refer to page 24 for limit according to work load and duty ratio.) Note 3)		
	Positioning repeatability [mm]		±0.06		
	Lost motion [mm] Note 4)		0.1 or less		
	Equivalent lead [mm]		54		
	Impact/Vibration resistance [m/s²] Note 5)		50/20		
	Actuation type		Belt		
	Guide type		Linear guide		
	Operating temperature range		41 to 104°F (5 to 40°C)		
	Operating humidity range [%RH]		90 or less (No condensation)		
Electric specifications	Motor output/Size		100 W/□40	200 W/□60	400 W/□60
	Motor type		AC servo motor (200 VAC)		
	Encoder		Absolute 20-bit encoder (Resolution: 1048576 p/rev)		
	Power consumption [W] Note 6)	Horizontal	29	41	72
		Vertical	—	—	—
	Standby power consumption when operating [W] Note 7)	Horizontal	2	2	2
		Vertical	—	—	—
	Max. instantaneous power consumption [W] Note 8)		445	725	1275
Lock unit specifications	Type Note 9)		Non-magnetizing lock		
	Holding force lbf [N]		6.1 [27]	12 [54]	25 [110]
	Power consumption at 68°F (20°C) [W] Note 10)		5.5	6.0	6.0
	Rated voltage [V]		24 VDC $^{0}_{-10}$%		

Note 1) Please consult with SMC as all non-standard and non-made-to-order strokes are produced as special orders.
Note 2) For details, refer to "Speed–Work Load Graph (Guide)" on page 24.
Note 3) Maximum acceleration/deceleration changes according to the work load. Check "Work Load–Acceleration/Deceleration Graph (Guide)" of the catalog.
Note 4) A reference value for correcting an error in reciprocal operation.
Note 5) 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 6) The power consumption (including the driver) is for when the actuator is operating.
Note 7) The standby power consumption when operating (including the driver) is for when the actuator is stopped in the set position during the operation.
Note 8) The maximum instantaneous power consumption (including the driver) is for when the actuator is operating.
Note 9) Only when motor option "With lock" is selected.
Note 10) For an actuator with lock, add the power consumption for the lock.

Weight

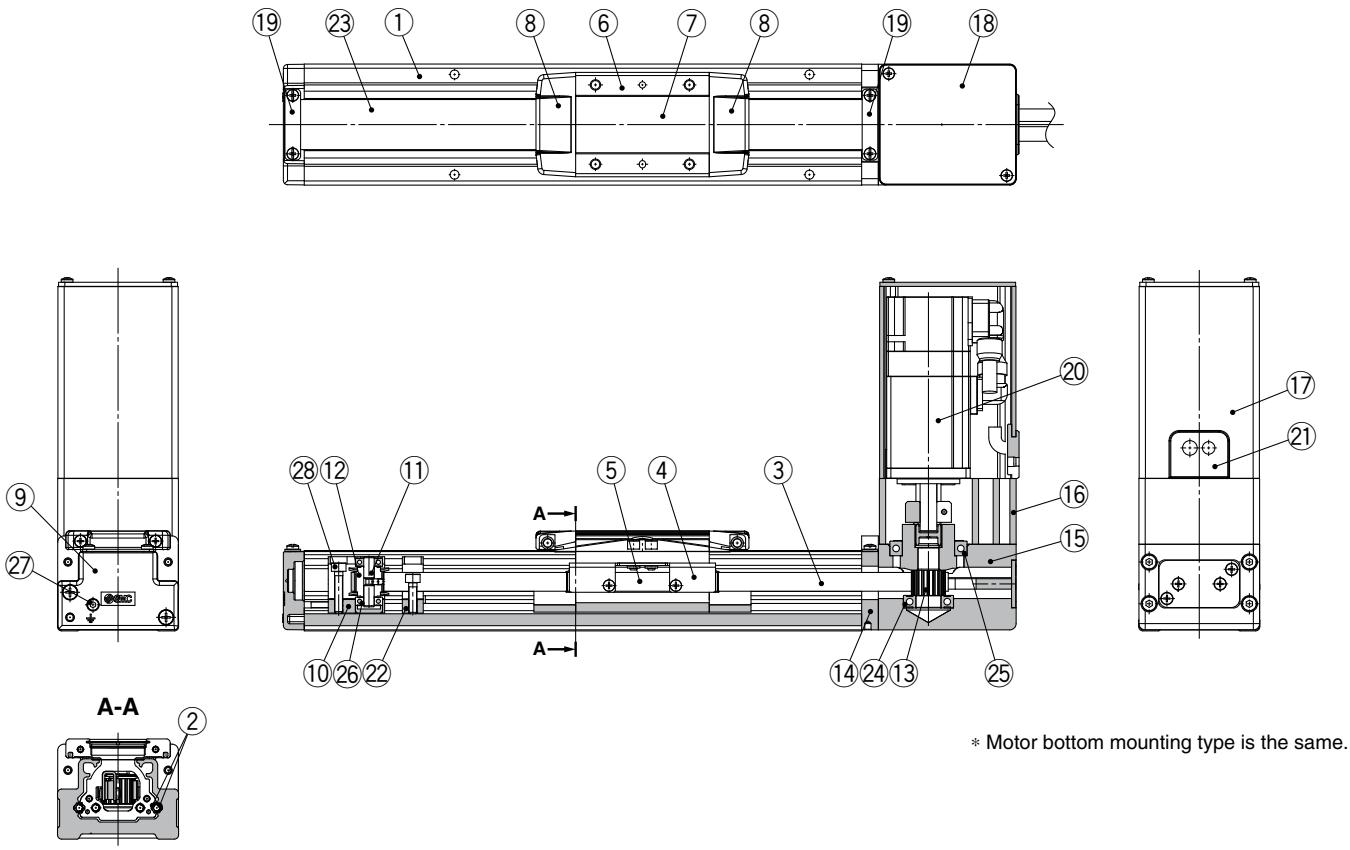
Series	LEFB25																	
Stroke [mm]	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
Product weight [kg]	3.06	3.31	3.56	3.81	4.06	4.31	4.56	4.81	5.06	5.31	5.56	5.81	6.06	6.31	6.56	6.81	7.06	7.31
Additional weight with lock [kg]	0.3																	

Series	LEFB32																		
Stroke [mm]	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2500
Product weight [kg]	4.90	5.25	5.60	5.95	6.30	6.65	7.00	7.35	7.70	8.05	8.40	8.75	9.10	9.45	9.80	10.15	10.50	10.85	12.60
Additional weight with lock [kg]	0.7																		

Series	LEFB40																			
Stroke [mm]	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2500	3000
Product weight [kg]	7.20	7.65	8.10	8.55	9.00	9.45	9.90	10.35	10.80	11.25	11.70	12.15	12.60	13.05	13.50	13.95	14.40	14.85	17.10	19.35
Additional weight with lock [kg]	0.7																			

Construction

LEFB25V6S



∗ Motor bottom mounting type is the same.

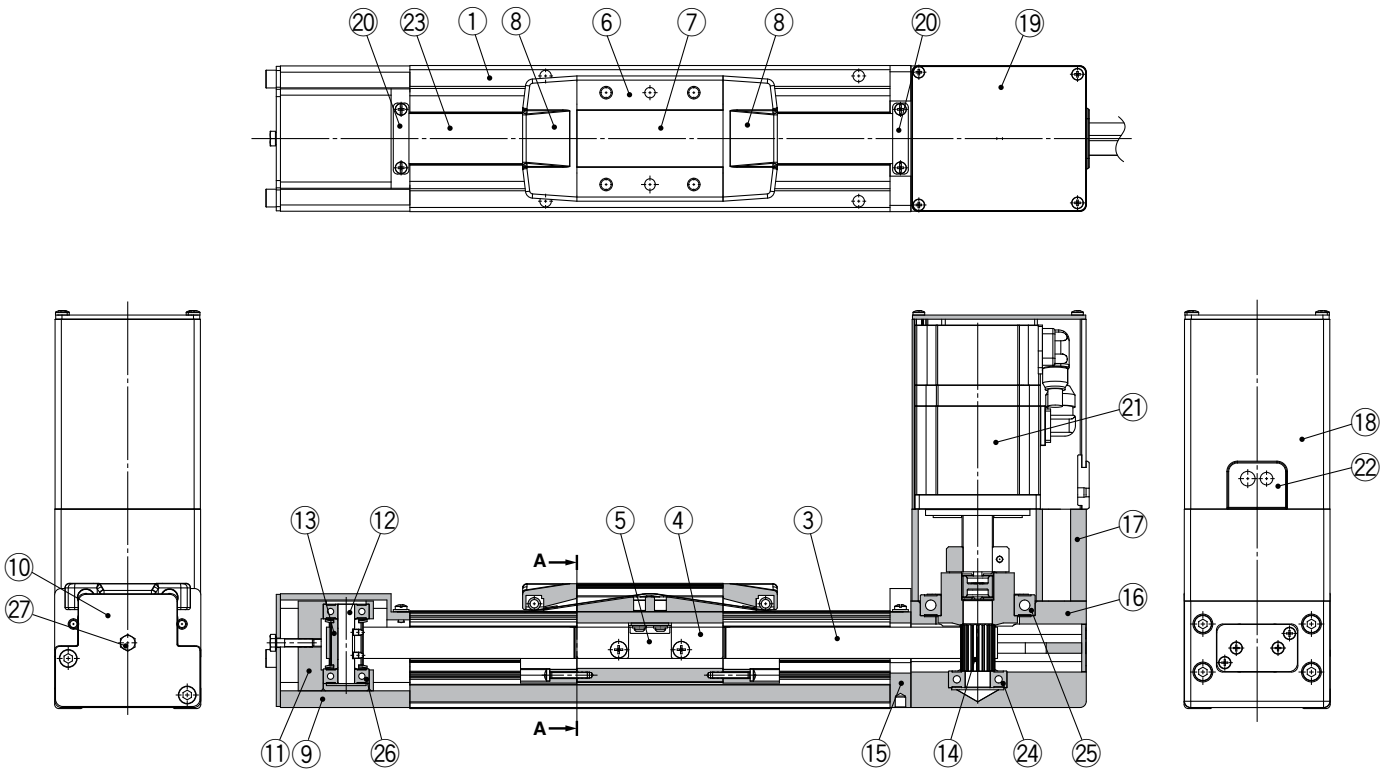
Component Parts

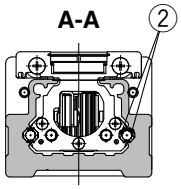
No.	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Rail guide**		
3	**Belt**		
4	**Belt holder**	Carbon steel	Chromating
5	**Belt stopper**	Aluminum alloy	Anodized
6	**Table**	Aluminum alloy	Anodized
7	**Blanking plate**	Aluminum alloy	Anodized
8	**Seal band stopper**	Synthetic resin	
9	**Housing A**	Aluminum die-cast	Coating
10	**Pulley holder**	Aluminum alloy	
11	**Pulley shaft**	Stainless steel	
12	**End pulley**	Aluminum alloy	Anodized
13	**Motor pulley**	Aluminum alloy	Anodized
14	**Return flange**	Aluminum alloy	Coating

No.	Description	Material	Note
15	**Housing**	Aluminum alloy	Coating
16	**Motor mount**	Aluminum alloy	Coating
17	**Motor cover**	Aluminum alloy	Anodized
18	**Motor end cover**	Aluminum alloy	Anodized
19	**Band stopper**	Stainless steel	
20	**Motor**		
21	**Rubber bushing**	NBR	
22	**Stopper**	Aluminum alloy	
23	**Dust seal band**	Stainless steel	
24	**Bearing**		
25	**Bearing**		
26	**Spacer**	Aluminum alloy	
27	**Tension adjustment bolt**	Chromium molybdenum steel	Chromating
28	**Pulley fixing bolt**	Chromium molybdenum steel	Chromating

Construction

LEFB32/40V□S





∗ Motor bottom mounting type is the same.

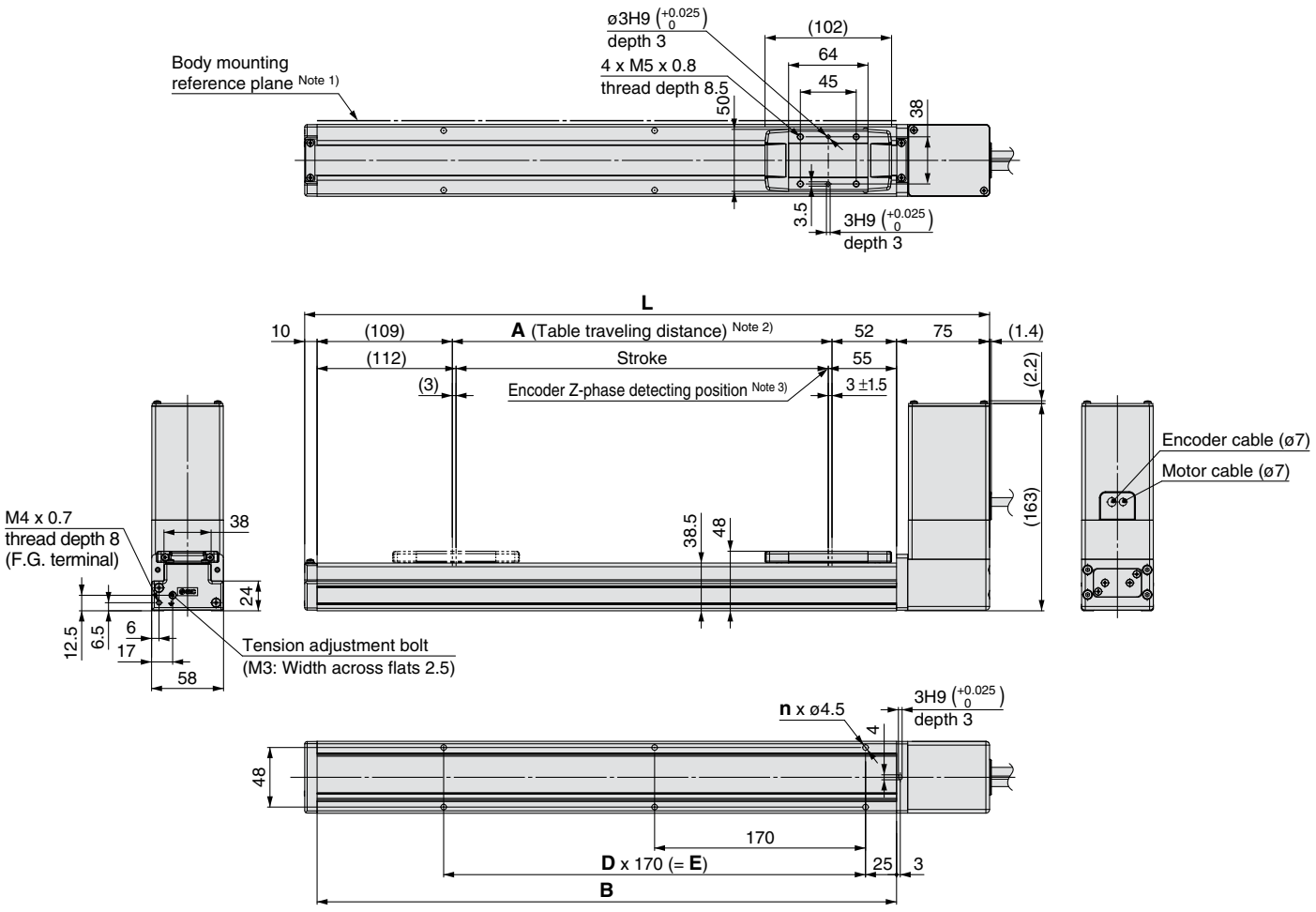
Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Rail guide**		
3	**Belt**		
4	**Belt holder**	Carbon steel	Chromating
5	**Belt stopper**	Aluminum alloy	Anodized
6	**Table**	Aluminum alloy	Anodized
7	**Blanking plate**	Aluminum alloy	Anodized
8	**Seal band stopper**	Synthetic resin	
9	**End block**	Aluminum alloy	Coating
10	**End block cover**		
11	**Pulley holder**	Aluminum alloy	
12	**Pulley shaft**	Stainless steel	
13	**End pulley**	Aluminum alloy	Anodized
14	**Motor pulley**	Aluminum alloy	Anodized

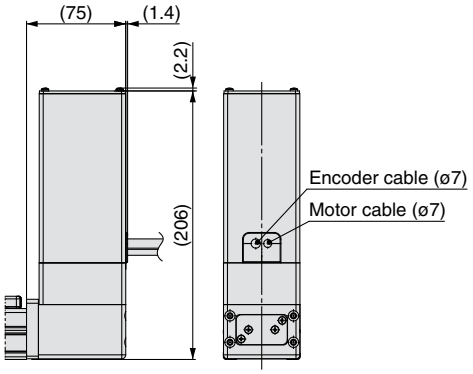
No.	Description	Material	Note
15	**Return flange**	Aluminum alloy	Coating
16	**Housing**	Aluminum alloy	Coating
17	**Motor mount**	Aluminum alloy	Coating
18	**Motor cover**	Aluminum alloy	Anodized
19	**Motor end cover**	Aluminum alloy	Anodized
20	**Band stopper**	Stainless steel	
21	**Motor**		
22	**Rubber bushing**	NBR	
23	**Dust seal band**	Stainless steel	
24	**Bearing**		
25	**Bearing**		
26	**Bearing**		
27	**Tension adjustment bolt**	Chromium molybdenum steel	Chromating

Dimensions: Belt Drive

LEFB25/Motor top mounting type



Motor option: With lock



Dimensions [mm]

Stroke	L	A	B	n	D	E
300	552	306	467	6	2	340
400	652	406	567	8	3	510
500	752	506	667	8	3	510
600	852	606	767	10	4	680
700	952	706	867	10	4	680
800	1052	806	967	12	5	850
900	1152	906	1067	14	6	1020
1000	1252	1006	1167	14	6	1020
1100	1352	1106	1267	16	7	1190
1200	1452	1206	1367	16	7	1190
1300	1552	1306	1467	18	8	1360
1400	1652	1406	1567	20	9	1530
1500	1752	1506	1667	20	9	1530
1600	1852	1606	1767	22	10	1700
1700	1952	1706	1867	22	10	1700
1800	2052	1806	1967	24	11	1870
1900	2152	1906	2067	24	11	1870
2000	2252	2006	2167	26	12	2040

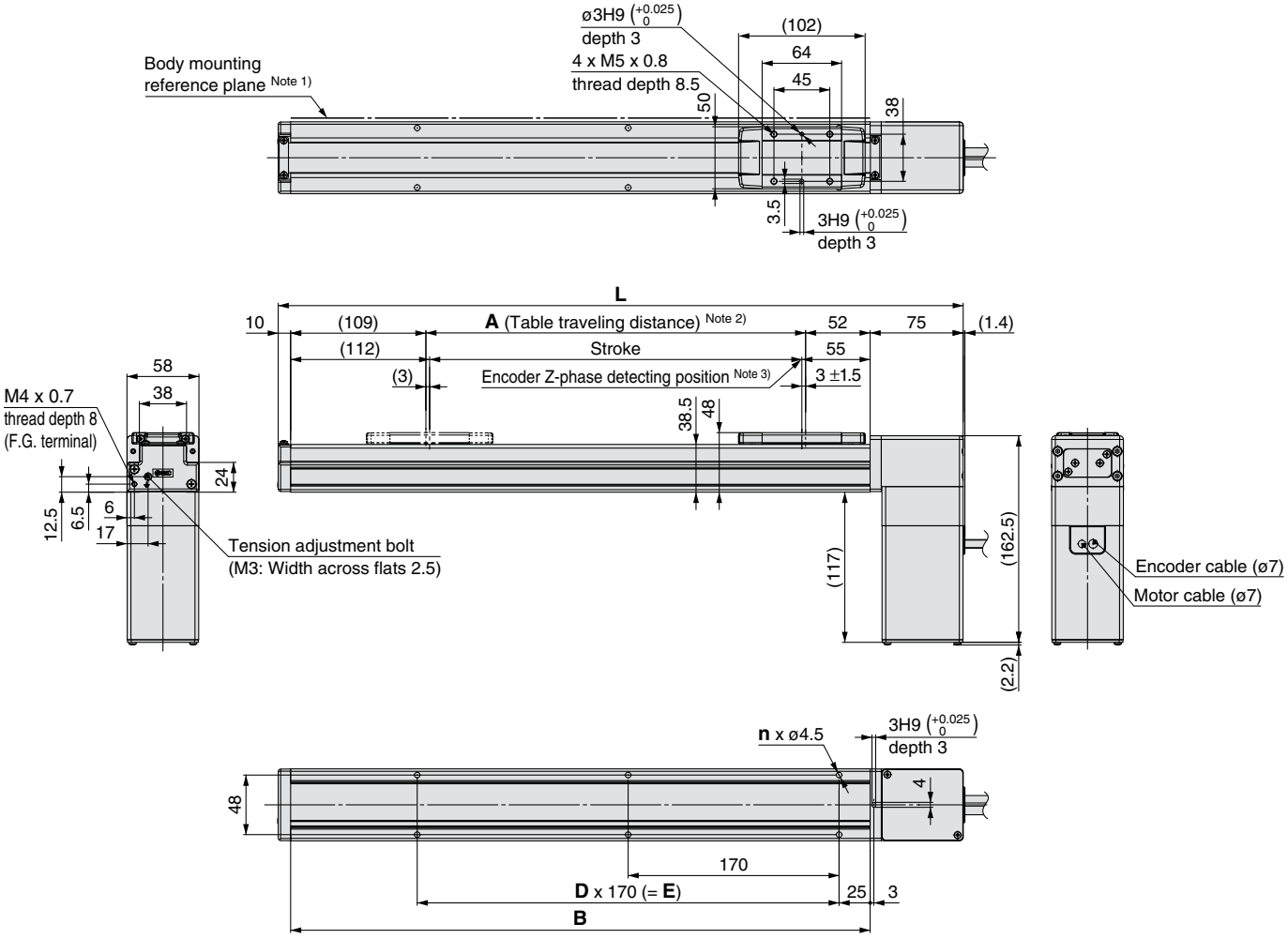
Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more because of R chamfering. (Recommended height 5 mm)

Note 2) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the work pieces and facilities around the table.

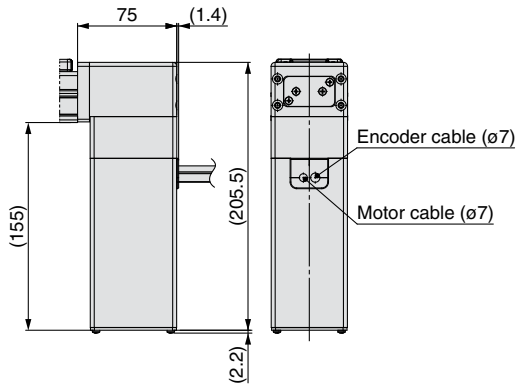
Note 3) The Z-phase first detecting position from the stroke end of the motor side

Dimensions: Belt Drive

LEFB25U/Motor bottom mounting type



Motor option: With lock



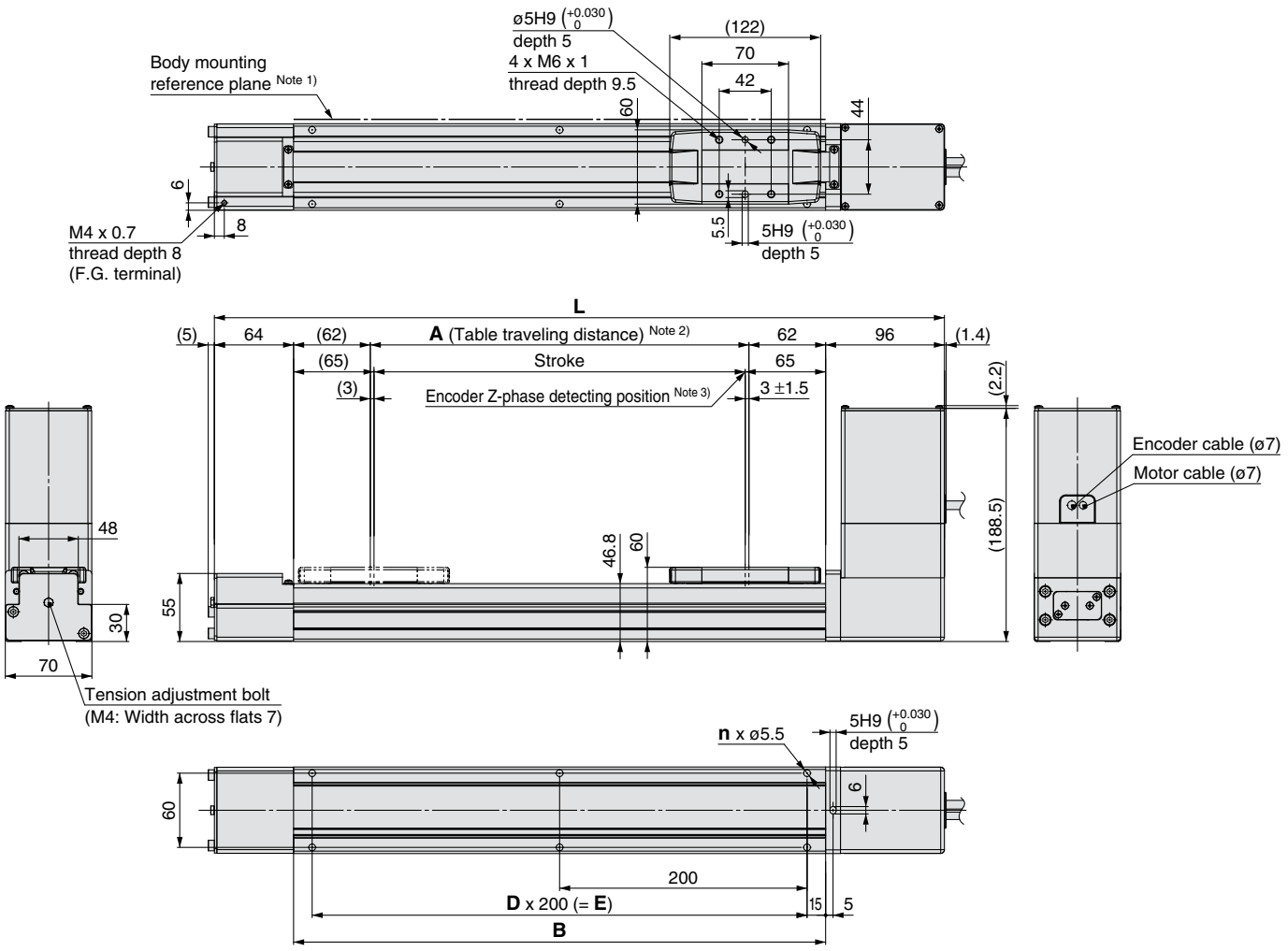
Dimensions [mm]

Stroke	L	A	B	n	D	E
300	552	306	467	6	2	340
400	652	406	567	8	3	510
500	752	506	667	8	3	510
600	852	606	767	10	4	680
700	952	706	867	10	4	680
800	1052	806	967	12	5	850
900	1152	906	1067	14	6	1020
1000	1252	1006	1167	14	6	1020
1100	1352	1106	1267	16	7	1190
1200	1452	1206	1367	16	7	1190
1300	1552	1306	1467	18	8	1360
1400	1652	1406	1567	20	9	1530
1500	1752	1506	1667	20	9	1530
1600	1852	1606	1767	22	10	1700
1700	1952	1706	1867	22	10	1700
1800	2052	1806	1967	24	11	1870
1900	2152	1906	2067	24	11	1870
2000	2252	2006	2167	26	12	2040

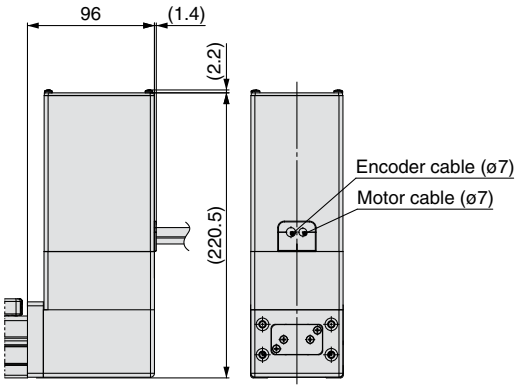
Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more because of R chamfering. (Recommended height 5 mm)
Note 2) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the work pieces and facilities around the table.
Note 3) The Z-phase first detecting position from the stroke end of the motor side

Dimensions: Belt Drive

LEFB32/Motor top mounting type



Motor option: With lock



Dimensions [mm]

Stroke	L	A	B	n	D	E
300	590	306	430	6	2	400
400	690	406	530	6	2	400
500	790	506	630	8	3	600
600	890	606	730	8	3	600
700	990	706	830	10	4	800
800	1090	806	930	10	4	800
900	1190	906	1030	12	5	1000
1000	1290	1006	1130	12	5	1000
1100	1390	1106	1230	14	6	1200
1200	1490	1206	1330	14	6	1200
1300	1590	1306	1430	16	7	1400
1400	1690	1406	1530	16	7	1400
1500	1790	1506	1630	18	8	1600
1600	1890	1606	1730	18	8	1600
1700	1990	1706	1830	20	9	1800
1800	2090	1806	1930	20	9	1800
1900	2190	1906	2030	22	10	2000
2000	2290	2006	2130	22	10	2000
2500	2790	2506	2630	28	13	2600

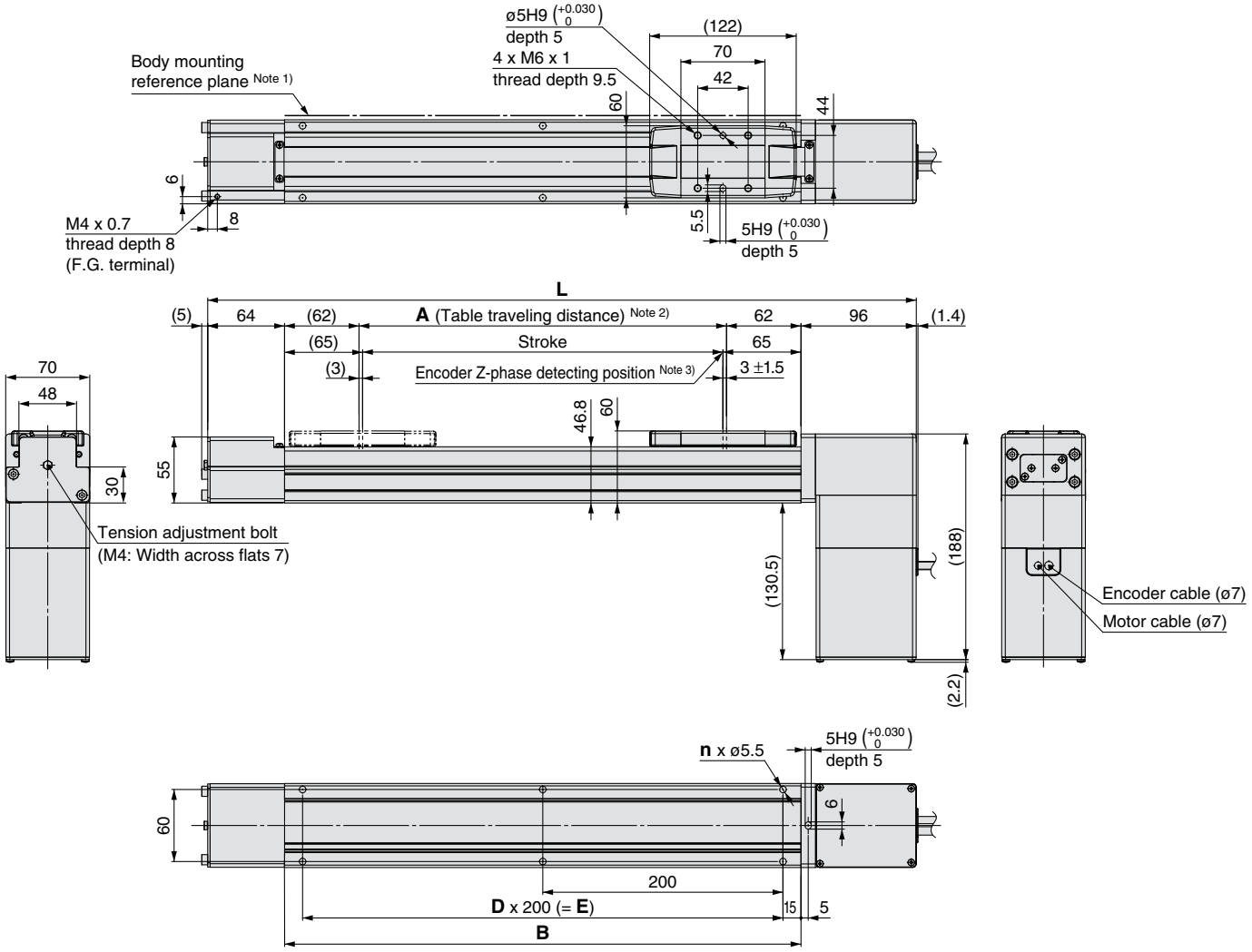
Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more because of R chamfering. (Recommended height 5 mm)

Note 2) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the work pieces and facilities around the table.

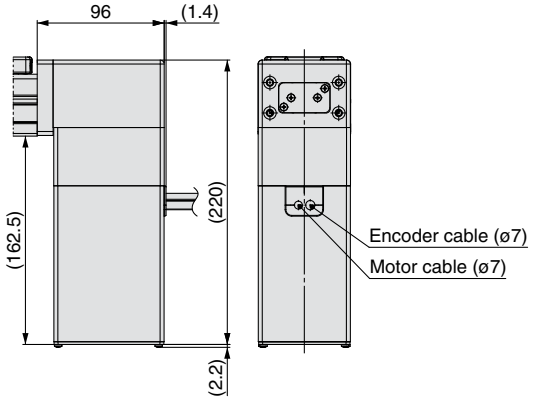
Note 3) The Z-phase first detecting position from the stroke end of the motor side

Dimensions: Belt Drive

LEFB32U/Motor bottom mounting type



Motor option: With lock



Dimensions [mm]

Stroke	L	A	B	n	D	E
300	590	306	430	6	2	400
400	690	406	530	6	2	400
500	790	506	630	8	3	600
600	890	606	730	8	3	600
700	990	706	830	10	4	800
800	1090	806	930	10	4	800
900	1190	906	1030	12	5	1000
1000	1290	1006	1130	12	5	1000
1100	1390	1106	1230	14	6	1200
1200	1490	1206	1330	14	6	1200
1300	1590	1306	1430	16	7	1400
1400	1690	1406	1530	16	7	1400
1500	1790	1506	1630	18	8	1600
1600	1890	1606	1730	18	8	1600
1700	1990	1706	1830	20	9	1800
1800	2090	1806	1930	20	9	1800
1900	2190	1906	2030	22	10	2000
2000	2290	2006	2130	22	10	2000
2500	2790	2506	2630	28	13	2600

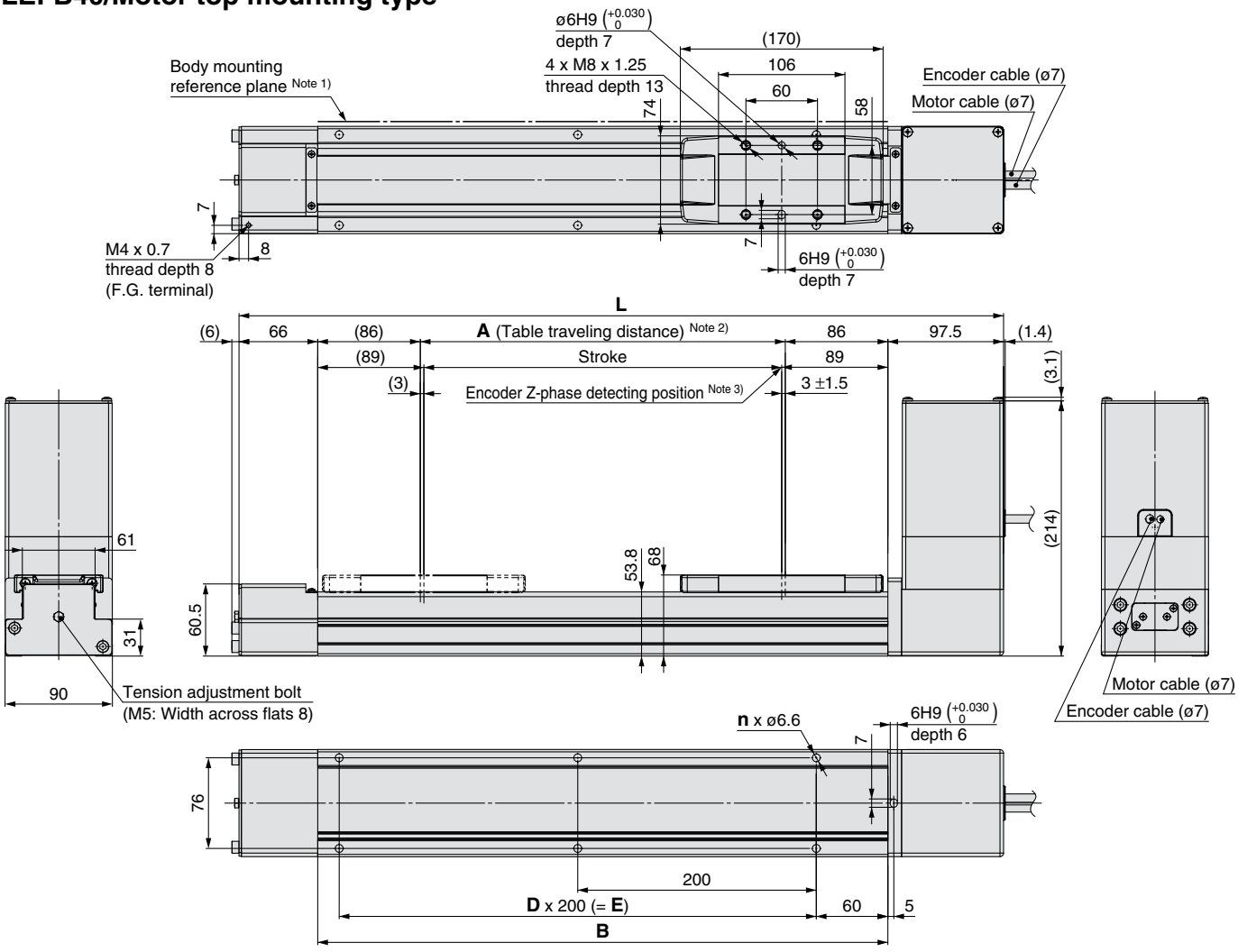
Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more because of R chamfering. (Recommended height 5 mm)

Note 2) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the work pieces and facilities around the table.

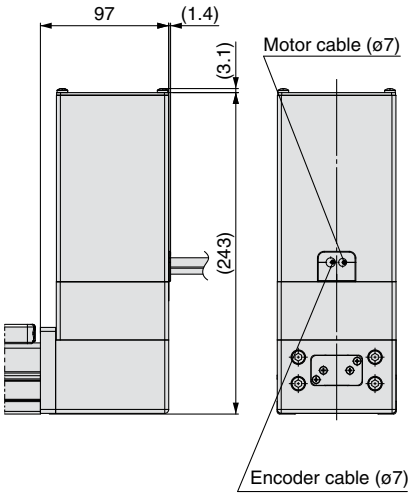
Note 3) The Z-phase first detecting position from the stroke end of the motor side

Dimensions: Belt Drive

LEFB40/Motor top mounting type



Motor option: With lock



Dimensions [mm]

Stroke	L	A	B	n	D	E
300	641.5	306	478	6	2	400
400	741.5	406	578	6	2	400
500	841.5	506	678	8	3	600
600	941.5	606	778	8	3	600
700	1041.5	706	878	10	4	800
800	1141.5	806	978	10	4	800
900	1241.5	906	1078	12	5	1000
1000	1341.5	1006	1178	12	5	1000
1100	1441.5	1106	1278	14	6	1200
1200	1541.5	1206	1378	14	6	1200
1300	1641.5	1306	1478	16	7	1400
1400	1741.5	1406	1578	16	7	1400
1500	1841.5	1506	1678	18	8	1600
1600	1941.5	1606	1778	18	8	1600
1700	2041.5	1706	1878	20	9	1800
1800	2141.5	1806	1978	20	9	1800
1900	2241.5	1906	2078	22	10	2000
2000	2341.5	2006	2178	22	10	2000
2500	2841.5	2506	2678	28	13	2600
3000	3341.5	3006	3178	32	15	3000

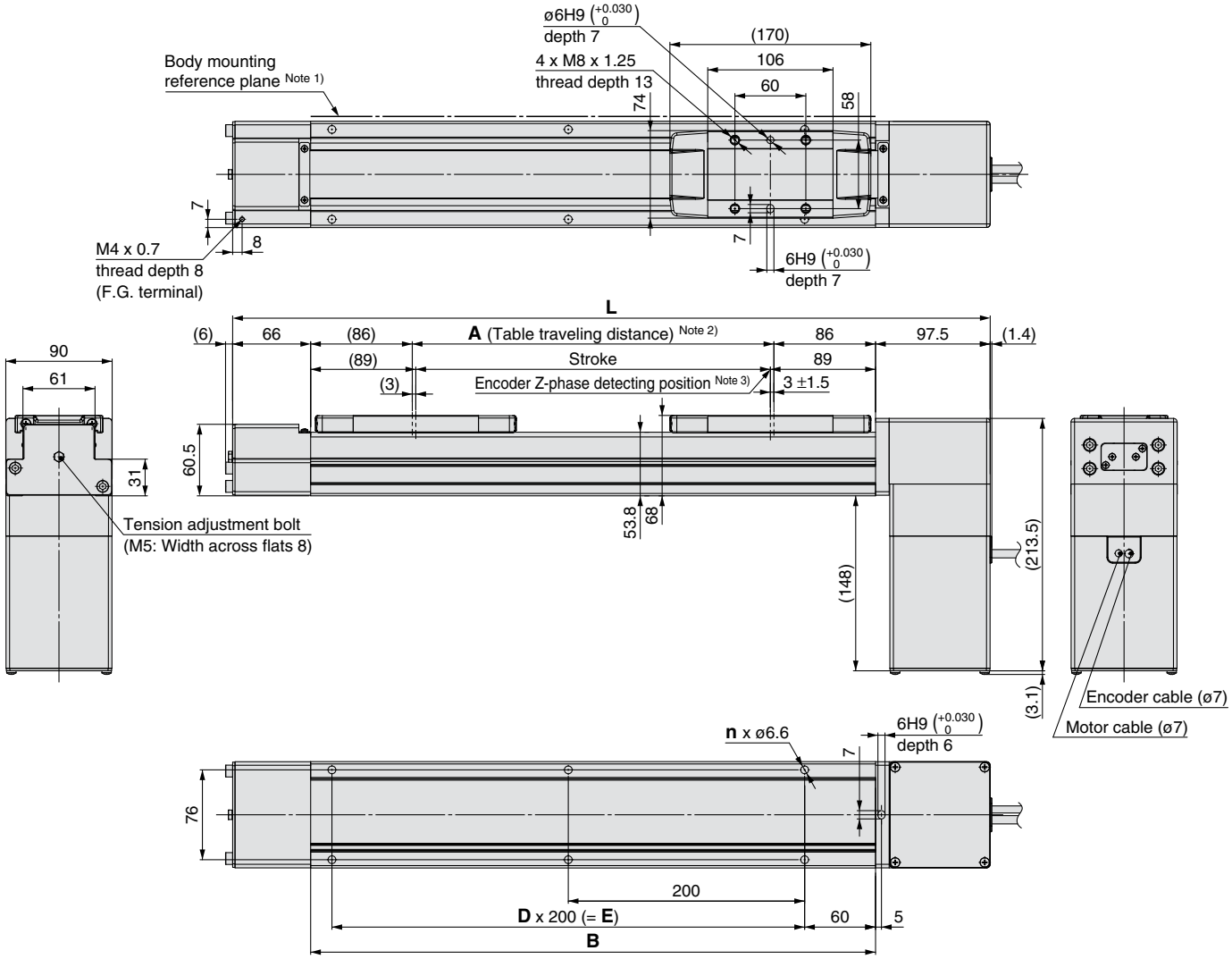
Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more because of R chamfering. (Recommended height 5 mm)

Note 2) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the work pieces and facilities around the table.

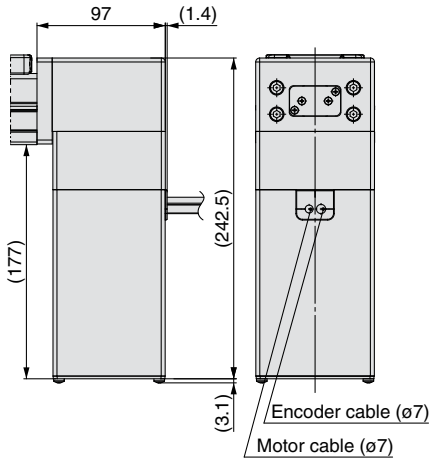
Note 3) The Z-phase first detecting position from the stroke end of the motor side

Dimensions: Belt Drive

LEFB40U/Motor bottom mounting type



Motor option: With lock



Dimensions [mm]

Stroke	L	A	B	n	D	E
300	641.5	306	478	6	2	400
400	741.5	406	578	6	2	400
500	841.5	506	678	8	3	600
600	941.5	606	778	8	3	600
700	1041.5	706	878	10	4	800
800	1141.5	806	978	10	4	800
900	1241.5	906	1078	12	5	1000
1000	1341.5	1006	1178	12	5	1000
1100	1441.5	1106	1278	14	6	1200
1200	1541.5	1206	1378	14	6	1200
1300	1641.5	1306	1478	16	7	1400
1400	1741.5	1406	1578	16	7	1400
1500	1841.5	1506	1678	18	8	1600
1600	1941.5	1606	1778	18	8	1600
1700	2041.5	1706	1878	20	9	1800
1800	2141.5	1806	1978	20	9	1800
1900	2241.5	1906	2078	22	10	2000
2000	2341.5	2006	2178	22	10	2000
2500	2841.5	2506	2678	28	13	2600
3000	3341.5	3006	3178	32	15	3000

Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more because of R chamfering. (Recommended height 5 mm)
Note 2) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the work pieces and facilities around the table.
Note 3) The Z-phase first detecting position from the stroke end of the motor side

Series LEF
Electric Actuator/ Specific Product Precautions 1

Be sure to read this before handling. For Safety Instructionsand Electric Actuator Precautions, refer to "Handling Precautions for SMC Products" and the Operation Manual on SMC website, http://www.smcworld.com

Design

⚠Caution

1. Do not apply a load in excess of the operating limit.

Select a suitable actuator by load and allowable moment. If the product is used outside of the operating limit, the eccentric load applied to the guide will be excessive and have adverse effects such as creating play on the guide, degrading accuracy and shortening the life of the product.

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

This can cause a failure.

Selection

⚠Warning

1. Do not increase the speed in excess of the operating limit.

Select a suitable actuator by the relationship between the allowable work load and speed, and the allowable speed of each stroke. If the product is used outside of the operating limit, it will have adverse effects such as creating noise, degrading accuracy and shortening the life of the product.

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

This can cause a failure.

3. When the product repeatedly cycles with partial strokes (see the table below), operate it at a full stroke at least once every 10 strokes.

Otherwise, lubrication can run out.

Model	Partial stroke
LEFS25	65 mm or less
LEFS32	70 mm or less
LEFS40	105 mm or less

4. When external force is applied to the table, it is necessary to add external force to the work load as the total carried load for the sizing.

When a cable duct or flexible moving tube is attached to the actuator, the sliding resistance of the table increases and may lead to operational failure of the product.

5. The forward/reverse torque limit is set to 800% as default.

When the product is operated with a smaller value than 300%, acceleration when driving can decrease. Set the value after confirming the actual device to be used.

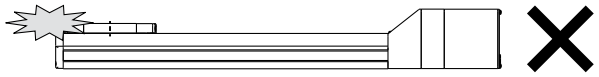
Handling

⚠Caution

1. Do not allow the table to hit the end of stroke.

When incorrect instructions are inputted, such as using the product outside of the operating limit or operation outside of actual stroke through changes in the controller/driver setting and/or origin position, the table may collide against the stroke end of the actuator. Check these points before use.

If the table collides against the stroke end of the actuator, the guide, belt or internal stopper can be broken. This may lead to abnormal operation.



Handle the actuator with care when it is used in the vertical direction as the workpiece will fall freely from its own weight.

2. The actual speed of this actuator is affected by the work load and stroke.

Check the specifications with reference to the model selection section of the catalog.

3. Do not apply a load, impact or resistance in addition to the transferred load during return to origin.

4. Do not dent, scratch or cause other damage to the body and table mounting surfaces.

This may cause unevenness in the mounting surface, play in the guide or an increase in the sliding resistance.

5. Do not apply strong impact or an excessive moment while mounting a workpiece.

If an external force over the allowable moment is applied, it may cause play in the guide or an increase in the sliding resistance.

6. Keep the flatness of mounting surface 0.1 mm or less.

Unevenness of a workpiece or base mounted on the body of the product may cause play in the guide and an increase in the sliding resistance.

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

8. Do not hit the table with the workpiece in the positioning operation and positioning range.

Electric Actuator/ Specific Product Precautions 2

Be sure to read this before handling. For Safety Instructionsand Electric Actuator Precautions, refer to "Handling Precautions for SMC Products" and the Operation Manual on SMC website, http://www.smcworld.com

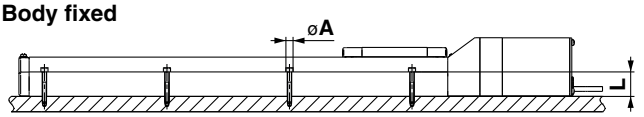
Handling

⚠Caution

9. When mounting the product, use screws with adequate length and tighten them with adequate torque.

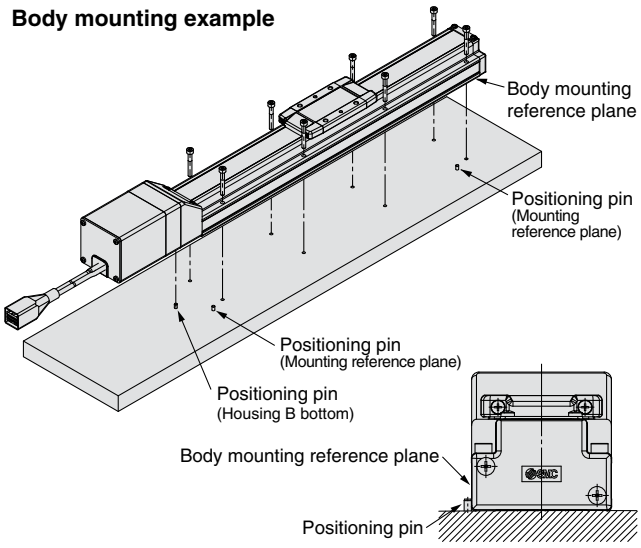
Tightening the screws with a higher torque than recommended may cause a malfunction, whilst the tightening with a lower torque can cause the displacement of the mounting position or in extreme conditions the actuator could become detached from its mounting position.

Body fixed



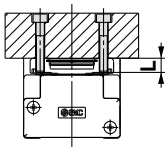
Model	Bolt	Max. tightening torque lbf·ft (N·m)	ø**A** (mm)	**L** (mm)
LEF□25	M4	1.1 (1.5)	4.5	24
LEF□32	M5	2.2 (3)	5.5	30
LEF□40	M6	3.8 (5.2)	6.6	31

Body mounting example



The traveling parallelism is the reference plane for the body mounting reference plane. If the traveling parallelism for a table is required, set the reference plane against positioning pins etc.

Workpiece fixed



Model	Bolt	Max. tightening torque lbf·ft (N·m)	**L** (Max. screw-in depth) (mm)
LEF□25	M5 x 0.8	2.2 (3.0)	8
LEF□32	M6 x 1	3.8 (5.2)	9
LEF□40	M8 x 1.25	9.2 (12.5)	13

To prevent the workpiece fixing bolts from touching the body, use bolts that are 0.5 mm or shorter than the maximum screw-in depth. If long bolts are used, they can touch the body and cause a malfunction etc.

10. Do not operate by fixing the table and moving the actuator body.

11. Check the specifications for the minimum speed of each actuator.

Otherwise, unexpected malfunctions, such as knocking, may occur.

Maintenance

⚠Warning

Maintenance frequency

Perform maintenance according to the table below.

Frequency	Appearance check	Internal check
Inspection before daily operation	○	—
Inspection every 6 months/1000 km/ 5 million cycles*	○	○

* Select whichever comes sooner.

• Items for visual appearance check

1. Loose set screws, Abnormal dirt
2. Check of flaw and cable joint
3. Vibration, Noise

• Items for internal check

1. Lubricant condition on moving parts.
2. Loose or mechanical play in fixed parts or fixing screws.

• Belt replacement for motor parallel type (Guide)

It is recommended that the belt be replaced after being in service for 2 years, or before reaching the following distance.

Model	Distance
LEFS25□H	4100 km
LEFS25□A	2500 km
LEFS25□B	1200 km

Model	Distance
LEFS32□H	6000 km
LEFS32□A	4000 km
LEFS32□B	2000 km

Model	Distance
LEFS40□H	6000 km
LEFS40□A	4000 km
LEFS40□B	2000 km

Model Selection

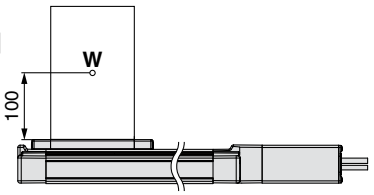
Selection Procedure

Step 1 Check the speed–work load. → **Step 2** Check the cycle time. → **Step 3** Check the allowable moment.

Selection Example

Operating conditions

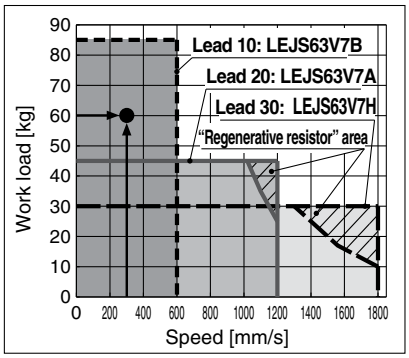
- Work load: 60 [kg]
- Speed: 300 [mm/s]
- Acceleration/Deceleration: 3000 [mm/s^2]
- Stroke: 300 [mm]
- Mounting orientation: Horizontal
- External force: 10 [N]
- Workpiece mounting condition:



Step 1 Check the speed–work load.

Select the product by referring to "Speed-Work Load Graph" (Page 42).
Selection example) The **LEJS63V7B-300** is temporarily selected based on the graph shown on the right side.

The regenerative resistor may be necessary.
Refer to page 42 for "Conditions for Regenerative Resistor (Guide)".



<Speed–Work load graph> (LEJS63)

Step 2 Check the cycle time.

Refer to method 1 for a rough estimate, and method 2 for a more precise value.

Method 1: Check the cycle time graph (Pages 43 and 44)

The graph is based on the maximum speed of each size.

Method 2: Calculation

Cycle time T can be found from the following equation.

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

- T1 and T3 can be obtained by the following equation.

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

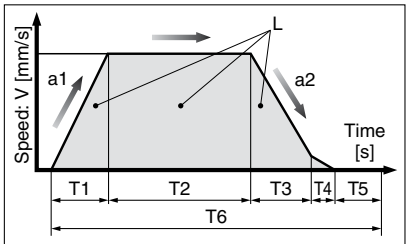
The acceleration and deceleration values have upper limits depending on the workpiece mass and the duty ratio.
Check that they do not exceed the upper limit, by referring to "Work load–Acceleration/Deceleration Graph (Guide)" (Pages 45 to 47).
For the ball screw type, there is an upper limit of the speed depending on the stroke. Check that if it does not exceed the upper limit, by referring to the specifications (Page 52).

- T2 can be found from the following equation.

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

- T4 varies depending on the motor type and load. The value below is recommended.

$$T4 = 0.05 \text{ [s]}$$



L : Stroke [mm]
V : Speed [mm/s]
a1: Acceleration [mm/s^2]

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 in position is completed
T5: Resting time [s]
Time the product is not running
T6: Total time [s]
Total time from T1 to T5

Duty ratio: Ratio of T to T6
T ÷ T6 x 100

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

$T1 = V/a1 = 300/3000 = 0.1$ [s],

$T3 = V/a2 = 300/3000 = 0.1$ [s]

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} = \frac{300 - 0.5 \cdot 300 \cdot (0.1 + 0.1)}{300} = 0.90 \text{ [s]}$$

$T4 = 0.05$ [s]

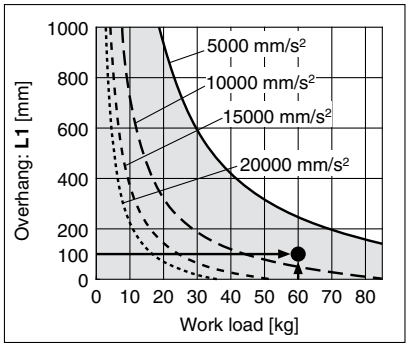
Therefore, the cycle time can be obtained as follows.

$T = T1 + T2 + T3 + T4$
$= 0.1 + 0.90 + 0.1 + 0.05$
$=$ **1.15 [s]**

Step 3 Check the allowable moment.

Refer to "Dynamic Allowable Moment" graphs (Pages 48 and 49).

Selection example) Select the **LEJS63V7B-300** from the graph on the right side.
Confirm that the external force is 20 [N] or less.
(The external force is the resistance due to cable duct, flexible trunking or air tubing.)

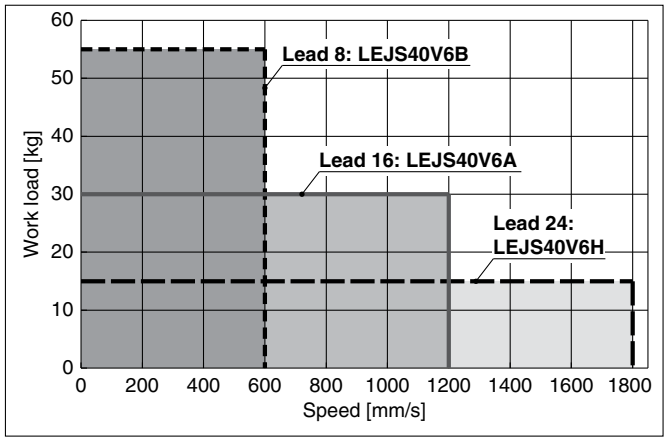


<Dynamic allowable moment> (LEJS63)

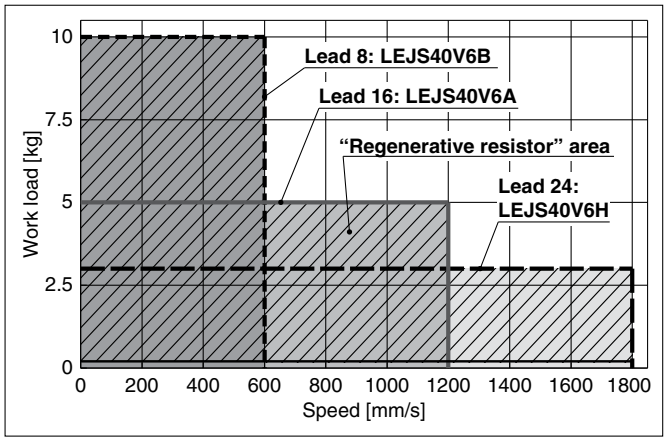
Speed–Work Load Graph/Conditions for "Regenerative Resistor" (Guide)

LEJS40V6□/Ball Screw Drive

Horizontal

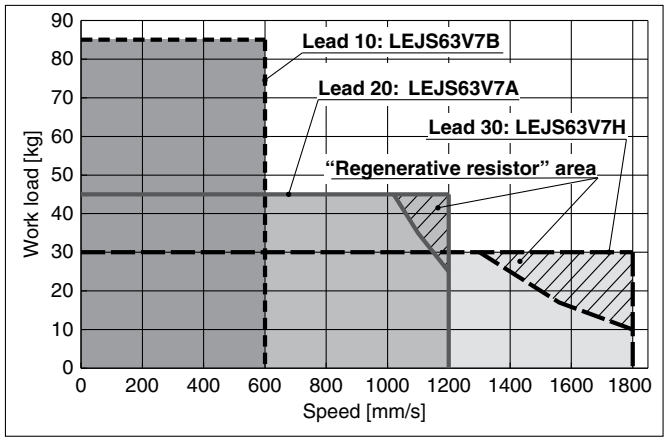


Vertical

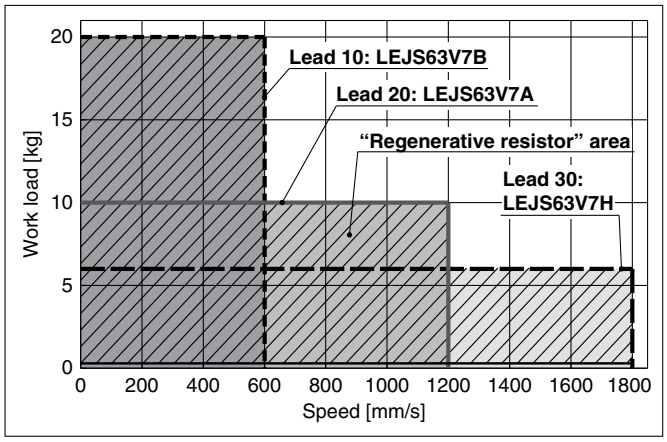


LEJS63V7□/Ball Screw Drive

Horizontal

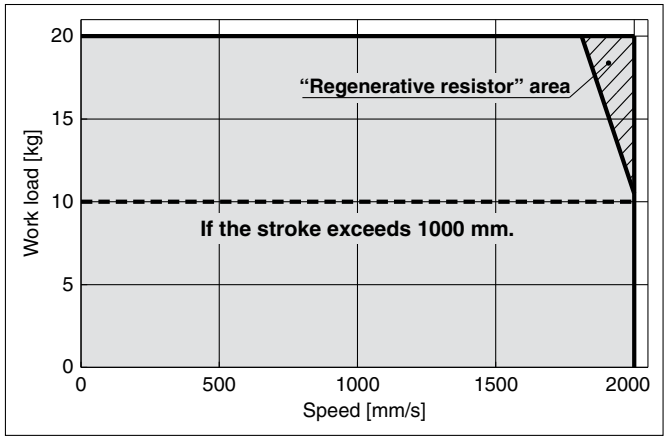


Vertical



LEJB40V6T/Belt Drive

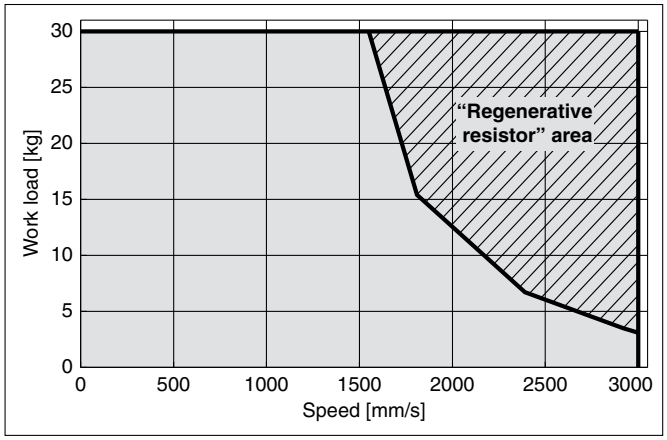
Horizontal



∗ When the stroke of the LEJB40 series exceeds 1000 mm, the work load is 10 kg.

LEJB63V7T/Belt Drive

Horizontal



"Regenerative resistor" area

∗ When using the actuator in the "Regenerative resistor" area, download the "AC servo capacity selection program/SigmaJunmaSize+" from the SMC website. Then, calculate the necessary regenerative resistor capacity to prepare an appropriate external regenerative resistor.
∗ Regenerative resistor should be provided by the customer.

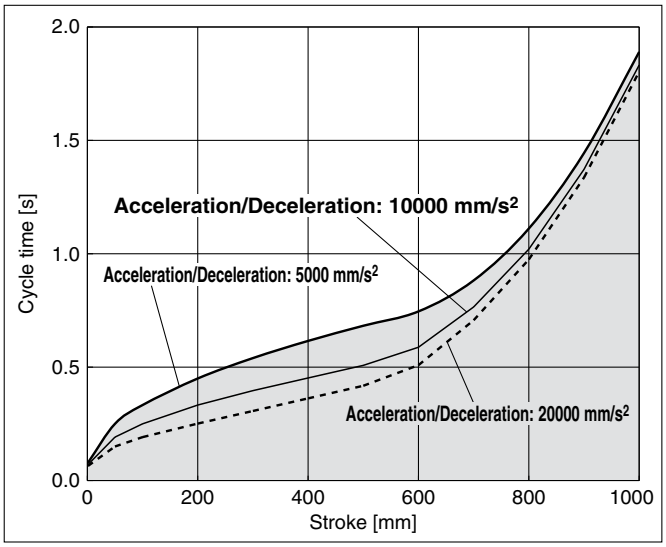
Applicable Motor/Driver

Model	Applicable model	
	Motor	Servopack (SMC driver)
LEJ□40□	SGMJV-01A3A	SGDV-R90A11□ (LECYM2-V5) SGDV-R90A21□ (LECYU2-V5)
LEJ□63□	SGMJV-02A3A	SGDV-1R6A11□ (LECYM2-V7) SGDV-1R6A21□ (LECYU2-V7)

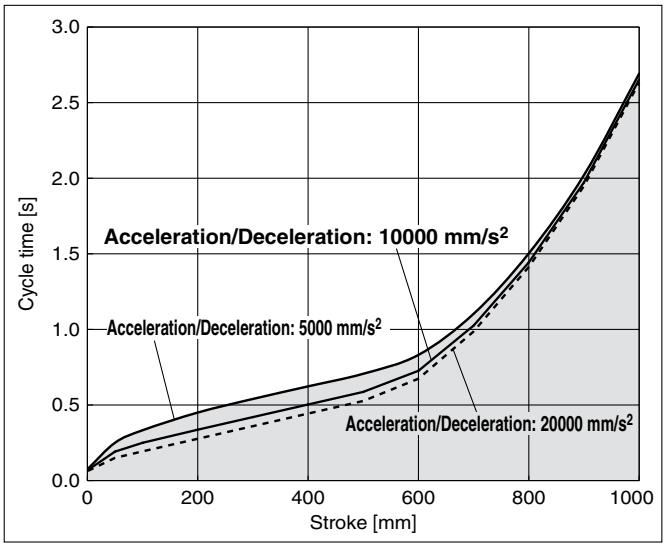
Cycle Time Graph (Guide)

LEJS40/Ball Screw Drive

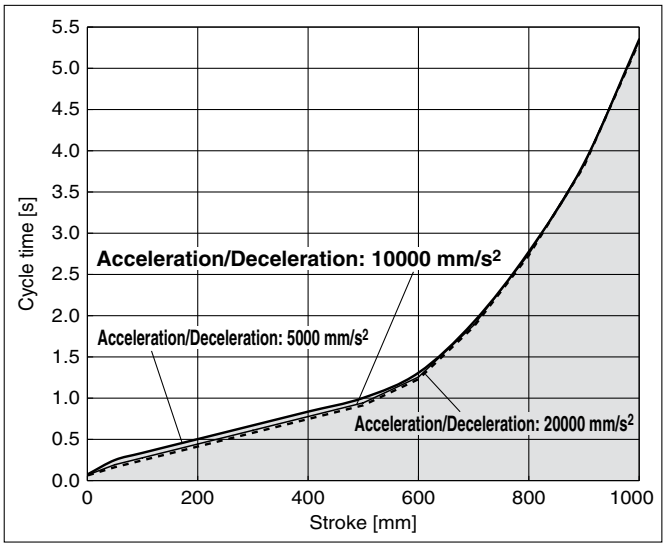
LEJS40□H



LEJS40□A

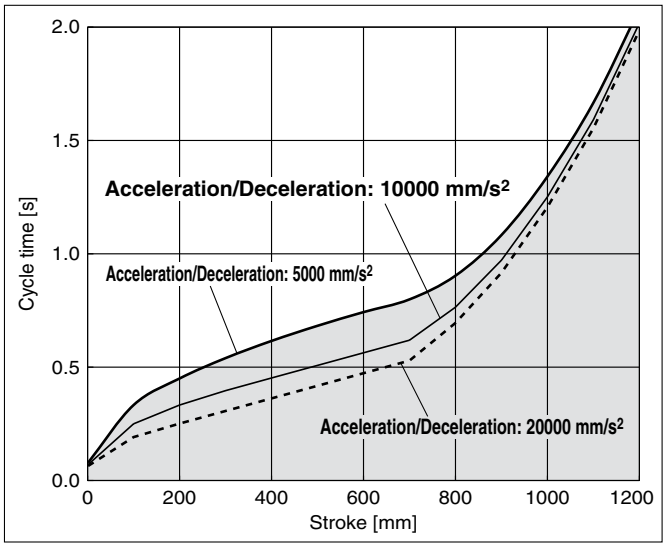


LEJS40□B

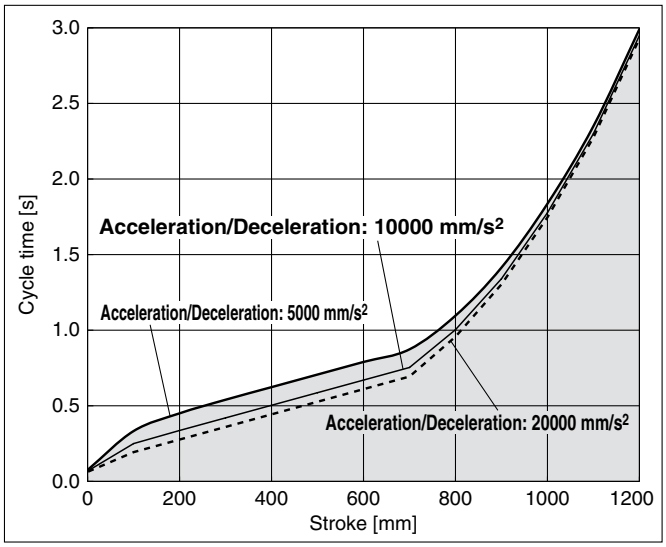


LEJS63/Ball Screw Drive

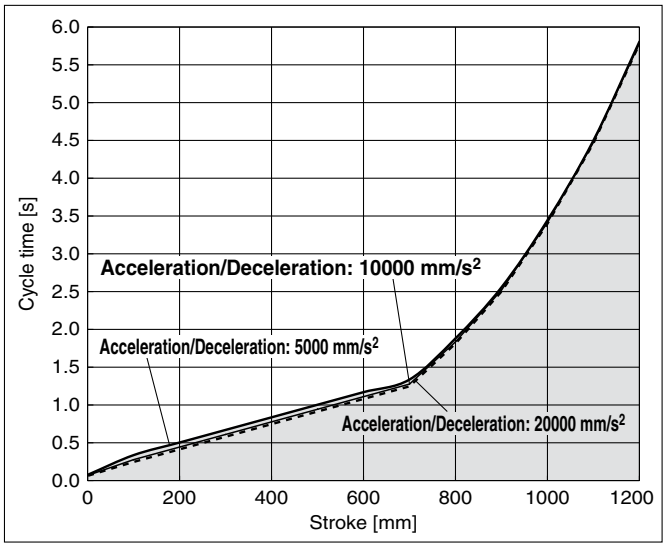
LEJS63□H



LEJS63□A



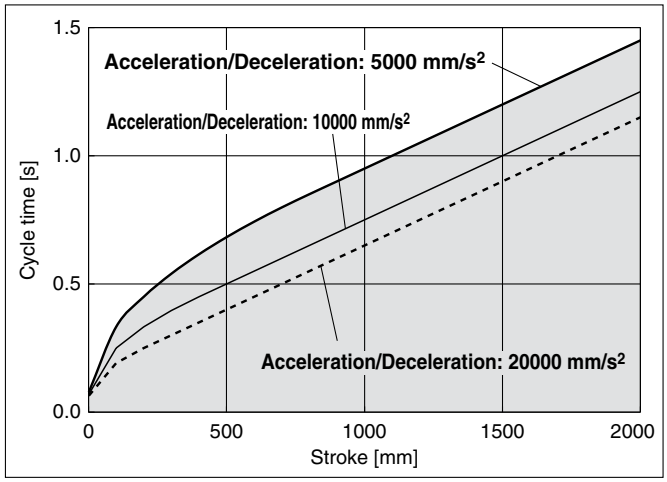
LEJS63□B



∗ Work load/acceleration/deceleration graph
∗ Maximum speed/acceleration/deceleration values graph for each stroke

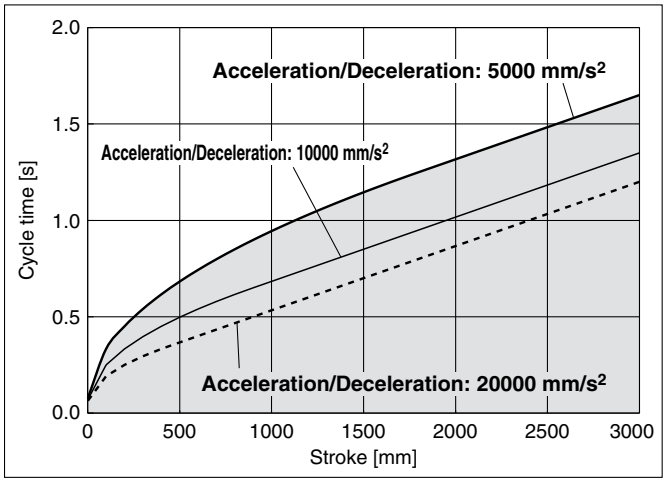
Cycle Time Graph (Guide)

LEJB40/Belt Drive



∗ Work load/acceleration/deceleration graph
∗ Maximum speed/acceleration/deceleration values graph for each stroke

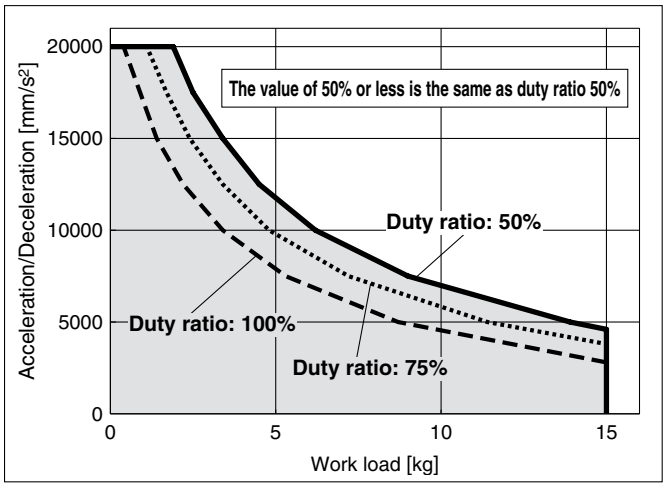
LEJB63/Belt Drive



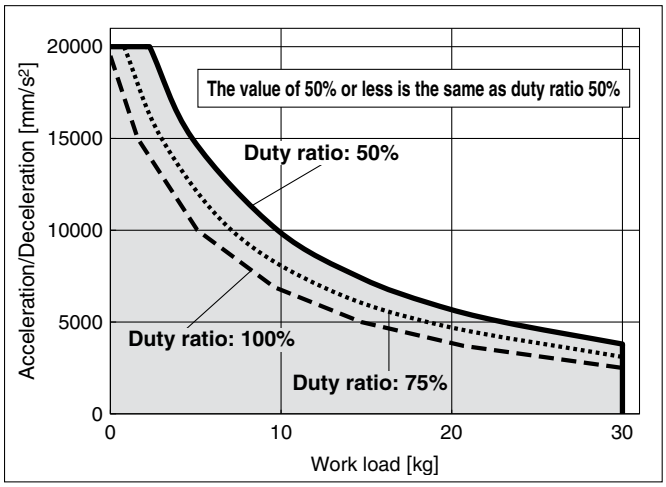
Work Load–Acceleration/Deceleration Graph (Guide)

LEJS40/Ball Screw Drive: Horizontal

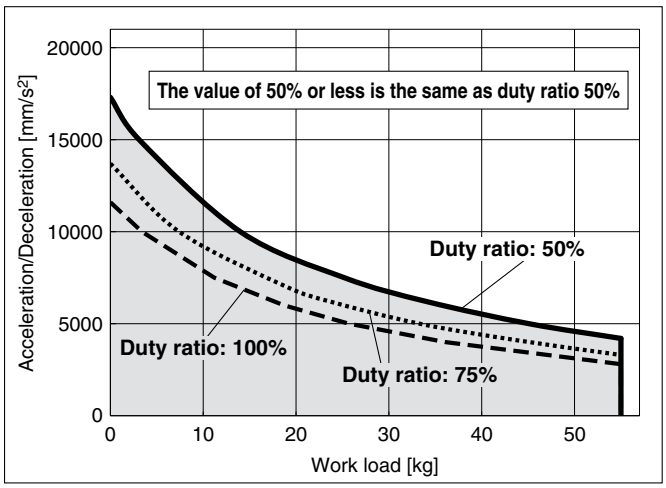
LEJS40□H



LEJS40□A

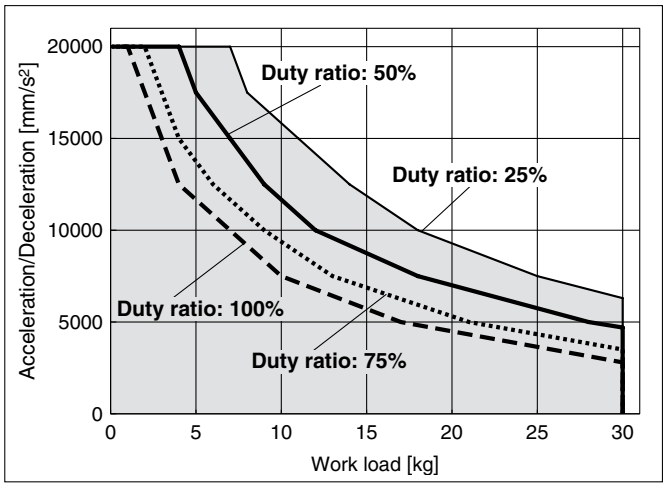


LEJS40□B

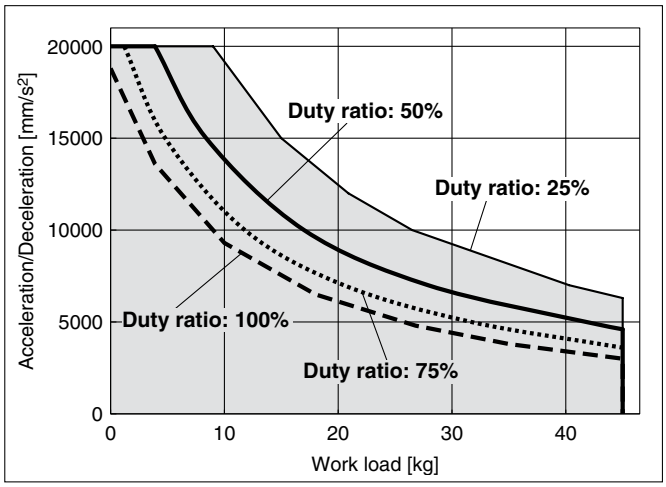


LEJS63/Ball Screw Drive: Horizontal

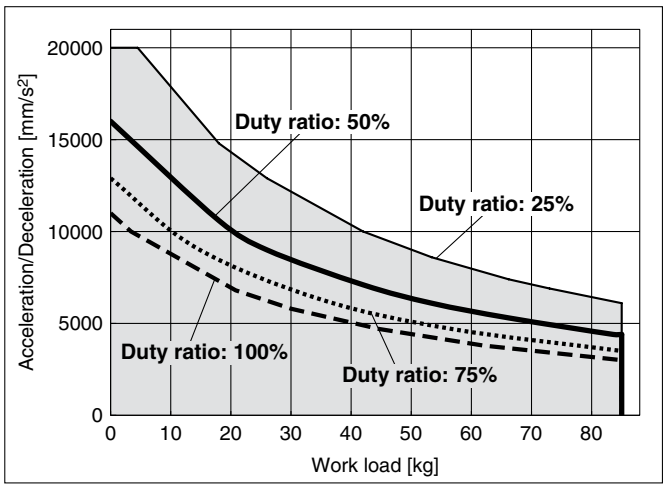
LEJS63□H



LEJS63□A



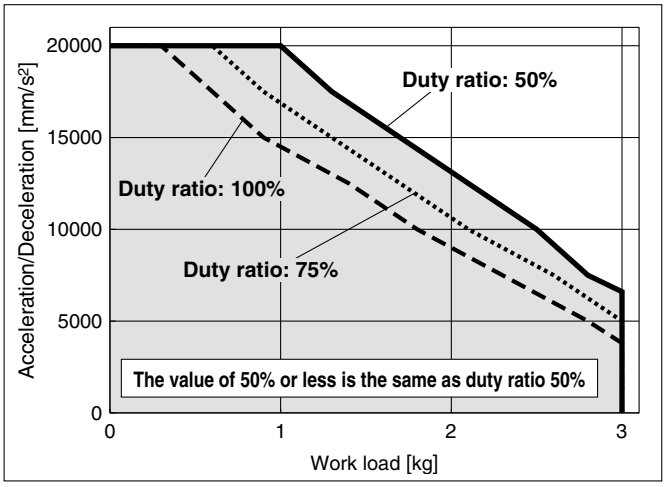
LEJS63□B



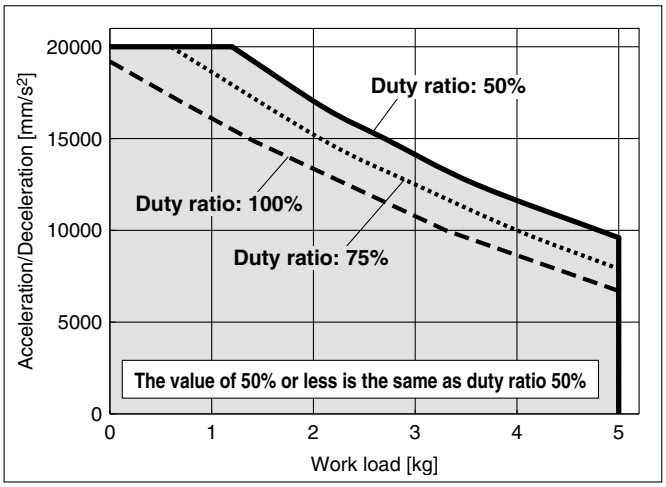
Work Load–Acceleration/Deceleration Graph (Guide)

LEJS40/Ball Screw Drive: Vertical

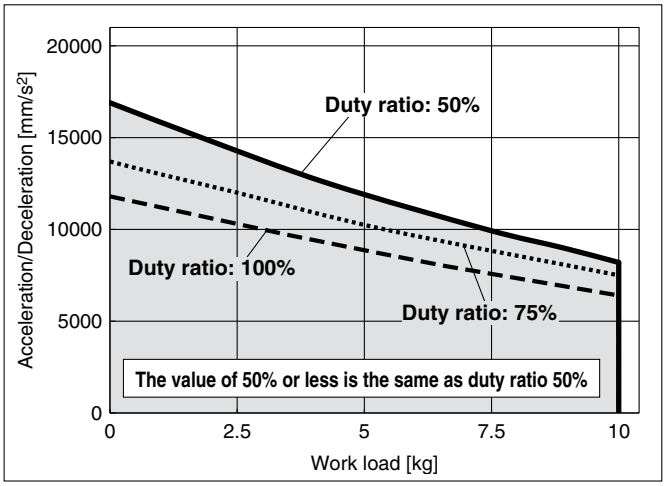
LEJS40□H



LEJS40□A

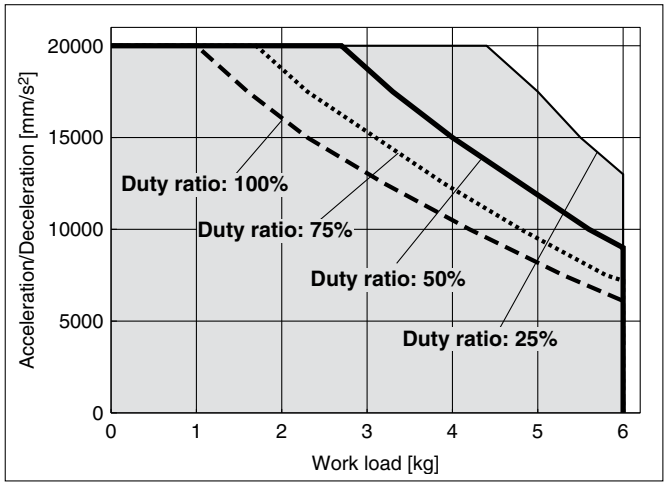


LEJS40□B

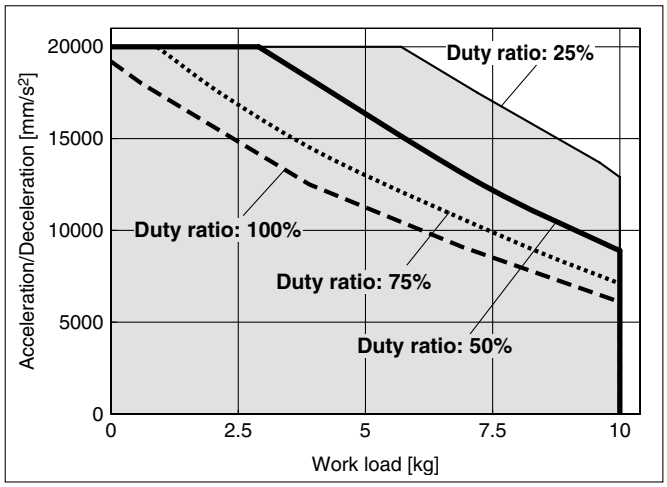


LEJS63/Ball Screw Drive: Vertical

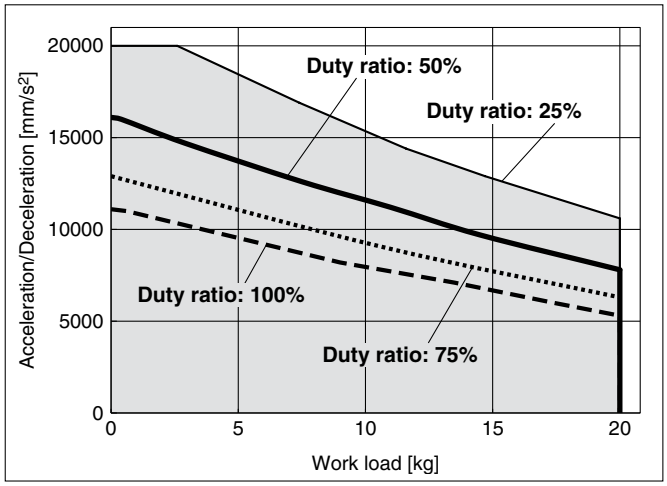
LEJS63□H



LEJS63□A

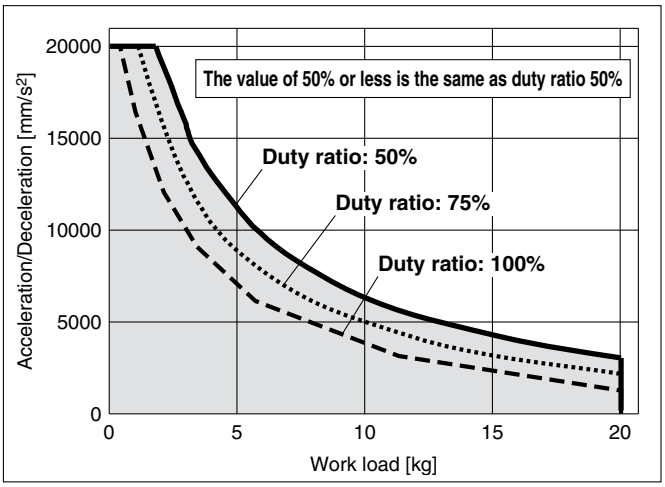


LEJS63□B

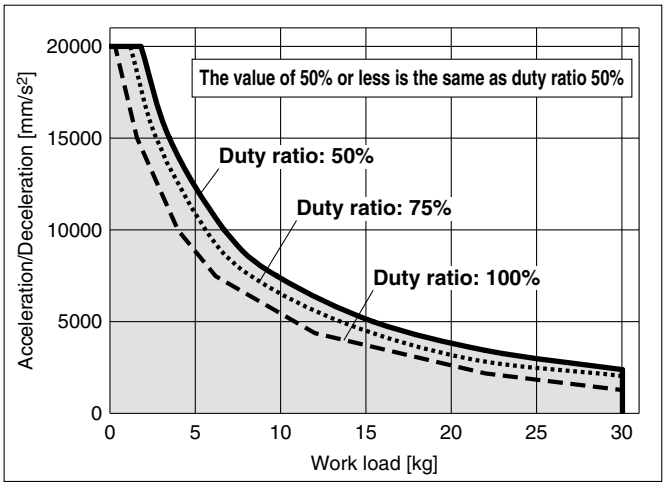


Work Load–Acceleration/Deceleration Graph (Guide)

LEJB40/Belt Drive: Horizontal



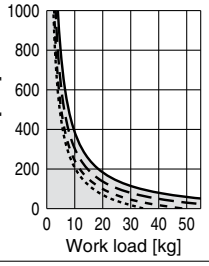
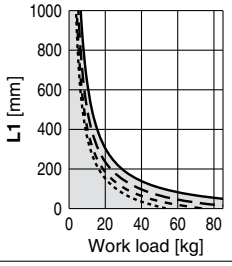
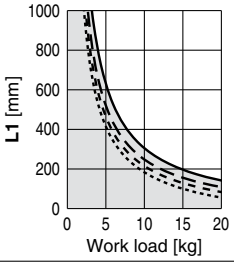
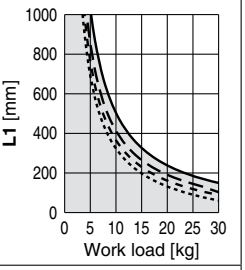
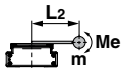
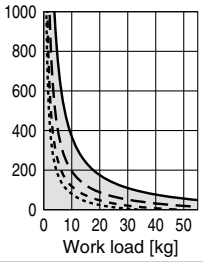
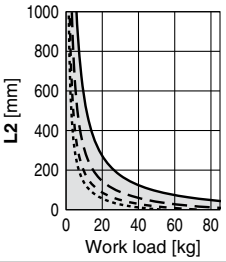
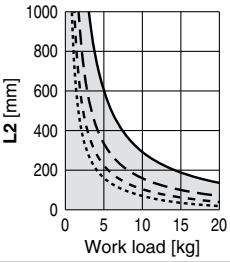
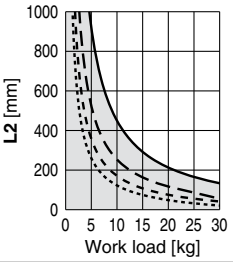
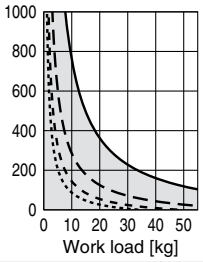
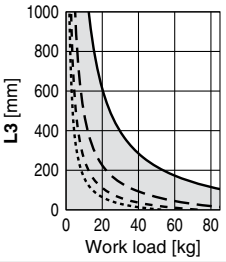
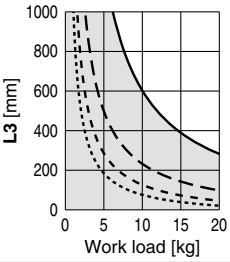
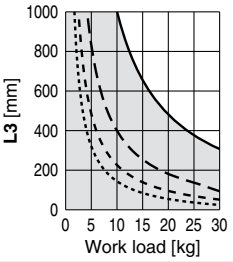
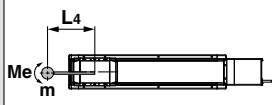
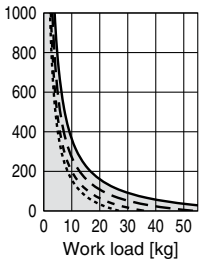
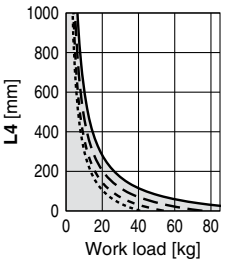
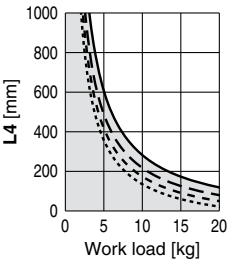
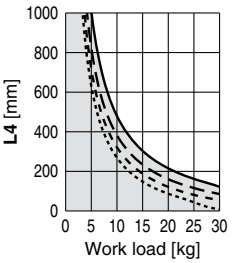
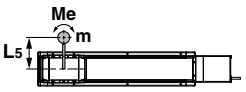
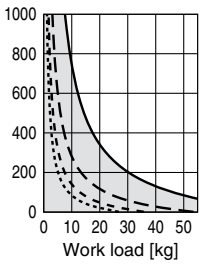
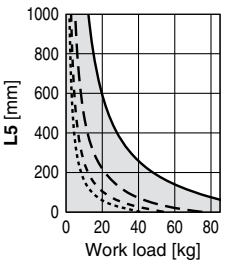
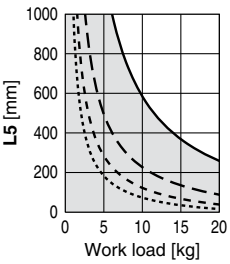
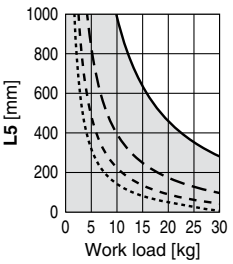
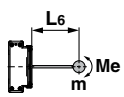
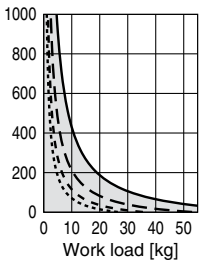
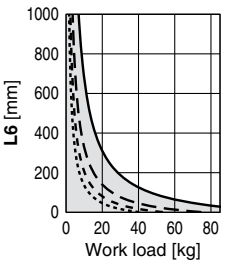
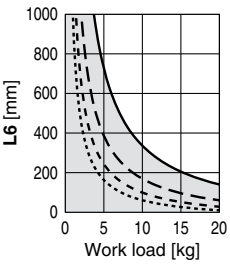
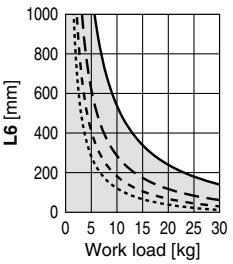
LEJB63/Belt Drive: Horizontal



Dynamic Allowable Moment

* This graph shows the amount of allowable overhang when the center of gravity of the workpiece overhangs in one direction. When the center of gravity of the workpiece overhangs in two directions, refer to the Electric Actuator Selection Software for confirmation, http://www.smcworld.com

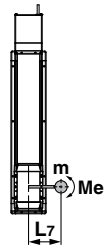
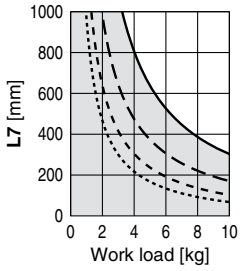
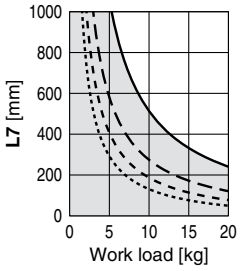
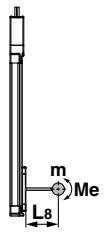
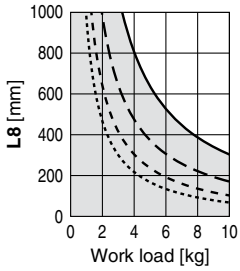
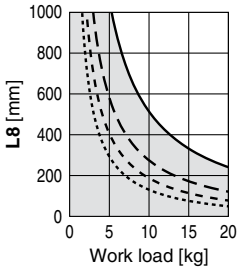
Acceleration/Deceleration —— 5000 mm/s² - - - 10000 mm/s² - - - - 15000 mm/s² ····· 20000 mm/s²

Orientation	Load overhanging direction **m**: Work load [kg] **Me**: Dynamic allowable moment [N·m] **L**: Overhang to the work load center of gravity [mm]		Model			
			LEJS40	**LEJS63**	**LEJB40**	**LEJB63**
Horizontal/Bottom		X				
		Y				
		Z				
Wall		X				
		Y				
		Z				

Dynamic Allowable Moment

* This graph shows the amount of allowable overhang when the center of gravity of the workpiece overhangs in one direction. When the center of gravity of the workpiece overhangs in two directions, refer to the Electric Actuator Selection Software for confirmation, http://www.smcworld.com

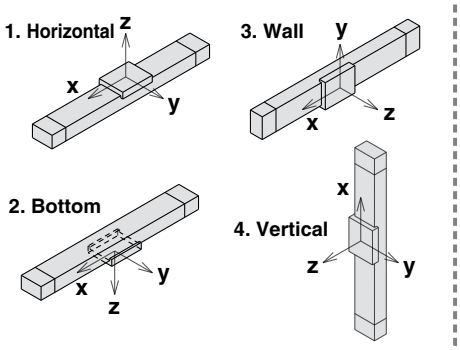
Acceleration/Deceleration —— 5000 mm/s² – – – 10000 mm/s² - - - - 15000 mm/s² ····· 20000 mm/s²

Orientation	Load overhanging direction **m** : Work load [kg] **Me**: Dynamic allowable moment [N·m] **L** :Overhang to the work load center of gravity [mm]		Model LEJS40	Model LEJS63
Vertical		Y		
		Z		

Calculation of Guide Load Factor

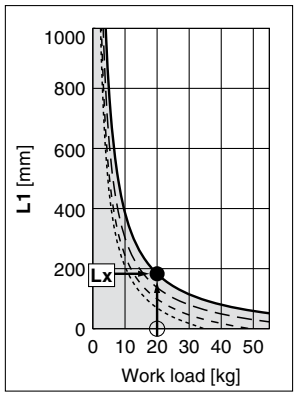
1. Decide operating conditions.
   Model: LEJS/LEJB
   Size: 40/63
   Mounting orientation: Horizontal/Bottom/Wall/Vertical
   Acceleration [mm/s²]: **a**
   Work load [kg]: **m**
   Work load center position [mm]: **Xc/Yc/Zc**
2. Select the target graph with reference to the model, size and mounting orientation.
3. Based on the acceleration and work load, obtain the overhang [mm]: **Lx/Ly/Lz** from the graph.
4. Calculate the load factor for each direction.
   α**x = Xc/Lx**, α**y = Yc/Ly**, α**z = Zc/Lz**
5. Confirm the total of α**x**, α**y** and α**z** is 1 or less.
   α**x** + α**y** + α**z** ≤**1**
   When 1 is exceeded, please consider a reduction of acceleration and work load, or a change of the work load center position and series.

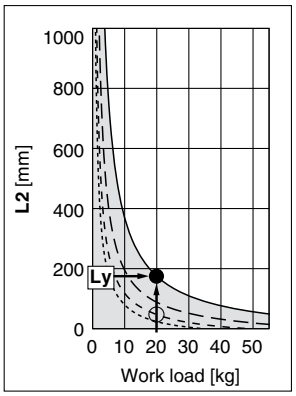
Mounting orientation



Example

1. Operating conditions
   Model: LEJS
   Size: 40
   Mounting orientation: Horizontal
   Acceleration [mm/s²]: 5000
   Work load [kg]: 20
   Work load center position [mm]: **Xc = 0**, **Yc = 50**, **Zc = 200**
2. Select the graph on page 48, top and left side first row.
3. **Lx = 180 mm**, **Ly = 170 mm**, **Lz = 360 mm**
4. The load factor for each direction can be obtained as follows.
   α**x = 0/180 = 0**
   α**y = 50/170 = 0.29**
   α**z = 200/360 = 0.56**





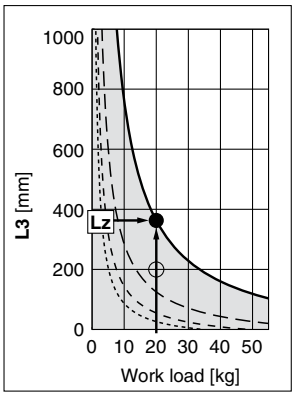
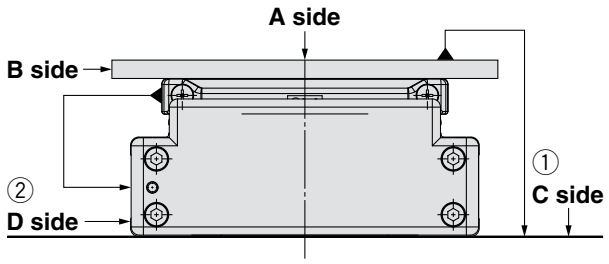


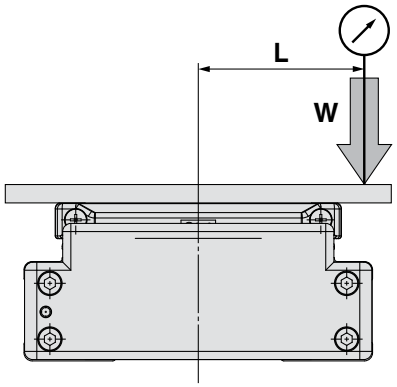
Table Accuracy (Reference Value)

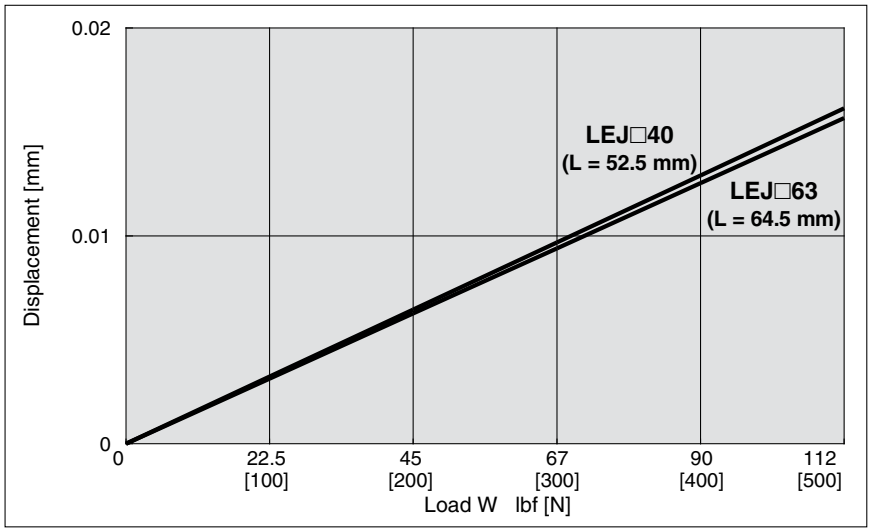


Model	Traveling parallelism [mm] (Every 300 mm)	
	① C side traveling parallelism to A side	② D side traveling parallelism to B side
LEJ□40	0.05	0.03
LEJ□63	0.05	0.03

Note) Traveling parallelism does not include the mounting surface accuracy.

Table Displacement (Reference Value)





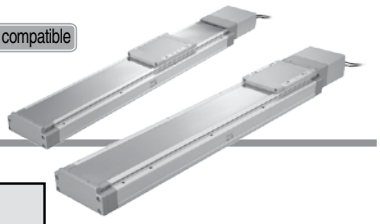
Note) This displacement is measured when a 15 mm aluminum plate is mounted and fixed on the table. (Table clearance is included.)

Electric Actuator/High Rigidity Slider Type
Ball Screw Drive AC Servo Motor

Series LEJS

Clean room compatible | Secondary battery compatible

Consult with SMC for details.



How to Order

LEJS 40 V6 A – 500 □ – □ □ □ □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

❶ Size

40
63

❷ Motor type *1

Symbol	Type	Output [W]	Actuator size	Compatible driver
V6	AC servo motor (Absolute encoder)	100	40	LECYM2-V5 LECYU2-V5
V7	AC servo motor (Absolute encoder)	200	63	LECYM2-V7 LECYU2-V7

*1: For motor type V6, the compatible driver part number suffix is V5.

❸ Lead [mm]

Symbol	LEJS40	LEJS63
H	24	30
A	16	20
B	8	10

❹ Stroke [mm] *2

200
to
1500

*2: Refer to the table below for details.

❺ Motor option

Nil	Without option
B	With lock

❻ Cable type *4, *5

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

*5: The motor and encoder cables are included. (The lock cable is included when the motor with lock option is selected.)

❼ Cable length [m] *4, *6

Nil	Without cable
3	3 m
5	5 m
A	10 m
C	20 m

*6: The length of the motor, encoder and lock cables are the same.

❽ Driver type *4

	Compatible driver	Power supply voltage [V]
Nil	Without driver	—
M2	LECYM2-V□	200 to 230
U2	LECYU2-V□	200 to 230

❾ I/O connector

Nil	Without connector
H	With connector

*4: When the driver type is selected, the cable is included. Select cable type and cable length.

Applicable Stroke Table *3

●: Standard

Model \ Stroke (mm)	200	300	400	500	600	700	800	900	1000	1200	1500
LEJS40	●	●	●	●	●	●	●	●	●	●	—
LEJS63	—	●	●	●	●	●	●	●	●	●	●

*3: Please consult with SMC for non-standard strokes as they are produced as special orders.

For auto switches, refer to pages 61 to 63.

Compatible Drivers

Driver type	MECHATROLINK-Ⅱ type 	MECHATROLINK-Ⅲ type 
Series	LECYM	LECYU
Applicable network	MECHATROLINK-Ⅱ	MECHATROLINK-Ⅲ
Control encoder	Absolute 20-bit encoder	
Communication device	USB communication, RS-422 communication	
Power supply voltage (V)	200 to 230 VAC (50/60 Hz)	
Reference page	Page 103	

Specifications

LEJS40/63 AC Servo Motor (100/200 W)

Model				LEJS40V6			LEJS63V7		
Actuator specifications	Stroke [mm] Note 1)			200, 300, 400, 500, 600, 700, 800 900, 1000, 1200			300, 400, 500, 600, 700, 800, 900 1000, 1200, 1500		
	Work load [kg] Note 2)		Horizontal	15	30	55	30	45	85
			Vertical	3	5	10	6	10	20
	Speed Note 3) [mm/s]	Stroke range	Up to 500	1800	1200	600	1800	1200	600
			501 to 600	1580	1050	520	1800	1200	600
			601 to 700	1170	780	390	1800	1200	600
			701 to 800	910	600	300	1390	930	460
			801 to 900	720	480	240	1110	740	370
			901 to 1000	580	390	190	900	600	300
			1001 to 1100	480	320	160	750	500	250
			1101 to 1200	410	270	130	630	420	210
			1201 to 1300	—	—	—	540	360	180
			1301 to 1400	—	—	—	470	310	150
			1401 to 1500	—	—	—	410	270	130
	Max. acceleration/deceleration [mm/s²]			20000 (Refer to pages 45 to 47 for limit according to work load and duty ratio.)					
	Positioning repeatability [mm] Note 4)			±0.02					
	Lost motion [mm] Note 5)			0.1 or less					
	Lead [mm]			24	16	8	30	20	10
	Impact/Vibration resistance [m/s²] Note 6)			50/20					
	Actuation type			Ball screw					
	Guide type			Linear guide					
	Operating temperature range			41 to 104°F (5 to 40°C)					
	Operating humidity range [%RH]			90 or less (No condensation)					
	Regenerative resistor			May be required depending on speed and work load. (Refer to page 42.)					
Electric specifications	Motor output [W]/Size [mm]			100/□40			200/□60		
	Motor type			AC servo motor (200 VAC)					
	Encoder			Absolute 20-bit encoder (Resolution: 1048576 p/rev)					
	Power consumption Note 7) [W]		Horizontal	65			80		
			Vertical	165			235		
	Standby power consumption when operating [W] Note 8)		Horizontal	2			2		
			Vertical	10			12		
	Max. instantaneous power consumption [W] Note 9)			445			725		
Lock unit specifications	Type Note 10)			Non-magnetizing lock					
	Holding force lbf [N]			15 [67]	23 [101]	45 [202]	24 [108]	36 [162]	73 [324]
	Power consumption at 68°F (20°C) [W] Note 11)			5.5			6		
	Rated voltage [V]			24 VDC $^{0}_{-10\%}$					

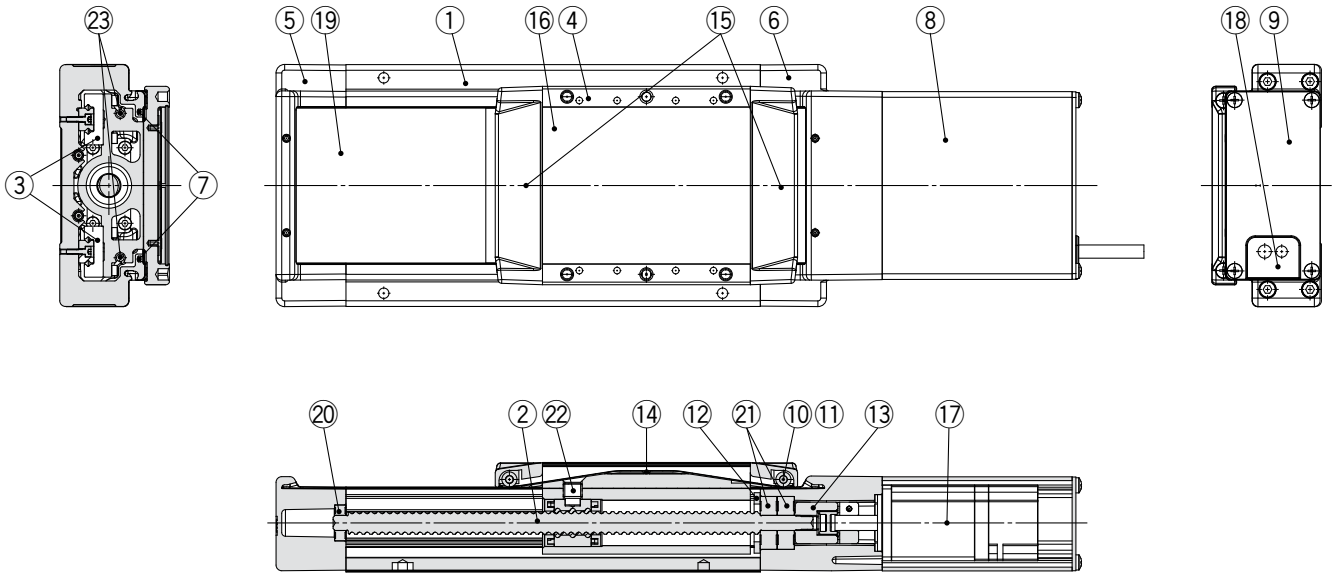
Note 1) Please consult with SMC for non-standard strokes as they are produced as special orders.
Note 2) Check "Speed–Work Load Graph (Guide)" on page 42.
Note 3) The allowable speed changes according to the stroke.
Note 4) Conforming to JIS B 6191-1999
Note 5) A reference value for correcting an error in reciprocal operation.
Note 6) 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 7) The power consumption (including the driver) is for when the actuator is operating.
Note 8) The standby power consumption when operating (including the driver) is for when the actuator is stopped in the set position during the operation.
Note 9) The maximum instantaneous power consumption (including the driver) is for when the actuator is operating.
Note 10) Only when motor option "With lock" is selected.
Note 11) For an actuator with lock, add the power consumption for the lock.
Note 12) Sensor magnet position is located in the table center. For detailed dimensions, refer to "Auto Switch Mounting Position".
Note 13) Do not allow collisions at either end of the table traveling distance. Additionally, when running the positioning operation, do not set within 2 mm of both ends.
Note 14) For the manufacture of intermediate strokes, please contact SMC. (LEJS40/Manufacturable stroke range: 200 to 1200 mm, LEJS63/ Manufacturable stroke range: 300 to 1500 mm)

Weight

Model	LEJS40									
Stroke [mm]	200	300	400	500	600	700	800	900	1000	1200
Product weight [kg]	5.6	6.4	7.1	7.9	8.7	9.4	10.2	11.0	11.7	13.3
Additional weight with lock [kg]	0.3 (Absolute encoder)									

Model	LEJS63									
Stroke [mm]	300	400	500	600	700	800	900	1000	1200	1500
Product weight [kg]	11.4	12.7	13.9	15.2	16.4	17.7	18.9	20.1	22.6	26.4
Additional weight with lock [kg]	0.7 (Absolute encoder)									

Construction



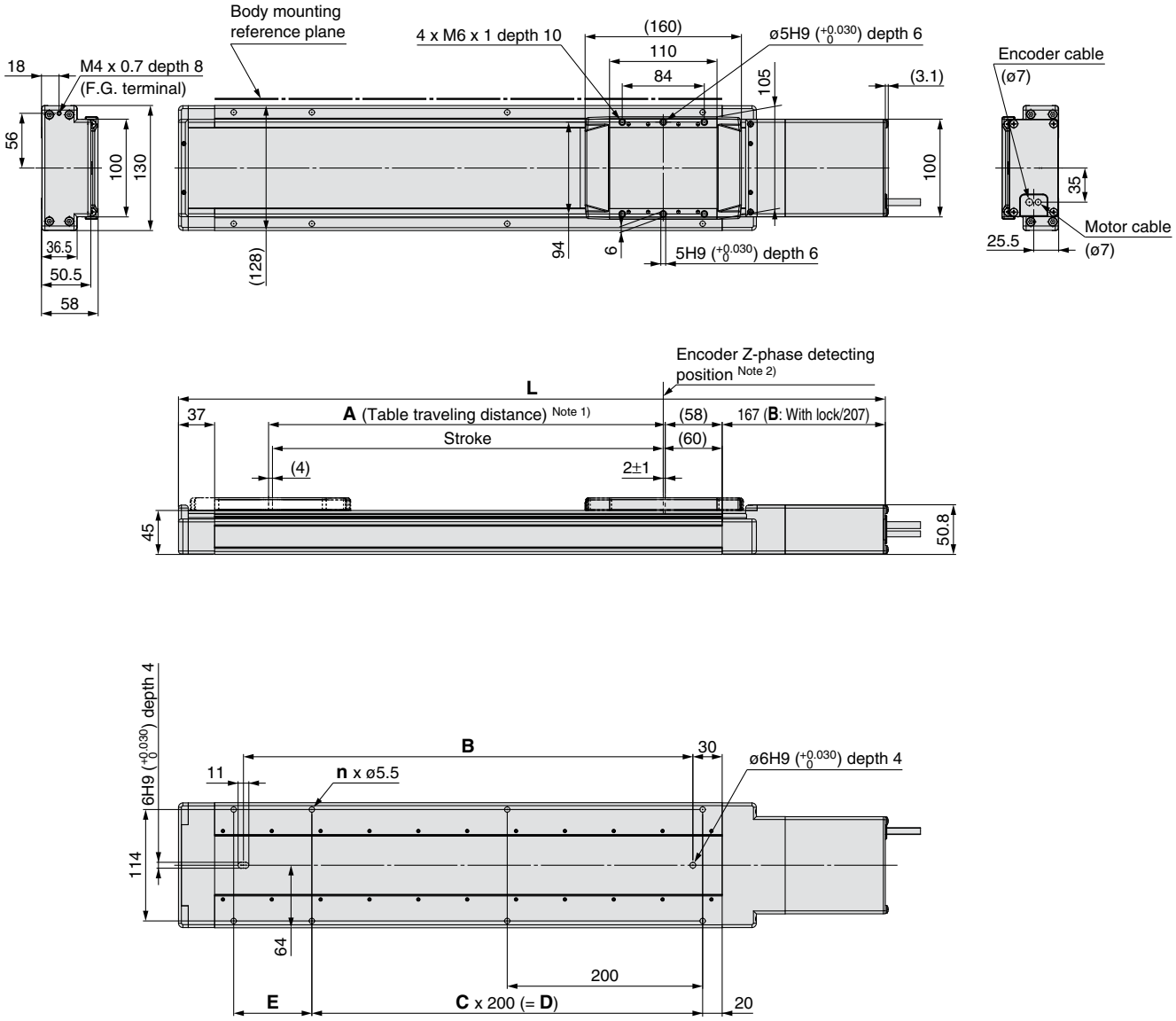
Component Parts

No	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Ball screw assembly**	—	
3	**Linear guide assembly**	—	
4	**Table**	Aluminum alloy	Anodized
5	**Housing A**	Aluminum alloy	Coating
6	**Housing B**	Aluminum alloy	Coating
7	**Seal magnet**	—	
8	**Motor cover**	Aluminum alloy	Anodized
9	**End cover A**	Aluminum alloy	Anodized
10	**Roller shaft**	Stainless steel	
11	**Roller**	Synthetic resin	
12	**Bearing stopper**	Carbon steel	

No	Description	Material	Note
13	**Coupling**	—	
14	**Table cap**	Synthetic resin	
15	**Seal band stopper**	Synthetic resin	
16	**Blanking plate**	Aluminum alloy	Anodized
17	**Motor**	—	
18	**Grommet**	NBR	
19	**Dust seal band**	Stainless steel	
20	**Bearing**	—	
21	**Bearing**	—	
22	**Nut fixing pin**	Carbon steel	
23	**Magnet**	—	

Dimensions: Ball Screw Drive

LEJS40



Note 1) Distance 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) The Z-phase first detecting position from the stroke end of the motor side

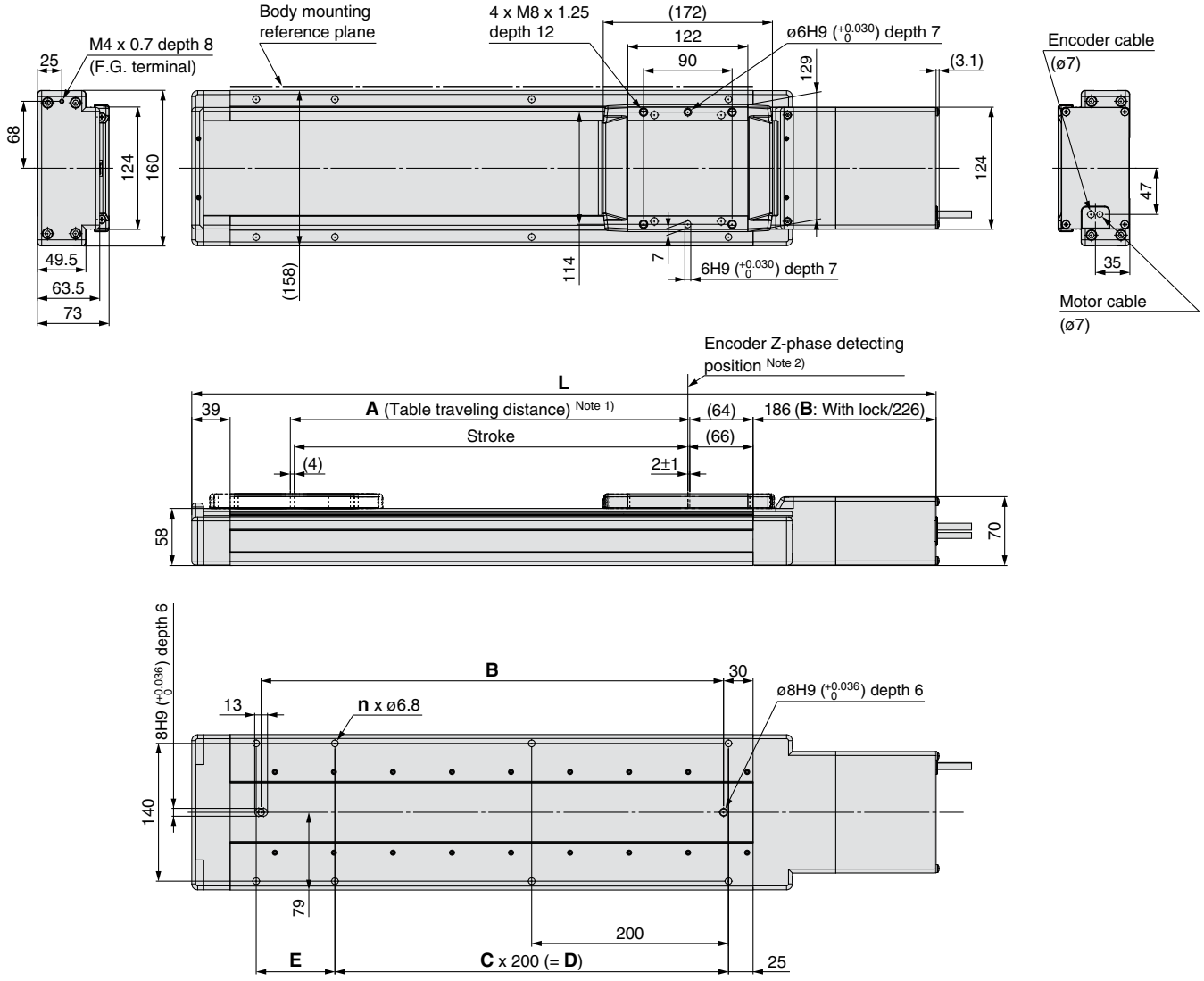
Note 3) Auto switch magnet is located in the table center.

[mm]

Model	L		A	B	n	C	D	E
	Without lock	With lock						
LEJS40V□□-200□-□□□□	523.5	563.5	206	260	6	1	200	80
LEJS40V□□-300□-□□□□	623.5	663.5	306	360	6	1	200	180
LEJS40V□□-400□-□□□□	723.5	763.5	406	460	8	2	400	80
LEJS40V□□-500□-□□□□	823.5	863.5	506	560	8	2	400	180
LEJS40V□□-600□-□□□□	923.5	963.5	606	660	10	3	600	80
LEJS40V□□-700□-□□□□	1023.5	1063.5	706	760	10	3	600	180
LEJS40V□□-800□-□□□□	1123.5	1163.5	806	860	12	4	800	80
LEJS40V□□-900□-□□□□	1223.5	1263.5	906	960	12	4	800	180
LEJS40V□□-1000□-□□□□	1323.5	1363.5	1006	1060	14	5	1000	80
LEJS40V□□-1200□-□□□□	1523.5	1563.5	1206	1260	16	6	1200	80

Dimensions: Ball Screw Drive

LEJS63



Note 1) Distance 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) The Z-phase first detecting position from the stroke end of the motor side

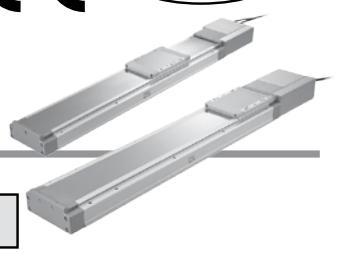
Note 3) Auto switch magnet is located in the table center.

[mm]

Model	L		A	B	n	C	D	E
	Without lock	With lock						
LEJS63V□□-300□-□□□□	656.5	696.5	306	370	6	1	200	180
LEJS63V□□-400□-□□□□	756.5	796.5	406	470	8	2	400	80
LEJS63V□□-500□-□□□□	856.5	896.5	506	570	8	2	400	180
LEJS63V□□-600□-□□□□	956.5	996.5	606	670	10	3	600	80
LEJS63V□□-700□-□□□□	1056.5	1096.5	706	770	10	3	600	180
LEJS63V□□-800□-□□□□	1156.5	1196.5	806	870	12	4	800	80
LEJS63V□□-900□-□□□□	1256.5	1296.5	906	970	12	4	800	180
LEJS63V□□-1000□-□□□□	1356.5	1396.5	1006	1070	14	5	1000	80
LEJS63V□□-1200□-□□□□	1556.5	1596.5	1206	1270	16	6	1200	80
LEJS63V□□-1500□-□□□□	1856.5	1896.5	1506	1570	18	7	1400	180

Electric Actuator/High Rigidity Slider Type
Belt Drive AC Servo Motor

Series LEJB



How to Order

LEJB **40** **V6** **T** – **500** □ – □ □ □ □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

❶ Size

40
63

❷ Motor type *1

Symbol	Type	Output [W]	Actuator size	Compatible driver
V6	AC servo motor (Absolute encoder)	100	40	LECYM2-V5 LECYU2-V5
V7	AC servo motor (Absolute encoder)	200	63	LECYM2-V7 LECYU2-V7

*1: For motor type V6, the compatible driver part number suffix is V5.

❸ Lead [mm]

Symbol	LEJB40	LEJB63
T	27	42

❹ Stroke [mm] *2

200
to
3000

*2: Refer to the table below for details.

❺ Motor option

Nil	Without option
B	With lock

❻ Cable type *4, *5

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

*5: The motor and encoder cables are included. (The lock cable is included when the motor with lock option is selected.)

❼ Cable length [m] *4, *6

Nil	Without cable
3	3 m
5	5 m
A	10 m
C	20 m

*6: The length of the motor, encoder and lock cables are the same.

❽ Driver type *4

	Compatible driver	Power supply voltage [V]
Nil	Without driver	—
M2	LECYM2-V□	200 to 230
U2	LECYU2-V□	200 to 230

❾ I/O connector

Nil	Without connector
H	With connector

Applicable Stroke Table *3

●: Standard

Model \ Stroke (mm)	200	300	400	500	600	700	800	900	1000	1200	1500	2000	3000
LEJB40	●	●	●	●	●	●	●	●	●	●	●	●	—
LEJB63	—	●	●	●	●	●	●	●	●	●	●	●	●

*3: Please consult with SMC for non-standard strokes as they are produced as special orders.

*4: When the driver type is selected, the cable is included. Select cable type and cable length.

For auto switches, refer to pages 61 to 63.

Compatible Drivers

Driver type	MECHATROLINK-Ⅱ type 	MECHATROLINK-Ⅲ type 
Series	**LECYM**	**LECYU**
Applicable network	MECHATROLINK-Ⅱ	MECHATROLINK-Ⅲ
Control encoder	Absolute 20-bit encoder	
Communication device	USB communication, RS-422 communication	
Power supply voltage (V)	200 to 230 VAC (50/60 Hz)	
Reference page	Page 103	

Specifications

LEJB40/63 AC Servo Motor

Model			LEJB40V6	LEJB63V7
Actuator specifications	Stroke [mm] Note 1)		200, 300, 400, 500, 600, 700, 800 900, 1000, 1200, 1500, 2000	300, 400, 500, 600, 700, 800 900, 1000, 1200, 1500, 2000, 3000
	Work load [kg]	Horizontal	20 (If the stroke exceeds 1000 mm: 10)	30
	Speed [mm/s] Note 2)		2000	3000
	Max. acceleration/deceleration [mm/s²]		20000 (Refer to pages 45 to 47 for limit according to work load and duty ratio.)	
	Positioning repeatability [mm] Note 3)		±0.04	
	Lost motion [mm] Note 4)		0.1 or less	
	Lead [mm]		27	42
	Impact/Vibration resistance [m/s²] Note 5)		50/20	
	Actuation type		Belt	
	Guide type		Linear guide	
	Allowable external force lbf [N]		4.5 [20]	
	Operating temperature range		41 to 104°F (5 to 40°C)	
	Operating humidity range [%RH]		90 or less (No condensation)	
	Regenerative resistor		May be required depending on speed and work load. (Refer to page 42.)	
Electric specifications	Motor output [W]/Size [mm]		100/□40	200/□60
	Motor type		AC servo motor (200 VAC)	
	Encoder		Absolute 20-bit encoder (Resolution: 1048576 p/rev)	
	Power consumption [W] Note 6)	Horizontal	65	190
		Vertical	—	—
	Standby power consumption when operating [W] Note 7)	Horizontal	2	2
		Vertical	—	—
	Max. instantaneous power consumption [W] Note 8)		445	725
Lock unit specifications	Type Note 9)		Non-magnetizing lock	
	Holding force lbf [N]		13 [59]	17 [77]
	Power consumption at 68°F (20°C) [W] Note 10)		5.5	6
	Rated voltage [V]		24 VDC $^{0}_{-10\%}$	

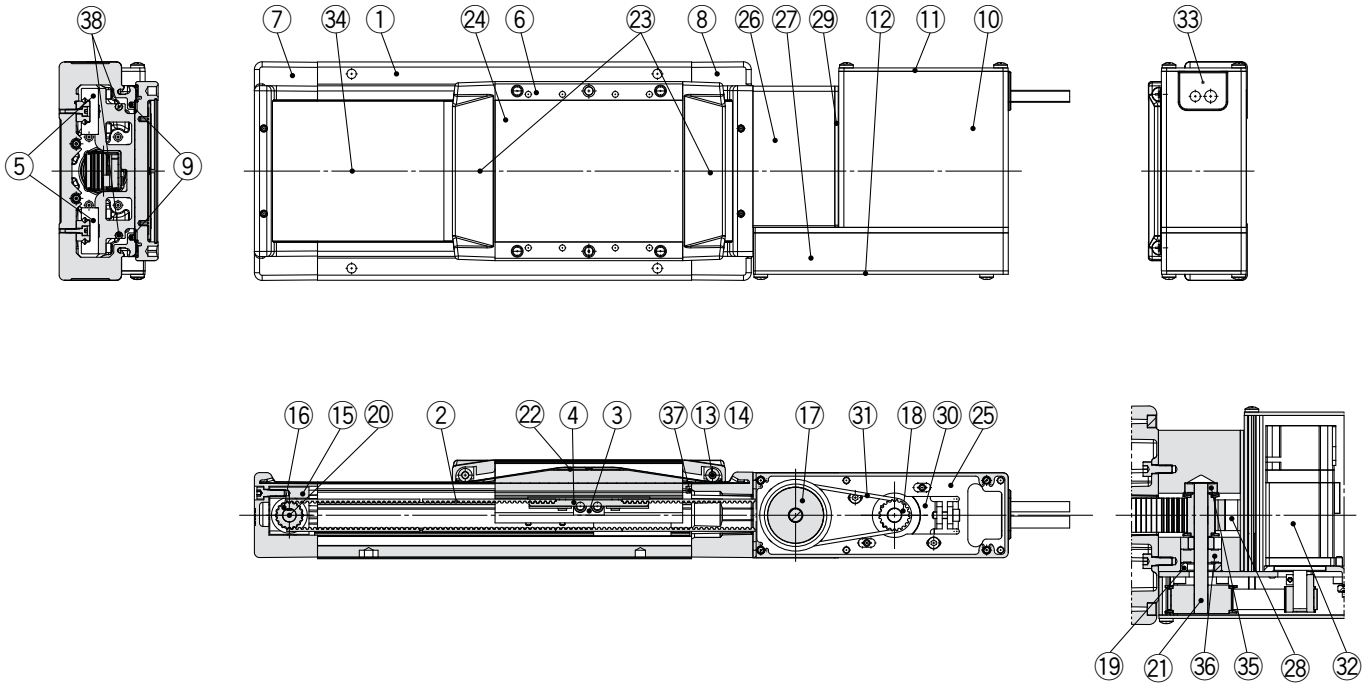
Note 1) Please consult with SMC for non-standard strokes as they are produced as special orders.
Note 2) Check "Speed–Work Load Graph (Guide)" on page 42.
Note 3) Conforming to JIS B 6191-1999
Note 4) A reference value for correcting an error in reciprocal operation.
Note 5) Impact resistance: No malfunction 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 6) The power consumption (including the driver) is for when the actuator is operating.
Note 7) The standby power consumption when operating (including the driver) is for when the actuator is stopped in the set position during the operation.
Note 8) The maximum instantaneous power consumption (including the driver) is for when the actuator is operating.
Note 9) Only when motor option "With lock" is selected.
Note 10) For an actuator with lock, add the power consumption for the lock.
Note 11) Sensor magnet position is located in the table center.
For detailed dimensions, refer to "Auto Switch Mounting Position".
Note 12) Do not allow collisions at either end of the table traveling distance. Additionally, when running the positioning operation, do not set within 2 mm of both ends.
Note 13) For the manufacture of intermediate strokes, please contact SMC.
(LEJB40/Manufacturable stroke range: 200 to 2000 mm, LEJB63/Manufacturable stroke range: 300 to 3000 mm)

Weight

Model	LEJB40											
Stroke [mm]	200	300	400	500	600	700	800	900	1000	1200	1500	2000
Product weight [kg]	5.7	6.4	7.1	7.7	8.4	9.1	9.8	10.5	11.2	12.6	14.7	18.1
Additional weight with lock [kg]	0.3 (Absolute encoder)											

Model	LEJB63											
Stroke [mm]	300	400	500	600	700	800	900	1000	1200	1500	2000	3000
Product weight [kg]	11.5	12.7	13.8	15.0	16.2	17.4	18.6	19.7	22.1	25.7	31.6	43.4
Additional weight with lock [kg]	0.7 (Absolute encoder)											

Construction



Motor details

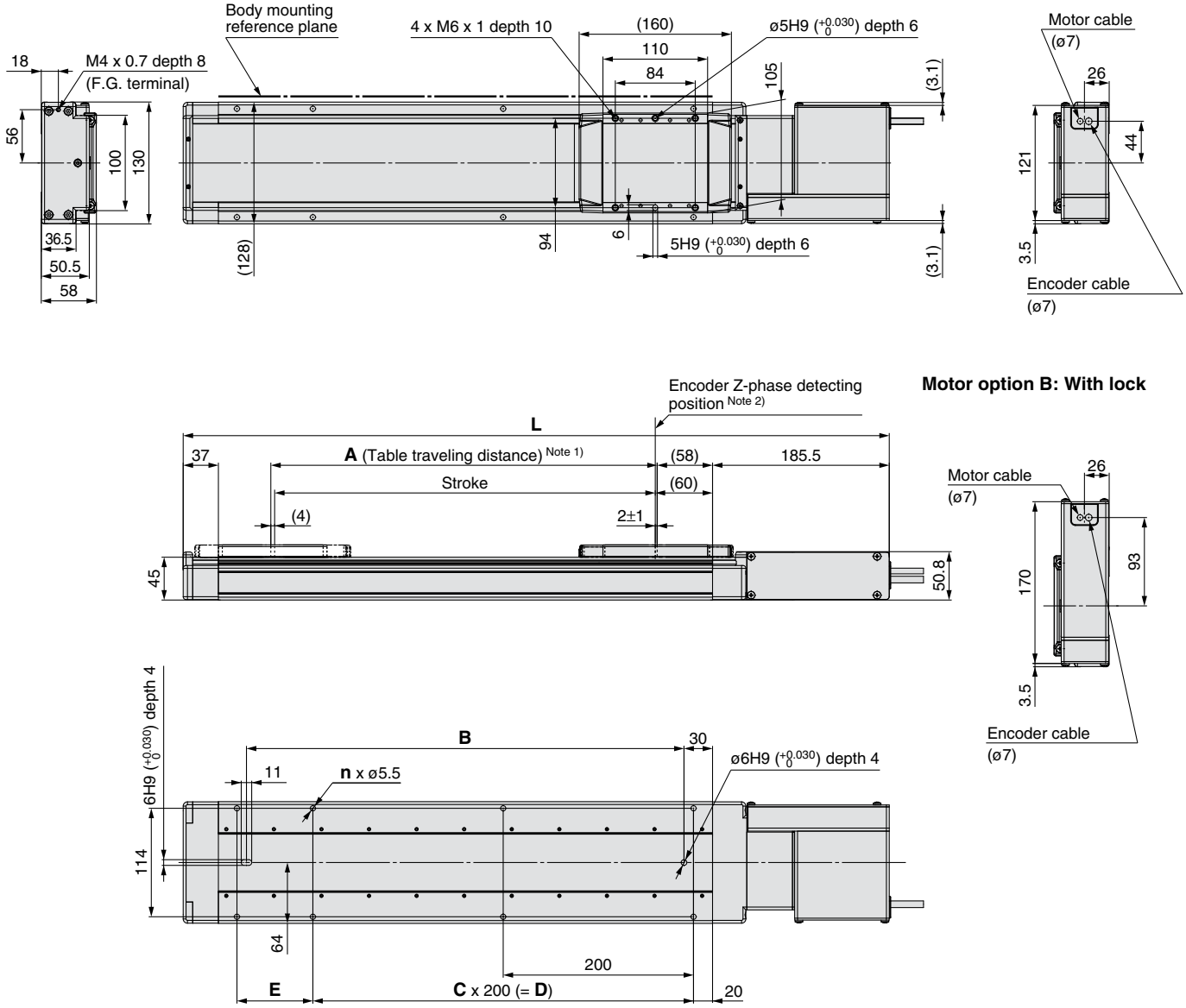
Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Belt**	—	
3	**Belt holder**	Carbon steel	
4	**Belt stopper**	Aluminum alloy	
5	**Linear guide assembly**	—	
6	**Table**	Aluminum alloy	Anodized
7	**Housing A**	Aluminum alloy	Coating
8	**Housing B**	Aluminum alloy	Coating
9	**Seal magnet**	—	
10	**Motor cover**	Aluminum alloy	Anodized
11	**End cover A**	Aluminum alloy	Anodized
12	**End cover B**	Aluminum alloy	Anodized
13	**Roller shaft**	Stainless steel	
14	**Roller**	Synthetic resin	
15	**Pulley holder**	Aluminum alloy	
16	**Drive pulley**	Aluminum alloy	
17	**Speed reduction pulley**	Aluminum alloy	
18	**Motor pulley**	Aluminum alloy	
19	**Spacer**	Aluminum alloy	

No.	Description	Material	Note
20	**Pulley shaft A**	Stainless steel	
21	**Pulley shaft B**	Stainless steel	
22	**Table cap**	Synthetic resin	
23	**Seal band stopper**	Synthetic resin	
24	**Blanking plate**	Aluminum alloy	Anodized
25	**Motor mount plate**	Carbon steel	
26	**Pulley block**	Aluminum alloy	Anodized
27	**Pulley cover**	Aluminum alloy	Anodized
28	**Belt stopper**	Aluminum alloy	
29	**Side plate**	Aluminum alloy	Anodized
30	**Motor plate**	Carbon steel	
31	**Belt**	—	
32	**Motor**	—	
33	**Grommet**	NBR	
34	**Dust seal band**	Stainless steel	
35	**Bearing**	—	
36	**Bearing**	—	
37	**Stopper pin**	Stainless steel	
38	**Magnet**	—	

Dimensions: Belt Drive

LEJB40



Note 1) Distance 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) The Z-phase first detecting position from the stroke end of the motor side

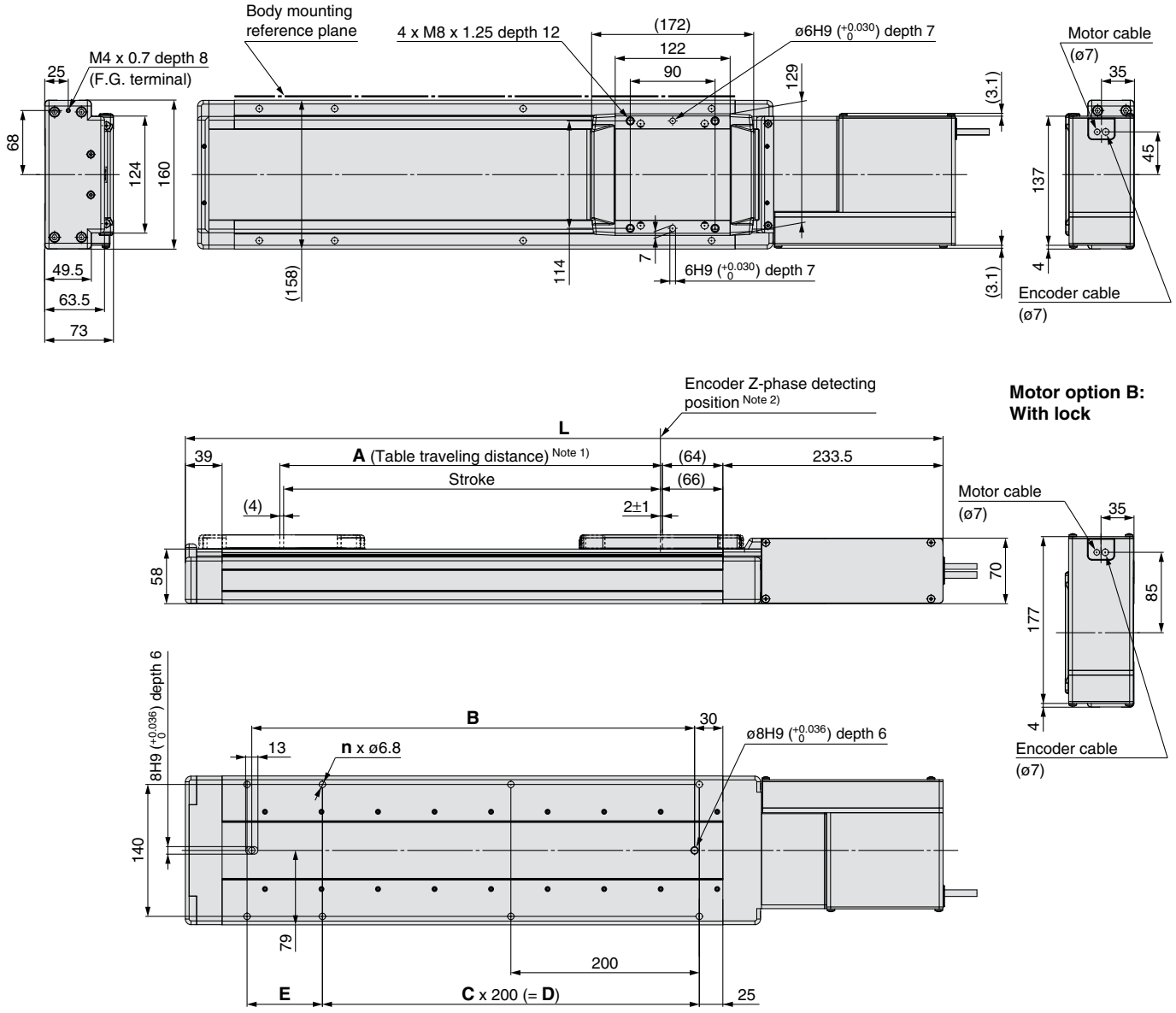
Note 3) Auto switch magnet is located in the table center.

[mm]

Model	L	A	B	n	C	D	E
LEJB40V□□-200□-□□□□	542	206	260	6	1	200	80
LEJB40V□□-300□-□□□□	642	306	360	6	1	200	180
LEJB40V□□-400□-□□□□	742	406	460	8	2	400	80
LEJB40V□□-500□-□□□□	842	506	560	8	2	400	180
LEJB40V□□-600□-□□□□	942	606	660	10	3	600	80
LEJB40V□□-700□-□□□□	1042	706	760	10	3	600	180
LEJB40V□□-800□-□□□□	1142	806	860	12	4	800	80
LEJB40V□□-900□-□□□□	1242	906	960	12	4	800	180
LEJB40V□□-1000□-□□□□	1342	1006	1060	14	5	1000	80
LEJB40V□□-1200□-□□□□	1542	1206	1260	16	6	1200	80
LEJB40V□□-1500□-□□□□	1842	1506	1560	18	7	1400	180
LEJB40V□□-2000□-□□□□	2342	2006	2060	24	10	2000	80

Dimensions: Belt Drive

LEJB63



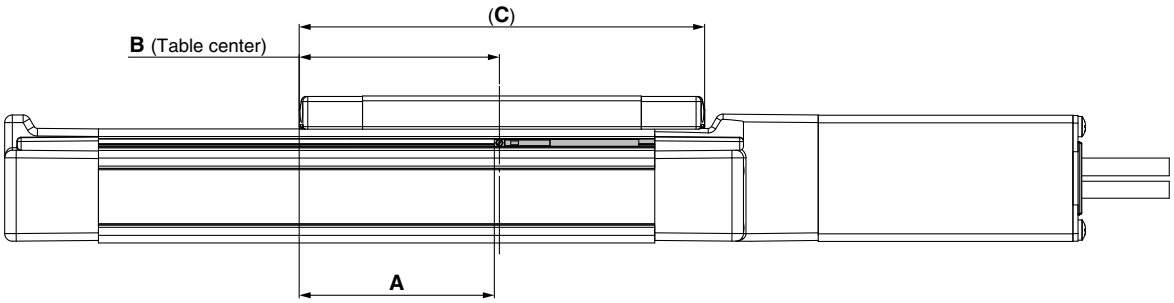
Note 1) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the workpieces and facilities around the table.
Note 2) The Z-phase first detecting position from the stroke end of the motor side
Note 3) Auto switch magnet is located in the table center.

[mm]

Model	L	A	B	n	C	D	E
LEJB63V□□-300□-□□□□	704	306	370	6	1	200	180
LEJB63V□□-400□-□□□□	804	406	470	8	2	400	80
LEJB63V□□-500□-□□□□	904	506	570	8	2	400	180
LEJB63V□□-600□-□□□□	1004	606	670	10	3	600	80
LEJB63V□□-700□-□□□□	1104	706	770	10	3	600	180
LEJB63V□□-800□-□□□□	1204	806	870	12	4	800	80
LEJB63V□□-900□-□□□□	1304	906	970	12	4	800	180
LEJB63V□□-1000□-□□□□	1404	1006	1070	14	5	1000	80
LEJB63V□□-1200□-□□□□	1604	1206	1270	16	6	1200	80
LEJB63V□□-1500□-□□□□	1904	1506	1570	18	7	1400	180
LEJB63V□□-2000□-□□□□	2404	2006	2070	24	10	2000	80
LEJB63V□□-3000□-□□□□	3404	3006	3070	34	15	3000	80

Auto Switch Mounting

Auto Switch Mounting Position



(mm)

Model	Size	A	B	C	Operating range
LEJS	40	77	80	160	5.5
LEJB					5.0
LEJS	63	83	86	172	7.0
LEJB					6.5

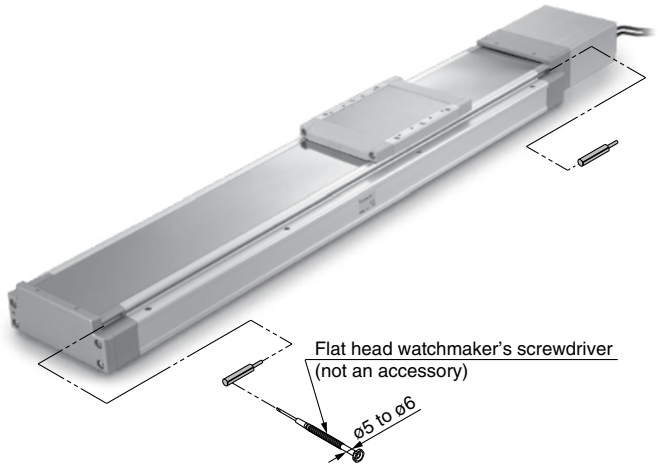
Note) The operating range is a guideline including hysteresis, not meant to be guaranteed. There may be large variations (as much as ±30%) depending on the ambient environment.

Auto Switch Mounting

When mounting the auto switches, they should be inserted into the actuator's auto switches mounting groove from the direction shown in the drawing on the below. Once in the mounting position, use a flat head watchmaker's screwdriver to tighten the included auto switch mounting screw.

Auto Switch Mounting Screw Tightening Torque

Auto switch model	Tightening torque
D-M9□(V) **D-M9□W(V)**	0.89 to 1.33 lbf in (0.10 to 0.15 N·m)



Note) When tightening the auto switch mounting screw, use a watchmaker's screwdriver with a handle diameter of about 5 to 6 mm.

Solid State Auto Switch
Direct Mounting Style
D-M9N(V)/D-M9P(V)/D-M9B(V)

CE RoHS

Refer to SMC website for the details about products conforming to the international standards.

Grommet

- **2-wire load current is reduced (2.5 to 40 mA).**
- **Flexibility is 1.5 times greater than the conventional model (SMC comparison).**
- **Using flexible cable as standard.**

Auto Switch Specifications

PLC: Programmable Logic Controller

D-M9□, D-M9□V (With indicator light)						
Auto switch model	D-M9N	D-M9NV	D-M9P	D-M9PV	D-M9B	D-M9BV
Electrical entry	In-line	Perpendicular	In-line	Perpendicular	In-line	Perpendicular
Wiring type	3-wire				2-wire	
Output type	NPN		PNP		—	
Applicable load	IC circuit, Relay, PLC				24 VDC relay, PLC	
Power supply voltage	5, 12, 24 VDC (4.5 to 28 V)				—	
Current consumption	10 mA or less				—	
Load voltage	28 VDC or less		—		24 VDC (10 to 28 VDC)	
Load current	40 mA or less				2.5 to 40 mA	
Internal voltage drop	0.8 V or less at 10 mA (2 V or less at 40 mA)				4 V or less	
Leakage current	100 μA or less at 24 VDC				0.8 mA or less	
Indicator light	Red LED lights up when turned ON.					
Standards	CE marking, RoHS					

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-M9N□	D-M9P□	D-M9B□
Sheath	Outside diameter [mm]	2.7 x 3.2 (ellipse)		
Insulator	Number of cores	3 cores (Brown/Blue/Black)		2 cores (Brown/Blue)
	Outside diameter [mm]	ø0.9		
Conductor	Effective area [mm²]	0.15		
	Strand diameter [mm]	ø0.05		
Minimum bending radius [mm] (Reference value)		20		

Note 1) Refer to the Best Pneumatics No. 2 for solid state auto switch common specifications.
Note 2) Refer to the Best Pneumatics No. 2 for lead wire lengths.

⚠Caution

Precautions

Fix the auto switch with the existing screw installed on the auto switch body. The auto switch may be damaged if a screw other than the one supplied is used.

Weight

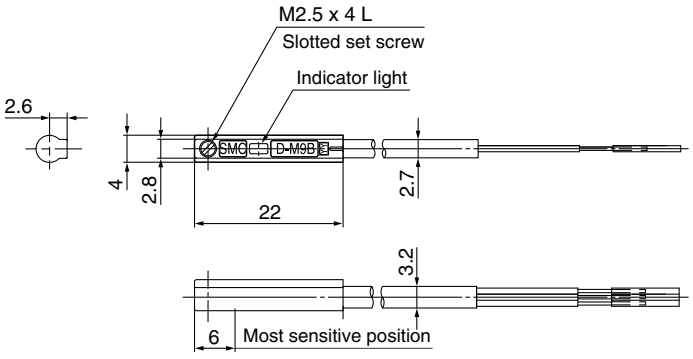
(g)

Auto switch model		D-M9N(V)	D-M9P(V)	D-M9B(V)
Lead wire length	0.5 m (**Nil**)	8		7
	1 m (**M**)	14		13
	3 m (**L**)	41		38
	5 m (**Z**)	68		63

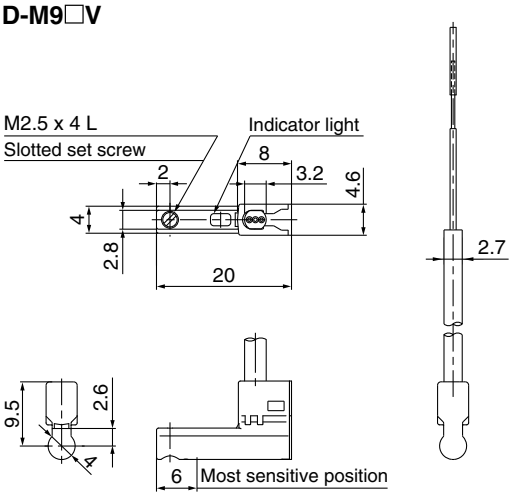
Dimensions

(mm)

D-M9□



D-M9□V



2-Color Indication Solid State Auto Switch Direct Mounting Style

D-M9NW(V)/D-M9PW(V)/D-M9BW(V)

Refer to SMC website for the details about products conforming to the international standards.

Grommet

- **2-wire load current is reduced (2.5 to 40 mA).**
- **Flexibility is 1.5 times greater than the conventional model (SMC comparison).**
- **Using flexible cable as standard.**
- **The optimum operating range can be determined by the color of the light. (Red→Green←Red)**

⚠Caution

Precautions

Fix the auto switch with the existing screw installed on the auto switch body. The auto switch may be damaged if a screw other than the one supplied is used.

Auto Switch Specifications

PLC: Programmable Logic Controller

D-M9□W, D-M9□WV (With indicator light)						
Auto switch model	D-M9NW	D-M9NWV	D-M9PW	D-M9PWV	D-M9BW	D-M9BWV
Electrical entry	In-line	Perpendicular	In-line	Perpendicular	In-line	Perpendicular
Wiring type	3-wire				2-wire	
Output type	NPN		PNP		—	
Applicable load	IC circuit, Relay, PLC				24 VDC relay, PLC	
Power supply voltage	5, 12, 24 VDC (4.5 to 28 V)				—	
Current consumption	10 mA or less				—	
Load voltage	28 VDC or less		—		24 VDC (10 to 28 VDC)	
Load current	40 mA or less				2.5 to 40 mA	
Internal voltage drop	0.8 V or less at 10 mA (2 V or less at 40 mA)				4 V or less	
Leakage current	100 μA or less at 24 VDC				0.8 mA or less	
Indicator light	Operating range ····· Red LED lights up. Optimum operating range ····· Green LED lights up.					
Standards	CE marking, RoHS					

Oilproof Flexible Heavy-duty Lead Wire Specifications

Auto switch model		D-M9NW□	D-M9PW□	D-M9BW□
Sheath	Outside diameter [mm]	2.7 x 3.2 (ellipse)		
Insulator	Number of cores	3 cores (Brown/Blue/Black)		2 cores (Brown/Blue)
	Outside diameter [mm]	ø0.9		
Conductor	Effective area [mm²]	0.15		
	Strand diameter [mm]	ø0.05		
Minimum bending radius [mm] (Reference value)		20		

Note 1) Refer to the Best Pneumatics No. 2 for solid state auto switch common specifications.
Note 2) Refer to the Best Pneumatics No. 2 for lead wire lengths.

Weight

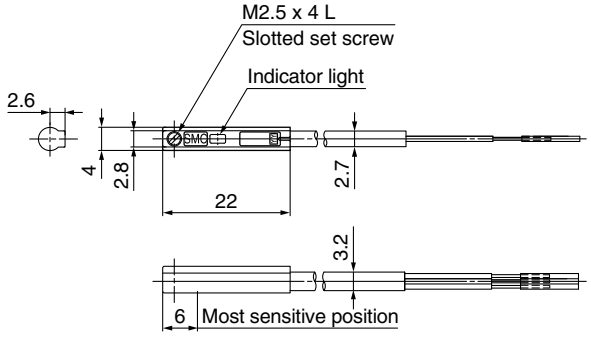
(g)

Auto switch model		D-M9NW(V)	D-M9PW(V)	D-M9BW(V)
Lead wire length	0.5 m (**Nil**)	8		7
	1 m (**M**)	14		13
	3 m (**L**)	41		38
	5 m (**Z**)	68		63

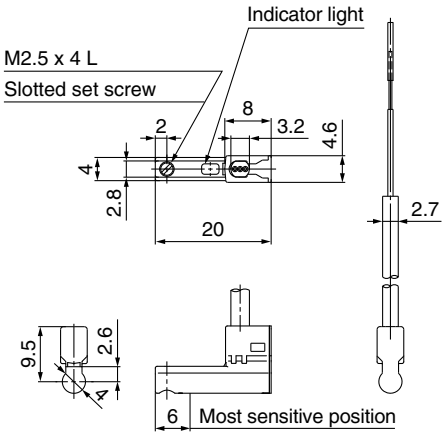
Dimensions

[mm]

D-M9□W



D-M9□WV



SMC

Series LEJ
Electric Actuator/ Specific Product Precautions 1

Be sure to read this before handling. For Safety Instructions and Electric Actuator Precautions, refer to "Handling Precautions for SMC Products" and the Operation Manual on SMC website, http://www.smcworld.com

Design

⚠Caution

1. Do not apply a load in excess of the operating limit.

Select a suitable actuator by work load and allowable moment. If the product is used outside of the operating limit, the eccentric load applied to the guide will be excessive and have adverse effects such as creating play on the guide, degrading accuracy and shortening the life of the product.

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

The product can be damaged.

The components including the motor are manufactured to precise tolerances. So that even a slight deformation may cause a malfunction or seizure.

Selection

⚠Warning

1. Do not increase the speed in excess of the operating limit.

Select a suitable actuator by the relationship of the allowable work load and speed, and the allowable speed of each stroke. If the product is used outside of the operating limit, it will have adverse effects such as creating noise, degrading accuracy and shortening the life of the product.

2. When the product repeatedly cycles with partial strokes (100 mm or less), lubrication can run out. Operate it at a full stroke at least once a day or every 1000 strokes.

3. When external force is applied to the table, it is necessary to add external force to the work load as the total carried load for the sizing.

When a cable duct or flexible moving tube is attached to the actuator, the sliding resistance of the table increases and may lead to operational failure of the product.

Handling

⚠Caution

1. Do not allow the table to hit the end of stroke.

When incorrect instructions are inputted, such as using the product outside of the operating limit or operation outside of actual stroke through changes in the controller/driver setting and/or origin position, the table may collide against the stroke end of the actuator. Please check these points before use.

If the table collides against the stroke end of the actuator, the guide, belt or internal stopper can be broken. This may lead to abnormal operation.

Handle the actuator with care when it is used in the vertical direction as the workpiece will fall freely from its own weight.

2. The actual speed of this actuator is affected by the work load and stroke.

Check specifications with reference to the model selection section of the catalog.

3. Do not apply a load, impact or resistance in addition to the transferred load during return to origin.

4. Do not dent, scratch or cause other damage to the body and table mounting surfaces.

This may cause unevenness in the mounting surface, play in the guide or an increase in the sliding resistance.

5. Do not apply strong impact or an excessive moment while mounting the product or a workpiece.

If an external force over the allowable moment is applied, it may cause play in the guide or an increase in the sliding resistance.

6.Keep the flatness of mounting surface 0.1 mm or less.

Unevenness of a workpiece or base mounted on the body of the product may cause play in the guide and an increase in the sliding resistance.

In the case of overhang mounting (including cantilever), to avoid deflection of the actuator body, use a support plate or support guide.

7.When mounting the actuator, use all mounting holes.

If all mounting holes are not used, it influences the specifications, e.g., the amount of displacement of the table increases.

8.Do not hit the table with the workpiece in the positioning operation and positioning range.

9. Do not apply external force to the dust seal band.

Particularly during the transportation.

Series LEJ
Electric Actuator/ Specific Product Precautions 2

Be sure to read this before handling. For Safety Instructions and Electric Actuator Precautions, refer to "Handling Precautions for SMC Products" and the Operation Manual on SMC website, http://www.smcworld.com

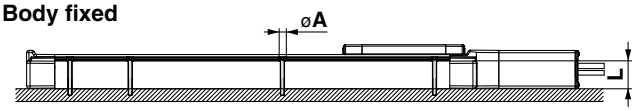
Handling

⚠Caution

10. When mounting the product, use screws with adequate length and tighten them with adequate torque.

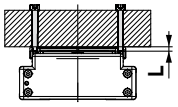
Tightening the screws with a higher torque than recommended may cause a malfunction, whilst the tightening with a lower torque can cause the displacement of the mounting position or in extreme conditions the actuator could become detached from its mounting position.

Body fixed



Model	Bolt	Max. tightening torque lbf·ft (N·m)	ø**A** (mm)	**L** (mm)
LEJ□40	M5	2.2 (3.0)	5.5	36.5
LEJ□63	M6	3.8 (5.2)	6.8	49.5

Workpiece fixed



Model	Bolt	Max. tightening torque lbf·ft (N·m)	**L** (Max. screw-in depth) (mm)
LEJ□40	M6 x 1	3.8 (5.2)	10
LEJ□63	M8 x 1.25	9.2 (12.5)	12

To prevent the workpiece fixing bolts from touching the body, use bolts that are 0.5 mm or shorter than the maximum screw-in depth. If long bolts are used, they can touch the body and cause a malfunction, etc.

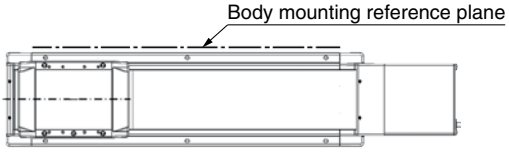
11. Do not operate by fixing the table and moving the actuator body.

12. The belt drive actuator cannot be used vertically for applications.

13. Vibration may occur during operation, this could be caused by the operating conditions.

If it occurs, refer to the operation manuals of the driver and actuator.

14. When mounting the actuator using the body mounting reference plane, use a pin. Set the height of the pin to be 5 mm or more because of chamfering. (Recommended height 6 mm)



Maintenance

⚠Warning

Maintenance frequency

Perform maintenance according to the table below.

Frequency	Appearance check	Internal check	Belt check
Inspection before daily operation	○	—	—
Inspection every 6 months/1000 km/ 5 million cycles*	○	○	○

* Select whichever comes sooner.

• Items for visual appearance check

1. Loose set screws, Abnormal dirt
2. Check of flaw and cable joint
3. Vibration, Noise

• Items for internal check

1. Lubricant condition on moving parts.
   * For lubrication, use lithium grease No. 2.
2. Loose or mechanical play in fixed parts or fixing screws.

• Items for belt check

Stop operation immediately and replace the belt when belt appear to be below. Further, ensure your operating environment and conditions satisfy the requirements specified for the product.

a. Tooth shape canvas is worn out.
Canvas fiber becomes fuzzy. Rubber is removed and the fiber becomes whitish. Lines of fibers become unclear.

b. Peeling off or wearing of the side of the belt
Belt corner becomes round and frayed thread sticks out.

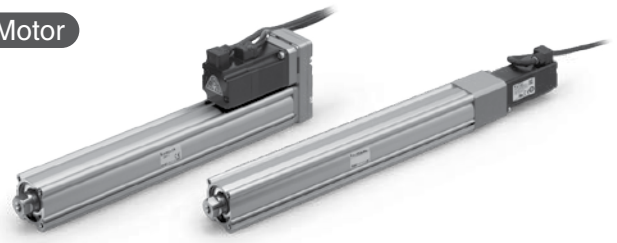
c. Belt partially cut
Belt is partially cut. Foreign matter caught in teeth other than cut part causes flaw.

d. Vertical line of belt teeth
Flaw which is made when the belt runs on the flange.

e. Rubber back of the belt is softened and sticky.

f . Crack on the back of the belt

Model Selection



Selection Procedure

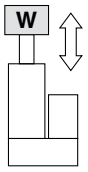
Positioning Control Selection Procedure

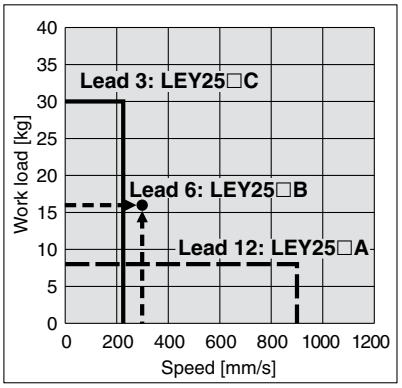
Step 1 Check the work load–speed. (Vertical transfer) → **Step 2** Check the cycle time.

Selection Example

Operating conditions

- Workpiece mass: 16 [kg]
- Speed: 300 [mm/s]
- Acceleration/Deceleration: 5000 [mm/s²]
- Stroke: 300 [mm]
- Workpiece mounting condition: Vertical upward downward transfer





<Speed–Vertical work load graph>

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

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

Selection example) The **LEY25□B** 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 pages 75 and 76 for the horizontal work load in the specifications, and page 98 for the precautions.

The regenerative resistor may be necessary. Refer to pages 69 and 70 for "Conditions for Regenerative Resistor (Guide)".

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.

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

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

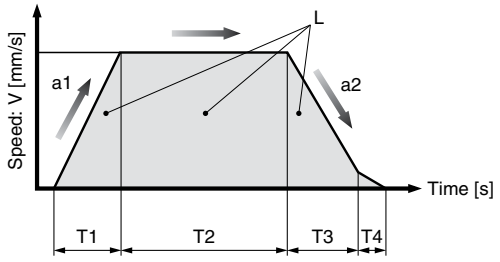
$$T1 = V/a1 \text{ [s]} \qquad T3 = V/a2 \text{ [s]}$$

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

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

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

$$T4 = 0.05 \text{ [s]}$$



L : Stroke [mm] ··· (Operating condition)
V : Speed [mm/s] ··· (Operating condition)
a1: Acceleration [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 in position is completed

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

$T1 = V/a1 = 300/5000 = 0.06$ [s], $T3 = V/a2 = 300/5000 = 0.06$ [s]

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} = \frac{300 - 0.5 \cdot 300 \cdot (0.06 + 0.06)}{300} = 0.94 \text{ [s]}$$

$T4 = 0.05$ [s]

Therefore, the cycle time can be obtained as follows.
$T = T1 + T2 + T3 + T4 = 0.06 + 0.94 + 0.06 + 0.05 =$ **1.11 [s]**

Based on the above calculation result, the LEY25□B-300 is selected.

Selection Procedure

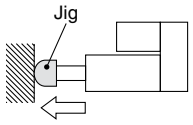
Pushing Control Selection Procedure

Step 1 Check the pushing force. → **Step 2** Check the lateral load on the rod end.

Selection Example

Operating conditions

- Mounting condition: Horizontal (pushing)
- Pushing speed: 35 [mm/s]
- Jig weight: 0.5 [kg]
- Stroke: 300 [mm]
- Pushing force: 200 [N]



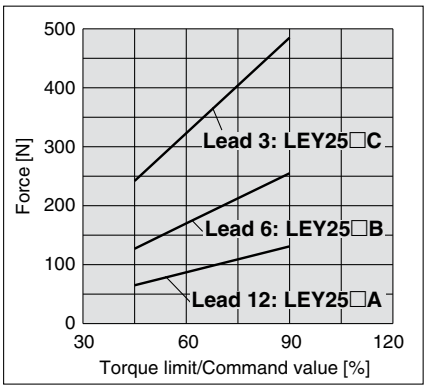
Step 1 **Check the pushing force. <Force conversion graph>**

Select the target model based on the torque limit/command value and pushing force with reference to the <Force conversion graph>.

Selection example)

Based on the graph shown on the right side,

- Torque limit/Command value: 72 [%]
- Pushing force: 200 [N]



<Force conversion graph>

Step 2 **Check the lateral load on the rod end. <Graph of allowable lateral load on the rod end>**

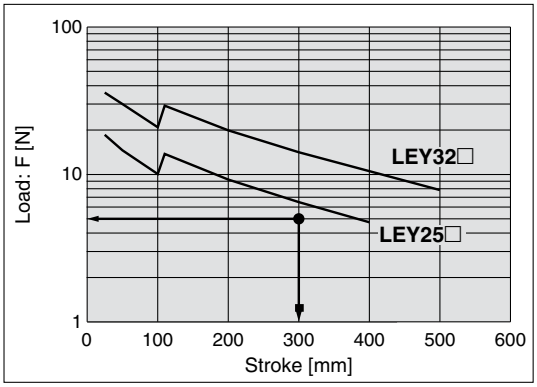
Confirm the allowable lateral load on the rod end of the actuator: LEY25B, which has been selected temporarily with reference to the <Graph of allowable lateral load on the rod end>.

Selection example)

Based on the graph shown on the right side,

- Jig weight: 0.5 [kg] ≈ 5 [N]
- Product stroke: 300 [mm]

Therefore, the lateral load on the rod end is in the allowable range.



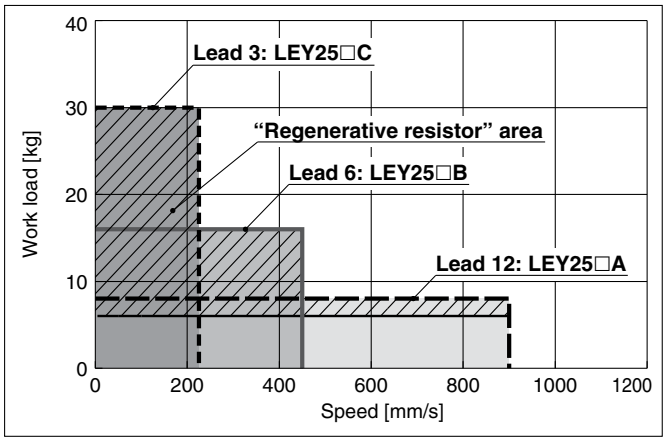
<Graph of allowable lateral load on the rod end>

Based on the above calculation result, the LEY25B-300 is selected.

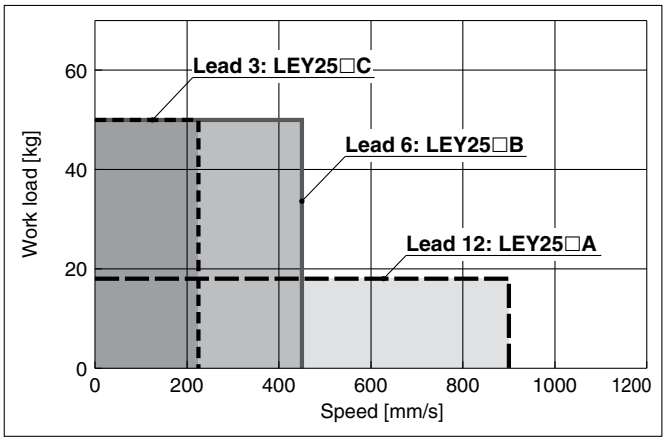
Speed–Work Load Graph/Conditions for "Regenerative Resistor" (Guide)

LEY25□V6 (Motor mounting position: Top/Parallel, In-line)

Vertical

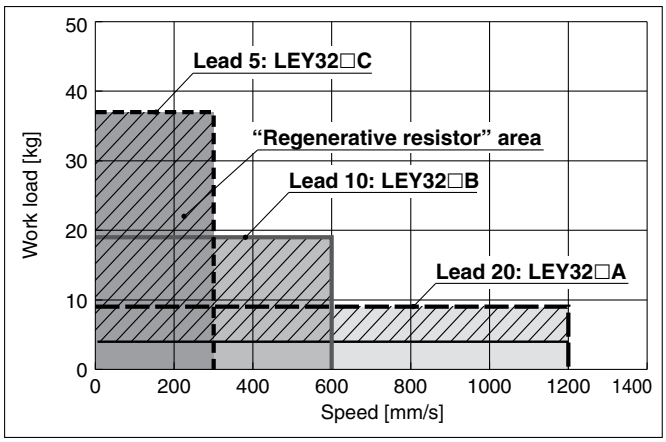


Horizontal

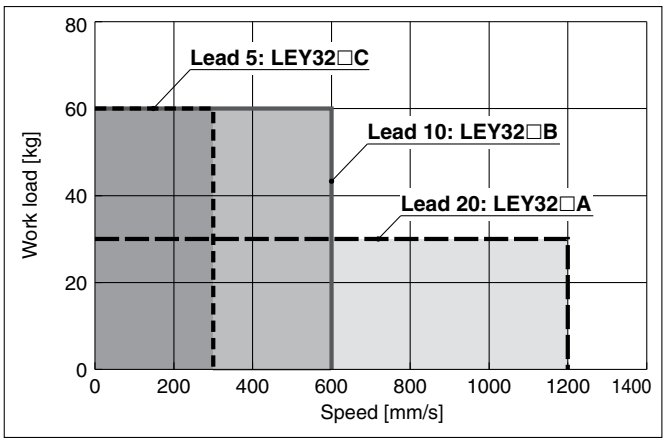


LEY32□V7 (Motor mounting position: Top/Parallel)

Vertical

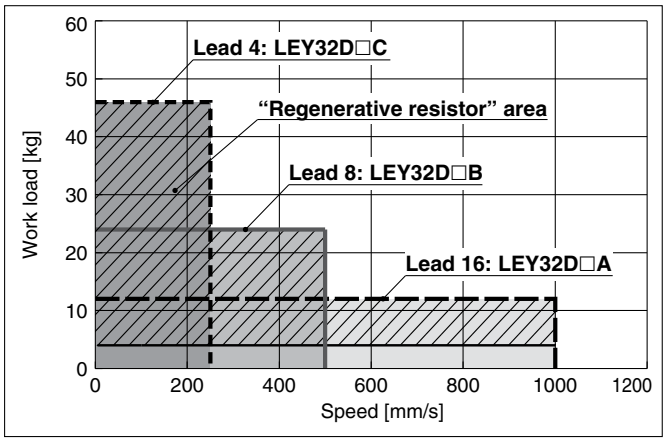


Horizontal

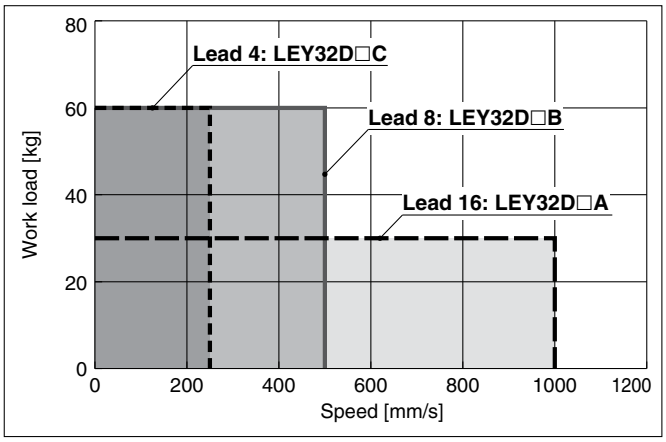


LEY32DV7 (Motor mounting position: In-line)

Vertical



Horizontal



"Regenerative resistor" area

∗ When using the actuator in the "Regenerative resistor" area, download the "AC servo capacity selection program/SigmaJunmaSize+" from the SMC website. Then, calculate the necessary regenerative resistor capacity to prepare an appropriate external regenerative resistor.

∗ Regenerative resistor should be provided by the customer.

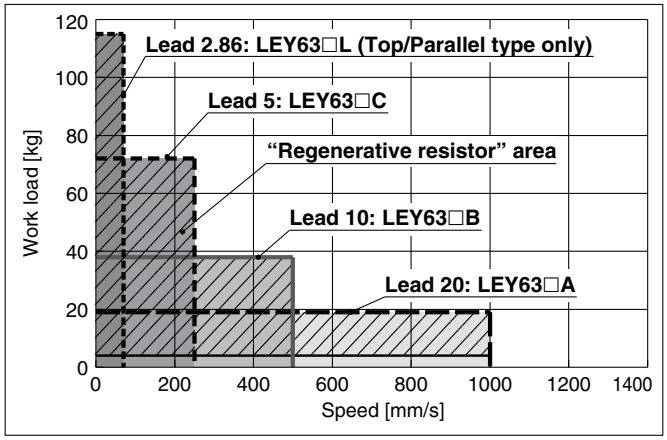
Applicable Motor/Driver

Model	Applicable model	
	Motor	Servopack (SMC driver)
LEY25□	SGMJV-01A3A	SGDV-R90A11□ (LECYM2-V5) SGDV-R90A21□ (LECYU2-V5)
LEY32□	SGMJV-02A3A	SGDV-1R6A11□ (LECYM2-V7) SGDV-1R6A21□ (LECYU2-V7)

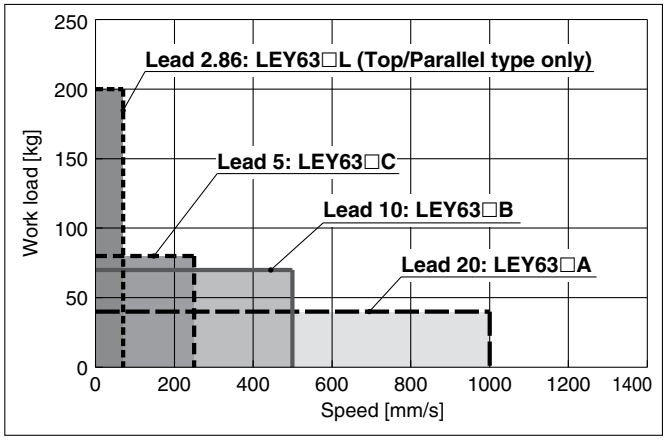
Speed–Work Load Graph/Conditions for "Regenerative Resistor" (Guide)

LEY63□V8 (Motor mounting position: Top/Parallel, In-line)

Vertical



Horizontal



"Regenerative resistor" area

* When using the actuator in the "Regenerative resistor" area, download the "AC servo capacity selection program/SigmaJunmaSize+" from the SMC website. Then, calculate the necessary regenerative resistor capacity to prepare an appropriate external regenerative resistor.
* Regenerative resistor should be provided by the customer.

Applicable Motor/Driver

Product no.	Applicable model	
	Motor	Servopack (SMC driver)
LEY63□	SGMJV-04A3A	SGDV-2R8A11□ (LECYM2-V8) SGDV-2R8A21□ (LECYU2-V8)

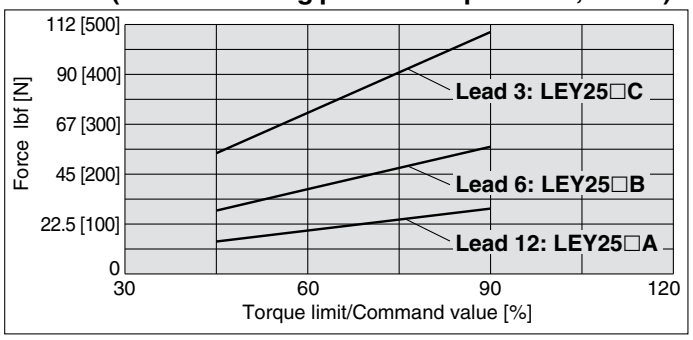
Allowable Stroke Speed

[mm/s]

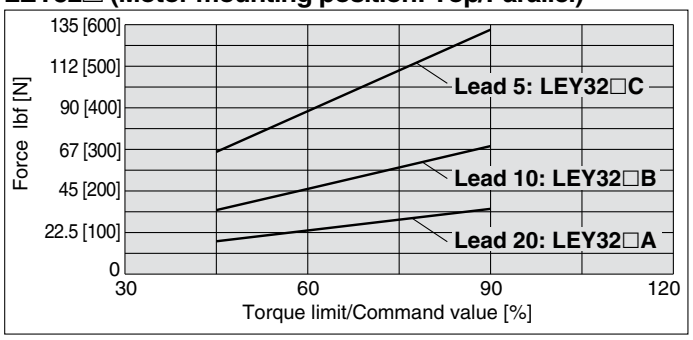
Model	AC servo motor	Lead		Stroke [mm]												
		Symbol	[mm]	Up to 30	Up to 50	Up to 100	Up to 150	Up to 200	Up to 250	Up to 300	Up to 350	Up to 400	Up to 450	Up to 500	Up to 600	Up to 700	Up to 800
LEY25□ (Motor mounting position: Top/Parallel, In-line)	100 W /□40	**A**	12	900							600		—	—	—	—	—
		B	6	450							300		—	—	—	—	—
		C	3	225							150		—	—	—	—	—
		(Motor rotation speed)		(4500 rpm)							(3000 rpm)		—	—	—	—	—
LEY32□ (Motor mounting position: Top/Parallel)	200 W /□60	**A**	20	1200									800		—	—	—
		B	10	600									400		—	—	—
		C	5	300									200		—	—	—
		(Motor rotation speed)		(3600 rpm)									(2400 rpm)		—	—	—
LEY32D (Motor mounting position: In-line)	200 W /□60	**A**	16	1000									640		—	—	—
		B	8	500									320		—	—	—
		C	4	250									160		—	—	—
		(Motor rotation speed)		(3750 rpm)									(2400 rpm)		—	—	—
LEY63□ (Motor mounting position: Top/Parallel, In-line)	400 W /□60	**A**	20	—	1000										800	600	500
		B	10	—	500										400	300	250
		C	5	—	250										200	150	125
		(Motor rotation speed)		—	(3000 rpm)										(2400 rpm)	(1800 rpm)	(1500 rpm)
		L	2.86	—	70												
		(Motor rotation speed)		—	(1470 rpm)												

Force Conversion Graph (Guide)

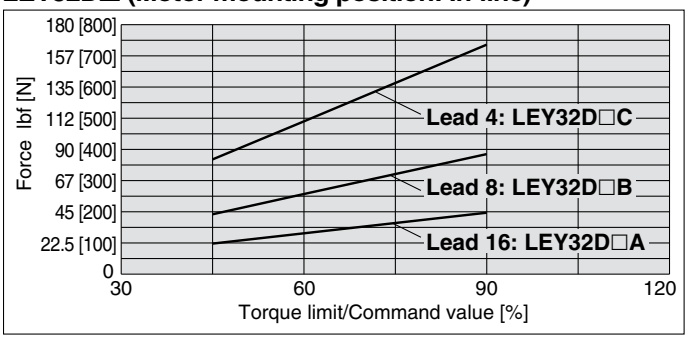
LEY25□ (Motor mounting position: Top/Parallel, In-line)



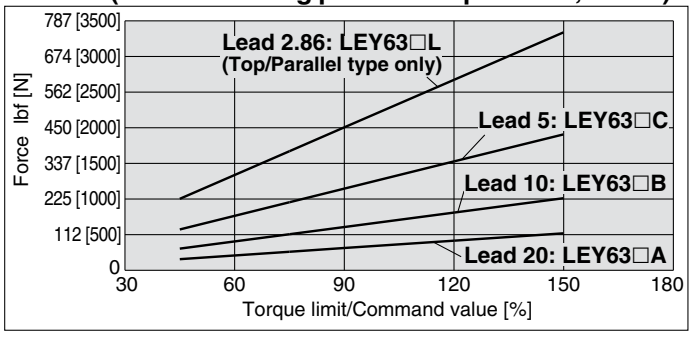
LEY32□ (Motor mounting position: Top/Parallel)



LEY32D□ (Motor mounting position: In-line)



LEY63□ (Motor mounting position: Top/Parallel, In-line)



Torque limit/Command value [%]	Duty ratio [%]	Continuous pushing time [minute]
75 or less	100	—
90	100 (60)	— (1.5)
120	50 (30)	1.5 (0.5)
150	30 (20)	0.5 (0.16)

∗ The values in ( ) are for a closely-mounted driver.

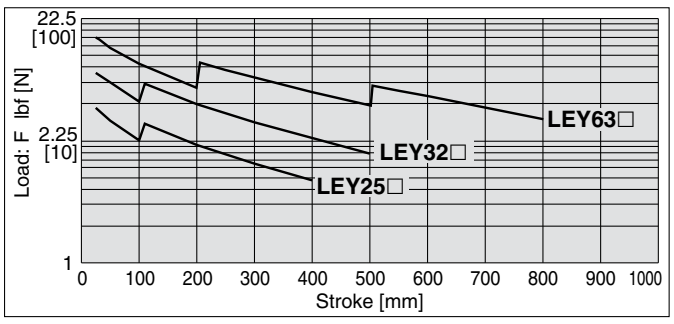
∗1 When limiting the torque with LEY25/32, the value of the internal torque limit or external torque should be set to 90% or less.

- Internal torque limit: Parameter No. Pn402/Forward torque limit, No. Pn403/Reverse torque limit
- External torque limit: Parameter No. Pn404/Forward external torque limit, No. Pn405/Reverse external torque limit

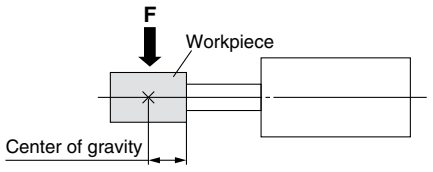
∗2 When limiting the torque with LEY63, the value of the internal torque limit or external torque should be set to 150% or less.

- Internal torque limit: Parameter No. Pn402/Forward torque limit, No. Pn403/Reverse torque limit
- External torque limit: Parameter No. Pn404/Forward external torque limit, No. Pn405/Reverse external torque limit

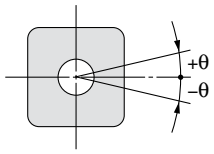
Graph of Allowable Lateral Load on the Rod End (Guide)



[Stroke] = [Product stroke] + [Distance from the rod end to the center of gravity of the workpiece]

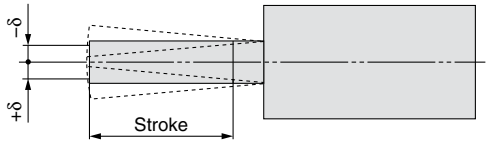


Non-rotating Accuracy: θ



Size	Non-rotating accuracy θ
25	±0.8°
32	±0.7°
63	±0.6°

Rod Displacement: δ



[mm]

Size	Stroke [mm]													
	30	**50**	**100**	**150**	**200**	**250**	**300**	**350**	**400**	**450**	**500**	**600**	**700**	**800**
25	±0.3	±0.4	±0.7	±0.7	±0.9	±1.1	±1.3	±1.5	±1.7	—	—	—	—	—
32	±0.3	±0.4	±0.7	±0.6	±0.8	±1.0	±1.1	±1.3	±1.5	±1.7	±1.8	—	—	—
63	—	—	±1.0	—	±1.7	—	±1.3	—	±1.7	—	±2.1	±1.7	±2.0	±2.2

Electric Actuator/Rod Type Belt Drive

AC Servo Motor

Series LEY

LEY25, 32, 63

Size 25, 32, 63

RoHS

Secondary battery compatible | Dust/Drip proof (IP65) specification

Consult with SMC for details.

How to Order

LEY 25 □ V6 B – 200 □ □ □ □ – S 3 M2 □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫ ⓬ ⓭

❶ Size

25
32
63

❷ Motor mounting position

Nil	Top mounting
R	Right side parallel
L	Left side parallel
D	In-line

❸ Motor type

Symbol	Type	Output [W]	Size	Compatible driver
V6	AC servo motor (Absolute encoder)	100	25	LECYM2-V5 LECYU2-V5
V7		200	32	LECYM2-V7 LECYU2-V7
V8		400	63	LECYM2-V8 LECYU2-V8

❹ Lead [mm]

Symbol	LEY25	LEY32 *1	LEY63
A	12	16 (20)	20
B	6	8 (10)	10
C	3	4 (5)	5
L	—	—	2.86 *2

*1 The values shown in ( ) are the lead for top mounting, right/left side parallel types. (Equivalent lead which includes the pulley ratio [1.25:1])

*2 Only available for top mounting and right/left side parallel types. (Equivalent lead which includes the pulley ratio [4:7])

❺ Stroke [mm]

30	30
to	to
800	800

* Refer to the applicable stroke table.

❻ Dust/Drip proof (Only available for LEY63)

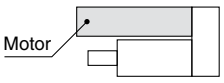
Symbol	LEY25/32	LEY63
Nil	Equivalent to IP4x	IP5x (Dust proof specification)
P	—	IP65 (Dust/Drip proof specification)/ With vent hole tap

* When using the dust/drip proof (IP65), correctly mount the fitting and tubing to the vent hole tap, and then place the end of the tubing in an area not exposed to dust or water.
* The fitting and tubing should be provided separately by the customer. Select [Applicable tubing O.D.: ø4 or more, Connection thread: Rc1/8].

❼ Motor option

Nil	Without option
B	With lock

* When "With lock" is selected for the top mounting and right/left side parallel types, the motor body will stick out of the end of the body for size 25 with strokes 30 or less. Check for interference with workpieces before selecting a model.



❽ Rod end thread

Nil	Rod end female thread
M	Rod end male thread (1 rod end nut is included.)

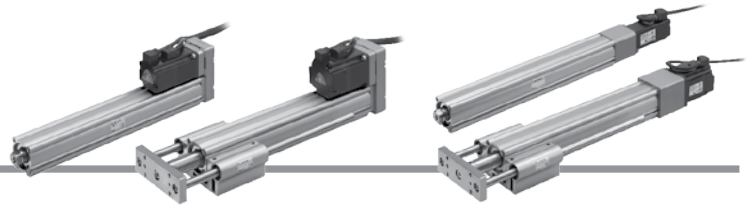
Applicable Stroke Table

●: Standard

Model \ Stroke (mm)	30	50	100	150	200	250	300	350	400	450	500	600	700	800	Manufacturable stroke range
LEY25	●	●	●	●	●	●	●	●	●	—	—	—	—	—	15 to 400
LEY32	●	●	●	●	●	●	●	●	●	●	●	—	—	—	20 to 500
LEY63	—	—	●	—	●	—	●	—	●	—	●	●	●	●	50 to 800

* Please consult with SMC for the manufacture of intermediate strokes.

For auto switches, refer to pages 96 and 97.



Motor mounting position: Top/Parallel　　Motor mounting position: In-line

⑨ Mounting *1

Symbol	Type	Motor mounting position	
		Top/Parallel	In-line
Nil	Ends tapped (Standard) *2	●	●
U	Body bottom tapped	●	●
L	Foot	●	—
F	Rod flange *2	● *4	●
G	Head flange *2	● *5	—
D	Double clevis *3	●	—

*1 Mounting bracket is shipped together, (but not assembled).
*2 For horizontal cantilever mounting with the ends tapped and rod/head flange, use the actuator within the following stroke range.
· LEY25: 200 or less · LEY32: 100 or less · LEY63: 400 or less
*3 For mounting with the double clevis, use the actuator within the following stroke range.
· LEY25: 200 or less · LEY32: 200 or less · LEY63: 300 or less
*4 Rod flange is not available for the LEY 2 5 with strokes 3 0 and motor option "With lock".
*5 Head flange is not available for the LEY32/LEY63.

⑩ Cable type

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

⑪ Cable length [m]

Nil	Without cable
3	3
5	5
A	10
C	20

⑫ Driver type

	Compatible driver	Power supply voltage [V]
Nil	Without driver	—
M2	LECYM2-V□	200 to 230
U2	LECYU2-V□	200 to 230

* When the driver type is selected, the cable is included. Select cable type and cable length.

⑬ I/O connector

Nil	Without connector
H	With connector

Compatible Drivers

Driver type	MECHATROLINK-Ⅱ type 	MECHATROLINK-Ⅲ type 
Series	**LECYM**	**LECYU**
Applicable network	MECHATROLINK-Ⅱ	MECHATROLINK-Ⅲ
Control encoder	Absolute 20-bit encoder	
Communication device	USB communication, RS-422 communication	
Power supply voltage (V)	200 to 230 VAC (50/60 Hz)	
Reference page	Page 103	

Specifications

Model				LEY25 (Top/Parallel)/LEY25D (In-line)			LEY32 (Top/Parallel)			LEY32D (In-line)		
Actuator specifications	Stroke [mm] Note 1)			30, 50, 100, 150, 200, 250, 300, 350, 400			30, 50, 100, 150, 200, 250, 300, 350, 400, 450, 500			30, 50, 100, 150, 200, 250, 300, 350, 400, 450, 500		
	Work load [kg]	Horizontal Note 2)		18	50	50	30	60	60	30	60	60
		Vertical		8	16	30	9	19	37	12	24	46
	Pushing force lbf [N] Note 3) (Set value: 45 to 90%)			15 to 29 [65 to 131]	29 to 57 [127 to 255]	54 to 109 [242 to 485]	18 to 35 [79 to 157]	35 to 69 [154 to 308]	66 to 132 [294 to 588]	22 to 44 [98 to 197]	43 to 87 [192 to 385]	83 to 165 [368 to 736]
	Max. speed Note 4) [mm/s]	Stroke range	Up to 300	900	450	225	1200	600	300	1000	500	250
			305 to 400	600	300	150						
			405 to 500	—	—	—	800	400	200	640	320	160
	Pushing speed [mm/s] Note 5)			35 or less			30 or less			30 or less		
	Max. acceleration/deceleration [mm/s²]			5000			5000					
	Positioning repeatability [mm]			±0.02			±0.02					
	Lost motion [mm] Note 6)			0.1 or less			0.1 or less					
	Lead [mm] (including pulley ratio)			12	6	3	20	10	5	16	8	4
	Impact/Vibration resistance [m/s²] Note 7)			50/20			50/20					
	Actuation type			Ball screw + Belt (LEY□)/Ball screw (LEY□D)			Ball screw + Belt [1.25:1]			Ball screw		
	Guide type			Sliding bushing (Piston rod)			Sliding bushing (Piston rod)					
	Operating temperature range			41 to 104°F [95 to 40°C]			41 to 104°F [95 to 40°C]					
	Operating humidity range [%RH]			90 or less (No condensation)			90 or less (No condensation)					
	Conditions for Note 8) "Regenerative resistor" [kg]	Horizontal		Not required			Not required					
		Vertical		6 or more			4 or more					
Electric specifications	Motor output/Size			100 W/□40			200 W/□60					
	Motor type			AC servo motor (200 VAC)			AC servo motor (200 VAC)					
	Encoder			Absolute 20-bit encoder (Resolution: 1048576 p/rev)								
	Power consumption [W] Note 9)	Horizontal		45			65			65		
		Vertical		145			175			175		
	Standby power consumption when operating [W] Note 10)	Horizontal		2			2			2		
		Vertical		8			8			8		
	Max. instantaneous power consumption [W] Note 11)			445			724			724		
Lock unit specifications	Type Note 12)			Non-magnetizing lock								
	Holding force lbf [N]			29 [131]	57 [255]	109 [485]	35 [157]	69 [308]	132 [588]	44 [197]	87 [385]	165 [736]
	Power consumption [W] at 68°F (20°C) Note 13)			5.5			6			6		
	Rated voltage [V]			24 VDC $^{0}_{-10\%}$								

Note 1) Please consult with SMC for non-standard strokes as they are produced as special orders.
Note 2) The maximum value of the horizontal work load. An external guide is necessary to support the load. The actual work load changes according to the condition of the external guide. Please confirm using actual device.
Note 3) The force setting range (set values for the driver) for the pushing operation with the torque control mode, etc. Set it with reference to "Force Conversion Graph (Guide)" on page 71.
Note 4) The allowable speed changes according to the stroke.
Note 5) The allowable collision speed for the pushing operation with the torque control mode, etc.
Note 6) A reference value for correcting an error in reciprocal operation.
Note 7) 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 8) The work load conditions which require "Regenerative resistor" when operating at the maximum speed (Duty ratio: 100%). Order the regenerative resistor separately. For details, refer to "Conditions for Regenerative Resistor (Guide)" on pages 69 and 70.
Note 9) The power consumption (including the driver) is for when the actuator is operating.
Note 10) The standby power consumption when operating (including the driver) is for when the actuator is stopped in the set position during the operation.
Note 11) The maximum instantaneous power consumption (including the driver) is for when the actuator is operating.
Note 12) Only when motor option "With lock" is selected.
Note 13) For an actuator with lock, add the power consumption for the lock.

Weight

Product Weight

[kg]

Series	LEY25□ (Motor mounting position: Top/Parallel)									LEY32□ (Motor mounting position: Top/Parallel)										
Stroke [mm]	30	50	100	150	200	250	300	350	400	30	50	100	150	200	250	300	350	400	450	500
Weight [kg]	1.2	1.3	1.6	1.7	1.9	2.1	2.2	2.4	2.6	2.3	2.4	2.7	3.2	3.5	3.8	4.0	4.3	4.6	4.9	5.2

Series	LEY25D□ (Motor mounting position: In-line)									LEY32D□ (Motor mounting position: In-line)										
Stroke [mm]	30	50	100	150	200	250	300	350	400	30	50	100	150	200	250	300	350	400	450	500
Weight [kg]	1.2	1.3	1.5	1.7	1.9	2.1	2.3	2.4	2.6	2.3	2.4	2.7	3.2	3.5	3.8	4.1	4.3	4.6	4.9	5.2

Additional Weight

[kg]

Size		25	32
Lock		0.30	0.60
Rod end male thread	Male thread	0.03	0.03
	Nut	0.02	0.02
Foot (2 sets including mounting bolt)		0.08	0.14
Rod flange (including mounting bolt)		0.17	0.20
Head flange (including mounting bolt)			
Double clevis (including pin, retaining ring and mounting bolt)		0.16	0.22

Specifications

Model			LEY63□ (Top/Parallel)				LEY63D□ (In-line)		
Actuator specifications	Stroke [mm] Note 1)		100, 200, 300, 400, 500, 600, 700, 800						
	Work load [kg]	Horizontal Note 2)	40	70	80	200	40	70	80
		Vertical	19	38	72	115	19	38	72
	Pushing force lbf [N]/Set value : 45 to 150% Note 3) Note 4)		35 to 117 [156 to 521]	68 to 228 [304 to 1012]	129 to 429 [573 to 1910]	225 to 752 [1003 to 3343]	35 to 117 [156 to 521]	68 to 228 [304 to 1012]	129 to 429 [573 to 1910]
	Max. speed [mm/s] Note 5)	Stroke range: Up to 500	1000	500	250	70	1000	500	250
		Stroke range: 505 to 600	800	400	200		800	400	200
		Stroke range: 605 to 700	600	300	150		600	300	150
		Stroke range: 705 to 800	500	250	125		500	250	125
	Pushing speed [mm/s] Note 6)		30 or less						
	Max. acceleration/deceleration [mm/s²]		5000			3000	5000		
	Positioning repeatability [mm]		±0.02						
	Lost motion [mm] Note 7)		0.1 or less						
	Screw lead [mm] (including pulley ratio)		20	10	5	5 (2.86)	20	10	5
	Impact/Vibration resistance [m/s²] Note 8)		50/20						
	Actuation type		Ball screw			Ball screw + Belt [Pulley ratio 4:7]	Ball screw		
	Guide type		Sliding bushing (Piston rod)						
	Operating temperature range		41 to 104°F (5 to 40°C)						
	Operating humidity range [%RH]		90 or less (No condensation)						
	Conditions for "Regenerative resistor" [kg] Note 9)	Horizontal	Not required						
		Vertical	2.5 or more						
Electric specifications	Motor output/Size		400 W/□60						
	Motor type		AC servo motor (200 VAC)						
	Encoder		Absolute 20-bit encoder (Resolution: 1048576 p/rev)						
	Power consumption [W] Note 10)	Horizontal	210						
		Vertical	230						
	Standby power consumption when operating [W] Note 11)	Horizontal	2						
		Vertical	18						
	Max. instantaneous power consumption [W] Note 12)		1275						
Lock unit spec.	Type Note 13)		Non-magnetizing lock						
	Holding force lbf [N]		70 [313]	136 [607]	258 [1146]	451 [2006]	70 [313]	136 [607]	258 [1146]
	Power consumption [W] at 68°F (20°C) Note 14)		6						
	Rated voltage [V]		24 VDC $^{0}_{-10\%}$						

Note 1) Please consult with SMC for non-standard strokes as they are produced as special orders.
Note 2) The maximum value of the horizontal work load. An external guide is necessary to support the load. The actual work load changes according to the condition of the external guide. Please confirm using actual device.
Note 3) Set values for the driver.
Note 4) The force setting range (set values for the driver) for the pushing operation with the torque control mode etc. The pushing force and duty ratio change according to the set value. Set it with reference to "Force Conversion Graph (Guide)" on page 71.
Note 5) The allowable speed changes according to the stroke.
Note 6) The allowable collision speed for the pushing operation with the torque control mode etc.
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 work load conditions which require "Regenerative resistor" when operating at the maximum speed (Duty ratio: 100%).
Note 10) The power consumption (including the driver) is for when the actuator is operating.
Note 11) The standby power consumption when operating (including the driver) is for when the actuator is stopped in the set position during the operation.
Note 12) The maximum instantaneous power consumption (including the driver) is for when the actuator is operating.
Note 13) Only when motor option "With lock" is selected.
Note 14) For an actuator with lock, add the power consumption for the lock.

Weight

Product Weight

[kg]

Series	LEY63□ (Motor mounting position: Top/Parallel)							
Stroke [mm]	100	200	300	400	500	600	700	800
Weight [kg]	5.3	6.5	8.2	9.3	10.4	12.1	13.3	14.4

Series	LEY63D□ (Motor mounting position: In-line)							
Stroke [mm]	100	200	300	400	500	600	700	800
Weight [kg]	5.5	6.6	8.3	9.5	10.6	12.3	13.4	14.6

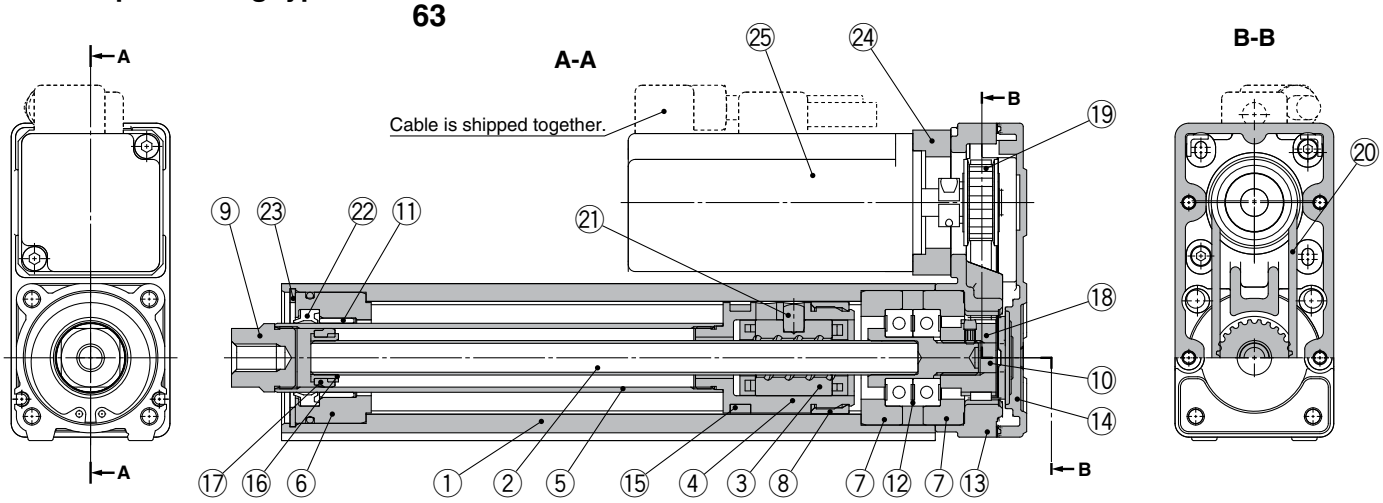
Additional Weight

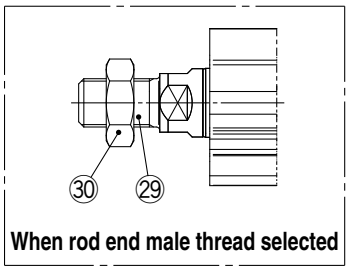
[kg]

Size		63
Lock		0.6
Rod end male thread	Male thread	0.12
	Nut	0.04
Foot (2 sets including mounting bolt)		0.26
Rod flange (including mounting bolt)		0.51
Double clevis (including pin, retaining ring and mounting bolt)		0.58

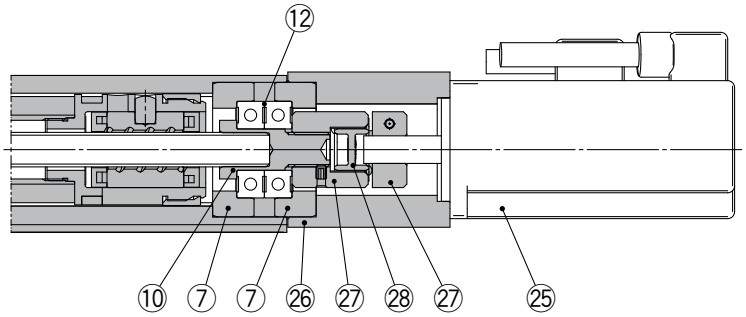
Construction

Motor top mounting type: LEY 25 / 32 / 63





In-line motor type: LEY 25 / 32D / 63



Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Ball screw shaft**	Alloy steel	
3	**Ball screw nut**	Resin/Alloy steel	
4	**Piston**	Aluminum alloy	
5	**Piston rod**	Stainless steel	Hard chrome plated
6	**Rod cover**	Aluminum alloy	
7	**Bearing holder**	Aluminum alloy	
8	**Rotation stopper**	POM	
9	**Socket**	Free cutting carbon steel	Nickel plated
10	**Connected shaft**	Free cutting carbon steel	Nickel plated
11	**Bushing**	Lead bronze cast	
12	**Bearing**	—	
13	**Return box**	Aluminum die-cast	Coating
14	**Return plate**	Aluminum die-cast	Coating
15	**Magnet**	—	
16	**Wear ring holder**	Stainless steel	Stroke 101 mm or more
17	**Wear ring**	POM	Stroke 101 mm or more
18	**Screw shaft pulley**	Aluminum alloy	

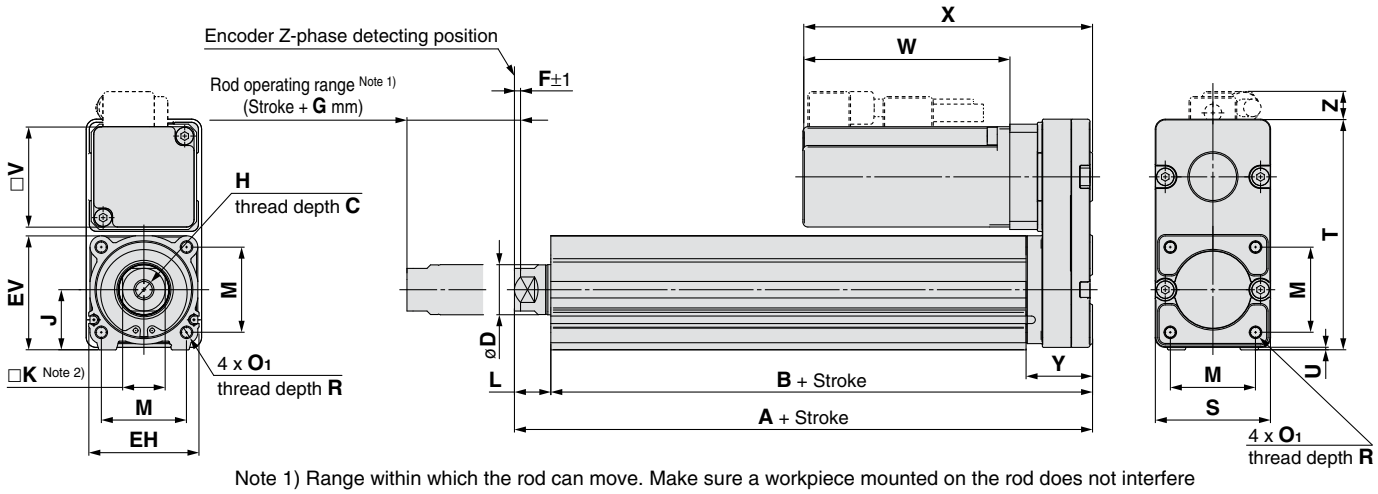
No.	Description	Material	Note
19	**Motor pulley**	Aluminum alloy	
20	**Belt**	—	
21	**Parallel pin**	Stainless steel	
22	**Seal**	NBR	
23	**Retaining ring**	Steel for spring	Phosphate coated
24	**Motor adapter**	Aluminum alloy	Coating
25	**Motor**	—	
26	**Motor block**	Aluminum alloy	Coating
27	**Hub**	Aluminum alloy	
28	**Spider**	Urethane	
29	**Socket (Male thread)**	Free cutting carbon steel	Nickel plated
30	**Nut**	Alloy steel	Zinc chromated

Replacement Parts (Top/Parallel only)/Belt

No.	Size	Order no.
20	**25**	LE-D-2-2
	32	LE-D-2-4

No.	Size	Lead	Order no.
20	**63**	A/B/C	LE-D-2-5
		L	LE-D-2-6

Dimensions: Motor Top/Parallel



Note 1) Range within which the rod can move. Make sure a workpiece mounted on the rod does not interfere with the workpieces and facilities around the rod.
Note 2) The direction of rod end width across flats (□K) differs depending on the products.

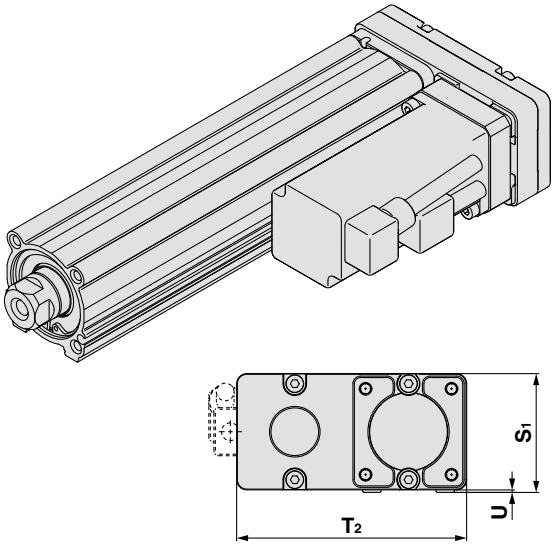
[mm]

Size	Stroke range (mm)	A	B	C	D	EH	EV	H	J	K	L	M	O_1	R	S
25	15 to 100	130.5	116	13	20	44	45.5	M8 x 1.25	24	17	14.5	34	M5 x 0.8	8	46
	105 to 400	155.5	141												
32	20 to 100	148.5	130	13	25	51	56.5	M8 x 1.25	31	22	18.5	40	M6 x 1.0	10	60
	105 to 500	178.5	160												
63	50 to 200	192.6	155.2	21	40	76	82	M16 x 2	44	36	37.4	60	M8 x 1.25	16	80
	205 to 500	227.6	190.2												
	505 to 800	262.6	225.2												

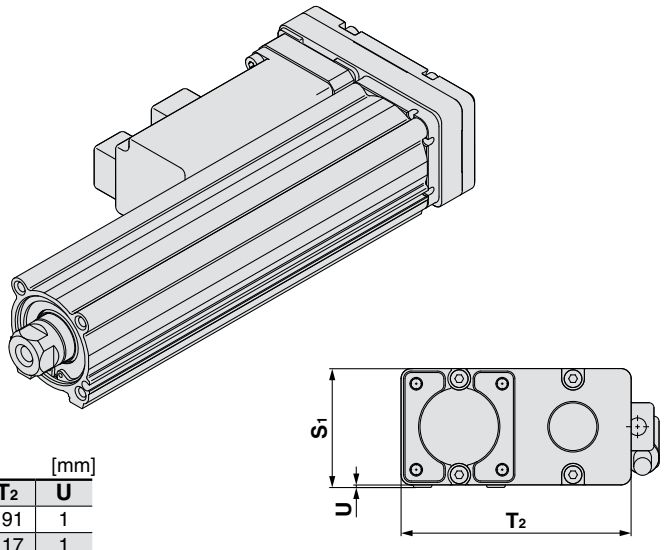
Size	Stroke range (mm)	T	U	Y	V	Without lock			With lock			F	G
						W	X	Z	W	X	Z		
25	15 to 100	92	1	26.5	40	82.5	115.5	11	127.5	160.5	11	2	4
	105 to 400												
32	20 to 100	118	1	34	60	80	120	14	120	160	14	2	4
	105 to 500												
63	50 to 200	146	4	32.2	60	98.5	138.5	12.5 (13.5)*	138.5	178.5	12.5 (13.5)*	4	8
	205 to 500												
	505 to 800												

*L lead

Motor left side parallel type: LEY 25/32/63 L



Motor right side parallel type: LEY 25/32/63 R

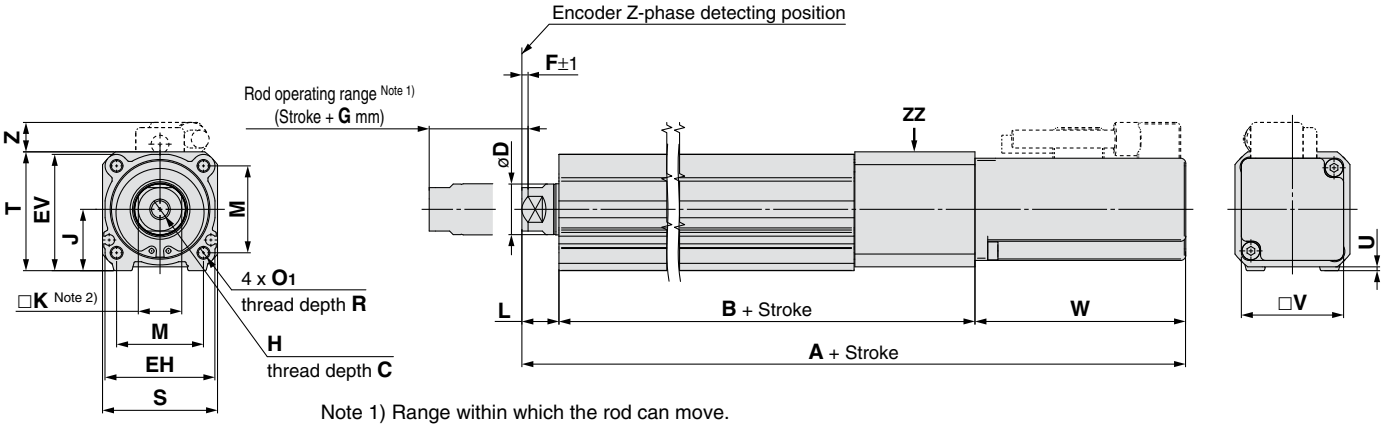


[mm]

Size	S_1	T_2	U
25	47	91	1
32	61	117	1
63	84	142	4

Note) When the motor is mounted on the left or right side in parallel, the groove for auto switch on the side to which the motor is mounted is hidden.

Dimensions: In-line Motor



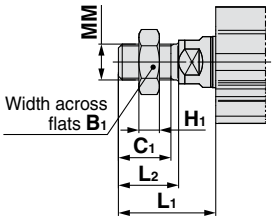
Note 1) Range within which the rod can move.
Make sure a workpiece mounted on the rod does not interfere with the workpieces and facilities around the rod.

[mm]

Size	Stroke range (mm)	C	D	EH	EV	H	J	K	L	M	O1	R	S	T	U
25	15 to 100	13	20	44	45.5	M8 × 1.25	24	17	14.5	34	M5 × 0.8	8	45	46.5	1.5
	105 to 400														
32	20 to 100	13	25	51	56.5	M8 × 1.25	31	22	18.5	40	M6 × 1.0	10	60	61	1
	105 to 500														
63	50 to 200	21	40	76	82	M16 × 2	44	36	37.4	60	M8 × 1.25	16	78	83	5
	205 to 500														
	505 to 800														

Size	Stroke range (mm)	B	V	Without lock			With lock			F	G
				A	W	Z	A	W	Z		
25	15 to 100	136.5	40	233.5	82.5	11.5	278.5	127.5	11.5	2	4
	105 to 400	161.5		258.5			303.5				
32	20 to 100	156	60	254.5	80	14	294.5	120	14	2	4
	105 to 500	186		284.5			324.5				
63	50 to 200	190.7	60	326.6	98.5	5	366.6	138.5	5	4	8
	205 to 500	225.7		361.6			401.6				
	505 to 800	260.7		396.6			436.6				

End male thread: LEY 25/32/63 □□ A/B/C/L -□□M



∗ Refer to Electric Actuators catalog (CAT.E102) for details about the rod end nut and mounting bracket.

Note) Refer to the "Mounting" precautions on page 99 when mounting end brackets such as knuckle joint or workpieces.

[mm]

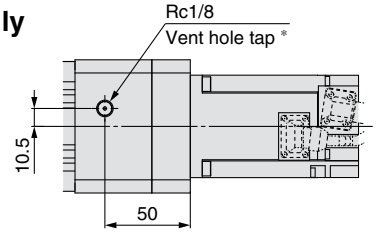
Size	B1	C1	H1	L1∗	L2	MM
25	22	20.5	8	38	23.5	M14 x 1.5
32	22	20.5	8	42.0	23.5	M14 x 1.5
63	27	26	11	76.4	39	M18 x 1.5

∗ The L 1 measurement is when the unit is in the Z-phase first detecting position. At this position, 2 mm at the end (size 25, 32) and 4 mm at the end (size 63).

IP65 (Dust/Drip proof specification): LEY63D□□-□P

(View ZZ)

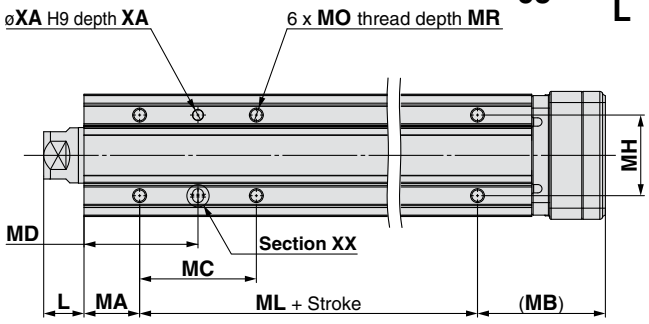
∗LEY63 only



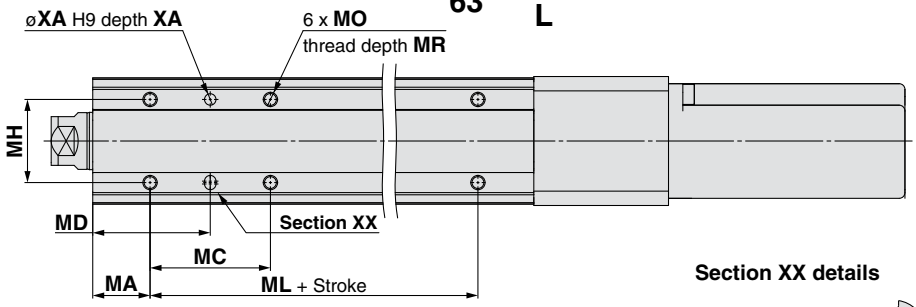
∗ When using the dust/drip proof (IP 65), correctly mount the fitting and tubing to the vent hole tap, and then place the end of the tubing in an area not exposed to dust or water. The fitting and tubing should be provided separately by the customer.
Select [Applicable tubing O.D.: ø4 or more, Connection thread: Rc1/8].

Dimensions

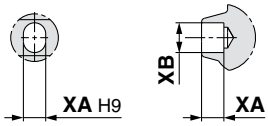
Body bottom tapped
Motor top/parallel: LEY 25/32/63 □□ A/B/C/L -□□□U



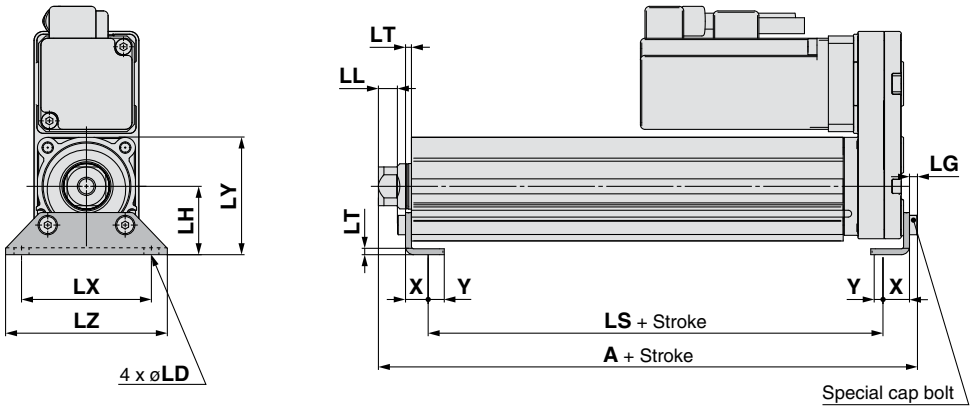
Body bottom tapped
In-line motor: LEY 25/32/63 D□ A/B/C/L -□□□U



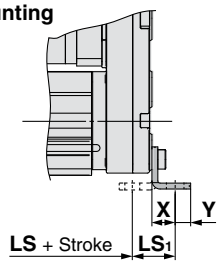
Section XX details



Foot: LEY 25/32/63 □□ A/B/C/L -□□□L



Outward mounting



Body Bottom Tapped

[mm]

Size	Stroke range (mm)	L	MA	MB	MC	MD	MH	ML
25	15 to 35	14.5	20	46	24	32	29	50
	40 to 100				42	41		
	105 to 120							75
	125 to 200				59	49.5		
	205 to 400				76	58		
32	20 to 35	18.5	25	55	22	36	30	50
	40 to 100				36	43		
	105 to 120							80
	125 to 200				53	51.5		
	205 to 500				70	60		
63	50 to 70	37.4	38	52.2	24	50	44	65
	75 to 120				45	60.5		
	125 to				58	67		
	205 to				86	81		100
	505 to							135

Size	Stroke range (mm)	MO	MR	XA	XB
25	15 to 35	M5 x 0.8	6.5	4	5
	40 to 100				
	105 to 120				
	125 to 200				
	205 to 400				
32	20 to 35	M6 x 1	8.5	5	6
	40 to 100				
	105 to 120				
	125 to 200				
	205 to 500				
63	50 to 70	M8 x 1.25	10	6	7
	75 to 120				
	125 to				
	205 to				
	505 to				

Included parts
· Foot
· Body mounting bolt

Foot

[mm]

Size	Stroke range (mm)	A	LS	LS1	LL	LD	LG	LH	LT	LX	LY	LZ	X	Y
25	15 to 100	136.6	98.8	19.8	8.4	6.6	3.5	30	2.6	57	51.5	71	11.2	5.8
	105 to 400	161.6	123.8											
32	20 to 100	155.7	114	19.2	11.3	6.6	4	36	3.2	76	61.5	90	11.2	7
	105 to 500	185.7	144											
63	50 to 200	200.8	133.2	25.2	29.2	8.6	5	50	3.2	95	88	110	14.2	8
	205 to 500	235.8	168.2											
	505 to 800	270.8	203.2											

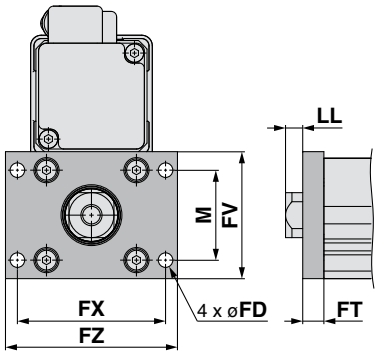
Material: Carbon steel (Chromate treated)

* The A measurement is when the unit is in the Z-phase first detecting position. At this position, 2 mm at the end (size 25, 32) and 4 mm at the end (size 63).

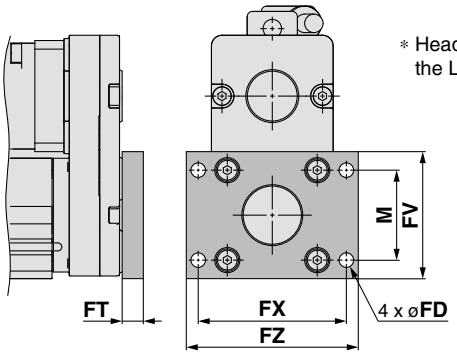
Note) When the motor mounting is the right or left side parallel type, the head side foot should be mounted outwards.

Dimensions

Rod flange: LEY 25/32/63 □□ A/B/C/L -□□□F



Head flange: LEY 25/32/63 □□ A/B/C/L -□□□G



∗ Head flange is not available for the LEY32/LEY63.

Included parts
· Flange
· Body mounting bolt

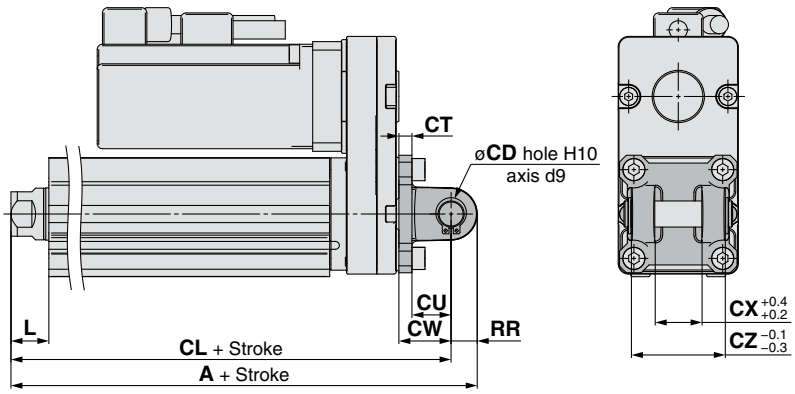
Rod/Head Flange [mm]

Size	FD	FT	FV	FX	FZ	LL	M
25	5.5	8	48	56	65	6.5	34
32	5.5	8	54	62	72	10.5	40
63	9	9	80	92	108	28.4	60

Material: Carbon steel (Nickel plated)

∗ The LL measurement is when the unit is in the Z-phase first detecting position. At this position, 2 mm at the end (size 25, 32) and 4 mm at the end (size 63).

Double clevis: LEY 25/32/63 □□ A/B/C/L -□□□D



Included parts
· Double clevis
· Body mounting bolt
· Clevis pin
· Retaining ring

∗ Refer to Electric Actuators catalog (CAT.E102) for details about the rod end nut and mounting bracket.

Double Clevis [mm]

Size	Stroke range (mm)	A	CL	CD	CT
25	15 to 100	160.5	150.5	10	5
	105 to 200	185.5	175.5		
32	20 to 100	180.5	170.5	10	6
	105 to 200	210.5	200.5		
63	50 to 200	236.6	222.6	14	8
	205 to 500	271.6	257.6	—	—
	505 to 800	306.6	292.6	—	—

Size	Stroke range (mm)	CU	CW	CX	CZ	L	RR
25	15 to 100	14	20	18	36	14.5	10
	105 to 200						
32	20 to 100	14	22	18	36	18.5	10
	105 to 200						
63	50 to 200	22	30	22	44	37.4	14
	205 to 500						
	505 to 800						

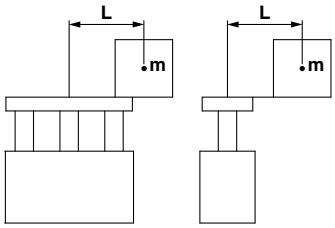
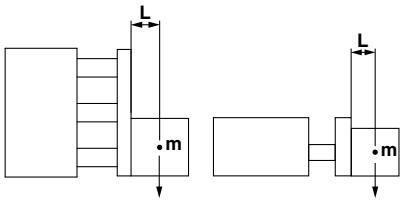
Material: Cast iron (Coating)

∗ The A and CL measurements are when the unit is in the Z-phase first detecting position. At this position, 2 mm at the end (size 25, 32) and 4 mm at the end (size 63).

Model Selection

Moment Load Graph

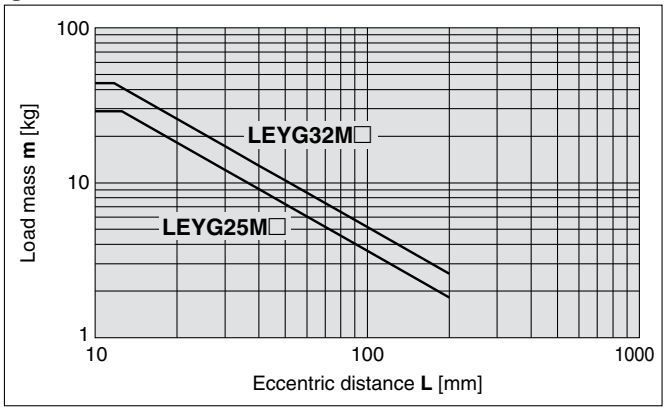
Selection conditions

	Vertical	Horizontal	
Mounting position			
Max. speed [mm/s]	"Speed–Work Load Graph"	200 or less	Over 200
Graph (Sliding bearing type)	①, ②	⑤, ⑥*	⑦, ⑧
Graph (Ball bushing bearing type)	③, ④	⑨, ⑩	⑪, ⑫

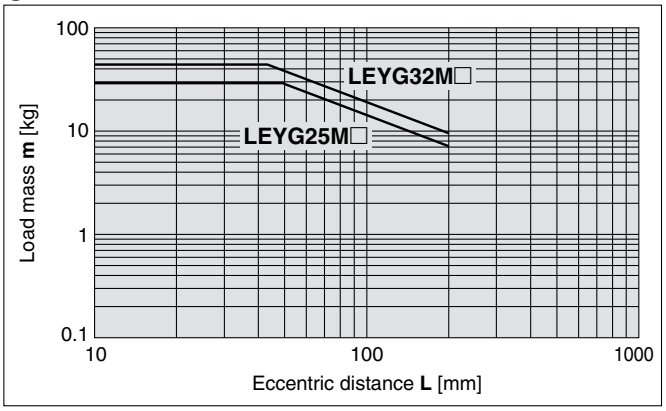
∗ For the sliding bearing type, the speed is restricted with a horizontal/moment load.

Vertical Mounting, Sliding Bearing

① 70 stroke or less



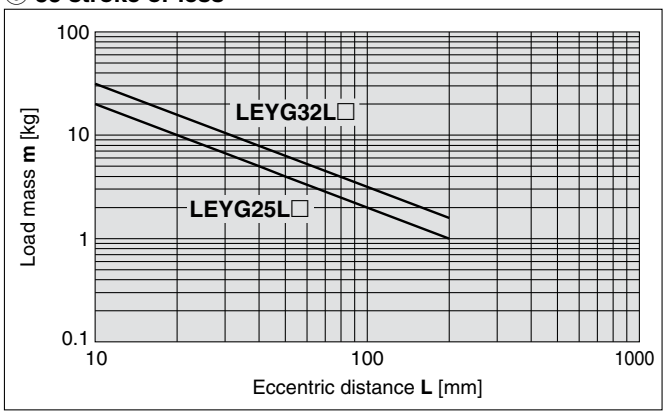
② Over 75 stroke



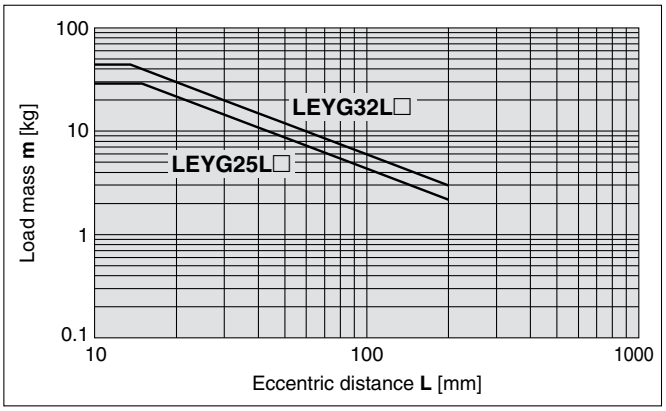
∗ The limit of vertical load mass varies depending on "lead" and "speed".
Check "Speed–Work Load Graph" on page 85.

Vertical Mounting, Ball Bushing Bearing

③ 35 stroke or less



④ Over 40 stroke

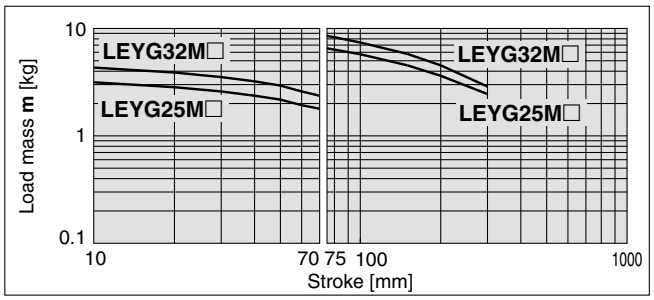


∗ The limit of vertical load mass varies depending on "lead" and "speed".
Check "Speed–Work Load Graph" on page 85.

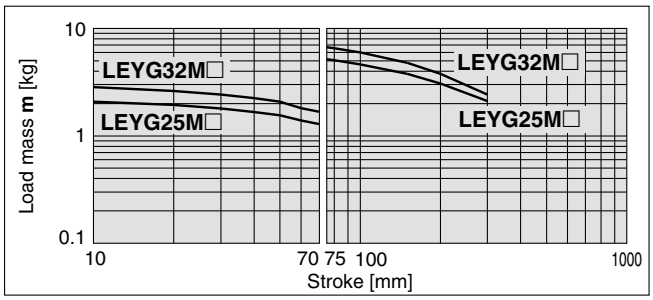
Moment Load Graph

Horizontal Mounting, Sliding Bearing

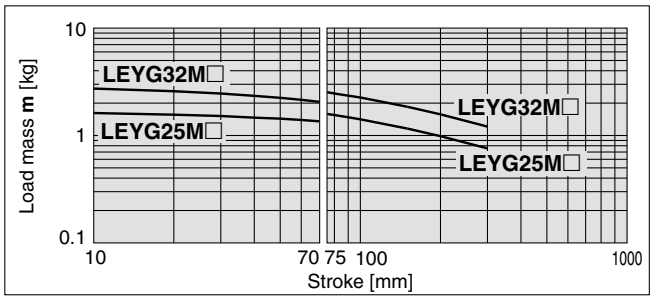
⑤ **L = 50 mm Max. speed = 200 mm/s or less**



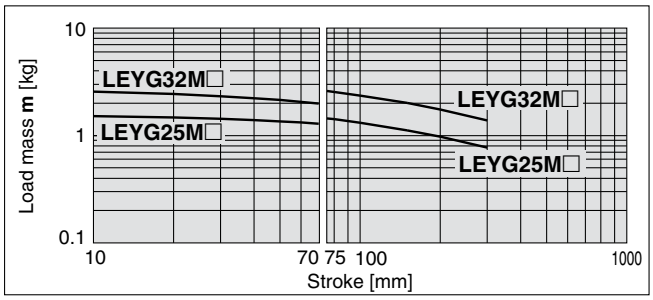
⑥ **L = 100 mm Max. speed = 200 mm/s or less**



⑦ **L = 50 mm Max. speed = Over 200 mm/s**

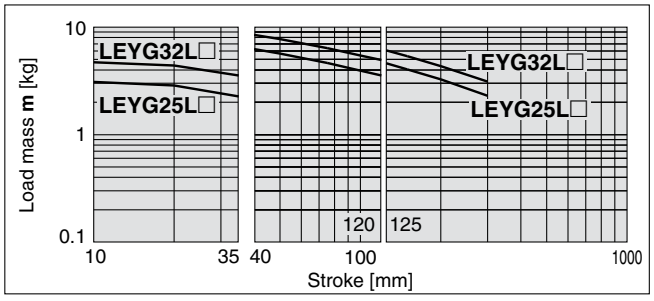


⑧ **L = 100 mm Max. speed = Over 200 mm/s**

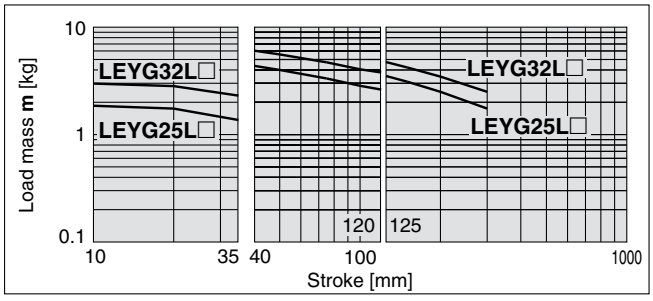


Horizontal Mounting, Ball Bushing Bearing

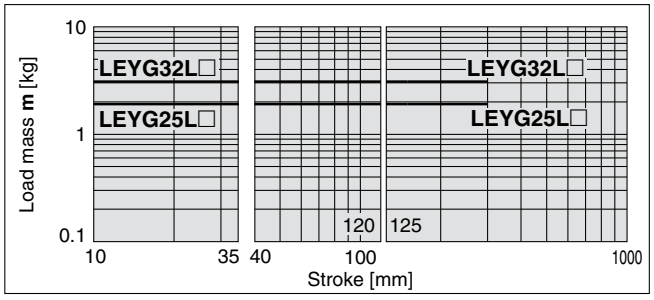
⑨ **L = 50 mm Max. speed = 200 mm/s or less**



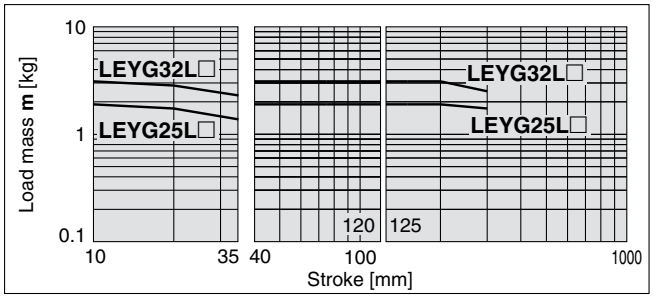
⑩ **L = 100 mm Max. speed = 200 mm/s or less**



⑪ **L = 50 mm Max. speed = Over 200 mm/s**

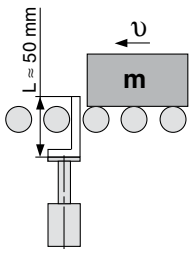


⑫ **L = 100 mm Max. speed = Over 200 mm/s**



Operating Range when Used as Stopper

LEYG□M (Sliding bearing)



⚠Caution

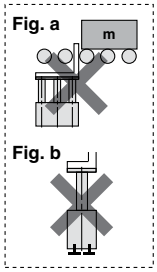
Handling Precautions

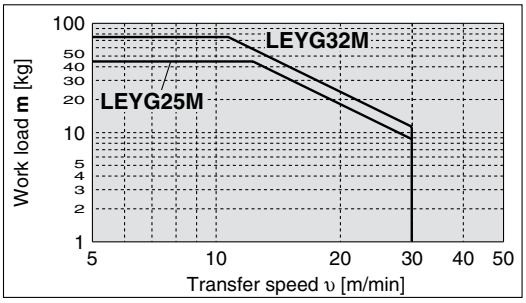
Note 1) When used as a stopper, select a model with 30 stroke or less.

Note 2) LEYG□L (ball bushing bearing) cannot be used as a stopper.

Note 3) Workpiece collision in series with guide rod cannot be permitted (**Fig. a**).

Note 4) The body should not be mounted on the end. It must be mounted on the top or bottom (**Fig. b**).

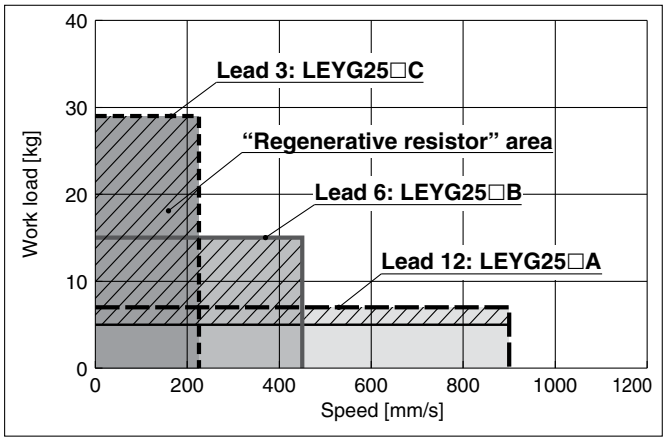




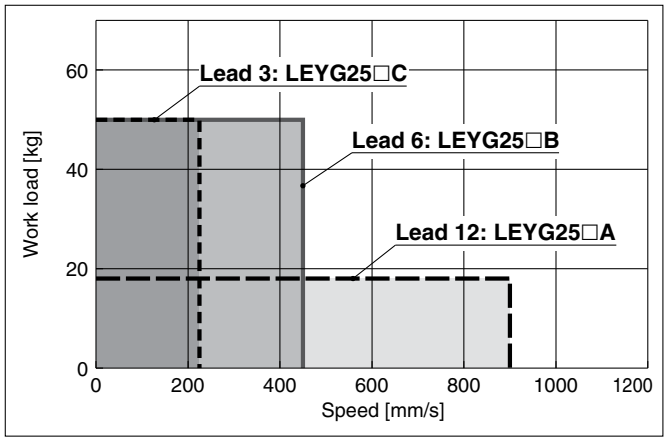
Speed–Work Load Graph/Conditions for "Regenerative Resistor" (Guide)

LEYG25□V6 (Motor mounting position: Top mounting/In-line)

Vertical

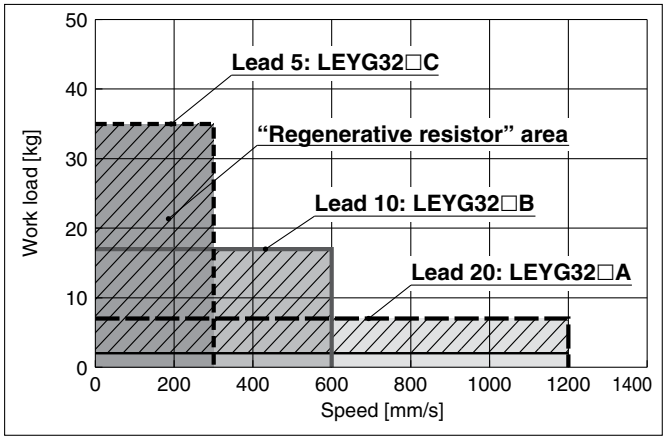


Horizontal

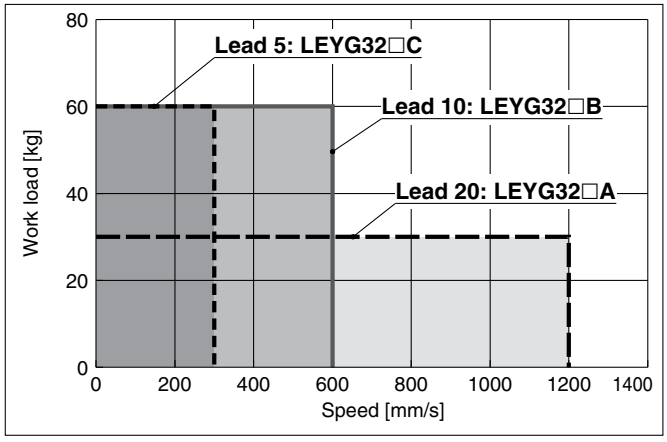


LEYG32□V7 (Motor mounting position: Top mounting)

Vertical

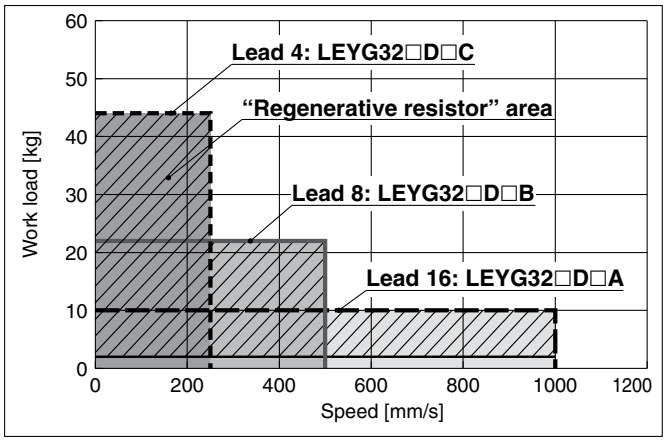


Horizontal

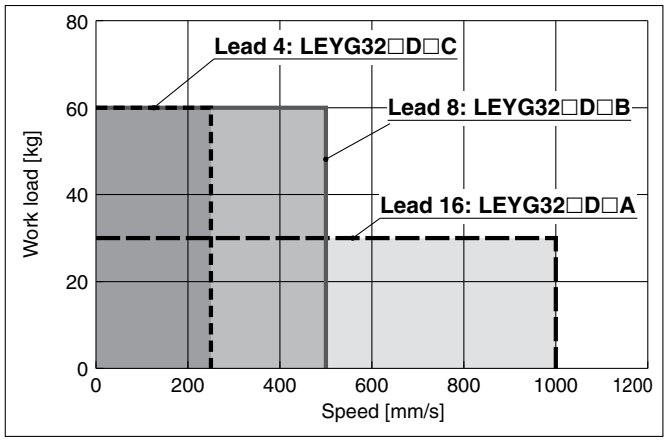


LEYG32□DV7 (Motor mounting position: In-line)

Vertical



Horizontal



"Regenerative resistor" area

∗ When using the actuator in the "Regenerative resistor" area, download the "AC servo capacity selection program/SigmaJunmaSize+" from the SMC website. Then, calculate the necessary regenerative resistor capacity to prepare an appropriate external regenerative resistor.

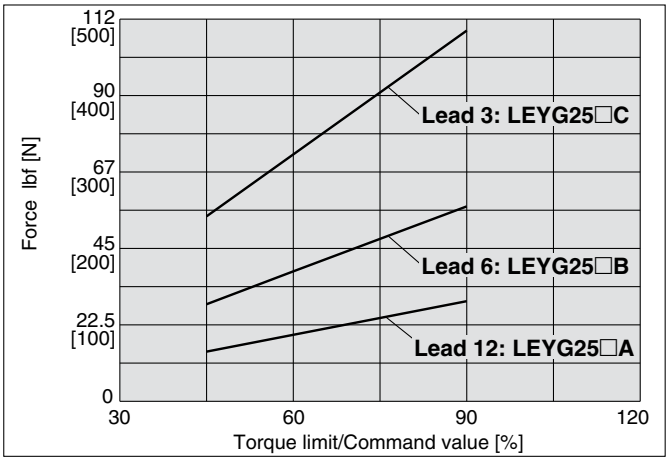
∗ Regenerative resistor should be provided by the customer.

Applicable Motor/Driver

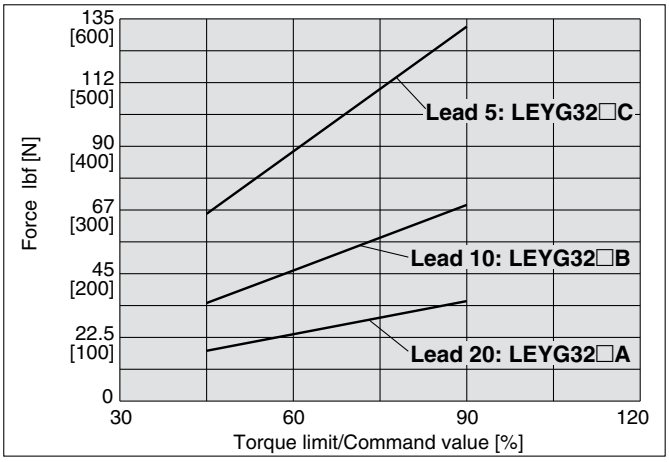
Model	Applicable model	
	Motor	Servopack (SMC driver)
LEYG25□	SGMJV-01A3A	SGDV-R90A11□ (LECYM2-V5) SGDV-R90A21□ (LECYU2-V5)
LEYG32□	SGMJV-02A3A	SGDV-1R6A11□ (LECYM2-V7) SGDV-1R6A21□ (LECYU2-V7)

Force Conversion Graph

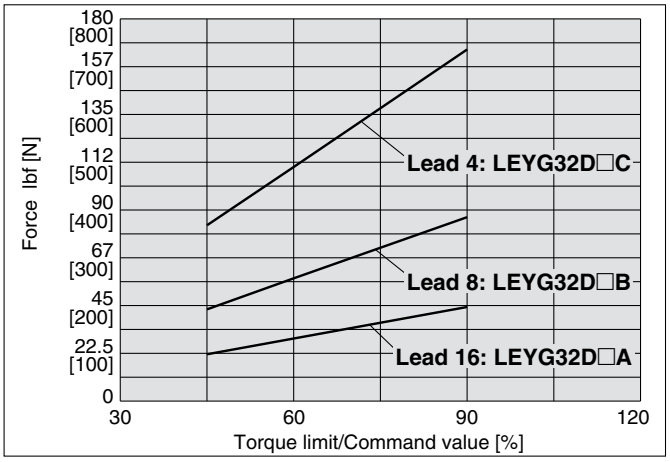
LEYG25□ (Motor mounting position: Top mounting/In-line)



LEYG32□ (Motor mounting position: Top mounting)



LEYG32D (Motor mounting position: In-line)

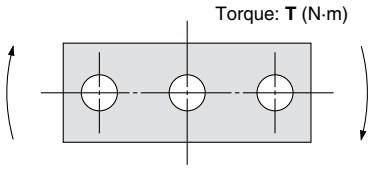


∗1 When limiting the torque with incremental encoder, parameter No. PC12/the value of the internal torque command should be set to 90% or less.
∗2 When limiting the torque with absolute encoder, parameter No. PC13/the value of the maximum output command for analog torque should be set to 90% or less.

Torque limit/ Command value [%]	Duty ratio [%]	Continuous pushing time [minute]
75 or less	100	—
90	100 (60)	— (1.5)

∗ The values in ( ) are for a closely-mounted driver.

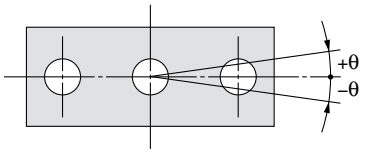
Allowable Rotational Torque of Plate: T



T lbf·ft [N·m]

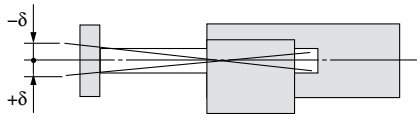
Model	Stroke [mm]				
	30	50	100	200	300
LEYG25M	1.15 [1.56]	0.95 [1.29]	2.58 [3.50]	1.61 [2.18]	1.00 [1.36]
LEYG25L	1.12 [1.52]	2.63 [3.57]	1.82 [2.47]	1.51 [2.05]	1.06 [1.44]
LEYG32M	1.88 [2.55]	1.54 [2.09]	3.98 [5.39]	2.40 [3.26]	1.39 [1.88]
LEYG32L	2.07 [2.80]	4.25 [5.76]	2.99 [4.05]	2.38 [3.23]	1.71 [2.32]

Non-rotating Accuracy of Plate: θ



Size	LEYG□M	LEYG□L
25	±0.05°	±0.06°
32		

Plate Displacement: δ



[mm]

Model	Stroke [mm]				
	30	50	100	200	300
LEYG25M	±0.26	±0.31	±0.25	±0.38	±0.36
LEYG25L	±0.13	±0.13	±0.17	±0.20	±0.23
LEYG32M	±0.23	±0.29	±0.23	±0.36	±0.34
LEYG32L	±0.11	±0.11	±0.15	±0.19	±0.22

Electric Actuator/Guide Rod Type

AC Servo Motor

Series LEYG

LEYG25, 32

How to Order

LEYG 25 M ☐ V6 B – 200 ☐ ☐ – S 3 M2 ☐

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫ ⓬

❶ Size

25
32

❷ Bearing type

M	Sliding bearing
L	Ball bushing bearing

❸ Motor mounting position

Nil	Top mounting
D	In-line

❹ Motor type

Symbol	Type	Output [W]	Actuator size	Compatible driver
V6	AC servo motor (Absolute encoder)	100	25	LECYM2-V5 LECYU2-V5
V7		200	32	LECYM2-V7 LECYU2-V7

❺ Lead [mm]

Symbol	LEYG25	LEYG32 *
A	12	16 (20)
B	6	8 (10)
C	3	4 (5)

* The values shown in ( ) are the lead for top mounting type. (Equivalent lead which includes the pulley ratio [1.25:1])

❻ Stroke [mm]

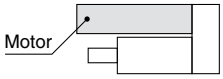
30	30
to	to
300	300

* Refer to the applicable stroke table.

❼ Motor option

Nil	Without option
B	With lock

* When "With lock" is selected for the top mounting type, the motor body will stick out of the end of the body for size 25 with strokes 30 or less. Check for interference with workpieces before selecting a model.



❽ Guide option

Nil	Without option
F	With grease retaining function

* Only available for the sliding bearing.

❾ Cable type

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

❿ Cable length [m]

Nil	Without cable
3	3
5	5
A	10
C	20

Applicable Stroke Table

●: Standard

Model \ Stroke (mm)	30	50	100	150	200	250	300	Manufacturable stroke range
LEYG25	●	●	●	●	●	●	●	15 to 300
LEYG32	●	●	●	●	●	●	●	20 to 300

* Please consult with SMC for the manufacture of intermediate strokes.

For auto switches, refer to pages 96 and 97.

Motor mounting position: Top mounting

Motor mounting position: In-line

⓫ Driver type

	Compatible driver	Power supply voltage [V]
Nil	Without driver	—
M2	LECYM2-V□	200 to 230
U2	LECYU2-V□	200 to 230

∗ When the driver type is selected, the cable is included. Select cable type and cable length.

⓬ I/O connector

Nil	Without connector
H	With connector

Use of auto switches for the guide rod type LEYG series
- Insert the auto switch from the front side with rod (plate) sticking out.
- For the parts hidden behind the guide attachment (Rod stick out side), the auto switch cannot be fixed.
- Consult with SMC when using auto switch on the rod stick out side.

Compatible Drivers

Driver type	MECHATROLINK-Ⅱ type 	MECHATROLINK-Ⅲ type 
Series	**LECYM**	**LECYU**
Applicable network	MECHATROLINK-Ⅱ	MECHATROLINK-Ⅲ
Control encoder	Absolute 20-bit encoder	
Communication device	USB communication, RS-422 communication	
Power supply voltage (V)	200 to 230 VAC (50/60 Hz)	
Reference page	Page 103	

Specifications

Model			LEYG25$^{M}_{L}$ (Top mounting) LEYG25$^{M}_{L}$D (In-line)			LEYG32$^{M}_{L}$ (Top mounting)			LEYG32$^{M}_{L}$D (In-line)		
Actuator specifications	Stroke [mm] Note 1)		30, 50, 100, 150, 200, 250, 300			30, 50, 100, 150, 200, 250, 300			30, 50, 100, 150, 200, 250, 300		
	Work load [kg]	Horizontal Note 2)	18	50	50	30	60	60	30	60	60
		Vertical	7	15	29	7	17	35	10	22	44
	Pushing force lbf [N] (Set value: 45 to 90%) Note 3)		15 to 29 [65 to 131]	28 to 57 [127 to 255]	54 to 109 [242 to 485]	18 to 35 [79 to 157]	35 to 69 [154 to 308]	66 to 132 [294 to 588]	22 to 44 [98 to 197]	43 to 87 [192 to 385]	83 to 165 [368 to 736]
	Max. speed [mm/s]		900	450	225	1200	600	300	1000	500	250
	Pushing speed [mm/s] Note 4)		35 or less			30 or less			30 or less		
	Max. acceleration/deceleration [mm/s^2]		5000			5000					
	Positioning repeatability [mm]		±0.02			±0.02					
	Lead [mm] (including pulley ratio)		12	6	3	20	10	5	16	8	4
	Impact/Vibration resistance [m/s^2] Note 5)		50/20			50/20					
	Actuation type		Ball screw + Belt [1:1]/Ball screw			Ball screw + Belt [1:1.25]			Ball screw		
	Guide type		Sliding bearing (LEYG□M), Ball bushing bearing (LEYG□L)								
	Operating temperature range		41 to 105°F (5 to 40°C)			41 to 105°F (5 to 40°C)					
	Operating humidity range [%RH]		90 or less (No condensation)			90 or less (No condensation)					
	Conditions for "Regenerative resistor" [kg] Note 6)	Horizontal	Not required			Not required					
		Vertical	5 or more			2 or more					
Electric specifications	Motor output/Size		100 W/□40			200 W/□60					
	Motor type		AC servo motor (200 VAC)			AC servo motor (200 VAC)					
	Encoder		Absolute 20-bit encoder (Resolution: 1048576 p/rev)								
	Power consumption [W] Note 7)	Horizontal	45			65			65		
		Vertical	145			175			175		
	Standby power consumption when operating [W] Note 8)	Horizontal	2			2			2		
		Vertical	8			8			8		
	Max. instantaneous power consumption [W] Note 9)		445			724			724		
Lock unit specifications	Type Note 10)		Non-magnetizing lock			Non-magnetizing lock					
	Holding force lbf [N]		29 [131]	57 [255]	109 [485]	35 [157]	69 [308]	132 [588]	44 [197]	87 [385]	165 [736]
	Power consumption at 68°F (20°C) [W] Note 11)		5.5			6			6		
	Rated voltage [V]		24 VDC $^{0}_{-10\%}$								

Note 1) Please consult with SMC for non-standard strokes as they are produced as special orders.

Note 2) The maximum value of the horizontal work load. An external guide is necessary to support the load. The actual work load changes according to the condition of the external guide. Please confirm using actual device.

Note 3) The force setting range (set values for the driver) for the pushing operation with the torque control mode, etc. Set it with reference to "Force Conversion Graph" on page 86.

Note 4) The allowable collision speed for the pushing operation with the torque control mode, etc.

Note 5) 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 6) The work load conditions which require "Regenerative resistor" when operating at the maximum speed (Duty ratio: 100%). Order the regenerative resistor separately. For details, refer to "Conditions for Regenerative Resistor (Guide)" on page 85.

Note 7) The power consumption (including the driver) is for when the actuator is operating.

Note 8) The standby power consumption when operating (including the driver) is for when the actuator is stopped in the set position during operation.

Note 9) The maximum instantaneous power consumption (including the driver) is for when the actuator is operating.

Note 10) Only when motor option "With lock" is selected.

Note 11) For an actuator with lock, add the power consumption for the lock.

Weight

Product Weight: Top Mounting Type

[kg]

Series	LEYG25M							LEYG32M						
Stroke [mm]	30	50	100	150	200	250	300	30	50	100	150	200	250	300
Weight [kg]	1.7	1.9	2.2	2.6	3.0	3.3	3.6	3.1	3.4	4.0	4.7	5.3	5.7	6.2

Series	LEYG25L							LEYG32L						
Stroke [mm]	30	50	100	150	200	250	300	30	50	100	150	200	250	300
Weight [kg]	1.7	1.9	2.2	2.6	2.9	3.2	3.4	3.1	3.4	3.8	4.5	5.0	5.5	5.9

Product Weight: In-line Motor Type

[kg]

Series	LEYG25MD							LEYG32MD						
Stroke [mm]	30	50	100	150	200	250	300	30	50	100	150	200	250	300
Weight [kg]	1.7	1.9	2.2	2.6	3.0	3.3	3.6	3.2	3.4	4.0	4.7	5.3	5.8	6.2

Series	LEYG25LD							LEYG32LD						
Stroke [mm]	30	50	100	150	200	250	300	30	50	100	150	200	250	300
Weight [kg]	1.7	2.0	2.2	2.6	2.9	3.2	3.4	3.2	3.4	3.8	4.6	5.0	5.5	5.9

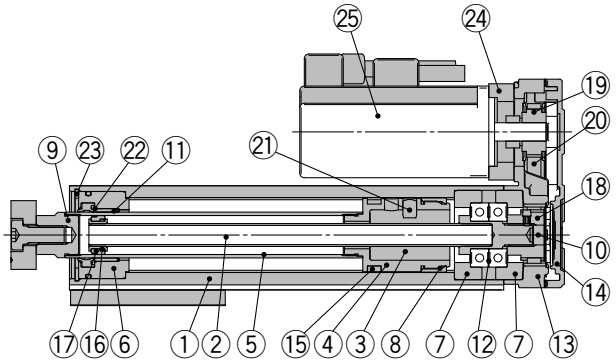
Additional Weight

[kg]

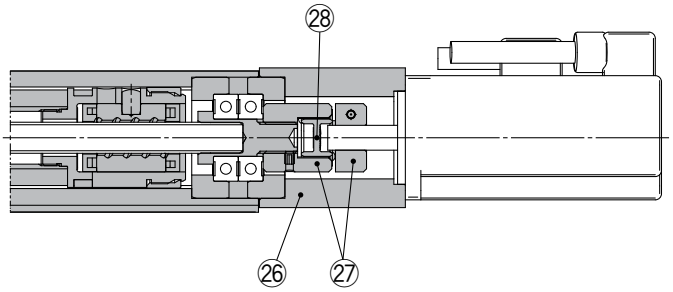
Size	25	32
Lock	0.3	0.6

Construction

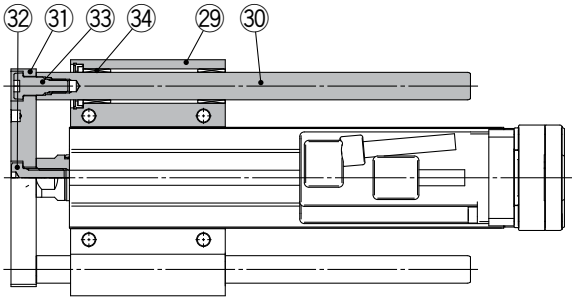
Motor mounting position: Top mounting type



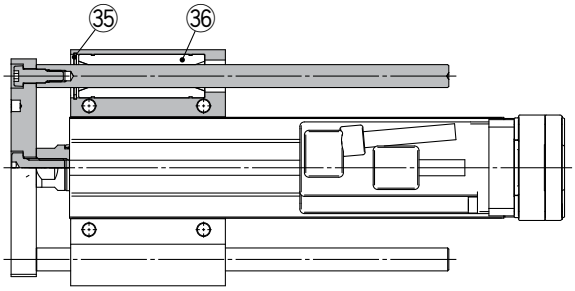
Motor mounting position: In-line type



LEYG□M



LEYG□L



Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Ball screw shaft**	Alloy steel	
3	**Ball screw nut**	—	
4	**Piston**	Aluminum alloy	
5	**Piston rod**	Stainless steel	Hard chrome plated
6	**Rod cover**	Aluminum alloy	
7	**Bearing holder**	Aluminum alloy	
8	**Rotation stopper**	POM	
9	**Socket**	Free cutting carbon steel	Nickel plated
10	**Connected shaft**	Free cutting carbon steel	Nickel plated
11	**Bushing**	Lead bronze cast	
12	**Bearing**	—	
13	**Return box**	Aluminum die-cast	Trivalent chromated
14	**Return plate**	Aluminum die-cast	Trivalent chromated
15	**Magnet**	—	
16	**Wear ring holder**	Stainless steel	Stroke 101 mm or more
17	**Wear ring**	POM	Stroke 101 mm or more
18	**Screw shaft pulley**	Aluminum alloy	

No.	Description	Material	Note
19	**Motor pulley**	Aluminum alloy	
20	**Belt**	—	
21	**Parallel pin**	Stainless steel	
22	**Seal**	NBR	
23	**Retaining ring**	Steel for spring	Phosphate coated
24	**Motor adapter**	Aluminum alloy	Anodized
25	**Motor**	—	
26	**Motor block**	Aluminum alloy	Anodized
27	**Hub**	Aluminum alloy	
28	**Spider**	Urethane	
29	**Guide attachment**	Aluminum alloy	Anodized
30	**Guide rod**	Carbon steel	
31	**Plate**	Aluminum alloy	Anodized
32	**Plate mounting bolt**	Carbon steel	Nickel plated
33	**Guide bolt**	Carbon steel	Nickel plated
34	**Sliding bearing**	—	
35	**Retaining ring**	Steel for spring	Phosphate coated
36	**Ball bushing**	—	

Support Block

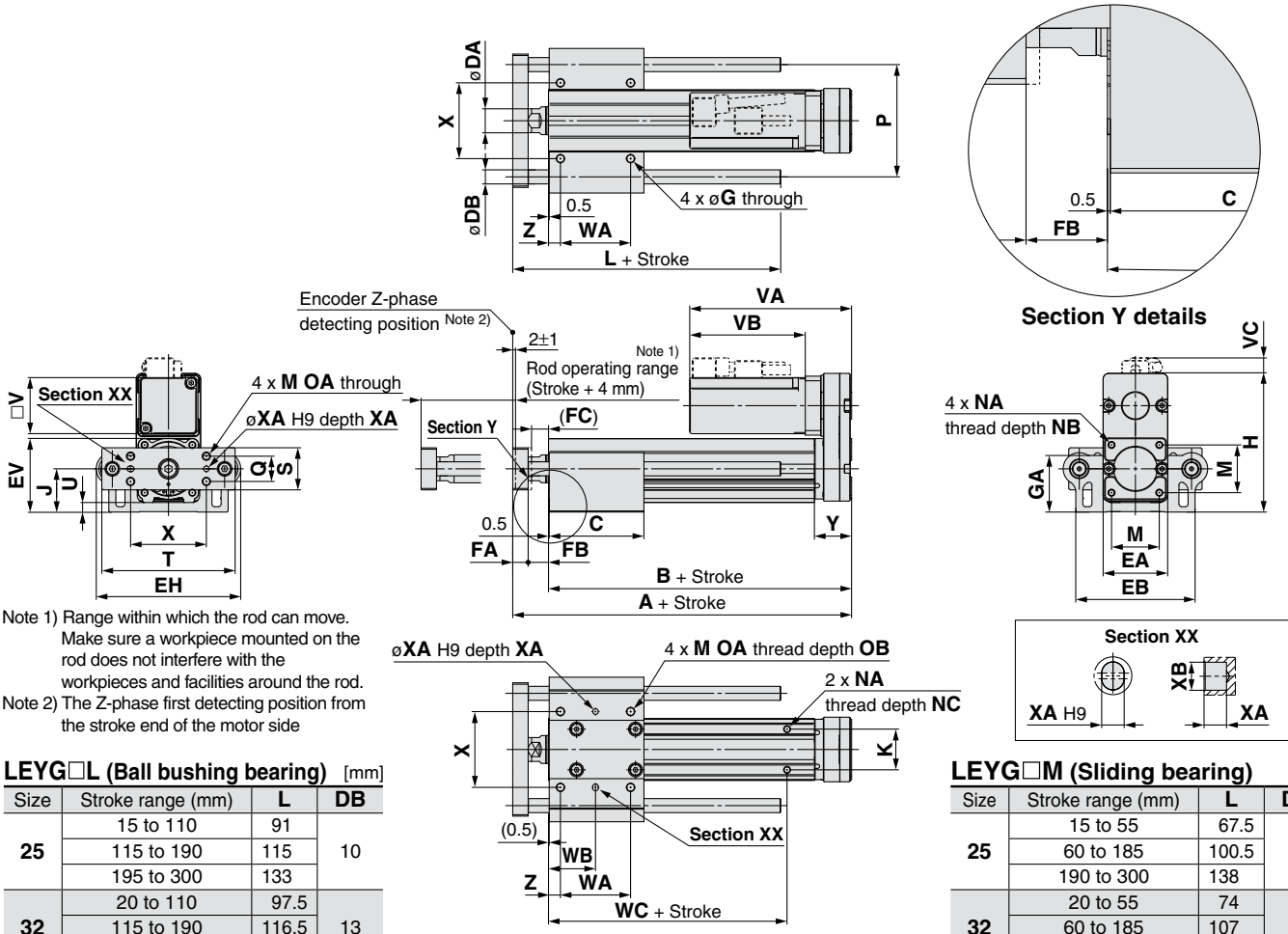
Size	Order no.
25	LEYG-S025
32	LEYG-S032

∗ Two body mounting bolts are included with the support block.

Replacement Parts/Belt

Size	Order no.
25	LE-D-2-2
32	LE-D-2-4

Dimensions: Top Mounting



Note 1) Range within which the rod can move. Make sure a workpiece mounted on the rod does not interfere with the workpieces and facilities around the rod.

Note 2) The Z-phase first detecting position from the stroke end of the motor side

LEYG□L (Ball bushing bearing) [mm]

Size	Stroke range (mm)	L	DB
25	15 to 110	91	10
	115 to 190	115	
	195 to 300	133	
32	20 to 110	97.5	13
	115 to 190	116.5	
	195 to 300	134	

LEYG□M (Sliding bearing) [mm]

Size	Stroke range (mm)	L	DB
25	15 to 55	67.5	12
	60 to 185	100.5	
	190 to 300	138	
32	20 to 55	74	16
	60 to 185	107	
	190 to 300	144	

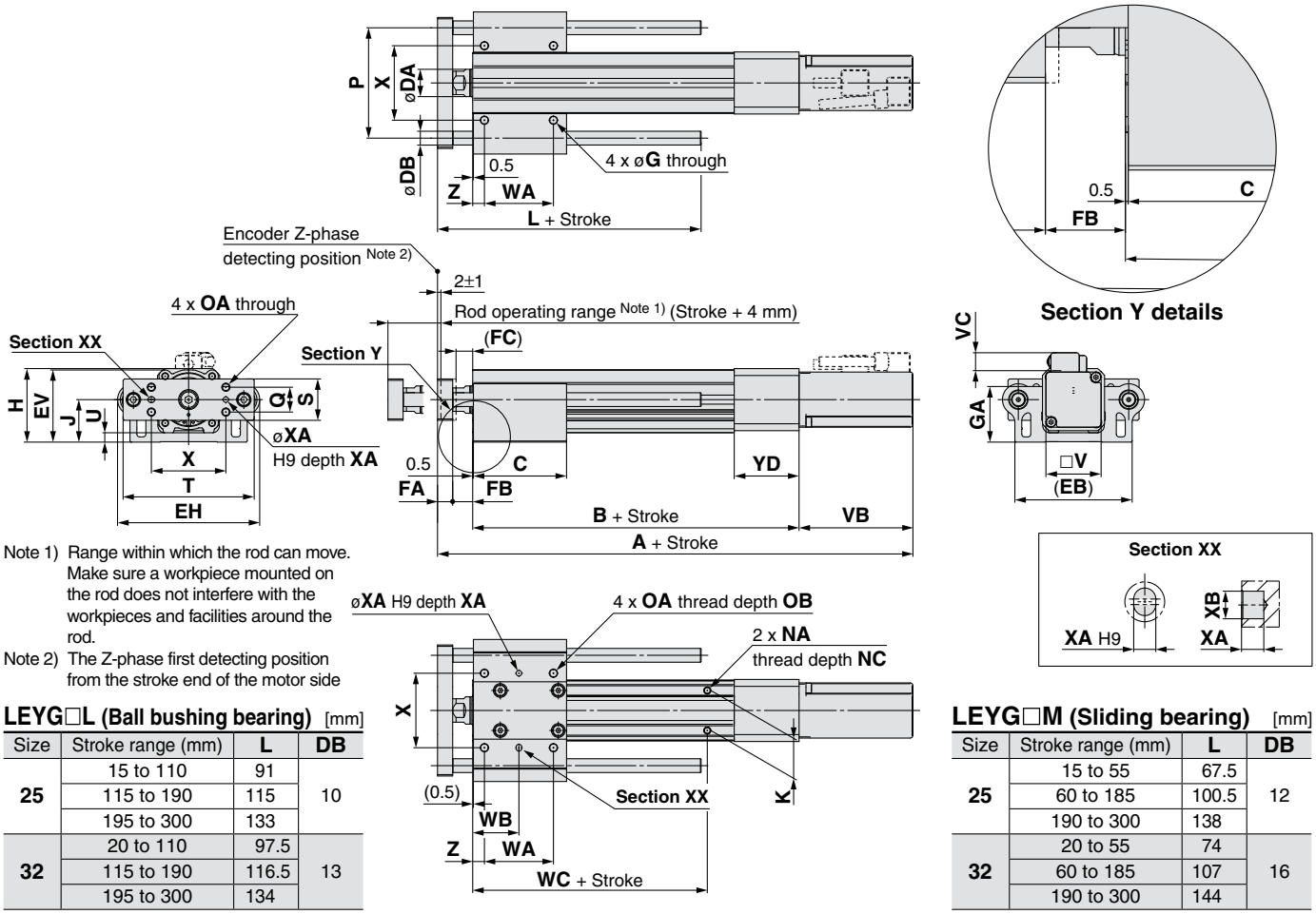
LEYG□M, LEYG□L Common [mm]

Size	Stroke range (mm)	A	B	C	DA	EA	EB	EH	EV	FA	FB	FC	G	GA	H	J	K	M	NA	NB	NC
25	15 to 35	141.5	116	50	20	46	85	103	52.3	11	14.5	12.5	5.4	40.3	98.8	30.8	29	34	M5 x 0.8	8	6.5
	40 to 100			67.5																	
	105 to 120	166.5	141																		
	125 to 200			84.5																	
	205 to 300			102																	
32	20 to 35	160.5	130	55	25	60	101	123	63.8	12	18.5	16.5	5.4	50.3	125.8	38.3	30	40	M6 x 1.0	10	8.5
	40 to 100			68																	
	105 to 120	190.5	160																		
	125 to 200			85																	
	205 to 300			102																	

Size	Stroke range (mm)	OA	OB	P	Q	S	T	U	V	WA	WB	WC	X	XA	XB	Y	Z
25	15 to 35	M6 x 1.0	12	80	18	30	95	6.8	40	35	26	70	54	4	5	26.5	8.5
	40 to 100									50	33.5						
	105 to 120											95					
	125 to 200									70	43.5						
	205 to 300									85	51						
32	20 to 35	M6 x 1.0	12	95	28	40	117	7.3	60	40	28.5	75	64	5	6	34	8.5
	40 to 100									50	33.5						
	105 to 120											105					
	125 to 200									70	43.5						
	205 to 300									85	51						

Size	Without lock			With lock		
	VA	VB	VC	VA	VB	VC
25	115.5	82.5	11	160.5	127.5	11
32	120	80	14	160	120	14

Dimensions: In-line Motor



Note 1) Range within which the rod can move. Make sure a workpiece mounted on the rod does not interfere with the workpieces and facilities around the rod.

Note 2) The Z-phase first detecting position from the stroke end of the motor side

LEYG□L (Ball bushing bearing) [mm]

Size	Stroke range (mm)	L	DB
25	15 to 110	91	10
	115 to 190	115	
	195 to 300	133	
32	20 to 110	97.5	13
	115 to 190	116.5	
	195 to 300	134	

LEYG□M (Sliding bearing) [mm]

Size	Stroke range (mm)	L	DB
25	15 to 55	67.5	12
	60 to 185	100.5	
	190 to 300	138	
32	20 to 55	74	16
	60 to 185	107	
	190 to 300	144	

LEYG□M, LEYG□L Common [mm]

Size	Stroke range (mm)	B	C	DA	EB	EH	EV	FA	FB	FC	G	GA	H	J	K	NA	NC
25	15 to 35	136.5	50	20	85	103	52.3	11	14.5	12.5	5.4	40.3	53.3	30.8	29	M5 x 0.8	6.5
	40 to 100		67.5														
	105 to 120	161.5															
	125 to 200		84.5														
	205 to 300		102														
32	20 to 35	156	55	25	101	123	63.8	12	18.5	16.5	5.4	50.3	68.3	38.3	30	M6 x 1.0	8.5
	40 to 100		68														
	105 to 120	186															
	125 to 200		85														
	205 to 300		102														

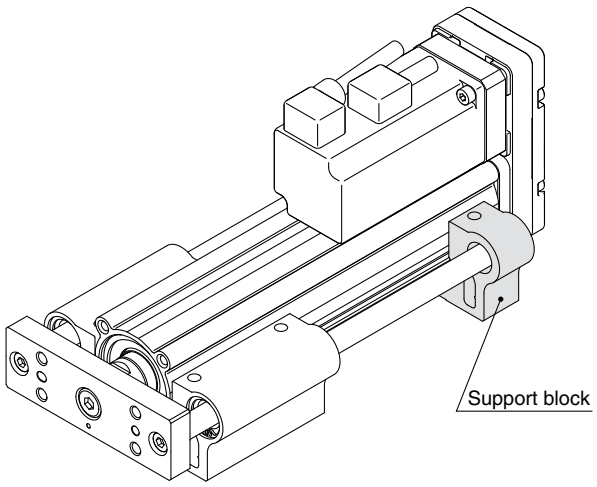
Size	Stroke range (mm)	OA	OB	P	Q	S	T	U	V	WA	WB	WC	X	XA	XB	YD	Z
25	15 to 35	M6 x 1.0	12	80	18	30	95	6.8	40	35	26	70	54	4	5	47	8.5
	40 to 100									50	33.5						
	105 to 120											95					
	125 to 200									70	43.5						
	205 to 300									85	51						
32	20 to 35	M6 x 1.0	12	95	28	40	117	7.3	60	40	28.5	75	64	5	6	60	8.5
	40 to 100									50	33.5						
	105 to 120											105					
	125 to 200									70	43.5						
	205 to 300									85	51						

Size	Stroke range (mm)	Without lock			With lock		
		A	VB	VC	A	VB	VC
25	15 to 100	255.5	82.5	11.5	300.5	127.5	11.5
	105 to 300	280.5			325.5		
32	15 to 100	266.5	80	14	306.5	120	14
	105 to 300	296.5			336.5		

Support Block

• Guide for support block application

When the stroke exceeds 100 mm and the mounting orientation is horizontal, the body will be bent. Mounting the support block is recommended. (Please order it separately from the models shown below.)

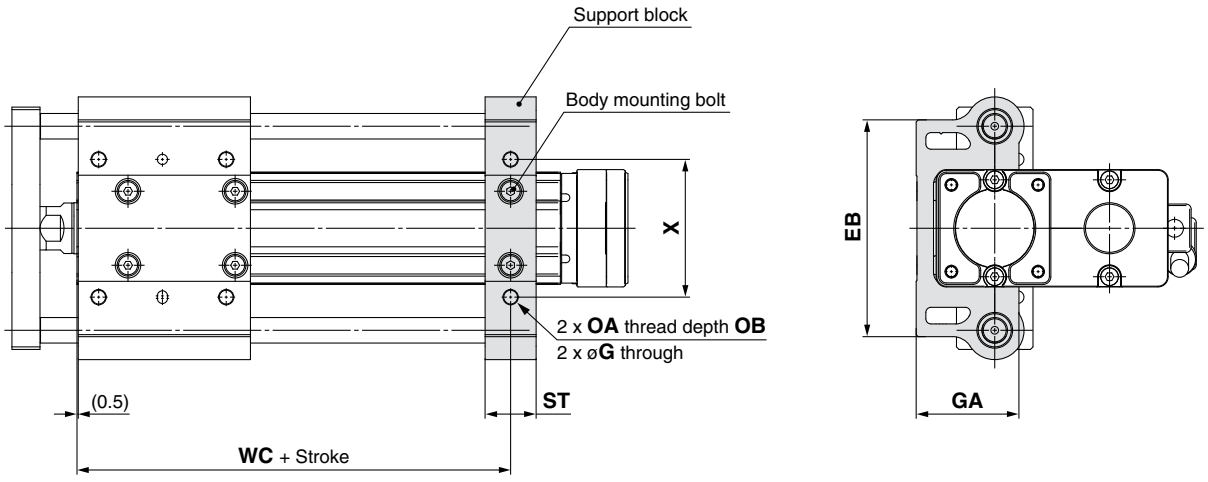


Support Block Model

LEYG-S025

Size

025	For size 25
032	For size 32



⚠Caution

Do not install the body using only a support block.
The support block should be used only for support.

[mm]

Size	Model	Stroke range	EB	G	GA	OA	OB	ST	WC	X
25	**LEYG-S025**	15 to 100	85	5.4	40.3	M6 x 1.0	12	20	70	54
		105 to 300							95	
32	**LEYG-S032**	20 to 100	101	5.4	50.3	M6 x 1.0	12	22	75	64
		105 to 300							105	

∗ Two body mounting bolts are included with the support block.

Solid State Auto Switch / Direct Mounting Style
D-M9N(V)/D-M9P(V)/D-M9B(V)

CE RoHS

Refer to SMC website for details about products conforming to the international standards.

Grommet

- **2-wire load current is reduced (2.5 to 40 mA).**
- **Flexibility is 1.5 times greater than the conventional model (SMC comparison).**
- **Using flexible cable as standard.**

Auto Switch Specifications

PLC: Programmable Logic Controller

D-M9□, D-M9□V (With indicator light)						
Auto switch model	D-M9N	D-M9NV	D-M9P	D-M9PV	D-M9B	D-M9BV
Electrical entry	In-line	Perpendicular	In-line	Perpendicular	In-line	Perpendicular
Wiring type	3-wire				2-wire	
Output type	NPN		PNP		—	
Applicable load	IC circuit, Relay, PLC				24 VDC relay, PLC	
Power supply voltage	5, 12, 24 VDC (4.5 to 28 V)				—	
Current consumption	10 mA or less				—	
Load voltage	28 VDC or less		—		24 VDC (10 to 28 VDC)	
Load current	40 mA or less				2.5 to 40 mA	
Internal voltage drop	0.8 V or less at 10 mA (2 V or less at 40 mA)				4 V or less	
Leakage current	100 μA or less at 24 VDC				0.8 mA or less	
Indicator light	Red LED lights up when turned ON.					
Standards	CE marking, RoHS					

•Lead wires — Oilproof flexible heavy-duty vinyl cord: ø2.7 x 3.2 ellipse, 0.15 mm², 2 cores (D-M9B(V)), 3 cores (D-M9N(V)/D-M9P(V))

Note) Refer to the Best Pneumatics No. 2 for solid state auto switch common specifications.

Weight

[g]

Auto switch model		D-M9N(V)	D-M9P(V)	D-M9B(V)
Lead wire length (m)	0.5	8	8	7
	1	14	14	13
	3	41	41	38
	5	68	68	63

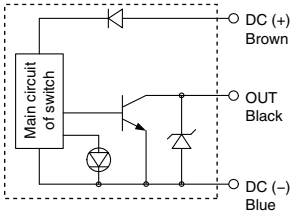
⚠Caution

Precautions

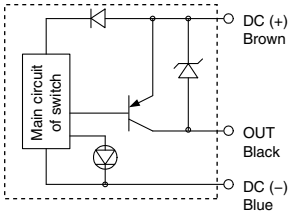
Fix the auto switch with the existing screw installed on the auto switch body. The auto switch may be damaged if a screw other than the one supplied is used.

Auto Switch Internal Circuit

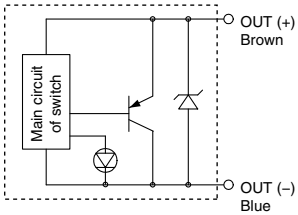
D-M9N/M9NV



D-M9P/M9PV



D-M9B/M9BV



How to Order

D-M9 N □ □

- **Series**
- **Wiring/Output type**

N	3-wire NPN
P	3-wire PNP
B	2-wire

- **Electrical entry**

Nil	In-line
V	Perpendicular

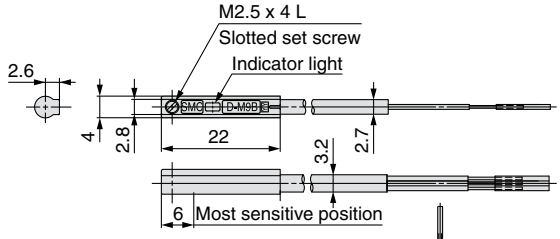
- **Lead wire length**

Nil	0.5 m
M	1 m
L	3 m
Z	5 m

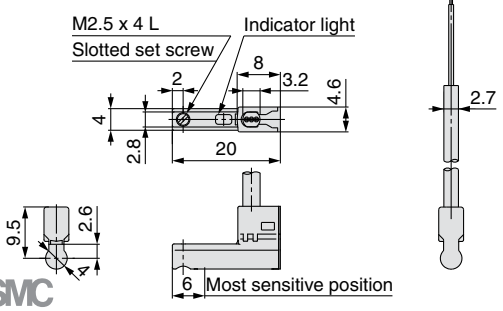
Dimensions

[mm]

D-M9□



D-M9□V

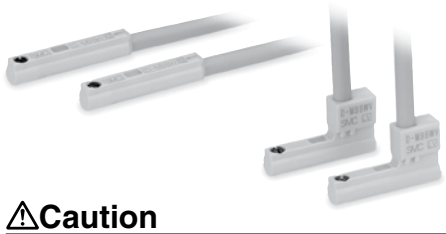


2-Color Indication Solid State Auto Switch Direct Mounting Style
D-M9NW(V)/D-M9PW(V)/D-M9BW(V)

CE RoHS

Grommet

- **2-wire load current is reduced (2.5 to 40 mA).**
- **Flexibility is 1.5 times greater than the conventional model (SMC comparison).**
- **Using flexible cable as standard.**
- **The optimum operating range can be determined by the color of the light. (Red → Green ← Red)**



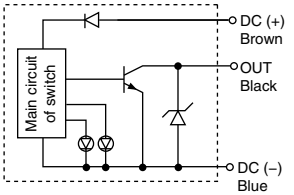
⚠Caution

Precautions

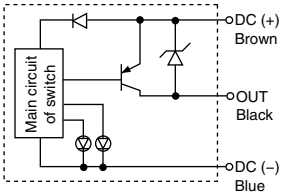
Fix the auto switch with the existing screw installed on the auto switch body. The auto switch may be damaged if a screw other than the one supplied is used.

Auto Switch Internal Circuit

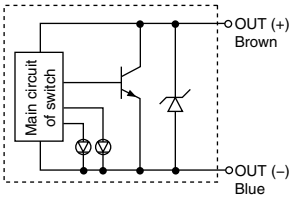
D-M9NW/M9NWV



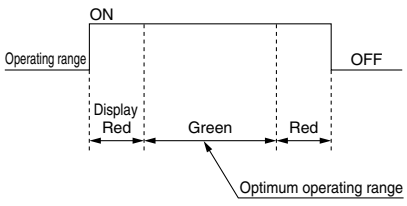
D-M9PW/M9PWV



D-M9BW/M9BWV



Indicator light/Indication method



Auto Switch Specifications

Refer to SMC website for details about products conforming to the international standards.

PLC: Programmable Logic Controller

D-M9□W, D-M9□WV (With indicator light)						
Auto switch model	D-M9NW	D-M9NWV	D-M9PW	D-M9PWV	D-M9BW	D-M9BWV
Electrical entry	In-line	Perpendicular	In-line	Perpendicular	In-line	Perpendicular
Wiring type	3-wire				2-wire	
Output type	NPN		PNP		—	
Applicable load	IC circuit, Relay, PLC				24 VDC relay, PLC	
Power supply voltage	5, 12, 24 VDC (4.5 to 28 V)				—	
Current consumption	10 mA or less				—	
Load voltage	28 VDC or less		—		24 VDC (10 to 28 VDC)	
Load current	40 mA or less				2.5 to 40 mA	
Internal voltage drop	0.8 V or less at 10 mA (2 V or less at 40 mA)				4 V or less	
Leakage current	100 μA or less at 24 VDC				0.8 mA or less	
Indicator light	Operating range ····· Red LED lights up. Optimum operating range ····· Green LED lights up.					
Standards	CE marking, RoHS					

•Lead wires — Oilproof flexible heavy-duty vinyl cord: ø2.7 x 3.2 ellipse, 0.15 mm², 2 cores (D-M9BW(V)), 3 cores (D-M9NW(V), D-M9PW(V))

Note) Refer to the Best Pneumatics No. 2 for solid state auto switch common specifications.

Weight

[g]

Auto switch model		D-M9NW(V)	D-M9PW(V)	D-M9BW(V)
Lead wire length (m)	0.5	8	8	7
	1	14	14	13
	3	41	41	38
	5	68	68	63

How to Order

D-M9 N W V L

Series

Wiring/Output type

N	3-wire NPN
P	3-wire PNP
B	2-wire

Electrical entry

Nil	In-line
V	Perpendicular

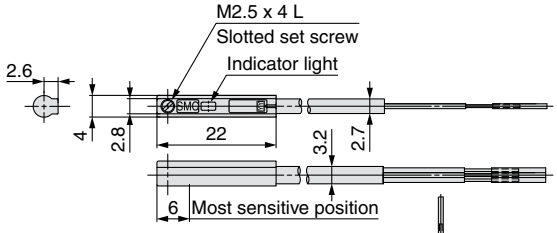
Lead wire length

Nil	0.5 m
M	1 m
L	3 m
Z	5 m

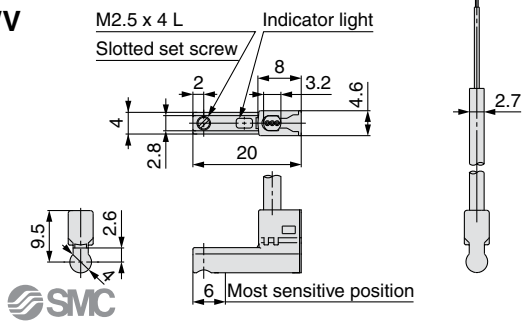
Dimensions

[mm]

D-M9□W



D-M9□WV



SMC

Electric Actuators/ Specific Product Precautions 1

Be sure to read this before handling. For Safety Instructions and Electric Actuator Precautions, refer to "Handling Precautions for SMC Products" and the Operation Manual on SMC website, http://www.smcworld.com

Design/Selection

⚠Warning

1. Do not apply a load in excess of the operating limit.

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

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

This can cause failure.

3. When used as a stopper, select the LEYG series "Sliding bearing" for a stroke of 30 mm or less.

4. When used as a stopper, fix the main body with a guide attachment ("Top mounting" or "Bottom mounting").

If the end of the actuator is used to fix the main body (end mounting), the excessive load acts on the actuator, which adversely affects the operation and life of the product.

Handling

⚠Caution

1. When the pushing operation is used, be sure to set to "Torque control mode", and use within the specified pushing speed range for each series.

Do not allow the piston rod to hit the workpiece and end of the stroke in the "Position control mode", "Speed control mode" or "Positioning mode". The lead screw, bearing and internal stopper may be damaged and lead to malfunction.

2. When operating with "Torque control mode", the value of the internal torque limit or the external torque limit (LECY) should be set to 90% or less. (150% or less only for the LEY63)

It may lead to damage and malfunction.

3. The forward/reverse torque limit is set to 800% as default.

When the product is operated with a smaller value than 300%, acceleration when driving can decrease. Set the value after confirming the actual device to be used.

4. The maximum speed of this actuator is affected by the product stroke.

Check the model selection section of the catalog.

5. 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.

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

The piston rod and guide rod are manufactured to precise tolerances, even a slight deformation may cause malfunction.

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

Use a freely moving connector (such as a floating joint).

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

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

Handling

⚠Caution

9. When an actuator is operated with one end fixed and the other free (ends tapped (standard), flange type), a bending moment may act on the actuator due to vibration generated at the stroke end, which can damage the actuator. In such a case, install a mounting bracket to suppress the vibration of the actuator body or reduce the speed so that the actuator does not vibrate.

Also, use a mounting bracket when moving the actuator body or when a long stroke actuator is mounted horizontally and fixed at one end.

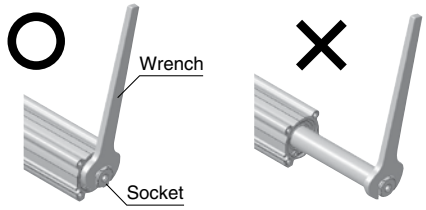
10. Avoid using the electric actuator in such a way that rotational torque would be applied to the piston rod.

This may cause deformation of the non-rotating guide, abnormal responses of the auto switch, play 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 lbf [N·m] or less	LEY25□	LEY32	LEY63
	0.81 [1.1]	1.03 [1.4]	2.07 [2.8]

When screwing in a bracket or nut to the end of the piston rod, hold the flats of the rod end with a wrench (the piston rod should be fully retracted). Do not apply tightening torque to the non-rotating mechanism.



11. When using auto switch with the guide rod type LEYG series, the following limits will be in effect. Please select the product while paying attention to this.

- Insert the auto switch from the front side with rod (plate) sticking out.
- The auto switches with perpendicular electrical entry cannot be used.
- For the parts hidden behind the guide attachment (Rod stick out side), the auto switch cannot be fixed.
- Consult with SMC when using auto switch on the rod stick out side.

Enclosure

IP – □□

First characteristic numeral **Second characteristic numeral**

- **First Characteristics: Degrees of protection against solid foreign objects**

0	Non-protected
1	Protected against solid foreign objects of 50 mmø and greater
2	Protected against solid foreign objects of 12 mmø and greater
3	Protected against solid foreign objects of 2.5 mmø and greater
4	Protected against solid foreign objects of 1.0 mmø and greater
5	Dust-protected
6	Dust-tight

Electric Actuators/ Specific Product Precautions 2

Be sure to read this before handling. For Safety Instructions and Electric Actuator Precautions, refer to "Handling Precautions for SMC Products" and the Operation Manual on SMC website, http://www.smcworld.com

Enclosure

- **Second Characteristics: Degrees of protection against water**

0	Non-protected	—
1	Protected against vertically falling water drops	Dripproof type 1
2	Protected against vertically falling water drops when enclosure tilted up to 15°	Dripproof type 2
3	Protected against rainfall when enclosure tilted up to 60°	Rainproof type
4	Protected against splashing water	Splashproof type
5	Protected against water jets	Water-jet-proof type
6	Protected against powerful water jets	Powerful water-jet-proof type
7	Protected against the effects of temporary immersion in water	Immersible type
8	Protected against the effects of continuous immersion in water	Submersible type

Example) IP65: Dust-tight, Water-jet-proof type
"Water-jet-proof type" means that no water intrudes inside an equipment that could hinder from operating normally by means of applying water for 3 minutes in the prescribed manner. Take appropriate protection measures, since a device is not usable in an environment where a droplet of water is splashed constantly.

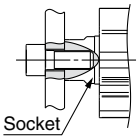
Mounting

⚠Caution

1. **When mounting workpieces or jigs to the piston rod end, hold the flats of the piston rod end with a wrench so that the piston rod does not rotate. The bolt should be tightened within the specified torque range.**
   This may cause abnormal responses of the auto switch, play in the internal guide or an increase in the sliding resistance.
2. **When mounting the product and/or a workpiece, 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.

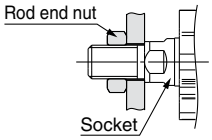
<Series LEY>

Workpiece fixed/Rod end female thread

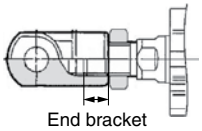


Model	Bolt	Max. tightening torque lbf·ft(N·m)	Max. screw-in depth (mm)	End socket width across flats (mm)
LEY25	M8 x 1.25	9.2 [12.5]	13	17
LEY32	M8 x 1.25	9.2 [12.5]	13	22
LEY63	M16 x 2	78 [106]	21	36

Workpiece fixed/Rod end male thread



Model	Bolt	Max. tightening torque lbf·ft(N·m)	Effective thread length (mm)	End socket width across flats (mm)
LEY25	M14 x 1.5	37 [50]	20.5	17
LEY32	M14 x 1.5	37 [50]	20.5	22
LEY63	M18 x 1.5	71 [97]	26	36



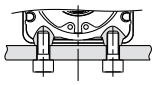
Model	Rod end nut		End bracket screw-in depth (mm)
	Width across flats (mm)	Length (mm)	
LEY25	22	8	14
LEY32	22	8	14
LEY63	27	11	18

∗ Rod end nut is an accessory.

Mounting

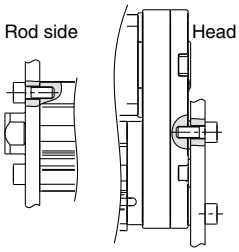
⚠Caution

Body fixed/Body bottom tapped style (When "Body bottom tapped" is selected.)



Model	Bolt	Max. tightening torque lbf·ft(N·m)	Max. screw-in depth (mm)
LEY25	M5 x 0.8	2.2 [3.0]	6.5
LEY32	M6 x 1.0	3.8 [5.2]	8.8
LEY63	M8 x 1.25	9.2 [12.5]	10

Body fixed/Rod side/Head side tapped style

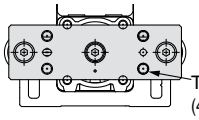


Model	Bolt	Max. tightening torque lbf·ft(N·m)	Max. screw-in depth (mm)
LEY25	M5 x 0.8	2.2 [3.0]	8
LEY32	M6 x 1.0	3.8 [5.2]	10
LEY63	M8 x 1.25	9.2 [12.5]	16

∗ Except the LEY□D.

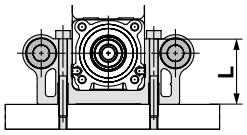
<Series LEYG>

Workpiece fixed/Plate tapped style



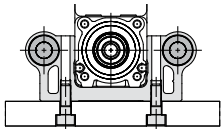
Model	Bolt	Max. tightening torque lbf·ft(N·m)	Max. screw-in depth (mm)
LEYG25$^{M}_{L}$	M6 x 1.0	3.8 [5.2]	11
LEYG32$^{M}_{L}$	M6 x 1.0	3.8 [5.2]	12

Body fixed/Top mounting



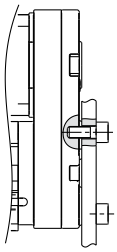
Model	Bolt	Max. tightening torque lbf·ft(N·m)	Length: L (mm)
LEYG25$^{M}_{L}$	M5 x 0.8	2.2 [3.0]	40.5
LEYG32$^{M}_{L}$	M5 x 0.8	2.2 [3.0]	50.5

Body fixed/Bottom mounting



Model	Bolt	Max. tightening torque lbf·ft(N·m)	Max. screw-in depth (mm)
LEYG25$^{M}_{L}$	M6 x 1.0	3.8 [5.2]	12
LEYG32$^{M}_{L}$	M6 x 1.0	3.8 [5.2]	12

Body fixed/Head side tapped style



Model	Bolt	Max. tightening torque lbf·ft(N·m)	Max. screw-in depth (mm)
LEYG25$^{M}_{L}$	M5 x 0.8	2.2 [3.0]	8
LEYG32$^{M}_{L}$	M6 x 1.0	3.8 [5.2]	10

Electric Actuators/ Specific Product Precautions 3

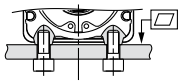
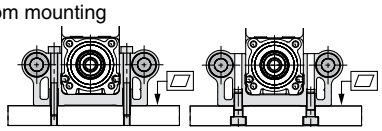
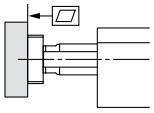
Be sure to read this before handling. For Safety Instructions and Electric Actuator Precautions, refer to "Handling Precautions for SMC Products" and the Operation Manual on SMC website, http://www.smcworld.com

Mounting

⚠Caution

3. Keep the flatness of the mounting surface within the following ranges when mounting the actuator body and workpiece.

Unevenness of a workpiece or base mounted on the body of the product may cause an increase in the sliding resistance.

Model	Mounting position	Flatness
LEY□	Body/Body bottom 	0.1 mm or less
LEYG□	Bottom mounting 	0.05 mm or less
	Workpiece/Plate mounting 	0.05 mm or less

Maintenance

⚠Warning

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

• Maintenance frequency

Perform maintenance according to the table below.

Frequency	Appearance check	Belt check
Inspection before daily operation	○	—
Inspection every 6 months/250 km/5 million cycles*	○	○

* Select whichever comes sooner.

• Items for visual appearance check

1. Loose set screws, Abnormal dirt
2. Check of flaw and cable joint
3. Vibration, Noise

• Items for belt check

Stop operation immediately and replace the belt when belt appear to be below. Further, ensure your operating environment and conditions satisfy the requirements specified for the product.

a. Tooth shape canvas is worn out

Canvas fiber becomes fuzzy. Rubber is removed and the fiber becomes whitish. Lines of fibers become unclear.

b. Peeling off or wearing of the side of the belt

Belt corner becomes round and frayed thread sticks out.

c. Belt partially cut

Belt is partially cut. Foreign matter caught in teeth other than cut part causes flaw.

d. Vertical line of belt teeth

Flaw which is made when the belt runs on the flange.

e. Rubber back of the belt is softened and sticky

f. Crack on the back of the belt

MECHATRONLINK Compatible

AC Servo Motor Driver

Absolute Type

Series LECYM/LECYU

(MECHATROLINK-Ⅱ Type) (MECHATROLINK-Ⅲ Type)

RoHS

How to Order

LECYM LECYU

Driver **LECY M 2 −** ☐

Driver type

M	MECHATROLINK-Ⅱ type (For absolute encoder)
U	MECHATROLINK-Ⅲ type (For absolute encoder)

Power supply voltage

2	200 to 230 VAC, 50/60 Hz

Compatible motor type

Symbol	Type	Capacity	Encoder
V5	AC servo motor (V6 *2)	100 W	Absolute
V7	AC servo motor (V7 *2)	200 W	
V8	AC servo motor (V8 *2)	400 W	

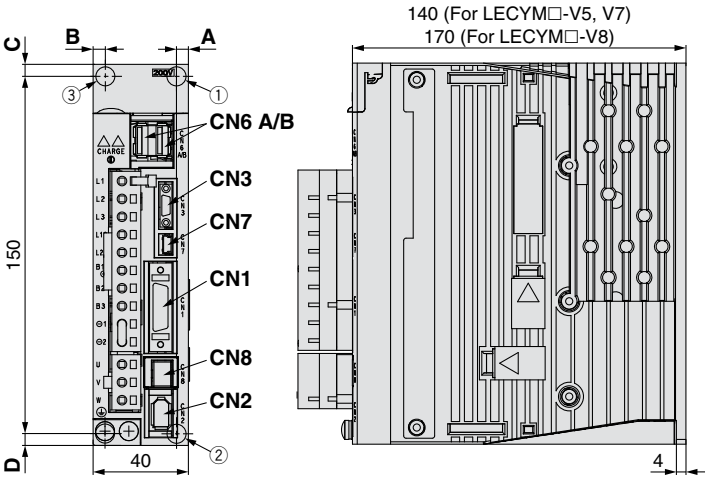
*1 If the I/O signal connector (CN 1) is required, order the part number "LE-CYNA" separately.

*2 The symbol shows the motor type (actuator).

Dimensions

MECHATROLINK-Ⅱ type

LECYM2-V☐



Connector name	Description
CN1	I/O signal connector
CN2	Encoder connector
CN3 Note)	Digital operator connector
CN6A	MECHATROLINK-Ⅱ communication connector
CN6B	MECHATROLINK-Ⅱ communication connector
CN7	PC connector
CN8	Safety connector

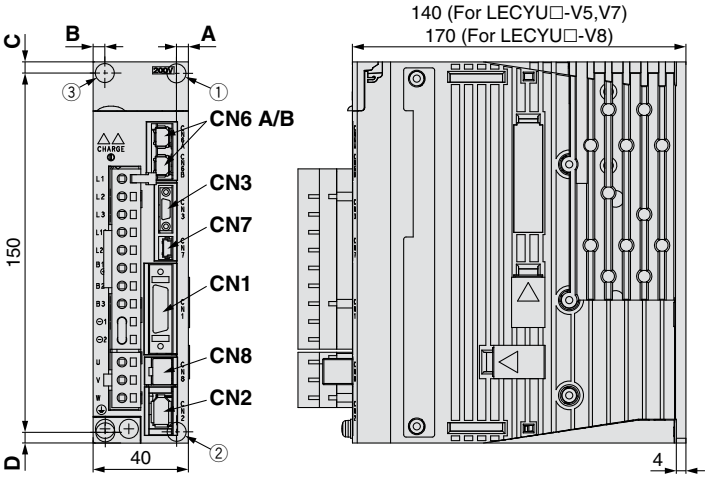
Note) Digital operator is JUSP-OP05A-1-E manufactured by YASKAWA Electric Corporation. When using the digital operator, it should be provided by the customer.

Motor capacity	Hole position	Mounting dimensions A	B	C	D	Mounting hole
V5 (100 W)	①②	5	—	5	5	ø5
V7 (200 W)	①②	5	—	5	5	
V8 (400 W)	②③	5	5	5	5	

* The mounting hole position varies depending on the motor capacity.

MECHATROLINK-Ⅲ type

LECYU2-V☐



Connector name	Description
CN1	I/O signal connector
CN2	Encoder connector
CN3 Note)	Digital operator connector
CN6A	MECHATROLINK-Ⅲ communication connector
CN6B	MECHATROLINK-Ⅲ communication connector
CN7	PC connector
CN8	Safety connector

Note) Digital operator is JUSP-OP05A-1-E manufactured by YASKAWA Electric Corporation. When using the digital operator, it should be provided by the customer.

Motor capacity	Hole position	Mounting dimensions A	B	C	D	Mounting hole
V5 (100 W)	①②	5	—	5	5	ø5
V7 (200 W)	①②	5	—	5	5	
V8 (400 W)	②③	5	5	5	5	

* The mounting hole position varies depending on the motor capacity.

SMC

Specifications

MECHATROLINK-Ⅱ Type

Model			LECYM2-V5	LECYM2-V7	LECYM2-V8
Compatible motor capacity [W]			100	200	400
Compatible encoder			Absolute 20-bit encoder (Resolution: 1048576 p/rev)		
Main circuit power supply	**Power voltage [V]**		Three phase 200 to 230 VAC (50/60 Hz)		
	Allowable voltage fluctuation [V]		Three phase 170 to 253 VAC		
Control power supply	**Power voltage [V]**		Single phase 200 to 230 VAC (50/60 Hz)		
	Allowable voltage fluctuation [V]		Single phase 170 to 253 VAC		
Power supply capacity (at rated output) [A]			0.91	1.6	2.8
Input circuit			NPN (Sink circuit)/PNP (Source circuit)		
Parallel input (7 inputs)	**Number of optional allocations**	**7 inputs**	[Initial allocation] · Homing deceleration switch (/DEC) · External latch (/EXT 1 to 3) · Forward run prohibited (P-OT), reverse run prohibited (N-OT) [Can be allocated by setting the parameters.] · Forward external torque limit (/P-CL), reverse external torque limit (/N-CL) Signal allocations can be performed, and positive and negative logic can be changed.		
Parallel output (4 outputs)	**Number of fixed allocations**	**1 output**	· Servo alarm (ALM)		
	Number of optional allocations	**3 outputs**	[Initial allocation] · Lock (/BK) [Can be allocated by setting the parameters.] · Positioning completion (/COIN) · Speed limit detection (/VLT) · Speed coincidence detection (/V-CMP) · Rotation detection (/TGON) · Warning (/WARN) · Servo ready (/S-RDY) · Near (/NEAR) · Torque limit detection (/CLT) Signal allocations can be performed, and positive and negative logic can be changed.		
MECHATROLINK communication	**Communication protocol**		MECHATROLINK-Ⅱ		
	Station address		41H to 5FH		
	Communication speed		10 Mbps		
	Communication cycle		250 μs, 0.5 ms to 4 ms (Multiples of 0.5 ms)		
	Number of transmission bytes		17 bytes, 32 bytes		
	Max. number of stations		30		
	Cable length		Overall cable length: 50 m or less, Cable length between the stations: 0.5 m or more		
Command method	**Control method**		Position, speed, or torque control with MECHATROLINK-Ⅱ communication		
	Command input		MECHATROLINK-Ⅱ command (Motion, data setting, monitoring or adjustment)		
Function	**Gain adjustment**		Tuning-less/Advanced autotuning/One-parameter tuning		
	Communication setting		USB communication, RS-422 communication		
	Torque limit		Internal torque limit, external torque limit, and torque limit by analog command		
	Encoder output		Phase A, B, C: Line driver output		
	Emergency stop		CN8 Safety function		
	Overtravel		Dynamic brake stop, deceleration to a stop, or free run to a stop at P-OT or N-OT		
	Alarm		Alarm signal, MECHATROLINK-Ⅱ command		
Operating temperature range			32 to 131°F (0 to 55°C) (No freezing)		
Operating humidity range [%RH]			90 or less (No condensation)		
Storage temperature range			–4 to 185°F (–20 to 85°C) (No freezing)		
Storage humidity range [%RH]			90 or less (No condensation)		
Insulation resistance [MΩ]			10 MΩ (500 VDC)		
Weight [g]			900		1000

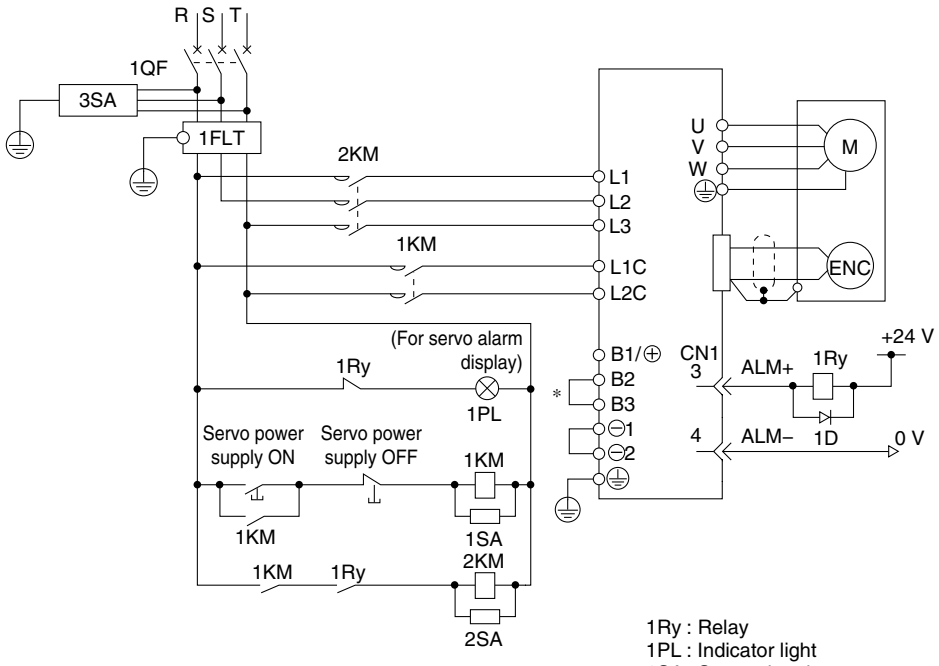
Specifications

MECHATROLINK-Ⅲ Type

Model			LECYU2-V5	LECYU2-V7	LECYU2-V8
Compatible motor capacity [W]			100	200	400
Compatible encoder			Absolute 20-bit encoder (Resolution: 1048576 p/rev)		
Main circuit power supply	Power voltage [V]		Three phase 200 to 230 VAC (50/60 Hz)		
	Allowable voltage fluctuation [V]		Three phase 170 to 253 VAC		
Control power supply	Power voltage [V]		Single phase 200 to 230 VAC (50/60 Hz)		
	Allowable voltage fluctuation [V]		Single phase 170 to 253 VAC		
Power supply capacity (at rated output) [A]			0.91	1.6	2.8
Input circuit			NPN (Sink circuit)/PNP (Source circuit)		
Parallel input (7 inputs)	Number of optional allocations	7 inputs	[Initial allocation] · Homing deceleration switch (/DEC) · External latch (/EXT 1 to 3) · Forward run prohibited (P-OT), reverse run prohibited (N-OT) [Can be allocated by setting the parameters.] · Forward external torque limit (/P-CL), reverse external torque limit (/N-CL) Signal allocations can be performed, and positive and negative logic can be changed.		
Parallel output (4 outputs)	Number of fixed allocations	1 output	· Servo alarm (ALM)		
	Number of optional allocations	3 outputs	[Initial allocation] · Lock (/BK) [Can be allocated by setting the parameters.] · Positioning completion (/COIN) · Speed limit detection (/VLT) · Speed coincidence detection (/V-CMP) · Rotation detection (/TGON) · Warning (/WARN) · Servo ready (/S-RDY) · Near (/NEAR) · Torque limit detection (/CLT) Signal allocations can be performed, and positive and negative logic can be changed.		
MECHATROLINK communication	Communication protocol		MECHATROLINK-Ⅲ		
	Station address		03H to EFH		
	Communication speed		100 Mbps		
	Communication cycle		125 μs, 250 μs, 500 μs, 750 μs, 1 ms to 4 ms (Multiples of 0.5 ms)		
	Number of transmission bytes		16 bytes, 32 bytes, 48 bytes,		
	Max. number of stations		62		
	Cable length		Cable length between the stations: 0.5 m or more, 75 m or less		
Command method	Control method		Position, speed, or torque control with MECHATROLINK-Ⅲ communication		
	Command input		MECHATROLINK-Ⅲ command (Motion, data setting, monitoring or adjustment)		
Function	Gain adjustment		Tuning-less/Advanced autotuning/One-parameter tuning		
	Communication setting		USB communication, RS-422 communication		
	Torque limit		Internal torque limit, external torque limit, and torque limit by analog command		
	Encoder output		Phase A, B, C: Line driver output		
	Emergency stop		CN8 Safety function		
	Overtravel		Dynamic brake stop, deceleration to a stop, or free run to a stop at P-OT or N-OT		
	Alarm		Alarm signal, MECHATROLINK-Ⅲ command		
Operating temperature range			32 to 131°F (0 to 55°C) (No freezing)		
Operating humidity range [%RH]			90 or less (No condensation)		
Storage temperature range			–4 to 185°F (–20 to 85°C) (No freezing)		
Storage humidity range [%RH]			90 or less (No condensation)		
Insulation resistance [MΩ]			10 MΩ (500 VDC)		
Weight [g]			900		1000

Power Supply Wiring Example: LECY□

■Three phase 200 V LECYM2-□ LECYU2-□



1QF : Molded-case circuit breaker
1FLT: Noise filter
1KM : Magnetic contactor (for control power supply)
2KM : Magnetic contactor (for main circuit power supply)

1Ry : Relay
1PL : Indicator light
1SA : Surge absorber
2SA : Surge absorber
3SA : Surge absorber
1D : Flywheel diode

* For the LECY□2-V5, LECY□2-V7 and LECY□2-V8, terminals B2 and B3 are not short-circuited. Do not short-circuit these terminals.

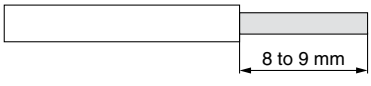
Main Circuit Power Supply Connector * Accessory

Terminal name	Function	Details
L1	Main circuit power supply	Connect the main circuit power supply. Single phase 200 to 230 VAC, 50/60 Hz Connection terminal: L1, L2 Three phase 200 to 230 VAC, 50/60 Hz Connection terminal: L1, L2, L3
L2		
L3		
L1C	Control power supply	Connect the control power supply. Single phase 200 to 230 VAC, 50/60 Hz Connection terminal: L1C, L2C
L2C		
B1/⊕	External regenerative resistor connection terminal	When the regenerative resistor is required, connect it between terminals B1⊕ and B2.
B2		
B3		
⊖1	Main circuit negative terminal	⊖1 and ⊖2 are connected at shipment.
⊖2		

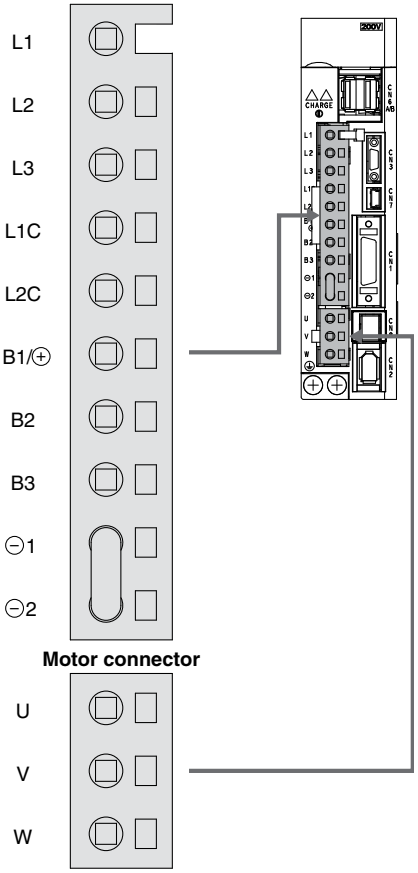
Motor Connector * Accessory

Terminal name	Function	Details
U	Servo motor power (U)	Connect to motor cable (U, V, W).
V	Servo motor power (V)	
W	Servo motor power (W)	

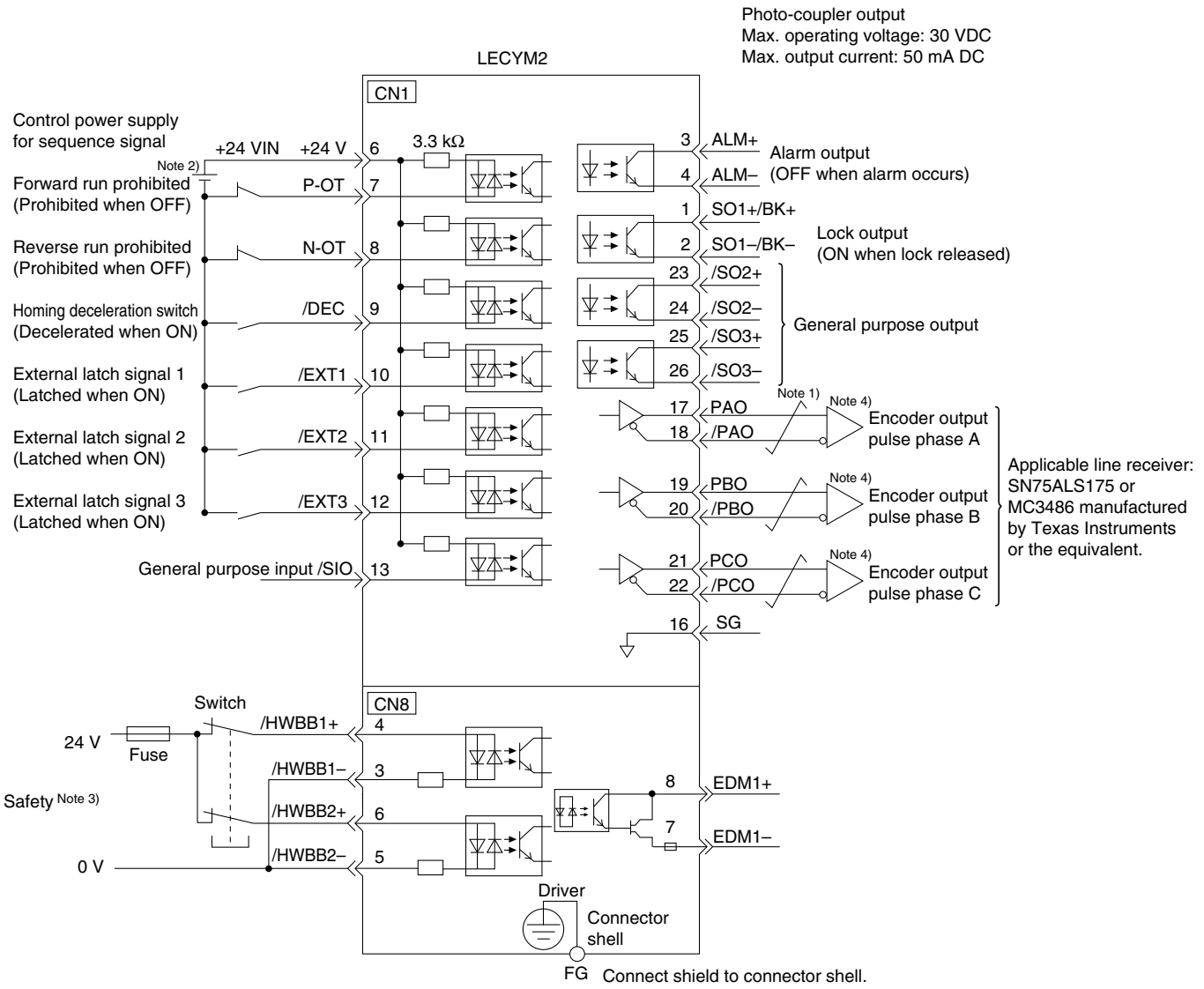
Power Supply Wire Specifications

Item	Specifications
Applicable wire size	L1, L2, L3, L1C, L2C Single wire, Twisted wire, AWG14 (2.0 mm^2)
Stripped wire length	

Main circuit power supply connector



Control Signal Wiring Example: LECYM



Note 1) ⫽ shows twisted-pair wires.

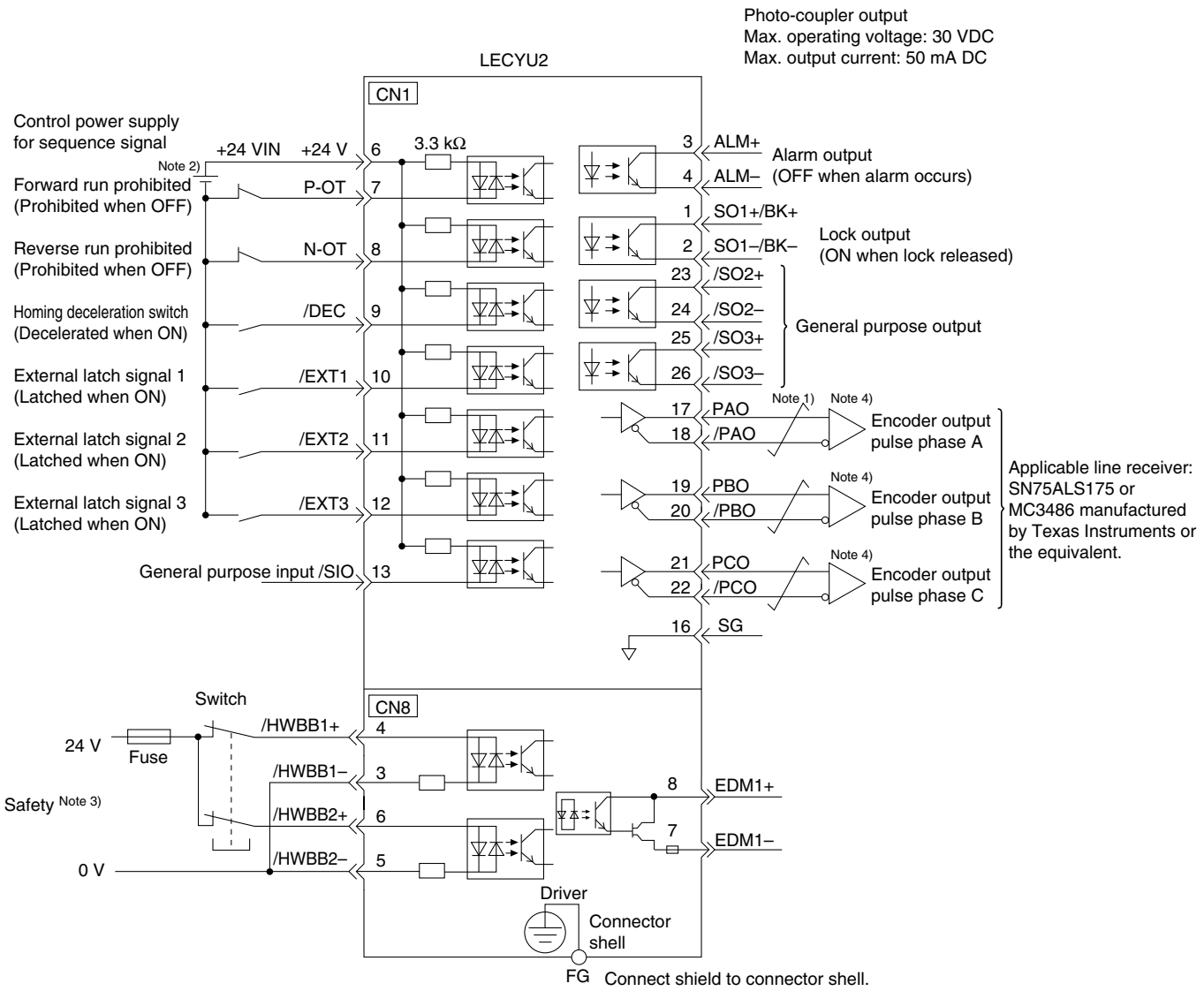
Note 2) The 24 VDC power supply is not included. Use a 24 VDC power supply with double insulation or reinforced insulation.

Note 3) When using the safety function, a safety function device must be connected to the wiring that is necessary to activate the safety function. Otherwise, the servo motor is not turned ON. When not using the safety function, use the driver with the Safety Jumper Connector (provided as an accessory) inserted into the CN8.

Note 4) Always use line receivers to receive the output signals.

∗ The functions allocated to the input signals /DEC, P-OT, N-OT, /EXT1, /EXT2 and /EXT3, and the output signals /SO1, /SO2 and /SO3 can be changed by setting the parameters.

Control Signal Wiring Example: LECYU



Note 1) ≠ shows twisted-pair wires.

Note 2) The 24 VDC power supply is not included. Use a 24 VDC power supply with double insulation or reinforced insulation.

Note 3) When using the safety function, a safety function device must be connected to the wiring that is necessary to activate the safety function. Otherwise, the servo motor is not turned ON. When not using the safety function, use the driver with the Safety Jumper Connector (provided as an accessory) inserted into the CN8.

Note 4) Always use line receivers to receive the output signals.

∗ The functions allocated to the input signals /DEC, P-OT, N-OT, /EXT1, /EXT2 and /EXT3, and the output signals /SO1, /SO2 and /SO3 can be changed by setting the parameters.

Options

Motor cable, Motor cable for lock option, Encoder cable (LECYM/LECYU common)

LE − CY M − S 5 A − 5

Motor type

Y	AC servo motor

Cable description

M	Motor cable
B	Motor cable for lock option
E	Encoder cable (With battery case)

Cable type

S	Standard cable
R	Robotic cable

Cable length (L) [m]

3	3
5	5
A	10
C	20

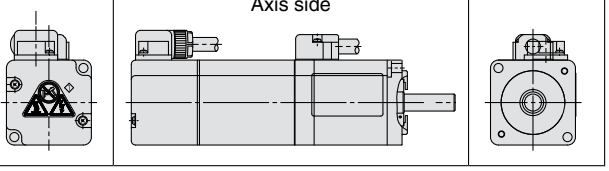
Motor capacity

5	100 W
7	200/400 W

∗ For encoder cable, the suffix "–□" (Motor capacity) is not necessary.

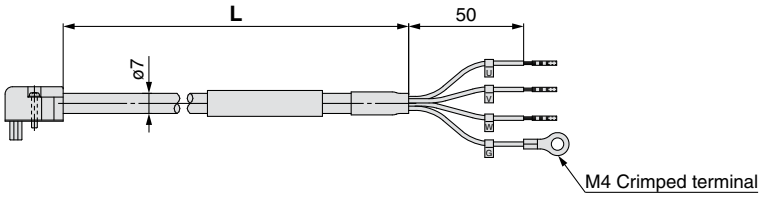
Direction of connector

A	Axis side

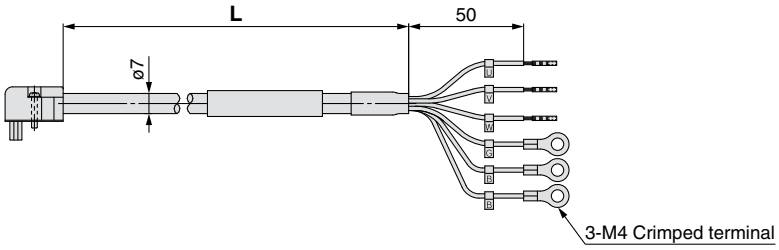


∗ The cable entry direction is axis side only.

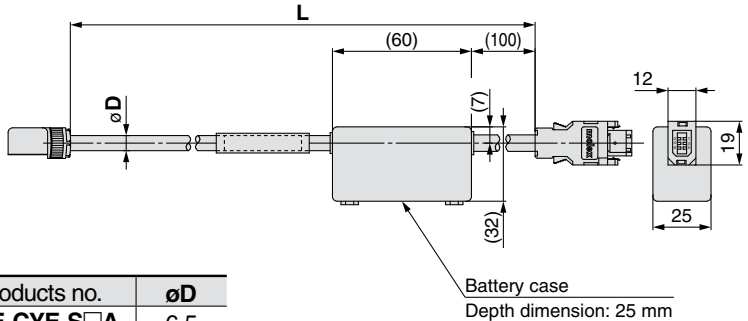
LE-CYM-□□A-□: Motor cable



LE-CYB-□□A-□: Motor cable for lock option



LE-CYE-□□A: Encoder cable



Products no.	øD
LE-CYE-S□A	6.5
LE-CYE-R□A	6.8

∗ LE-CYM-S□A-□ is JZSP-CSM0□-□□-E manufactured by YASKAWA CONTROLS CO., LTD.
LE-CYB-S□A-□ is JZSP-CSM1□-□□-E manufactured by YASKAWA CONTROLS CO., LTD.
LE-CYE-S□A is JZSP-CSP05-□□-E manufactured by YASKAWA CONTROLS CO., LTD.
LE-CYM-R□A-□ is JZSP-CSM2□-□□-E manufactured by YASKAWA CONTROLS CO., LTD.
LE-CYB-R□A-□ is JZSP-CSM3□-□□-E manufactured by YASKAWA CONTROLS CO., LTD.
LE-CYE-R□A is JZSP-CSP25-□□-E manufactured by YASKAWA CONTROLS CO., LTD.

Options

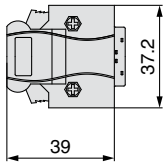
I/O connector

LE−CYN A

Driver type

A	LECYM2, LECYU2

LE-CYNA



∗ LE-CYNA: 10126-3000PE (connector)/10326-52F0-008 (shell kit) manufactured by Sumitomo 3M Limited or equivalent item.

∗ Conductor size: AWG24

MECHATROLINK cable type

LEC−CY M − 1

Motor type

Y	AC servo motor

Cable description

M	MECHATROLINK-Ⅱ cable
U	MECHATROLINK-Ⅲ cable

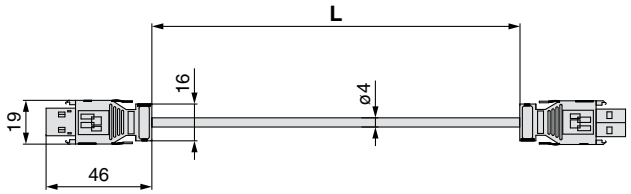
Cable length (L)

L∗	0.2 m
J	0.5 m
1	1 m
3	3 m

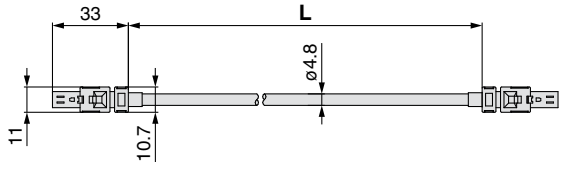
∗ Not available for the MECHATROLINK-Ⅱ cable.

∗ LEC-CYM-□ is JEPMC-W6002-□□-E manufactured by YASKAWA CONTROLS CO., LTD.
∗ LEC-CYU-□ is JEPMC-W6012-□□-E manufactured by YASKAWA CONTROLS CO., LTD.

MECHATROLINK-Ⅱ cable



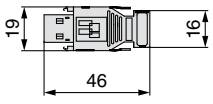
MECHATROLINK-Ⅲ cable



Terminating connector for MECHATROLINK-Ⅱ

LEC−CYRM

∗ LEC-CYRM is JEPMC-W6022-E manufactured by YASKAWA CONTROLS CO., LTD.



Options

LECYM2 LECYU2
Drivers

USB cable

PC

Setup software (SigmaWin+™) (LECYM/LECYU common)

∗ Please download the SigmaWin+™ via our website.
SigmaWin+™ is a registered trademark or trademark of YASKAWA Electric Corporation.

Adjustment, waveform display, diagnostics, parameter read/write, and test operation can be performed upon a PC.

Compatible PC

When using setup software (SigmaWin+™), use an IBM PC/AT compatible PC that meets the following operating conditions.

Hardware Requirements

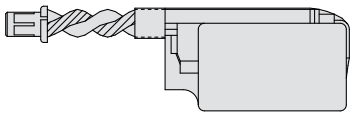
Equipment		Setup software (SigmaWin+™)
PC Note 1) 2) 3) 4)	OS	Windows® XP Note 5), Windows Vista®, Windows® 7 (32-bit/64-bit)
	Available HD space	350 MB or more (When the software is installed, 400 MB or more is recommended.)
	Communication interface	Use USB port.
Display		XVGA monitor (1024 x 768 or more, "The small font is used.") 256 color or more (65536 color or more is recommended.) The connectable with the above PC
Keyboard		The connectable with the above PC
Mouse		The connectable with the above PC
Printer		The connectable with the above PC
USB cable		LEC-JZ-CVUSB Note 6)
Other		Adobe Reader Ver. 5.0 or higher (∗ Except Ver. 6.0)

Note 1) Windows, Windows Vista®, Windows® 7 are registered trademarks of Microsoft Corporation in the United States and/or other countries.
Note 2) On some PCs, this software may not run properly.
Note 3) Not compatible with 64-bit Windows® XP and 64-bit Windows Vista®.
Note 4) For Windows® XP, please use it by the administrator authority (When installing and using it.).
Note 5) In PC that uses the program to correct the problem of HotfixQ328310, it is likely to fail in the installation. In that case, please use the program to correct the problem of HotfixQ329623.
Note 6) Order USB cable separately.

Battery (LECYM/LECYU common)

LEC−JZ−CVBAT

∗ JZSP-BA01 manufactured by YASKAWA CONTROLS CO., LTD.



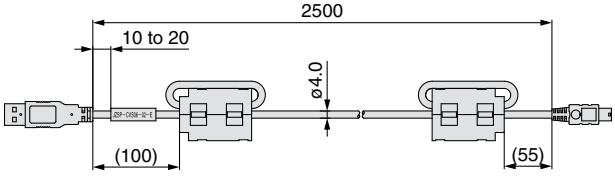
Battery for replacement.
Absolute position data is maintained by installing the battery to the battery case of the encoder cable.

USB cable (2.5 m)

LEC−JZ−CVUSB

∗ JZSP-CVS06-02-E manufactured by YASKAWA CONTROLS CO., LTD.

Cable for connecting PC and driver when using the setup software (SigmaWin+™).
Do not use any cable other than this cable.

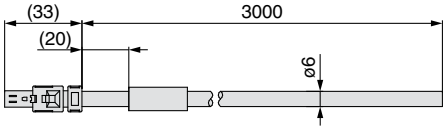


Cable for safety function device (3 m)

LEC−JZ−CVSAF

∗ JZSP-CVH03-03-E manufactured by YASKAWA CONTROLS CO., LTD.

Cable for connecting the driver and device when using the safety function.
Do not use any cable other than this cable.



Series LECYM/LECYU
AC Servo Motor Driver/ Specific Product Precautions 1

Be sure to read this before handling. For Safety Instructions and Electric Actuator Precautions, refer to "Handling Precautions for SMC Products" and the Operation Manual on SMC website, http://www.smcworld.com

Design/Selection

⚠Warning

1. Use the specified voltage.

If the applied voltage is higher than the specified voltage, malfunction and damage to the driver may result. If the applied voltage is lower than the specified voltage, there is a possibility that the load cannot be moved due to internal voltage drop. Check the operating voltage prior to start. Also, confirm that the operating voltage does not drop below the specified voltage during operation.

2. Do not use the products outside the specifications.

Otherwise, fire, malfunction or damage to the driver/actuator can result. Check the specifications before use.

3. Install an emergency stop circuit.

Install an emergency stop outside the enclosure in easy reach to the operator so that the operator can stop the system operation immediately and intercept the power supply.

4. To prevent danger and damage due to a breakdown or malfunction of these products, which may occur at a certain probability, a backup system should be arranged in advance by using a multiple-layered structure or by making a fail-safe equipment design etc.

5. If there is a risk of fire or personal injury due to abnormal heat generation, sparking, smoke generated by the product, etc., cut off the power supply from this product and the system immediately.

Handling

⚠Warning

1. Never touch the inside of the driver and its peripheral devices.

Otherwise, electric shock or failure can result.

2. Do not operate or set up this equipment with wet hands.

Otherwise, electric shock can result.

3. Do not use a product that is damaged or missing any components.

Electric shock, fire or injury can result.

4. Use only the specified combination between the electric actuator and driver.

Otherwise, it may cause damage to the driver or to the other equipment.

5. Be careful not to touch, get caught or hit by the workpiece while the actuator is moving.

An injury can result.

6. Do not connect the power supply or power up the product until it is confirmed that the workpiece can be moved safely within the area that can be reached by the workpiece.

Otherwise, the movement of the workpiece may cause an accident.

7. Do not touch the product when it is energized and for some time after the power has been disconnected, as it is very hot.

Otherwise, it may cause burns due to the high temperature.

8. Check the voltage using a tester at least 5 minutes after power-off when performing installation, wiring and maintenance.

Otherwise, electric shock, fire or injury can result.

Handling

⚠Warning

9. Static electricity may cause a malfunction or damage the driver. Do not touch the driver while power is supplied to it.

Take sufficient safety measures to eliminate static electricity when it is necessary to touch the driver for maintenance.

10. Do not use the products in an area where they could be exposed to dust, metallic powder, machining chips or splashes of water, oil or chemicals.

Otherwise, a failure or malfunction can result.

11. Do not use the products in a magnetic field.

Otherwise, a malfunction or failure can result.

12. Do not use the products in an environment where flammable, explosive or corrosive gases, liquids or other substances are present.

Otherwise, fire, explosion or corrosion can result.

13. Avoid heat radiation from strong heat sources, such as direct sunlight or a hot furnace.

Otherwise, it will cause a failure to the driver or its peripheral devices.

14. Do not use the products in an environment with cyclic temperature changes.

Otherwise, it will cause a failure to the driver or its peripheral devices.

15. Do not use the products in an environment where surges are generated.

Devices (solenoid type lifters, high frequency induction furnaces, motors, etc.) that generate a large amount of surge around the product may lead to deterioration or damage to the internal circuits of the products. Avoid supplies of surge generation and crossed lines.

16. Do not install these products in a place subject to vibration and impact.

Otherwise, a malfunction or failure can result.

17. When a surge generating load such as a relay or solenoid valve is directly driven, use a product that incorporates a surge absorption element.

Mounting

⚠Warning

1. Install the driver and its peripheral devices on fireproof material.

Direct installation on or near flammable material may cause fire.

2. Do not install these products in a place subject to vibration and impact.

Otherwise, a malfunction or failure can result.

3. The driver should be mounted on a vertical wall in a vertical direction.

Also, do not cover the driver's suction/exhaust ports.

4. Install the driver and its peripheral devices on a flat surface.

If the mounting surface is not flat or uneven, excessive force may be applied to the housing and other parts resulting in a malfunction.

Series LECYM/LECYU
AC Servo Motor Driver/ Specific Product Precautions 2

Be sure to read this before handling. For Safety Instructions and Electric Actuator Precautions, refer to "Handling Precautions for SMC Products" and the Operation Manual on SMC website, http://www.smcworld.com

Power Supply

⚠Caution

1. Use a power supply with low noise between lines and between power and ground.
In cases where noise is high, use an isolation transformer.

2. Take appropriate measures to prevent surges from lightning. Ground the surge absorber for lightning separately from the grounding of the driver and its peripheral devices.

Wiring

⚠Warning

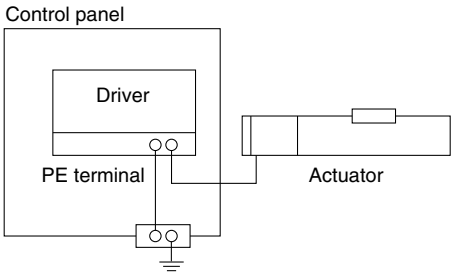
1. The driver will be damaged if a commercial power supply (100V/200V) is added to the driver,s servo motor power (U, V, W). Be sure to check wiring such as wiring mistakes when the power supply is turned on.

2. Connect the ends of the U, V, W wires from the motor cable correctly to the phases (U, V, W) of the servo motor power. If these wires do not match up, it is unable to control the servo motor.

Grounding

⚠Warning

1. For grounding actuator, connect the copper wire of the actuator to the driver,s protective earth (PE) terminal and connect the copper wire of the driver to the earth via the control panel,s protective earth (PE) terminal.
Do not connect them directly to the control panel,s protective earth (PE) terminal.



2. In the unlikely event that malfunction is caused by the ground, it may be disconnected.

Maintenance

⚠Warning

1. Perform maintenance checks periodically.
Confirm wiring and screws are not loose.
Loose screws or wires may cause unexpected malfunction.

2. Conduct an appropriate functional inspection and test after completed maintenance.
In case of any abnormalities (if the actuator does not move or the equipment does not operate properly etc.), stop the operation of the system.
Otherwise, unexpected malfunction may occur and safety cannot be assured.
Conduct a test of the emergency stop to confirm the safety of the equipment.

3. Do not disassemble, modify or repair the driver or its peripheral devices.

4. Do not put anything conductive or flammable inside the driver.
Otherwise, fire can result.

5. Do not conduct an insulation resistance test or insulation withstand voltage test.

6. Reserve sufficient space for maintenance.
Design the system so that it allows required space for maintenance.

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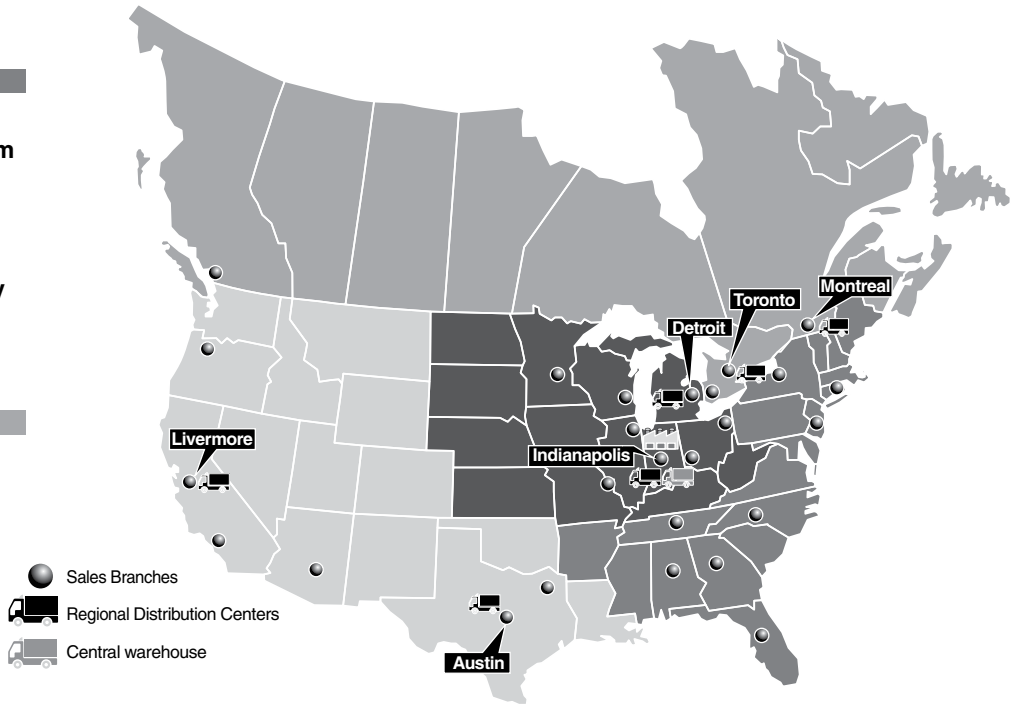

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