

Electric Actuator



Slider Type

NEW

- Stroke variations expanded
- Motor parallel type
- Screw lead: 20 mm (LEFS25), 24 mm (LEFS32), 30 mm (LEFS40)
- Support guide

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

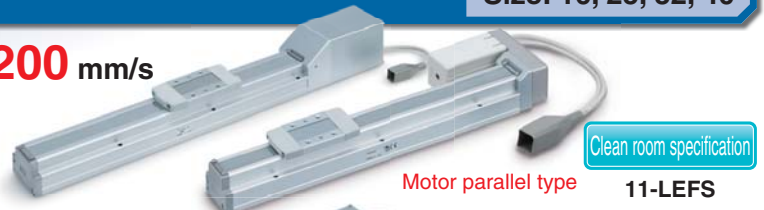
Ball Screw Drive Series LEFS

Size: 16, 25, 32, 40

Max. work load: **60** kg Max. speed: **1200** mm/s

Positioning repeatability: **±0.02** mm

Clean room specification also available



Belt Drive Series LEFB

Size: 16, 25, 32

Max. stroke: **2000** mm

Max. speed: **2000** mm/s



AC Servo Motor Type

* Not applicable to UL.

Ball Screw Drive Series LEFS

Size: 25, 32, 40

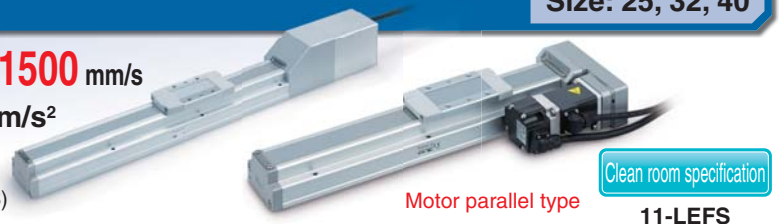
Improved high speed transfer ability Max. speed: **1500** mm/s

High acceleration/deceleration: **20000** mm/s²

Pulse input type

With internal absolute encoder (For LECSB/C/S)

Clean room specification also available



Belt Drive Series LEFB

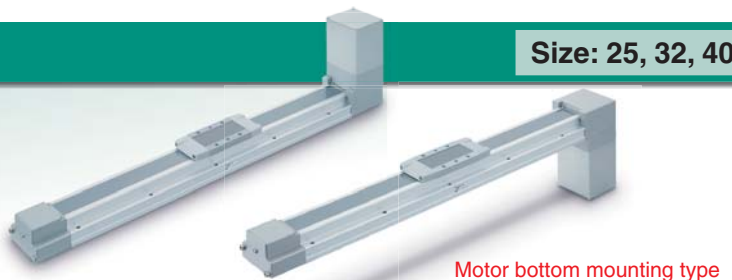
Size: 25, 32, 40

Max. speed: **2000** mm/s

Max. stroke: **3000** mm

Max. acceleration/deceleration: **20000** mm/s²

Motor bottom mounting type also available



Step Motor (Servo/24 VDC) Controller/Driver

Servo Motor (24 VDC)

- ▶ 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 LEF

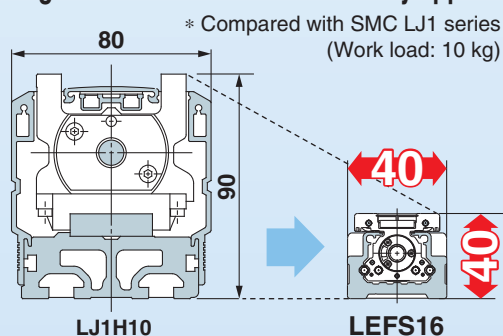


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Series LEF

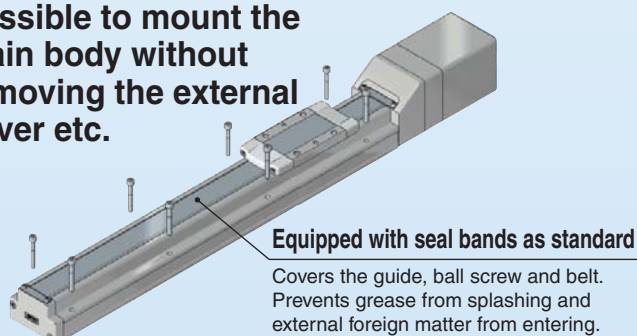
● Compact

Height/width dimensions reduced by approx. **50%**



● Easy mounting of the body/Reduction in installation labour

Possible to mount the main body without removing the external cover etc.



Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

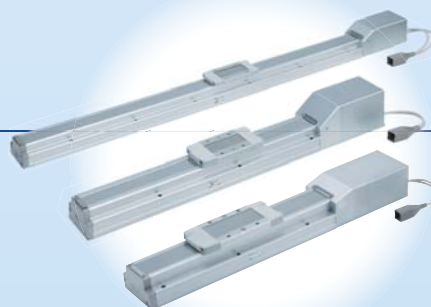
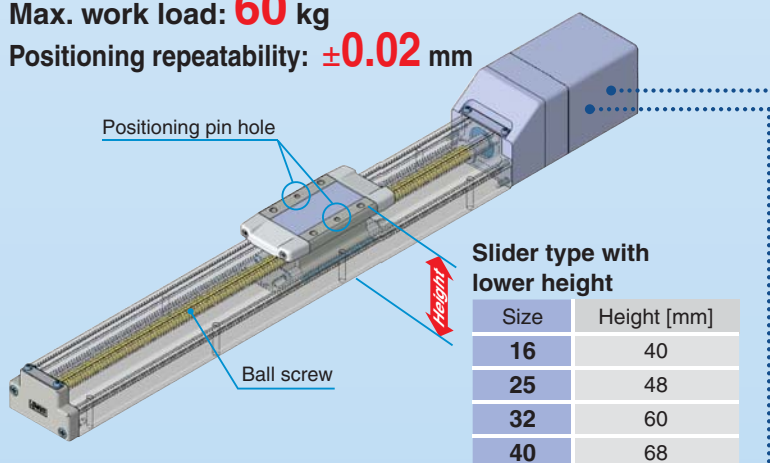
Ball Screw Drive/Series LEFS Size: 16, 25, 32, 40

| Model | Lead [mm] | | | Max. speed [mm/s]* |
|--------|-----------|----|----|---------------------------|
| | | | | Step motor (Servo/24 VDC) |
| LEFS16 | — | 10 | 5 | 500 (For lead 10) |
| LEFS25 | 20 | 12 | 6 | 1000 (For lead 20) |
| LEFS32 | 24 | 16 | 8 | 1200 (For lead 24) |
| LEFS40 | 30 | 20 | 10 | 1200 (For lead 30) |

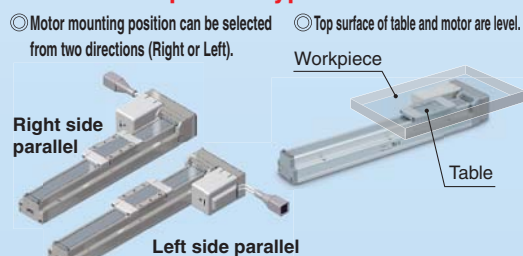
* Except LECPA

Max. work load: **60 kg**

Positioning repeatability: **±0.02 mm**



Motor parallel type available!



Non-magnetizing lock mechanism (Option)

Drop prevention in case of power failure (Maintained)*

* The belt drive actuator LEFB cannot be used vertically for applications.

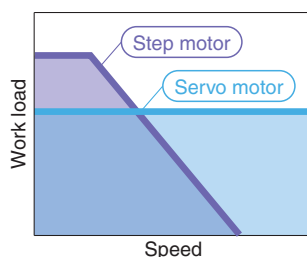
Compatible motors

● Step motor (Servo/24 VDC)

Ideal for transfer of high load at a low speed

● Servo motor (24 VDC)

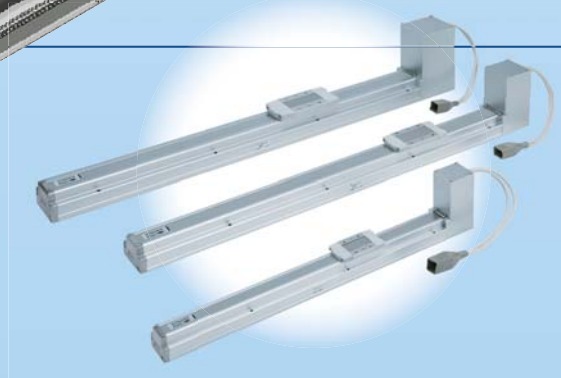
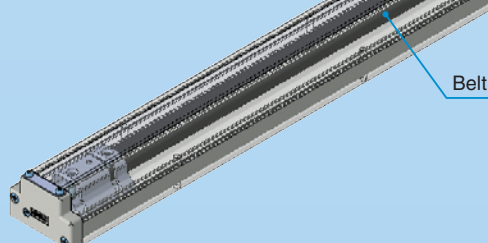
Stable at a high speed and silent operation



Belt Drive/Series LEFB Size: 16, 25, 32

Max. stroke: **2000 mm**

Max. speed: **2000 mm/s**

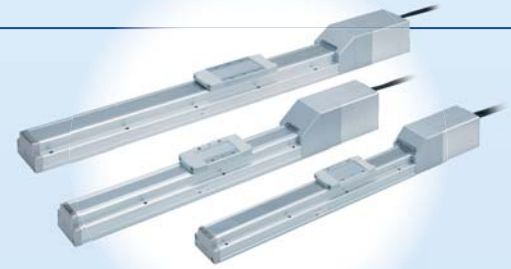
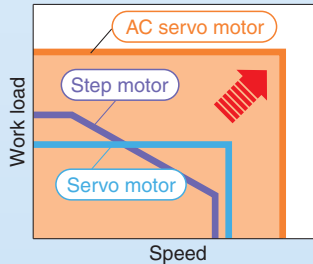


AC Servo Motor

Ball Screw Drive/Series LEFS Size: 25, 32, 40

| Model | Lead [mm] | | | Max. speed [mm/s] |
|--------|-----------|----|----|-------------------|
| | | | | AC servo motor |
| LEFS25 | 20 | 12 | 6 | 1500 |
| LEFS32 | 24 | 16 | 8 | 1500 |
| LEFS40 | 30 | 20 | 10 | 1500 |

High output motor (100/200/400 W)
Improved high speed transfer ability
High acceleration/deceleration
compatible: 20000 mm/s²
Pulse input type
With internal absolute encoder
(For LECSB/C/S)



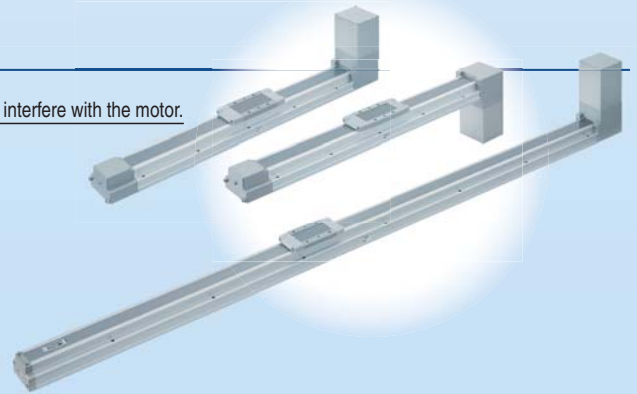
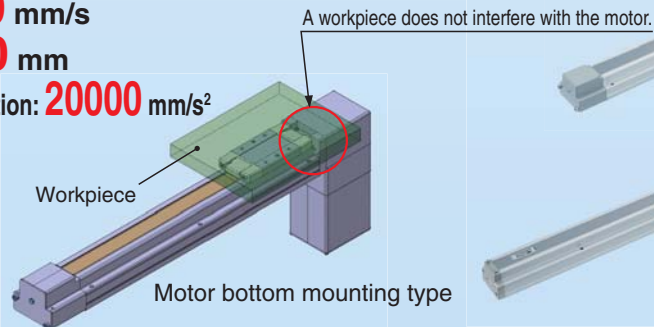
Motor parallel type available!

◎ Motor mounting position can be selected from two directions (Right or Left).



Belt Drive/Series LEFB Size: 25, 32, 40

Max. speed: **2000** mm/s
Max. stroke: **3000** mm
Max. acceleration/deceleration: **20000** mm/s²



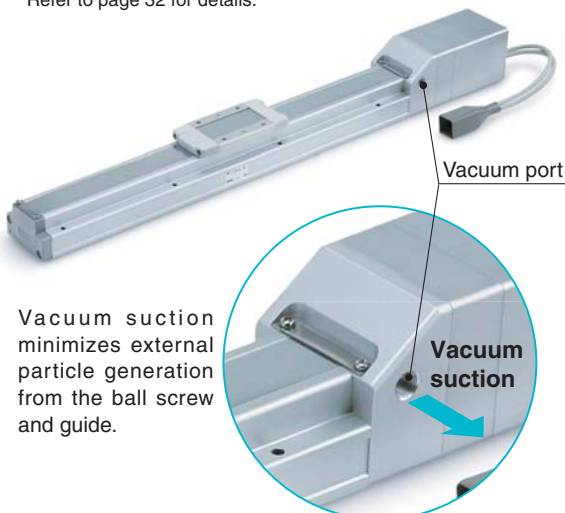
Clean room specification

Ball Screw Drive/Series 11-LEFS

ISO Class 4^{*1} (ISO14644-1)!

- Built-in vacuum piping
- Possible to mount the main body without removing the external cover etc.
- Body-integrated linear guide specification

^{*1} Changes depending on the suction flow rate.
Refer to page 32 for details.



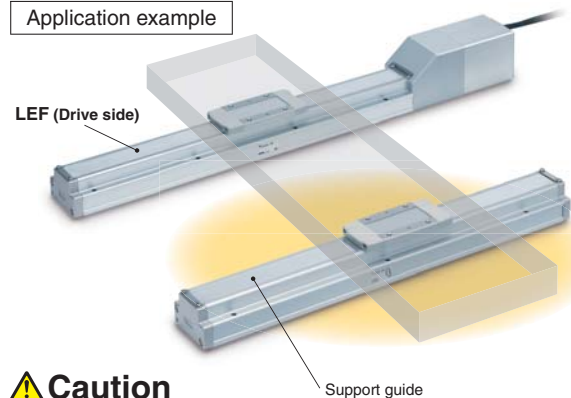
Vacuum suction minimizes external particle generation from the ball screw and guide.

Support Guide/Series LEFG

A support guide is designed to support work pieces with significant overhang.

- As the dimensions are the same as the LEF series body, installation is simple and contributes to a reduction in installation and assembly labour.
- The standard equipped seal bands prevent grease from splashing and external foreign matter from entering.

Application example



⚠ Caution

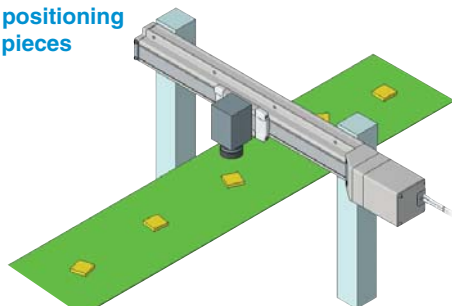
After installing the actuator on the drive side, perform the alignment of the support guide. However, when the mounting flatness exceeds 0.1, install a floating mechanism separately on the workpiece installation surface (table).



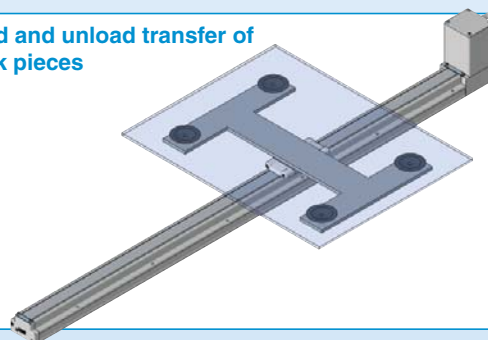
For details, refer to page 165.

Application Examples

Precise positioning
of work pieces



Load and unload transfer of
work pieces



Series Variations

Ball Screw Drive/series LEFS

| Type | Size ^{*1} | Lead [mm] | Stroke [mm] ^{*2} | |
|---|--------------------|-----------|---|--|
| Step motor (Servo/24 VDC) Clean room compatible ^{*3} | 16 | 5 | 50, 100, 150, 200, 250, 300, 350, 400, 450, 500 | |
| | | 10 | | |
| | 25 | 6 | 50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800 | |
| | | 12 | | |
| | | 20 | | |
| | 32 | 8 | 50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 850, 900, 950, 1000 | |
| | | 16 | | |
| | | 24 | | |
| | 40 | 10 | 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 850, 900, 950, 1000, 1100, 1200 | |
| | | 20 | | |
| | | 30 | | |
| Servo motor (24 VDC) Clean room compatible ^{*3} | 16 | 5 | 50, 100, 150, 200, 250, 300, 350, 400, 450, 500 | |
| | | 10 | | |
| | 25 | 6 | 50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800 | |
| | | 12 | | |
| | | 20 | | |
| AC servo motor Clean room compatible ^{*3} | 25 | 6 | 50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800 | |
| | | 12 | | |
| | | 20 | | |
| | 32 | 8 | 50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 850, 900, 950, 1000 | |
| | | 16 | | |
| | | 24 | | |
| | 40 | 10 | 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 850, 900, 950, 1000, 1100, 1200 | |
| | | 20 | | |
| | | 30 | | |

*1 The nominal size based on force (equivalent to the air cylinder) during operation with ball screws.

*2 Please consult with SMC for non-standard strokes as they are produced as special orders.

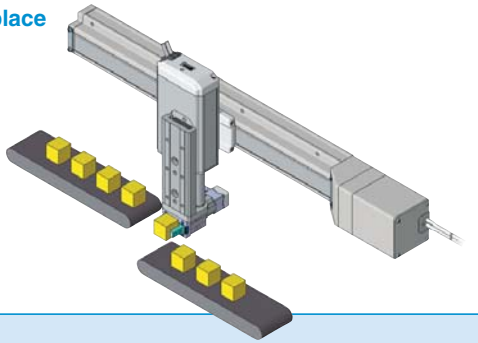
*3 For clean room specification, refer to pages 51 and 131. Except lead 20, 24, 30 mm

Belt Drive/series LEFB

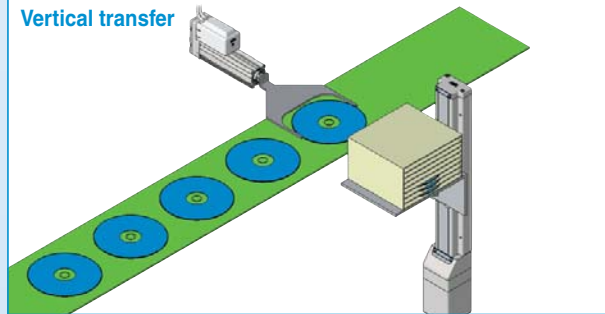
| Type | Size ^{*1} | Equivalent lead [mm] | Stroke [mm] ^{*2} | |
|------------------------------|--------------------|----------------------|---|--|
| Step motor (Servo/24 VDC) | 16 | 48 | 300, 500, 600, 700, 800, 900, 1000 | |
| | 25 | 48 | 300, 500, 600, 700, 800, 900, 1000, 1200, 1500, 1800, 2000 | |
| | 32 | 48 | 300, 500, 600, 700, 800, 900, 1000, 1200, 1500, 1800, 2000 | |
| Servo motor (24 VDC) | 16 | 48 | 300, 500, 600, 700, 800, 900, 1000 | |
| | 25 | 48 | 300, 500, 600, 700, 800, 900, 1000, 1200, 1500, 1800, 2000 | |
| AC servo motor | 25 | 54 | 300, 400, 500, 600, 700, 800, 900, 1000, (1100), 1200, (1300), (1400), 1500, (1600), (1700), (1800), (1900), 2000 | |
| | 32 | 54 | 300, 400, 500, 600, 700, 800, 900, 1000, (1100), 1200, (1300), (1400), 1500, (1600), (1700), (1800), (1900), 2000, 2500 | |
| | 40 | 54 | 300, 400, 500, 600, 700, 800, 900, 1000, (1100), 1200, (1300), (1400), 1500, (1600), (1700), (1800), (1900), 2000, 2500, 3000 | |

Electric Actuator/Slider Type

Pick and place



Vertical transfer



| | Work load: Horizontal [kg] | | | | | | Work load: Vertical [kg] | | | Speed [mm/s] | | | | | | | Page |
|-------------------|----------------------------|----|----|----|----|----|--------------------------|----|----|--------------|-----|-----|-----|------|------|------|-------------------|
| | 10 | 20 | 30 | 40 | 50 | 60 | 10 | 20 | 30 | 200 | 400 | 600 | 800 | 1000 | 1200 | 1400 | |
| 25 ^{*3} | | | | | | | | | | | | | | | | | 25 ^{*3} |
| | | | | | | | | | | | | | | | | | |
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| 103 ^{*3} | | | | | | | | | | | | | | | | | 103 ^{*3} |
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| | Work load: Horizontal [kg] ⁻³ | | | | | Speed [mm/s] | | | | Page |
|-----|--|----|----|----|----|--------------|------|------|------|------|
| | 5 | 10 | 15 | 20 | 25 | 500 | 1000 | 1500 | 2000 | |
| 25 | | | | | | | | | | |
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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.

Setting of jog and speed of the constant rate

Move jog

Start testing

Step data setting

Move for the constant rate

<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

1st screen

2nd screen

It can be registered by “SET” after entering the values.

Example of checking the operation status

1st screen

2nd screen

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 |
| Posn | 50.00 mm |
| Speed | 200 mm/s |



| Step | Axis 1 |
|----------|----------|
| Step No. | 1 |
| Posn | 80.00 mm |
| Speed | 100 mm/s |

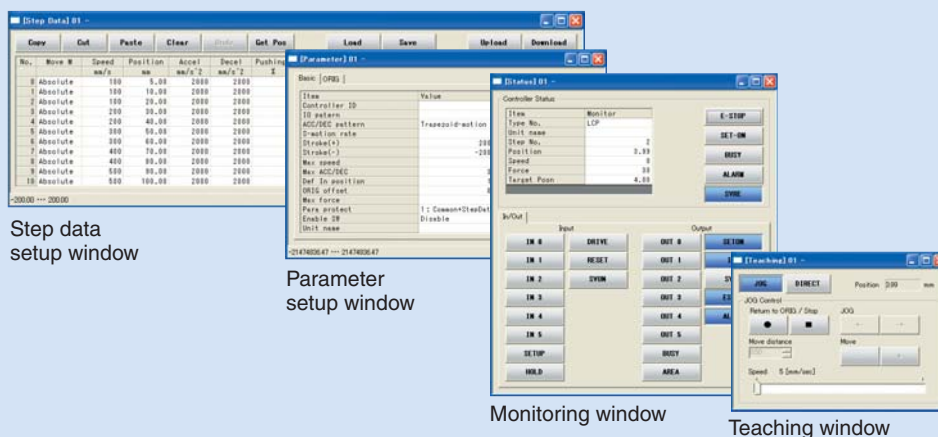
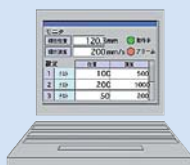
◎ Normal Mode for Detailed Setting

Select normal mode when detailed setting is required.

- Step data can be set in detail.
- Parameters can be set.
- Signals and terminal status can be monitored.
- 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.

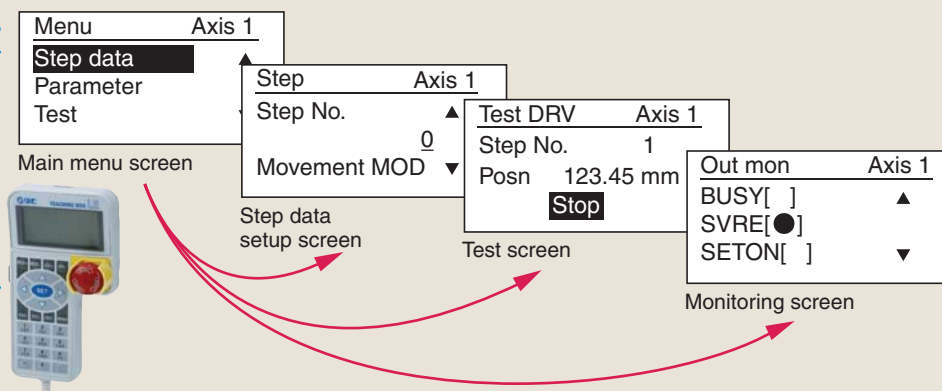


<When a TB (teaching box) is used>

- 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.

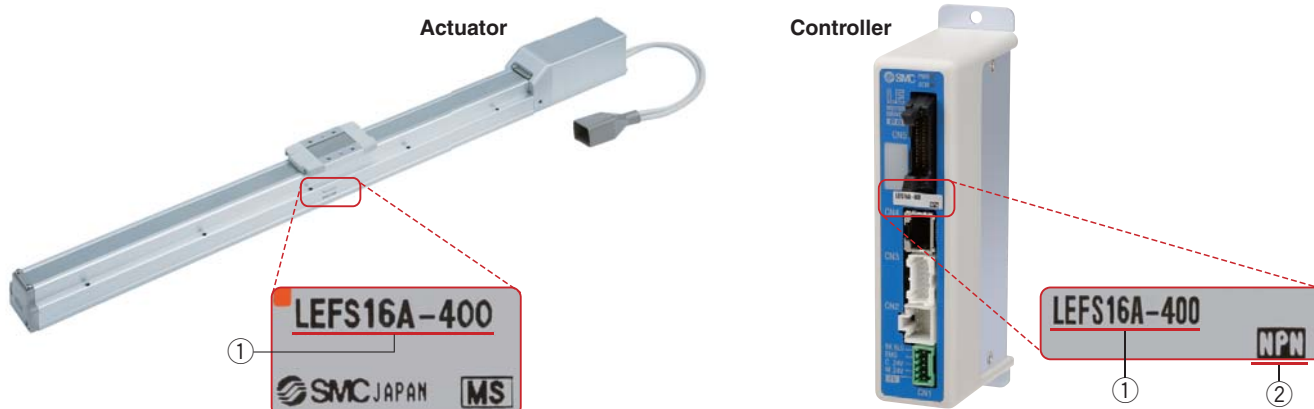


The actuator and controller are provided as a set. (They can be ordered separately.)

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).



Fieldbus Network

Fieldbus-compatible Gateway (GW) Unit Series LEC-G

- Conversion unit for Fieldbus network and LEC serial communication

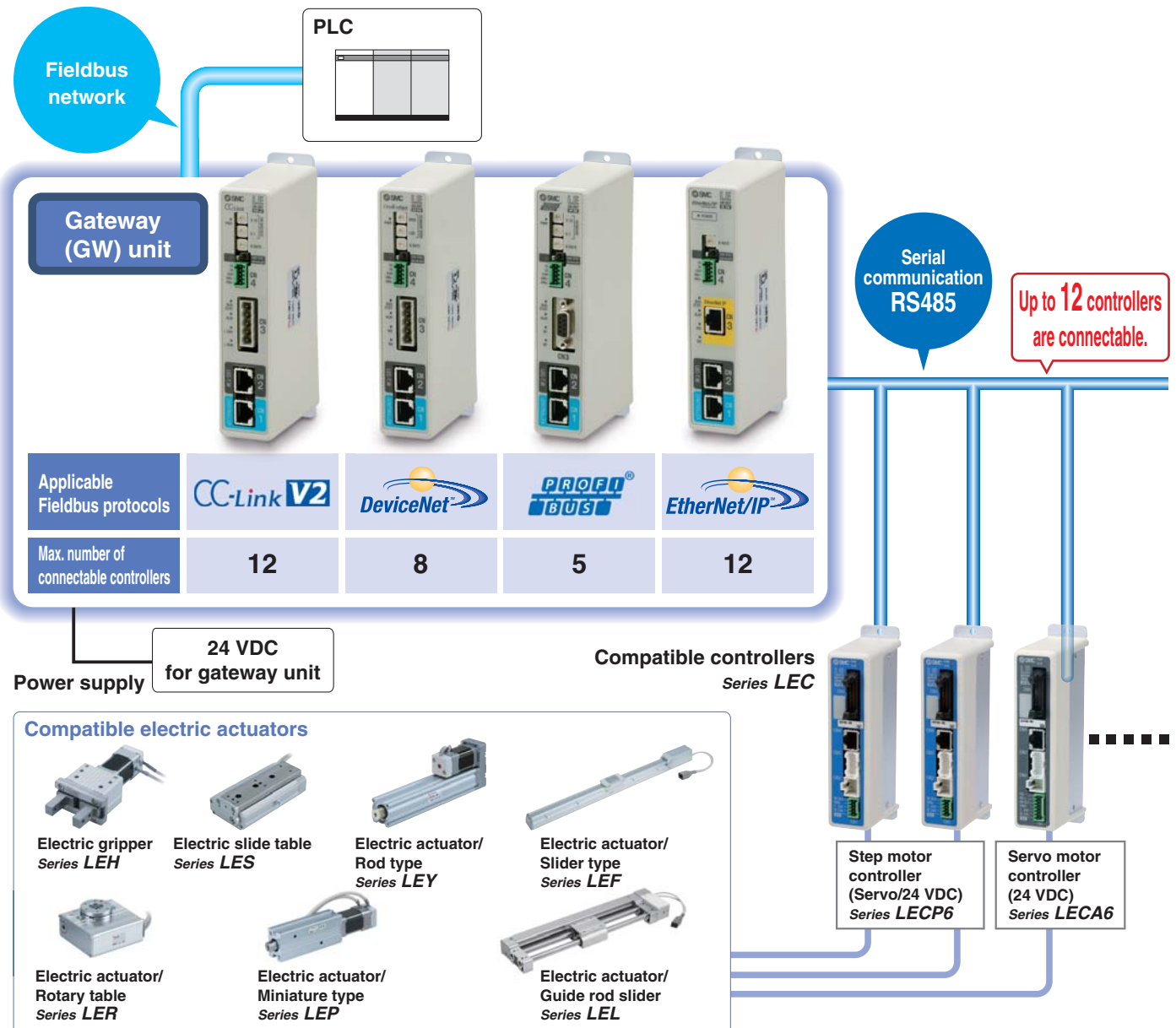
Applicable Fieldbus protocols:    

- 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.

- Values such as position, speed can be checked on the PLC.



Programless Type *Series LECP1*

No Programming

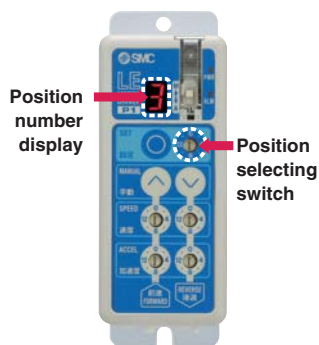
Capable of setting up an electric actuator operation without using a PC or teaching box



Step motor
(Servo/24 VDC)
LECP1

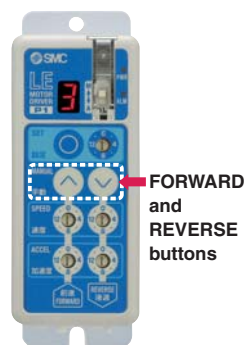
① Setting position number

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

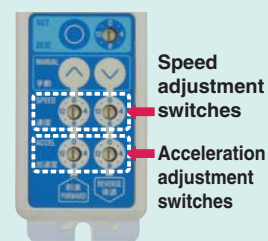


③ Registration

Registering the stop
position using SET
button

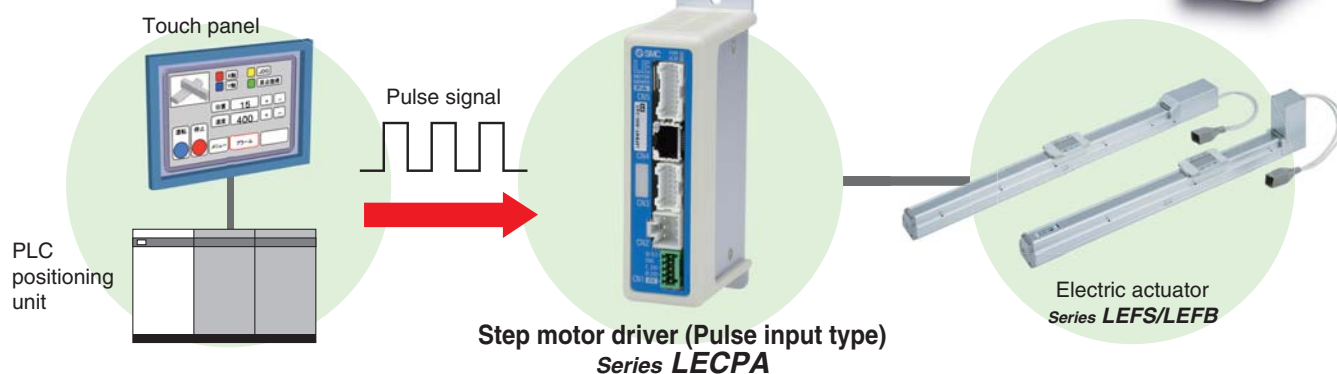
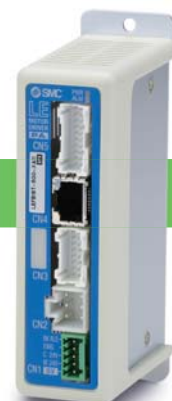


Speed/Acceleration 16-level adjustment



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 | <ul style="list-style-type: none"> Input from controller setting software (PC) Input from teaching box | <ul style="list-style-type: none"> Select using controller operation buttons | <ul style="list-style-type: none"> Input from controller setting software (PC) Input from teaching box |
| Step data "position" setting | <ul style="list-style-type: none"> Input the numerical value from controller setting software (PC) or teaching box Input the numerical value Direct teaching JOG teaching | <ul style="list-style-type: none"> Direct teaching JOG teaching | <ul style="list-style-type: none"> 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

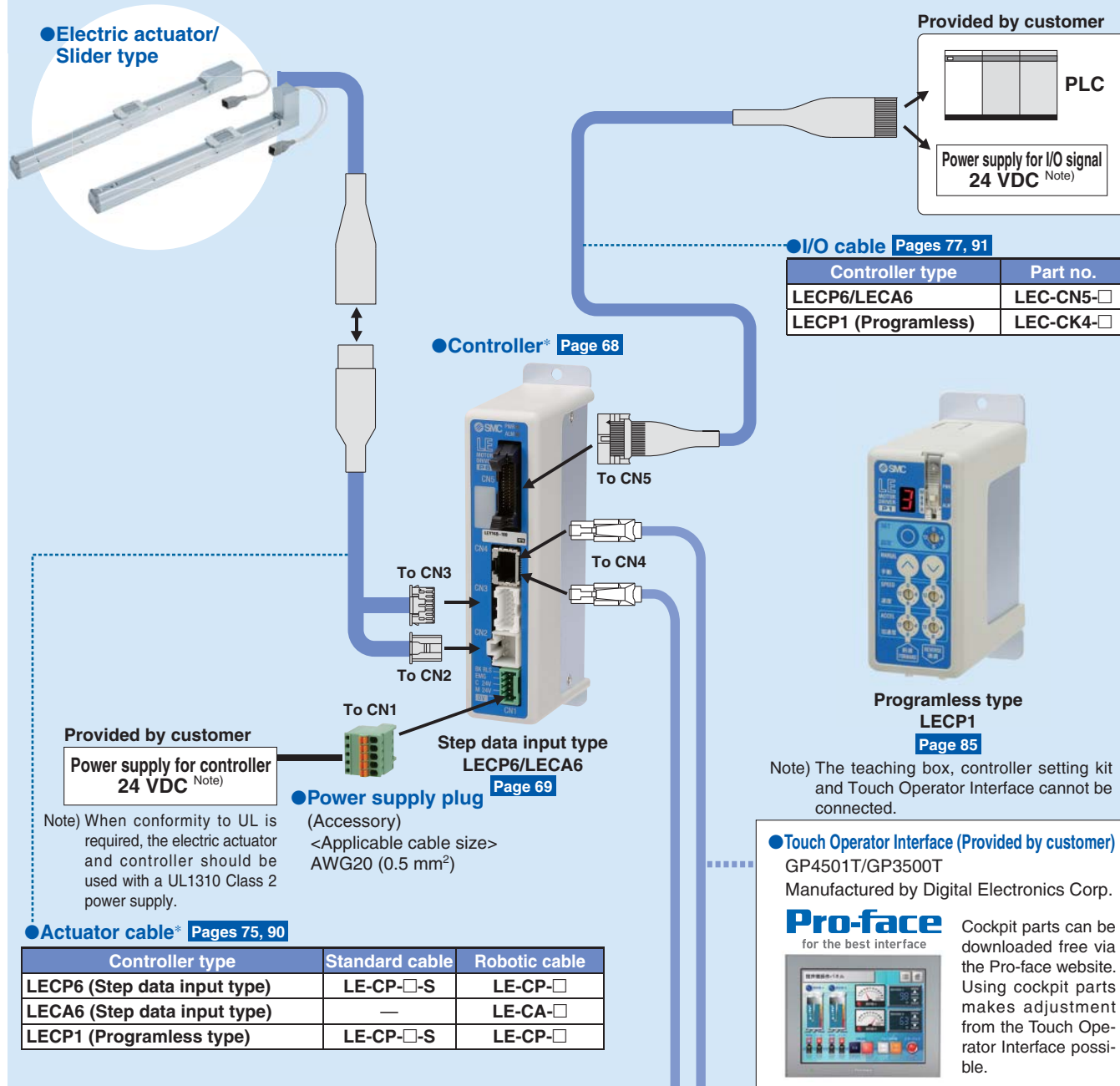
TB: Teaching box PC: Controller setting software

| 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/s ² | | 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 | Compatible |
| | 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 | No setting required |
| | ORIG speed | Speed during return to origin | × | × | ● | Set in units of 1 mm/s | Set in units of 1 mm/s | |
| | ORIG ACC | Acceleration during return to origin | × | × | ● | Set in units of 1 mm/s ² | 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



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

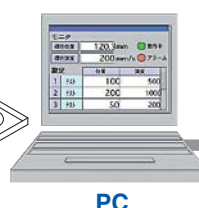
Options

● **Teaching box** Page 79

(With 3 m cable)
LEC-T1-3EG□

● **Controller setting kit** Page 78

Controller setting kit
(Communication cable, conversion unit and USB cable are included.)
LEC-W2

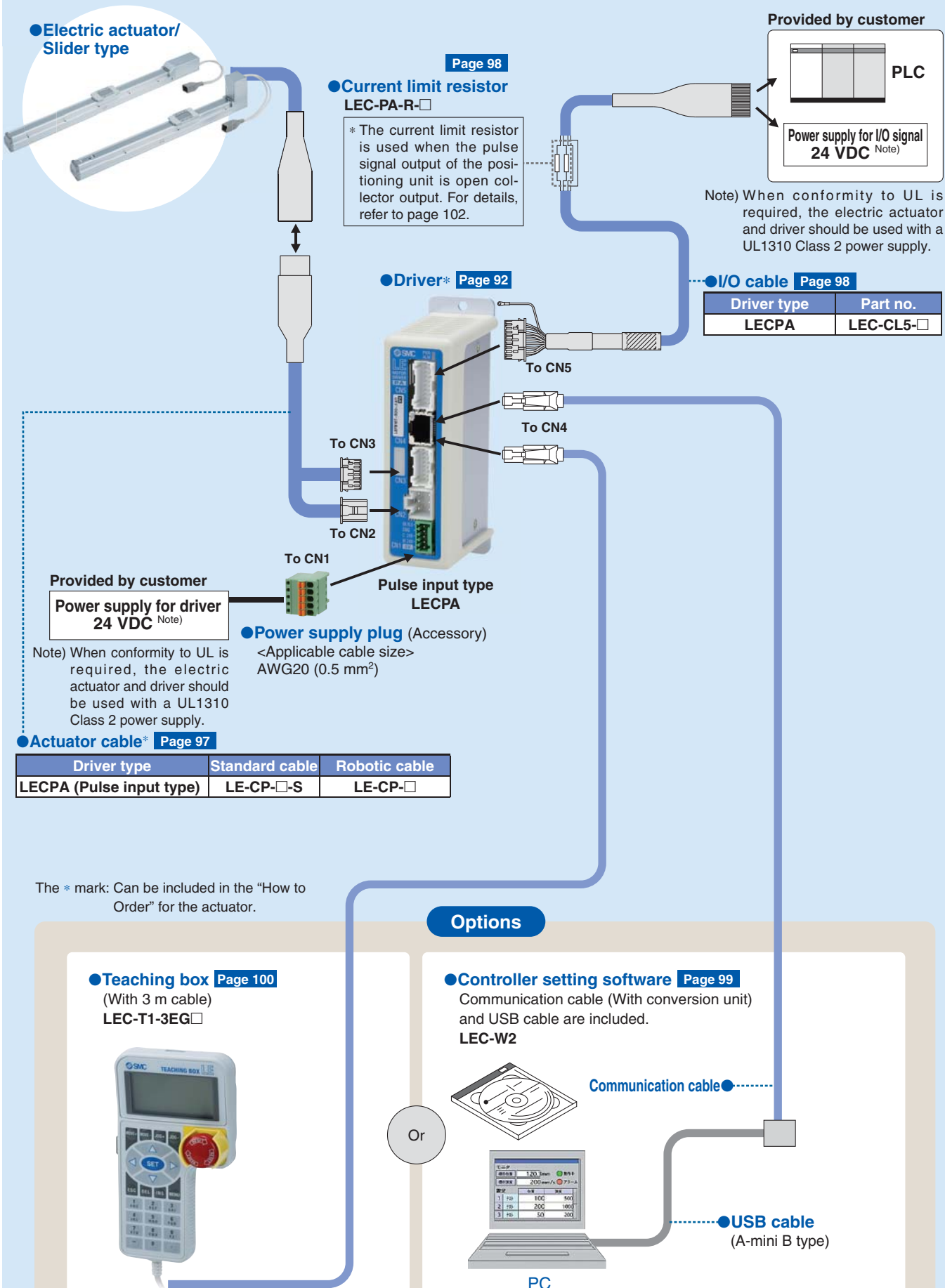


Communication cable (3 m)

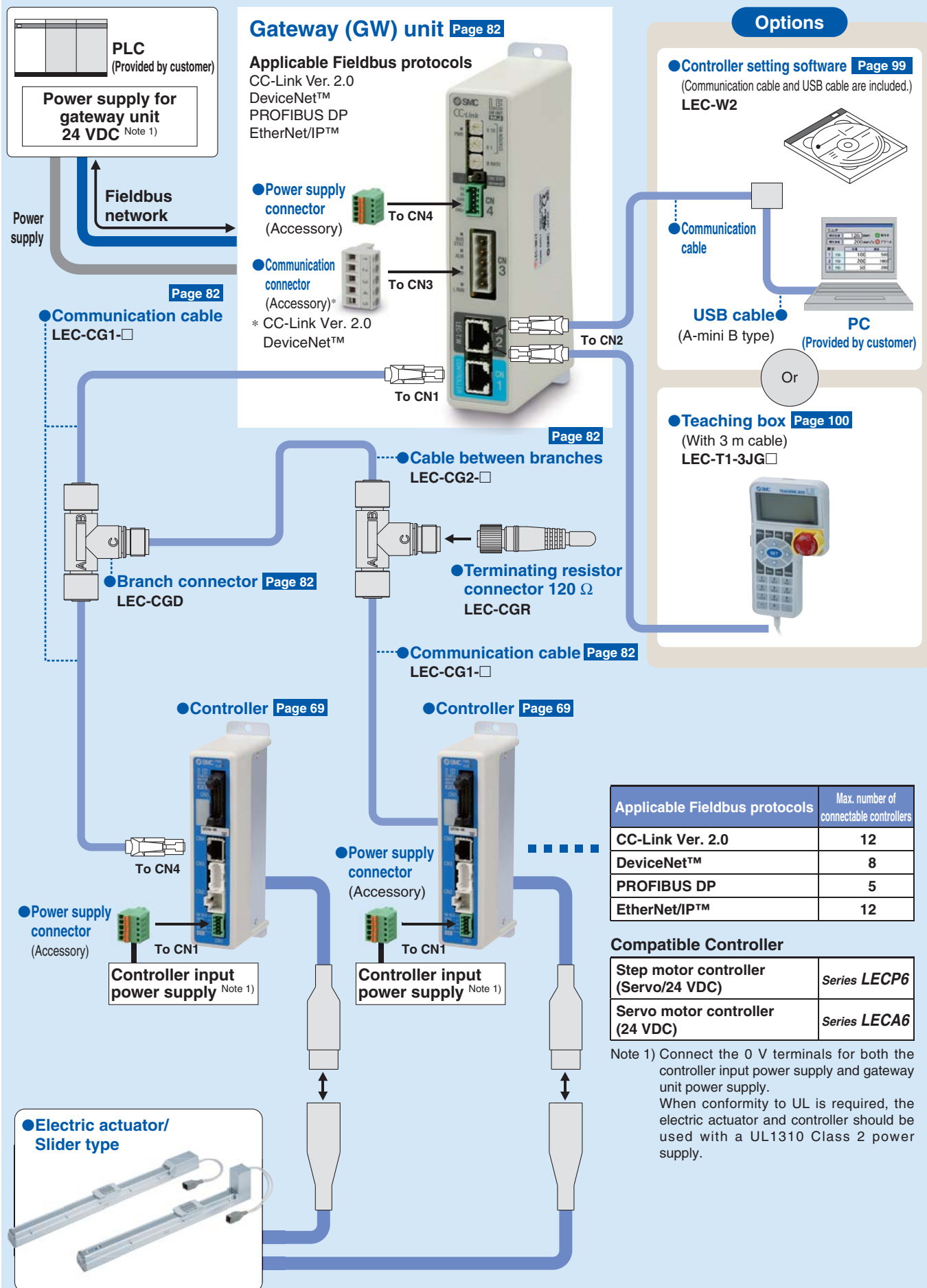
● **USB cable**
(A-mini B type)
(0.3 m)

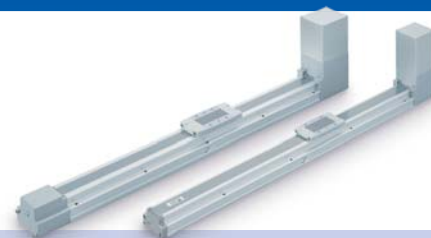
Note) Cannot be used with the programless type (LECP1).





System Construction/Pulse Signal



System Construction/Fieldbus Network



AC Servo Motor DriverSeries **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 |  LECSCA (Pulse input type/ Positioning type) | ● | ● | ● | Up to 7 points ● | ● | | | ● |
| | | ● | ● | ● | | ● | | | ● |
| Absolute Type |  LECSCB (Pulse input type) | ● | ● | ● | | ● | | | ● |
| |  LECSCC (CC-Link direct input type) | ● | ● | ● | Up to 255 points ● | | CC-Link Ver. 1.10 ● | | ● |
| |  LECSCS (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

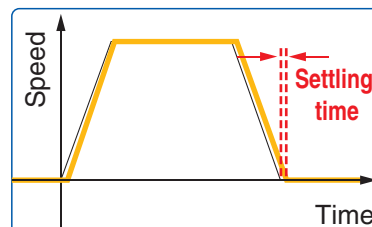
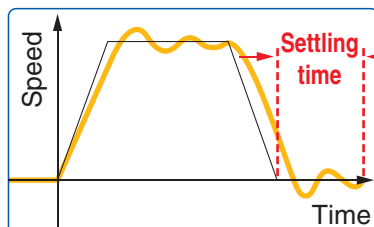
Series **LECS** □

Servo adjustment using auto gain tuning

Auto resonant filter function

- Control the difference between command value and actual action.

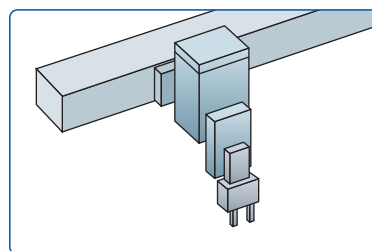
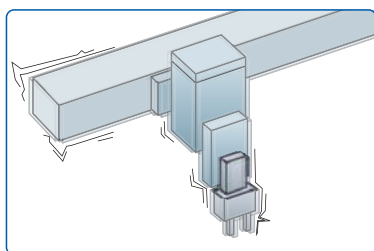
* High-speed positioning is possible since gains etc., are adjusted automatically!



Auto damping control function

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

* Can be set automatically by auto tuning.



With display setting function

One-touch adjustment button

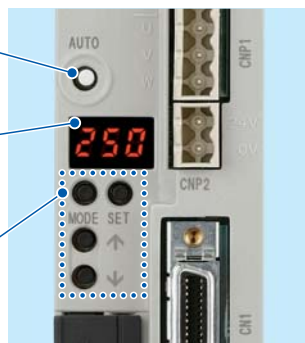
One-touch servo adjustment

Display

Display the monitor, parameter and alarm.

Settings

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



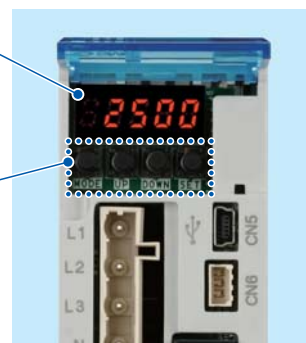
LECSA

Display

Display the monitor, parameter and alarm.

Settings

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



(With the front cover open)

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 open)

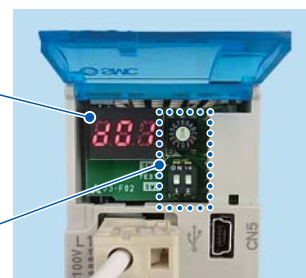
LECSA

Display

Display the communication status with the driver and the alarm.

Settings

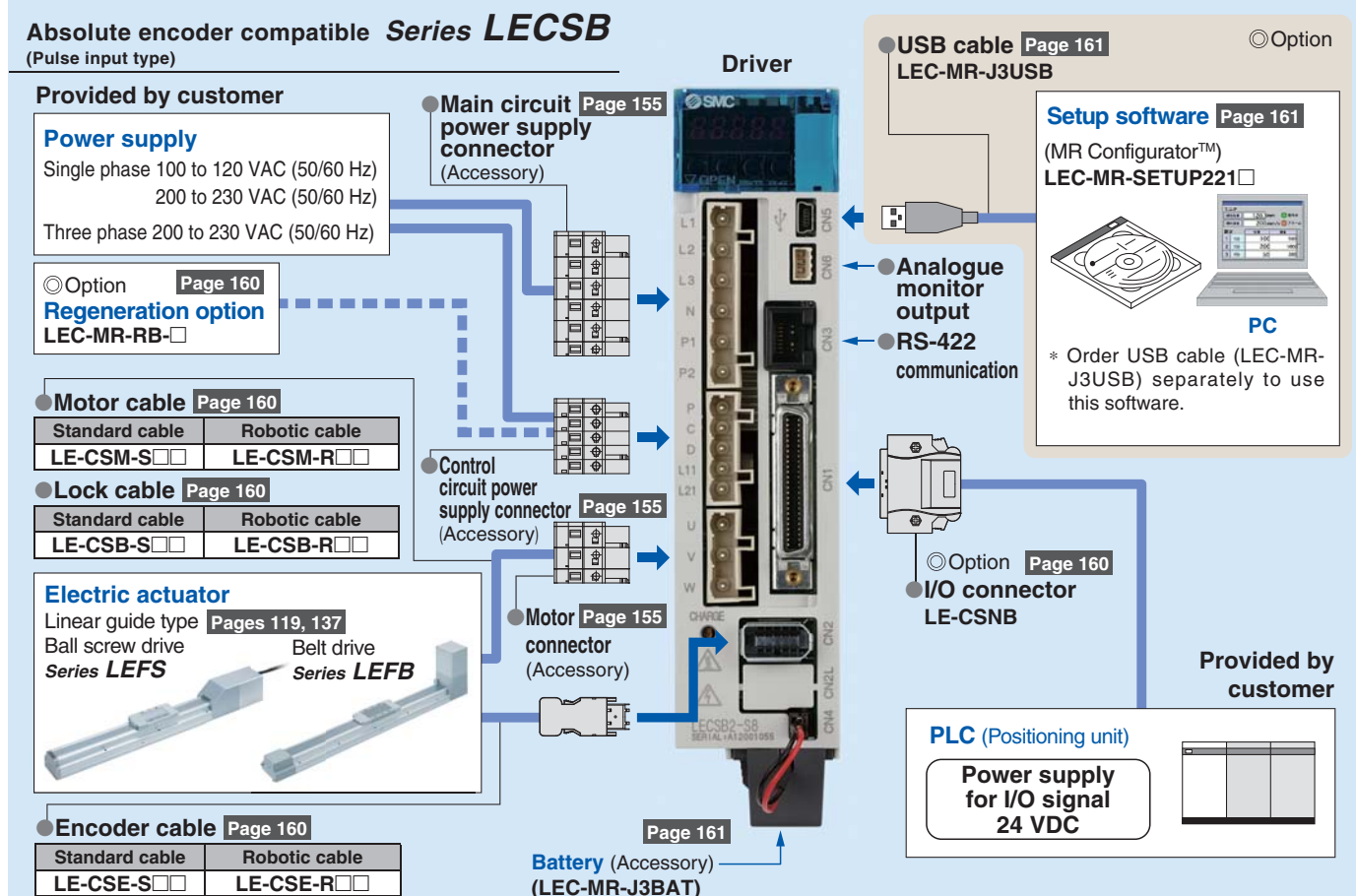
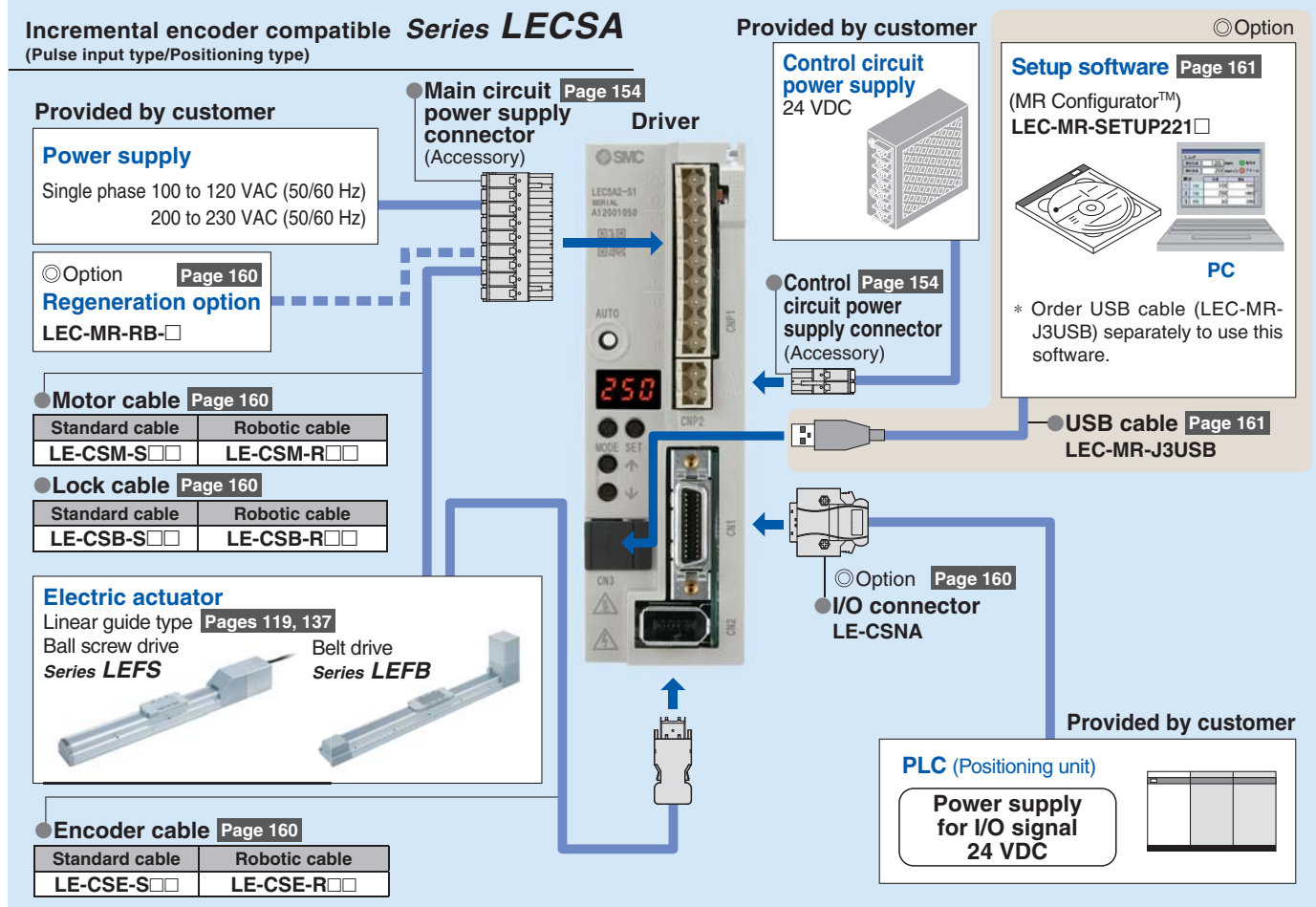
Switches for selecting axis and switching to the test operation



(With the front cover open)

LECSB

System Construction



System Construction

Absolute encoder compatible **Series LECSC**

(CC-Link direct 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 160

Regeneration option

LEC-MR-RB-□

Motor cable

Page 160

Standard cable

LE-CSM-S□□

Robotic cable

LE-CSM-R□□

Lock cable

Page 160

Standard cable

LE-CSB-S□□

Robotic cable

LE-CSB-R□□

Electric actuator

Linear guide type

Pages 119, 137

Ball screw drive

Belt drive

Series LEFS

Series LEFB

Encoder cable

Page 160

Standard cable

LE-CSE-S□□

Robotic cable

LE-CSE-R□□

Main circuit

Page 155

power supply connector

(Accessory)

Control circuit

Page 155

power supply connector

(Accessory)

Motor

Page 155

connector

(Accessory)

Driver

Page 161

Battery (Accessory)
(LEC-MR-J3BAT)

USB cable

Page 161
LEC-MR-J3USB

◎Option

Setup software

Page 161

(MR Configurator™)

LEC-MR-SETUP221□



PC

RS-422 communication

CC-Link connector

(Accessory)

◎Option

Page 160

I/O connector

LE-CSNA

Provided by customer

PLC (CC-Link master unit)

Power supply
for I/O signal
24 VDC

Absolute encoder compatible **Series LECSS**

(SSCNET III 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 160

Regeneration option

LEC-MR-RB-□

Motor cable

Page 160

Standard cable

LE-CSM-S□□

Robotic cable

LE-CSM-R□□

Lock cable

Page 160

Standard cable

LE-CSB-S□□

Robotic cable

LE-CSB-R□□

Electric actuator

Linear guide type

Pages 119, 137

Ball screw drive

Belt drive

Series LEFS

Series LEFB

Encoder cable

Page 160

Standard cable

LE-CSE-S□□

Robotic cable

LE-CSE-R□□

Main circuit

Page 155

power supply connector

(Accessory)

Control circuit

Page 155

power supply connector

(Accessory)

Motor

Page 155

connector

(Accessory)

Driver

Page 161

Battery (Accessory)
(LEC-MR-J3BAT)

USB cable

Page 161
LEC-MR-J3USB

◎Option

Setup software

Page 161

(MR Configurator™)

LEC-MR-SETUP221□



PC

◎Option

Page 160

I/O connector

LE-CSNS

◎Option

Page 160

SSCNET III optical cable

LE-CSS-□

Provided by customer

PLC (Positioning unit/Motion controller)

Power supply
for I/O signal
24 VDC



SMC Electric Actuators

Slider Type

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

AC Servo Motor



CAT.ES100-87

Ball screw drive Series LEFS

Clean room compatible



Series LEFS

| Size | Max. work load [kg] | Stroke [mm] |
|------|---------------------|-------------|
| 16 | 10 | Up to 500 |
| 25 | 20 | Up to 800 |
| 32 | 45 | Up to 1000 |
| 40 | 60 | Up to 1200 |

Belt drive Series LEFB



Series LEFB

| Size | Max. work load [kg] | Stroke [mm] |
|------|---------------------|-------------|
| 16 | 1 | Up to 1000 |
| 25 | 5 | Up to 2000 |
| 32 | 14 | Up to 2000 |

Ball screw drive Series LEFS

Clean room compatible



Series LEFS

| Size | Max. work load [kg] | Stroke [mm] |
|------|---------------------|-------------|
| 25 | 20 | Up to 800 |
| 32 | 45 | Up to 1000 |
| 40 | 60 | Up to 1200 |

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

AC Servo Motor



CAT.ES100-104

Ball screw drive Series LEJS



Series LEJS

| Size | Max. work load [kg] | Stroke [mm] |
|------|---------------------|-------------|
| 40 | 55 | 200 to 1200 |
| 63 | 85 | 300 to 1500 |

Belt drive Series LEJB



Series LEJB

| Size | Max. work load [kg] | Stroke [mm] |
|------|---------------------|-------------|
| 40 | 20 | 200 to 2000 |
| 63 | 30 | 300 to 3000 |

Guide Rod Slider

Step Motor (Servo/24 VDC)



CAT.ES100-101

Belt drive Series LEL



Series LEL25M Sliding bearing

| Size | Max. work load [kg] | Stroke [mm] |
|------|---------------------|-------------|
| 25 | 3 | Up to 1000 |

Series LEL25L Ball bushing bearing

| Size | Max. work load [kg] | Stroke [mm] |
|------|---------------------|-------------|
| 25 | 5 | Up to 1000 |

Low Profile Slider Type

Step Motor (Servo/24 VDC)



CAT.ES100-98

Basic type Series LEMB



Series LEMB

| Size | Max. work load [kg] | Stroke [mm] |
|------|---------------------|-------------|
| 25 | 6 | Up to 2000 |
| 32 | 11 | Up to 2000 |

Cam follower guide type Series LEMC



Series LEMC

| Size | Max. work load [kg] | Stroke [mm] |
|------|---------------------|-------------|
| 25 | 10 | Up to 2000 |
| 32 | 20 | Up to 2000 |

Linear guide single axis type Series LEMH



Series LEMH

| Size | Max. work load [kg] | Stroke [mm] |
|------|---------------------|-------------|
| 25 | 10 | Up to 1000 |
| 32 | 20 | Up to 1500 |

Linear guide double axis type Series LEMHT



Series LEMHT

| Size | Max. work load [kg] | Stroke [mm] |
|------|---------------------|-------------|
| 25 | 10 | Up to 1000 |
| 32 | 20 | Up to 1500 |

SMC Electric Actuators

Rod Type

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)



CAT.ES100-83

Basic type Series LEY

Dust/Drip proof compatible



Series LEY

| Size | Pushing force [N] | Stroke [mm] |
|------|-------------------|-------------|
| 16 | 141 | Up to 300 |
| 25 | 452 | Up to 400 |
| 32 | 707 | Up to 500 |
| 40 | 1058 | Up to 500 |

In-line motor type Series LEY□D

Dust/Drip proof compatible



Guide rod type Series LEYG



Series LEYG

| Size | Stroke [mm] | Stroke [mm] |
|------|-------------|-------------|
| 16 | 141 | Up to 200 |
| 25 | 452 | Up to 300 |
| 32 | 707 | Up to 300 |
| 40 | 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 [N] | Stroke [mm] |
|------|-------------------|-------------|
| 25 | 485 | Up to 400 |
| 32 | 588 | Up to 500 |

In-line motor type Series LEY□D

Dust/Drip proof compatible



Series LEY

| Size | Pushing force [N] | Stroke [mm] |
|------|-------------------|-------------|
| 25 | 485 | Up to 400 |
| 32 | 736 | Up to 500 |
| 63 | 1910 | Up to 800 |

Guide rod type Series LEYG



Series LEYG

| Size | Pushing force [N] | Stroke [mm] |
|------|-------------------|-------------|
| 25 | 485 | 300 |
| 32 | 588 | 300 |

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



Series LEYG

| Size | Pushing force [N] | Stroke [mm] |
|------|-------------------|-------------|
| 25 | 485 | 300 |
| 32 | 736 | 300 |

Slide Table

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)



CAT.ES100-78

Compact type Series LES

Basic type/R type Series LES□R



| Size | Max. work load [kg] | Stroke [mm] |
|------|---------------------|-----------------------------|
| 8 | 1 | 30, 50, 75 |
| 16 | 3 | 30, 50 75, 100 |
| 25 | 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 [kg] | Stroke [mm] |
|------|---------------------|----------------|
| 8 | 2 | 50, 75 |
| 16 | 6 | 50, 100 |
| 25 | 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.ES100-92

Rod type Series LEPY



Series LEPY

| Size | Max. work load [kg] | Stroke [mm] |
|------|---------------------|-------------|
| 6 | 1 | 25, 50, 75 |
| 10 | 2 | |

Slide table type Series LEPS



Series LEPS

| Size | Max. work load [kg] | Stroke [mm] |
|------|---------------------|-------------|
| 6 | 1 | 25 |
| 10 | 2 | 50 |

Rotary Table

Step Motor (Servo/24 VDC)



CAT.ES100-94

Basic type Series LER



Series LER

| Size | Rotating torque [N·m] | | Max. speed [°/s] | |
|------|-----------------------|-------------|------------------|-------------|
| | Basic | High torque | Basic | High torque |
| 10 | 0.2 | 0.3 | 420 | 280 |
| 30 | 0.8 | 1.2 | | |
| 50 | 6.6 | 10 | | |

High precision type Series LERH



SMC Electric Actuators

Gripper

Step Motor (Servo/24 VDC)



CAT.ES100-77

2-finger type
Series LEHZ



Series LEHZ

| Size | Max. gripping force [N] | | Stroke/both sides [mm] |
|------|-------------------------|---------|------------------------|
| | Basic | Compact | |
| 10 | 14 | 6 | 4 |
| 16 | | 8 | 6 |
| 20 | 40 | 28 | 10 |
| 25 | | | 14 |
| 32 | 130 | | 22 |
| 40 | 210 | | 30 |

2-finger type
With dust cover
Series LEHZJ



Series LEHZJ

| Size | Max. gripping force [N] | | Stroke/both sides [mm] |
|------|-------------------------|---------|------------------------|
| | Basic | Compact | |
| 10 | 14 | 6 | 4 |
| 16 | | 8 | 6 |
| 20 | 40 | 28 | 10 |
| 25 | | | 14 |

2-finger type
Long stroke
Series LEHF



Series LEHF

| Size | Max. gripping force [N] | Stroke/both sides [mm] | |
|------|-------------------------|------------------------|---------|
| | | Basic | Compact |
| 10 | 7 | 16 (32) | |
| 20 | 28 | 24 (48) | |
| 32 | 120 | 32 (64) | |
| 40 | 180 | 40 (80) | |

3-finger type
Series LEHS



Series LEHS

| Size | Max. gripping force [N] | | Stroke/diameter [mm] |
|------|-------------------------|---------|----------------------|
| | Basic | Compact | |
| 10 | 5.5 | 3.5 | 4 |
| 20 | 22 | 17 | 6 |
| 32 | 90 | | 8 |
| 40 | 130 | | 12 |

Note) (): Long stroke

Controllers/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)

Programless type
(With stroke study)
Series LECP2



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

Drivers

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)

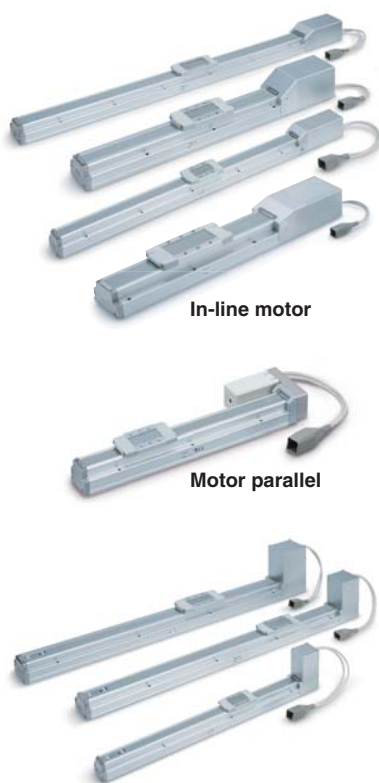
SSCNET III type
Series LECSS
(Absolute type)



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

Series Variations

Electric Actuator **Slider Type** *Series LEF*



| Drive method | Specifications | Series | Stroke [mm] | Work load (kg) | | Speed [mm/s] | Screw lead [mm] | Positioning repeatability [mm] | Controller /Driver series | Page | |
|---|---------------------------|-------------|----------------------|---------------------------|------------|--------------|-----------------|--------------------------------|--|------|------------|
| | | | | Horizontal | Vertical | | | | | | |
| Ball screw drive * 1 <div>Clean room compatible</div> | Step motor (Servo/24 VDC) | LEFS16 | 50 to 500 | 9 (14) | 2 | 10 to 700 | 10 | ±0.02 | Series LECP6 Series LECP1 Series LECPA | 37 | |
| | | | | 10 (15) | 4 | 5 to 360 | 5 | | | | |
| | | LEFS25 | 50 to 800 | 10 (12) | 0.5 | 20 to 1100 | 20 | | | | |
| | | | | 20 (25) | 7.5 | 12 to 750 | 12 | | | | |
| | | | | 20 (30) | 15 | 6 to 400 | 6 | | | | |
| | | | | LEFS32 | 50 to 1000 | 15 (20) | 4 | | | | 24 to 1200 |
| | | 40 (45) | 10 | | | 16 to 800 | 16 | | | | |
| | | 45 (50) | 20 | | | 8 to 320 | 8 | | | | |
| | LEFS40 | 150 to 1200 | 20 (25) | 2 | 30 to 1200 | 30 | | | | | |
| | | | 50 (55) | 2 | 20 to 1000 | 20 | | | | | |
| | | | 60 (65) | 23 | 10 to 300 | 10 | | | | | |
| | | | Servo motor (24 VDC) | LEFS16A | 50 to 500 | 7 | 2 | | 1 to 500 | | 20 |
| | 10 | 4 | | | | 1 to 250 | 12 | | | | |
| | LEFS25A | 50 to 800 | | 5 | 1 | 2 to 800 | 20 | | | | |
| 11 | | | | 2.5 | 2 to 500 | 12 | | | | | |
| 18 | | | | 5 | 1 to 250 | 6 | | | | | |
| Belt drive | | | | Step motor (Servo/24 VDC) | LEFB16 | 300 to 1000 | 1 | — | 48 to 1100 | 48 | ±0.08 |
| | LEFB25 | 300 to 2000 | | | 5 | 48 to 1400 | | | | | |
| | LEFB32 | 300 to 2000 | | | 14 | 48 to 1500 | | | | | |
| | Servo motor (24 VDC) | LEFB16A | 300 to 1000 | 1 | — | 5 to 2000 | 48 | Series LECA6 | | | |
| | | LEFB25A | 300 to 2000 | 2 | | | | | | | |
| | | | | | | | | | | | |

*1 Except lead 20, 24, 30 mm

*2 Values in brackets for LECPA.


Controller/Driver *LEC*



| Type | Series | Compatible motor | Power supply voltage | Parallel I/O | | Number of positioning pattern points | 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 | 68 |
| | 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) | — | |

Series Variations

Electric Actuator **Slider Type** *Series LEF*



| Drive method | Specifications | Series | Stroke [mm] | Work load (kg) | | Speed [mm/s] | Screw lead [mm] | Positioning repeatability [mm] | Controller /Driver series | Page | |
|--|----------------|---------|-------------|----------------|----------|--------------|-----------------|--------------------------------|---------------------------|------|--|
| | | | | Horizontal | Vertical | | | | | | |
| Ball screw drive * Clean room compatible | AC servo motor | LEFS25S | 50 to 800 | 10 | 4 | Max.1500 | 20 | ±0.02 | Series LECSA | 119 | |
| | | | | 20 | 8 | Max.900 | 12 | | | | |
| | | | | 20 | 15 | Max.450 | 6 | | | | |
| | | LEFS32S | 50 to 1000 | 30 | 5 | Max.1500 | 24 | | Series LECSB | | |
| | | | | 40 | 10 | Max.1000 | 16 | | | | |
| | | | | 45 | 20 | Max.500 | 8 | | | | |
| | | LEFS40S | 150 to 1200 | 30 | 7 | Max.1500 | 30 | | Series LECSC | | |
| | | | | 50 | 15 | Max.1000 | 20 | | | | |
| | | | | 60 | 30 | Max.500 | 10 | | | | |
| | | LEFB25S | 300 to 2000 | 5 | — | Max.2000 | 54 | | Series LECSS | | |
| 15 | | | | | | | | | | | |
| 25 | | | | | | | | | | | |
| LEFB32S | 300 to 2500 | 15 | — | Max.2000 | 54 | ±0.06 | | | | | |
| | | 15 | | | | | | | | | |
| | | 25 | | | | | | | | | |
| LEFB40S | 300 to 3000 | 25 | — | Max.2000 | 54 | ±0.06 | | | | | |
| | | 25 | | | | | | | | | |
| | | 25 | | | | | | | | | |

* Except lead 20, 24, 30 mm

Driver *Series LECS*



| Type | Series | Compatible motor | Power supply voltage | Parallel I/O | | Number of positioning pattern points | 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 | 148 |
| 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) | — | |

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

◎ Electric Actuator/Ball Screw Drive *Series LEFS*

| | |
|-----------------------|---------|
| Model Selection | Page 25 |
| How to Order | Page 37 |
| Specifications | Page 39 |
| Construction | Page 41 |
| Dimensions | Page 43 |

◎ Electric Actuator/

Ball Screw Drive *Series 11-LEFS* Clean room specification

| | |
|--|---------|
| Particle Generation Characteristics (Clean Room Specification) | Page 31 |
| Model Selection (Clean Room Specification) | Page 33 |
| How to Order | Page 51 |
| Specifications | Page 53 |
| Dimensions | Page 55 |

◎ Electric Actuator/Belt Drive *Series LEFB*

| | |
|-----------------------|---------|
| Model Selection | Page 25 |
| How to Order | Page 59 |
| Specifications | Page 61 |
| Construction | Page 63 |
| Dimensions | Page 64 |

Specific Product Precautions Page 66

◎ Step Motor (Servo/24 VDC)/Servo Motor (24 VDC) Controller/Driver

| | |
|---|----------|
| Step Data Input Type/ <i>Series LECP6/LECA6</i> | Page 69 |
| Controller Setting Kit/ <i>LEC-W2</i> | Page 78 |
| Teaching Box/ <i>LEC-T1</i> | Page 79 |
| Gateway Unit/ <i>Series LEC-G</i> | Page 82 |
| Programless Controller/ <i>Series LECP1</i> | Page 85 |
| Pulse Input Type/ <i>Series LECPA</i> | Page 92 |
| Controller Setting Kit/ <i>LEC-W2</i> | Page 99 |
| Teaching Box/ <i>LEC-T1</i> | Page 100 |



AC Servo Motor Type

◎ Electric Actuator/Ball Screw Drive *Series LEFS*

| | |
|-----------------------|----------|
| Model Selection | Page 103 |
| How to Order | Page 119 |
| Specifications | Page 120 |
| Construction | Page 121 |
| Dimensions | Page 123 |

Specific Product Precautions Page 129

◎ Electric Actuator/

Ball Screw Drive *Series 11-LEFS* Clean room specification

| | |
|--|----------|
| Particle Generation Characteristics (Clean Room Specification) | Page 111 |
| Model Selection (Clean Room Specification) | Page 113 |
| How to Order | Page 131 |
| Specifications | Page 132 |
| Dimensions | Page 133 |

◎ Electric Actuator/Belt Drive *Series LEFB*

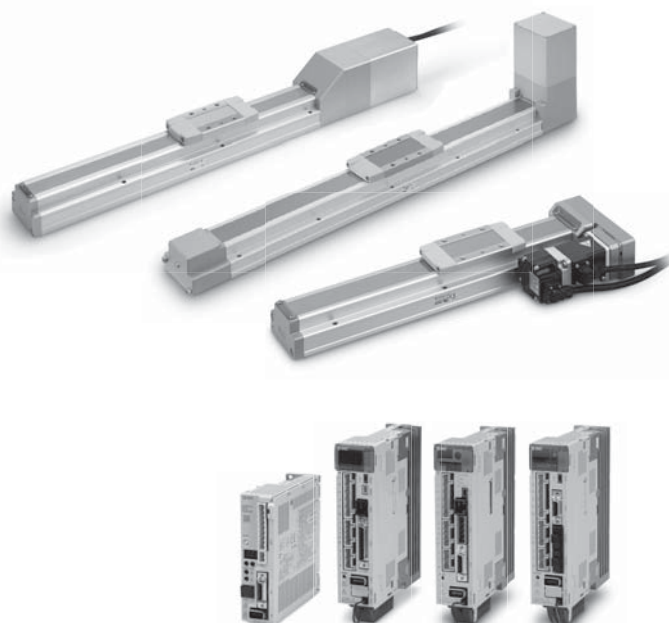
| | |
|-----------------------|----------|
| Model Selection | Page 115 |
| How to Order | Page 137 |
| Specifications | Page 138 |
| Construction | Page 140 |
| Dimensions | Page 142 |

◎ AC Servo Motor Driver *Series LECS* □ Page 148

Specific Product Precautions Page 162

◎ Support Guide *Series (11-) LEFG*

| | |
|-----------------------|----------|
| Model Selection | Page 165 |
| How to Order | Page 167 |
| Dimensions | Page 169 |

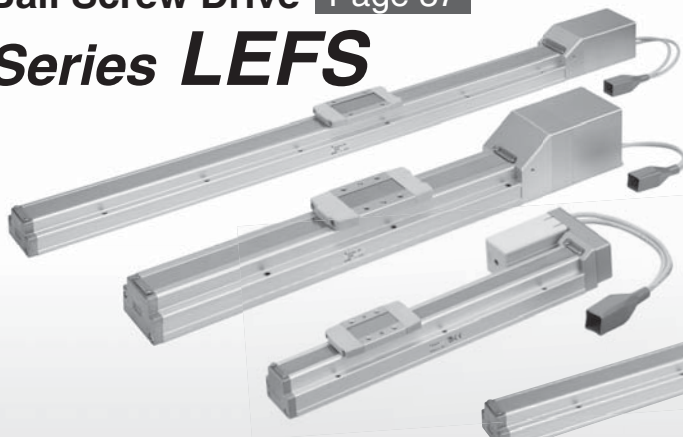


Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

Ball Screw Drive Page 37

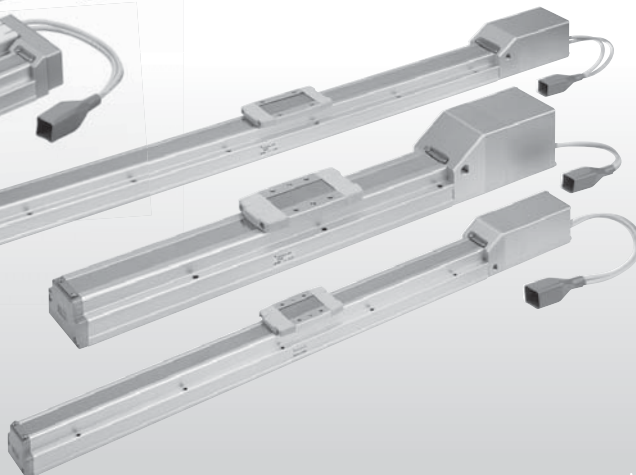
Series **LEFS**



Clean Room Specification

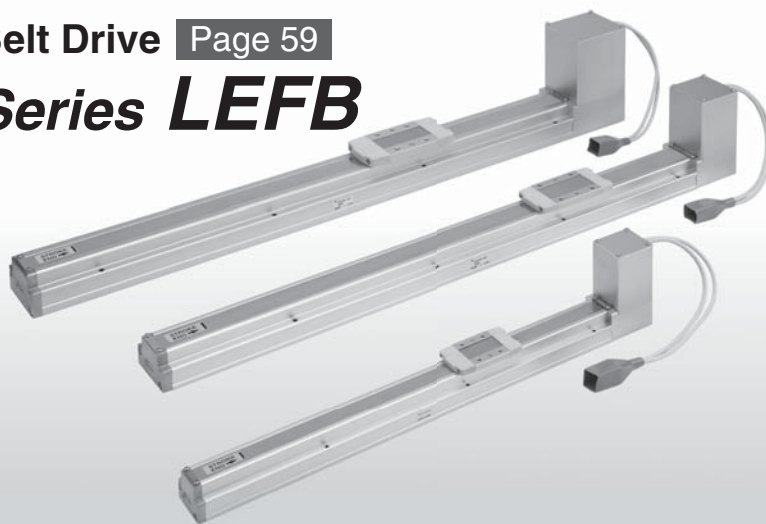
Page 51

Series **11-LEFS**



Belt Drive Page 59

Series **LEFB**



Step Motor/Servo Motor, Controller/Driver Page 68

Series **LECP6/LECA6**

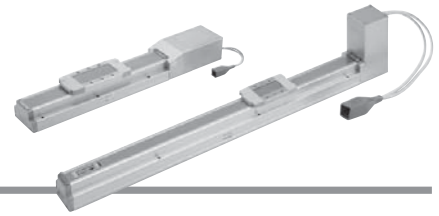
Series **LEC-G**

Series **LECP1**

Series **LECPA**



Electric Actuator/Slider Type Step Motor (Servo/24 VDC) Servo Motor (24 VDC) Ball Screw Drive/Series **LEFS** Belt Drive/Series **LEFB** Model Selection



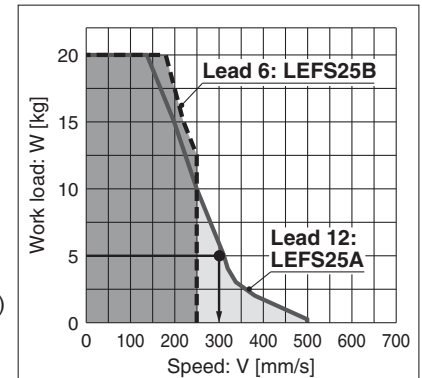
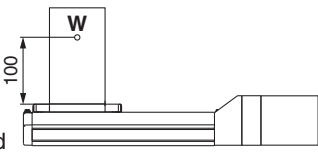
Selection Procedure



Selection Example

Operating conditions

- Workpiece weight: 5 [kg]
- Speed: 300 [mm/s]
- Acceleration/Deceleration: 3000 [mm/s²]
- Stroke: 200 [mm]
- Mounting orientation: Horizontal upward
- Workpiece mounting condition:



<Speed-Work load graph>
(LEFS25/Step motor)

Step 1 Check the work load–speed. <Speed-Work load graph> (Pages 26 to 28)

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

Selection example) The **LEFS25A-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.

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

- 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.

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

Calculation example)

T1 to T4 can be calculated as follows.

$$T1 = V/a1 = 300/3000 = 0.1 \text{ [s]}$$

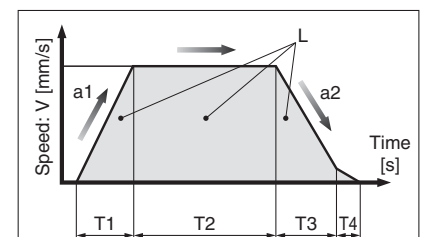
$$T3 = V/a2 = 300/3000 = 0.1 \text{ [s]}$$

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} = \frac{200 - 0.5 \cdot 300 \cdot (0.1 + 0.1)}{300} = 0.57 \text{ [s]}$$

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

Therefore, the cycle time can be obtained as follows.

$$T = T1 + T2 + T3 + T4 = 0.1 + 0.57 + 0.1 + 0.2 = 0.97 \text{ [s]}$$



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]

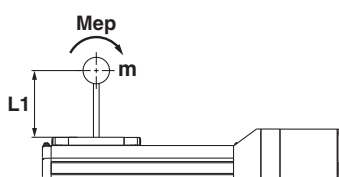
Time until reaching the set speed

T2: Constant speed time [s]
Time while the actuator is operating at a constant speed

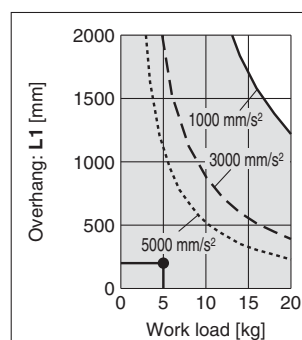
T3: Deceleration time [s]
Time from the beginning of the constant speed operation to stop

T4: Settling time [s]
Time until in position is completed

Step 3 Check the guide moment.



Based on the above calculation result, the **LEFS25A-200** is selected.



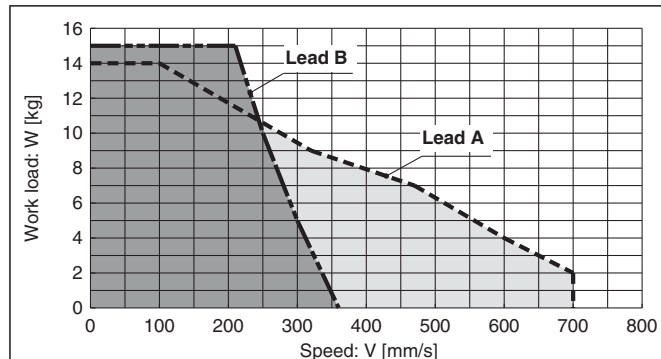
* If the step motor and servo motors do not meet your specifications, also consider the AC servo specification (Page 102).

Speed-Work Load Graph (Guide) For Step Motor (Servo/24 VDC) LECP6, LECP1

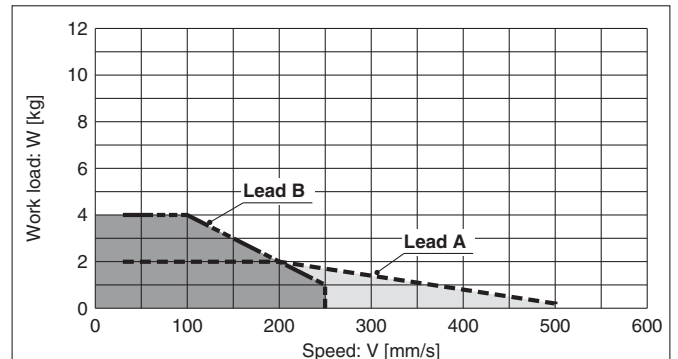
* The following graph shows the values when moving force is 100%.

LEFS16/Ball Screw Drive

Horizontal

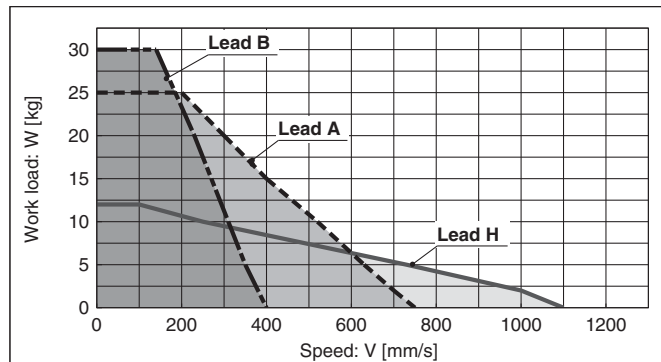


Vertical

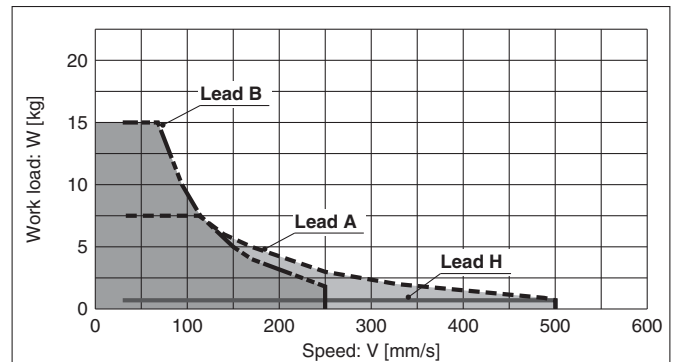


LEFS25/Ball Screw Drive

Horizontal

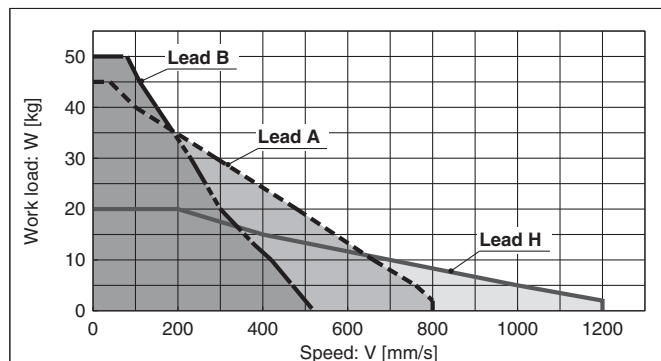


Vertical

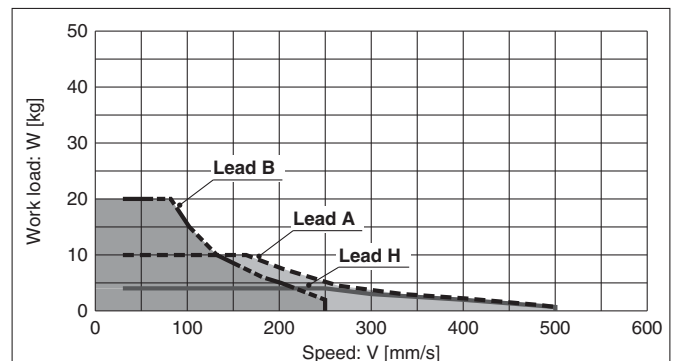


LEFS32/Ball Screw Drive

Horizontal

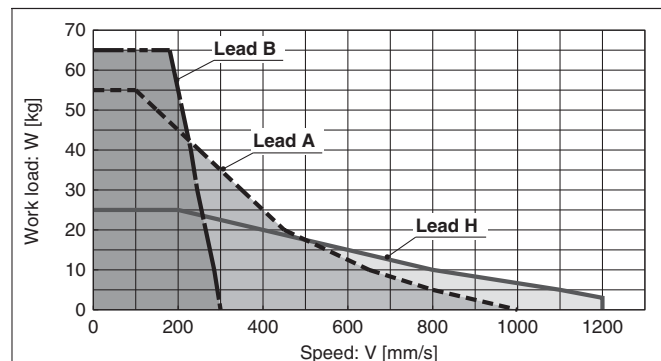


Vertical

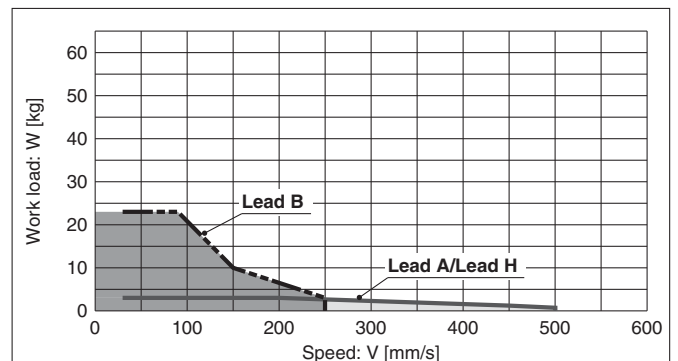


LEFS40/Ball Screw Drive

Horizontal



Vertical



Model
Selection

LEFS

LEFB

LECA6
LECP6

LEC-G

LECP1

LECPA

LEFS

LEFB

LECS

LEFG

Specific Product
Precautions

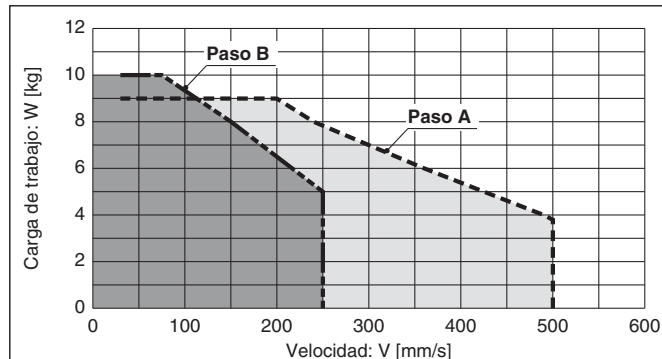
Series LEF

Speed-Work Load Graph (Guide) For Step Motor (Servo/24 VDC) LECPA

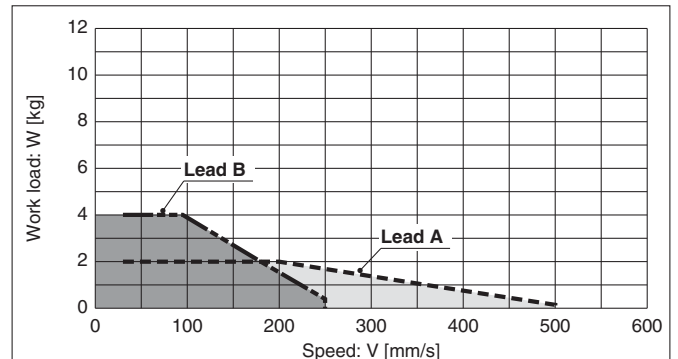
* The following graph shows the values when moving force is 100%.

LEFS16/Ball Screw Drive

Horizontal

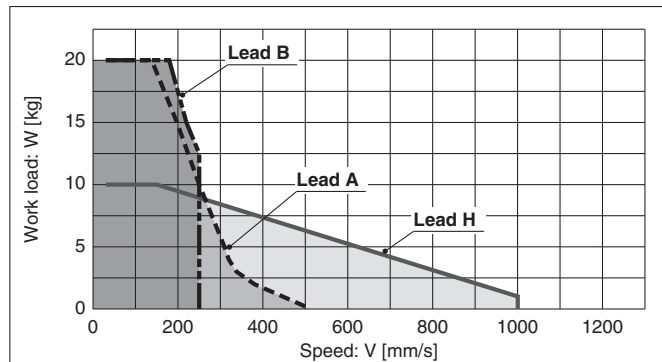


Vertical

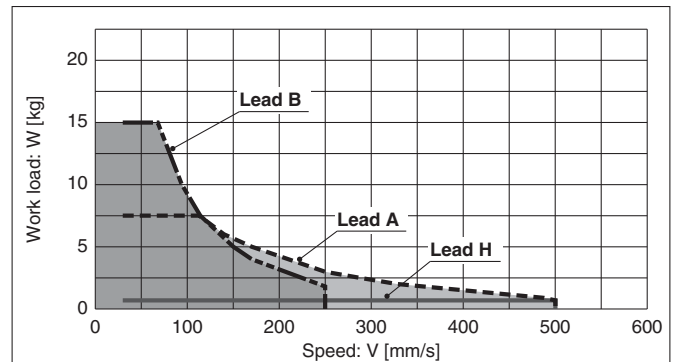


LEFS25/Ball Screw Drive

Horizontal

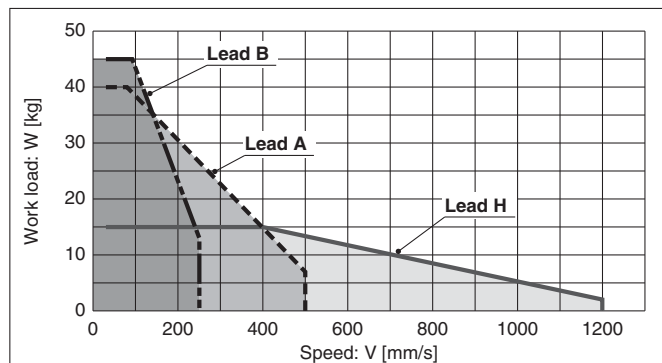


Vertical

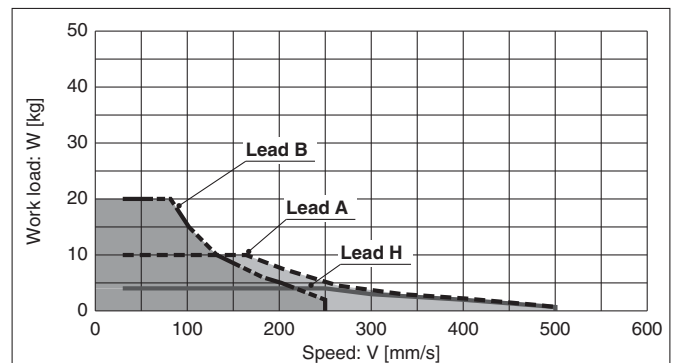


LEFS32/Ball Screw Drive

Horizontal

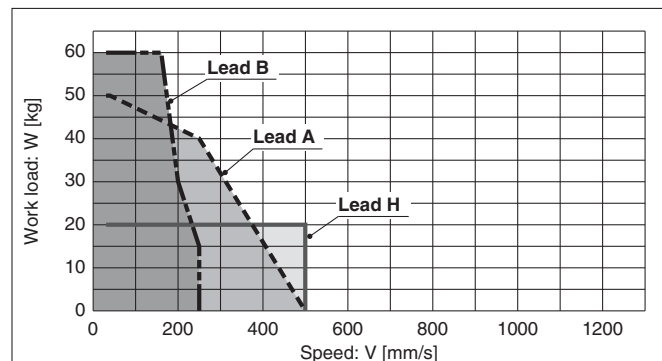


Vertical

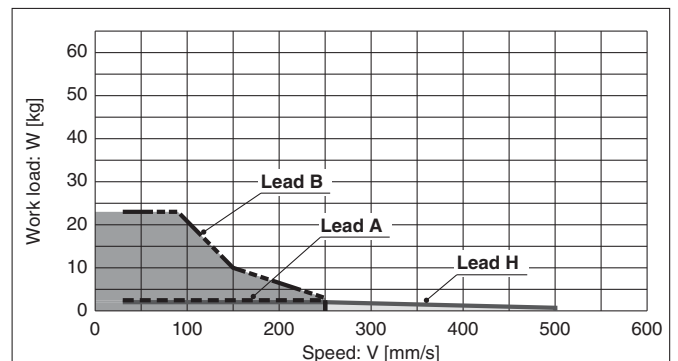


LEFS40/Ball Screw Drive

Horizontal



Vertical

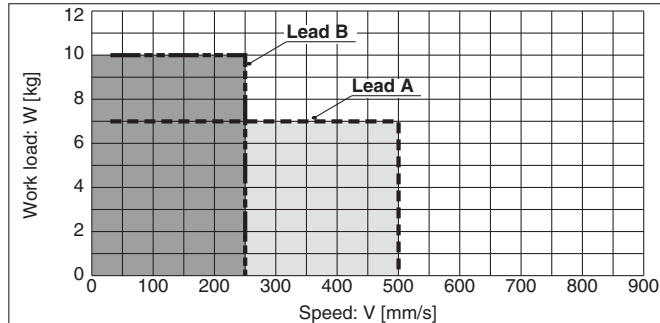


Speed-Work Load Graph (Guide) Servo Motor (24 VDC)

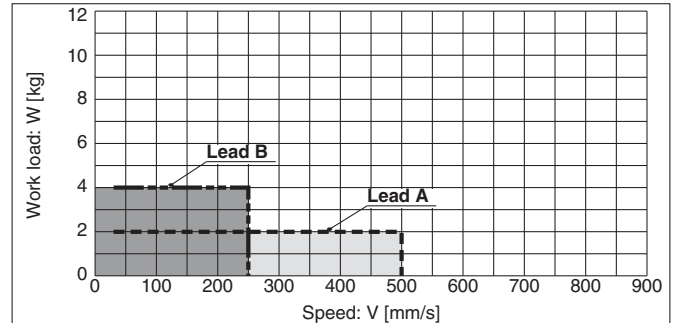
* The following graph shows the values when moving force is 250%.

LEFS16A/Ball Screw Drive

Horizontal

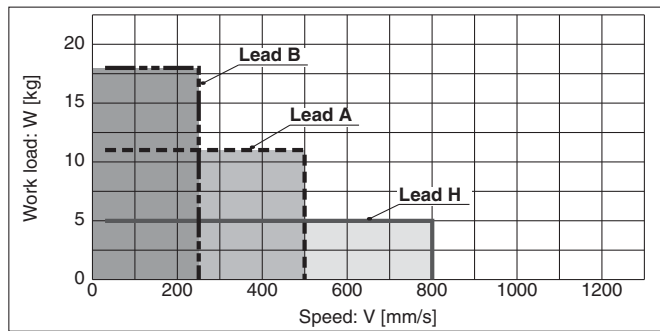


Vertical

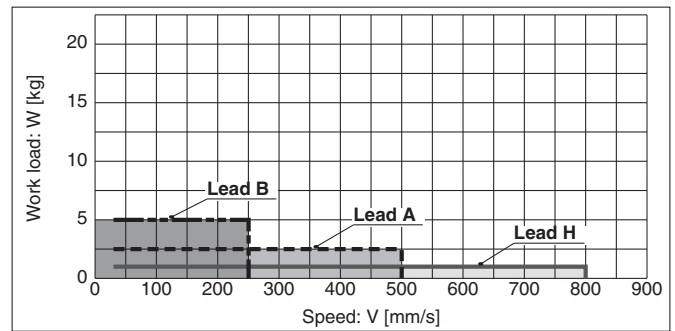


LEFS25A/Ball Screw Drive

Horizontal



Vertical

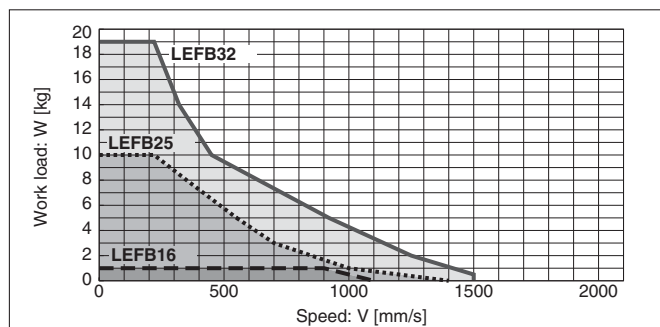


Step Motor (Servo/24 VDC) LECP6, LECP1

LEFB/Belt Drive

* When moving force is 100%

Horizontal

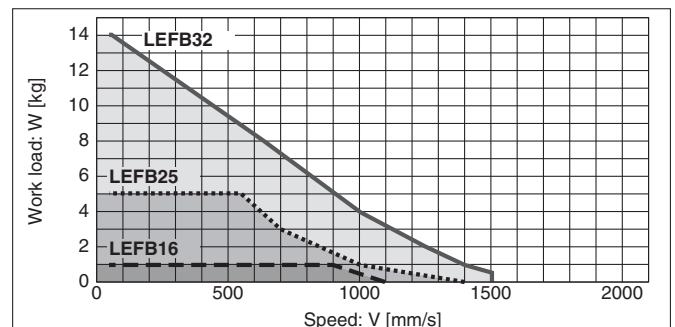


Step Motor (Servo/24 VDC) LECPA

LEFB/Belt Drive

* When moving force is 100%

Horizontal

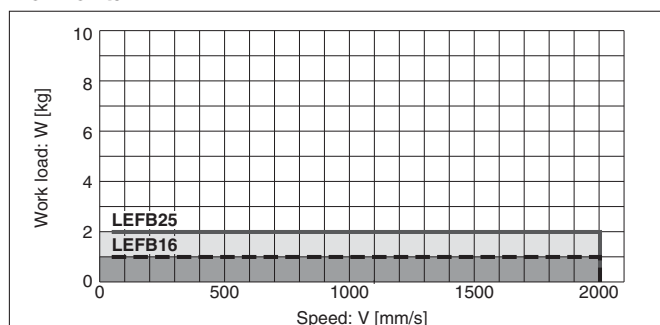


Servo Motor (24 VDC)

LEFB/Belt Drive

* When moving force is 250%

Horizontal



Dynamic Allowable Moment

* This graph shows the amount of allowable overhang when the centre of gravity of the workpiece overhangs in one direction. When the centre of gravity of the workpiece overhangs in two directions, refer to the Electric Actuator Selection Software for confirmation, <http://www.smc.eu>

Acceleration/Deceleration — 1000 mm/s² - - - 3000 mm/s² 5000 mm/s²

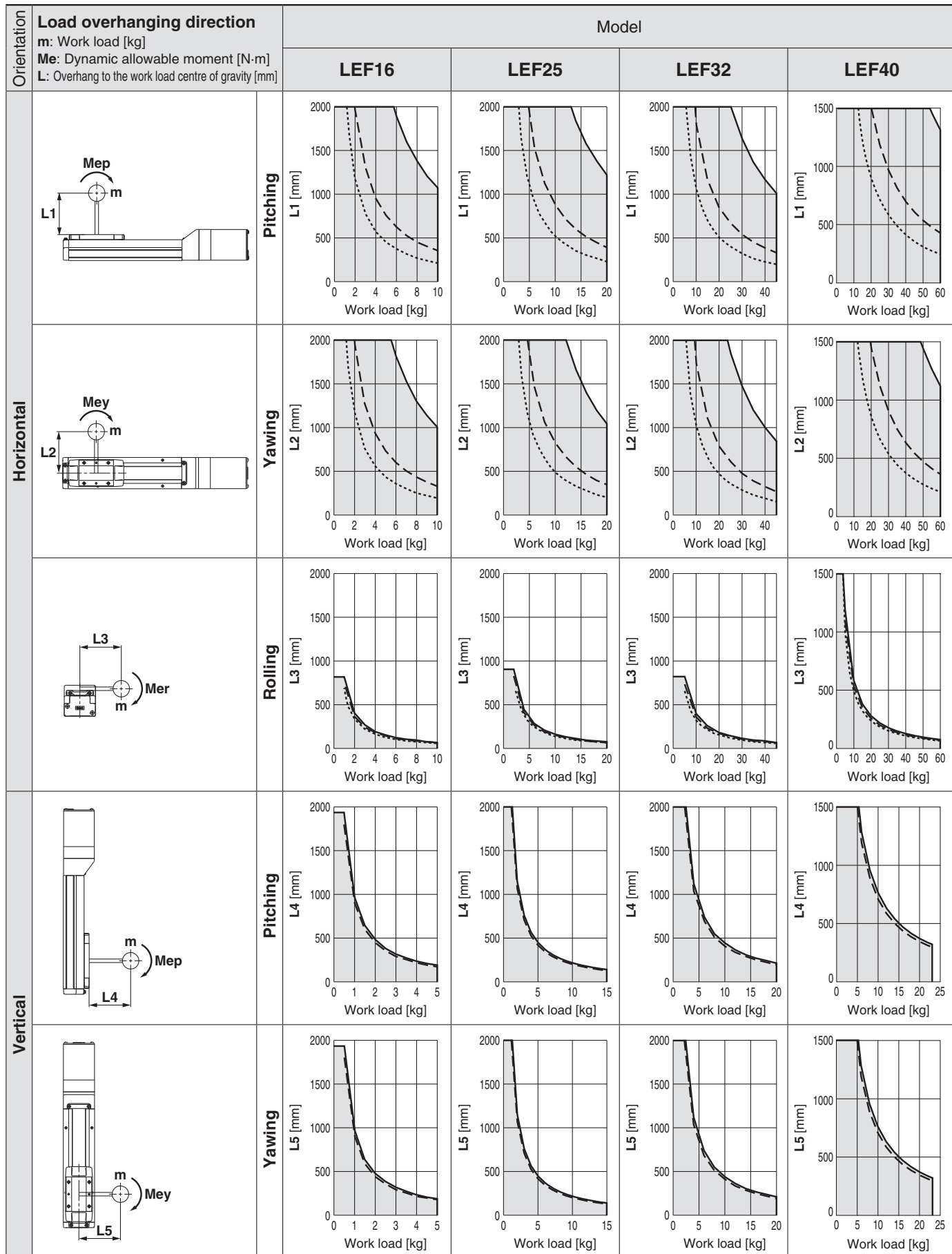
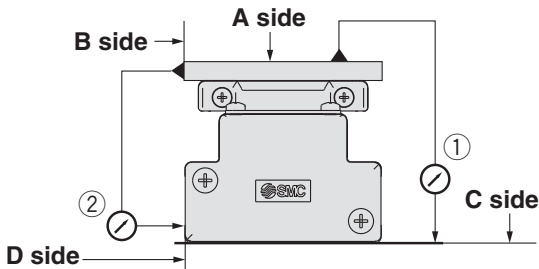


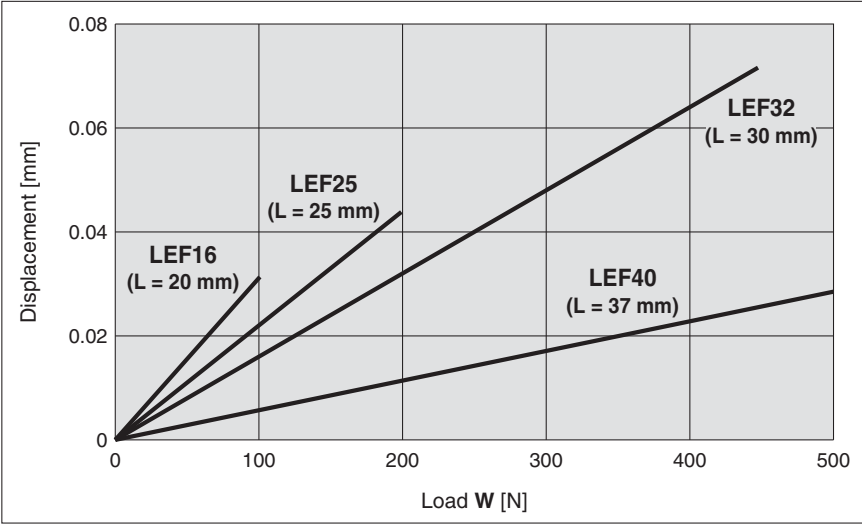
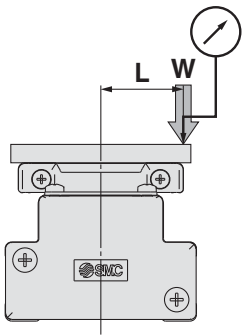
Table Accuracy



| Model | Traveling parallelism [mm] (Every 300 mm) | |
|-------|---|--|
| | ① C side traveling parallelism to A side | ② D side traveling parallelism to B side |
| LEF16 | 0.05 | 0.03 |
| LEF25 | 0.05 | 0.03 |
| LEF32 | 0.05 | 0.03 |
| LEF40 | 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 aluminium plate is mounted and fixed on the table.
Note 2) Check the clearance and play of the guide separately.

Particle Generation Characteristics

Particle Generation Measuring Method

The particle generation data for SMC Clean Series are measured in the following test method.

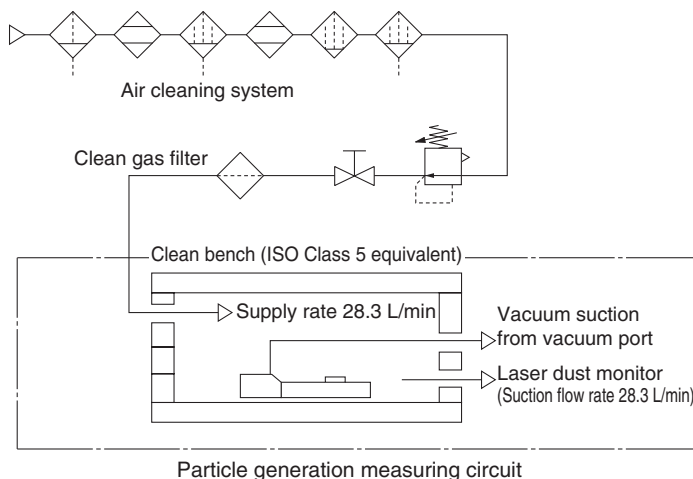
Test Method (Example)

Place the specimen in the acrylic resin chamber and operate it while supplying the same flow rate of clean air as the suction flow rate of the measuring instrument (28.3 L/min). Measure the changes of the particle concentration over time until the number of cycles reaches the specified point.

The chamber is placed in an ISO Class 5 equivalent clean bench.

Measuring Conditions

| | | |
|----------------------|--------------------------------------|---|
| Chamber | Internal volume | 28.3 L |
| | Supply air quality | Same quality as the supply air for driving |
| Measuring instrument | Description | Laser dust monitor (Automatic particle counter by lightscattering method) |
| | Minimum measurable particle diameter | 0.1 μm |
| | Suction flow rate | 28.3 L/min |
| Setting conditions | Sampling time | 5 min |
| | Interval time | 55 min |
| | Sampling air flow | 141.5 L |



Evaluation Method

To obtain the measured values of particle concentration, the accumulated value ^{Note 1)} of particles captured every 5 minutes, by the laser dust monitor, is converted into the particle concentration in every 1 m³.

When determining particle generation grades, the 95% upper confidence limit of the average particle concentration (average value), when each specimen is operated at a specified number of cycles ^{Note 2)} is considered.

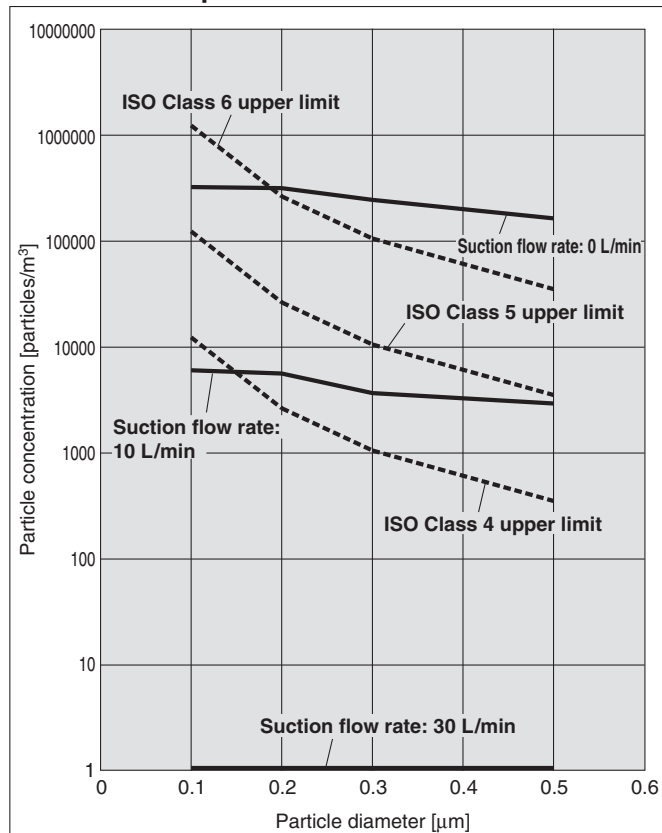
The plots in the graphs indicate the 95% upper confidence limit of the average particle concentration of particles with a diameter within the horizontal axis range.

Note 1) Sampling air flow rate: Number of particles contained in 141.5 L of air

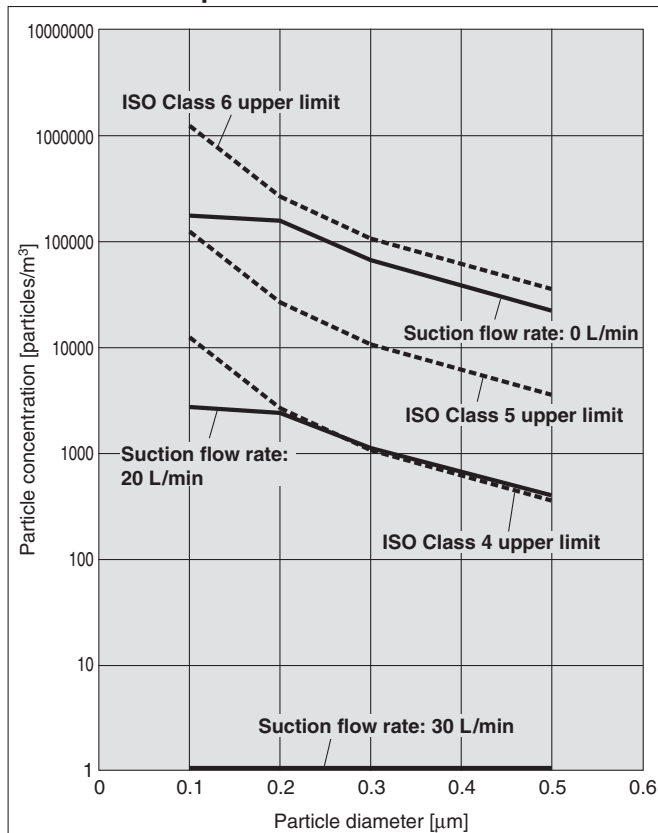
Note 2) Actuator: 1 million cycles

Particle Generation Characteristics Step Motor (Servo/24 VDC), Servo Motor (24 VDC)

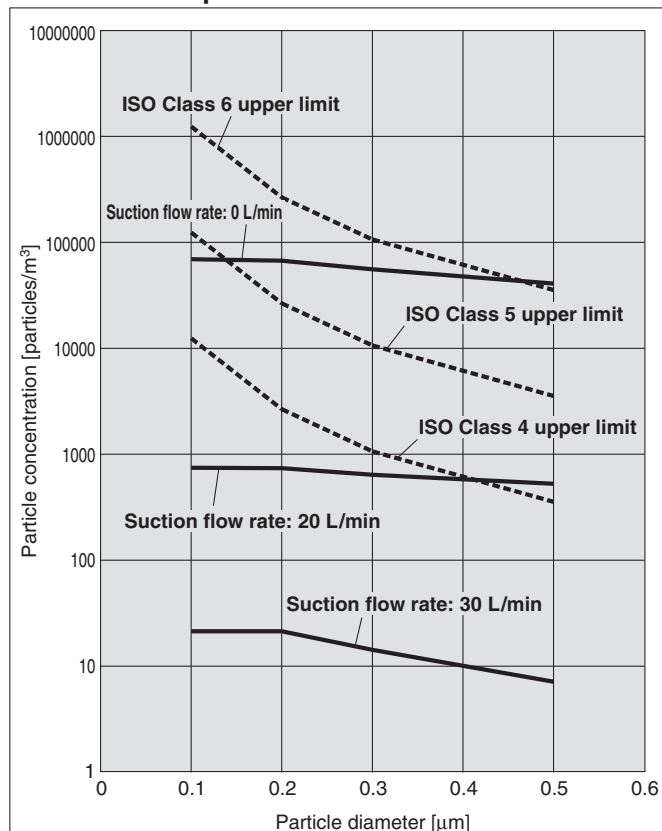
11-LEFS16 Speed 500 mm/s



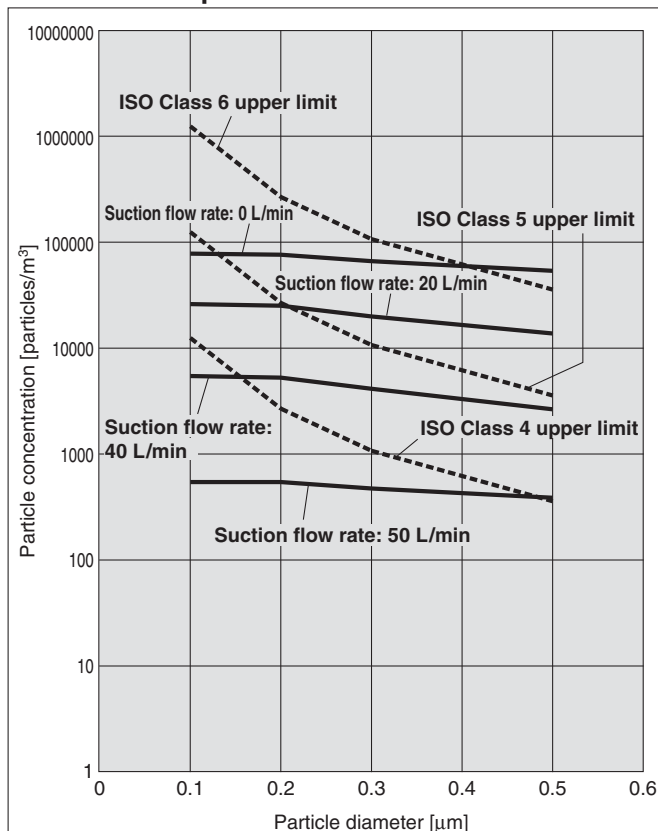
11-LEFS25 Speed 500 mm/s



11-LEFS32 Speed 500 mm/s



11-LEFS40 Speed 500 mm/s



Model
Selection

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

LEFS

LEFB

LECA6
LECP6

LEC-G

LECP1

LECPA

LEFS

LEFB

LECS

LEFG

Specific Product
Precautions

Model Selection

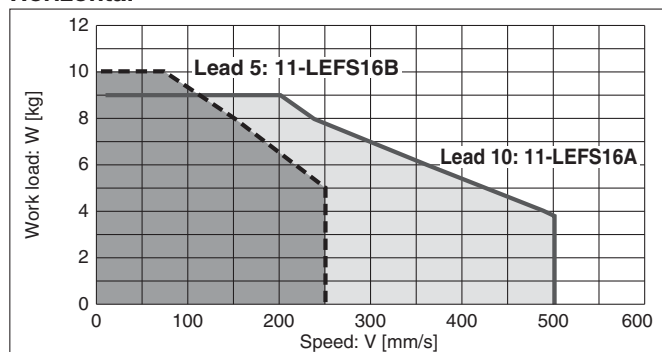
Speed-Work Load Graph (Guide)

Step Motor (Servo/24 VDC)

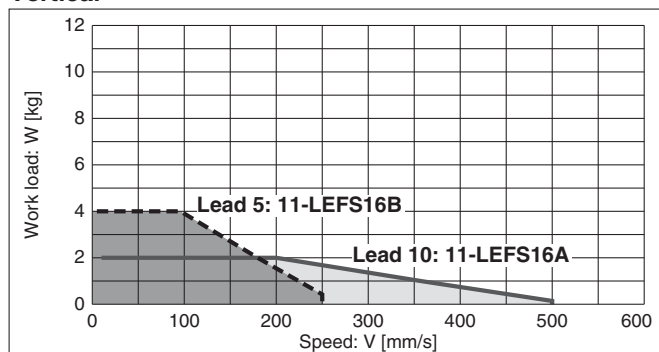
* The following graph shows the values when moving force is 100%.

11-LEFS16/Ball Screw Drive

Horizontal

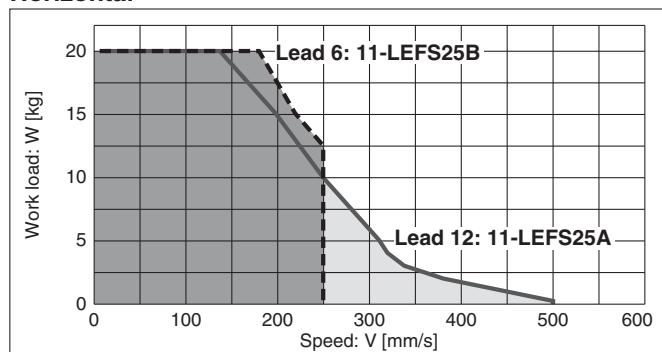


Vertical

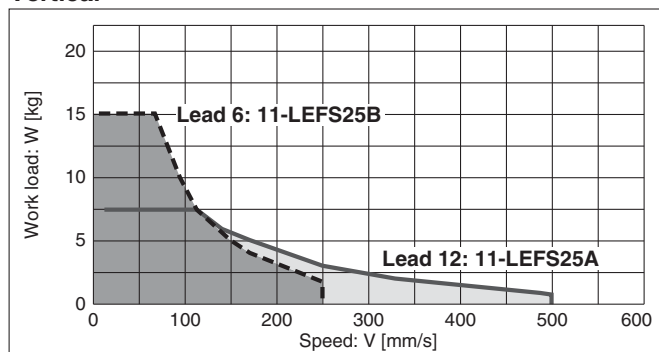


11-LEFS25/Ball Screw Drive

Horizontal

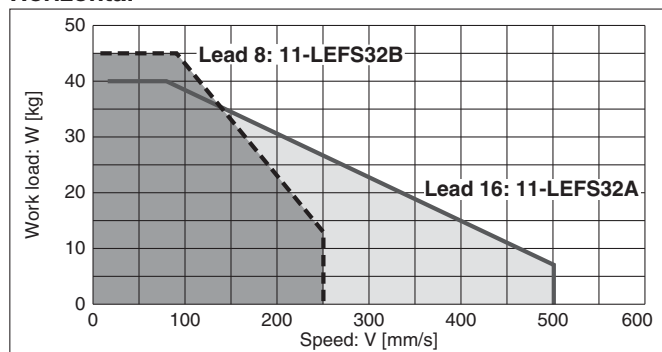


Vertical

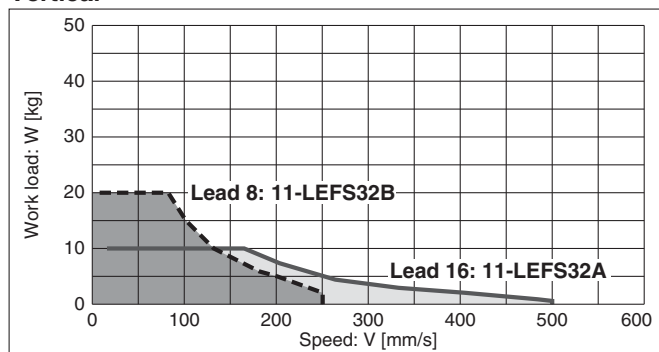


11-LEFS32/Ball Screw Drive

Horizontal

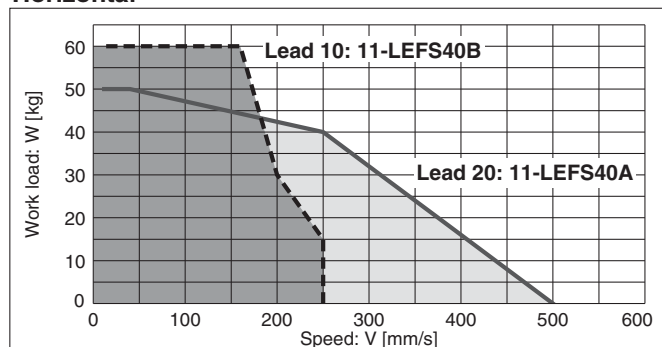


Vertical

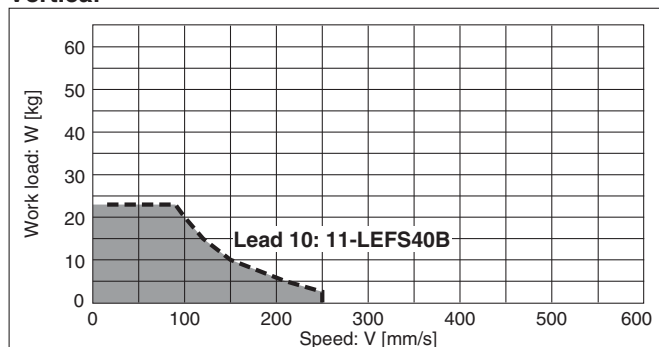


11-LEFS40/Ball Screw Drive

Horizontal



Vertical

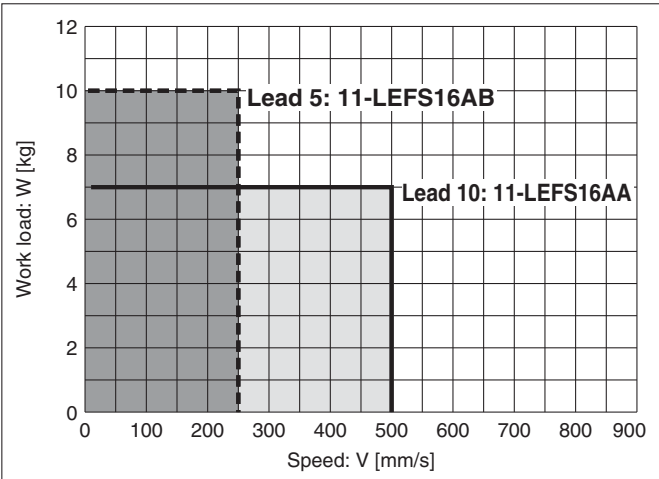


Speed–Work Load Graph (Guide)
Servo Motor (24 VDC)

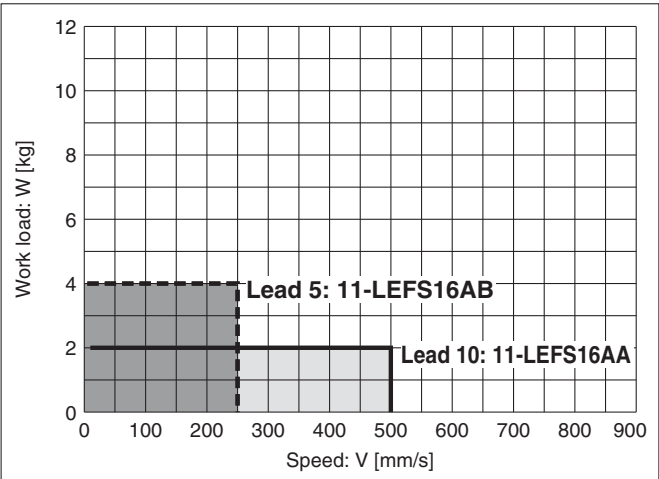
* The following graph shows the values when moving force is 250%.

11-LEFS16A/Ball Screw Drive

Horizontal

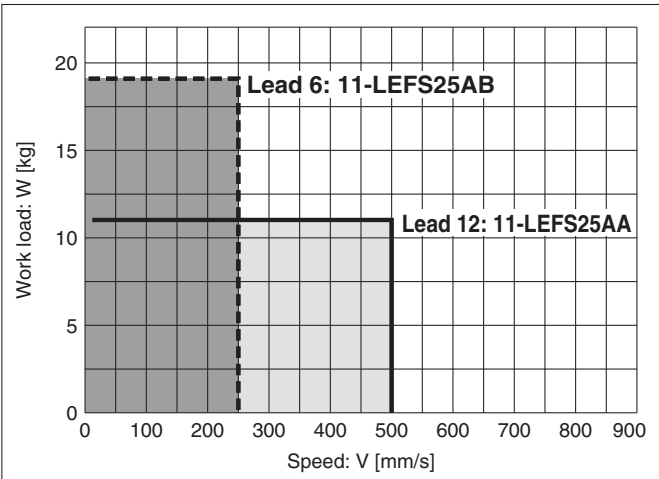


Vertical

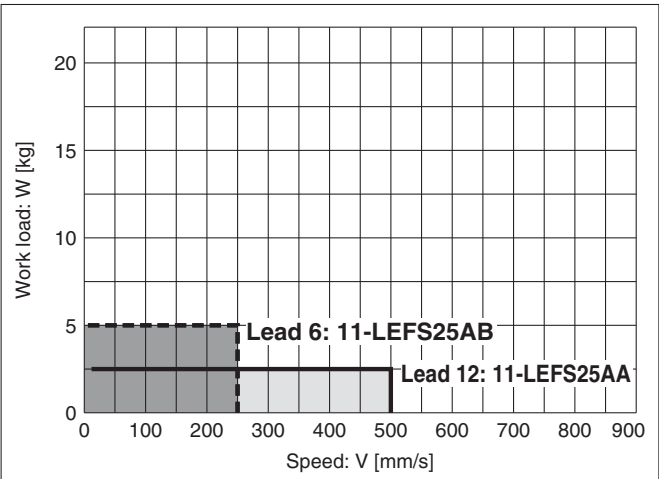


11-LEFS25A/Ball Screw Drive

Horizontal



Vertical



Model
Selection

LEFS

LEFB

LECA6
LECP6

LEC-G

LECP1

LECPA

LEFS

LEFB

LECS

LEFG

Specific Product
Precautions

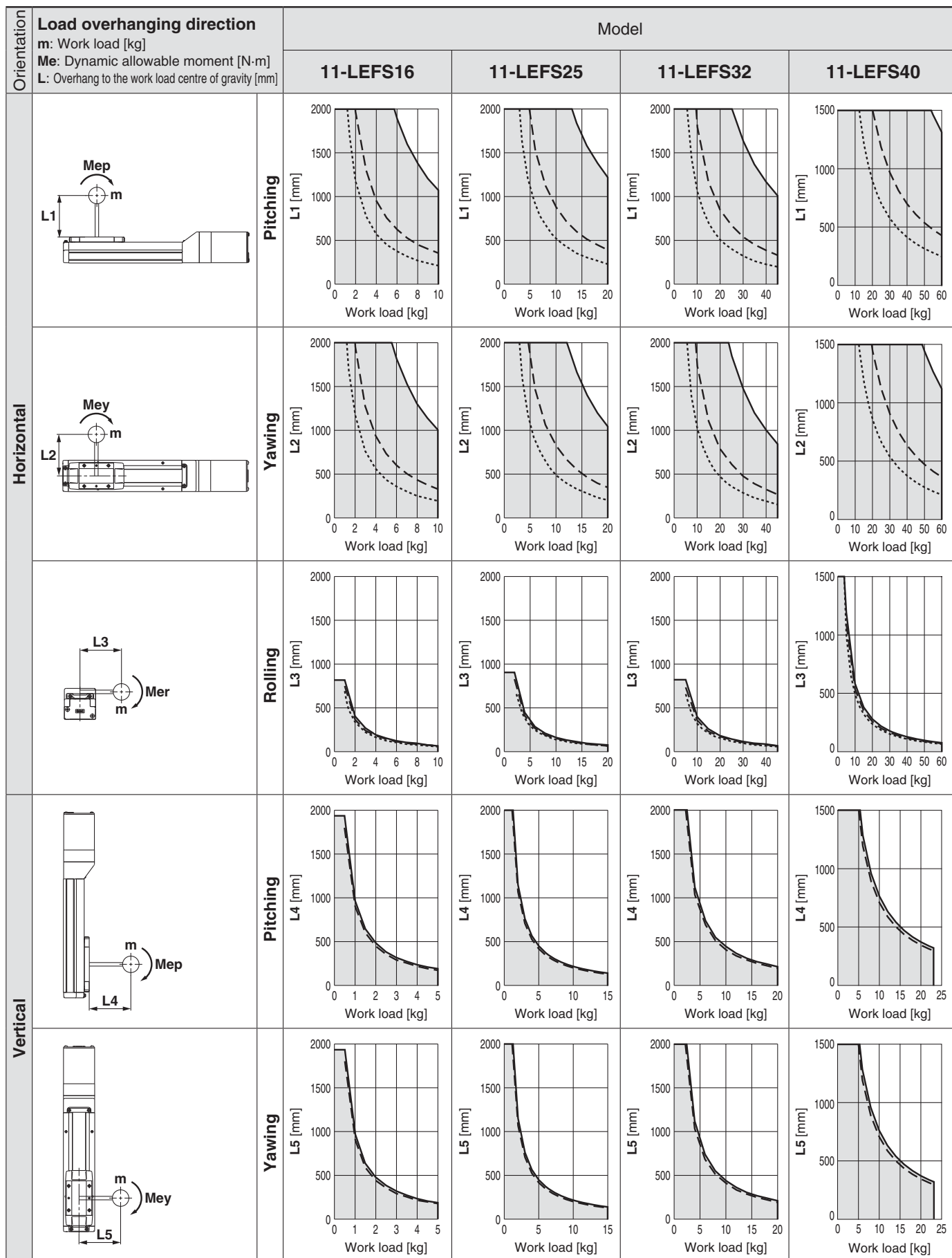
Series 11-LEFS

Clean Room Specification

Dynamic Allowable Moment

* This graph shows the amount of allowable overhang when the centre of gravity of the workpiece overhangs in one direction. When the centre of gravity of the workpiece overhangs in two directions, refer to the Electric Actuator Selection Software for confirmation, <http://www.smc.eu>

Acceleration/Deceleration — 1000 mm/s² - - - 3000 mm/s² 5000 mm/s²



| | | | | | | | | | | | |
|---------------------------------|------|-------------------------------|----------------|------|-------|-------|-------|----------------|--|------|--------------------|
| Specific Product Precautions | LEFG | LECS <input type="checkbox"/> | AC Servo Motor | | LECPA | LECP1 | LEC-G | LECA6 LECP6 | Step Motor (Servo/24 VDC) / Servo Motor (24 VDC) | | Model Selection |
| | | | LEFB | LEFS | | | | | LEFB | LEFS | |

Electric Actuator/Slider Type Ball Screw Drive

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

Series LEFS

LEFS16, 25, 32, 40



How to Order

LEFS **H** **25** **R** **B** - **200** **S** **1** **6P** **1**

1 2 3 4 5 6 7 8 9 10 11 12 13

1 Accuracy

| | |
|---|---------------------|
| — | Basic type |
| H | High precision type |

2 Size

| |
|----|
| 16 |
| 25 |
| 32 |
| 40 |

3 Motor mounting position

| | |
|---|---------------------|
| — | In-line |
| R | Right side parallel |
| L | Left side parallel |

5 Lead [mm]

| Symbol | LEFS16 | LEFS25 | LEFS32 | LEFS40 |
|--------|--------|--------|--------|--------|
| H | — | 20 | 24 | 30 |
| A | 10 | 12 | 16 | 20 |
| B | 5 | 6 | 8 | 10 |

6 Stroke [mm]

| | |
|------|------|
| 50 | 50 |
| to | to |
| 1200 | 1200 |

* Refer to the applicable stroke table.

7 Motor option

| | |
|---|----------------|
| — | Without option |
| B | With lock |

8 Seal band stopper

| | |
|---|---|
| — | Standard |
| N | Roller type seal band stopper (grease free) |

4 Motor type

| Symbol | Type | Applicable size | | | | Compatible controller/driver |
|--------|---------------------------|-----------------|--------|--------|--------|------------------------------|
| | | LEFS16 | LEFS25 | LEFS32 | LEFS40 | |
| — | Step motor (Servo/24 VDC) | ● | ● | ● | ● | LECP6 LECP1 LECPA |
| A | Servo motor (24 VDC) | ● | ● | — | — | LECA6 |

Caution

[CE-compliant products]

① EMC compliance was tested by combining the electric actuator LEF 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 77 for the noise filter set. Refer to the LECA series 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] | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 | 1100 | 1200 | Manufacturable stroke range [mm] |
|---------------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|----------------------------------|
| LEFS16 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | — | — | — | — | — | — | — | — | — | — | — | — | 50 to 500 |
| LEFS25 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | — | — | — | — | — | — | 50 to 800 |
| LEFS32 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | — | — | 50 to 1000 |
| LEFS40 | — | — | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 150 to 1200 |

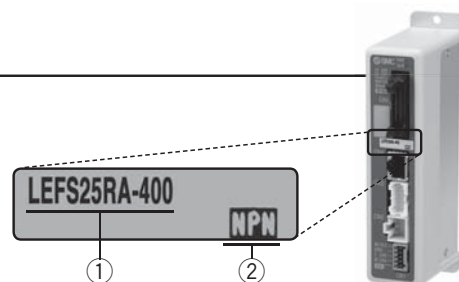
* Please consult with SMC for non-standard strokes as they are produced as special orders.

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

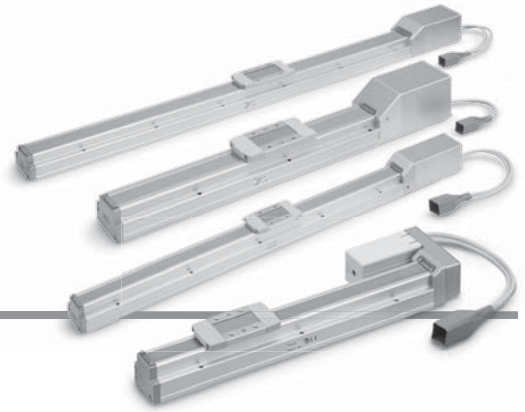
Confirm that the combination of the controller/driver and the actuator is correct.

<Check the following before use.>

- Check the actuator label for model number. This matches the controller/driver.
- 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.smc.eu>



9 Actuator cable type*1

| | |
|----------|--------------------------------|
| — | 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]

| | |
|----------|---------------|
| — | 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 2) on pages 39 and 40.

11 Controller/Driver type*1

| | | |
|-----------|---------------------------|-----|
| — | Without controller/driver | |
| 6N | LECP6/LECA6 | NPN |
| 6P | (Step data input type) | PNP |
| 1N | LECP1 *2 | NPN |
| 1P | (Programless type) | PNP |
| AN | LECPA *2 *3 | NPN |
| AP | (Pulse input type) | PNP |

*1 For details about controller/driver and compatible motor, refer to the compatible controller/driver below.

*2 Only available for the motor type "Step motor."

*3 When pulse signals are open collector, order the current limit resistor (LEC-PA-R-□) on page 95 separately.

13 Controller/Driver mounting

| | |
|----------|--------------------|
| — | Screw mounting |
| D | DIN rail mounting* |

* DIN rail is not included. Order it separately.

12 I/O cable length*1, Communication plug

| | |
|----------|--|
| — | Without cable (Without communication plug connector)*3 |
| 1 | 1.5 m |
| 3 | 3 m*2 |
| 5 | 5 m*2 |

*1 When "Without controller/driver" is selected for controller/driver types, I/O cable cannot be selected.

Refer to page 77 (For LECP6/LECA6), page 91 (For LECP1) or page 98 (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.





Support Guide/Series LEFG

A support guide is designed to support work pieces with significant overhang.

Page 165



Compatible Controller/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 | 69 | 69 | 85 | 92 |

Specifications

Step Motor (Servo/24 VDC)

| Actuator specifications | Model | | | LEFS16 | | LEFS25 | | | LEFS32 | | | LEFS40 | | | |
|--|---|--|---|--|-----------|-----------|------------|-----------|------------|------------|-----------|-------------|------------|------------|-----------|
| | Stroke [mm] <small>Note 1)</small> | | | 50 to 500 | | 50 to 800 | | | 50 to 1000 | | | 150 to 1200 | | | |
| | Work load [kg] <small>Note 2)</small> | Horizontal | LECP6/LECP1 | 14 | 15 | 12 | 25 | 30 | 20 | 45 | 50 | 25 | 55 | 65 | |
| | | | LECPA | 9 | 10 | 10 | 20 | 20 | 15 | 40 | 45 | 20 | 50 | 60 | |
| | Vertical | | | 2 | 4 | 0.5 | 7.5 | 15 | 4 | 10 | 20 | 2 | 2 | 23 | |
| | Controller type: LECP6, LECP1 | <small>Note 2)</small> Speed [mm/s] | Stroke range | Up to 500 | 10 to 700 | 5 to 360 | 20 to 1100 | 12 to 750 | 6 to 400 | 24 to 1200 | 16 to 800 | 8 to 520 | 30 to 1200 | 20 to 1000 | 10 to 300 |
| | | | | 501 to 600 | — | — | 20 to 900 | 12 to 540 | 6 to 270 | 24 to 1200 | 16 to 800 | 8 to 400 | 30 to 1200 | 20 to 1000 | 10 to 300 |
| | | | | 601 to 700 | — | — | 20 to 630 | 12 to 420 | 6 to 230 | 24 to 930 | 16 to 620 | 8 to 310 | 30 to 1200 | 20 to 900 | 10 to 300 |
| | | | | 701 to 800 | — | — | 20 to 550 | 12 to 330 | 6 to 180 | 24 to 750 | 16 to 500 | 8 to 250 | 30 to 1140 | 20 to 760 | 10 to 300 |
| | | | | 801 to 900 | — | — | — | — | — | 24 to 610 | 16 to 410 | 8 to 200 | 30 to 930 | 20 to 620 | 10 to 300 |
| | | | | 901 to 1000 | — | — | — | — | — | 24 to 500 | 16 to 340 | 8 to 170 | 30 to 780 | 20 to 520 | 10 to 250 |
| | | | | 1001 to 1100 | — | — | — | — | — | — | — | — | 30 to 660 | 20 to 440 | 10 to 220 |
| | | | | 1101 to 1200 | — | — | — | — | — | — | — | 30 to 570 | 20 to 380 | 10 to 190 | |
| | Driver type: LECPA | <small>Note 2)</small> Speed [mm/s] | Stroke range | Up to 500 | 10 to 500 | 5 to 250 | 20 to 1000 | 12 to 500 | 6 to 250 | 24 to 1200 | 16 to 500 | 8 to 250 | 30 to 500 | 20 to 500 | 10 to 250 |
| | | | | 501 to 600 | — | — | 20 to 900 | 12 to 500 | 6 to 250 | 24 to 1200 | 16 to 500 | 8 to 250 | 30 to 500 | 20 to 500 | 10 to 250 |
| | | | | 601 to 700 | — | — | 20 to 630 | 12 to 420 | 6 to 230 | 24 to 930 | 16 to 500 | 8 to 250 | 30 to 500 | 20 to 500 | 10 to 250 |
| | | | | 701 to 800 | — | — | 20 to 550 | 12 to 330 | 6 to 180 | 24 to 750 | 16 to 500 | 8 to 250 | 30 to 500 | 20 to 500 | 10 to 250 |
| | | | | 801 to 900 | — | — | — | — | — | 24 to 610 | 16 to 410 | 8 to 200 | 30 to 500 | 20 to 500 | 10 to 250 |
| | | | | 901 to 1000 | — | — | — | — | — | 24 to 500 | 16 to 340 | 8 to 170 | 30 to 500 | 20 to 500 | 10 to 250 |
| | | | | 1001 to 1100 | — | — | — | — | — | — | — | — | 30 to 500 | 20 to 440 | 10 to 220 |
| | | | | 1101 to 1200 | — | — | — | — | — | — | — | 30 to 500 | 20 to 380 | 10 to 190 | |
| | Max. acceleration/deceleration [mm/s ²] | | | 3000 | | | | | | | | | | | |
| | Positioning repeatability [mm] | | Basic type | ±0.02 | | | | | | | | | | | |
| | | | High precision type | ±0.015 (Lead H: ±0.02) | | | | | | | | | | | |
| | Lost motion [mm] <small>Note 3)</small> | | Basic type | 0.1 or less | | | | | | | | | | | |
| | | | High precision type | 0.05 or less | | | | | | | | | | | |
| | Lead [mm] | | | 10 | 5 | 20 | 12 | 6 | 24 | 16 | 8 | 30 | 20 | 10 | |
| Impact/Vibration resistance [m/s ²] <small>Note 4)</small> | | | 50/20 | | | | | | | | | | | | |
| Actuation type | | | Ball screw (LEFS□), Ball screw + Belt (LEFS□ ^R) | | | | | | | | | | | | |
| Guide type | | | Linear guide | | | | | | | | | | | | |
| Operating temperature range [°C] | | | 5 to 40 | | | | | | | | | | | | |
| Operating humidity range [%RH] | | | 90 or less (No condensation) | | | | | | | | | | | | |
| Electric specifications | Motor size | | | □28 | | □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] <small>Note 5)</small> | | | 22 | | 38 | | | 50 | | | 100 | | | |
| Lock unit specifications | Standby power consumption when operating [W] <small>Note 6)</small> | | | 18 | | 16 | | | 44 | | | 43 | | | |
| | Max. instantaneous power consumption [W] <small>Note 7)</small> | | | 51 | | 57 | | | 123 | | | 141 | | | |
| | Type <small>Note 8)</small> | | | Non-magnetizing lock | | | | | | | | | | | |
| Holding force [N] | | | 20 | 39 | 47 | 78 | 157 | 72 | 108 | 216 | 75 | 113 | 225 | | |
| Power consumption [W] <small>Note 9)</small> | | | 2.9 | | 5 | | | 5 | | | 5 | | | | |
| 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) Speed changes according to the controller/driver type and work load. Check "Speed-Work Load Graph (Guide)" on pages 26 and 27.

Furthermore, if the cable length exceeds 5 m, then it will decrease by up to 10% for each 5 m.

Note 3) A reference value for correcting an error in reciprocal operation.

Note 4) 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 5) The power consumption (including the controller) is for when the actuator is operating.

Note 6) The standby power consumption when operating (including the controller) is for when the actuator is stopped in the set position during the operation.

Note 7) 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 8) With lock only

Note 9) For an actuator with lock, add the power consumption for the lock.

Specifications

Servo Motor (24 VDC)

| Model | | | LEFS16A | | LEFS25A | | |
|----------------------------------|--|------------------------------|---|----------|-----------|----------|----------|
| Actuator specifications | Stroke [mm] ^{Note 1)} | | 50 to 500 | | 50 to 600 | | |
| | Work load ^{Note 2)} [kg] | Horizontal | 7 | 10 | 5 | 11 | 18 |
| | | Vertical | 2 | 4 | 1 | 2.5 | 5 |
| | Speed [mm/s] ^{Note 2)} | | 1 to 500 | 1 to 250 | 2 to 800 | 2 to 500 | 1 to 250 |
| | Max. acceleration/deceleration [mm/s ²] | | 3000 | | | | |
| | Positioning repeatability [mm] | Basic type | ±0.02 | | | | |
| | | High precision type | ±0.015 (Lead H: ±0.02) | | | | |
| | Lost motion ^{Note 3)} [mm] | Basic type | 0.1 or less | | | | |
| | | High precision type | 0.05 or less | | | | |
| | Lead [mm] | | 10 | 5 | 20 | 12 | 6 |
| | Impact/Vibration resistance [m/s ²] ^{Note 4)} | | 50/20 | | | | |
| | Actuation type | | Ball screw (LEFS□), Ball screw + Belt (LEFS□ ^R) | | | | |
| | Guide type | | Linear guide | | | | |
| 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 (800 pulse/rotation)/Z phase | | | | |
| | Rated voltage [V] | | 24 VDC ±10% | | | | |
| | Power consumption [W] ^{Note 5)} | | 63 | | 102 | | |
| | Standby power consumption when operating [W] ^{Note 6)} | | Horizontal 4/Vertical 9 | | | | |
| | Max. instantaneous power consumption [W] ^{Note 7)} | | 70 | | 113 | | |
| Lock unit specifications | Type ^{Note 8)} | | Non-magnetizing lock | | | | |
| | Holding force [N] | | 20 | 39 | 47 | 78 | 157 |
| | Power consumption [W] ^{Note 9)} | | 2.9 | | 5 | | |
| | 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) Check "Speed-Work Load Graph (Guide)" on page 28 for details.

Furthermore, if the cable length exceeds 5 m, then it will decrease by up to 10% for each 5 m.

Note 3) A reference value for correcting an error in reciprocal operation.

Note 4) 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 5) The power consumption (including the controller) is for when the actuator is operating.

Note 6) The standby power consumption when operating (including the controller) is for when the actuator is stopped in the set position during the operation.

Note 7) 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 8) With lock only

Note 9) For an actuator with lock, add the power consumption for the lock.

Weight

| Series | LEFS16 | | | | | | | | | |
|----------------------------------|--------|------|------|------|------|------|------|------|------|------|
| Stroke [mm] | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 |
| Product weight [kg] | 0.83 | 0.90 | 0.98 | 1.05 | 1.13 | 1.20 | 1.28 | 1.35 | 1.43 | 1.50 |
| Additional weight with lock [kg] | 0.12 | | | | | | | | | |

| Series | LEFS25 | | | | | | | | | | | | | | | |
|----------------------------------|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Stroke [mm] | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 |
| Product weight [kg] | 1.70 | 1.84 | 1.98 | 2.12 | 2.26 | 2.40 | 2.54 | 2.68 | 2.82 | 2.96 | 3.10 | 3.24 | 3.38 | 3.52 | 3.66 | 3.80 |
| Additional weight with lock [kg] | 0.26 | | | | | | | | | | | | | | | |

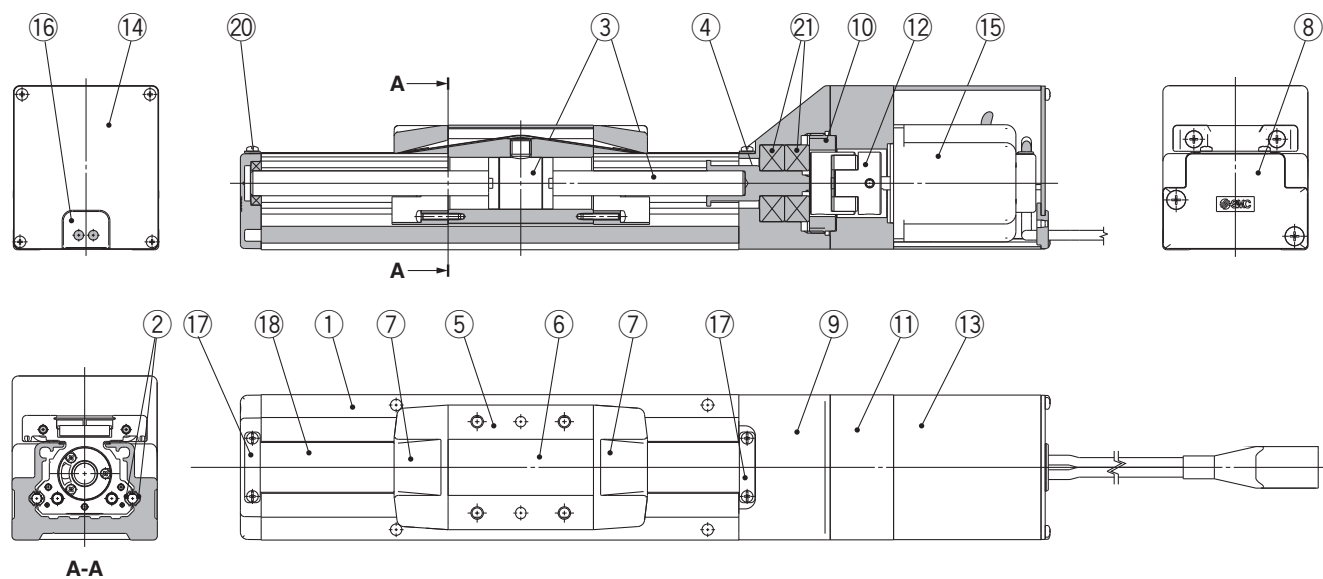
| Series | LEFS32 | | | | | | | | | | | | | | | | | | | |
|----------------------------------|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Stroke [mm] | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 |
| Product weight [kg] | 3.15 | 3.35 | 3.55 | 3.75 | 3.95 | 4.15 | 4.35 | 4.55 | 4.75 | 4.95 | 5.15 | 5.35 | 5.55 | 5.75 | 5.95 | 6.15 | 6.35 | 6.55 | 6.75 | 6.95 |
| Additional weight with lock [kg] | 0.53 | | | | | | | | | | | | | | | | | | | |

| Series | LEFS40 | | | | | | | | | | | | | | | | | | | | |
|----------------------------------|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|--|
| Stroke [mm] | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 | 1100 | 1200 | |
| Product weight [kg] | 5.37 | 5.65 | 5.93 | 6.21 | 6.49 | 6.77 | 7.15 | 7.33 | 7.61 | 7.89 | 8.17 | 8.45 | 8.73 | 9,01 | 9.29 | 9.57 | 9.85 | 10.13 | 10.69 | 11.25 | |
| Additional weight with lock [kg] | 0.53 | | | | | | | | | | | | | | | | | | | | |

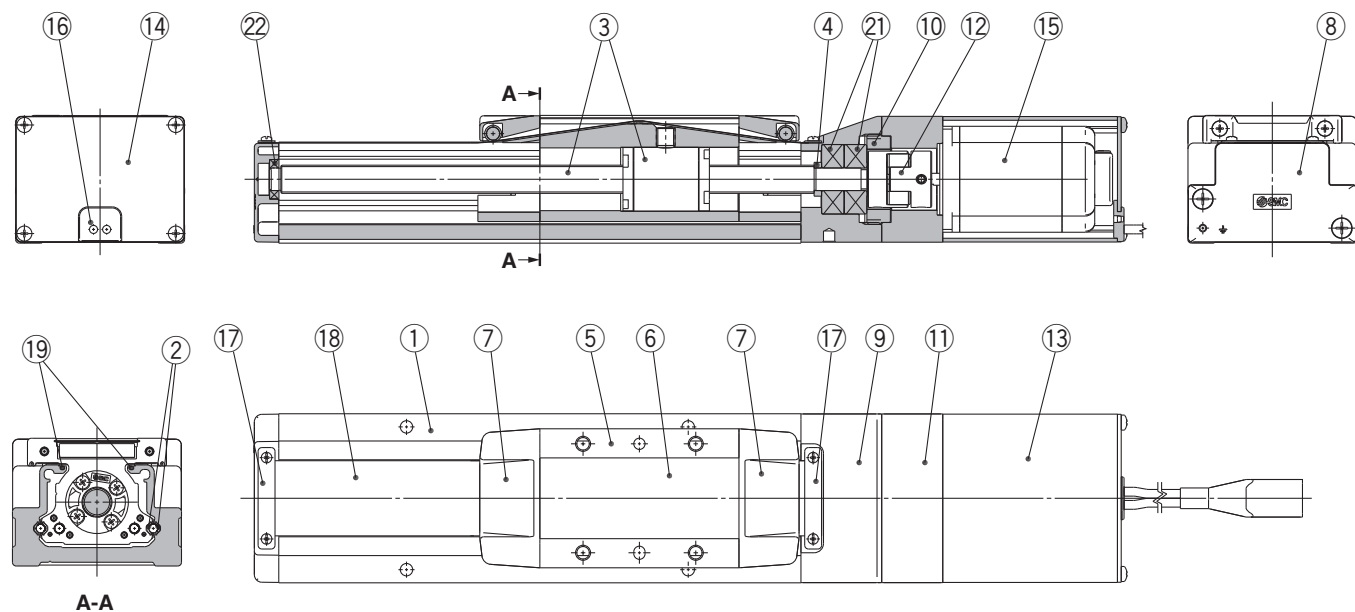
Series LEFS

Construction: In-line Motor

LEFS16, 25, 32



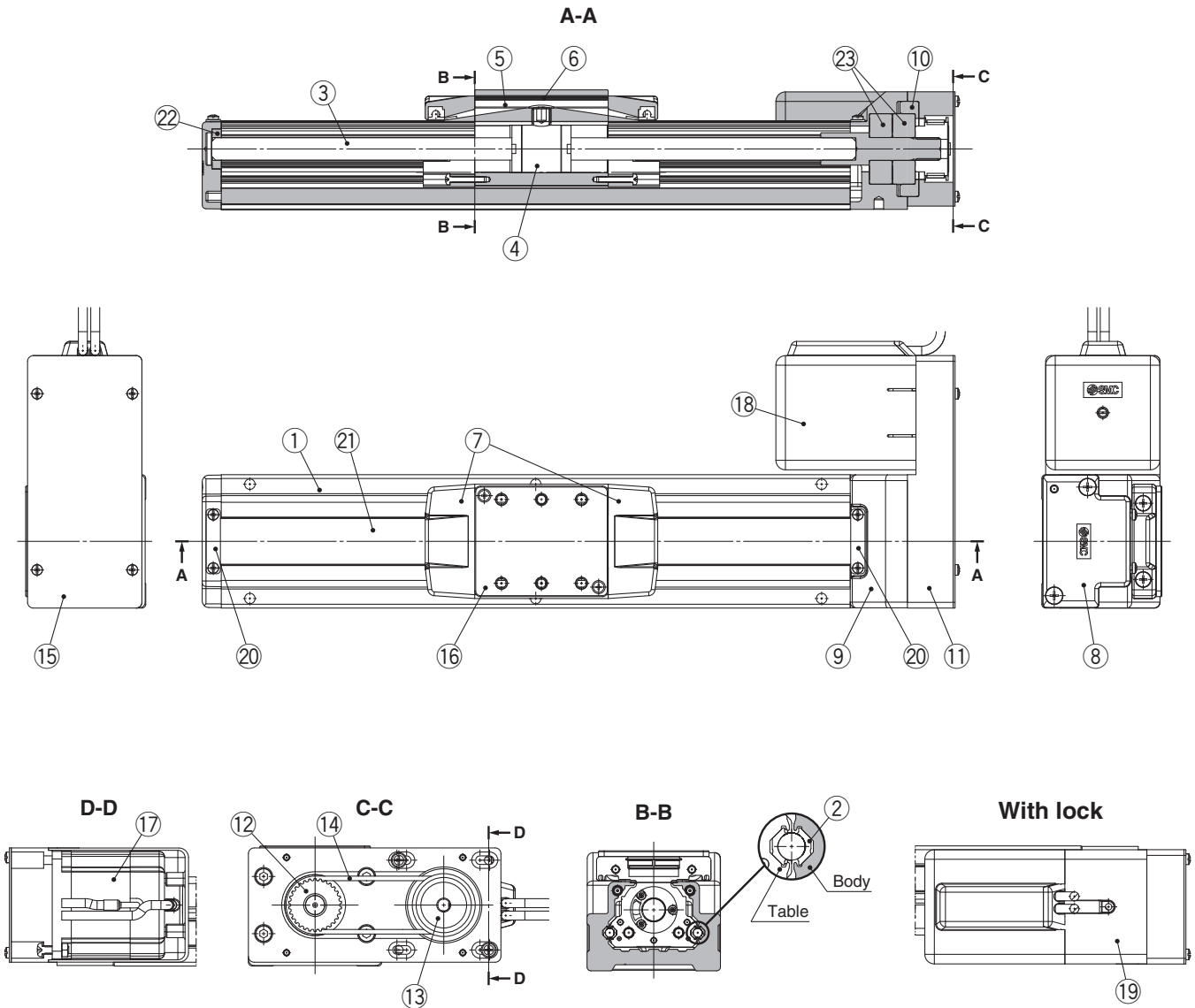
LEFS40



| No. | Description | Material | Note |
|-----|---------------------------|--------------------------|----------|
| 1 | Body | Aluminium alloy | Anodised |
| 2 | Rail guide | — | |
| 3 | Ball screw assembly | — | |
| 4 | Connected shaft Spacer | LEFS16, 25, 32 LEFS40 | |
| 5 | Table | Aluminium alloy | Anodised |
| 6 | Blanking plate | Aluminium alloy | Anodised |
| 7 | Seal band stopper | Synthetic resin | |
| 8 | Housing A | Aluminium die-casted | Coating |
| 9 | Housing B | Aluminium die-casted | Coating |
| 10 | Bearing stopper | Aluminium alloy | |

| No. | Description | Material | Note |
|-----|----------------|-----------------|----------|
| 11 | Motor mount | Aluminium alloy | Coating |
| 12 | Coupling | — | |
| 13 | Motor cover | Aluminium alloy | Anodised |
| 14 | End cover | Aluminium alloy | Anodised |
| 15 | Motor | — | |
| 16 | Rubber bushing | NBR | |
| 17 | Band stopper | Stainless steel | |
| 18 | Dust seal band | Stainless steel | |
| 19 | Seal magnet | — | |
| 20 | Bearing | — | |
| 21 | Bearing | — | |

Construction: Motor Parallel



Component Parts

| No. | Description | Material | Note |
|-----|-------------------|----------------------|----------|
| 1 | Body | Aluminium alloy | Anodised |
| 2 | Rail guide | — | |
| 3 | Ball screw shaft | — | |
| 4 | Ball screw nut | — | |
| 5 | Table | Aluminium alloy | Anodised |
| 6 | Blanking plate | Aluminium alloy | Anodised |
| 7 | Seal band stopper | Synthetic resin | |
| 8 | Housing A | Aluminium die-casted | Coating |
| 9 | Housing B | Aluminium die-casted | Coating |
| 10 | Bearing stopper | Aluminium alloy | |
| 11 | Return plate | Aluminium alloy | Coating |
| 12 | Pulley | Aluminium alloy | |
| 13 | Pulley | Aluminium alloy | |

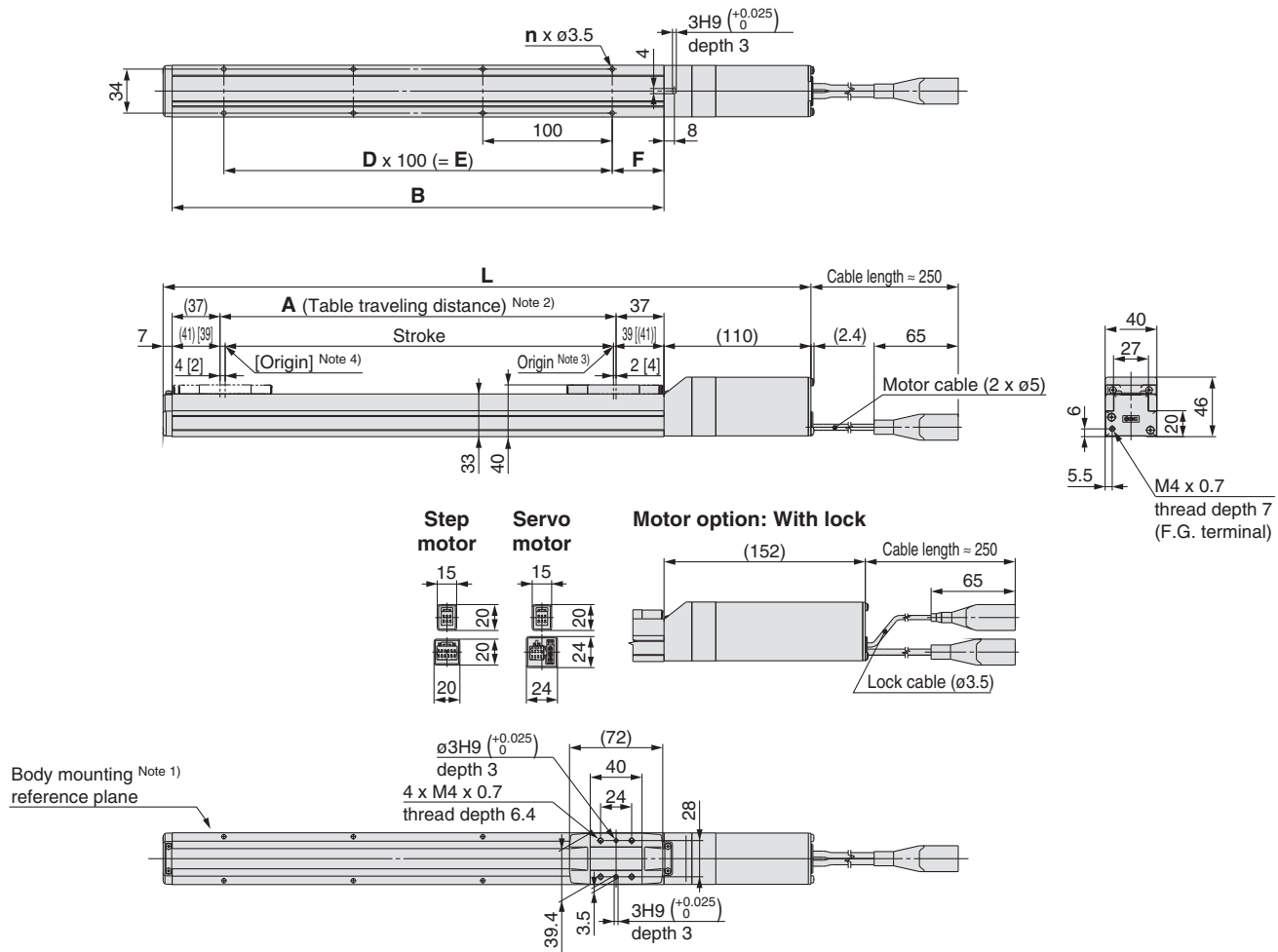
| No. | Description | Material | Note |
|-----|-----------------------|-----------------|-----------------------|
| 15 | Cover plate | Aluminium alloy | Coating |
| 16 | Table spacer | Aluminium alloy | Coating (LEFS32 only) |
| 17 | Motor | — | |
| 18 | Motor cover | Synthetic resin | |
| 19 | Motor cover with lock | Aluminium alloy | Anodised |
| 20 | Band stopper | Stainless steel | |
| 21 | Dust seal band | Stainless steel | |
| 22 | Bearing | — | |
| 23 | Bearing | — | |

Replacement Parts/Belt

| No. | Size | Order no. |
|-----|------|-----------|
| 14 | 16 | LE-D-6-1 |
| | 25 | LE-D-6-2 |
| | 32 | LE-D-6-3 |
| | 40 | LE-D-6-4 |

Dimensions: In-line Motor

LEFS16



Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 2 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) Position after return to origin

Note 4) [] for when the direction of return to origin has changed.

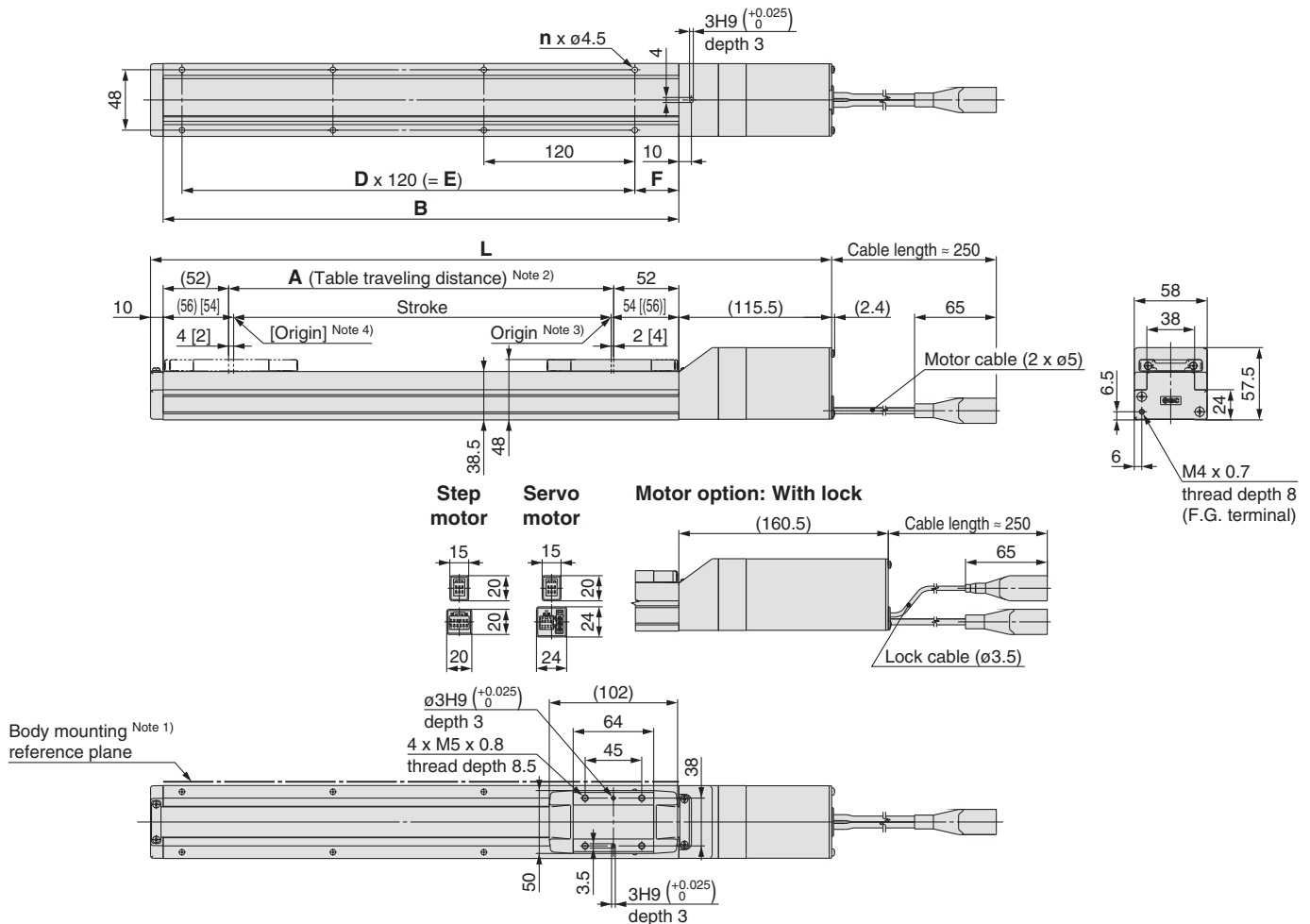
Dimensions

[mm]

| Model | L | | A | B | n | D | E | F |
|--------------|--------------|-----------|-----|-----|----|---|-----|----|
| | Without lock | With lock | | | | | | |
| LEFS16□-50□ | 247 | 289 | 56 | 130 | 4 | — | — | 15 |
| LEFS16□-100□ | 297 | 339 | 106 | 180 | 4 | — | — | |
| LEFS16□-150□ | 347 | 389 | 156 | 230 | 4 | — | — | |
| LEFS16□-200□ | 397 | 439 | 206 | 280 | 6 | 2 | 200 | |
| LEFS16□-250□ | 447 | 489 | 256 | 330 | 6 | 2 | — | |
| LEFS16□-300□ | 497 | 539 | 306 | 380 | 8 | 3 | 300 | 40 |
| LEFS16□-350□ | 547 | 589 | 356 | 430 | 8 | 3 | — | |
| LEFS16□-400□ | 597 | 639 | 406 | 480 | 10 | 4 | 400 | |
| LEFS16□-450□ | 647 | 689 | 456 | 530 | 10 | 4 | — | |
| LEFS16□-500□ | 697 | 739 | 506 | 580 | 12 | 5 | 500 | |

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) Position after return to origin

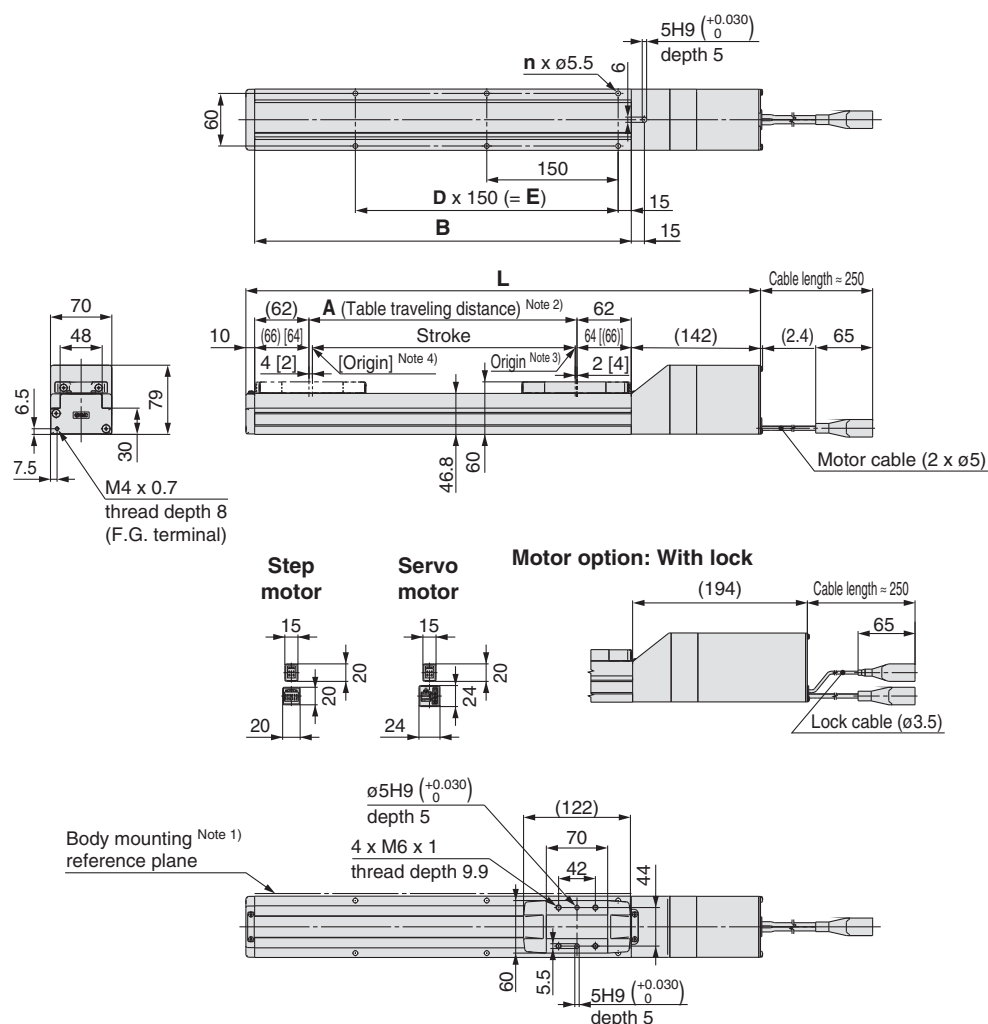
Note 4) [] for when the direction of return to origin has changed.

Dimensions

| Model | L | | A | B | n | D | E | F |
|--------------|--------------|-----------|-----|-----|----|---|-----|----|
| | Without lock | With lock | | | | | | |
| LEFS25□-50□ | 285.5 | 330.5 | 56 | 160 | 4 | — | — | 20 |
| LEFS25□-100□ | 335.5 | 380.5 | 106 | 210 | 4 | — | — | 35 |
| LEFS25□-150□ | 385.5 | 430.5 | 156 | 260 | 4 | — | — | |
| LEFS25□-200□ | 435.5 | 480.5 | 206 | 310 | 6 | 2 | 240 | |
| LEFS25□-250□ | 485.5 | 530.5 | 256 | 360 | 6 | 2 | 240 | |
| LEFS25□-300□ | 535.5 | 580.5 | 306 | 410 | 8 | 3 | 360 | |
| LEFS25□-350□ | 585.5 | 630.5 | 356 | 460 | 8 | 3 | 360 | |
| LEFS25□-400□ | 635.5 | 680.5 | 406 | 510 | 8 | 3 | 360 | |
| LEFS25□-450□ | 685.5 | 730.5 | 456 | 560 | 10 | 4 | 480 | |
| LEFS25□-500□ | 735.5 | 780.5 | 506 | 610 | 10 | 4 | 480 | |
| LEFS25□-550□ | 785.5 | 830.5 | 556 | 660 | 12 | 5 | 600 | |
| LEFS25□-600□ | 835.5 | 880.5 | 606 | 710 | 12 | 5 | 600 | |
| LEFS25□-650□ | 885.5 | 930.5 | 656 | 760 | 12 | 5 | 600 | |
| LEFS25□-700□ | 935.5 | 980.5 | 706 | 810 | 14 | 6 | 720 | |
| LEFS25□-750□ | 985.5 | 1030.5 | 756 | 860 | 14 | 6 | 720 | |
| LEFS25□-800□ | 1035.5 | 1080.5 | 806 | 910 | 16 | 7 | 840 | |

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) Position after return to origin

Note 4) [] for when the direction of return to origin has changed.

Dimensions

| Model | L | | A | B | n | D | E |
|---------------|--------------|-----------|------|------|----|---|------|
| | Without lock | With lock | | | | | |
| LEFS32□-50□ | 332 | 384 | 56 | 180 | 4 | — | — |
| LEFS32□-100□ | 382 | 434 | 106 | 230 | 4 | — | — |
| LEFS32□-150□ | 432 | 484 | 156 | 280 | 4 | — | — |
| LEFS32□-200□ | 482 | 534 | 206 | 330 | 6 | 2 | 300 |
| LEFS32□-250□ | 532 | 584 | 256 | 380 | 6 | 2 | 300 |
| LEFS32□-300□ | 582 | 634 | 306 | 430 | 6 | 2 | 300 |
| LEFS32□-350□ | 632 | 684 | 356 | 480 | 8 | 3 | 450 |
| LEFS32□-400□ | 682 | 734 | 406 | 530 | 8 | 3 | 450 |
| LEFS32□-450□ | 732 | 784 | 456 | 580 | 8 | 3 | 450 |
| LEFS32□-500□ | 782 | 834 | 506 | 630 | 10 | 4 | 600 |
| LEFS32□-550□ | 832 | 884 | 556 | 680 | 10 | 4 | 600 |
| LEFS32□-600□ | 882 | 934 | 606 | 730 | 10 | 4 | 600 |
| LEFS32□-650□ | 932 | 984 | 656 | 780 | 12 | 5 | 750 |
| LEFS32□-700□ | 982 | 1034 | 706 | 830 | 12 | 5 | 750 |
| LEFS32□-750□ | 1032 | 1084 | 756 | 880 | 12 | 5 | 750 |
| LEFS32□-800□ | 1082 | 1134 | 806 | 930 | 14 | 6 | 900 |
| LEFS32□-850□ | 1132 | 1184 | 856 | 980 | 14 | 6 | 900 |
| LEFS32□-900□ | 1182 | 1234 | 906 | 1030 | 14 | 6 | 900 |
| LEFS32□-950□ | 1232 | 1284 | 956 | 1080 | 16 | 7 | 1050 |
| LEFS32□-1000□ | 1282 | 1334 | 1006 | 1130 | 16 | 7 | 1050 |

LEFS40



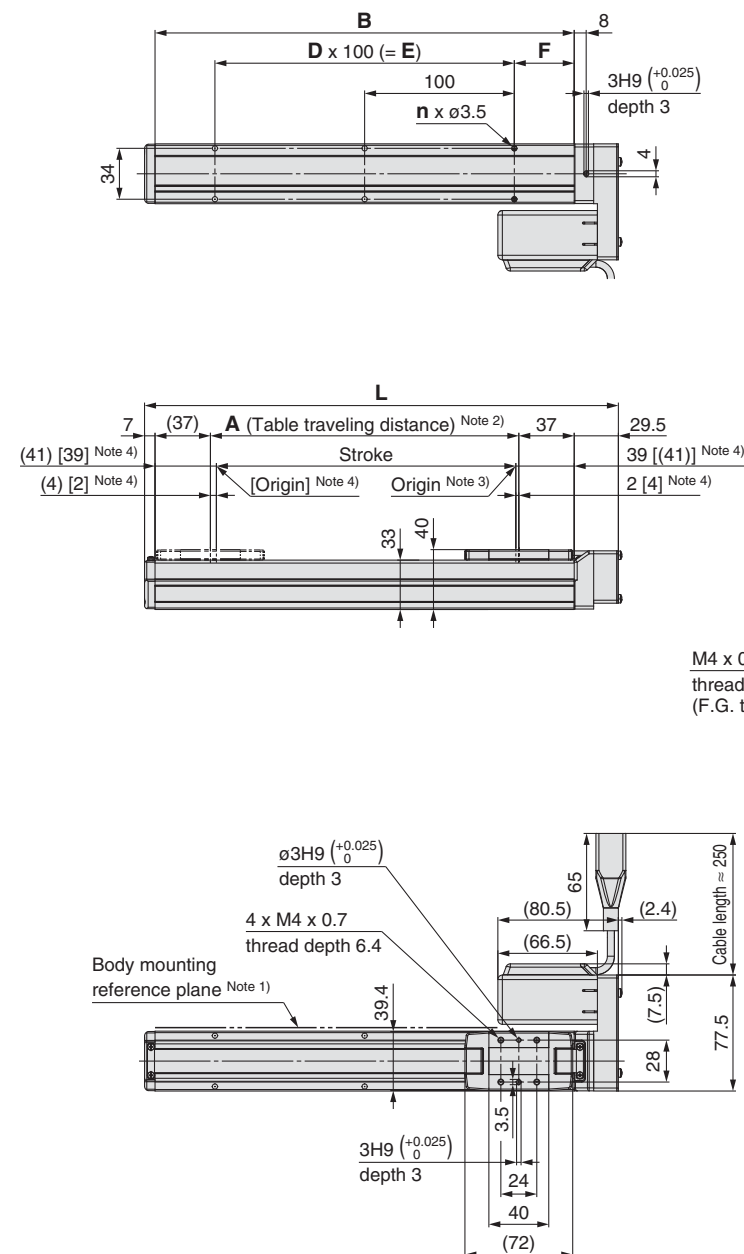
Note 4) [] for when the direction of return to origin has changed.

[mm]

| Model | L | | A | B | n | D | E |
|---------------|--------------|-----------|------|------|----|---|------|
| | Without lock | With lock | | | | | |
| LEFS40□-150□ | 506 | 555 | 156 | 328 | 4 | — | 150 |
| LEFS40□-200□ | 556 | 605 | 206 | 378 | 6 | 2 | 300 |
| LEFS40□-250□ | 606 | 655 | 256 | 428 | 6 | 2 | 300 |
| LEFS40□-300□ | 656 | 705 | 306 | 478 | 6 | 2 | 300 |
| LEFS40□-350□ | 706 | 755 | 356 | 528 | 8 | 3 | 450 |
| LEFS40□-400□ | 756 | 805 | 406 | 578 | 8 | 3 | 450 |
| LEFS40□-450□ | 806 | 855 | 456 | 628 | 8 | 3 | 450 |
| LEFS40□-500□ | 856 | 905 | 506 | 678 | 10 | 4 | 600 |
| LEFS40□-550□ | 906 | 955 | 556 | 728 | 10 | 4 | 600 |
| LEFS40□-600□ | 956 | 1005 | 606 | 778 | 10 | 4 | 600 |
| LEFS40□-650□ | 1006 | 1055 | 656 | 828 | 12 | 5 | 750 |
| LEFS40□-700□ | 1056 | 1105 | 706 | 878 | 12 | 5 | 750 |
| LEFS40□-750□ | 1106 | 1155 | 756 | 928 | 12 | 5 | 750 |
| LEFS40□-800□ | 1156 | 1205 | 806 | 978 | 14 | 6 | 900 |
| LEFS40□-850□ | 1206 | 1255 | 856 | 1028 | 14 | 6 | 900 |
| LEFS40□-900□ | 1256 | 1305 | 906 | 1078 | 14 | 6 | 900 |
| LEFS40□-950□ | 1306 | 1355 | 956 | 1128 | 16 | 7 | 1050 |
| LEFS40□-1000□ | 1356 | 1405 | 1006 | 1178 | 16 | 7 | 1050 |
| LEFS40□-1100□ | 1456 | 1505 | 1106 | 1278 | 18 | 8 | 1200 |
| LEFS40□-1200□ | 1556 | 1605 | 1206 | 1378 | 18 | 8 | 1200 |

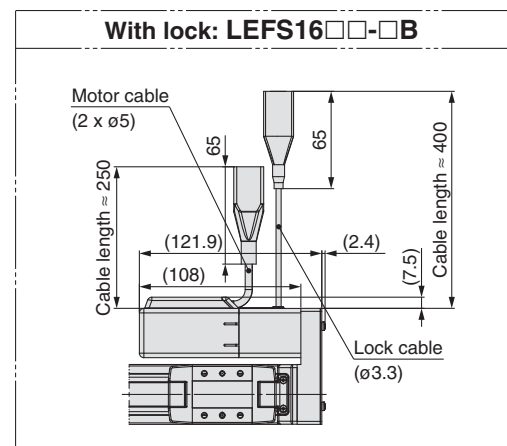
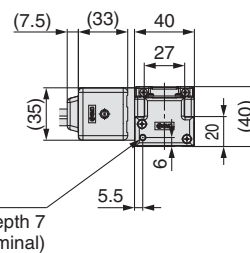
Dimensions: Motor Parallel

LEFS16



| Connector | | |
|-------------|-------------|------------|
| | Motor cable | Lock cable |
| Step motor | | |
| Servo motor | | |

| Motor mounting position: Left side parallel LEFS16L□ | Motor mounting position: Right side parallel LEFS16R□ |
|---|--|
| | |



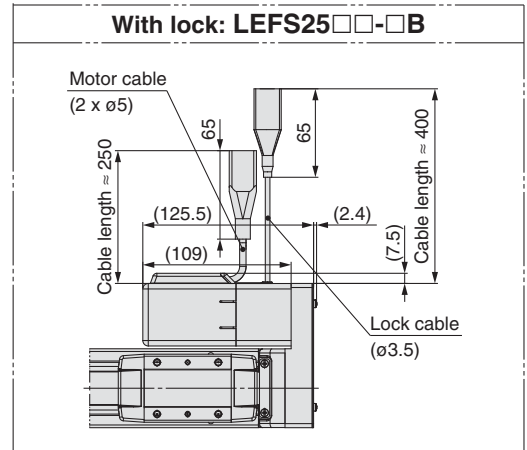
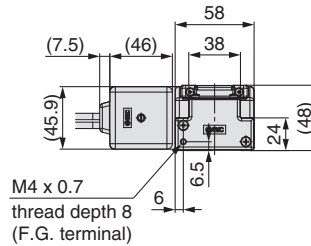
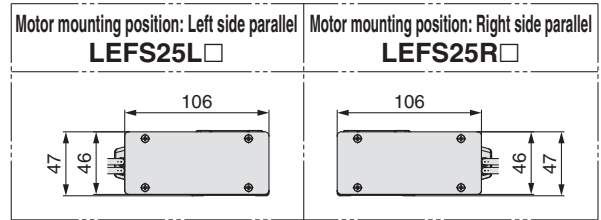
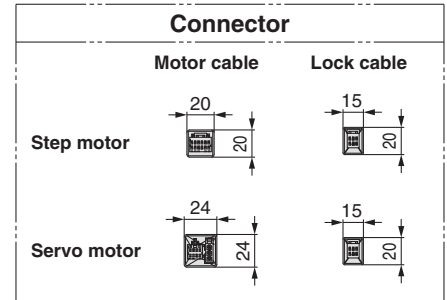
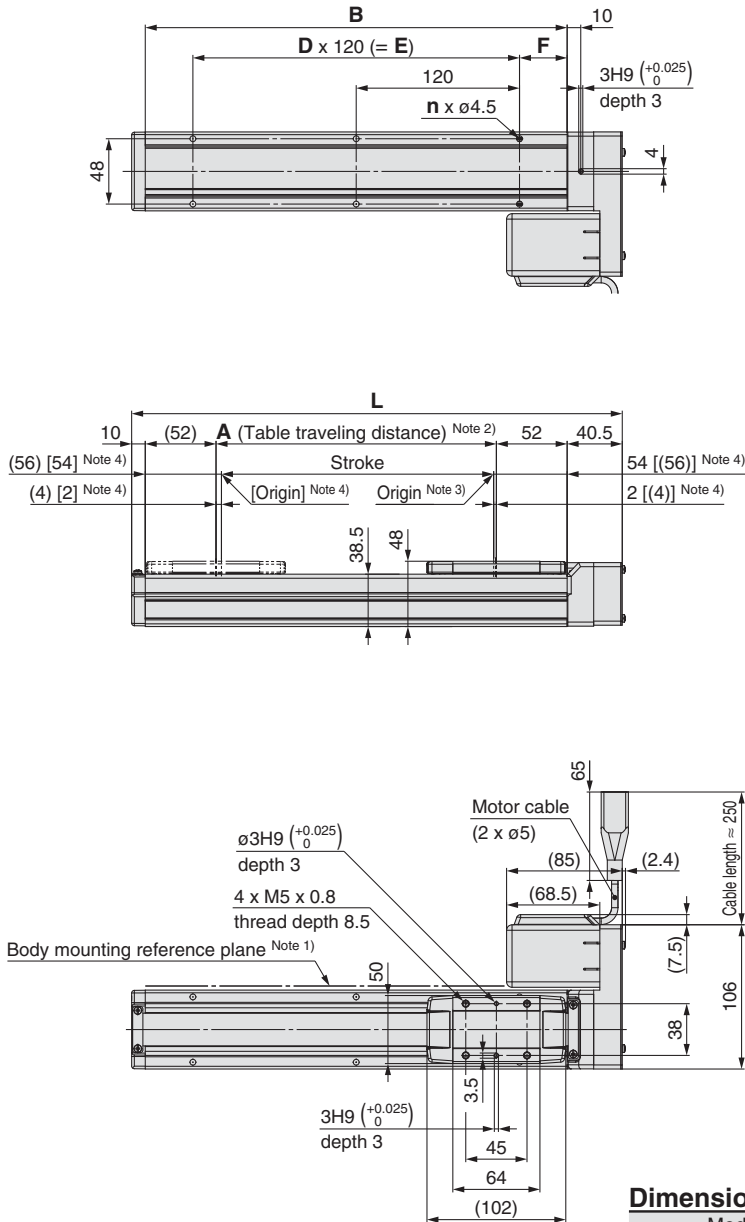
- Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 2 mm or more. (Recommended height 5 mm)
- Note 2) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the work pieces and facilities around the table.
- Note 3) Position after return to origin
- Note 4) [] for when the direction of return to origin has changed.

Dimensions

| Model | L | A | B | n | D | E | F |
|---------------|-------|-----|-----|----|---|-----|----|
| LEFS16□□-50□ | 166.5 | 56 | 130 | 4 | — | — | 15 |
| LEFS16□□-100□ | 216.5 | 106 | 180 | 4 | — | — | 40 |
| LEFS16□□-150□ | 266.5 | 156 | 230 | 4 | — | — | 40 |
| LEFS16□□-200□ | 316.5 | 206 | 280 | 6 | 2 | 200 | 40 |
| LEFS16□□-250□ | 366.5 | 256 | 330 | 6 | 2 | — | 40 |
| LEFS16□□-300□ | 416.5 | 306 | 380 | 8 | 3 | 300 | 40 |
| LEFS16□□-350□ | 466.5 | 356 | 430 | 8 | 3 | — | 40 |
| LEFS16□□-400□ | 516.5 | 406 | 480 | 10 | 4 | 400 | 40 |
| LEFS16□□-450□ | 566.5 | 456 | 530 | 10 | 4 | — | 40 |
| LEFS16□□-500□ | 616.5 | 506 | 580 | 12 | 5 | 500 | 40 |

Dimensions: Motor Parallel

LEFS25R



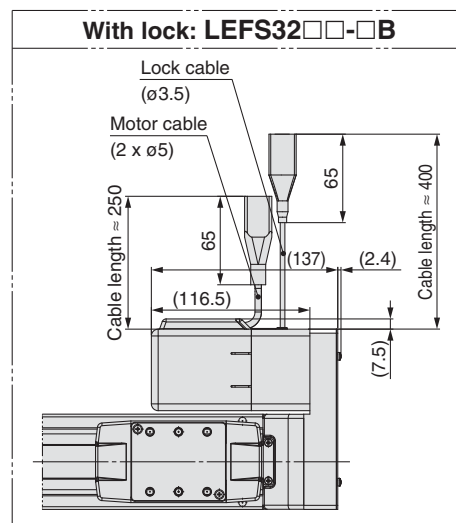
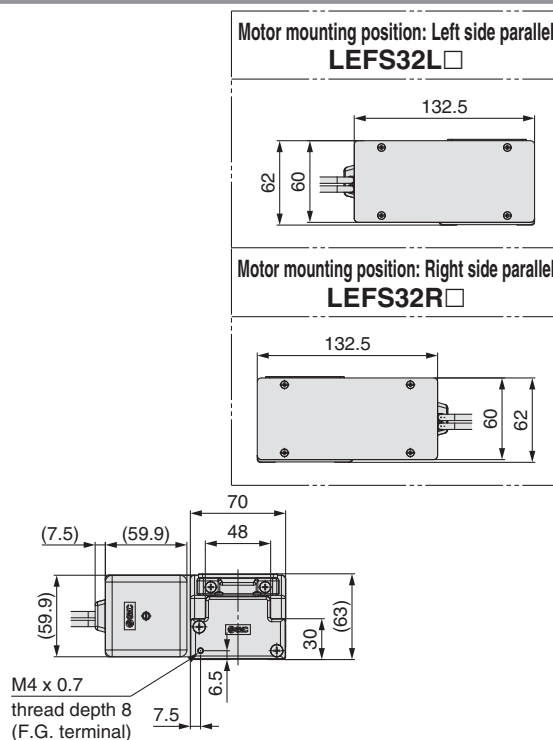
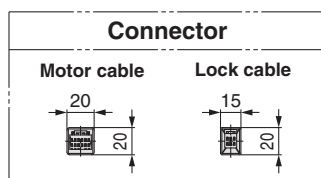
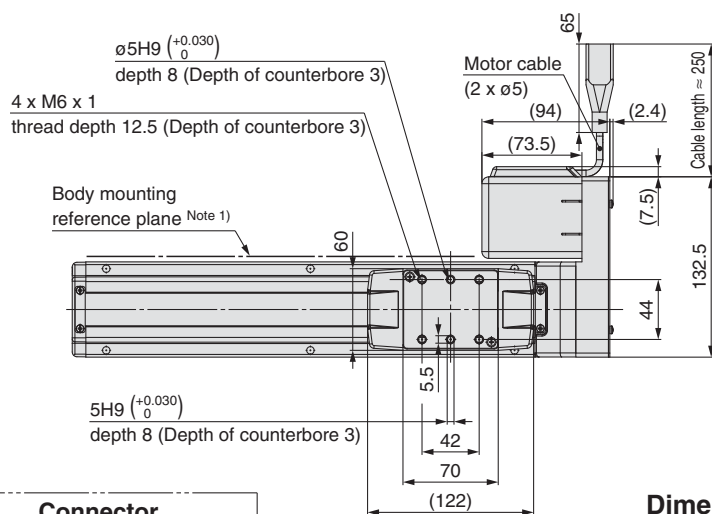
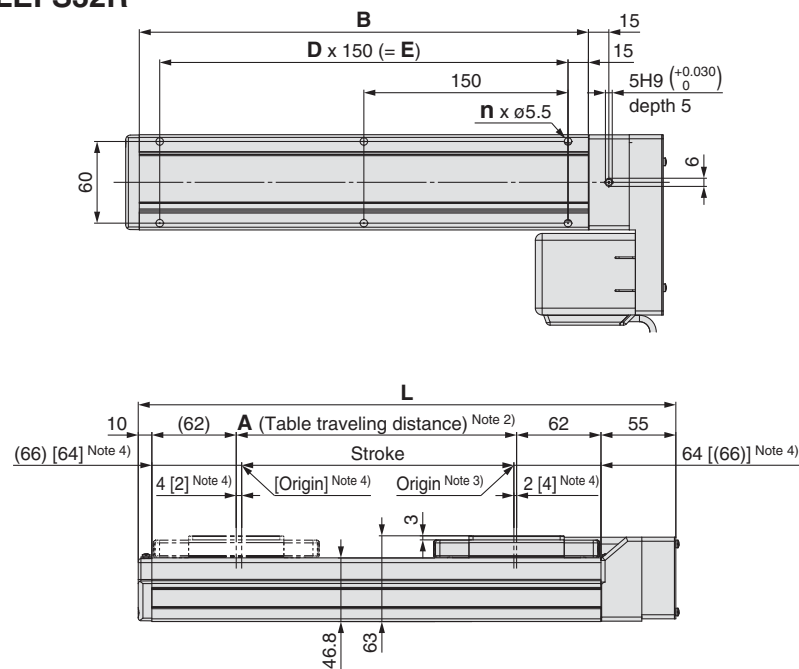
Dimensions

| Model | L | A | B | n | D | E | F |
|---------------|-------|-----|-----|----|---|-----|----|
| LEFS25□□-50□ | 210.5 | 56 | 160 | 4 | — | — | 20 |
| LEFS25□□-100□ | 260.5 | 106 | 210 | 4 | — | — | |
| 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 | |
| LEFS25□□-650□ | 810.5 | 656 | 760 | 12 | 5 | 600 | |
| LEFS25□□-700□ | 860.5 | 706 | 810 | 14 | 6 | 720 | |
| LEFS25□□-750□ | 910.5 | 756 | 860 | 14 | 6 | 720 | |
| LEFS25□□-800□ | 960.5 | 806 | 910 | 16 | 7 | 840 | |

- 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) 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) Position after return to origin
- Note 4) [] for when the direction of return to origin has changed.

Dimensions: Motor Parallel

LEFS32R



Dimensions

| 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 |
| LEFS32□□-850□ | 1045 | 856 | 980 | 14 | 6 | 900 |
| LEFS32□□-900□ | 1095 | 906 | 1030 | 14 | 6 | 900 |
| LEFS32□□-950□ | 1145 | 956 | 1080 | 16 | 7 | 1050 |
| LEFS32□□-1000□ | 1195 | 1006 | 1130 | 16 | 7 | 1050 |

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)

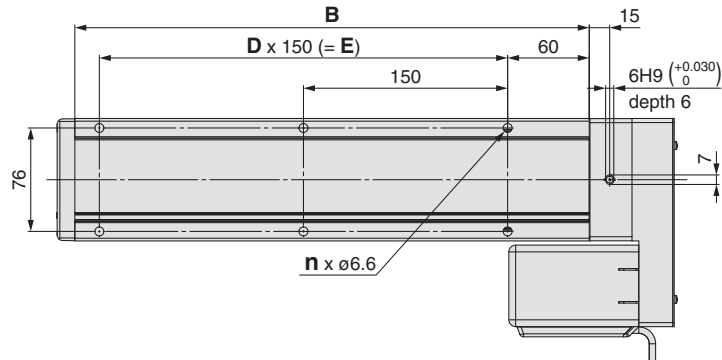
Note 2) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the work pieces and facilities around the table.

Note 3) Position after return to origin

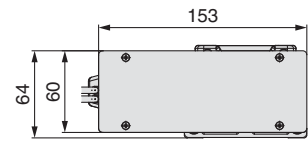
Note 4) [] for when the direction of return to origin has changed.

Dimensions: Motor Parallel

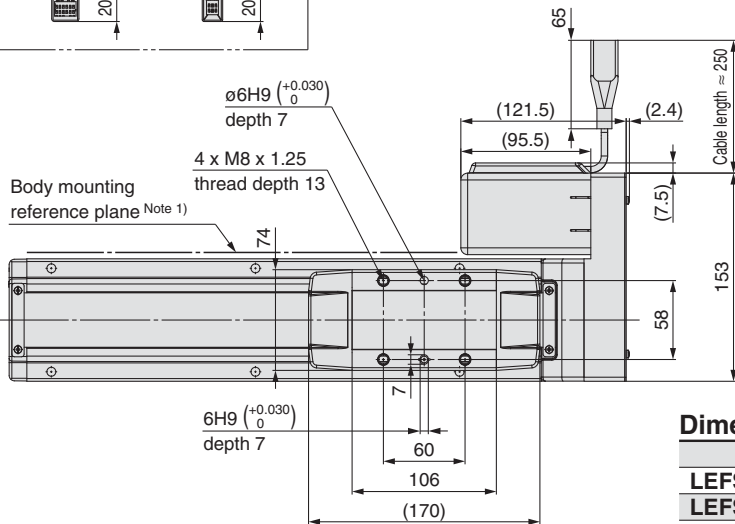
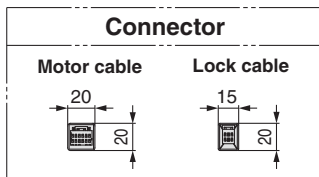
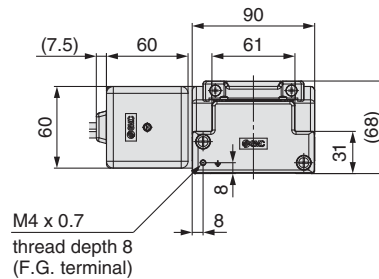
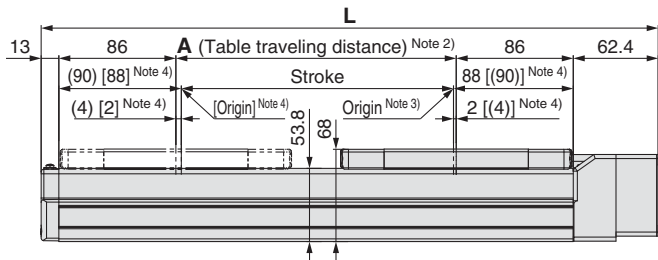
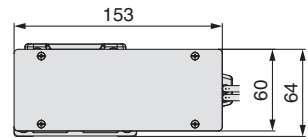
LEFS40R



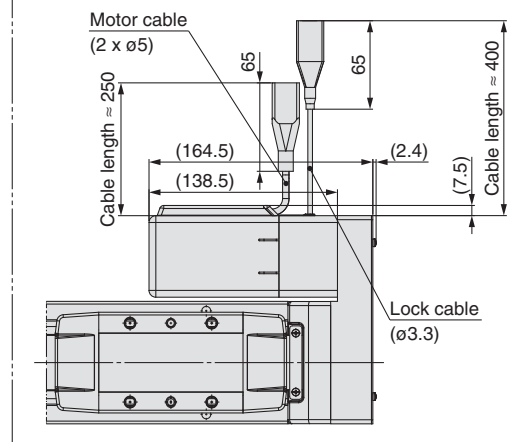
Motor mounting position: Left side parallel
LEFS40L



Motor mounting position: Right side parallel
LEFS40R



With lock: **LEFS40□□-□B**



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) 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) Position after return to origin

Note 4) [] for when the direction of return to origin has changed.

Dimensions

| 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 |
| LEFS40□□-1100□ | 1353.4 | 1106 | 1278 | 18 | 8 | 1200 |
| LEFS40□□-1200□ | 1453.4 | 1206 | 1378 | 18 | 8 | 1200 |

Electric Actuator/Slider Type Ball Screw Drive

Step Motor (Servo/24 VDC)

Clean Room Specification

Servo Motor (24 VDC)

Series 11-LEFS

LEFS16, 25, 32, 40



RoHS

How to Order

| | | | | | | | | | | | | | | | |
|----|------|---|----|---|---|---|-----|---|---|---|---|---|----|----|----|
| 11 | LEFS | H | 16 | | B | - | 100 | | | - | S | 1 | 6P | 1 | |
| | | 1 | 2 | 3 | 4 | | 5 | 6 | 7 | | 8 | 9 | 10 | 11 | 12 |

Clean Series

| | |
|----|-------------|
| 11 | Vacuum type |
|----|-------------|

1 Accuracy

| | |
|---|---------------------|
| — | Basic type |
| H | High precision type |

2 Size

| |
|----|
| 16 |
| 25 |
| 32 |
| 40 |

3 Motor type

| Symbol | Type | Applicable size | | | | Compatible controller/driver |
|--------|---------------------------|-----------------|-----------|-----------|-----------|------------------------------|
| | | 11-LEFS16 | 11-LEFS25 | 11-LEFS32 | 11-LEFS40 | |
| — | Step motor (Servo/24 VDC) | ● | ● | ● | ● | LECP6 LECP1 LECPA |
| A | Servo motor (24 VDC) | ● | ● | — | — | LECA6 |

4 Lead [mm]

| Symbol | 11-LEFS16 | 11-LEFS25 | 11-LEFS32 | 11-LEFS40 |
|--------|-----------|-----------|-----------|-----------|
| A | 10 | 12 | 16 | 20 |
| B | 5 | 6 | 8 | 10 |

5 Stroke [mm]

| | |
|------|------|
| 50 | 50 |
| to | to |
| 1000 | 1000 |

* Refer to the applicable stroke table.

Caution

[CE-compliant products]

① EMC compliance was tested by combining the electric actuator LEF 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 77 for the noise filter set. Refer to the LECA series 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] | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 | Manufacturable stroke range [mm] |
|-----------|-------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|----------------------------------|
| 11-LEFS16 | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | — | — | — | — | — | — | — | — | — | — | 50 to 500 |
| 11-LEFS25 | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | — | — | — | — | — | — | — | — | — | 50 to 600 |
| 11-LEFS32 | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | — | — | — | — | — | 50 to 800 |
| 11-LEFS40 | | — | — | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 150 to 1000 |

* Please consult with SMC for non-standard strokes as they are produced as special orders.

Support Guide/Series LEFG

A support guide is designed to support work pieces with significant overhang.

Page 165



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.>

- Check the actuator label for model number. This matches the controller/driver.
- Check Parallel I/O configuration matches (NPN or PNP).

11-LEFS16A-400

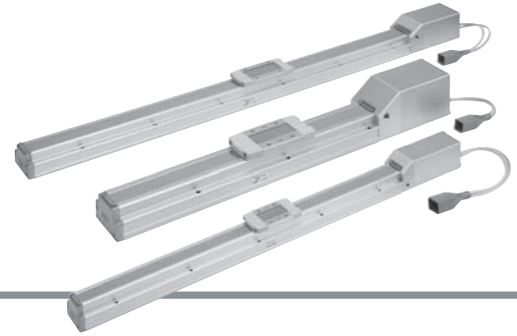
NPN

①

②



* Refer to the Operation Manual for using the products. Please download it via our website, <http://www.smc.eu>



6 Motor option

| | |
|---|----------------|
| — | Without option |
| B | With lock |

9 Actuator cable length [m]

| | |
|---|---------------|
| — | Without cable |
| 1 | 1.5 m |
| 3 | 3 m |
| 5 | 5 m |
| 8 | 8 m* |
| A | 10 m* |
| B | 15 m* |
| C | 20 m* |

* Produced upon receipt of order (Robotic cable only)
Refer to the specifications Note 2) on pages 53 and 54.

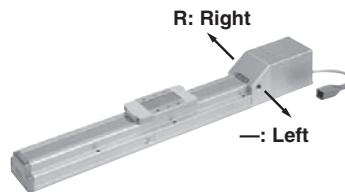
12 Controller/Driver mounting

| | |
|---|--------------------|
| — | Screw mounting |
| D | DIN rail mounting* |

* DIN rail is not included. Order it separately.

7 Vacuum port

| | |
|---|-------|
| — | Left |
| R | Right |



10 Controller/Driver type*1

| | | |
|----|---------------------------|-----|
| — | Without controller/driver | |
| 6N | LECP6/LECA6 | NPN |
| 6P | (Step data input type) | PNP |
| 1N | LECP1*2 | NPN |
| 1P | (Programless type) | PNP |
| AN | LECPA*2 *3 | NPN |
| AP | (Pulse input type) | PNP |

*1 For details about controller/driver and compatible motor, refer to the compatible controller/driver below.

*2 Only available for the motor type "Step motor."

*3 When pulse signals are open collector, order the current limit resistor (LEC-PA-R-□) on page 95 separately.

8 Actuator cable type*1

| | |
|---|--------------------------------|
| — | 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."





11 I/O cable length*1, Communication plug

| | |
|---|--|
| — | Without cable (Without communication plug connector)*3 |
| 1 | 1.5 m |
| 3 | 3 m*2 |
| 5 | 5 m*2 |

*1 When "Without controller/driver" is selected for controller/driver types, I/O cable cannot be selected. Refer to page 77 (For LECP6/LECA6), page 91 (For LECP1) or page 98 (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.

Compatible Controller/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 | 69 | 69 | 85 | 91 |

Series 11-LEFS

Clean Room Specification

Specifications

Step Motor (Servo/24 VDC)

| Model | | | 11-LEFS16 | | 11-LEFS25 | | 11-LEFS32 | | 11-LEFS40 | |
|--|--|--------------------------------|--|----------|-----------|----------|-----------|----------|-------------|-----------|
| Actuator specifications | Stroke [mm] <small>Note 1)</small> | | 50 to 500 | | 50 to 600 | | 50 to 800 | | 150 to 1000 | |
| | Work load <small>Note 2)</small> [kg] | Horizontal | 9 | 10 | 20 | 20 | 40 | 45 | 50 | 60 |
| | | Vertical | 2 | 4 | 7.5 | 15 | 10 | 20 | — | 23 |
| | Speed [mm/s] <small>Note 2)</small> | | 10 to 500 | 5 to 250 | 12 to 500 | 6 to 250 | 16 to 500 | 8 to 250 | 20 to 500 | 10 to 250 |
| | Max. acceleration/deceleration [mm/s ²] | | 3000 | | | | | | | |
| | Positioning repeatability [mm] | Basic type | ±0.02 | | | | | | | |
| | | High precision type | ±0.015 | | | | | | | |
| | Lost motion <small>Note 3)</small> [mm] | Basic type | 0.1 or less | | | | | | | |
| | | High precision type | 0.05 or less | | | | | | | |
| | Lead [mm] | | 10 | 5 | 12 | 6 | 16 | 8 | 20 | 10 |
| | Impact/Vibration resistance [m/s ²] <small>Note 4)</small> | | 50/20 | | | | | | | |
| | Actuation type | | Ball screw | | | | | | | |
| | Guide type | | Linear guide | | | | | | | |
| | Operating temperature range [°C] | | 5 to 40 | | | | | | | |
| | Operating humidity range [%RH] | | 90 or less (No condensation) | | | | | | | |
| Cleanliness class <small>Note 5)</small> | | ISO Class 4 (ISO 14644-1) | | | | | | | | |
| Grease <small>Ball screw /Linear guide portion</small> | | Low particle generation grease | | | | | | | | |
| Electric specifications | Motor size | | □28 | | □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] <small>Note 6)</small> | | 22 | | 38 | | 50 | | 100 | |
| | Standby power consumption when operating [W] <small>Note 7)</small> | | 18 | | 16 | | 44 | | 43 | |
| | Max. instantaneous power consumption [W] <small>Note 8)</small> | | 51 | | 57 | | 123 | | 141 | |
| Lock unit specifications | Type <small>Note 9)</small> | | Non-magnetizing lock | | | | | | | |
| | Holding force [N] | | 20 | 39 | 78 | 157 | 108 | 216 | 113 | 225 |
| | Power consumption [W] <small>Note 10)</small> | | 2.9 | | 5 | | 5 | | 5 | |
| | 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) Speed changes according to the controller/driver type and work load. Check "Speed-Work Load Graph (Guide)" on page 33.
Furthermore, if the cable length exceeds 5 m, then it will decrease by up to 10% for each 5 m.

Note 3) A reference value for correcting an error in reciprocal operation.

Note 4) 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 5) The amount of particle generation changes according to the operating conditions and suction flow rate. Refer to the particle generation characteristics for details.

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

Note 7) The standby power consumption when operating (including the controller) is for when the actuator is stopped in the set position during the operation.

Note 8) 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 9) With lock only

Note 10) For an actuator with lock, add the power consumption for the lock.

Specifications

Servo Motor (24 VDC)

| Model | | | 11-LEFS16A | | 11-LEFS25A | |
|---|--|--------------------------------|--|----------|-------------------------|----------|
| Actuator specifications | Stroke [mm] ^{Note 1)} | | 50 to 500 | | 50 to 600 | |
| | Work load ^{Note 2)} [kg] | Horizontal | 7 | 10 | 11 | 18 |
| | | Vertical | 2 | 4 | 2.5 | 5 |
| | Speed [mm/s] ^{Note 2)} | | 10 to 500 | 5 to 250 | 12 to 500 | 6 to 250 |
| | Max. acceleration/deceleration [mm/s ²] | | 3000 | | | |
| | Positioning repeatability [mm] | Basic type | ±0.02 | | | |
| | | High precision type | ±0.015 | | | |
| | Lost motion ^{Note 3)} [mm] | Basic type | 0.1 or less | | | |
| | | High precision type | 0.05 or less | | | |
| | Lead [mm] | | 10 | 5 | 12 | 6 |
| | Impact/Vibration resistance [m/s ²] ^{Note 4)} | | 50/20 | | | |
| | Actuation type | | Ball screw | | | |
| | Guide type | | Linear guide | | | |
| | Operating temperature range [°C] | | 5 to 40 | | | |
| Operating humidity range [%RH] | | 90 or less (No condensation) | | | | |
| Cleanliness class ^{Note 5)} | | ISO Class 4 (ISO 14644-1) | | | | |
| Grease Ball screw /Linear guide portion | | Low particle generation grease | | | | |
| 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 6)} | | 63 | | 102 | |
| | Standby power consumption when operating [W] ^{Note 7)} | | Horizontal 4/Vertical 9 | | Horizontal 4/Vertical 9 | |
| Max. instantaneous power consumption [W] ^{Note 8)} | | 70 | | 113 | | |
| Lock unit specifications | Type ^{Note 9)} | | Non-magnetizing lock | | | |
| | Holding force [N] | | 20 | 39 | 78 | 157 |
| | Power consumption [W] ^{Note 10)} | | 2.9 | | 5 | |
| | 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) Check "Speed-Work Load Graph (Guide)" on page 34 for details. Furthermore, if the cable length exceeds 5 m, then it will decrease by up to 10% for each 5 m.

Note 3) A reference value for correcting an error in reciprocal operation.

Note 4) 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 5) The amount of particle generation changes according to the operating conditions and suction flow rate. Refer to the particle generation characteristics for details.

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

Note 7) The standby power consumption when operating (including the controller) is for when the actuator is stopped in the set position during operation.

Note 8) 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 9) With lock only

Note 10) For an actuator with lock, add the power consumption for the lock.

Weight

| Series | 11-LEFS16 | | | | | | | | | |
|----------------------------------|-----------|------|------|------|------|------|------|------|------|------|
| Stroke [mm] | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 |
| Product weight [kg] | 0.83 | 0.90 | 0.98 | 1.05 | 1.13 | 1.20 | 1.28 | 1.35 | 1.43 | 1.50 |
| Additional weight with lock [kg] | 0.12 | | | | | | | | | |

| Series | 11-LEFS25 | | | | | | | | | | | |
|----------------------------------|-----------|------|------|------|------|------|------|------|------|------|------|------|
| Stroke [mm] | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 |
| Product weight [kg] | 1.70 | 1.84 | 1.98 | 2.12 | 2.26 | 2.40 | 2.54 | 2.68 | 2.82 | 2.96 | 3.10 | 3.24 |
| Additional weight with lock [kg] | 0.26 | | | | | | | | | | | |

| Series | 11-LEFS32 | | | | | | | | | | | | | | | |
|----------------------------------|-----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Stroke [mm] | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 |
| Product weight [kg] | 3.15 | 3.35 | 3.55 | 3.75 | 3.95 | 4.15 | 4.35 | 4.55 | 4.75 | 4.95 | 5.15 | 5.35 | 5.55 | 5.75 | 5.95 | 6.15 |
| Additional weight with lock [kg] | 0.53 | | | | | | | | | | | | | | | |

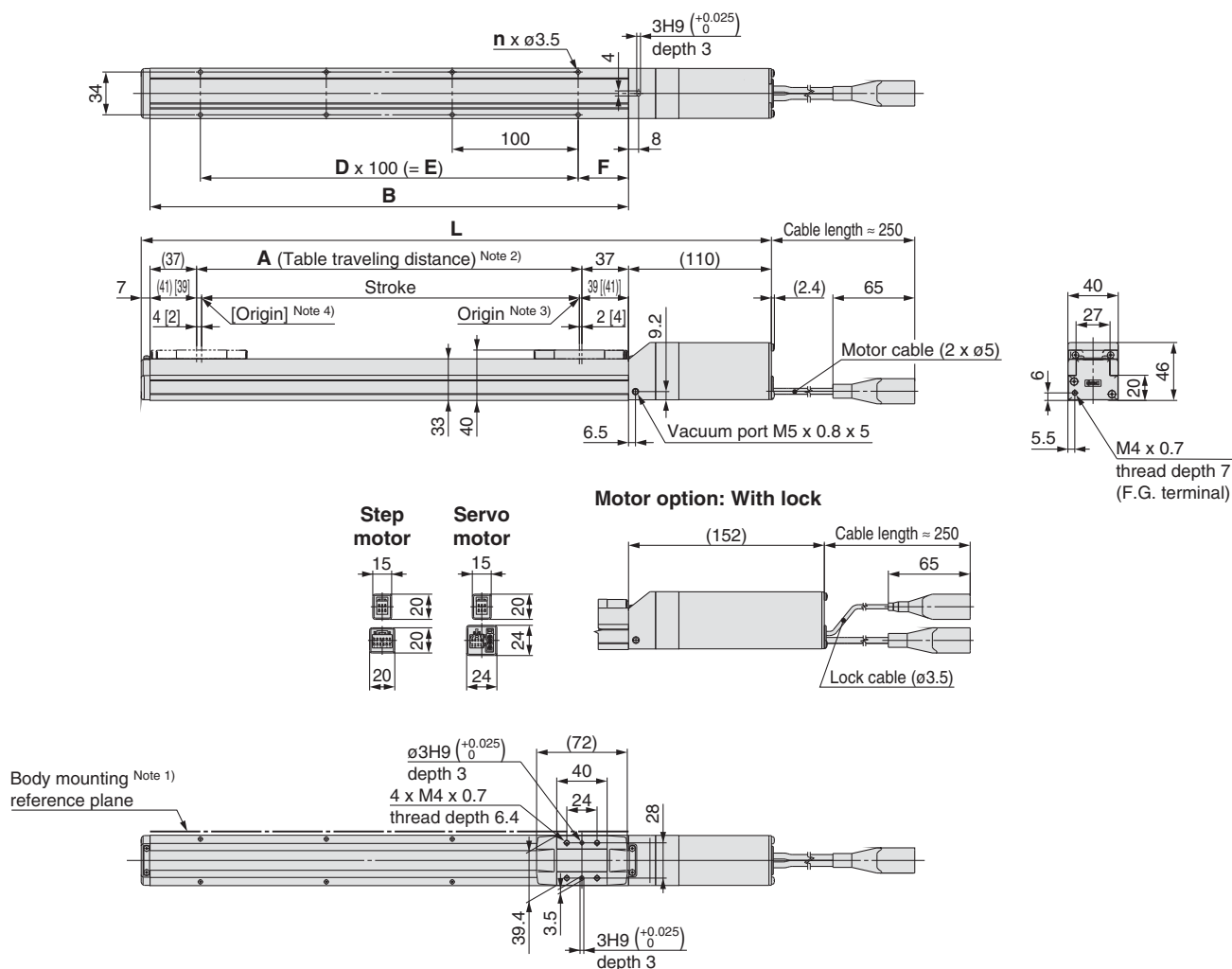
| Series | 11-LEFS40 | | | | | | | | | | | | | | | | | |
|----------------------------------|-----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|
| Stroke [mm] | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 |
| Product weight [kg] | 5.37 | 5.65 | 5.93 | 6.21 | 6.49 | 6.77 | 7.15 | 7.33 | 7.61 | 7.89 | 8.17 | 8.45 | 8.75 | 9.01 | 9.29 | 9.57 | 9.85 | 10.13 |
| Additional weight with lock [kg] | 0.53 | | | | | | | | | | | | | | | | | |

Series 11-LEFS

Clean Room Specification

Dimensions: Ball Screw Drive

11-LEFS16



Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 2 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) Position after return to origin

Note 4) [] for when the direction of return to origin has changed.

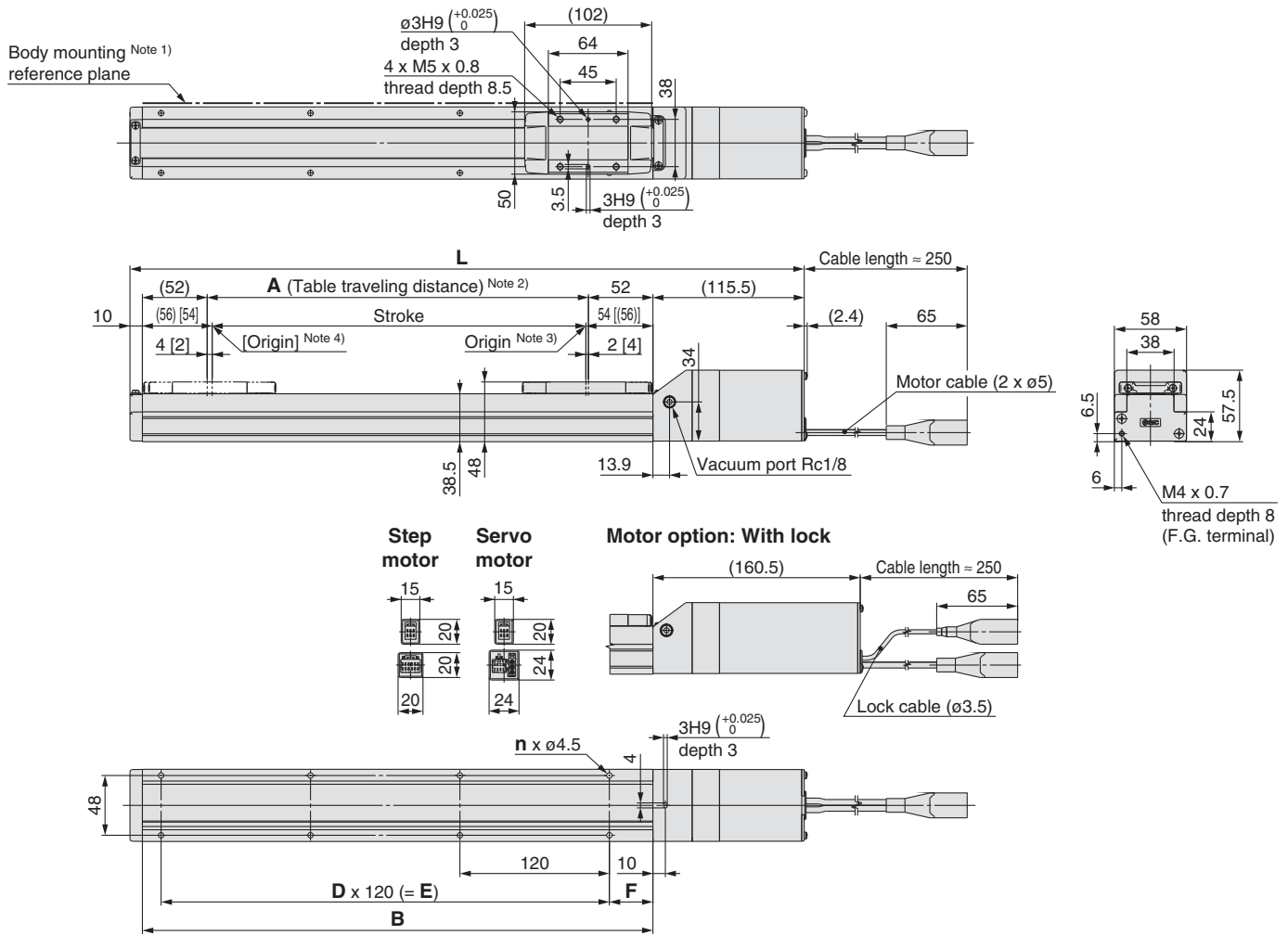
Dimensions

[mm]

| Model | L | | A | B | n | D | E | F |
|-----------------|--------------|-----------|-----|-----|----|---|-----|----|
| | Without lock | With lock | | | | | | |
| 11-LEFS16□-50□ | 247 | 289 | 56 | 130 | 4 | — | — | 15 |
| 11-LEFS16□-100□ | 297 | 339 | 106 | 180 | 4 | — | — | |
| 11-LEFS16□-150□ | 347 | 389 | 156 | 230 | 4 | — | — | |
| 11-LEFS16□-200□ | 397 | 439 | 206 | 280 | 6 | 2 | 200 | |
| 11-LEFS16□-250□ | 447 | 489 | 256 | 330 | 6 | 2 | — | |
| 11-LEFS16□-300□ | 497 | 539 | 306 | 380 | 8 | 3 | 300 | 40 |
| 11-LEFS16□-350□ | 547 | 589 | 356 | 430 | 8 | 3 | — | |
| 11-LEFS16□-400□ | 597 | 639 | 406 | 480 | 10 | 4 | 400 | |
| 11-LEFS16□-450□ | 647 | 689 | 456 | 530 | 10 | 4 | — | |
| 11-LEFS16□-500□ | 697 | 739 | 506 | 580 | 12 | 5 | 500 | |

Dimensions: Ball Screw Drive

11-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) Position after return to origin

Note 4) [] for when the direction of return to origin has changed.

Dimensions

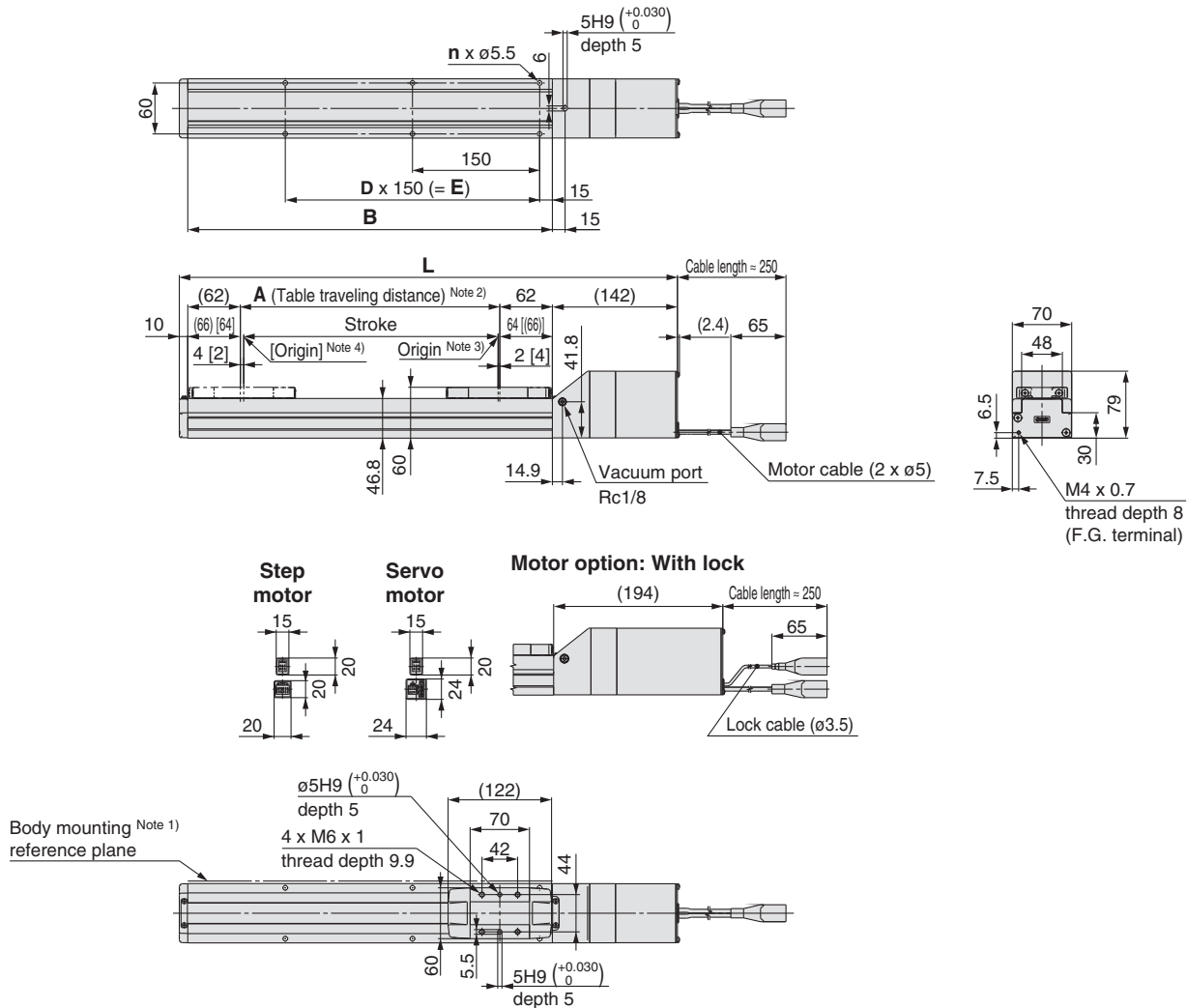
| Model | L | | A | B | n | D | E | F |
|-----------------|--------------|-----------|-----|-----|----|---|-----|----|
| | Without lock | With lock | | | | | | |
| 11-LEFS25□-50□ | 285.5 | 330.5 | 56 | 160 | 4 | — | — | 20 |
| 11-LEFS25□-100□ | 335.5 | 380.5 | 106 | 210 | 4 | — | — | 35 |
| 11-LEFS25□-150□ | 385.5 | 430.5 | 156 | 260 | 4 | — | — | |
| 11-LEFS25□-200□ | 435.5 | 480.5 | 206 | 310 | 6 | 2 | 240 | |
| 11-LEFS25□-250□ | 485.5 | 530.5 | 256 | 360 | 6 | 2 | 240 | |
| 11-LEFS25□-300□ | 535.5 | 580.5 | 306 | 410 | 8 | 3 | 360 | |
| 11-LEFS25□-350□ | 585.5 | 630.5 | 356 | 460 | 8 | 3 | 360 | |
| 11-LEFS25□-400□ | 635.5 | 680.5 | 406 | 510 | 8 | 3 | 360 | |
| 11-LEFS25□-450□ | 685.5 | 730.5 | 456 | 560 | 10 | 4 | 480 | |
| 11-LEFS25□-500□ | 735.5 | 780.5 | 506 | 610 | 10 | 4 | 480 | |
| 11-LEFS25□-550□ | 785.5 | 830.5 | 556 | 660 | 12 | 5 | 600 | |
| 11-LEFS25□-600□ | 835.5 | 880.5 | 606 | 710 | 12 | 5 | 600 | |

Series 11-LEFS

Clean Room Specification

Dimensions: Ball Screw Drive

11-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) Position after return to origin

Note 4) [] for when the direction of return to origin has changed.

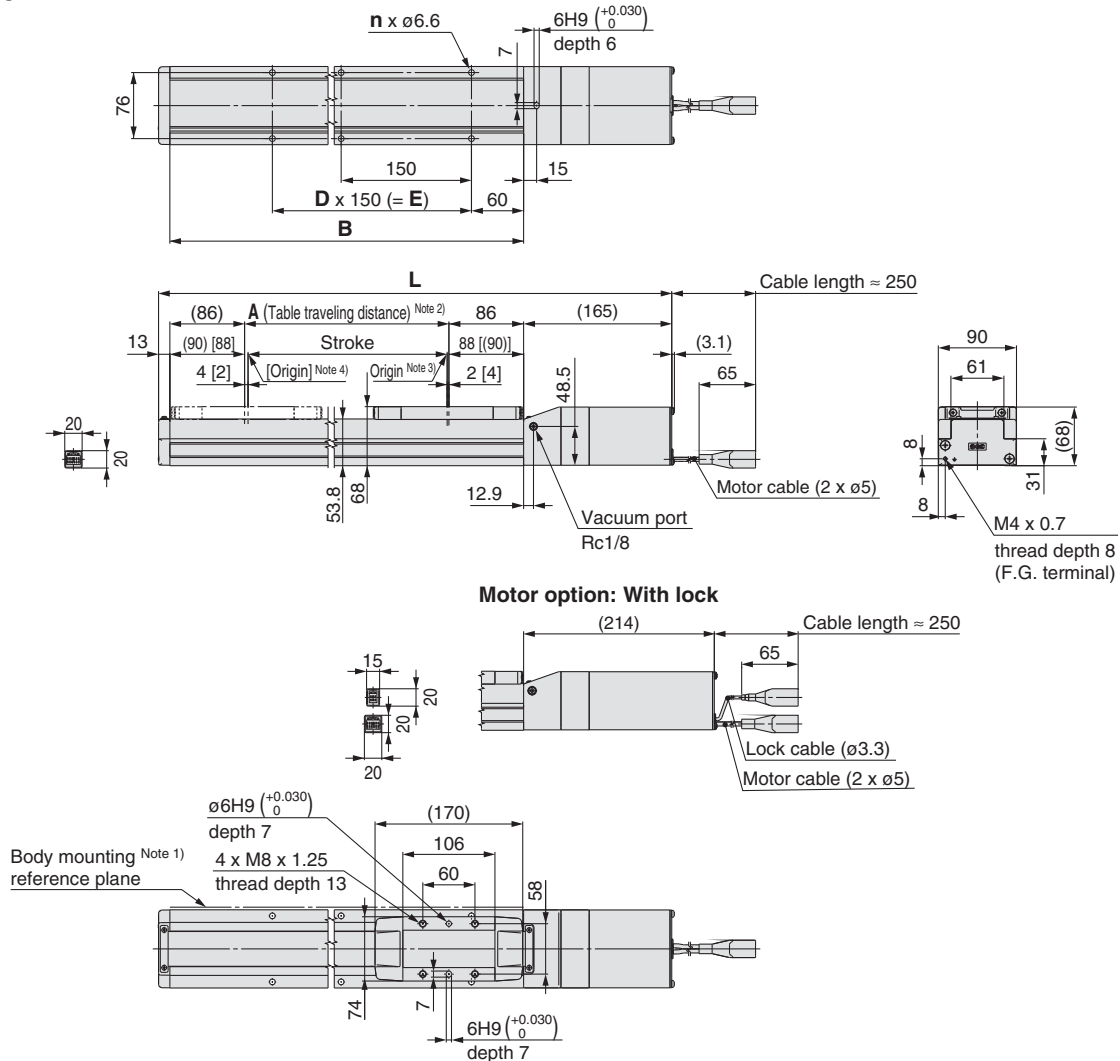
Dimensions

[mm]

| Model | L | | A | B | n | D | E |
|-----------------|--------------|-----------|-----|-----|----|---|-----|
| | Without lock | With lock | | | | | |
| 11-LEFS32□-50□ | 332 | 384 | 56 | 180 | 4 | — | — |
| 11-LEFS32□-100□ | 382 | 434 | 106 | 230 | 4 | — | — |
| 11-LEFS32□-150□ | 432 | 484 | 156 | 280 | 4 | — | — |
| 11-LEFS32□-200□ | 482 | 534 | 206 | 330 | 6 | 2 | 300 |
| 11-LEFS32□-250□ | 532 | 584 | 256 | 380 | 6 | 2 | 300 |
| 11-LEFS32□-300□ | 582 | 634 | 306 | 430 | 6 | 2 | 300 |
| 11-LEFS32□-350□ | 632 | 684 | 356 | 480 | 8 | 3 | 450 |
| 11-LEFS32□-400□ | 682 | 734 | 406 | 530 | 8 | 3 | 450 |
| 11-LEFS32□-450□ | 732 | 784 | 456 | 580 | 8 | 3 | 450 |
| 11-LEFS32□-500□ | 782 | 834 | 506 | 630 | 10 | 4 | 600 |
| 11-LEFS32□-550□ | 832 | 884 | 556 | 680 | 10 | 4 | 600 |
| 11-LEFS32□-600□ | 882 | 934 | 606 | 730 | 10 | 4 | 600 |
| 11-LEFS32□-650□ | 932 | 984 | 656 | 780 | 12 | 5 | 750 |
| 11-LEFS32□-700□ | 982 | 1034 | 706 | 830 | 12 | 5 | 750 |
| 11-LEFS32□-750□ | 1032 | 1084 | 756 | 880 | 12 | 5 | 750 |
| 11-LEFS32□-800□ | 1082 | 1134 | 806 | 930 | 14 | 6 | 900 |

Dimensions: Ball Screw Drive

11-LEFS40



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) Position after return to origin

Note 4) [] for when the direction of return to origin has changed.

Dimensions

| Model | L | | A | B | n | D | E |
|------------------|--------------|-----------|------|------|----|---|------|
| | Without lock | With lock | | | | | |
| 11-LEFS40□-150□ | 506 | 555 | 156 | 328 | 4 | — | 150 |
| 11-LEFS40□-200□ | 556 | 605 | 206 | 378 | 6 | 2 | 300 |
| 11-LEFS40□-250□ | 606 | 655 | 256 | 428 | 6 | 2 | 300 |
| 11-LEFS40□-300□ | 656 | 705 | 306 | 478 | 6 | 2 | 300 |
| 11-LEFS40□-350□ | 706 | 755 | 356 | 528 | 8 | 3 | 450 |
| 11-LEFS40□-400□ | 756 | 805 | 406 | 578 | 8 | 3 | 450 |
| 11-LEFS40□-450□ | 806 | 855 | 456 | 628 | 8 | 3 | 450 |
| 11-LEFS40□-500□ | 856 | 905 | 506 | 678 | 10 | 4 | 600 |
| 11-LEFS40□-550□ | 906 | 955 | 556 | 728 | 10 | 4 | 600 |
| 11-LEFS40□-600□ | 956 | 1005 | 606 | 778 | 10 | 4 | 600 |
| 11-LEFS40□-650□ | 1006 | 1055 | 656 | 828 | 12 | 5 | 750 |
| 11-LEFS40□-700□ | 1056 | 1105 | 706 | 878 | 12 | 5 | 750 |
| 11-LEFS40□-750□ | 1106 | 1155 | 756 | 928 | 12 | 5 | 750 |
| 11-LEFS40□-800□ | 1156 | 1205 | 806 | 978 | 14 | 6 | 900 |
| 11-LEFS40□-850□ | 1206 | 1255 | 856 | 1028 | 14 | 6 | 900 |
| 11-LEFS40□-900□ | 1256 | 1305 | 906 | 1078 | 14 | 6 | 900 |
| 11-LEFS40□-950□ | 1306 | 1355 | 956 | 1128 | 16 | 7 | 1050 |
| 11-LEFS40□-1000□ | 1356 | 1405 | 1006 | 1178 | 16 | 7 | 1050 |

Electric Actuator/Slider Type

Belt Drive

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

Series LEFB

LEFB16, 25, 32



How to Order

The belt drive actuator cannot be used vertically for applications.

LEFB 16 T - 500 - R 1 6P 1

1 Size

| |
|----|
| 16 |
| 25 |
| 32 |

2 Motor type

| Symbol | Type | Applicable size | | | Compatible controller/driver |
|--------|---------------------------|-----------------|--------|--------|------------------------------|
| | | LEFB16 | LEFB25 | LEFB32 | |
| — | Step motor (Servo/24 VDC) | ● | ● | ● | LECP6 LECP1 LECPA |
| A | Servo motor (24 VDC) | ● | ● | — | LECA6 |

3 Equivalent lead [mm]

| | |
|---|----|
| T | 48 |
|---|----|

4 Stroke [mm]

| | |
|------|------|
| 300 | 300 |
| to | to |
| 2000 | 2000 |

* Refer to the applicable stroke table.

Caution

[CE-compliant products]

① EMC compliance was tested by combining the electric actuator LEF 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 77 for the noise filter set. Refer to the LECA series 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 | 300 | 500 | 600 | 700 | 800 | 900 | 1000 | 1200 | 1500 | 1800 | 2000 |
|----------------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|
| LEFB16 | ● | ● | ● | ● | ● | ● | ● | — | — | — | — |
| LEFB25 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| LEFB32 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

* Please consult with SMC for non-standard strokes as they are produced as special orders.

Support Guide/Series LEFG

A support guide is designed to support work pieces with significant overhang.

Page 165

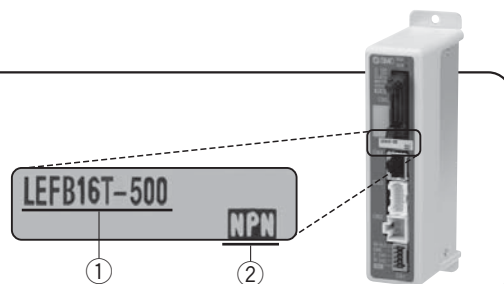


The actuator and controller/driver are sold as a package.

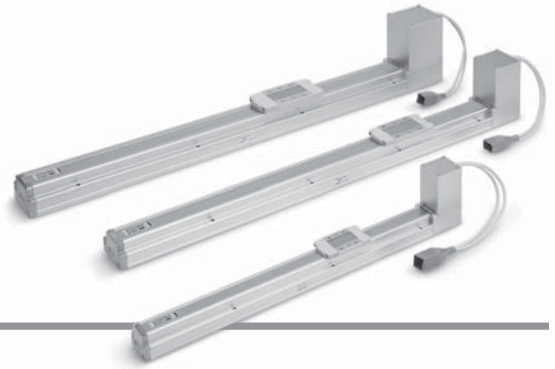
Confirm that the combination of the controller/driver and the actuator is correct.

<Check the following before use.>

- Check the actuator label for model number. This matches the controller/driver.
- 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.smc.eu>



5 Motor option

| | |
|---|----------------|
| — | Without option |
| B | With lock |

8 Actuator cable length [m]

| | |
|---|---------------|
| — | 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 2) on pages 61 and 62.

11 Controller/Driver mounting

| | |
|---|--------------------|
| — | Screw mounting |
| D | DIN rail mounting* |

* DIN rail is not included. Order it separately.

6 Seal band stopper

| | |
|---|---|
| — | Standard |
| N | Roller type seal band stopper (grease free) |

9 Controller/Driver type*1

| | | |
|----|---------------------------|-----|
| — | Without controller/driver | |
| 6N | LECP6/LECA6 | NPN |
| 6P | (Step data input type) | PNP |
| 1N | LECP1*2 | NPN |
| 1P | (Programless type) | PNP |
| AN | LECPA*2 *3 | NPN |
| AP | (Pulse input type) | PNP |

*1 For details about controller/driver and compatible motor, refer to the compatible controller/driver below.

*2 Only available for the motor type "Step motor."

*3 When pulse signals are open collector, order the current limit resistor (LEC-PA-R-□) on page 95 separately.

7 Actuator cable type*1

| | |
|---|--------------------------------|
| — | 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 I/O cable length*1, Communication plug

| | |
|---|--|
| — | Without cable (Without communication plug connector)*3 |
| 1 | 1.5 m |
| 3 | 3 m*2 |
| 5 | 5 m*2 |

*1 When "Without controller/driver" is selected for controller/driver types, I/O cable cannot be selected. Refer to page 77 (For LECP6/LECA6), page 91 (For LECP1) or page 98 (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.

Compatible Controller/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 | 69 | 69 | 85 | 91 |

Specifications

Step Motor (Servo/24 VDC)

| Model | | LEFB16 | LEFB25 | LEFB32 |
|--------------------------|--|--|--|--|
| Actuator specifications | Stroke [mm] <small>Note 1)</small> | 300, 500, 600, 700 800, 900, 1000 | 300, 500, 600, 700, 800, 900 1000, 1200, 1500, 1800, 2000 | 300, 500, 600, 700, 800, 900 1000, 1200, 1500, 1800, 2000 |
| | Work load [kg] <small>Note 2)</small> Horizontal | 1 | 5 | 14 |
| | Speed [mm/s] <small>Note 2)</small> | 48 to 1100 | 48 to 1400 | 48 to 1500 |
| | Max. acceleration/deceleration [mm/s ²] | 3000 | | |
| | Positioning repeatability [mm] | ±0.08 | | |
| | Lost motion [mm] <small>Note 3)</small> | 0.1 or less | | |
| | Equivalent lead [mm] | 48 | 48 | 48 |
| | Impact/Vibration resistance [m/s ²] <small>Note 4)</small> | 50/20 | | |
| | Actuation type | Belt | | |
| | Guide type | Linear guide | | |
| | Operating temperature range [°C] | 5 to 40 | | |
| | Operating humidity range [%RH] | 90 or less (No condensation) | | |
| Electric specifications | Motor size | □28 | □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] <small>Note 5)</small> | 24 | 32 | 52 |
| | Standby power consumption when operating [W] <small>Note 6)</small> | 18 | 16 | 44 |
| Lock unit specifications | Max. instantaneous power consumption [W] <small>Note 7)</small> | 51 | 60 | 127 |
| | Type <small>Note 8)</small> | Non-magnetizing lock | | |
| | Holding force [N] | 4 | 19 | 36 |
| | Power consumption [W] <small>Note 9)</small> | 2.9 | 5 | 5 |
| | 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) Speed changes according to the controller/driver type and work load. Check "Speed-Work Load Graph (Guide)" on page 28.

Furthermore, if the cable length exceeds 5 m, then it will decrease by up to 10% for each 5 m. Cannot be used vertically for applications.

Note 3) A reference value for correcting an error in reciprocal operation.

Note 4) 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 5) The power consumption (including the controller) is for when the actuator is operating.

Note 6) The standby power consumption when operating (including the controller) is for when the actuator is stopped in the set position during the operation.

Note 7) 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 8) With lock only

Note 9) For an actuator with lock, add the power consumption for the lock.

Specifications

Servo Motor (24 VDC)

| Model | | LEFB16A | LEFB25A |
|--------------------------|--|--|--|
| Actuator specifications | Stroke [mm] <small>Note 1)</small> | 300, 500, 600, 700 800, 900, 1000 | 300, 500, 600, 700, 800, 900 1000, 1200, 1500, 1800, 2000 |
| | Work load [kg] <small>Note 2)</small> Horizontal | 1 | 2 |
| | Speed [mm/s] <small>Note 2)</small> | 5 to 2000 | 5 to 2000 |
| | Max. acceleration/deceleration [mm/s ²] | 3000 | |
| | Positioning repeatability [mm] | ±0.08 | |
| | Lost motion [mm] <small>Note 3)</small> | 0.1 or less | |
| | Equivalent lead [mm] | 48 | 48 |
| | Impact/Vibration resistance [m/s ²] <small>Note 4)</small> | 50/20 | |
| | Actuation type | Belt | |
| | Guide type | Linear guide | |
| | 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 (800 pulse/rotation)/Z phase | |
| | Rated voltage [V] | 24 VDC ±10% | |
| | Power consumption [W] <small>Note 5)</small> | 78 | 69 |
| | Standby power consumption when operating [W] <small>Note 6)</small> | Horizontal 4 | Horizontal 5 |
| | Max. instantaneous power consumption [W] <small>Note 7)</small> | 87 | 120 |
| Lock unit specifications | Type <small>Note 8)</small> | Non-magnetizing lock | |
| | Holding force [N] | 4 | 19 |
| | Power consumption [W] <small>Note 9)</small> | 2.9 | 5 |
| | 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) Check "Speed-Work Load Graph (Guide)" on page 28 for details. Furthermore, if the cable length exceeds 5 m, then it will decrease by up to 10% for each 5 m.

Note 3) A reference value for correcting an error in reciprocal operation.

Note 4) 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 5) The power consumption (including the controller) is for when the actuator is operating.

Note 6) The standby power consumption when operating (including the controller) is for when the actuator is stopped in the set position during the operation.

Note 7) 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 8) With lock only

Note 9) For an actuator with lock, add the power consumption for the lock.

Weight

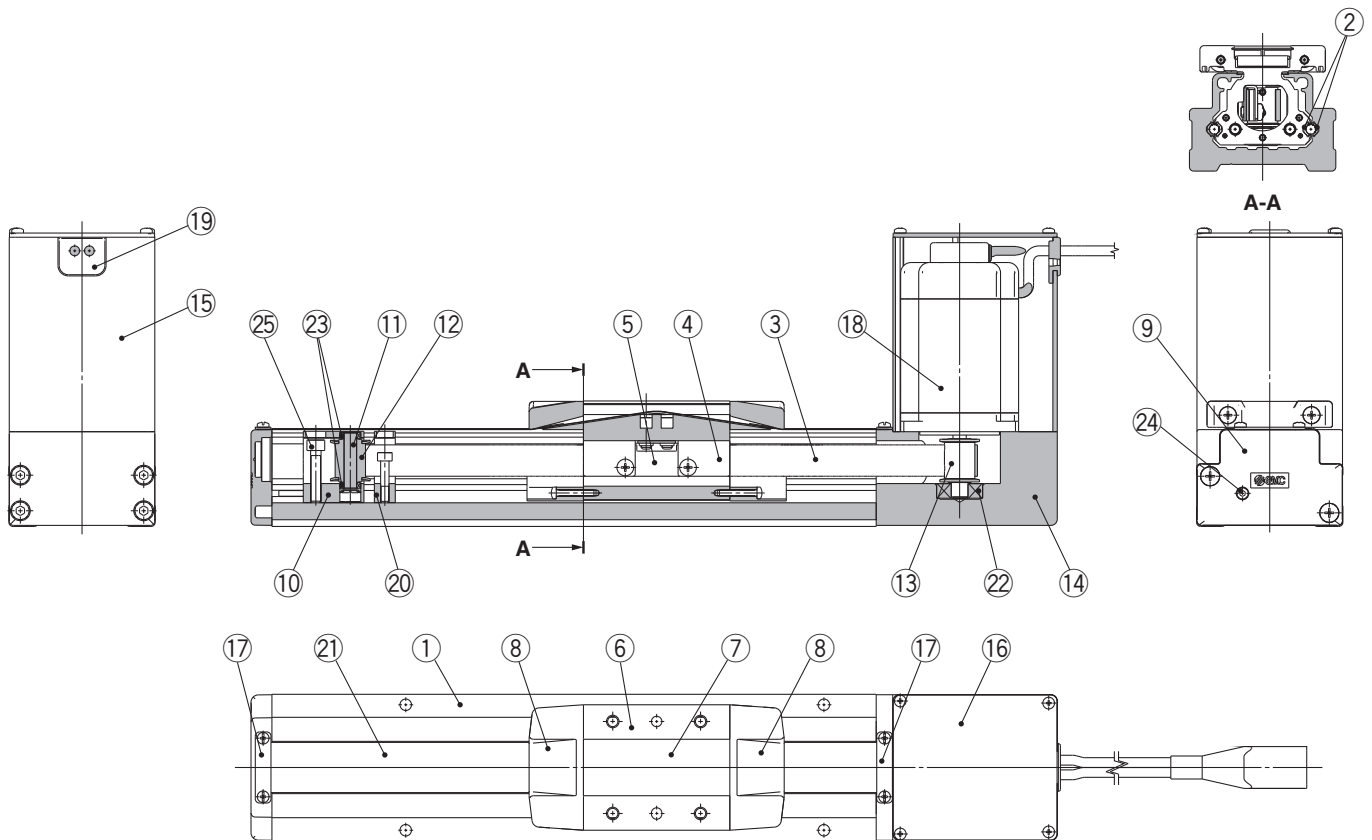
| Series | LEFB16 | | | | | | |
|----------------------------------|--------|------|------|------|------|------|------|
| Stroke [mm] | 300 | 500 | 600 | 700 | 800 | 900 | 1000 |
| Product weight [kg] | 1.19 | 1.45 | 1.58 | 1.71 | 1.84 | 1.97 | 2.10 |
| Additional weight with lock [kg] | 0.12 | | | | | | |

| Series | LEFB25 | | | | | | | | | | |
|----------------------------------|--------|------|------|------|------|------|------|------|------|------|------|
| Stroke [mm] | 300 | 500 | 600 | 700 | 800 | 900 | 1000 | 1200 | 1500 | 1800 | 2000 |
| Product weight [kg] | 2.39 | 2.85 | 3.08 | 3.31 | 3.54 | 3.77 | 4.00 | 4.46 | 5.15 | 5.84 | 6.30 |
| Additional weight with lock [kg] | 0.26 | | | | | | | | | | |

| Series | LEFB32 | | | | | | | | | | |
|----------------------------------|--------|------|------|------|------|------|------|------|------|------|------|
| Stroke [mm] | 300 | 500 | 600 | 700 | 800 | 900 | 1000 | 1200 | 1500 | 1800 | 2000 |
| Product weight [kg] | 4.12 | 4.80 | 5.14 | 5.48 | 5.82 | 6.16 | 6.50 | 7.18 | 8.20 | 9.22 | 9.90 |
| Additional weight with lock [kg] | 0.53 | | | | | | | | | | |

Construction

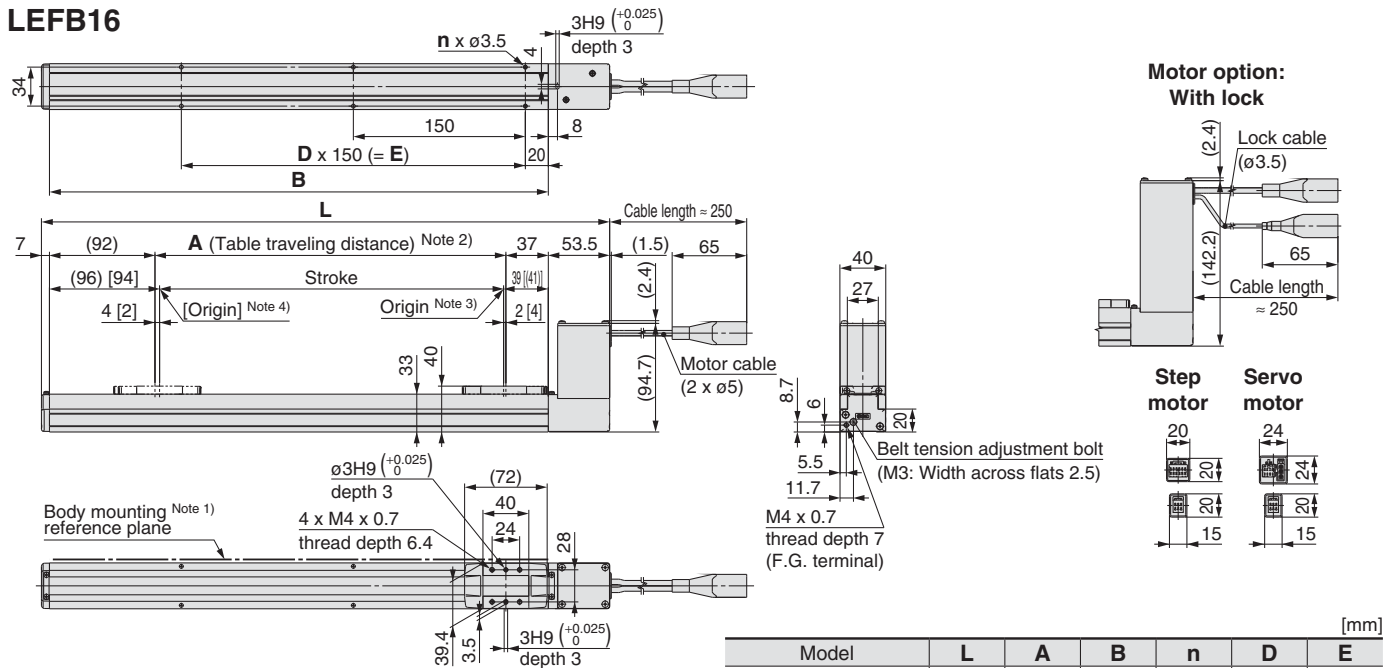
Series LEFB



| No. | Description | Material | Note |
|-----|-------------------------|---------------------------|------------|
| 1 | Body | Aluminium alloy | Anodised |
| 2 | Rail guide | — | |
| 3 | Belt | — | |
| 4 | Belt holder | Carbon steel | Chromating |
| 5 | Belt stopper | Aluminium alloy | Anodised |
| 6 | Table | Aluminium alloy | Anodised |
| 7 | Blanking plate | Aluminium alloy | Anodised |
| 8 | Seal band stopper | Synthetic resin | |
| 9 | Housing A | Aluminium die-cast | Coating |
| 10 | Pulley holder | Aluminium alloy | |
| 11 | Pulley shaft | Stainless steel | |
| 12 | End pulley | Aluminium alloy | Anodised |
| 13 | Motor pulley | Aluminium alloy | Anodised |
| 14 | Motor mount | Aluminium alloy | Anodised |
| 15 | Motor cover | Aluminium alloy | Anodised |
| 16 | End cover | Aluminium alloy | Anodised |
| 17 | Band stopper | Stainless steel | |
| 18 | Motor | — | |
| 19 | Rubber bushing | NBR | |
| 20 | Stopper | Aluminium alloy | |
| 21 | Dust seal band | Stainless steel | |
| 22 | Bearing | — | |
| 23 | Bearing | — | |
| 24 | Tension adjustment bolt | Chromium molybdenum steel | Chromating |
| 25 | Pulley fixing bolt | Chromium molybdenum steel | Chromating |

Dimensions: Belt Drive

LEFB16



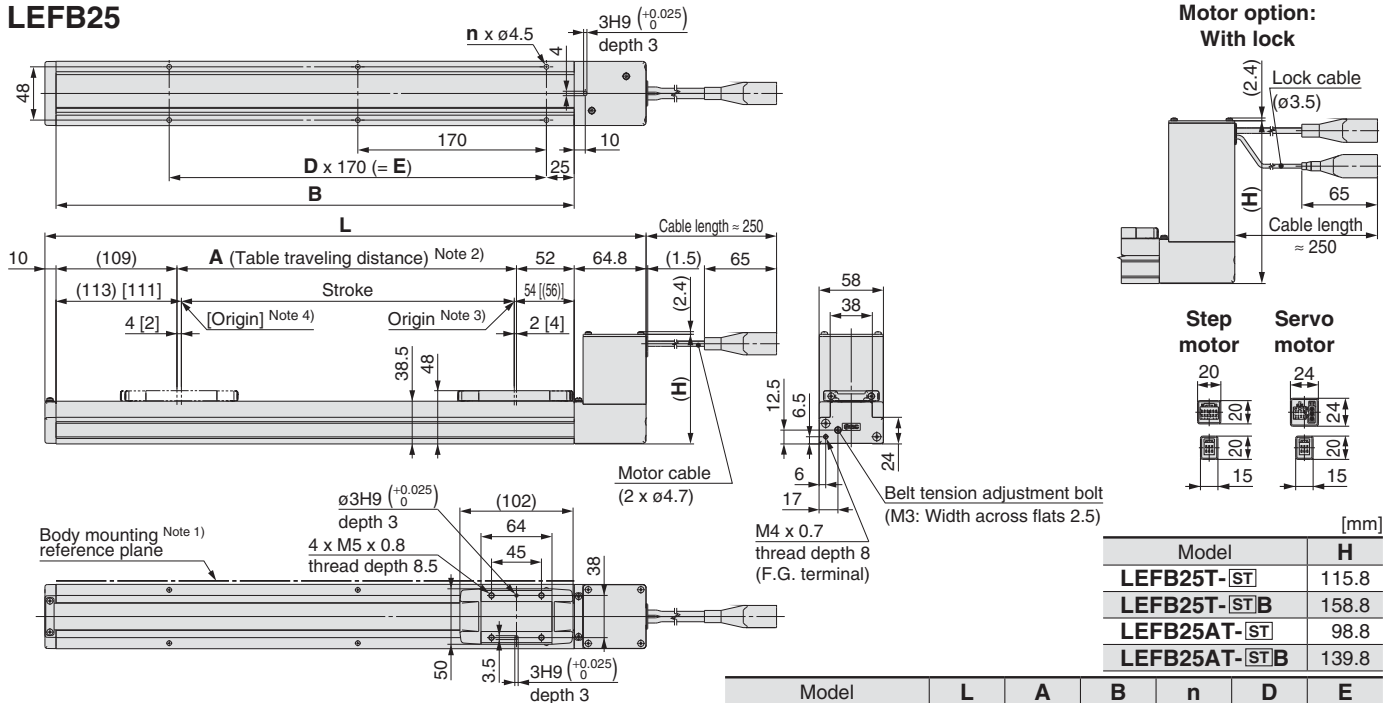
Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 2 mm or more because of R chamfering. (Recommended height 5 mm)

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) Position after return to origin

Note 4) [] for when the direction of return to origin has changed.

LEFB25



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.

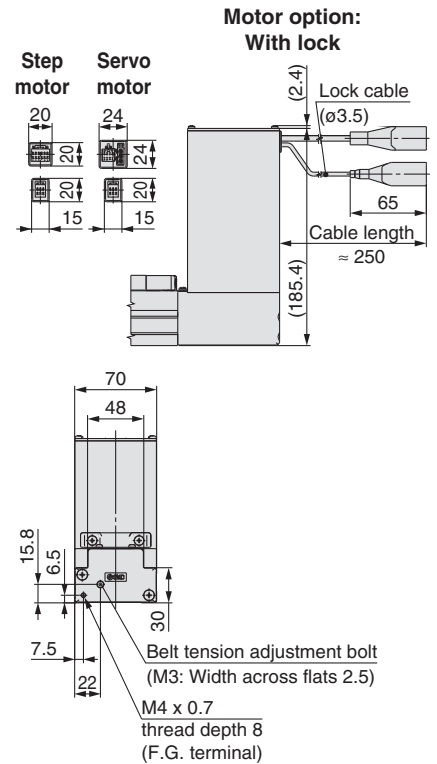
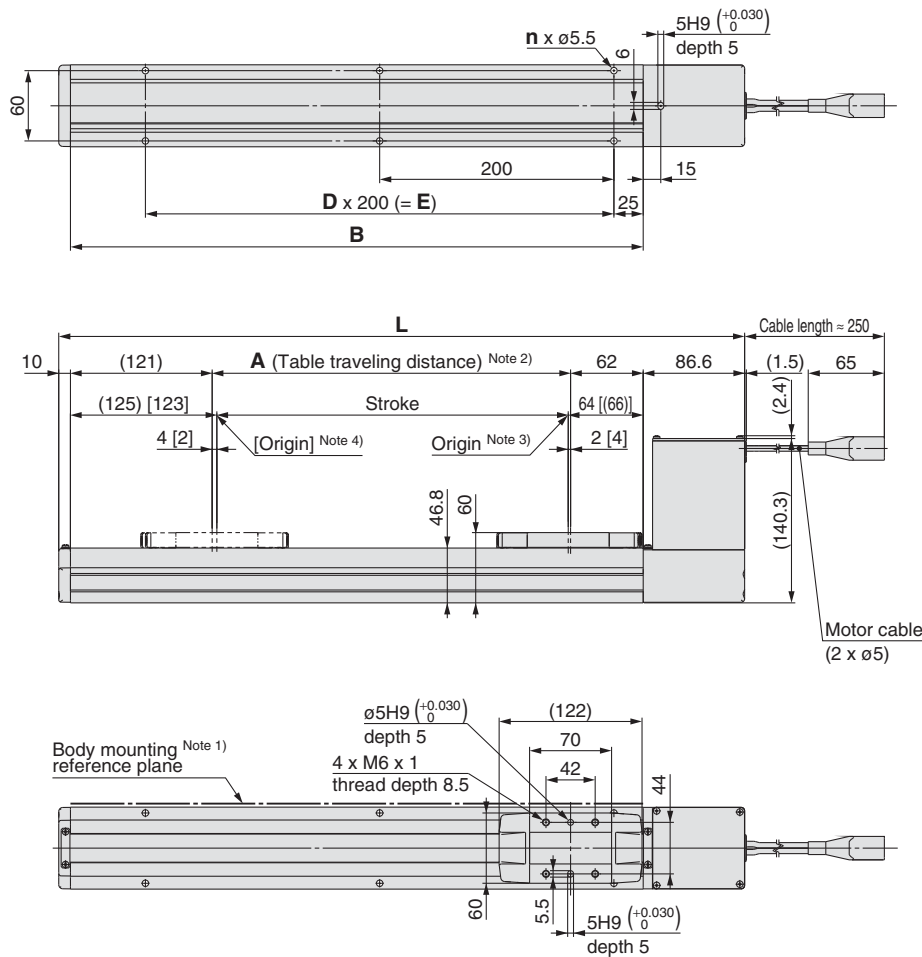
Note 3) Position after return to origin

Note 4) [] for when the direction of return to origin has changed.

Series LEFB

Dimensions: Belt Drive

LEFB32



- 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) Position after return to origin
- Note 4) [] for when the direction of return to origin has changed.

| Model | L | A | B | n | D | E |
|----------------|--------|------|------|----|----|------|
| LEFB32□T-300□ | 585.6 | 306 | 489 | 6 | 2 | 400 |
| LEFB32□T-500□ | 785.6 | 506 | 689 | 8 | 3 | 600 |
| LEFB32□T-600□ | 885.6 | 606 | 789 | 8 | 3 | 600 |
| LEFB32□T-700□ | 985.6 | 706 | 889 | 10 | 4 | 800 |
| LEFB32□T-800□ | 1085.6 | 806 | 989 | 10 | 4 | 800 |
| LEFB32□T-900□ | 1185.6 | 906 | 1089 | 12 | 5 | 1000 |
| LEFB32□T-1000□ | 1285.6 | 1006 | 1189 | 12 | 5 | 1000 |
| LEFB32□T-1200□ | 1485.6 | 1206 | 1389 | 14 | 6 | 1200 |
| LEFB32□T-1500□ | 1785.6 | 1506 | 1689 | 18 | 8 | 1600 |
| LEFB32□T-1800□ | 2085.6 | 1806 | 1989 | 20 | 9 | 1800 |
| LEFB32□T-2000□ | 2285.6 | 2006 | 2189 | 22 | 10 | 2000 |



Series LEF Electric Actuator Specific Product Precautions 1

Be sure to read this before handling. Refer to the back cover for Safety Instructions.
For Electric Actuator Precautions, refer to “Handling Precautions for SMC Products”
and the Operation Manual on SMC website, <http://www.smc.eu>

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.**
This can cause a failure.

Handling

⚠ Caution

- 1. Set the position determination width in the step data to at least 0.5 (at least 1 for the belt type).**
Otherwise, completion signal of in position may not be output.
- 2. 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.

Handling

⚠ Caution

- 3. Never hit at the stroke end except during return to origin.**

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.

- 4. The moving force should be the initial value.**
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 work load.**
Check the model selection section of the catalogue.
- 6. Do not apply a load, impact or resistance in addition to the transferred load during return to origin.**
Additional force will cause the displacement of the origin position since it is based on detected motor torque.
- 7. 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.
- 8. 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.
- 9. 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.
- 10. When mounting the product, keep a 40 mm or longer diameter for bends in the cable.**
- 11. Do not hit the table with the workpiece in the positioning operation and positioning range.**
- 12. Grease is applied to the dust seal band for sliding. When wiping off the grease to remove foreign matter etc., be sure to apply it again.**
- 13. For ceiling mounting, the dust seal band may be deflected.**



Series LEF

Electric Actuator

Specific Product Precautions 2

Be sure to read this before handling. Refer to the back cover for Safety Instructions.
For Electric Actuator Precautions, refer to "Handling Precautions for SMC Products"
and the Operation Manual on SMC website, <http://www.smc.eu>

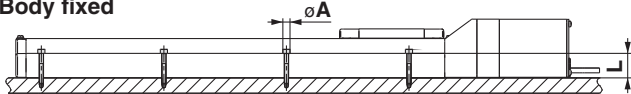
Handling

⚠ Caution

14. When mounting the product, use screws with adequate length and tighten them with adequate torque.

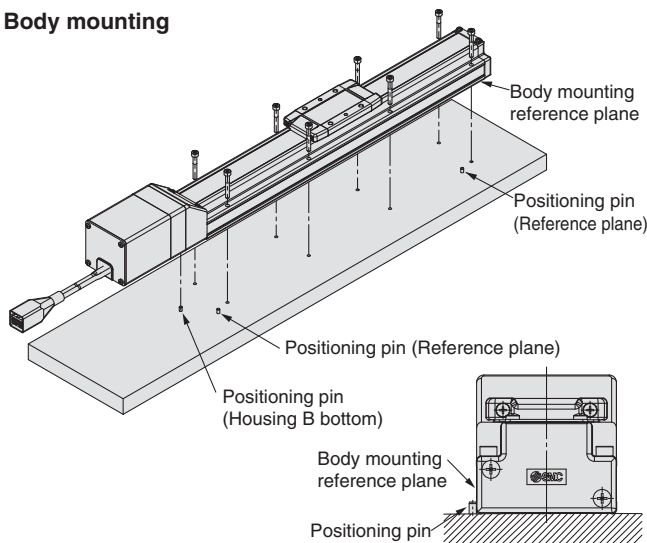
Tightening the screws with a higher torque than recommended may cause a malfunction and/or decrease in guide accuracy, whilst the tightening with a lower torque can cause the displacement of the mounting position or in extreme conditions the actuator could become detached from its mounting position.

Body fixed



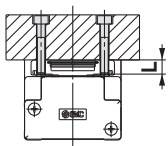
| Model | Bolt | Max. tightening torque [N·m] | ϕA [mm] | L [mm] |
|--------|------|------------------------------|---------------|--------|
| LEF□16 | M3 | 0.6 | 3.5 | 20 |
| LEF□25 | M4 | 1.5 | 4.5 | 24 |
| LEF□32 | M5 | 3.0 | 5.5 | 30 |
| LEF□40 | M6 | 5.2 | 6.6 | 31 |

Body mounting



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 parallel pins etc.

Workpiece fixed



| Model | Bolt | Max. tightening torque [N·m] | L (Max. screw-in depth) [mm] |
|--------|-----------|------------------------------|------------------------------|
| LEF□16 | M4 x 0.7 | 1.5 | 6 |
| LEF□25 | M5 x 0.8 | 3.0 | 8 |
| LEF□32 | M6 x 1 | 5.2 | 9 |
| LEFS40 | M8 x 1.25 | 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.

15. Do not operate by fixing the table and moving the actuator body.

16. The belt drive actuator cannot be used vertically for applications.

17. Check the specifications for the minimum speed of each actuator.

Otherwise, unexpected malfunctions, such as knocking, may occur.

18. In the case of the belt drive actuator, vibration may occur during operation at speeds within the actuator specifications, this could be caused by the operating conditions. Change the speed setting to a speed that does not cause vibration.

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.
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

• 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 |
|----------|----------|
| LEFS16□A | 2000 km |
| LEFS16□B | 1000 km |

| 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 |

Controller/Driver

Step Data Input Type Page 69



Step Motor (Servo/24 VDC)
Series LECP6



Servo Motor (24 VDC)
Series LECA6

Gateway Unit Page 82



Series LEC-G

Programless Type Page 85

Pulse Input Type Page 91



Step Motor (Servo/24 VDC)
Series LECP1



Step Motor (Servo/24 VDC)
Series LECPA

Step Data Input Type

Step Motor (Servo/24 VDC)

Series LECP6

Servo Motor (24 VDC)

Series LECA6



RoHS



Series LECP6 Series LECA6

How to Order

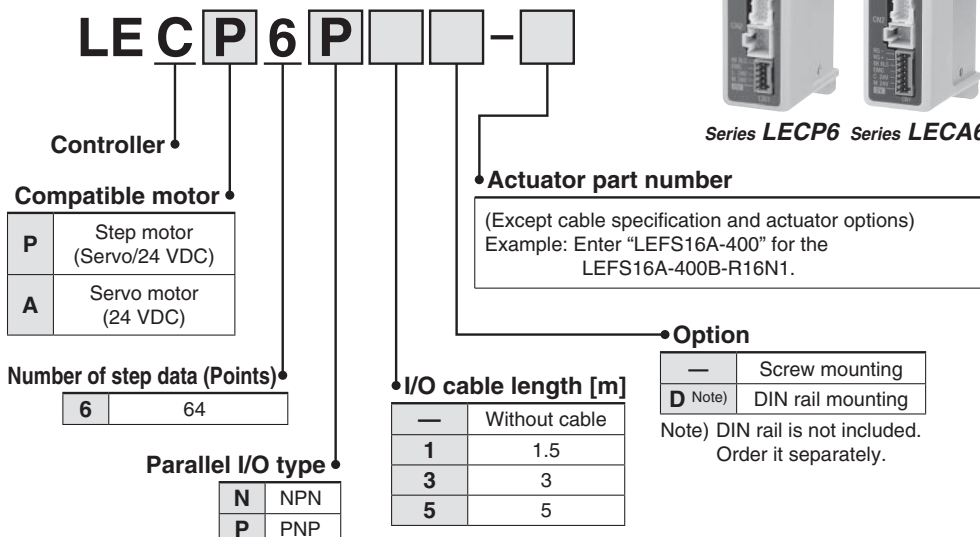
⚠ Caution

[CE-compliant products]

- EMC compliance was tested by combining the electric actuator LEF 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.
- For the LECA6 series (servo motor controller), EMC compliance was tested by installing a noise filter set (LEC-NFA). Refer to page 77 for the noise filter set. Refer to the LECA series 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.



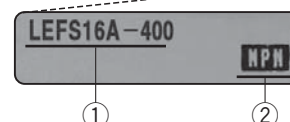
* When controller equipped type (□6N□/□6P□) is selected when ordering the LE series, you do not need to order this controller.

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.>

- Check the actuator label for model number. This matches the controller.
- 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.smc.eu>

Specifications

Basic Specifications

| Item | LECP6 | LECA6 |
|--|---|--|
| Compatible motor | Step motor (Servo/24 VDC) | Servo motor (24 VDC) |
| Power supply <small>Note 1)</small> | Power voltage: 24 VDC $\pm 10\%$ Current consumption: 3 A (Peak 5 A) <small>Note 2)</small> [Including motor drive power, control power, stop, lock release] | Power voltage: 24 VDC $\pm 10\%$ Current consumption: 3 A (Peak 10 A) <small>Note 2)</small> [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 (800 pulse/rotation)/Z phase |
| Serial communication | RS485 (Modbus protocol compliant) | |
| Memory | EEPROM | |
| LED indicator | LED (Green/Red) one of each | |
| Lock control | Forced-lock release terminal <small>Note 3)</small> | |
| Cable length [m] | I/O cable: 5 or less, 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 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) | |

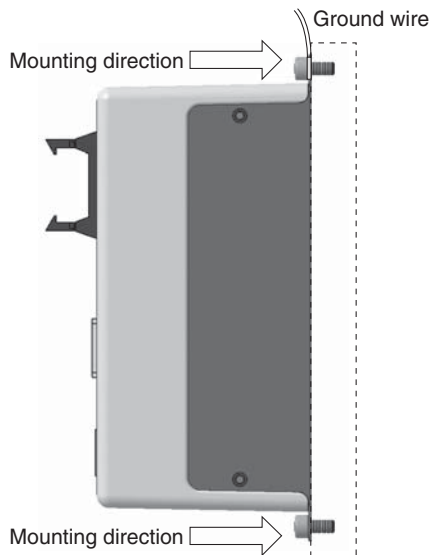
Note 1) Do not use the power supply of "inrush current prevention type" for the controller power supply. When conformity to UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.

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

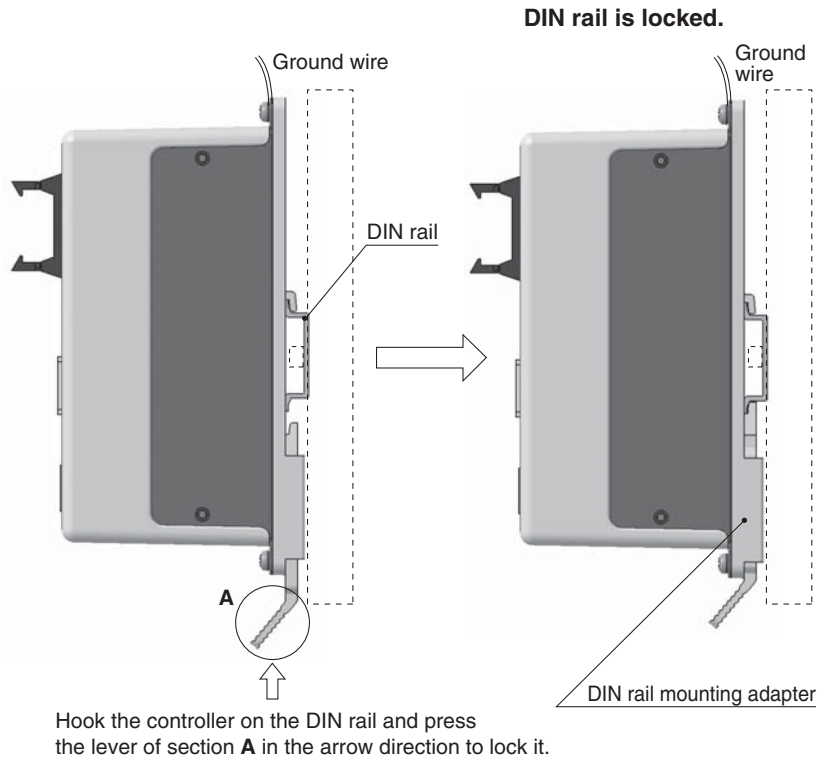
Note 3) Applicable to non-magnetizing lock.

How to Mount

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



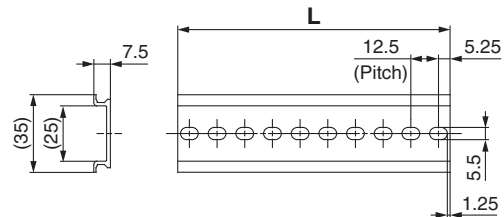
b) DIN rail mounting (LEC□6□□D-□) (Installation with the DIN rail)



Note) When size 25 or more of the LE 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 71 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 |

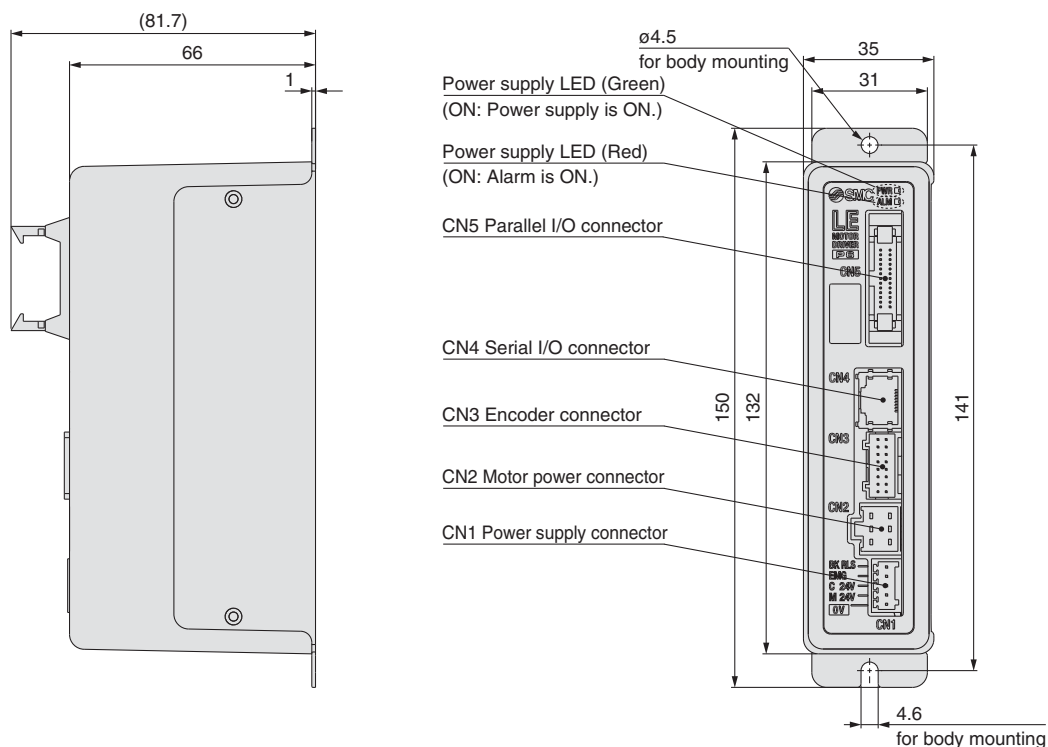
DIN rail mounting adapter LEC-D0 (with 2 mounting screws)

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

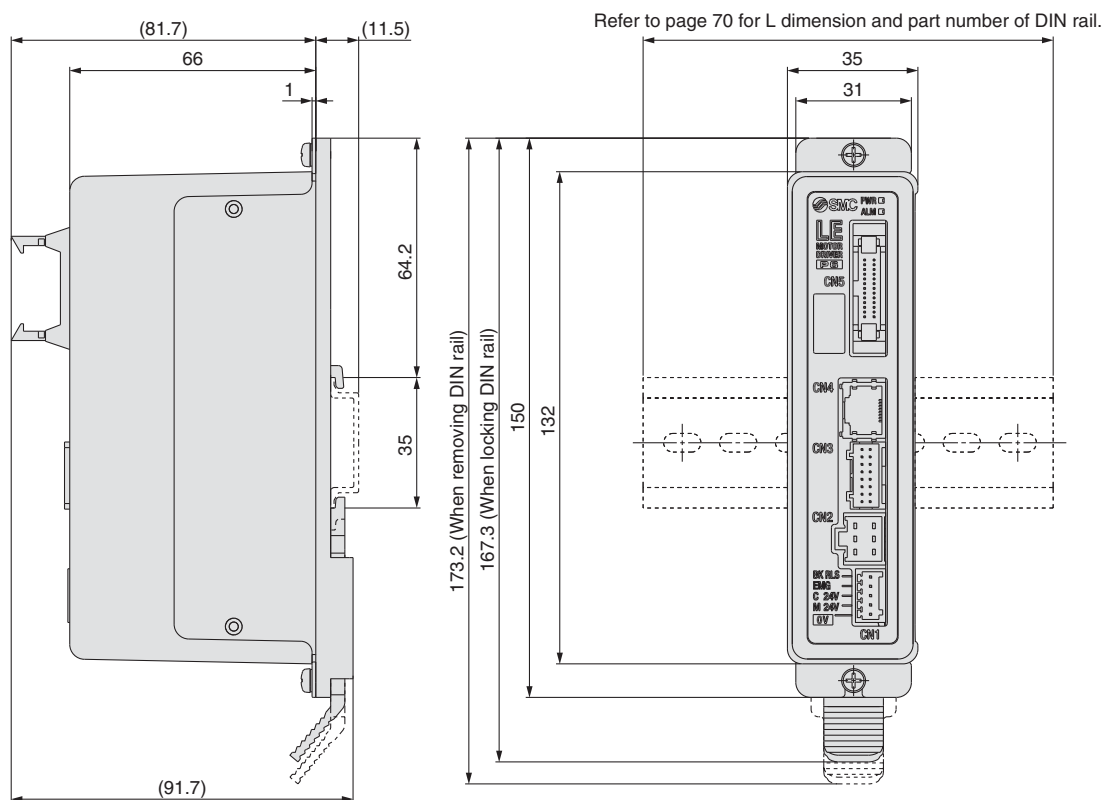
Series **LECP6** Series **LECA6**

Dimensions

a) Screw mounting (LEC□6□□-□)



b) DIN rail mounting (LEC□6□□D-□)



Step Data Input Type/Step Motor (Servo/24 VDC) **Series LECP6**

Step Data Input Type/Servo Motor (24 VDC) **Series LECA6**

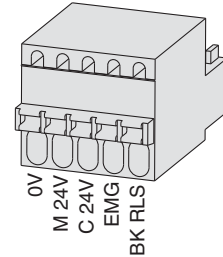
Wiring Example 1

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 (-) | M 24V terminal/C 24V terminal/EMG terminal/BK RLS terminal are common (-). |
| M 24V | Motor power supply (+) | Motor power supply (+) supplied to the controller |
| C 24V | 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 |

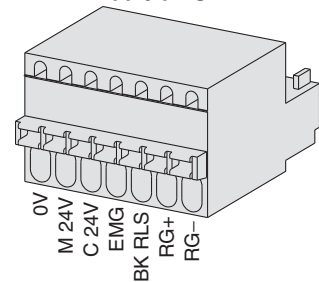
Power supply plug for LECP6



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

| Terminal name | Function | Details |
|---------------|--------------------------|---|
| 0V | Common supply (-) | M 24V terminal/C 24V terminal/EMG terminal/BK RLS terminal are common (-). |
| M 24V | Motor power supply (+) | Motor power supply (+) supplied to the controller |
| C 24V | 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

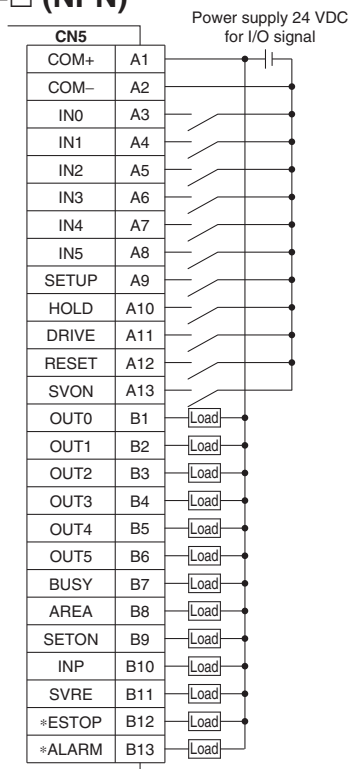


Wiring Example 2

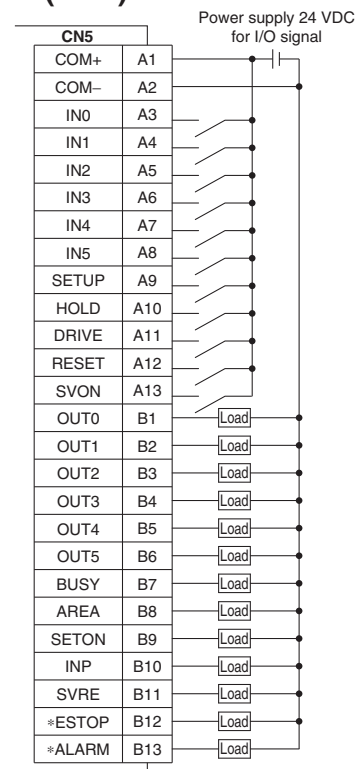
Parallel I/O Connector: CN5 * When you connect a PLC etc., to the CN5 parallel I/O connector, use the I/O cable (LEC-CN5-□).
* The wiring should be changed depending on the type of the parallel I/O (NPN or PNP).

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 |

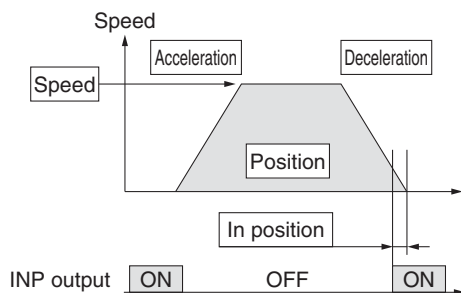
(Note) Signal of negative-logic circuit (N.C.)

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.

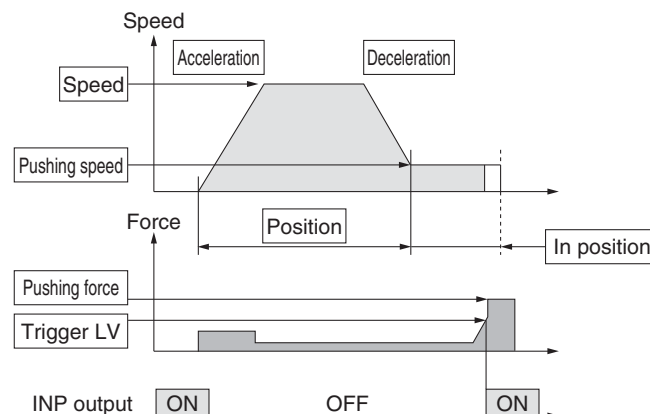
Step Data (Positioning)

| 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.



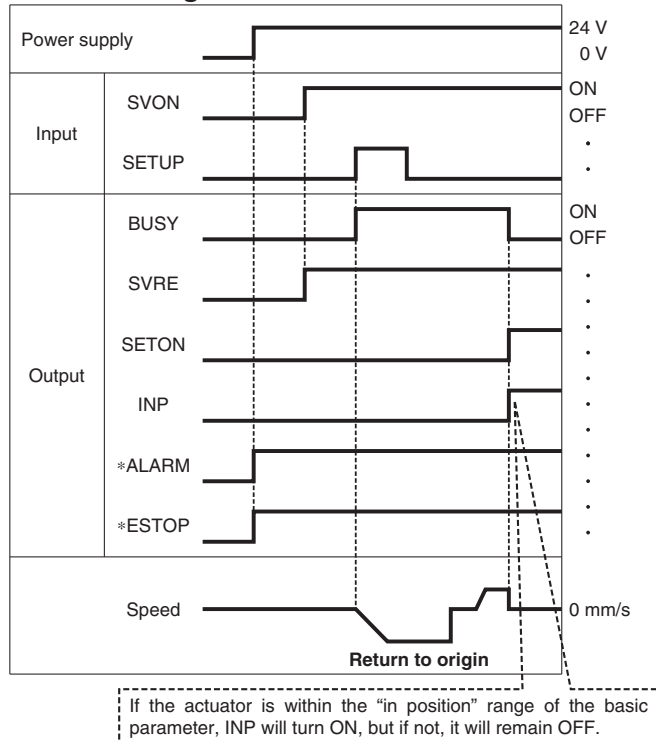
◎ : Need to be set.
○ : Need to be adjusted as required.

Step Data (Pushing)

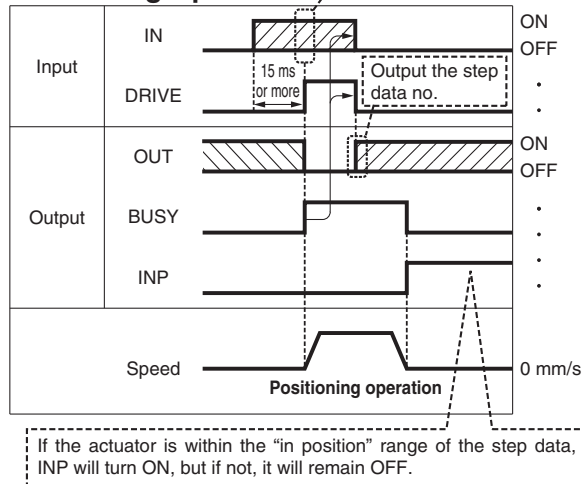
| Necessity | Item | Details |
|-----------|----------------|--|
| ◎ | Movement MOD | When the absolute position is required, set Absolute. When the relative position is required, set Relative. |
| ◎ | Speed | Transfer speed to the pushing start position |
| ◎ | Position | Pushing start position |
| ○ | 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 work pieces 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

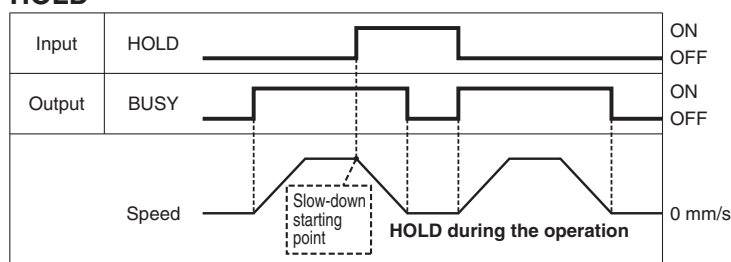


Positioning Operation



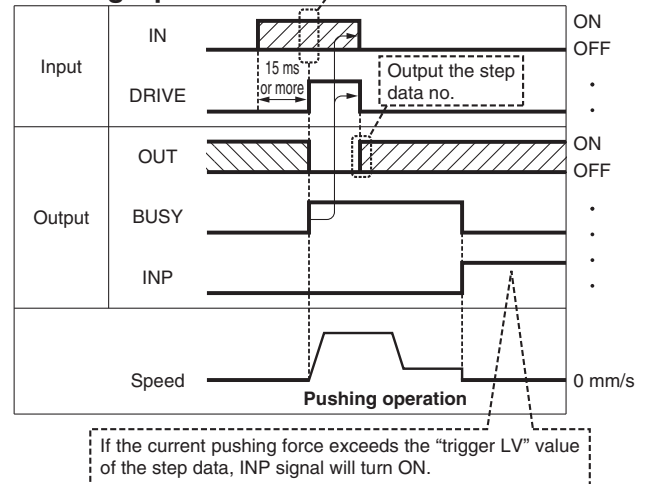
* "OUT" is output when "DRIVE" is changed from ON to OFF.
 (When power supply is applied, "DRIVE" or "RESET" is turned ON or
 "ESTOP" is turned OFF, all of the "OUT" outputs are OFF.)

HOLD

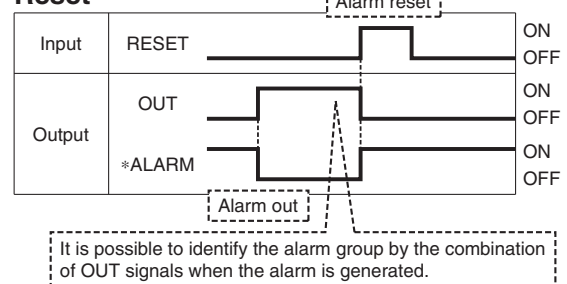


* When the actuator is in the positioning range in the pushing operation, it does not stop even if HOLD signal is input.

Pushing Operation



Reset



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

Series LECP6

Series LECA6

Options: Actuator Cable

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

LE-CP-1-

Cable length (L) [m]

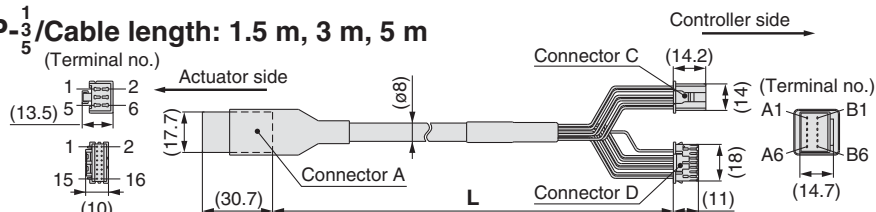
| | |
|---|-----|
| 1 | 1.5 |
| 3 | 3 |
| 5 | 5 |
| 8 | 8* |
| A | 10* |
| B | 15* |
| C | 20* |

* Produced upon receipt of order (Robotic cable only)

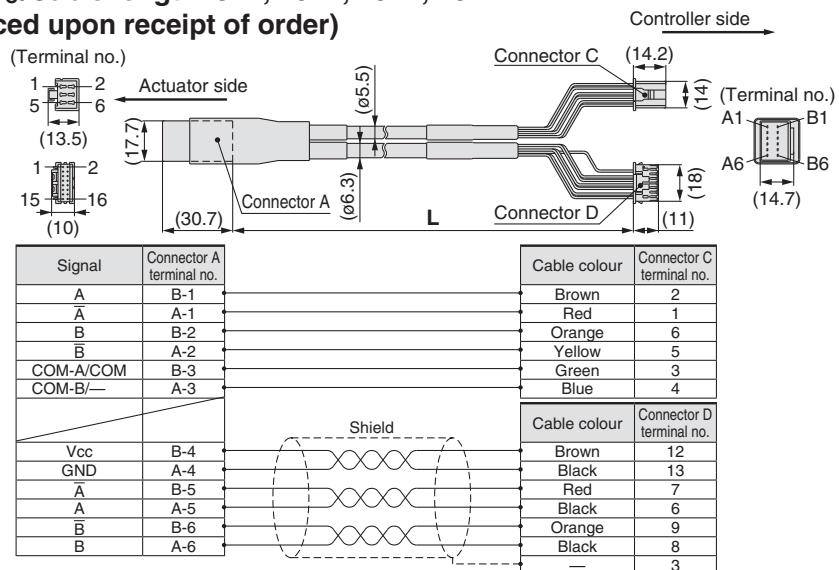
Cable type

| | |
|---|--------------------------------|
| — | Robotic cable (Flexible cable) |
| S | Standard cable |

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



LE-CP-^{8B}/_{AC}/Cable length: 8 m, 10 m, 15 m, 20 m
(* Produced upon receipt of order)



[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* |

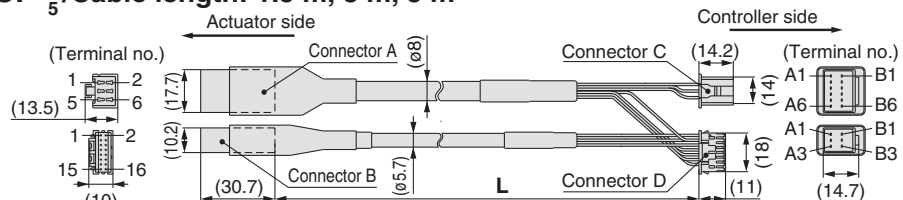
* Produced upon receipt of order (Robotic cable only)

With lock and sensor

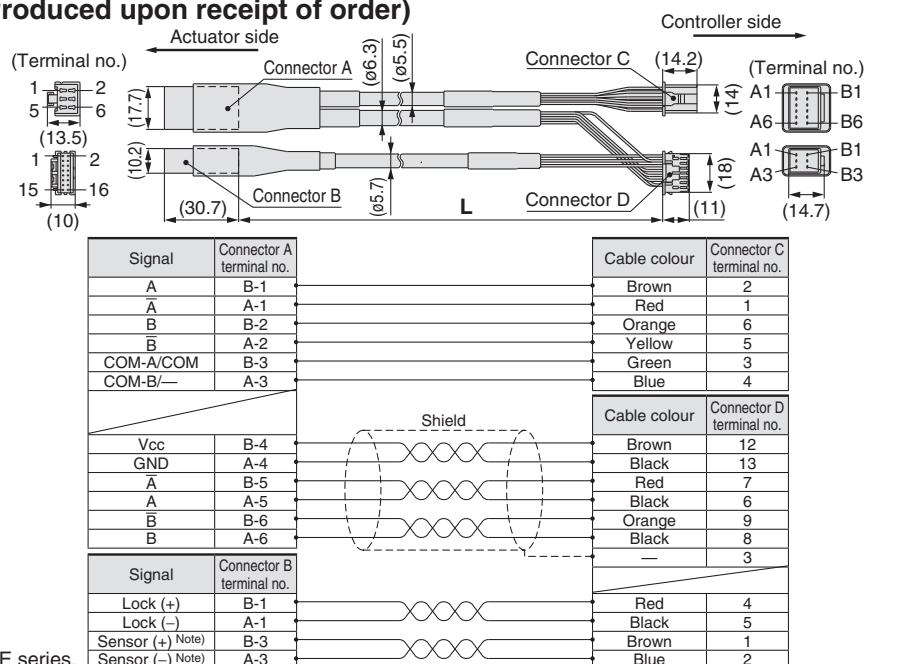
Cable type

| | |
|---|--------------------------------|
| — | Robotic cable (Flexible cable) |
| S | Standard cable |

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



LE-CP-^{8B}/_{AC}/Cable length: 8 m, 10 m, 15 m, 20 m
(* Produced upon receipt of order)



Note) Not used for the LE series.

Step Data Input Type/Step Motor (Servo/24 VDC) **Series LECP6**

Step Data Input Type/Servo Motor (24 VDC) **Series LECA6**

[Robotic cable for servo motor (24 VDC)]

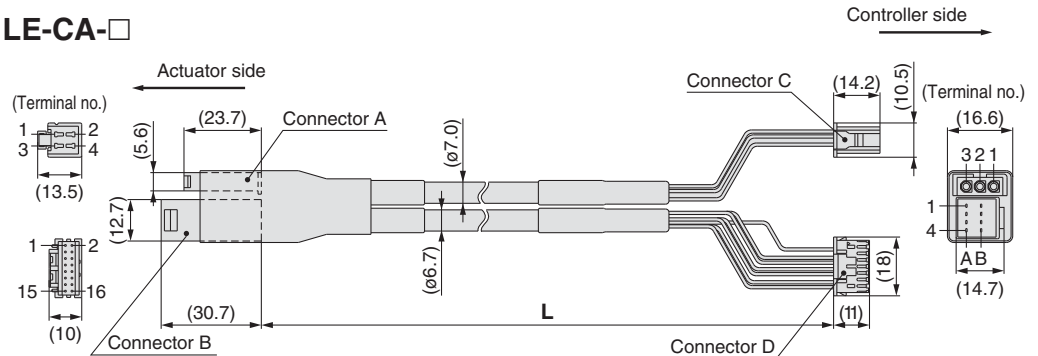
LE-CA-1

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 colour | Connector C terminal no. |
|--------|--------------------------|--------------|--------------------------|
| U | 1 | Red | 1 |
| V | 2 | White | 2 |
| W | 3 | Black | 3 |

| Signal | Connector B terminal no. | Cable colour | Connector D terminal no. |
|--------|--------------------------|--------------|--------------------------|
| Vcc | B-1 | Brown | 12 |
| GND | A-1 | Black | 13 |
| A | B-2 | Red | 7 |
| A | A-2 | Black | 6 |
| B | B-3 | Orange | 9 |
| B | A-3 | Black | 8 |
| Z | B-4 | Yellow | 11 |
| Z | A-4 | Black | 10 |
| | | — | 3 |

Connection of shield material

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

LE-CA-1-B

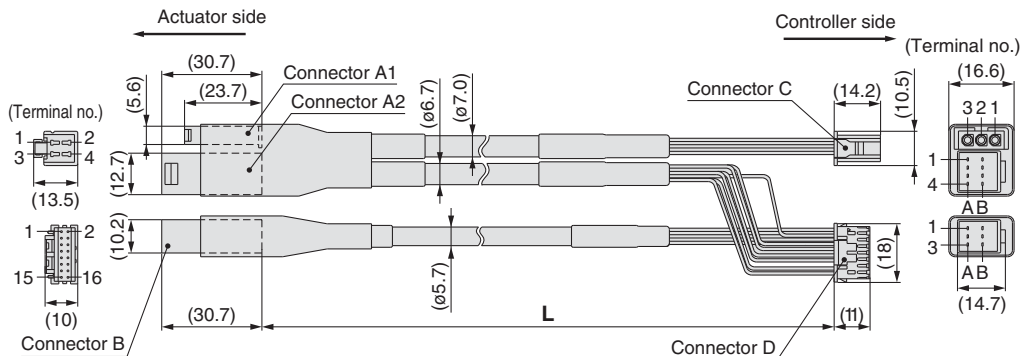
Cable length (L) [m]

| | |
|---|-----|
| 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 colour | Connector C terminal no. |
|--------|---------------------------|--------------|--------------------------|
| U | 1 | Red | 1 |
| V | 2 | White | 2 |
| W | 3 | Black | 3 |

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

| Signal | Connector B terminal no. | Cable colour | Connector D 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.

Series

LECP6

Series

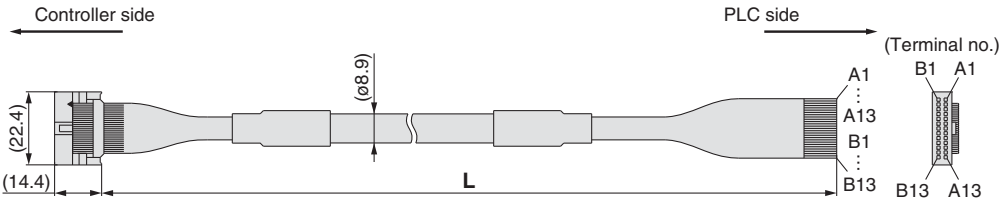
LECA6

Option: I/O Cable

LEC – CN5 – 1

| Cable length (L) [m] | |
|----------------------|-----|
| 1 | 1.5 |
| 3 | 3 |
| 5 | 5 |

* Conductor size: AWG28



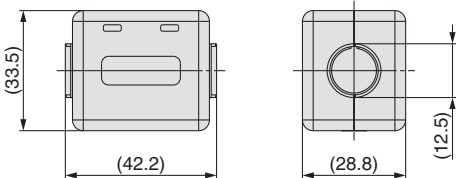
| Connector pin no. | Insulation colour | Dot mark | Dot colour |
|-------------------|-------------------|----------|------------|
| A1 | Light brown | ■ | Black |
| A2 | Light brown | ■ | Red |
| A3 | Yellow | ■ | Black |
| A4 | Yellow | ■ | Red |
| A5 | Light green | ■ | Black |
| A6 | Light green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

| Connector pin no. | Insulation colour | Dot mark | Dot colour |
|-------------------|-------------------|----------|------------|
| B1 | Yellow | ■ ■ | Red |
| B2 | Light green | ■ ■ | Black |
| B3 | Light green | ■ ■ | Red |
| B4 | Grey | ■ ■ | Black |
| B5 | Grey | ■ ■ | 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.

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 Controller/Driver

Step data input type

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

Pulse input type

Series **LECPA**

Hardware Requirements

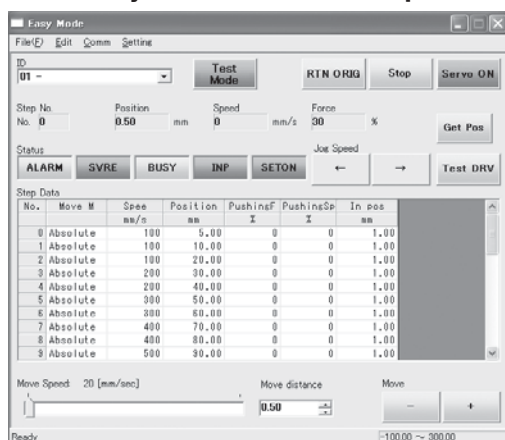
| | |
|----------------------------|--|
| OS | IBM PC/AT compatible machine running Windows®XP (32-bit), Windows®7 (32-bit and 64-bit). |
| Communication interface | USB 1.1 or USB 2.0 ports |
| Display | XGA (1024 x 768) or more |

* Windows® and Windows®7 are registered trademarks of Microsoft Corporation in the United States.

* Refer to SMC website for version update information, <http://www.smc.eu>

Screen Example

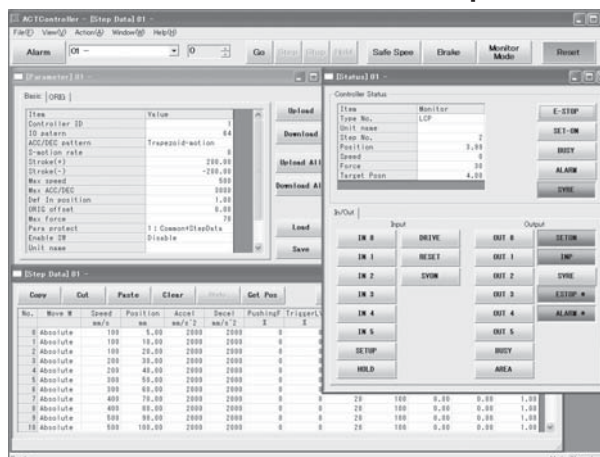
Easy mode screen example



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-T1-3EG | | | | | |
| Teaching box | Enable switch | | | | |
| Cable length [m] | <table border="1"> <tr> <td>—</td><td>None</td></tr> <tr> <td>S</td><td>Equipped with enable switch</td></tr> </table> | — | None | S | Equipped with enable switch |
| — | None | | | | |
| S | Equipped with enable switch | | | | |
| Initial language | <table border="1"> <tr> <td>J</td><td>Japanese</td></tr> <tr> <td>E</td><td>English</td></tr> </table> | J | Japanese | E | English |
| J | Japanese | | | | |
| E | English | | | | |
| Stop switch | <table border="1"> <tr> <td>G</td><td>Equipped with stop switch</td></tr> </table> | G | Equipped with stop switch | | |
| G | Equipped with stop switch | | | | |

* Interlock switch for jog and test function

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

Specifications

Standard functions

- Chinese character display
- Stop switch is provided.

Option

- Enable switch is provided.

| Item | Description |
|----------------------------------|-------------------------------------|
| Switch | Stop switch, Enable switch (Option) |
| Cable length [m] | 3 |
| Enclosure | IP64 (Except connector) |
| Operating temperature range [°C] | 5 to 50 |
| 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 LEC6 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

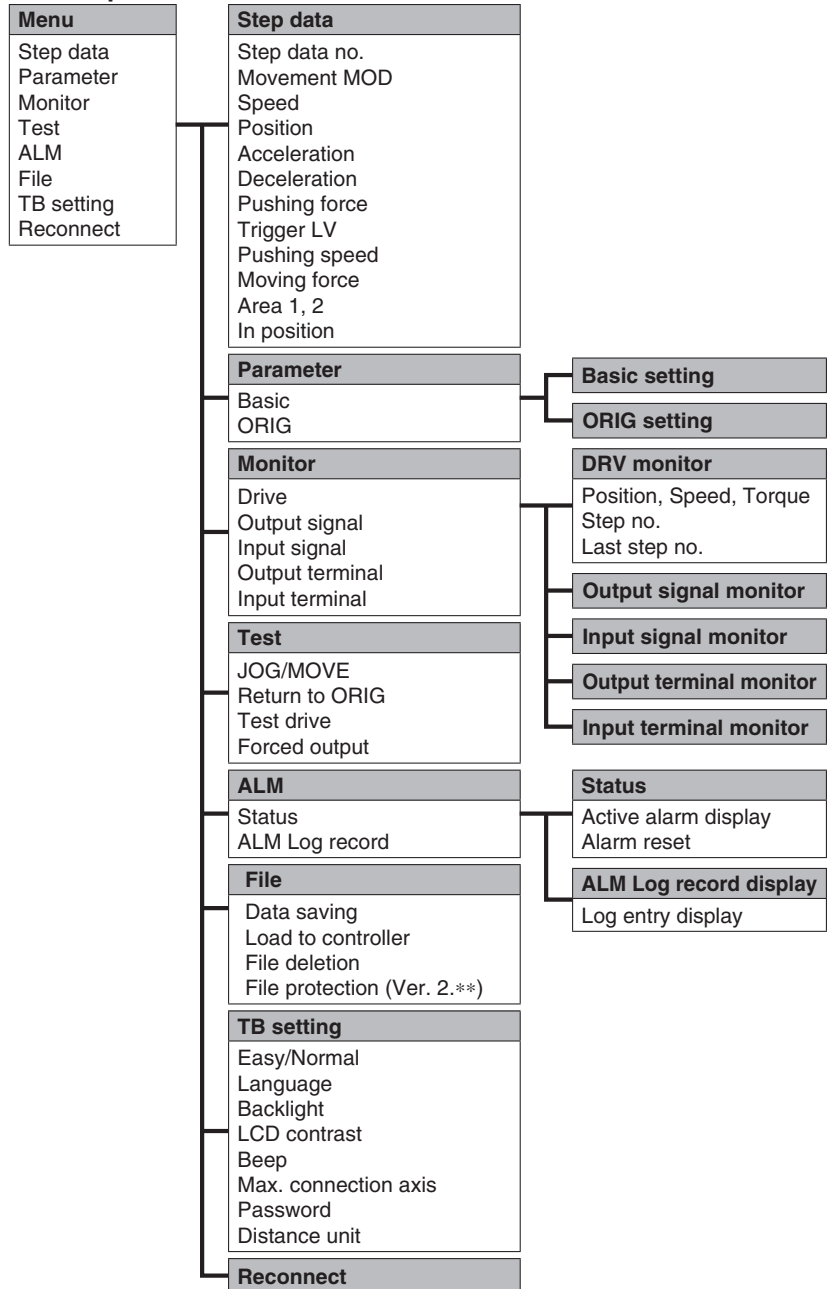
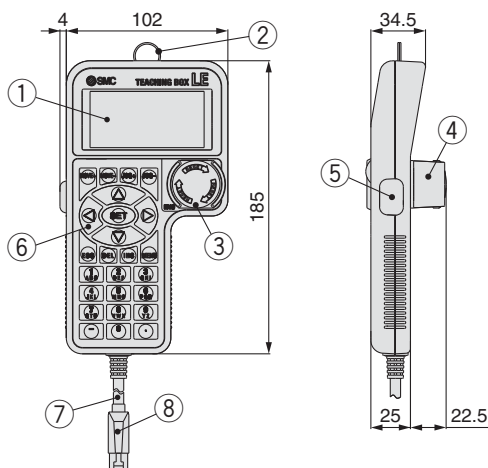
| Function | Details |
|------------|--|
| Step data | • Setting of step data |
| Jog | • Jog operation • Return to origin |
| Test | • 1 step operation • Return to origin |
| Monitor | • Display of axis and step data no. • Display of two items selected from Position, Speed, Force. |
| ALM | • Active 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 |
|------------|---|
| Data | Step data no. |
| Monitor | 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 |
| Jog | Return to origin Jog operation |
| Test | 1 step operation |
| ALM | Active alarm display Alarm reset |
| TB setting | Reconnect (Ver. 1.**) Japanese/English (Ver. 2.**) Easy/Normal Set item |

Normal Mode

| Function | Details |
|------------|--|
| Step data | • Step data setting |
| Parameter | • Parameters setting |
| Test | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • Drive monitor • Output signal monitor • Input signal monitor • Output terminal monitor • Input terminal monitor |
| ALM | <ul style="list-style-type: none"> • Active alarm display (Alarm reset) • Alarm log record display |
| File | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • 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**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 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.

Gateway unit **LEC-G MJ2**

Applicable Fieldbus protocols

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

Mounting

| | |
|-----------------|-------------------|
| — | Screw mounting |
| D (Note) | DIN rail mounting |

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



Cable

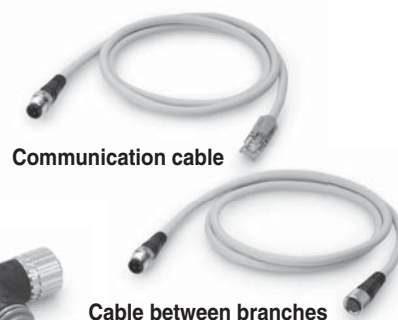
LEC-CG 1-L

Cable type

| | |
|----------|------------------------|
| 1 | Communication cable |
| 2 | Cable between branches |

Cable length

| | |
|----------|-------|
| K | 0.3 m |
| L | 0.5 m |
| 1 | 1 m |



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 <small>Note 1)</small> | 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 <small>Note 2)</small> | | — | | 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] <small>Note 6)</small> | — | | 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] <small>Note 6)</small> | | | 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 LEC6, Series LECA6 | | | | |
| | Communication speed [bps] <small>Note 3)</small> | | 115.2 k/230.4 k | | | | |
| | Max. number of connectable controllers <small>Note 4)</small> | | 12 | 8 <small>Note 5)</small> | | 5 | 12 |
| Accessories | | | Power supply connector, communication connector | | | Power supply connector | |
| 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 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.smc.eu>

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.

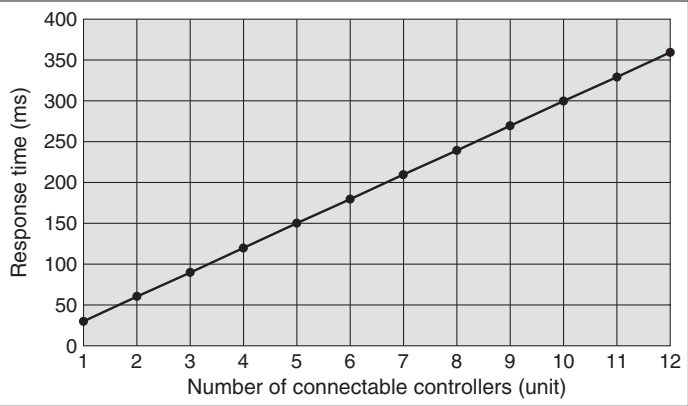
Refer to "Communication Response Time Guideline" for response times when several controllers are connected.

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.

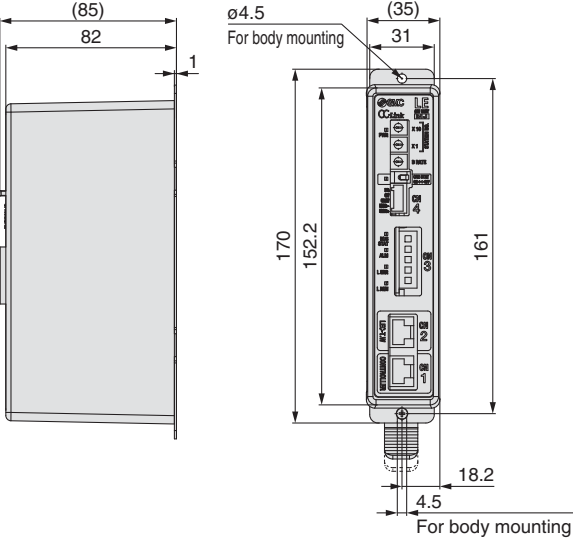


* This graph shows delay times between gateway unit and controllers. Fieldbus network delay time is not included.

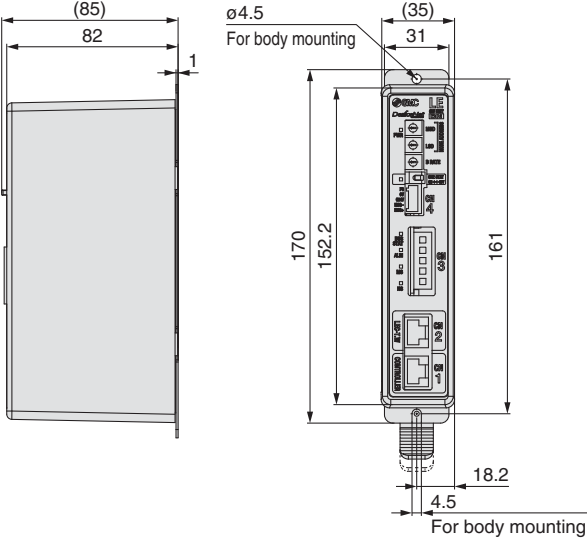
Dimensions

Screw mounting (LEC-G□□□)

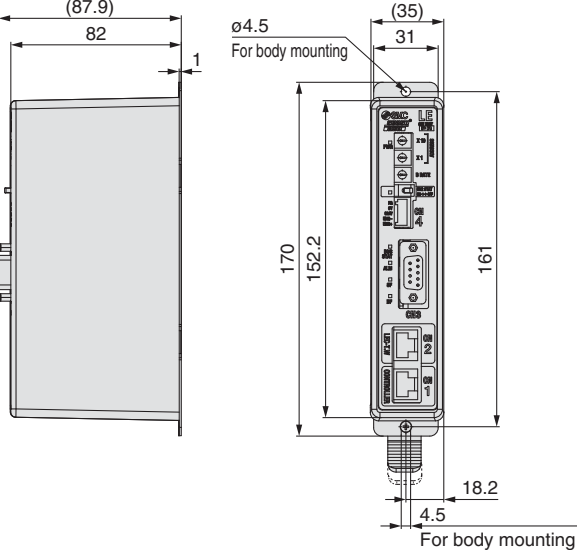
Applicable Fieldbus protocol: CC-Link Ver. 2.0



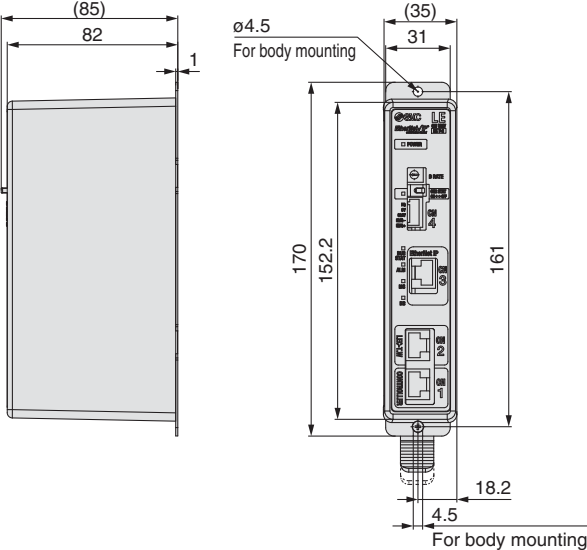
Applicable Fieldbus protocol: DeviceNet™



Applicable Fieldbus protocol: PROFIBUS DP



Applicable Fieldbus protocol: EtherNet/IP™

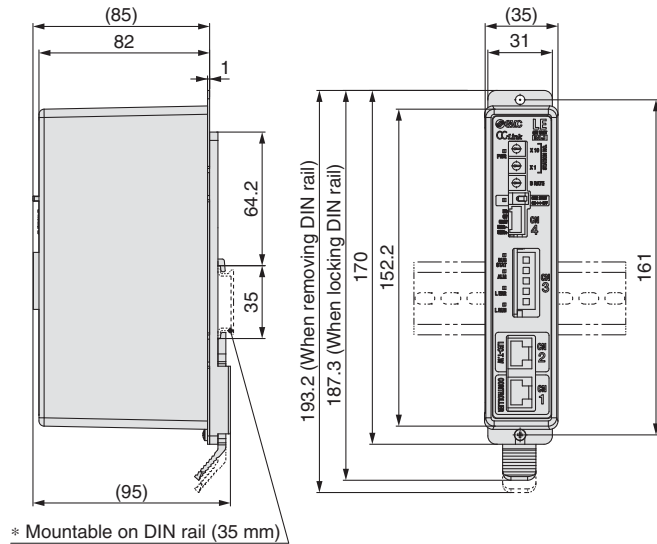


■ Trademark DeviceNet™ is a trademark of ODVA. EtherNet/IP™ is a trademark of ODVA.

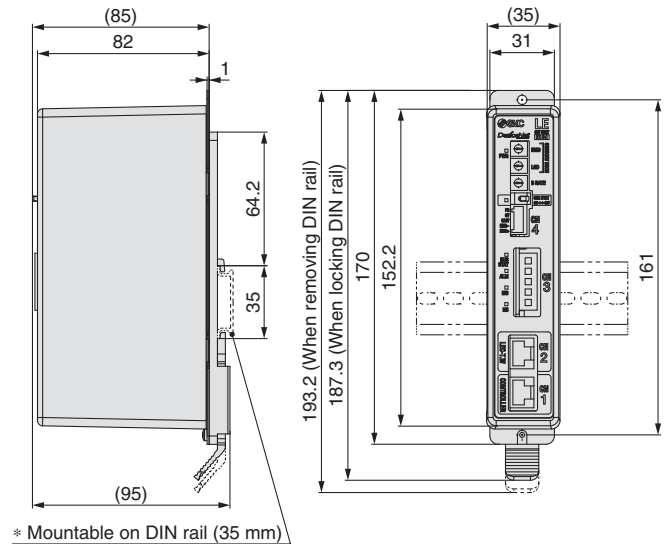
Dimensions

DIN rail mounting (LEC-G□□□D)

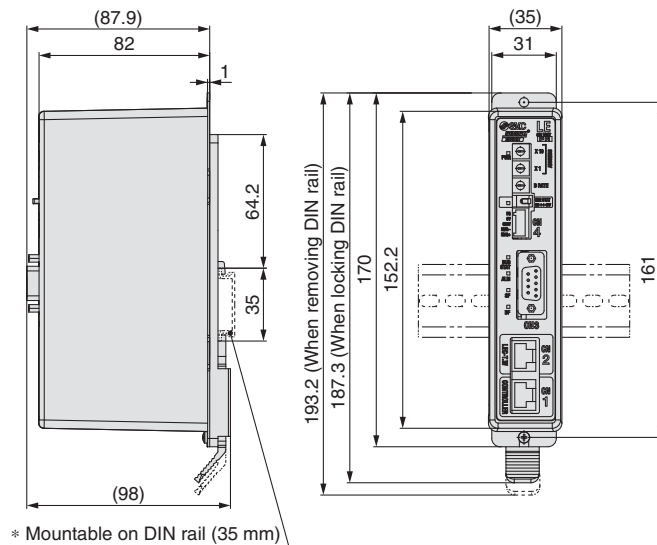
Applicable Fieldbus protocol: CC-Link Ver. 2.0



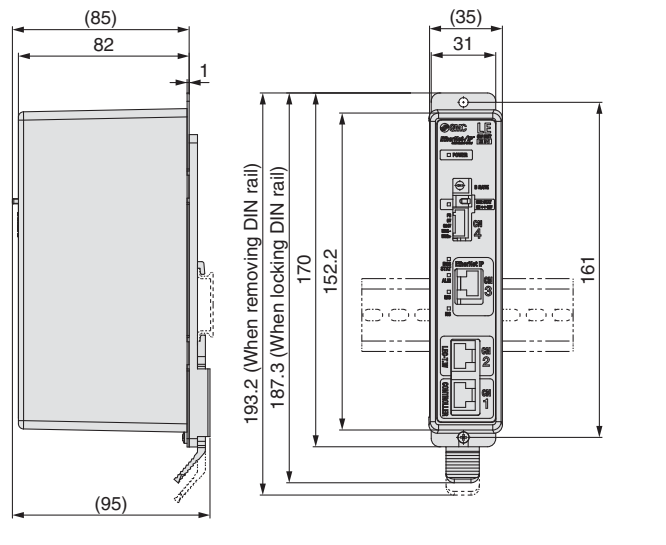
Applicable Fieldbus protocol: DeviceNet™



Applicable Fieldbus protocol: PROFIBUS DP



Applicable Fieldbus protocol: EtherNet/IP™

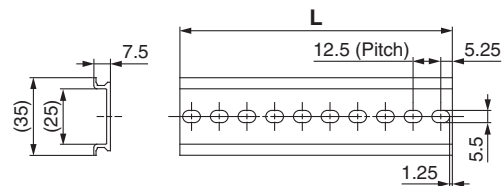


DIN rail AXT100-DR-□

* 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 |



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

Programless Controller Series *LECP1*



How to Order

LECP1 P 1 - LEFS16A-400

- 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
- Option**
 - Screw mounting
 - D** (Note) DIN rail mounting

Note) DIN rail is not included. Order it separately.
- I/O cable length [m]**
 - Without cable
 - 1** 1.5
 - 3** 3
 - 5** 5
- Actuator part number**

(Except cable specification and actuator options)
Example: Enter "LEFS16A-400" for the LEFS16A-400B-R17N1.

* When controller equipped type (-□1N□/-□1P□) 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 LEF 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.smc.eu>

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 [°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 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.

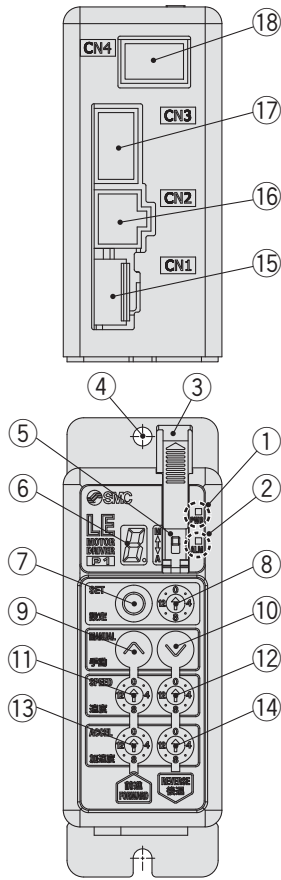
Note 3) "10" to "15" in decimal number are displayed as follows in the 7-segment LED.



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



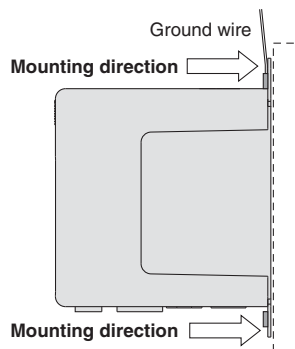
| No. | Display | Description | Details |
|-----|---------------|-----------------------------|---|
| ① | PWR | Power supply LED | Power supply ON/Servo ON : Green turns on Power supply ON/Servo OFF: Green flashes |
| ② | ALM | Alarm LED | With alarm : Red turns on Parameter setting : Red flashes |
| 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.

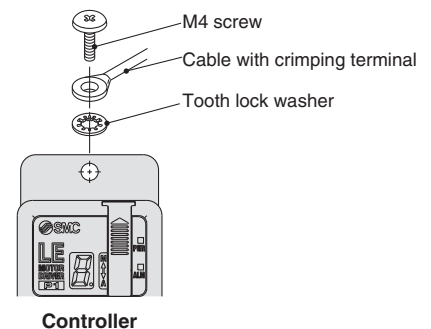
1. Mounting screw (LECP1□□-□)

(Installation with two M4 screws)



2. Grounding

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



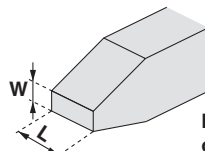
Note) When size 25 or more of the LE series are used, the space between the controllers should be 10 mm or more.

⚠ Caution

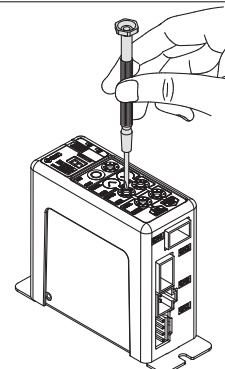
- M4 screws, cable with crimping terminal and tooth lock washer are not included. Be sure to carry out grounding earth in order to ensure the noise tolerance.
- Use a watchmaker's screwdriver of the size shown below when changing position switch ⑧ and the set value of the speed/acceleration switch ⑪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



Model Selection

LEFS

LEFB

LECA6
LECP6

LEC-G

LECP1

LECPA

LEFS

LEFB

LECS□

LEFG

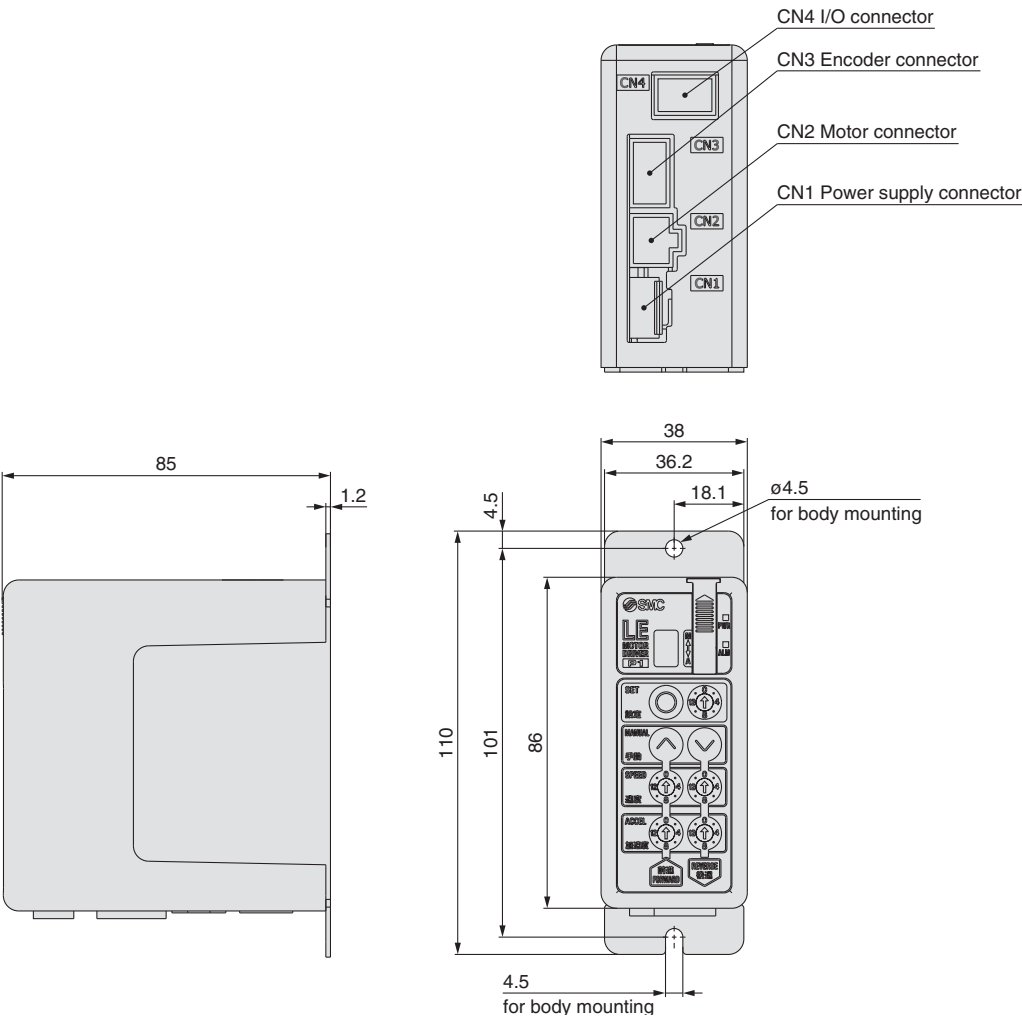
Specific Product Precautions

AC Servo Motor

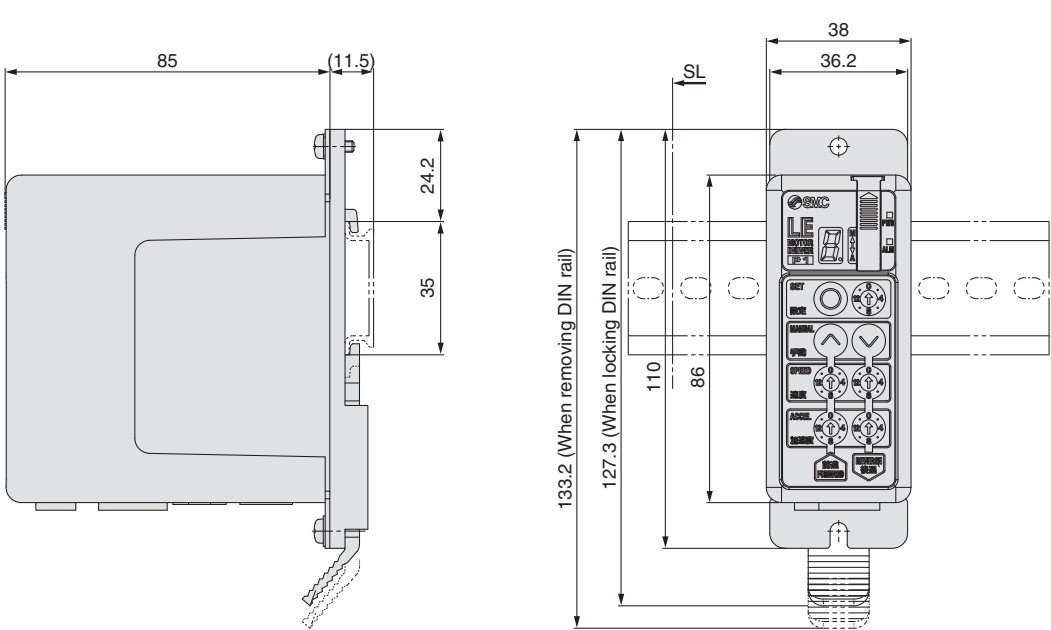
Series *LECP1*

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, 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 colour | Function | Details |
|---------------|--------------|--------------------------|---|
| 0V | Blue | Common supply (-) | M 24V terminal/C 24V terminal/BK RLS terminal are common (-). |
| M 24V | White | Motor power supply (+) | Motor power supply (+) supplied to the controller |
| C 24V | 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)

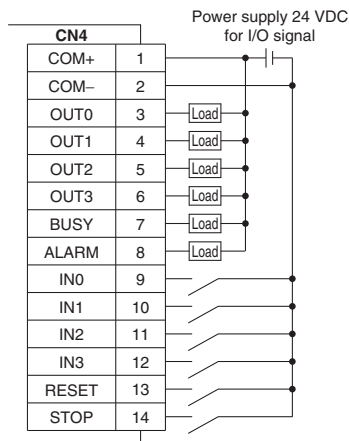


Wiring Example 2

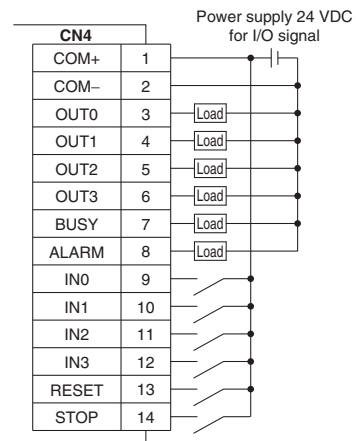
Parallel I/O Connector: CN4

- * When you connect a PLC etc., to the CN4 parallel I/O connector, 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 | <ul style="list-style-type: none">• 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) | | | | | | | | | | |
| | <table><tr><td>IN3</td><td>IN2</td><td>IN1</td><td>IN0</td></tr><tr><td>OFF</td><td>ON</td><td>OFF</td><td>ON</td></tr></table> | | | | IN3 | IN2 | IN1 | IN0 | OFF | ON | OFF |
| IN3 | IN2 | IN1 | IN0 | | | | | | | | |
| OFF | ON | OFF | 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 | OUT2 | OUT1 | OUT0 |
| | OFF | OFF | ON | 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

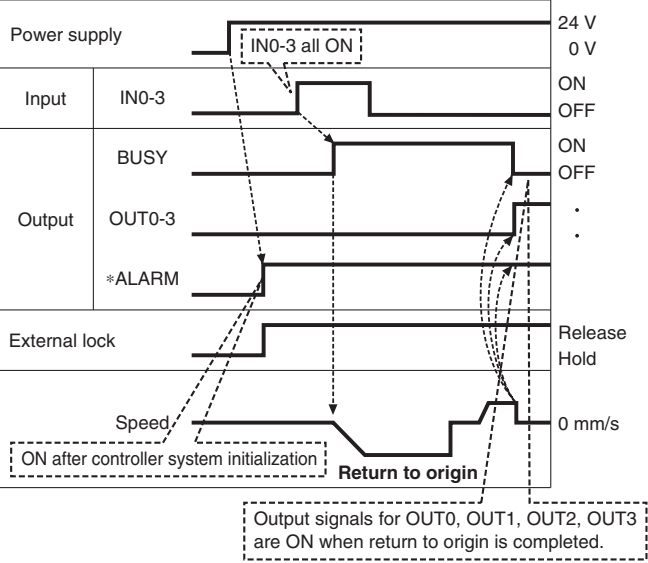
| Position number | IN3 | IN2 | IN1 | IN0 |
|------------------|-----|-----|-----|-----|
| 1 | ○ | ○ | ○ | ● |
| 2 | ○ | ○ | ● | ○ |
| 3 | ○ | ○ | ● | ● |
| 4 | ○ | ● | ○ | ○ |
| 5 | ○ | ● | ○ | ● |
| 6 | ○ | ● | ● | ○ |
| 7 | ○ | ● | ● | ● |
| 8 | ● | ○ | ○ | ○ |
| 9 | ● | ○ | ○ | ● |
| 10 (A) | ● |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

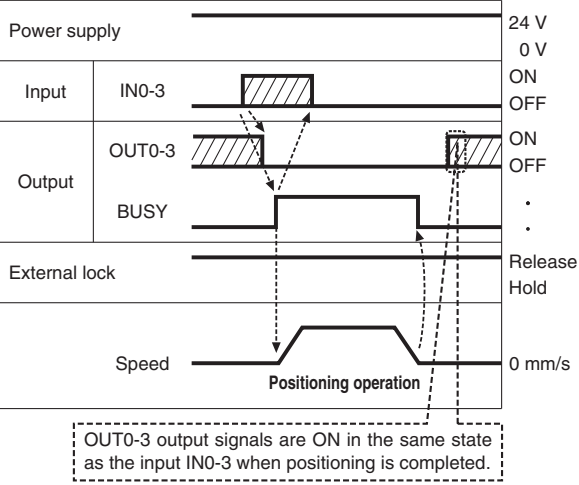
Signal Timing

(1) Return to Origin

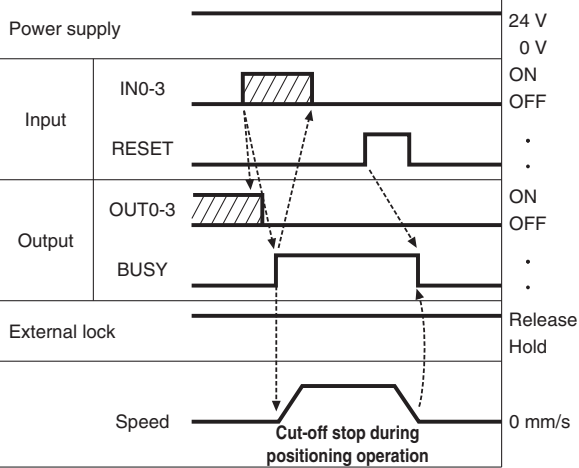


* “*ALARM” is expressed as negative-logic circuit.

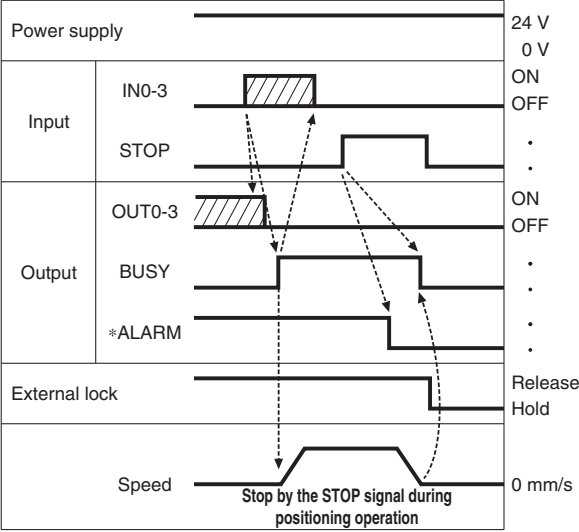
(2) Positioning Operation



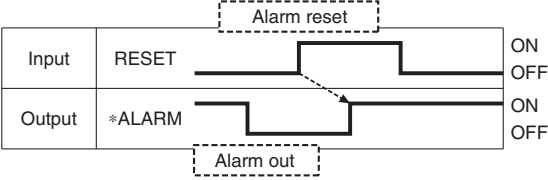
(3) Cut-off Stop (Reset Stop)



(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- 1 -

Cable length (L) [m]

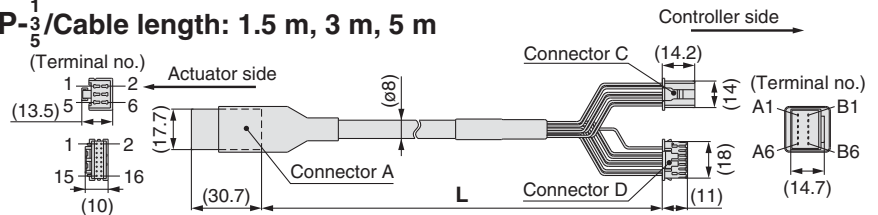
| | |
|---|-----|
| 1 | 1.5 |
| 3 | 3 |
| 5 | 5 |
| 8 | 8* |
| A | 10* |
| B | 15* |
| C | 20* |

* Produced upon receipt of order (Robotic cable only)

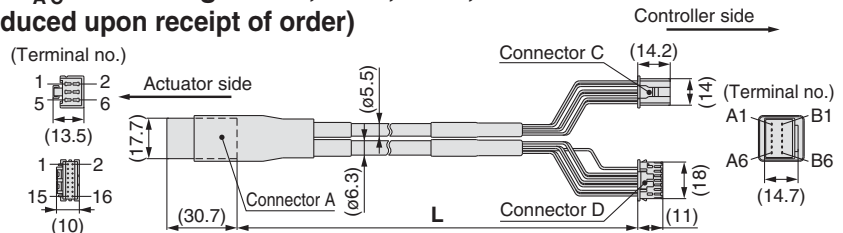
Cable type

| | |
|---|-----------------------------------|
| — | Robotic cable (Flexible cable) |
| S | Standard cable |

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



LE-CP- $\frac{8}{AC}$ /Cable length: 8 m, 10 m, 15 m, 20 m
(* Produced upon receipt of order)



| Signal | Connector A terminal no. | Cable colour | Connector C terminal no. |
|-----------|--------------------------|--------------|--------------------------|
| A | B-1 | Brown | 2 |
| A | A-1 | Red | 1 |
| B | B-2 | Orange | 6 |
| 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 |
| A | B-5 | Red | 7 |
| A | A-5 | Black | 6 |
| B | B-6 | Orange | 9 |
| B | A-6 | Black | 8 |
| — | — | — | 3 |

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

LE-CP-1-B- 1 - B -

Cable length (L) [m]

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

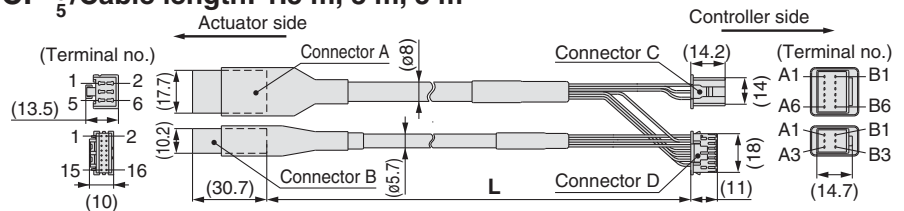
* Produced upon receipt of order (Robotic cable only)

With lock and sensor

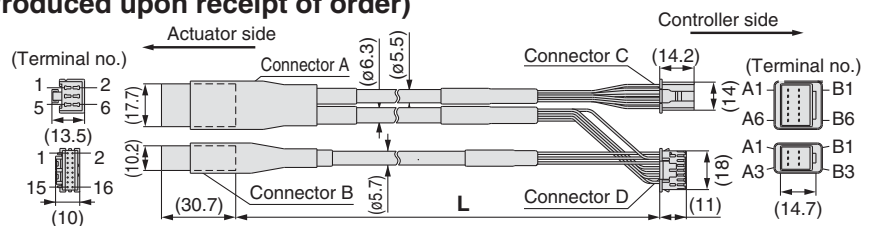
Cable type

| | |
|---|-----------------------------------|
| — | Robotic cable (Flexible cable) |
| S | Standard cable |

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



LE-CP- $\frac{8}{AC}$ /Cable length: 8 m, 10 m, 15 m, 20 m
(* Produced upon receipt of order)



| Signal | Connector A terminal no. | Cable colour | Connector C terminal no. |
|-----------|--------------------------|--------------|--------------------------|
| A | B-1 | Brown | 2 |
| A | A-1 | Red | 1 |
| B | B-2 | Orange | 6 |
| 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 |
| A | B-5 | Red | 7 |
| A | A-5 | Black | 6 |
| B | B-6 | Orange | 9 |
| B | A-6 | Black | 8 |
| — | — | — | 3 |

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

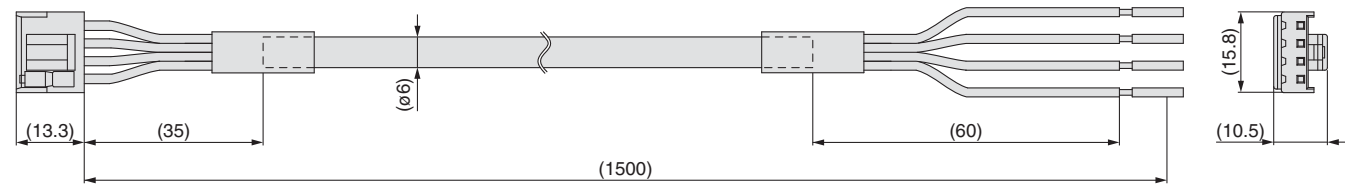
Note) Not used for the LE series.

Series *LECP1*

Options

[Power supply cable]

LEC-CK1-1



| Terminal name | Covered colour | Function |
|---------------|----------------|--------------------------|
| 0V | Blue | Common supply (-) |
| M 24V | White | Motor power supply (+) |
| C 24V | 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 colour | Dot mark | Dot colour | 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 | Grey | ■ | Black | BUSY |
| 8 | Grey | ■ | 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.

Pulse Input Type

Series *LECPA*



How to Order

⚠ Caution

[CE-compliant products]

① EMC compliance was tested by combining the electric actuator LEF 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 98 for the noise filter set. Refer to the LECPA series 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.

LECP AP 1 - LEFS16B-100

Driver type

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

Driver mounting

| | |
|----------|-------------------|
| — | Screw mounting |
| D (Note) | DIN rail mounting |

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

I/O cable length [m]

| | |
|---|------|
| — | 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 specification and actuator options)
Example: Enter "LEFS16B-100" for the LEFS16B-100B-R1AN1D.

* When controller equipped type (-PA□N/-PAP□) is selected when ordering the LE series, you do not need to order this driver.

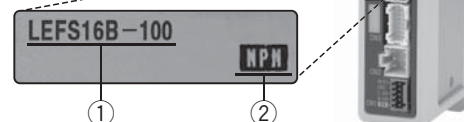
* When pulse signals are open collector, order the current limit resistor (LEC-PA-R-□) separately.

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.smc.eu>

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 [°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 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.

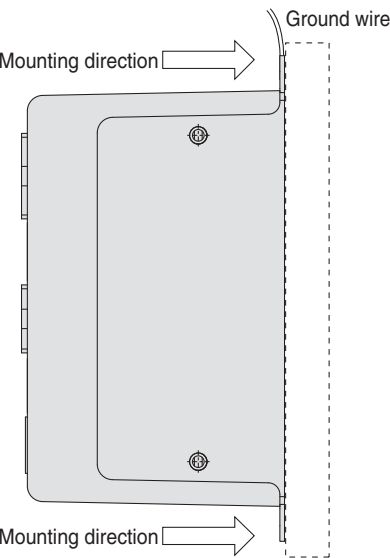
Note 2) The power consumption changes depending on the actuator model. Refer to the specifications of actuator for more details.

Note 3) Applicable to non-magnetizing lock.

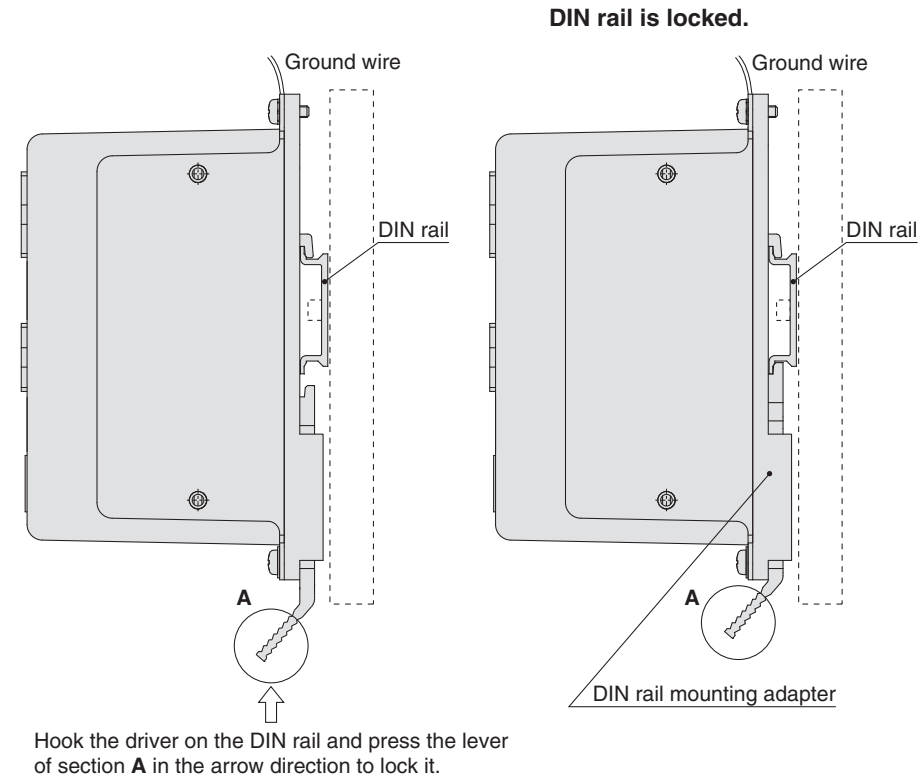
Series LECPA

How to Mount

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



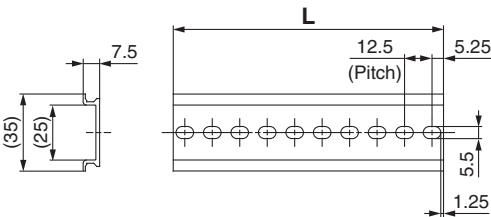
b) DIN rail mounting (LECPA□□D-□)
(Installation with the DIN rail)



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 94 for the mounting dimensions.



L Dimension [mm]

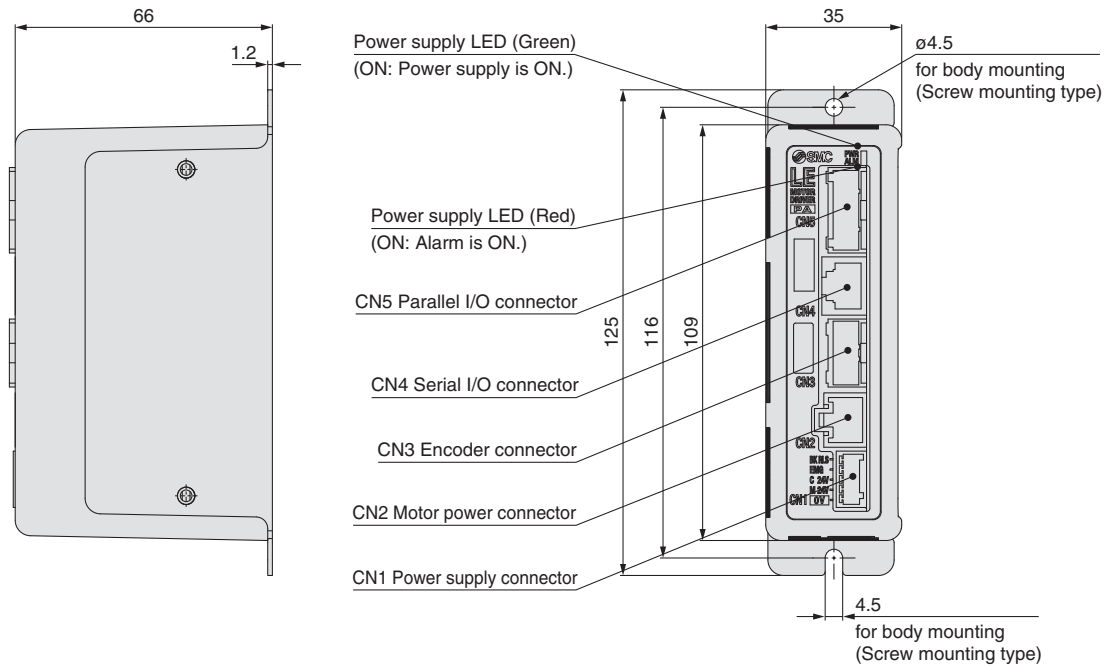
| No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|-----|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|
| L | 23 | 35.5 | 48 | 60.5 | 73 | 85.5 | 98 | 110.5 | 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)

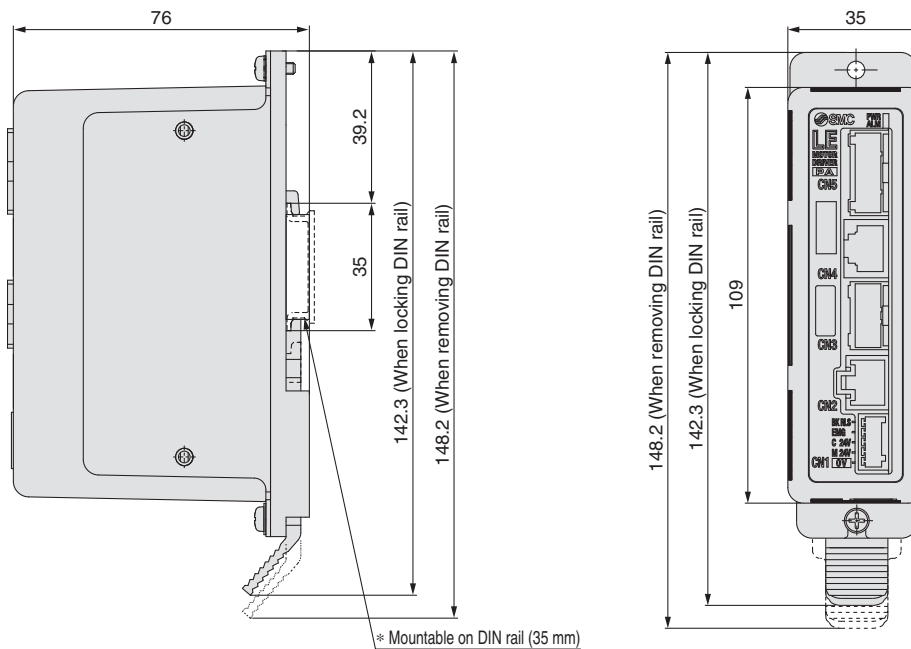
This should be used when the DIN rail mounting adapter is mounted onto the screw mounting type driver afterward.

Dimensions

a) Screw mounting (LECPA□□-□)



b) DIN rail mounting (LECPA□□D-□)



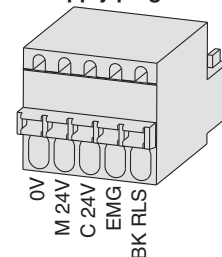
Wiring Example 1

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 (-) | M 24V terminal/C 24V terminal/EMG terminal/BK RLS terminal are common (-). |
| M 24V | Motor power supply (+) | Motor power supply (+) supplied to the driver |
| C 24V | 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 |

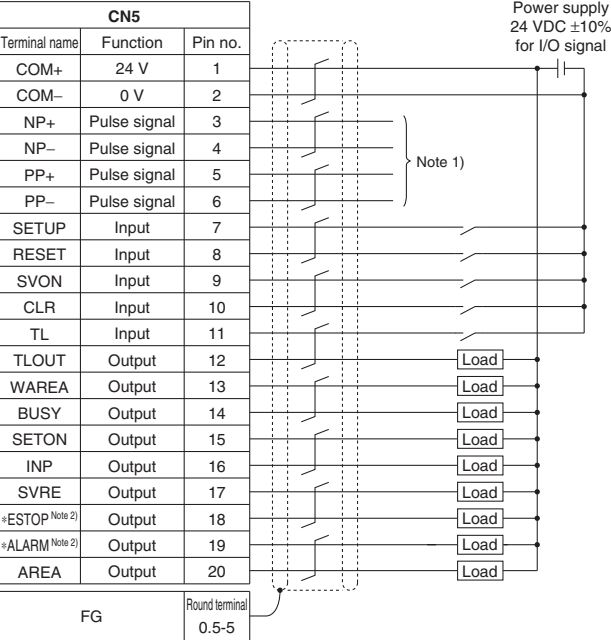
Power supply plug for LECPA



Wiring Example 2

Parallel I/O Connector: CN5 * When you connect a PLC etc., to the CN5 parallel I/O connector, 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)

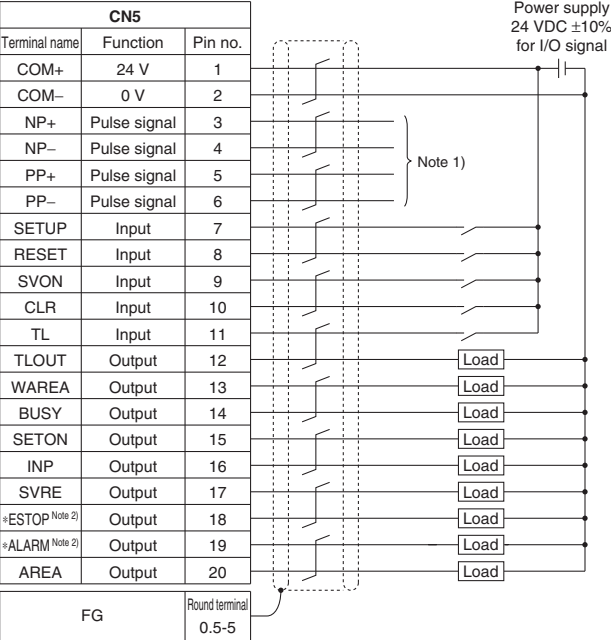


Note 1) For pulse signal wiring method, refer to “Pulse Signal Wiring Details”.
Note 2) Output when the power supply of the driver is ON. (N.C.)

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 |

LECPAP□□-□ (PNP)



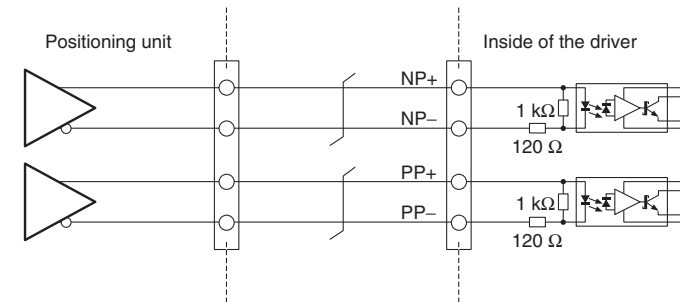
Output Signal

| 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 |

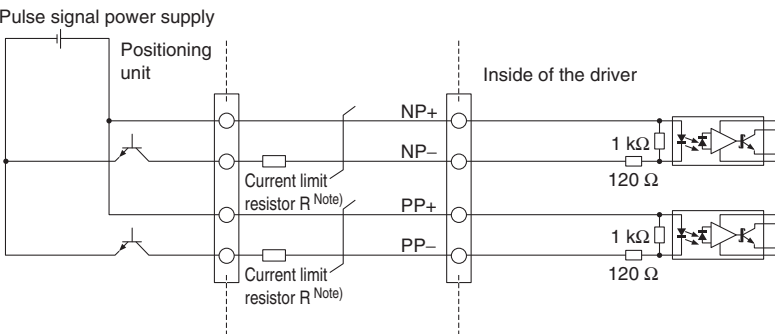
Note 3) Signal of negative-logic circuit ON (N.C.)

Pulse Signal Wiring Details

•Pulse signal output of positioning unit is differential output



•Pulse signal output of positioning unit is open collector output

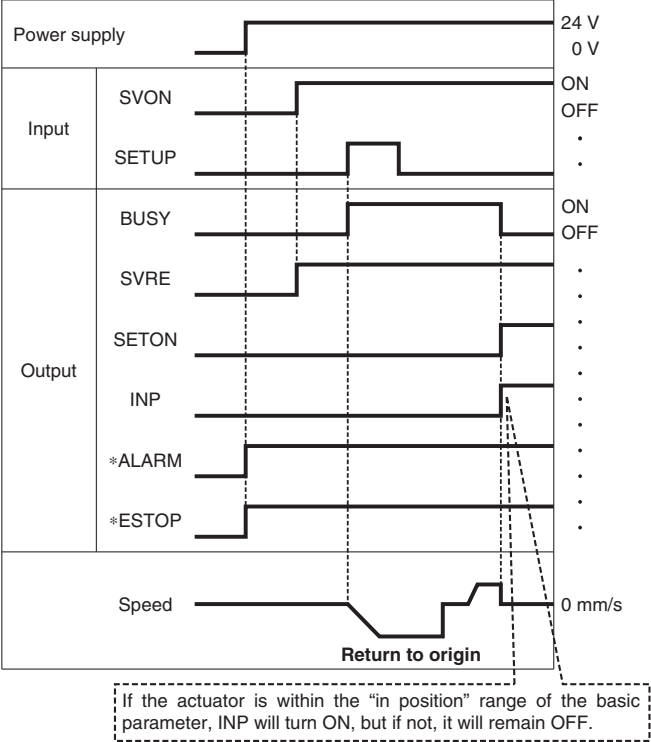


Note) Connect the current limit resistor R in series to correspond to the pulse signal voltage.

| Pulse signal power supply voltage | Current limit resistor R specifications | Current limit resistor part no. |
|-----------------------------------|---|---------------------------------|
| 24 VDC ±10% | 3.3 kΩ ±5% (0.5 W or more) | LEC-PA-R-332 |
| 5 VDC ±5% | 390 Ω ±5% (0.1 W or more) | LEC-PA-R-391 |

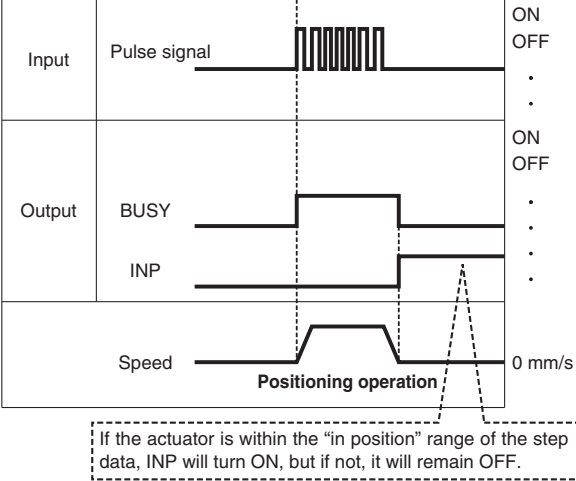
Signal Timing

Return to Origin

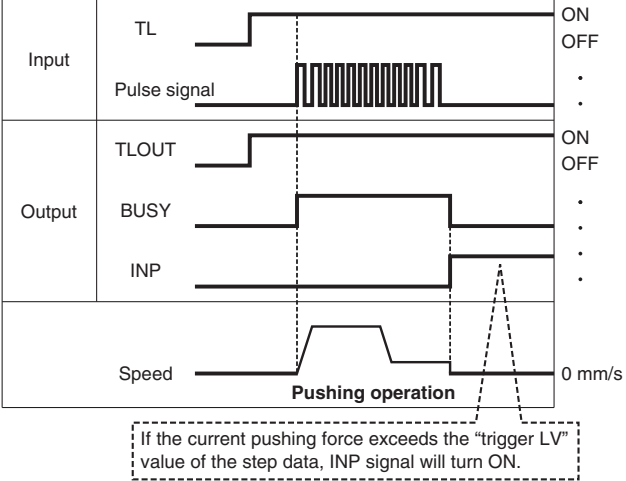


* "ALARM" and "ESTOP" are expressed as negative-logic circuit.

Positioning Operation

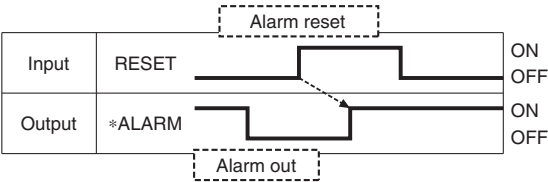


Pushing Operation



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.

Model Selection

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

LECA6
LECP6

LEC-G

LECP1

LECPA

LEFS

LEFB

LECS

LEFG

Specific Product Precautions

Series LECPA

Options: Actuator Cable

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

LE-CP-1-

Cable length (L) [m]

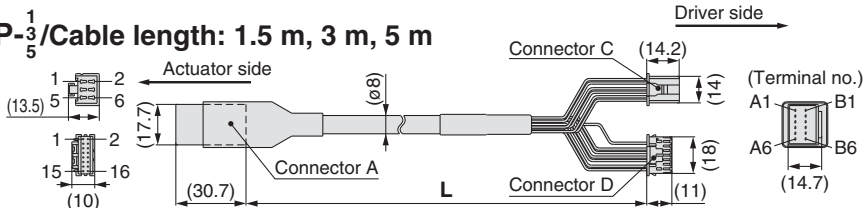
| | |
|---|-----|
| 1 | 1.5 |
| 3 | 3 |
| 5 | 5 |
| 8 | 8* |
| A | 10* |
| B | 15* |
| C | 20* |

* Produced upon receipt of order (Robotic cable only)

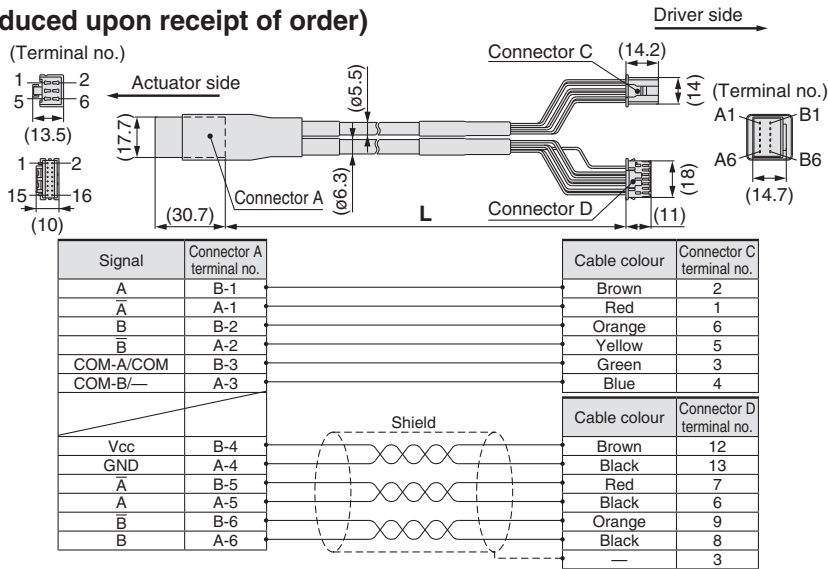
Cable type

| | |
|---|--------------------------------|
| — | Robotic cable (Flexible cable) |
| S | Standard cable |

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



LE-CP-^{8B}/_{AC}/Cable length: 8 m, 10 m, 15 m, 20 m
(* Produced upon receipt of order)



[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* |

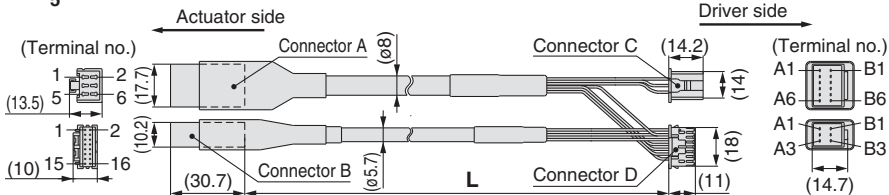
* Produced upon receipt of order (Robotic cable only)

With lock and sensor

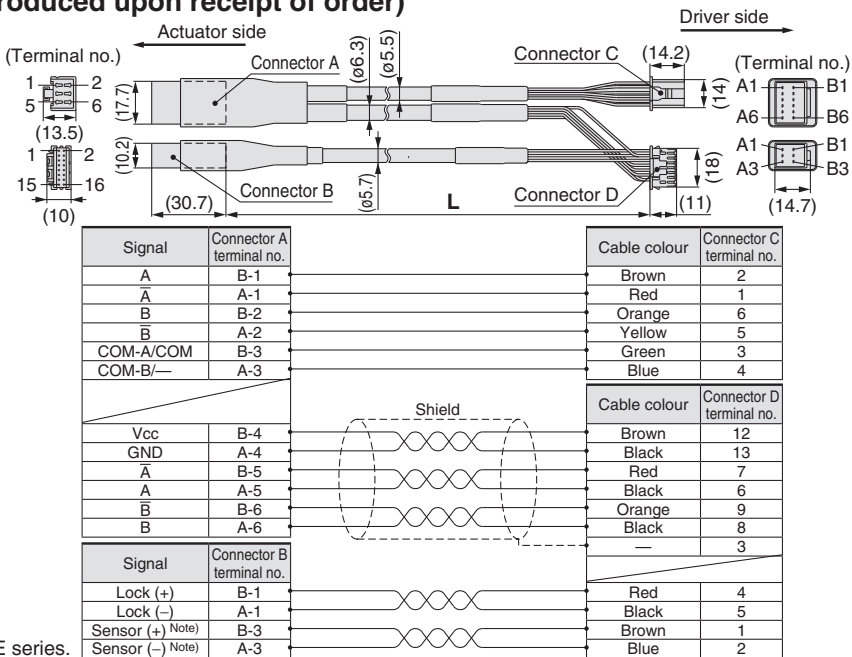
Cable type

| | |
|---|--------------------------------|
| — | Robotic cable (Flexible cable) |
| S | Standard cable |

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



LE-CP-^{8B}/_{AC}/Cable length: 8 m, 10 m, 15 m, 20 m
(* Produced upon receipt of order)



Note) Not used for the LE series.

Options

[I/O cable]

LEC-C L5-1

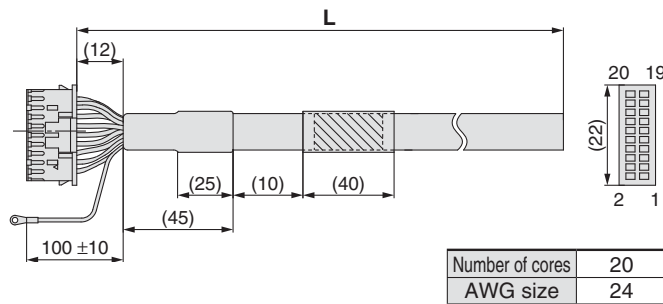
I/O cable type

| | |
|-----------|-----------|
| 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.



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

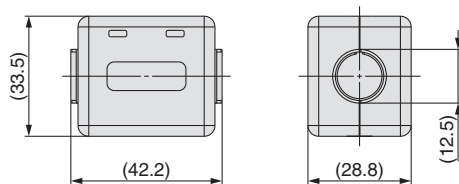
| Pin no. | Insulation colour | Dot mark | Dot colour |
|----------------------|-------------------|----------|------------|
| 12 | Light brown | ■ ■ | Red |
| 13 | Yellow | ■ ■ | Black |
| 14 | Yellow | ■ ■ | Red |
| 15 | Light green | ■ ■ | Black |
| 16 | Light green | ■ ■ | Red |
| 17 | Grey | ■ ■ | Black |
| 18 | Grey | ■ ■ | 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.

[Current limit resistor]

This optional resistor (LEC-PA-R-□) is used when the pulse signal output of the positioning unit is open collector output.

LEC-PA-R-□

Current limit resistor

| Symbol | Resistance | Pulse signal power supply voltage |
|------------|------------|-----------------------------------|
| 332 | 3.3 kΩ ±5% | 24 VDC ±10% |
| 391 | 390 Ω ±5% | 5 VDC ±5% |

* Select a current limit resistor that corresponds to the pulse signal power supply voltage.

* For the LEC-PA-R-□, two pieces are shipped as a set.

Model Selection

LEFS

LEFB

LECA6
LECP6

LEC-G

LECP1

LECPA

LEFS

LEFB

LECS□

LEFG

Specific Product
Precautions

AC Servo Motor

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

Series **LEC**

Windows®XP, Windows®7 compatible

Controller Setting Kit/LEC-W2

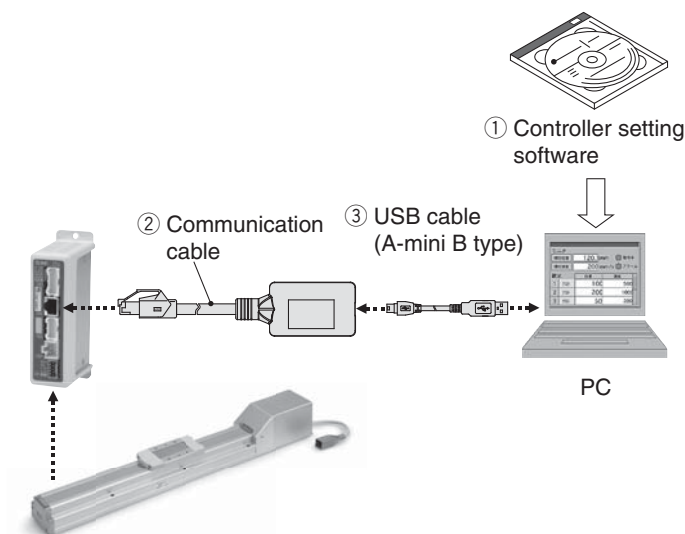
How to Order

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 Controller/Driver

Step data input type
Pulse input type

Series **LECP6**/Series **LECA6**
Series **LECPA**

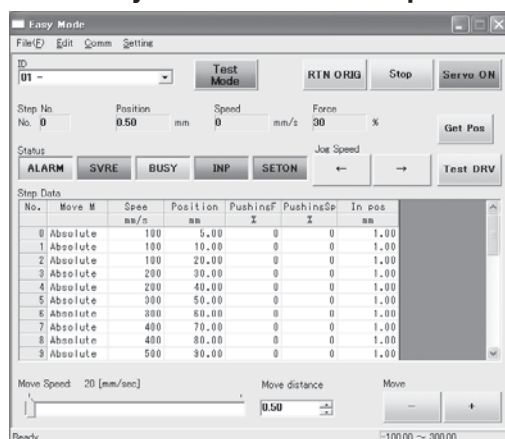
Hardware Requirements

| | |
|-------------------------|--|
| 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.smc.eu>

Screen Example

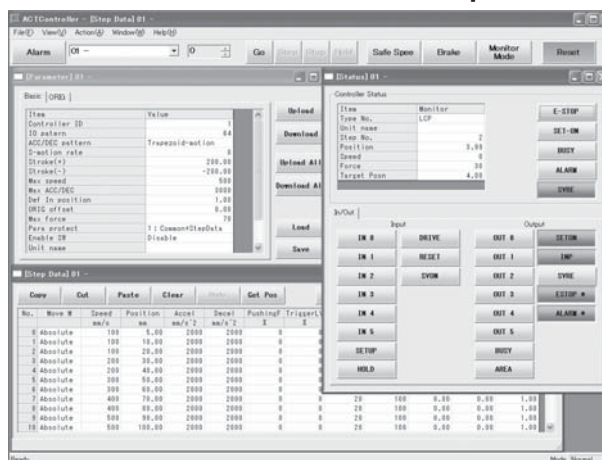
Easy mode screen example



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



Model
Selection

LEFS

LEFB

LECA6
LECP6

LEC-G

LECP1

LECPA

LEFS

LEFB

LECS

LEFG

Specific Product
Precautions

AC Servo Motor

Specific Product
Precautions

How to Order



LEC-T1-3EG

Teaching box

Cable length [m]

3 3

Initial language

| | |
|---|----------|
| J | Japanese |
| E | English |

Enable switch

| | |
|---|-----------------------------|
| — | None |
| S | Equipped with enable switch |

* Interlock switch for jog and test function

Stop switch

| | |
|---|---------------------------|
| G | Equipped with stop switch |
|---|---------------------------|

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

Specifications

| Item | Description |
|----------------------------------|-------------------------------------|
| Switch | Stop switch, Enable switch (Option) |
| Cable length [m] | 3 |
| Enclosure | IP64 (Except connector) |
| Operating temperature range [°C] | 5 to 50 |
| 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.

Standard functions

- Chinese character display
- Stop switch is provided.

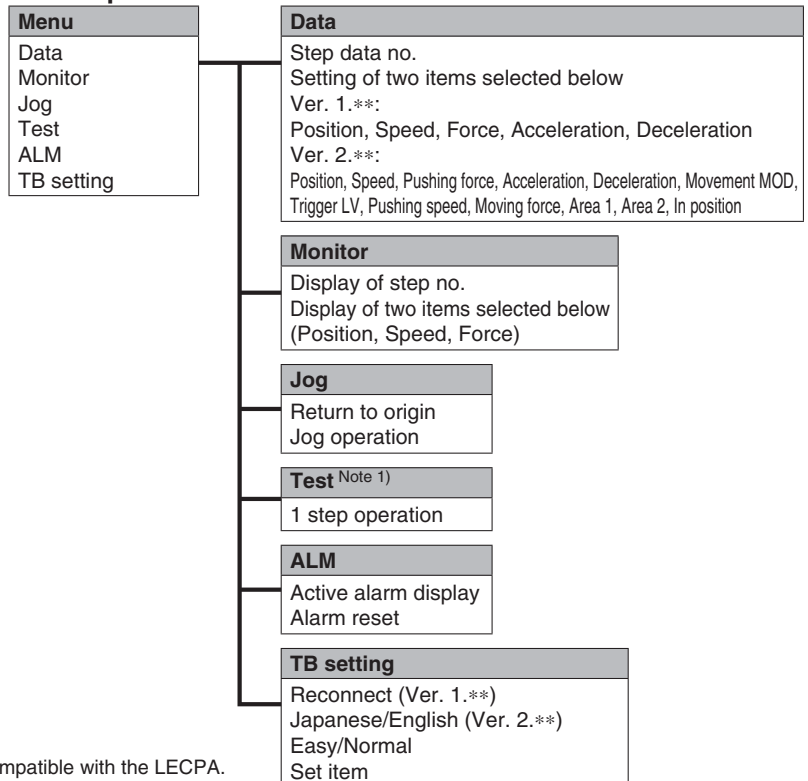
Option

- Enable switch is provided.

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

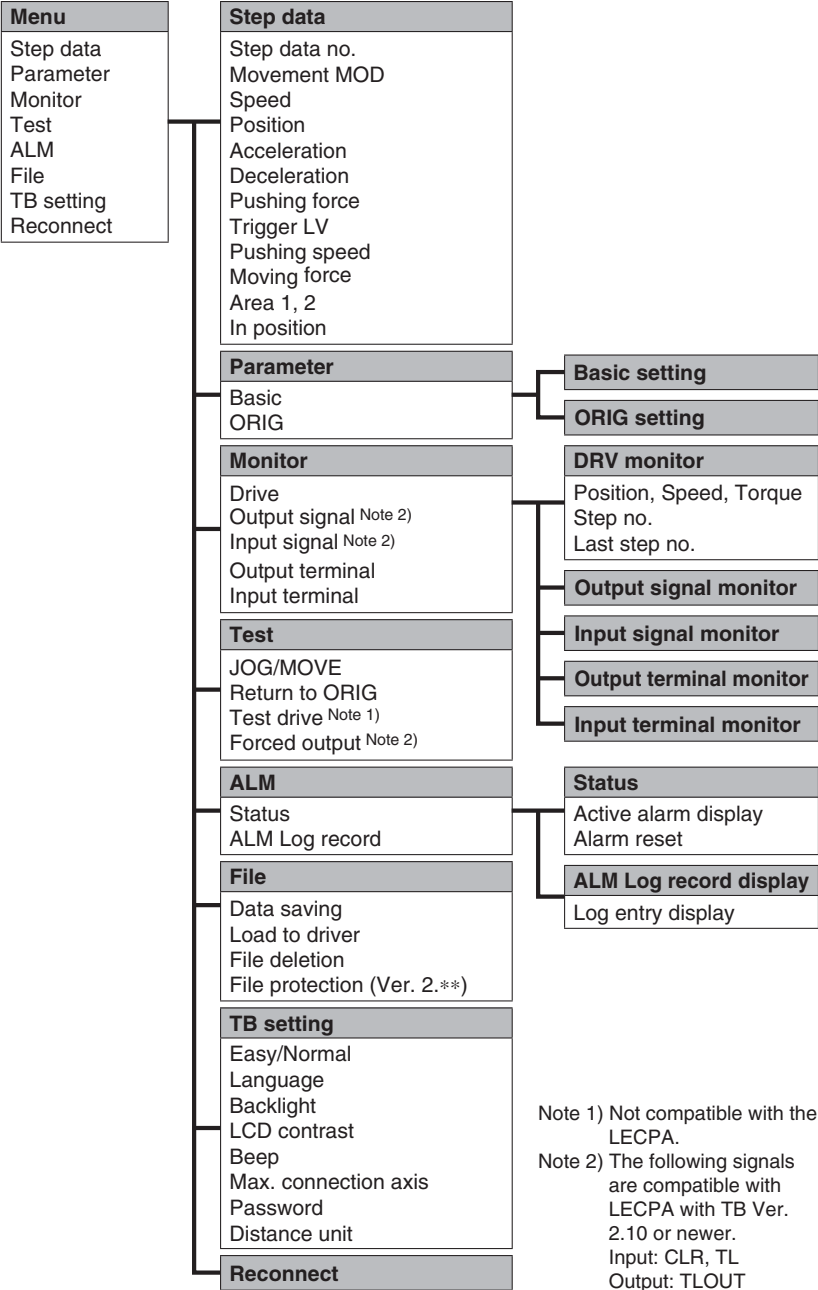


Note 1) Not compatible with the LECPA.

Normal Mode

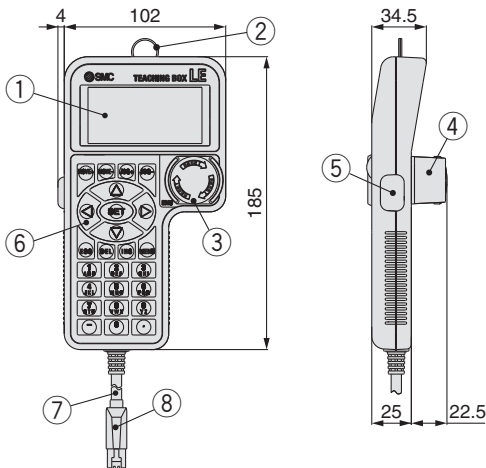
| Function | Details |
|------------|--|
| Step data | • Step data setting |
| Parameter | • Parameters setting |
| Test | • Jog operation/Constant rate movement • Return to origin • Test drive ^{Note 1)} (Specify a maximum of 5 step data and operate.) • Forced output (Forced signal output, Forced terminal 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



Note 1) Not compatible with the LECPA.
Note 2) The following signals are compatible with LECPA with TB Ver. 2.10 or newer.
Input: CLR, TL
Output: TLOUT

Dimensions

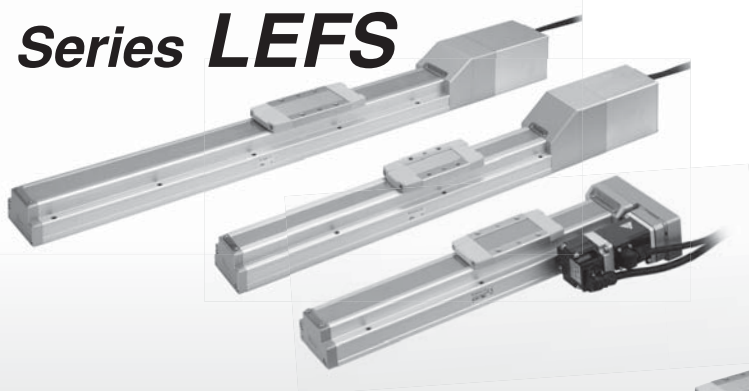


| No. | Description | Function |
|-----|------------------------|--|
| 1 | LCD | A screen of liquid crystal display (with backlight) |
| 2 | Ring | A ring for hanging the teaching box |
| 3 | Stop switch | When switch is pushed in, the switch locks and stops. The lock is released when it is turned to 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

Ball Screw Drive Page 119

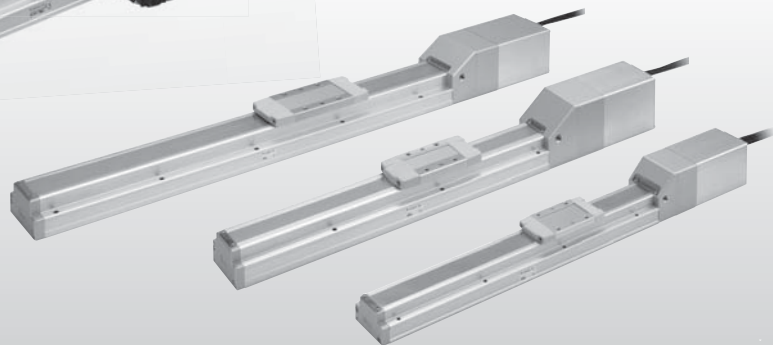
Series **LEFS**



Clean Room Specification

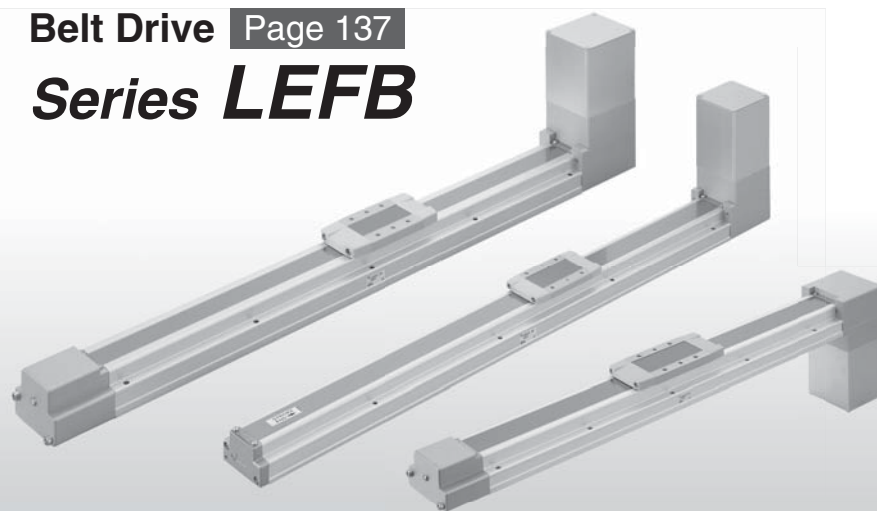
Page 131

Series **11-LEFS**



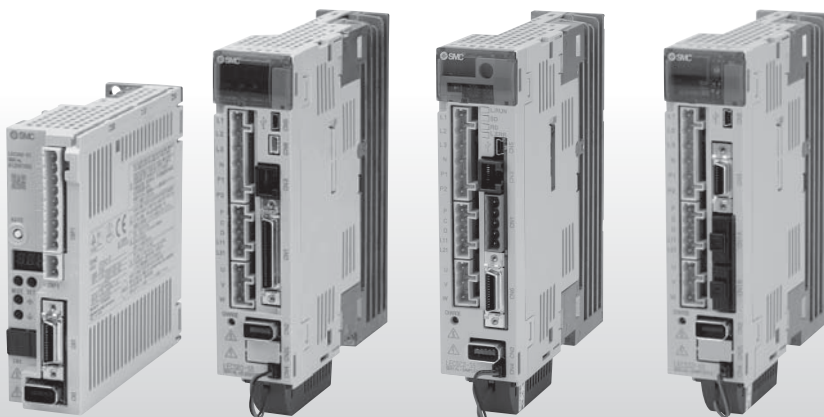
Belt Drive Page 137

Series **LEFB**



AC Servo Motor Driver Page 148

Series **LECS** □



Model
Selection

LEFS

LEFB

LECA6
LECP6

LEC-G

LECP1

LECPA

LEFS

LEFB

LECS □

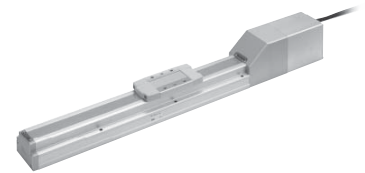
LEFG

Specific Product
Precautions

AC Servo Motor

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

Electric Actuator/Slider Type AC Servo Motor Ball Screw Drive/Series **LEFS** Model Selection



Selection Procedure

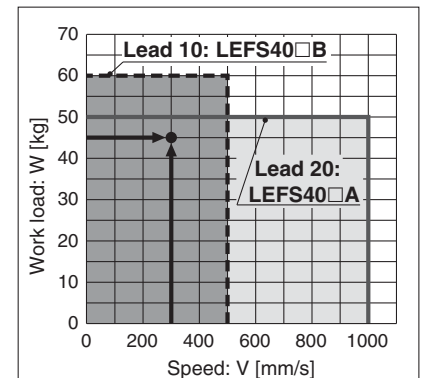
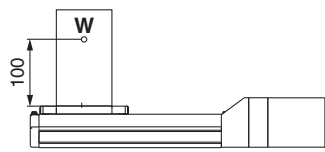


Selection Example

Operating conditions

- Workpiece weight: 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 104)

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

Selection example) The **LEFS40S4B-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.

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

- 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.

$$T1 = V/a1 = 300/3000 = 0.1 \text{ [s]}$$

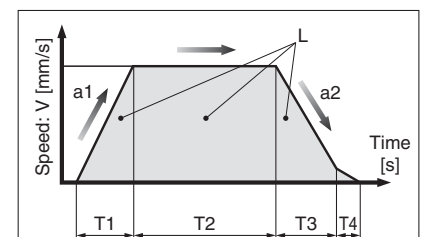
$$T3 = V/a2 = 300/3000 = 0.1 \text{ [s]}$$

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} \\ = \frac{200 - 0.5 \cdot 300 \cdot (0.1 + 0.1)}{300} \\ = 0.57 \text{ [s]}$$

$$T4 = 0.05 \text{ [s]}$$

Therefore, the cycle time can be obtained as follows.

$$T = T1 + T2 + T3 + T4 \\ = 0.1 + 0.57 + 0.1 + 0.05 \\ = 0.82 \text{ [s]}$$



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

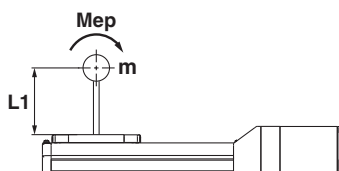
T3: Deceleration time [s]

Time from the beginning of the constant speed operation to stop

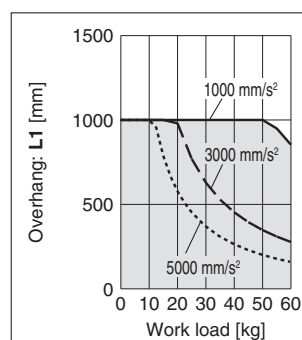
T4: Settling time [s]

Time until in position is completed

Step 3 Check the guide moment.



Based on the above calculation result, the **LEFS40S4B-200** is selected.

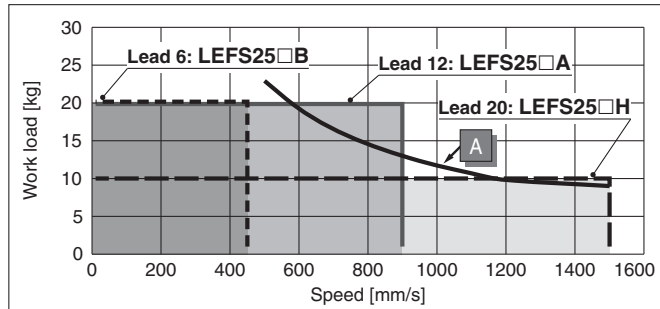


Speed–Work Load Graph (Guide)

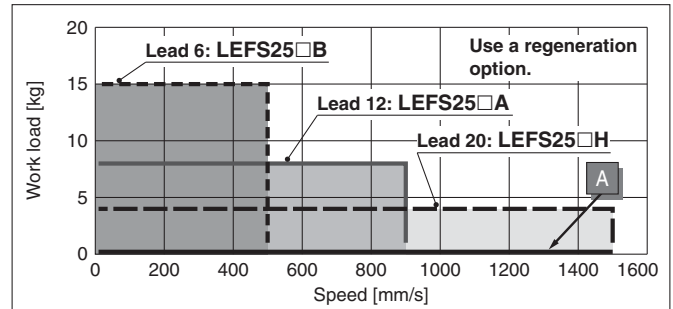
* The allowable speed is restricted depending on the stroke. Select it by referring to “Allowable Stroke Speed” below.

LEFS25/Ball Screw Drive

Horizontal

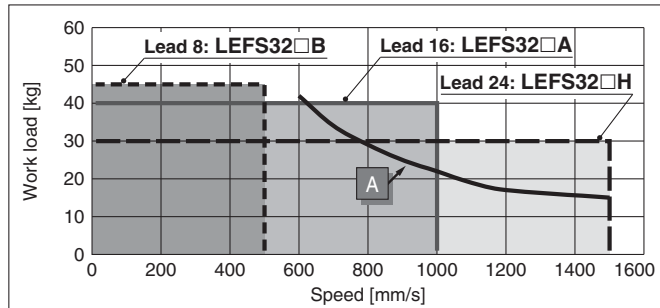


Vertical

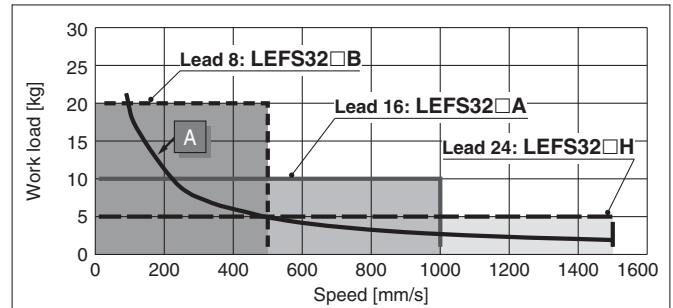


LEFS32/Ball Screw Drive

Horizontal

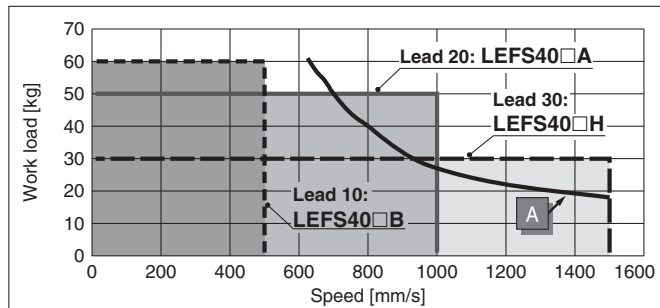


Vertical

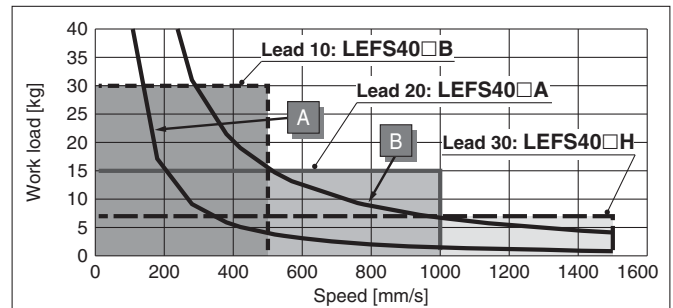


LEFS40/Ball Screw Drive

Horizontal



Vertical



Required conditions for “Regeneration option”

* Regeneration option required when using product above regeneration line in graph. (Order separately.)

“Regeneration Option” Models

| Operating condition | Model |
|---------------------|---------------|
| A | LEC-MR-RB-032 |
| B | LEC-MR-RB-12 |

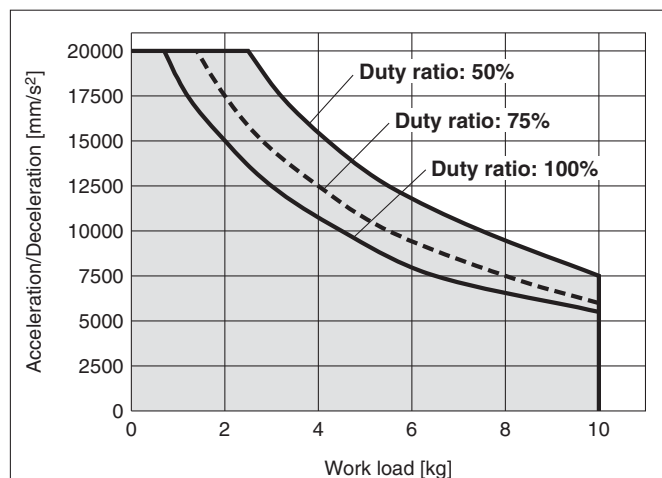
Allowable Stroke Speed

| 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)

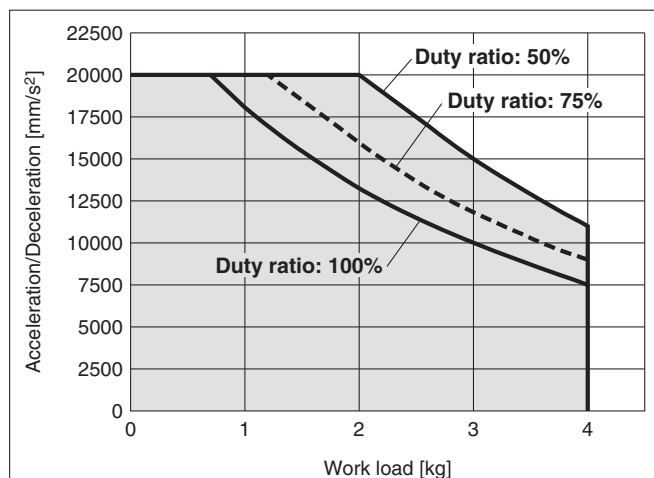
LEFS25S□H/Ball Screw Drive

Horizontal



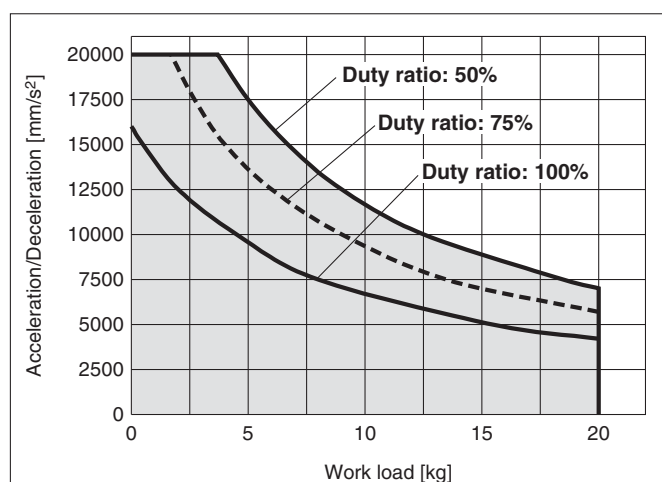
LEFS25S□H/Ball Screw Drive

Vertical



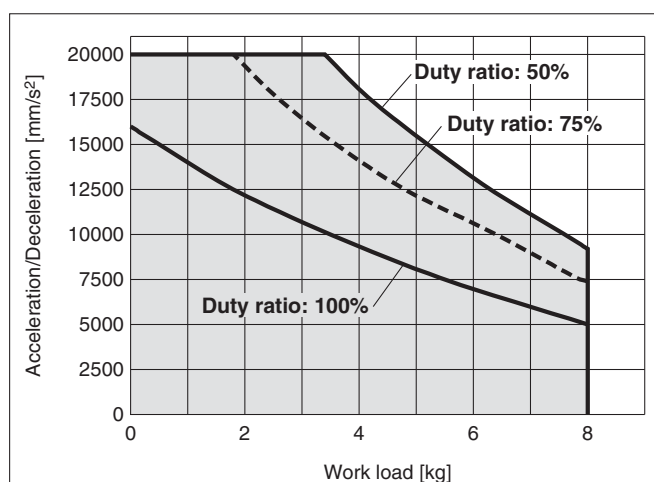
LEFS25S□A/Ball Screw Drive

Horizontal



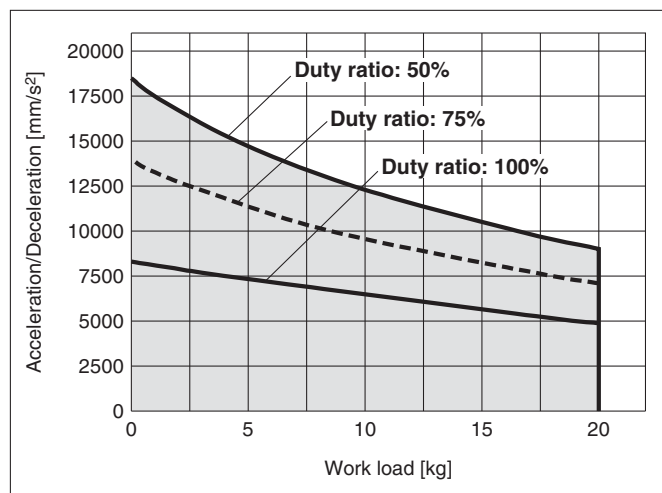
LEFS25S□A/Ball Screw Drive

Vertical



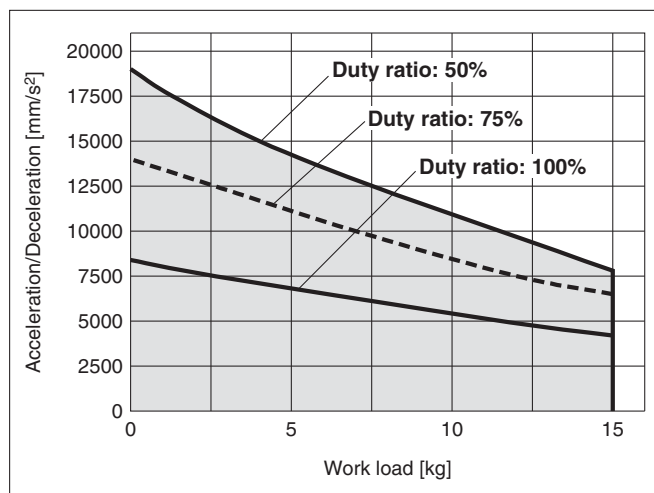
LEFS25S□B/Ball Screw Drive

Horizontal



LEFS25S□B/Ball Screw Drive

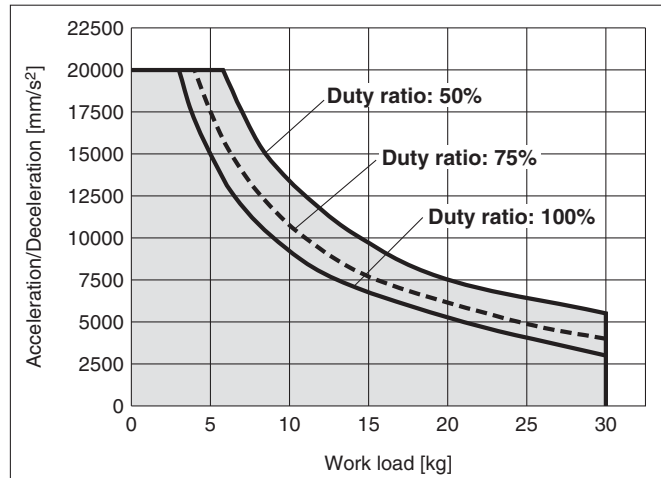
Vertical



Work Load–Acceleration/Deceleration Graph (Guide)

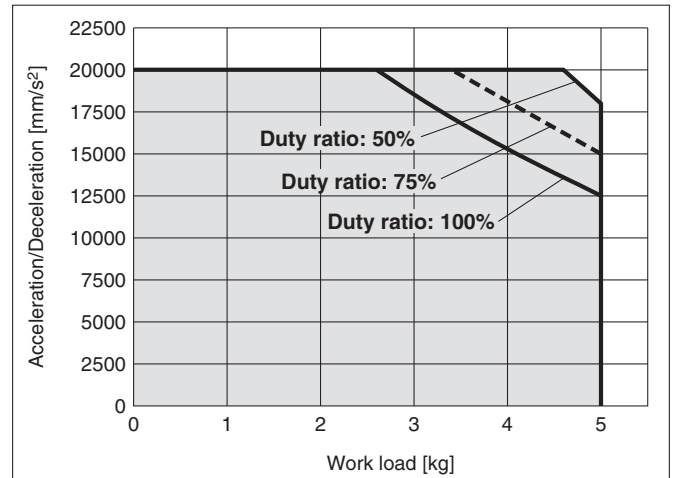
LEFS32S□H/Ball Screw Drive

Horizontal



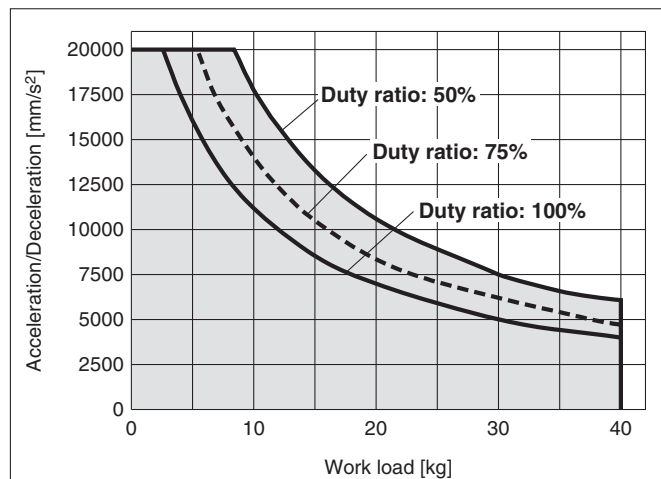
LEFS32S□H/Ball Screw Drive

Vertical



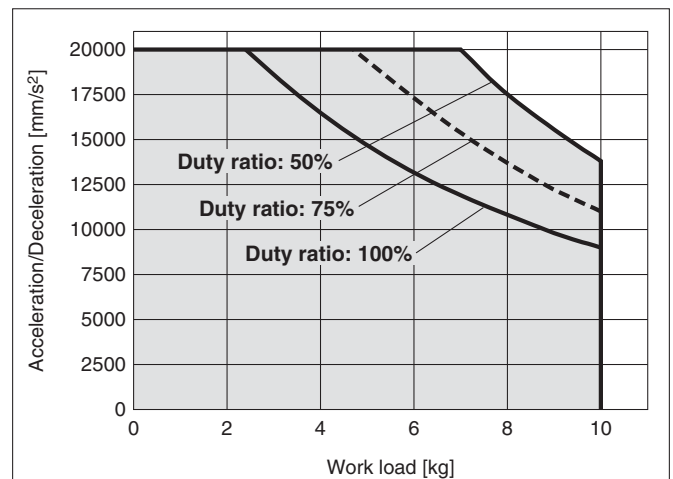
LEFS32S□A/Ball Screw Drive

Horizontal



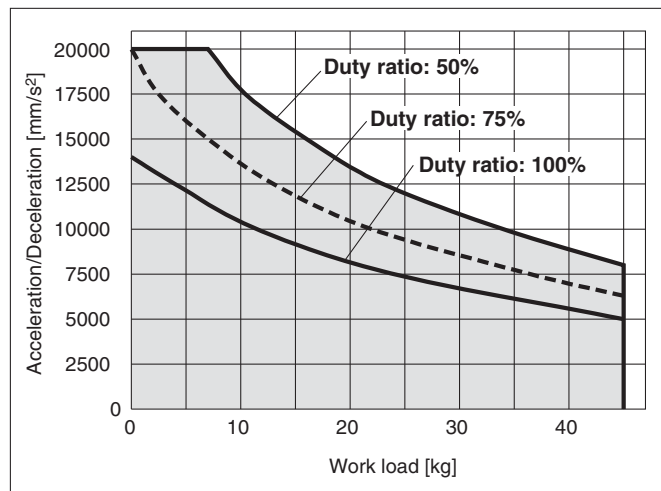
LEFS32S□A/Ball Screw Drive

Vertical



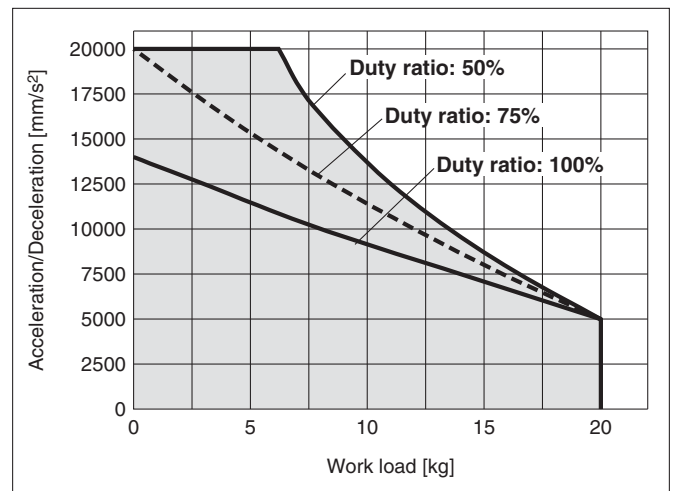
LEFS32S□B/Ball Screw Drive

Horizontal



LEFS32S□B/Ball Screw Drive

Vertical


Model
Selection

LEFS

LEFB

LECA6
LECP6

LEC-G

LECP1

LECPA

LEFS

AC Servo Motor

LEFB

LECS□

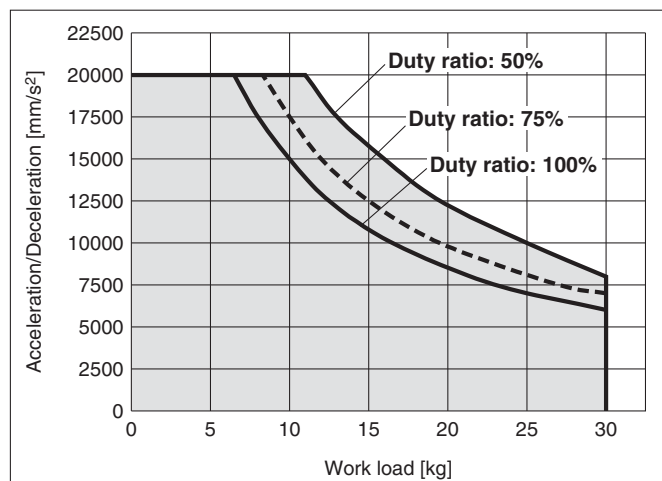
LEFG

Specific Product
Precautions

Work Load–Acceleration/Deceleration Graph (Guide)

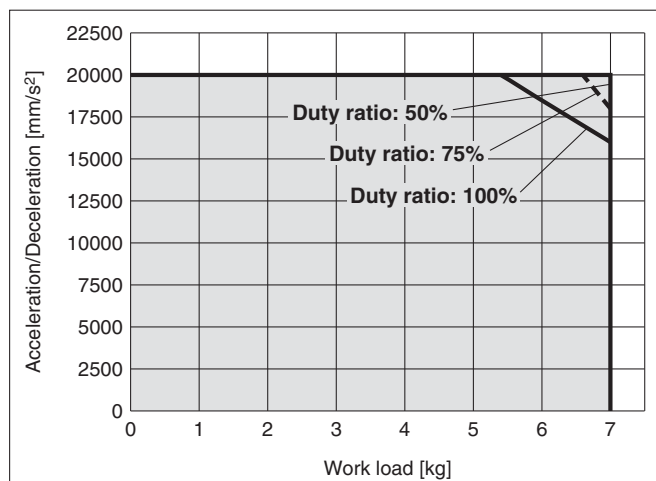
LEFS40S□H/Ball Screw Drive

Horizontal



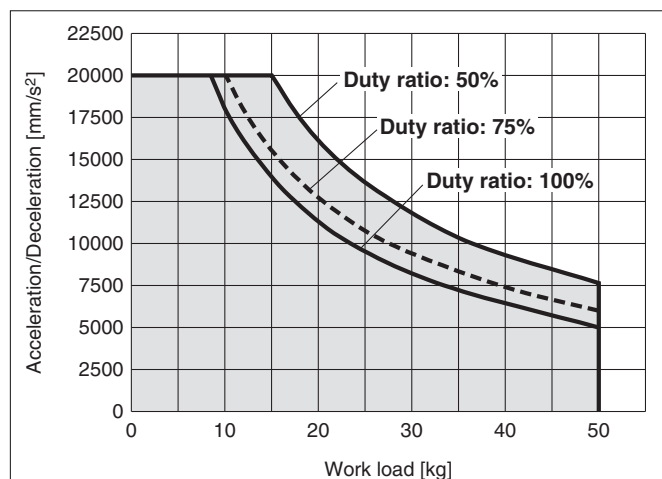
LEFS40S□H/Ball Screw Drive

Vertical



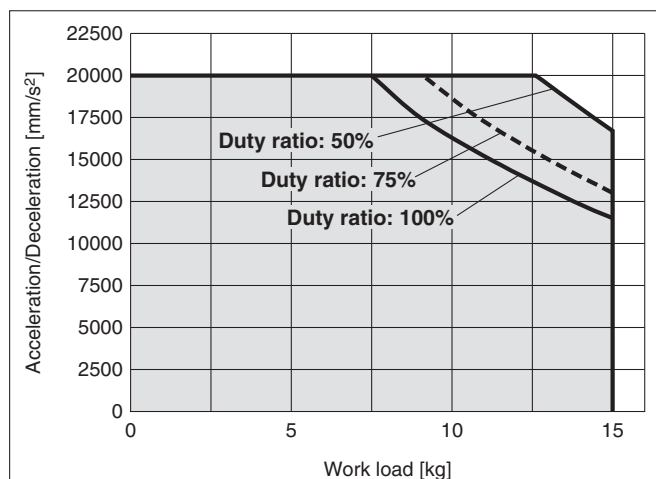
LEFS40S□A/Ball Screw Drive

Horizontal



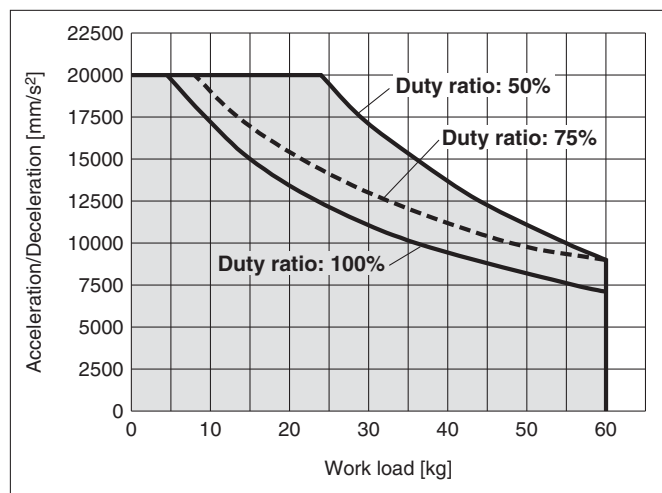
LEFS40S□A/Ball Screw Drive

Vertical



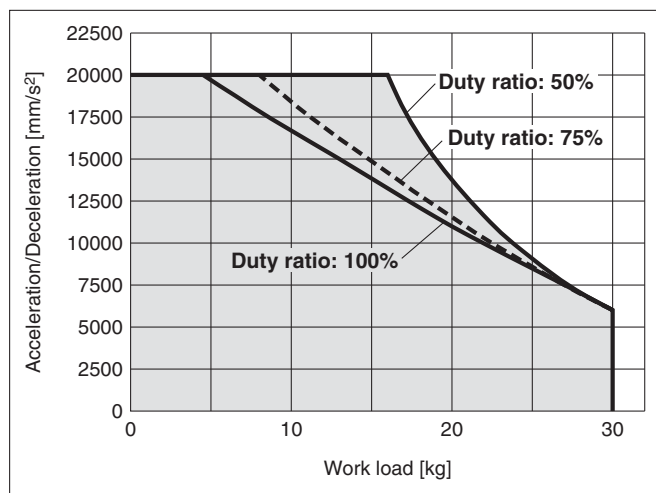
LEFS40S□B/Ball Screw Drive

Horizontal



LEFS40S□B/Ball Screw Drive

Vertical



Dynamic Allowable Moment

* This graph shows the amount of allowable overhang when the centre of gravity of the workpiece overhangs in one direction. When the centre of gravity of the workpiece overhangs in two directions, refer to the Electric Actuator Selection Software for confirmation, <http://www.smc.eu>

Acceleration/Deceleration ——— 1000 mm/s² - - - 3000 mm/s² 5000 mm/s² - · - · - 10000 mm/s² - - - - 20000 mm/s²

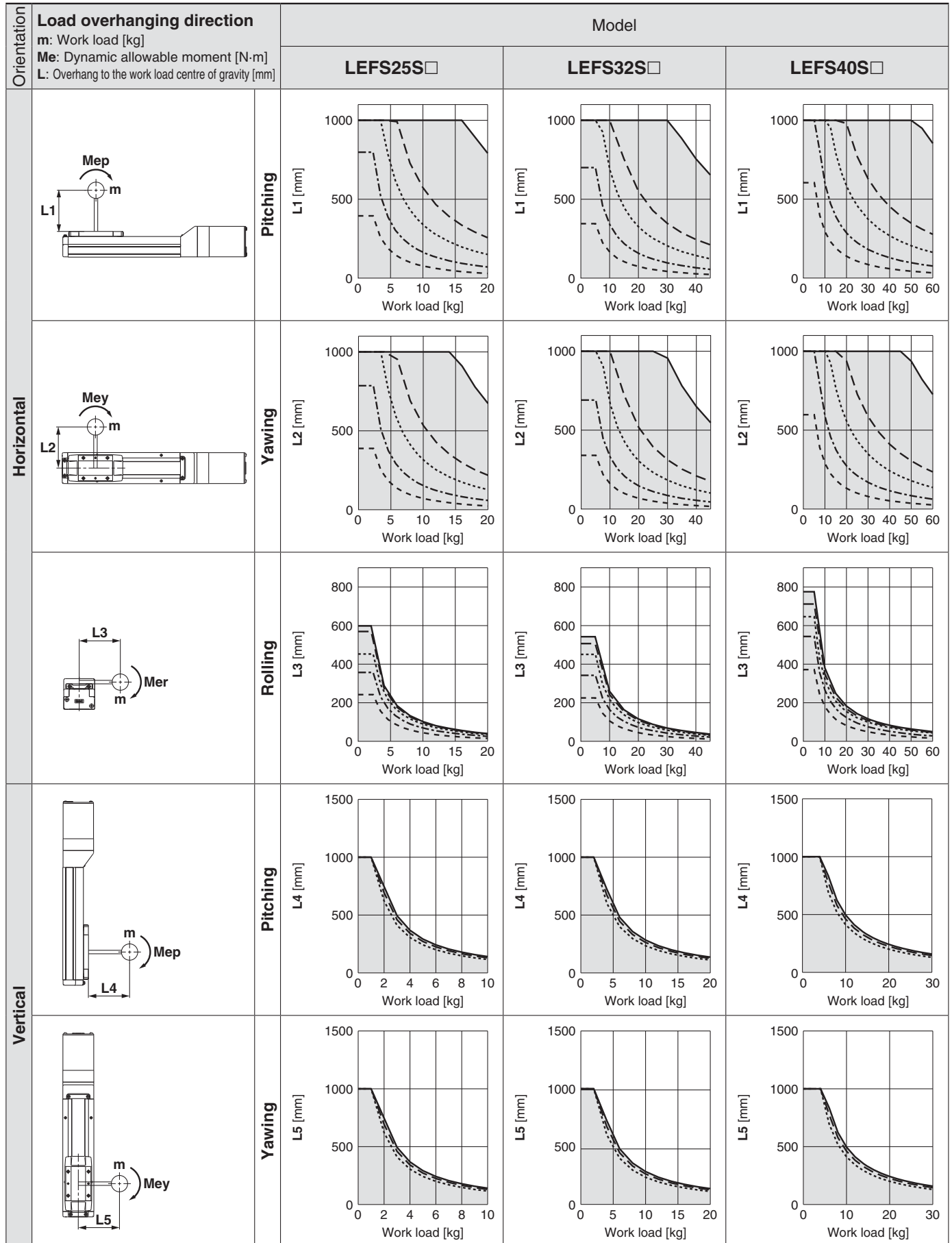
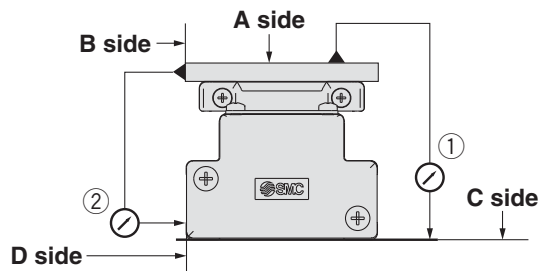


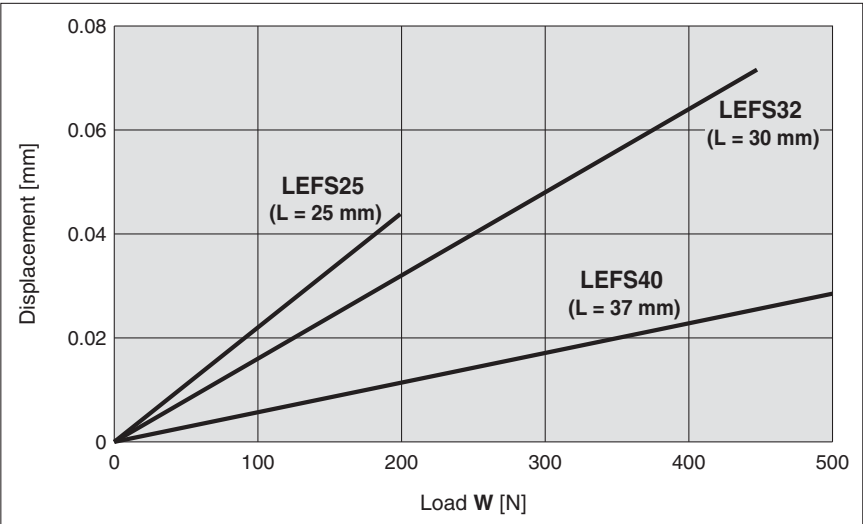
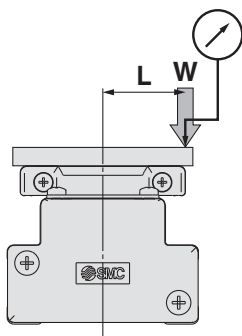
Table Accuracy



| 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 aluminium plate is mounted and fixed on the table.
Note 2) Check the clearance and play of the guide separately.

| | | | | | | | | | | | |
|---------------------------------|------|-------------------------------|----------------|------|-------|-------|-------|----------------|--|------|--------------------|
| Specific Product Precautions | LEFG | LECS <input type="checkbox"/> | AC Servo Motor | | LECPA | LECP1 | LEC-G | LECA6 LECP6 | Step Motor (Servo/24 VDC) / Servo Motor (24 VDC) | | Model Selection |
| | | | LEFB | LEFS | | | | | LEFB | LEFS | |

Particle Generation Characteristics

Particle Generation Measuring Method

The particle generation data for SMC Clean Series are measured in the following test method.

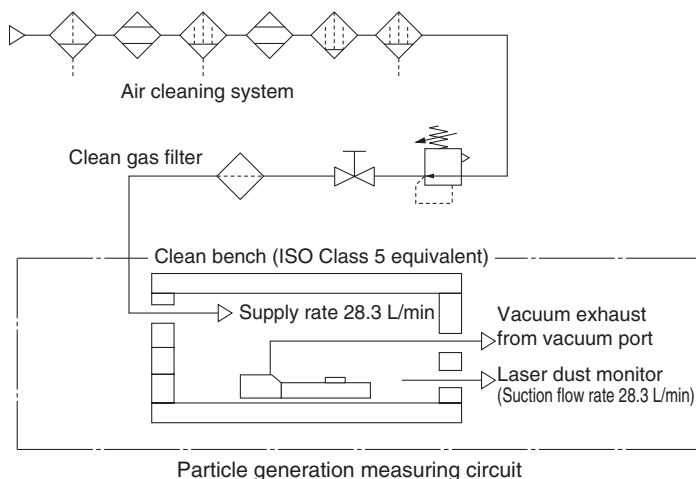
Test Method (Example)

Place the specimen in the acrylic resin chamber and operate it while supplying the same flow rate of clean air as the suction flow rate of the measuring instrument (28.3 L/min). Measure the changes of the particle concentration over time until the number of cycles reaches the specified point.

The chamber is placed in an ISO Class 5 equivalent clean bench.

Measuring Conditions

| | | |
|----------------------|--------------------------------------|---|
| Chamber | Internal volume | 28.3 L |
| | Supply air quality | Same quality as the supply air for driving |
| Measuring instrument | Description | Laser dust monitor (Automatic particle counter by lightscattering method) |
| | Minimum measurable particle diameter | 0.1 μm |
| | Suction flow rate | 28.3 L/min |
| Setting conditions | Sampling time | 5 min |
| | Interval time | 55 min |
| | Sampling air flow | 141.5 L |



Evaluation Method

To obtain the measured values of particle concentration, the accumulated value ^{Note 1)} of particles captured every 5 minutes, by the laser dust monitor, is converted into the particle concentration in every 1 m³.

When determining particle generation grades, the 95% upper confidence limit of the average particle concentration (average value), when each specimen is operated at a specified number of cycles ^{Note 2)} is considered.

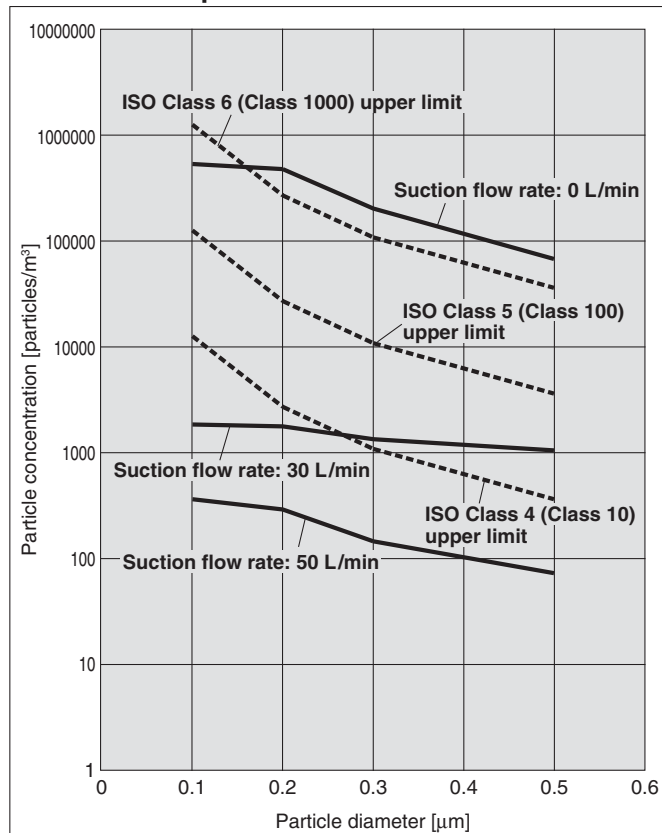
The plots in the graphs indicate the 95% upper confidence limit of the average particle concentration of particles with a diameter within the horizontal axis range.

Note 1) Sampling air flow rate: Number of particles contained in 141.5 L of air

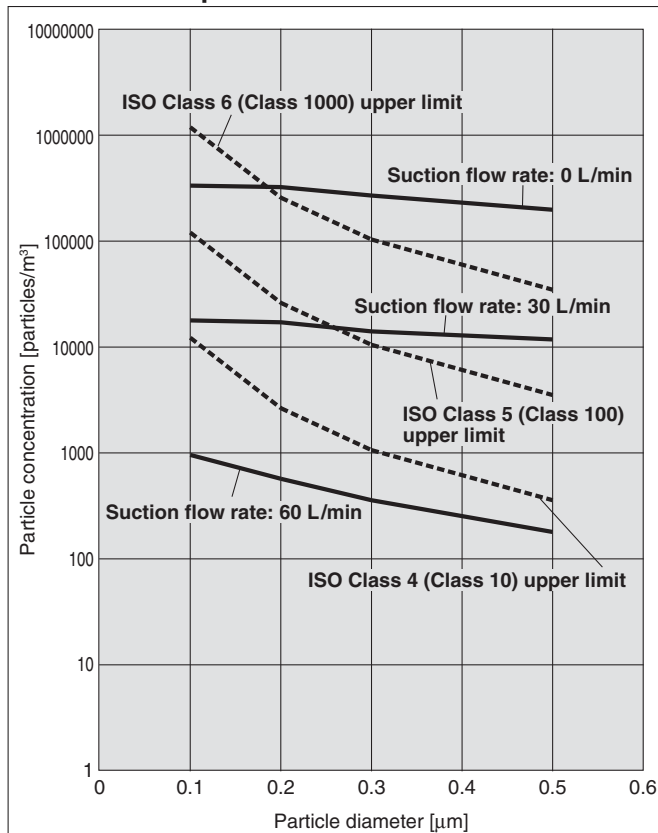
Note 2) Actuator: 1 million cycles

Particle Generation Characteristics AC Servo Motor (100/200/400 W)

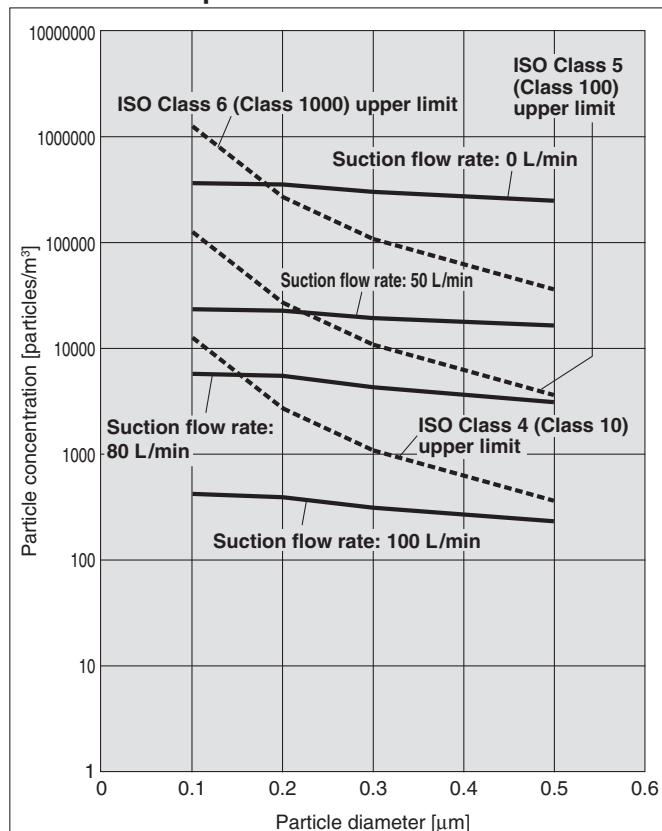
11-LEFS25 Speed 900 mm/s



11-LEFS32 Speed 1000 mm/s



11-LEFS40 Speed 1000 mm/s



Electric Actuator/Slider Type **AC Servo Motor** Ball Screw Drive/*Series 11-LEFS* Model Selection

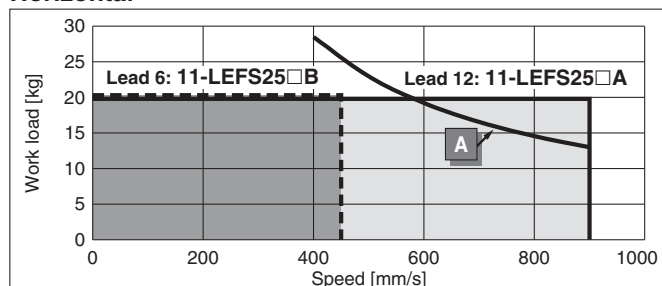
Clean Room Specification

Speed–Work Load Graph (Guide) AC Servo Motor

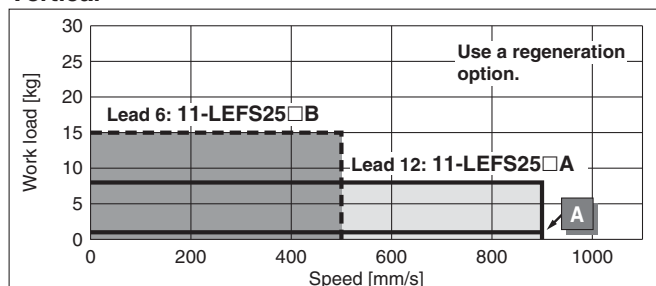
* The allowable speed is restricted depending on the stroke. Select it by referring to “Allowable Stroke Speed” below.

11-LEFS25/Ball Screw Drive

Horizontal

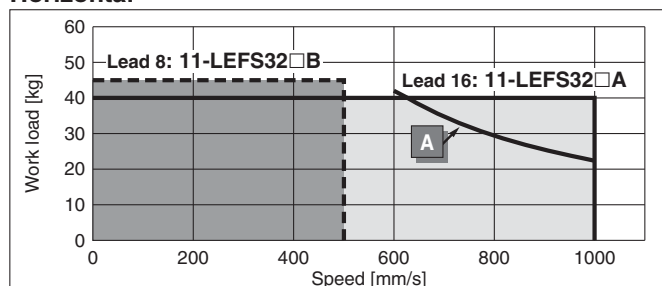


Vertical

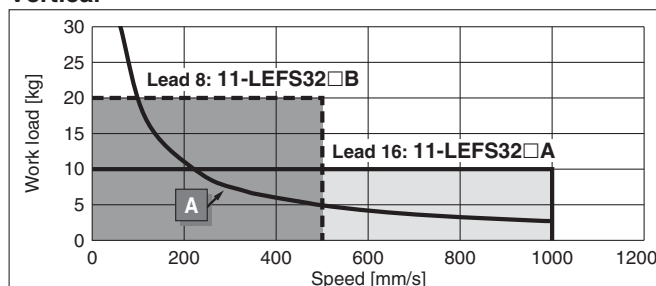


11-LEFS32/Ball Screw Drive

Horizontal

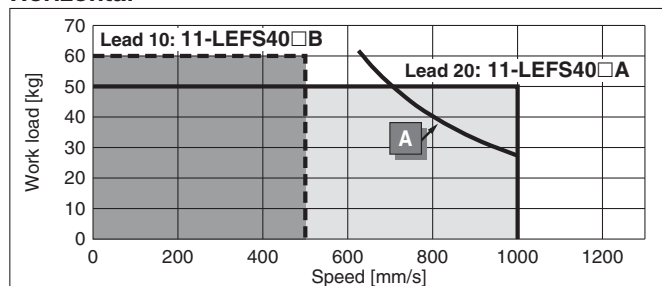


Vertical

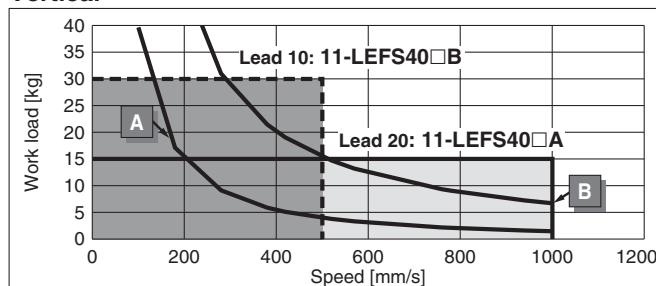


11-LEFS40/Ball Screw Drive

Horizontal



Vertical



Required conditions for “Regeneration option”

* Regeneration option required when using product above “Regeneration” line in graph. (Order separately.)

“Regeneration Option” Models

| Operating condition | Model |
|---------------------|---------------|
| A | LEC-MR-RB-032 |
| B | LEC-MR-RB-12 |

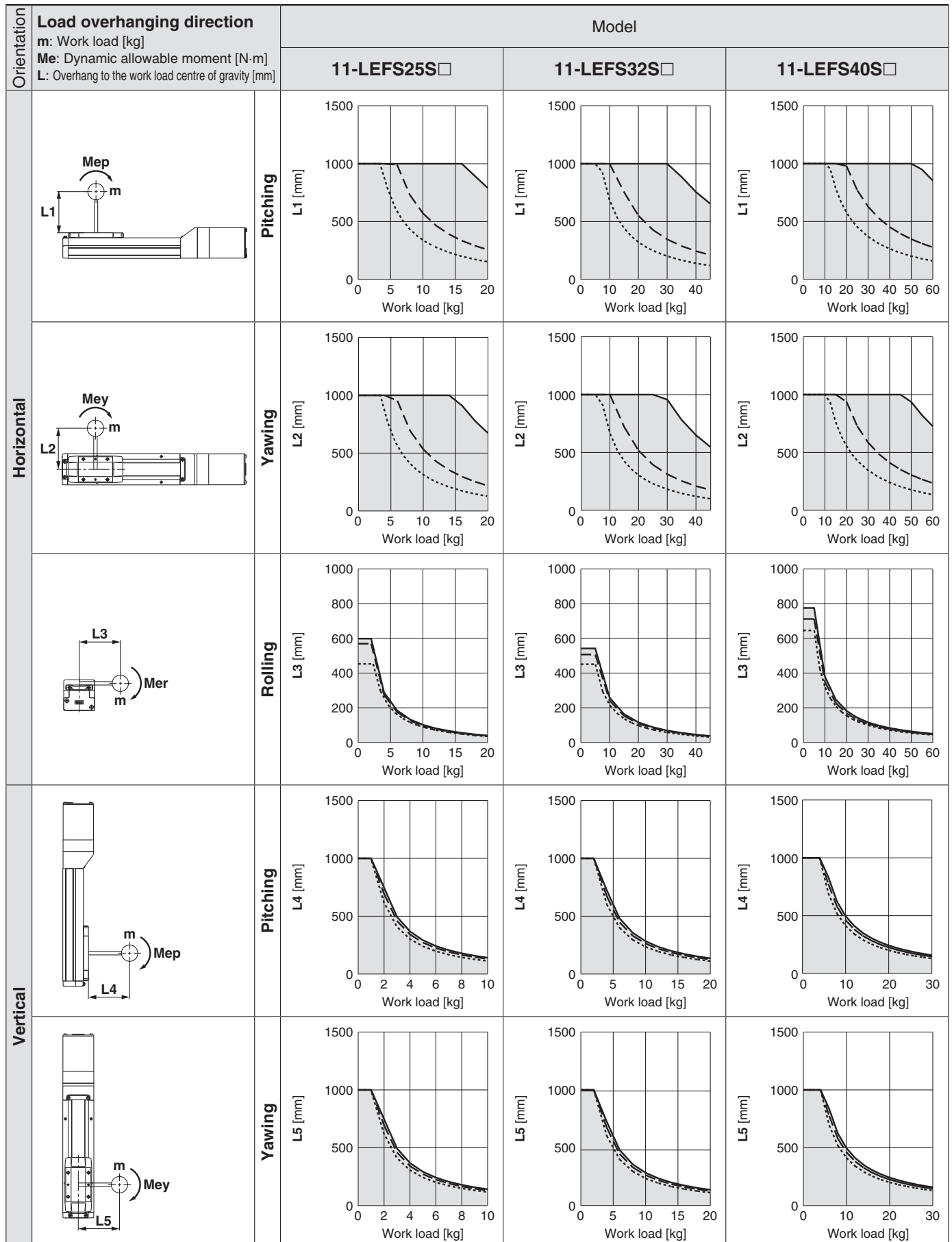
Allowable Stroke Speed

| [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 |
| 11-LEFS25 | 100 W □40 | A | 12 | 900 | | | | 720 | 540 | — | — | — | — |
| | | B | 6 | 450 | | | | 360 | 270 | — | — | — | — |
| | | (Motor rotation speed) | | (4500 rpm) | | | | (3650 rpm) | (2700 rpm) | — | — | — | — |
| 11-LEFS32 | 200 W □60 | A | 16 | 1000 | 1000 | 1000 | 1000 | 1000 | 800 | 620 | 500 | — | — |
| | | B | 8 | 500 | 500 | 500 | 500 | 500 | 400 | 310 | 250 | — | — |
| | | (Motor rotation speed) | | (3750 rpm) | | | | (3000 rpm) | (2325 rpm) | (1875 rpm) | — | — | |
| 11-LEFS40 | 400 W □60 | 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) |

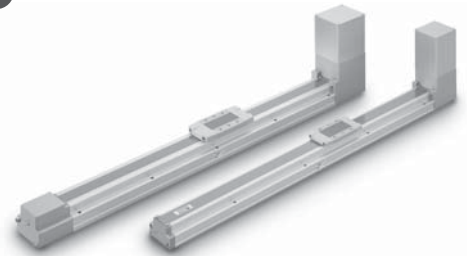
Dynamic Allowable Moment AC Servo Motor

* This graph shows the amount of allowable overhang when the centre of gravity of the workpiece overhangs in one direction. When the centre of gravity of the workpiece overhangs in two directions, refer to the Electric Actuator Selection Software for confirmation, <http://www.smc.eu>

Acceleration/Deceleration — 1000 mm/s² - - - 3000 mm/s² 5000 mm/s²



Electric Actuator/Slider Type AC Servo Motor Belt Drive/Series **LEFB** Model Selection



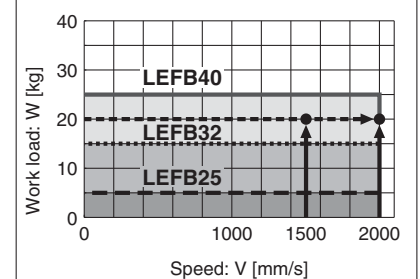
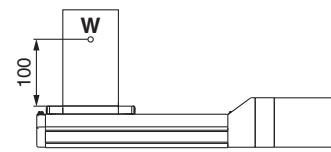
Selection Procedure



Selection Example

Operating conditions

- Workpiece weight: 20 [kg]
- Speed: 1500 [mm/s]
- Acceleration/Deceleration: 3000 [mm/s²]
- Stroke: 2000 [mm]
- Mounting position: Horizontal upward



<Speed-Work load graph>
(LEFB40)

Step 1 Check the work load-speed. <Speed-Work load graph> (Page 116)

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

Selection example) The **LEFB40S4S-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.

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

- 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.

$$T1 = V/a1 = 1500/3000 = 0.5 \text{ [s]},$$

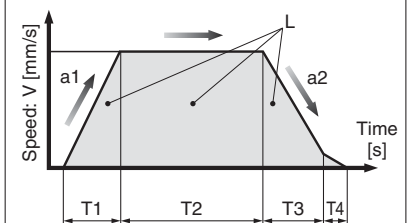
$$T3 = V/a2 = 1500/3000 = 0.5 \text{ [s]}$$

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} \\ = \frac{2000 - 0.5 \cdot 1500 \cdot (0.5 + 0.5)}{1500} \\ = 0.83 \text{ [s]}$$

$$T4 = 0.05 \text{ [s]}$$

Therefore, the cycle time can be obtained as follows.

$$T = T1 + T2 + T3 + T4 \\ = 0.5 + 0.83 + 0.5 + 0.05 \\ = 1.88 \text{ [s]}$$



L : Stroke [mm]
... (Operating condition)

V : Speed [mm/s]
... (Operating condition)

a1: Acceleration [mm/s²]
... (Operating condition)

a2: Deceleration [mm/s²]
... (Operating condition)

... (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

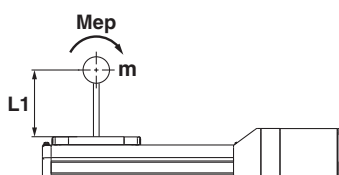
T3: Deceleration time [s]

Time from the beginning of the constant speed operation to stop

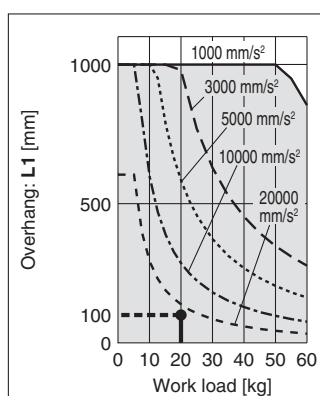
T4: Settling time [s]

Time until in position is completed

Step 3 Check the guide moment.

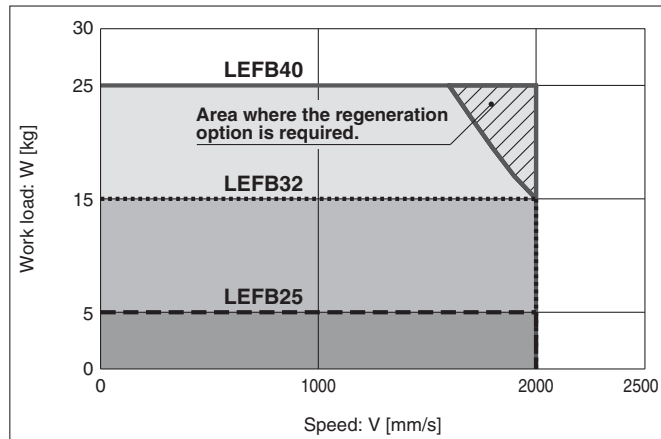


Based on the above calculation result, the **LEFB40S4S-2000** is selected.



Speed–Work Load Graph (Guide)

LEFB□/Belt Drive

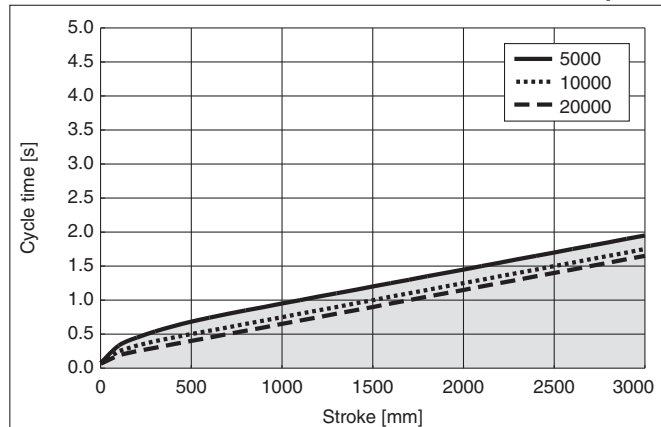


* The shaded area in the graph requires the regeneration option (LEC-MR-RB-032).

Cycle Time Graph (Guide)

LEFB□/Belt Drive

LEFB25/32/40



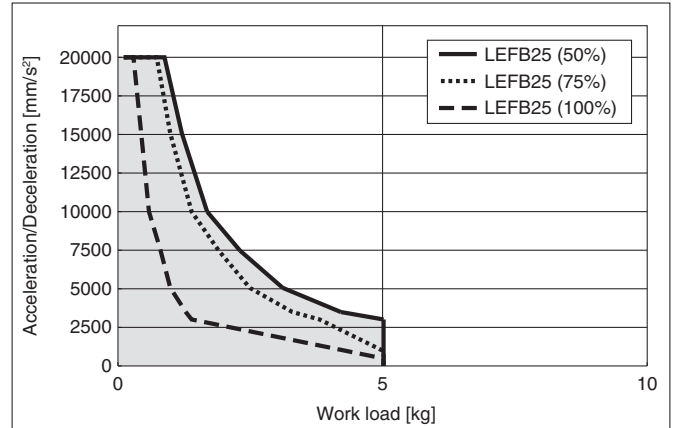
* Cycle time is for when maximum speed.

* Maximum stroke: LEFB25: 2000 mm
LEFB32: 2500 mm
LEFB40: 3000 mm

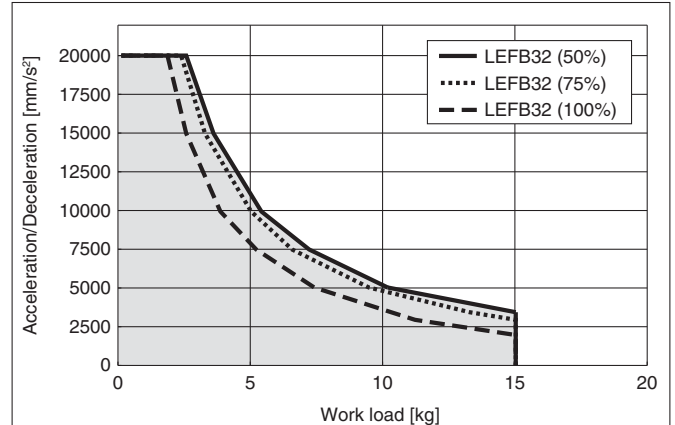
Work Load–Acceleration/Deceleration Graph (Guide)

LEFB□/Belt Drive

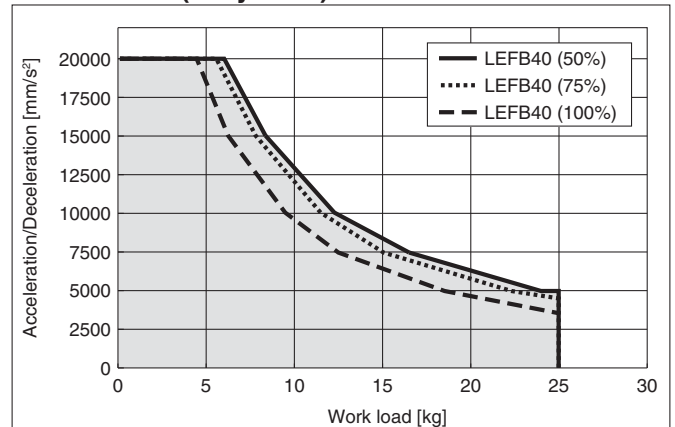
LEFB25S□ (Duty ratio)



LEFB32S□ (Duty ratio)



LEFB40S□ (Duty ratio)



Dynamic Allowable Moment

* This graph shows the amount of allowable overhang when the centre of gravity of the workpiece overhangs in one direction. When the centre of gravity of the workpiece overhangs in two directions, refer to the Electric Actuator Selection Software for confirmation, <http://www.smc.eu>

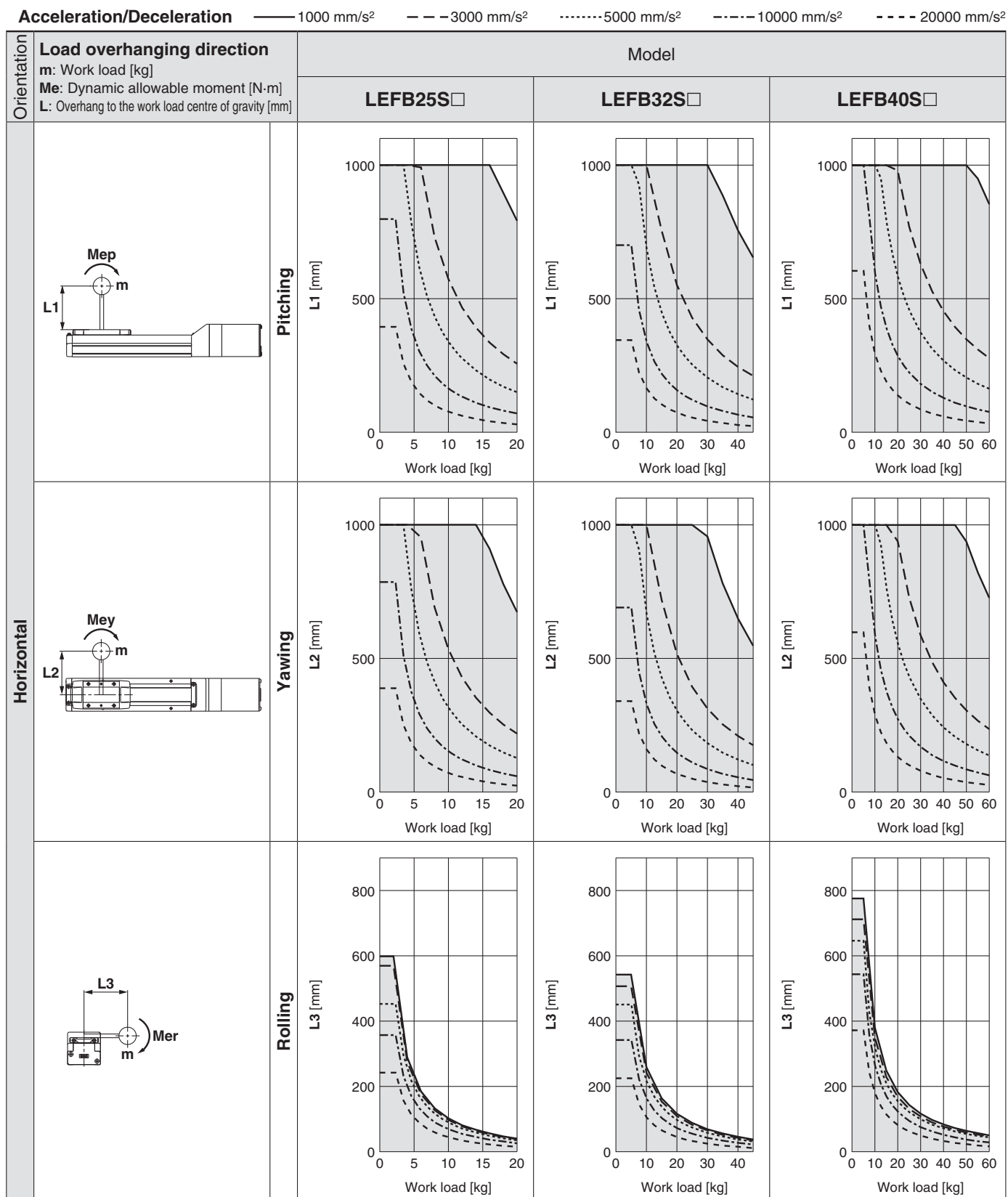
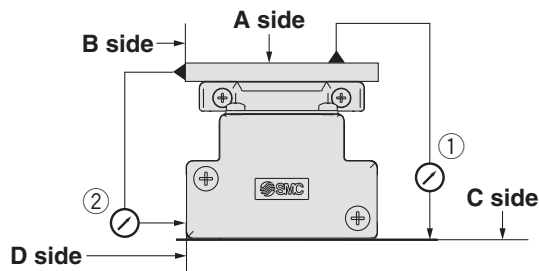


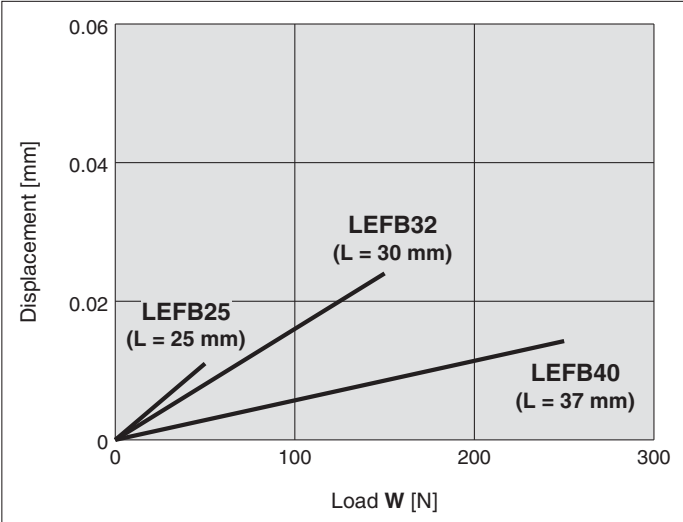
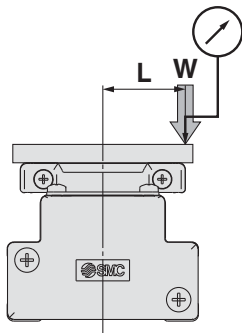
Table Accuracy



| 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 aluminium plate is mounted and fixed on the table.
Note 2) Check the clearance and play of the guide separately.

Model
Selection

LEFS

LEFB

LECA6
LECP6

LEC-G

LECP1

LECPA

LEFS

LEFB

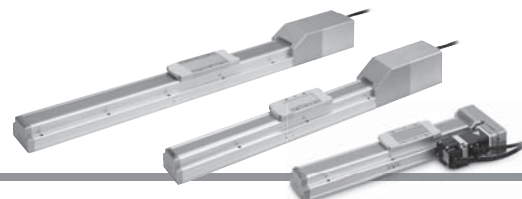
LECS

LEFG

Specific Product
Precautions

Electric Actuator/Slider Type Ball Screw Drive AC Servo Motor

Series **LEFS** LEFS25, 32, 40



How to Order

LEFS **H** **32** **R** **S3** **B** - **200** **□** **□** - **S** **2** **A2** **□**

1 2 3 4 5 6 7 8 9 10 11 12

1 Accuracy

| | |
|----------|---------------------|
| — | Basic type |
| H | High precision type |

2 Size

| |
|-----------|
| 25 |
| 32 |
| 40 |

3 Motor mounting position

| | |
|----------|---------------------|
| — | In-line |
| R | Right side parallel |
| L | Left side parallel |

4 Motor type

| Symbol | Type | Output (W) | Actuator size | Compatible driver |
|------------|---|------------|---------------|-------------------------------------|
| S2* | AC servo motor (Incremental encoder) | 100 | 25 | LECSA□-S1 |
| S3 | | 200 | 32 | LECSA□-S3 |
| S4 | | 400 | 40 | LECSA2-S4 |
| S6* | AC servo motor (Absolute encoder) | 100 | 25 | LECSB□-S5 LECSC□-S5 LECSS□-S5 |
| S7 | | 200 | 32 | LECSB□-S7 LECSC□-S7 LECSS□-S7 |
| S8 | | 400 | 40 | LECSB2-S8 LECSC2-S8 LECSS2-S8 |

* For motor type S2 and S6, the compatible driver part number suffixes are S1 and S5 respectively.

5 Lead [mm]

| Symbol | LEFS25 | LEFS32 | LEFS40 |
|----------|--------|--------|--------|
| H | 20 | 24 | 30 |
| A | 12 | 16 | 20 |
| B | 6 | 8 | 10 |

6 Stroke [mm]

| | |
|-------------|------|
| 50 | 50 |
| to | to |
| 1200 | 1200 |

* Refer to the applicable stroke table.

7 Motor option

| | |
|----------|----------------|
| — | Without option |
| B | With lock |

8 Seal band stopper

| | |
|----------|---|
| — | Standard |
| N | Roller type seal band stopper (grease free) |

9 Cable type Note 1) Note 2)

| | |
|----------|-----------------------------------|
| — | Without cable |
| S | Standard cable |
| R | Robotic cable (Flexible cable) |

10 Cable length Note 3) [m]

| | |
|----------|---------------|
| — | Without cable |
| 2 | 2 |
| 5 | 5 |
| A | 10 |

11 Driver type

| | Compatible driver | Power supply voltage [V] | Size |
|-----------|-------------------|--------------------------|----------|
| | | | 25 32 40 |
| — | 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)

— : Without cable and driver

12 I/O cable length [m] Note 4)

| | |
|----------|--------------------------------|
| — | Without cable |
| H | Without cable (Connector only) |
| 1 | 1.5 |

Note 4) When "Without driver" is selected for driver type, only "—: Without cable" can be selected.

Refer to page 161 if I/O cable is required.

(Options are shown on that page)

Note 1) Motor cable and encoder cable are included. (Lock cable is also included if motor option "With lock" is selected.)

Note 2) Standard cable entry direction is "(B) Counter axis side". For motor parallel type of the ball screw drive, the cable entry direction is "(A) Axis side".

Note 3) The length of the encoder, motor and lock cables are the same.

Support Guide/Series **LEFG**

A support guide is designed to support work pieces with significant overhang.

Page 165



Applicable Stroke Table

| Model \ Stroke [mm] | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 | 1100 | 1200 |
|---------------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| LEFS25 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | — | — | — | — | — |
| LEFS32 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | — | — |
| LEFS40 | — | — | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

●: Standard

* Please consult with SMC for non-standard strokes as they are produced as special orders.

Compatible Driver

| 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 | 148 | | | |

Specifications

LEFS25, 32, 40 AC Servo Motor

| Actuator specifications | Model | | LEFS25S ² | | | LEFS32S ³ | | | LEFS40S ⁴ | | | |
|--|---|--|---|------|-----|----------------------|------|------|----------------------|------|------|-----|
| | Stroke [mm] ^{Note 1)} | | 50 to 800 | | | 50 to 1000 | | | 150 to 1200 | | | |
| | 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)} | Stroke range | 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 | 700 | 420 | 210 | 930 | 620 | 310 | 1410 | 940 | 470 |
| | | | 701 to 800 | 550 | 330 | 160 | 750 | 500 | 250 | 1140 | 760 | 380 |
| | | | 801 to 900 | — | — | — | 610 | 410 | 200 | 930 | 620 | 310 |
| | | | 901 to 1000 | — | — | — | 510 | 510 | 170 | 780 | 520 | 260 |
| | | | 1001 to 1100 | — | — | — | — | — | — | 500 | 440 | 220 |
| 1101 to 1200 | — | — | — | — | — | — | 500 | 380 | 190 | | | |
| Max. acceleration/deceleration [mm/s ²] | | 20000 (Refer to page 104 for limit according to work load and duty ratio.) | | | | | | | | | | |
| Positioning repeatability [mm] | | Basic type | ±0.02 | | | | | | | | | |
| | | High precision type | ±0.01 | | | | | | | | | |
| Lost motion [mm] ^{Note 4)} | | Basic type | 0.1 or less | | | | | | | | | |
| | | High precision type | 0.05 or less | | | | | | | | | |
| Lead [mm] | | | 20 | 12 | 6 | 24 | 16 | 8 | 30 | 20 | 10 | |
| Impact/Vibration resistance [m/s ²] ^{Note 5)} | | | 50/20 | | | | | | | | | |
| Actuation type | | | Ball screw (LEFS□), Ball screw + Belt (LEFS□ ^R) | | | | | | | | | |
| Guide type | | | Linear guide | | | | | | | | | |
| Operating temperature range [°C] | | | 5 to 40 | | | | | | | | | |
| 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 (100/200 VAC) | | | | | | | | | |
| | Encoder | | Motor type S2, S3, S4: Incremental 17-bit encoder (Resolution: 131072 p/rev) Motor type S6, S7, S8: Absolute 18-bit encoder (Resolution: 262144 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 specifications | Type ^{Note 9)} | | Non-magnetizing lock | | | | | | | | | |
| | Holding force [N] | | 78 | 131 | 255 | 131 | 197 | 385 | 220 | 330 | 660 | |
| | Power consumption at 20°C [W] ^{Note 10)} | | 6.3 | | | 7.9 | | | 7.9 | | | |
| | 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 104.

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

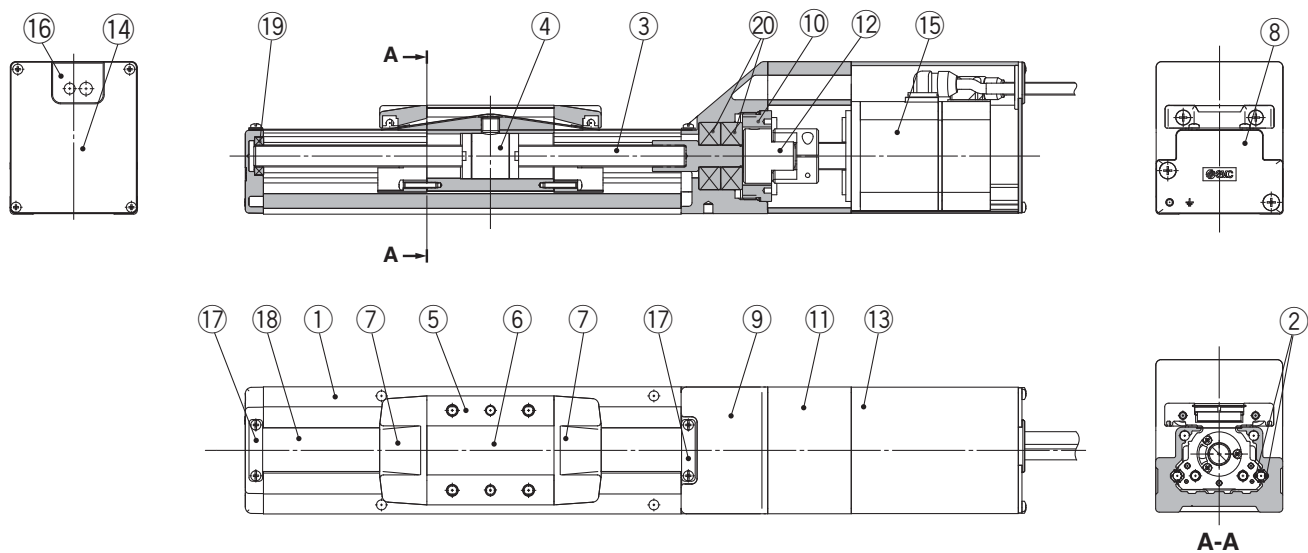
| Series | | LEFS25S□ | | | | | | | | | | | | | | | |
|----------------------------------|----|-----------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Stroke [mm] | | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 650 | 800 |
| Motor type | S2 | 2.00 | 2.14 | 2.28 | 2.44 | 2.56 | 2.69 | 2.84 | 2.99 | 3.12 | 3.24 | 3.40 | 3.54 | 3.68 | 3.82 | 3.96 | 4.14 |
| | S6 | 2.06 | 2.20 | 2.34 | 2.50 | 2.62 | 2.75 | 2.90 | 3.05 | 3.18 | 3.30 | 3.46 | 3.60 | 3.74 | 3.88 | 4.02 | 4.20 |
| Additional weight with lock [kg] | | S2: 0.2/S6: 0.3 | | | | | | | | | | | | | | | |

| Series | | LEFS32S□ | | | | | | | | | | | | | | | | | | | |
|----------------------------------|----|-----------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Stroke [mm] | | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 |
| Motor type | S3 | 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 | 6.60 | 6.80 | 7.00 | 7.20 |
| | S7 | 3.34 | 3.54 | 3.74 | 3.94 | 4.14 | 4.34 | 4.54 | 4.74 | 4.94 | 5.14 | 5.34 | 5.54 | 5.74 | 5.94 | 6.14 | 6.34 | 6.54 | 6.74 | 6.94 | 7.14 |
| Additional weight with lock [kg] | | S3: 0.4/S7: 0.7 | | | | | | | | | | | | | | | | | | | |

| Series | | LEFS40S□ | | | | | | | | | | | | | | | | | | | |
|----------------------------------|----|-----------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|
| Stroke [mm] | | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 | 1100 | 1200 |
| Motor type | S4 | 5.82 | 6.10 | 6.38 | 6.65 | 6.95 | 7.25 | 7.51 | 7.80 | 8.07 | 8.25 | 8.63 | 8.90 | 9.20 | 9.45 | 9.76 | 10.05 | 10.32 | 10.60 | 11.16 | 11.72 |
| | S8 | 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 | 11.26 | 11.82 |
| Additional weight with lock [kg] | | S4: 0.7/S8: 0.7 | | | | | | | | | | | | | | | | | | | |

Construction

In-line motor



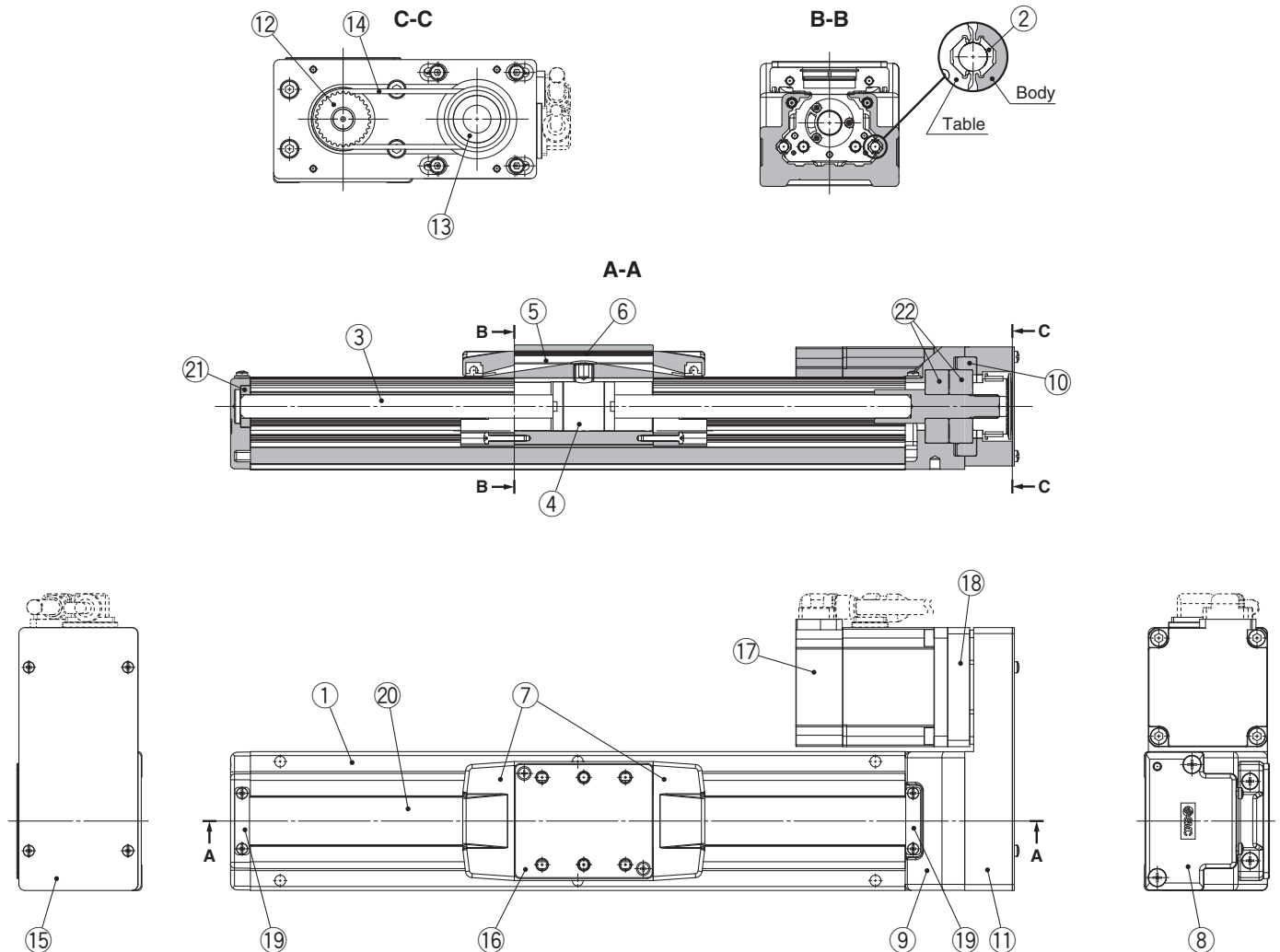
Component Parts

| No. | Description | Material | Note |
|-----|-------------------|--------------------|----------|
| 1 | Body | Aluminium alloy | Anodised |
| 2 | Rail guide | — | |
| 3 | Ball screw shaft | — | |
| 4 | Ball screw nut | — | |
| 5 | Table | Aluminium alloy | Anodised |
| 6 | Blanking plate | Aluminium alloy | Anodised |
| 7 | Seal band stopper | Synthetic resin | |
| 8 | Housing A | Aluminium die-cast | Coating |
| 9 | Housing B | Aluminium die-cast | Coating |
| 10 | Bearing stopper | Aluminium alloy | |

| No. | Description | Material | Note |
|-----|-----------------|-----------------|----------|
| 11 | Motor mount | Aluminium alloy | Coating |
| 12 | Coupling | — | |
| 13 | Motor cover | Aluminium alloy | Anodised |
| 14 | Motor end cover | Aluminium alloy | Anodised |
| 15 | Motor | — | |
| 16 | Grommet | NBR | |
| 17 | Band stopper | Stainless steel | |
| 18 | Dust seal band | Stainless steel | |
| 19 | Bearing | — | |
| 20 | Bearing | — | |

Construction

Motor parallel



Component Parts

| No. | Description | Material | Note |
|-----|-------------------|----------------------|-----------------------|
| 1 | Body | Aluminium alloy | Anodised |
| 2 | Rail guide | — | |
| 3 | Ball screw shaft | — | |
| 4 | Ball screw nut | — | |
| 5 | Table | Aluminium alloy | Anodised |
| 6 | Blanking plate | Aluminium alloy | Anodised |
| 7 | Seal band stopper | Synthetic resin | |
| 8 | Housing A | Aluminium die-casted | Coating |
| 9 | Housing B | Aluminium die-casted | Coating |
| 10 | Bearing stopper | Aluminium alloy | |
| 11 | Return plate | Aluminium alloy | Coating |
| 12 | Pulley | Aluminium alloy | |
| 13 | Pulley | Aluminium alloy | |
| 15 | Cover plate | Aluminium alloy | Coating |
| 16 | Table spacer | Aluminium alloy | Coating (LEFS32 only) |

| No. | Description | Material | Note |
|-----|-----------------------------|-----------------|----------|
| 17 | Motor (Absolute encoder) | — | |
| | Motor (Incremental encoder) | | |
| 18 | Motor adapter | Aluminium alloy | Anodised |
| 19 | Band stopper | Stainless steel | |
| 20 | Dust seal band | Stainless steel | |
| 21 | Bearing | — | |
| 22 | Bearing | — | |

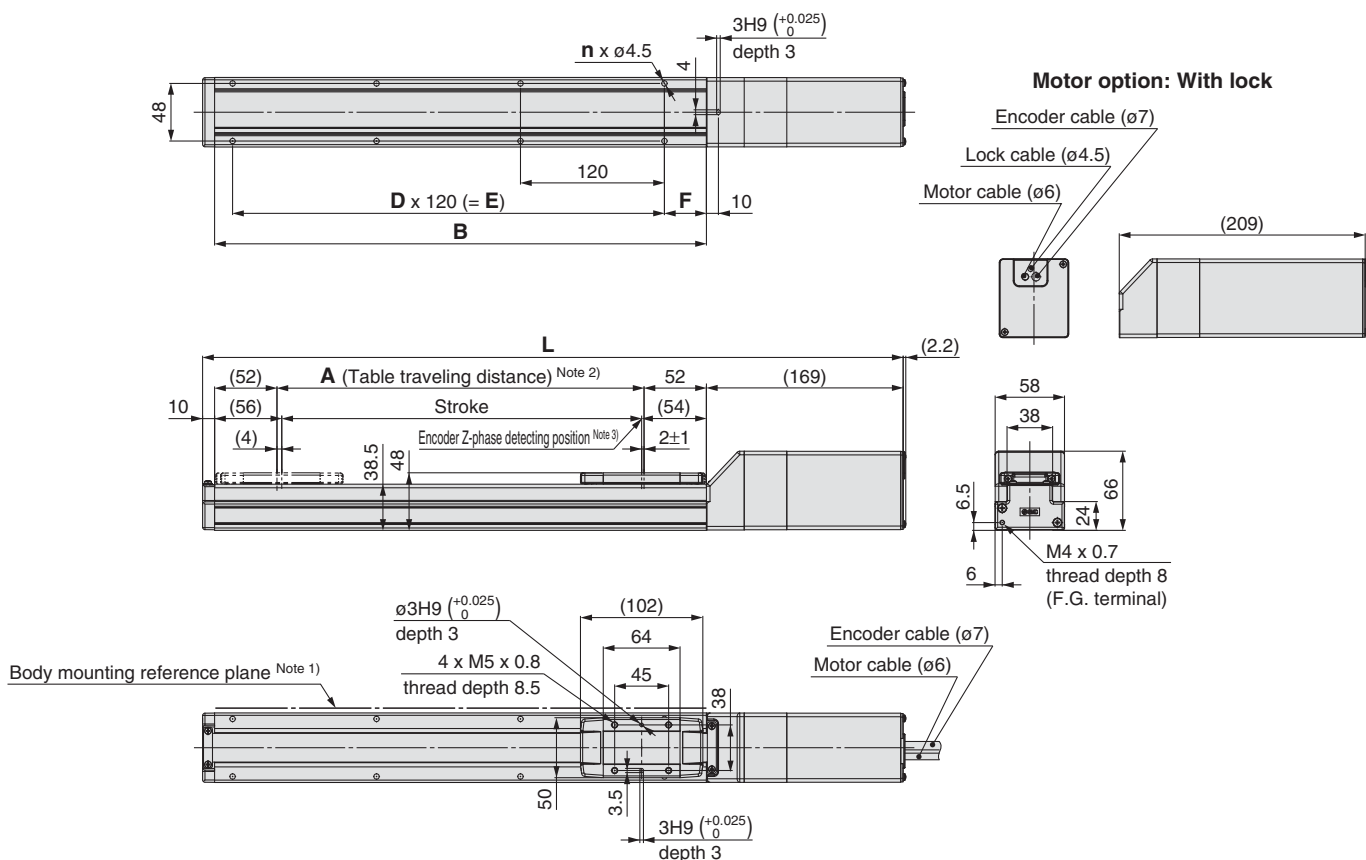
Replacement Parts/Belt

| No. | Size | Order no. |
|-----|------|-----------|
| 14 | 25 | LE-D-6-2 |
| | 32 | LE-D-6-3 |
| | 40 | LE-D-6-4 |

Series LEFS

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.

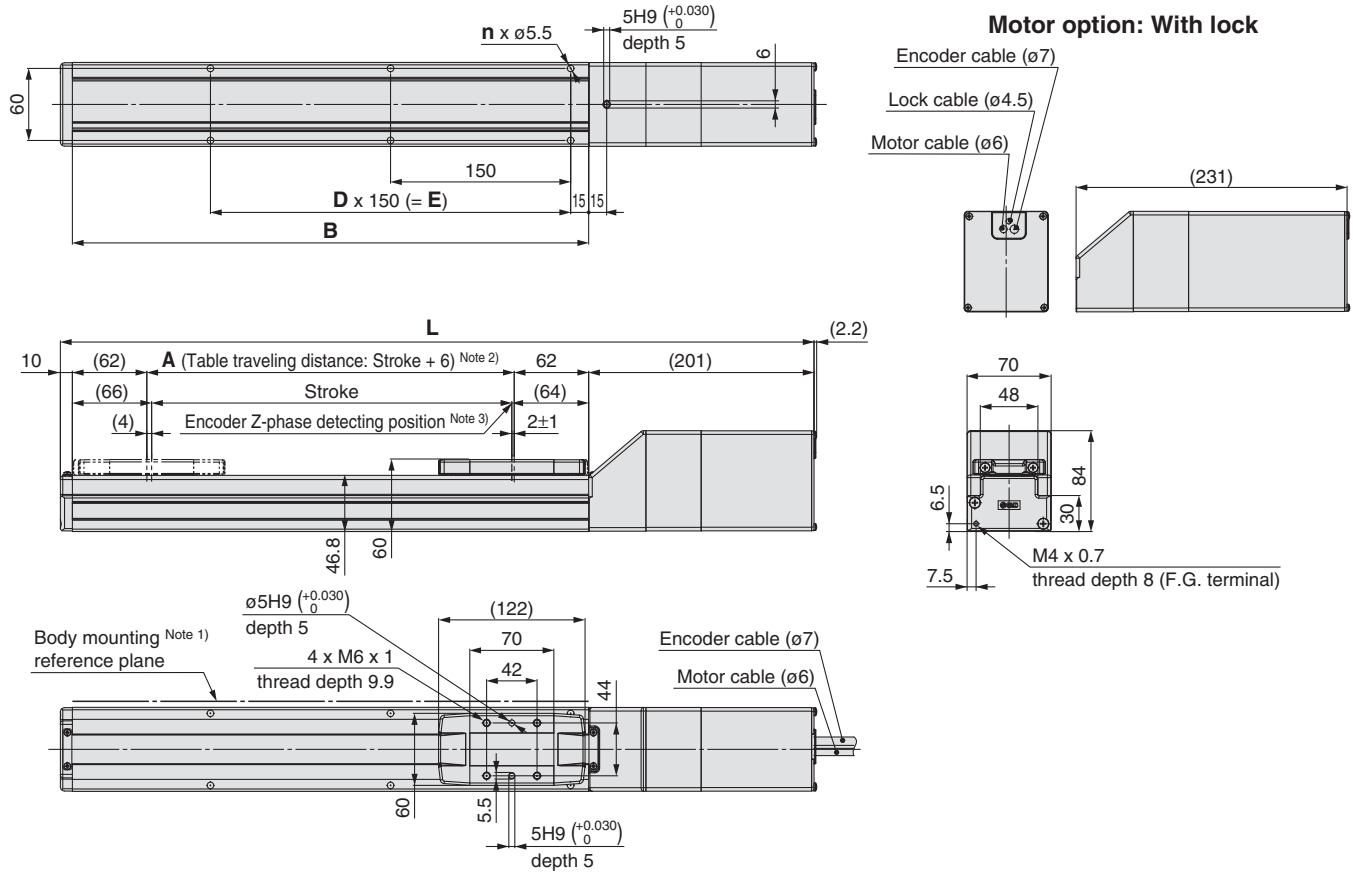
Dimensions

[mm]

| Model | L | | A | B | n | D | E | F |
|---------------|--------------|-----------|-----|-----|----|---|-----|----|
| | Without lock | With lock | | | | | | |
| LEFS25□□-50□ | 339 | 379 | 56 | 160 | 4 | — | — | 20 |
| LEFS25□□-100□ | 389 | 429 | 106 | 210 | 4 | — | — | |
| 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 | 35 |
| 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 | |
| LEFS25□□-650□ | 939 | 979 | 656 | 760 | 12 | 5 | 600 | |
| LEFS25□□-700□ | 989 | 1029 | 706 | 810 | 14 | 6 | 720 | |
| LEFS25□□-750□ | 1039 | 1079 | 756 | 860 | 14 | 6 | 720 | |
| LEFS25□□-800□ | 1089 | 1129 | 806 | 910 | 16 | 7 | 840 | |

Dimensions: In-line Motor

LEFS32



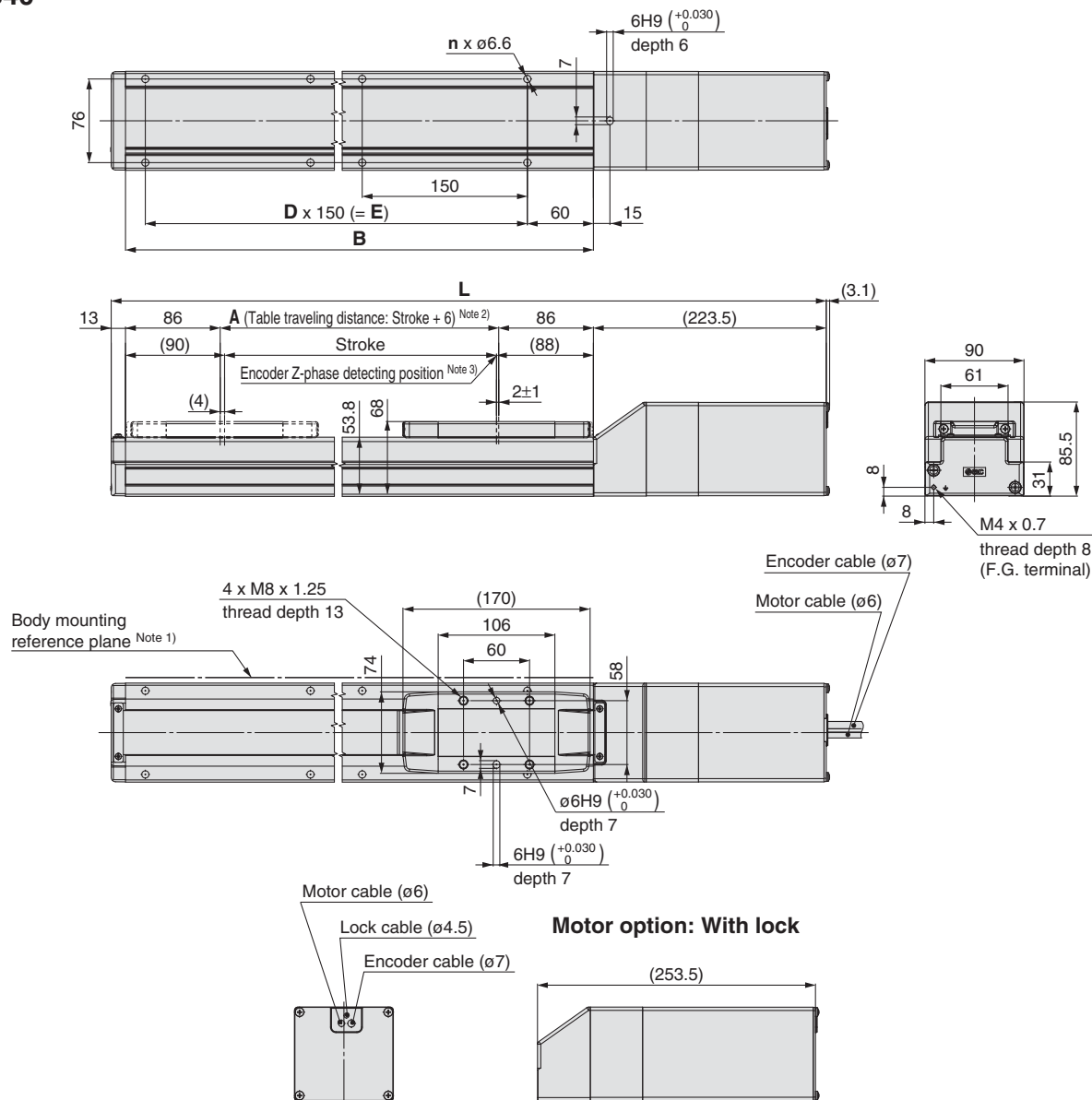
- Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more because of R chamfering. (Recommended height 5 mm)
- Note 2) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted 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

| Model | L | | A | B | n | D | E |
|----------------|--------------|-----------|------|------|----|---|------|
| | Without lock | With lock | | | | | |
| 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 |
| LEFS32□□-850□ | 1191 | 1221 | 856 | 980 | 14 | 6 | 900 |
| LEFS32□□-900□ | 1241 | 1271 | 906 | 1030 | 14 | 6 | 900 |
| LEFS32□□-950□ | 1291 | 1321 | 956 | 1080 | 16 | 7 | 1050 |
| LEFS32□□-1000□ | 1341 | 1371 | 1006 | 1130 | 16 | 7 | 1050 |

Dimensions: In-line Motor

LEFS40



Dimensions

[mm]

| Model | L | | A | B | n | D | E |
|----------------|--------------|-----------|------|------|----|---|------|
| | Without lock | With lock | | | | | |
| 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 |
| LEFS40□□-1100□ | 1514.5 | 1544.5 | 1106 | 1278 | 18 | 8 | 1200 |
| LEFS40□□-1200□ | 1614.5 | 1644.5 | 1206 | 1378 | 18 | 8 | 1200 |

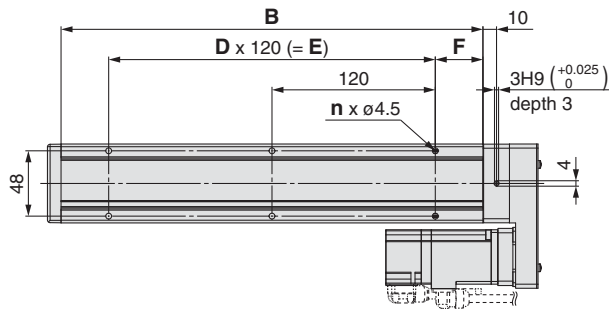
Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more because of R chamfering. (Recommended height 5 mm)

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.

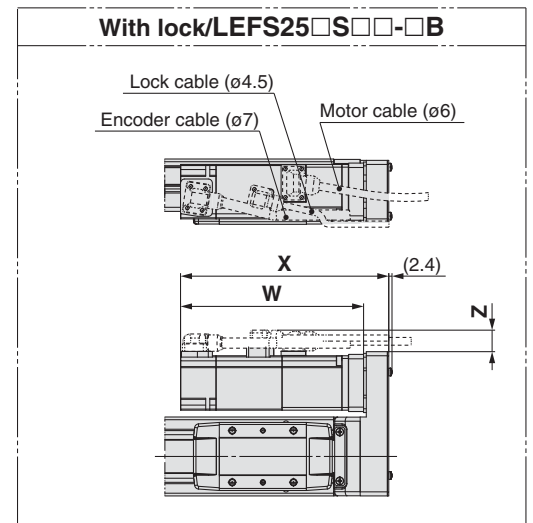
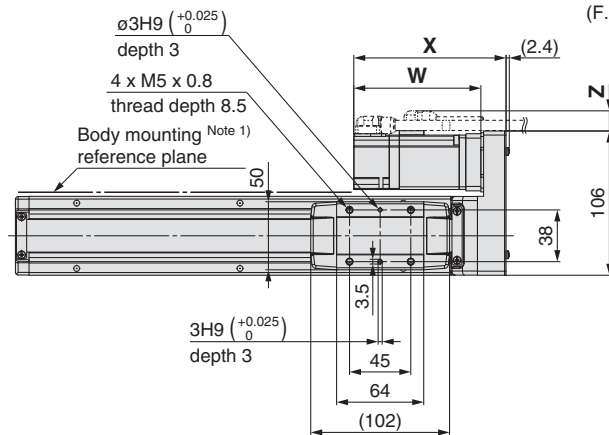
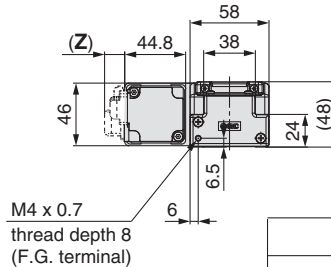
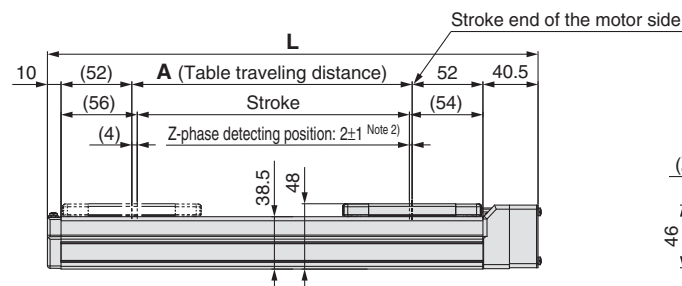
Note 3) The Z-phase first detecting position from the stroke end of the motor side.

Dimensions: Motor Parallel

LEFS25R



| Motor mounting position: Left side parallel LEFS25LS □□ | Motor mounting position: Right side parallel LEFS25RS □□ |
|---|--|
| | |



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

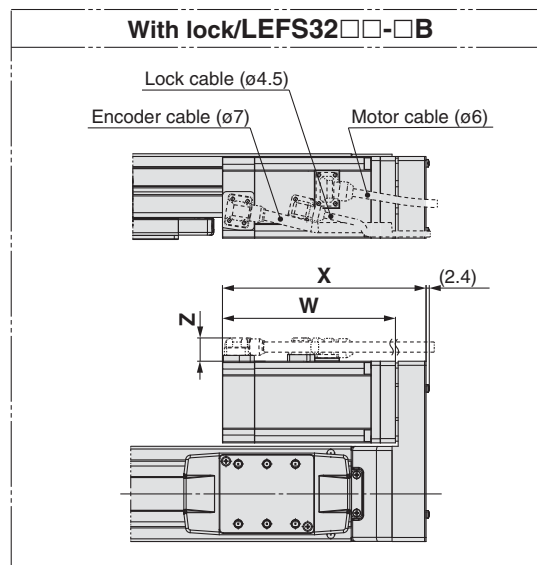
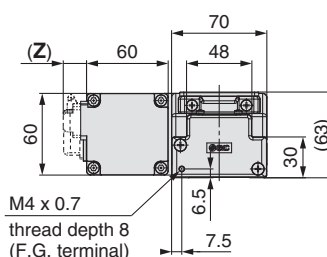
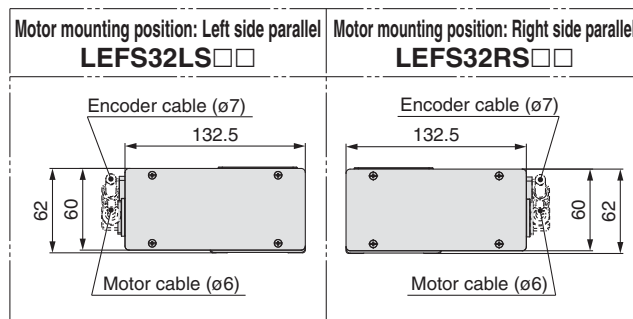
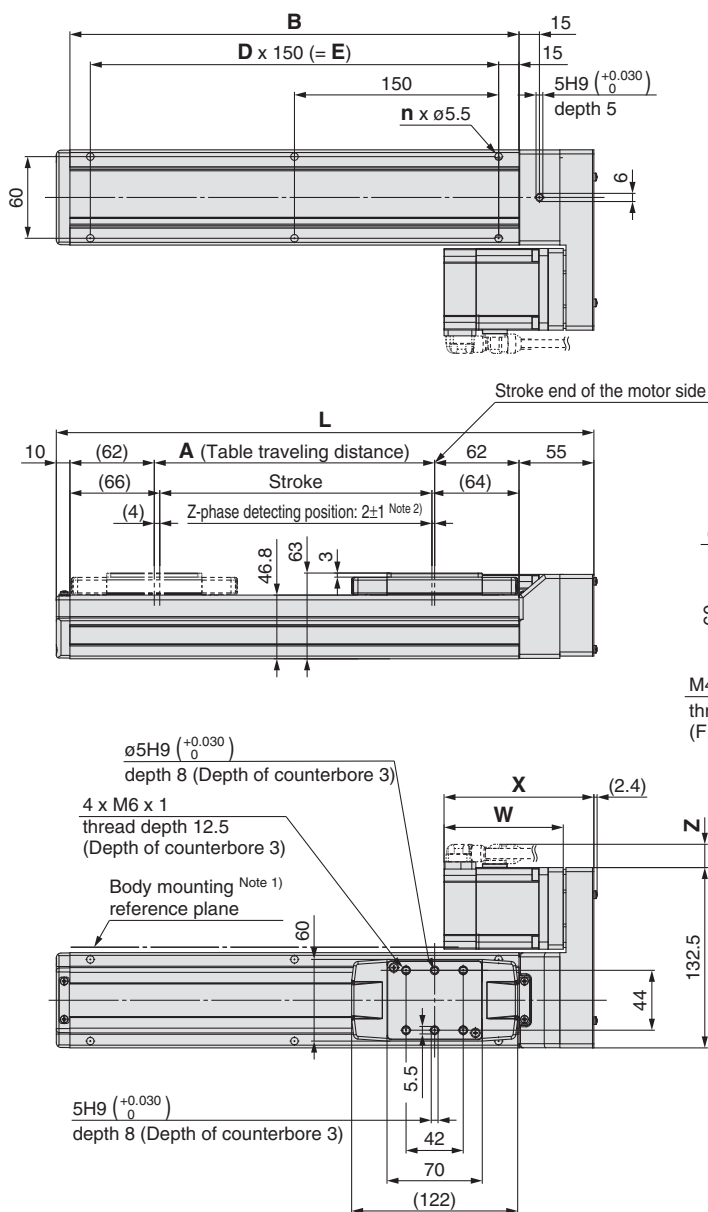
| Motor type | X | | W | | Z | |
|------------|--------------|-----------|--------------|-----------|--------------|-----------|
| | Without lock | With lock | Without lock | With lock | Without lock | With lock |
| S2 | 116.5 | 153.4 | 87 | 123.9 | 14.1 | 15.8 |
| S6 | 111.9 | 153 | 82.4 | 123.5 | 14.1 | 15.8 |

Dimensions

| Model | L | A | B | n | D | E | F |
|-----------------------|-------|-----|-----|----|---|-----|----|
| LEFS25□S□-50□ | 210.5 | 56 | 160 | 4 | — | — | 20 |
| LEFS25□S□-100□ | 260.5 | 106 | 210 | 4 | — | — | |
| LEFS25□S□-150□ | 310.5 | 156 | 260 | 4 | — | — | |
| LEFS25□S□-200□ | 360.5 | 206 | 310 | 6 | 2 | 240 | |
| LEFS25□S□-250□ | 410.5 | 256 | 360 | 6 | 2 | 240 | |
| LEFS25□S□-300□ | 460.5 | 306 | 410 | 8 | 3 | 360 | |
| LEFS25□S□-350□ | 510.5 | 356 | 460 | 8 | 3 | 360 | |
| LEFS25□S□-400□ | 560.5 | 406 | 510 | 8 | 3 | 360 | |
| LEFS25□S□-450□ | 610.5 | 456 | 560 | 10 | 4 | 480 | |
| LEFS25□S□-500□ | 660.5 | 506 | 610 | 10 | 4 | 480 | |
| LEFS25□S□-550□ | 710.5 | 556 | 660 | 12 | 5 | 600 | |
| LEFS25□S□-600□ | 760.5 | 606 | 710 | 12 | 5 | 600 | |
| LEFS25□S□-650□ | 810.5 | 656 | 760 | 12 | 5 | 600 | |
| LEFS25□S□-700□ | 860.5 | 706 | 810 | 14 | 6 | 720 | |
| LEFS25□S□-750□ | 910.5 | 756 | 860 | 14 | 6 | 720 | |
| LEFS25□S□-800□ | 960.5 | 806 | 910 | 16 | 7 | 840 | |

Dimensions: Motor Parallel

LEFS32R



Dimensions

[mm]

| Model | L | A | B | n | D | E |
|-----------------|------|------|------|----|---|------|
| LEFS32□S□-50□ | 245 | 56 | 180 | 4 | — | — |
| LEFS32□S□-100□ | 295 | 106 | 230 | 4 | — | — |
| LEFS32□S□-150□ | 345 | 156 | 280 | 4 | — | — |
| LEFS32□S□-200□ | 395 | 206 | 330 | 6 | 2 | 300 |
| LEFS32□S□-250□ | 445 | 256 | 380 | 6 | 2 | 300 |
| LEFS32□S□-300□ | 495 | 306 | 430 | 6 | 2 | 300 |
| LEFS32□S□-350□ | 545 | 356 | 480 | 8 | 3 | 450 |
| LEFS32□S□-400□ | 595 | 406 | 530 | 8 | 3 | 450 |
| LEFS32□S□-450□ | 645 | 456 | 580 | 8 | 3 | 450 |
| LEFS32□S□-500□ | 695 | 506 | 630 | 10 | 4 | 600 |
| LEFS32□S□-550□ | 745 | 556 | 680 | 10 | 4 | 600 |
| LEFS32□S□-600□ | 795 | 606 | 730 | 10 | 4 | 600 |
| LEFS32□S□-650□ | 845 | 656 | 780 | 12 | 5 | 750 |
| LEFS32□S□-700□ | 895 | 706 | 830 | 12 | 5 | 750 |
| LEFS32□S□-750□ | 945 | 756 | 880 | 12 | 5 | 750 |
| LEFS32□S□-800□ | 995 | 806 | 930 | 14 | 6 | 900 |
| LEFS32□S□-850□ | 1045 | 856 | 980 | 14 | 6 | 900 |
| LEFS32□S□-900□ | 1095 | 906 | 1030 | 14 | 6 | 900 |
| LEFS32□S□-950□ | 1145 | 956 | 1080 | 16 | 7 | 1050 |
| LEFS32□S□-1000□ | 1195 | 1006 | 1130 | 16 | 7 | 1050 |

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.

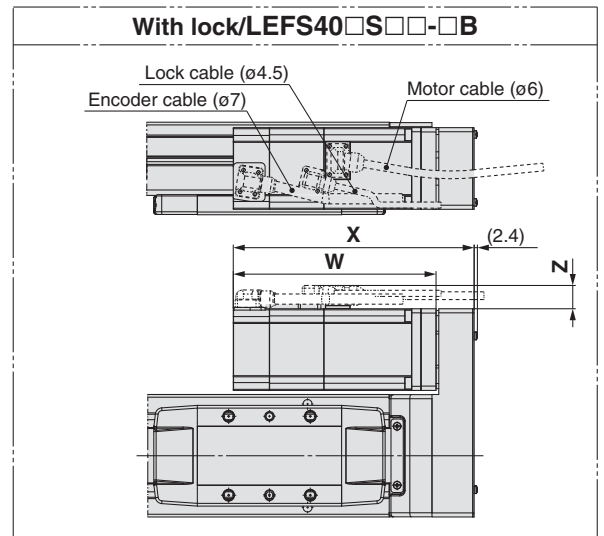
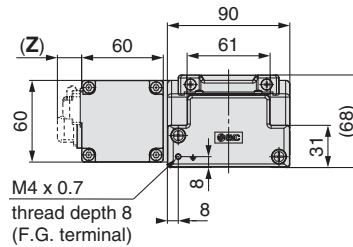
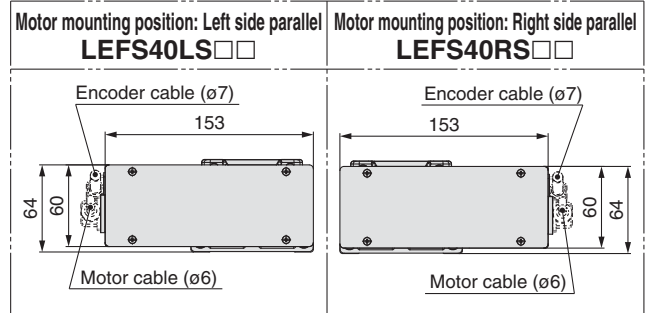
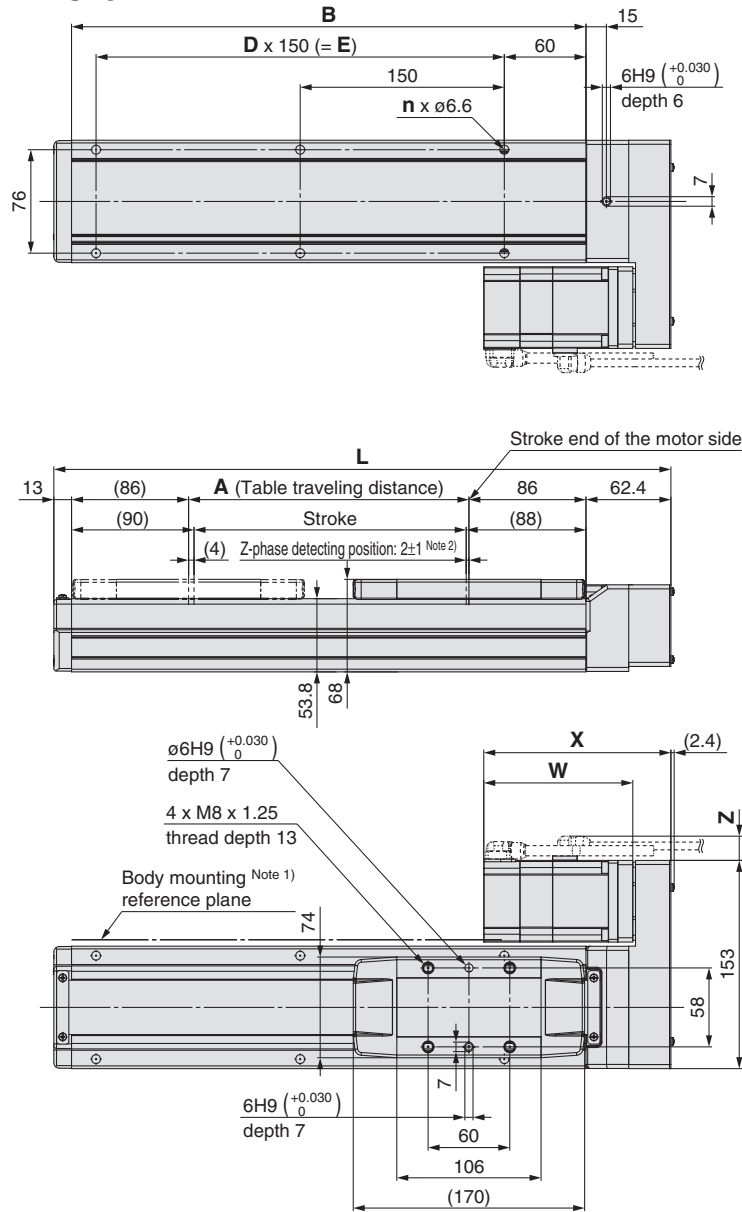
Motor Dimensions

[mm]

| Motor type | X | | W | | Z | |
|------------|--------------|-----------|--------------|-----------|--------------|-----------|
| | Without lock | With lock | Without lock | With lock | Without lock | With lock |
| S3 | 121.7 | 150.3 | 88.2 | 116.8 | 17.1 | 17.1 |
| S7 | 110.1 | 149.6 | 76.6 | 116.1 | 17.1 | 17.1 |

Dimensions: Motor Parallel

LEFS40R



Dimensions

| Model | L | A | B | n | D | E |
|--------------|--------|------|------|----|---|------|
| LEFS40S-150 | 403.4 | 156 | 328 | 4 | — | 150 |
| LEFS40S-200 | 453.4 | 206 | 378 | 6 | 2 | 300 |
| LEFS40S-250 | 503.4 | 256 | 428 | 6 | 2 | 300 |
| LEFS40S-300 | 553.4 | 306 | 478 | 6 | 2 | 300 |
| LEFS40S-350 | 603.4 | 356 | 528 | 8 | 3 | 450 |
| LEFS40S-400 | 653.4 | 406 | 578 | 8 | 3 | 450 |
| LEFS40S-450 | 703.4 | 456 | 628 | 8 | 3 | 450 |
| LEFS40S-500 | 753.4 | 506 | 678 | 10 | 4 | 600 |
| LEFS40S-550 | 803.4 | 556 | 728 | 10 | 4 | 600 |
| LEFS40S-600 | 853.4 | 606 | 778 | 10 | 4 | 600 |
| LEFS40S-650 | 903.4 | 656 | 828 | 12 | 5 | 750 |
| LEFS40S-700 | 953.4 | 706 | 878 | 12 | 5 | 750 |
| LEFS40S-750 | 1003.4 | 756 | 928 | 12 | 5 | 750 |
| LEFS40S-800 | 1053.4 | 806 | 978 | 14 | 6 | 900 |
| LEFS40S-850 | 1103.4 | 856 | 1028 | 14 | 6 | 900 |
| LEFS40S-900 | 1153.4 | 906 | 1078 | 14 | 6 | 900 |
| LEFS40S-950 | 1203.4 | 956 | 1128 | 16 | 7 | 1050 |
| LEFS40S-1000 | 1253.4 | 1006 | 1178 | 16 | 7 | 1050 |
| LEFS40S-1100 | 1353.4 | 1106 | 1278 | 18 | 8 | 1200 |
| LEFS40S-1200 | 1453.4 | 1206 | 1378 | 18 | 8 | 1200 |

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

| Motor type | X | W | Z |
|------------|--------------|-----------|--------------|
| | Without lock | With lock | Without lock |
| S4 | 149.2 | 177.8 | 110.2 |
| S8 | 137.5 | 177 | 98.5 |



Series LEFS Electric Actuator Specific Product Precautions 1

Be sure to read this before handling. Refer to the back cover for Safety Instructions.
For Electric Actuator Precautions, refer to “Handling Precautions for SMC Products”
and the Operation Manual on SMC website, <http://www.smc.eu>

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 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.

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 catalogue.

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.



Series LEFS

Electric Actuator

Specific Product Precautions 2

Be sure to read this before handling. Refer to the back cover for Safety Instructions.
For Electric Actuator Precautions, refer to "Handling Precautions for SMC Products"
and the Operation Manual on SMC website, <http://www.smc.eu>

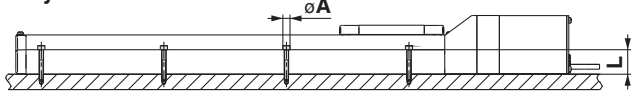
Handling

Caution

9. When mounting the product, use screws with adequate length and tighten them with adequate torque.

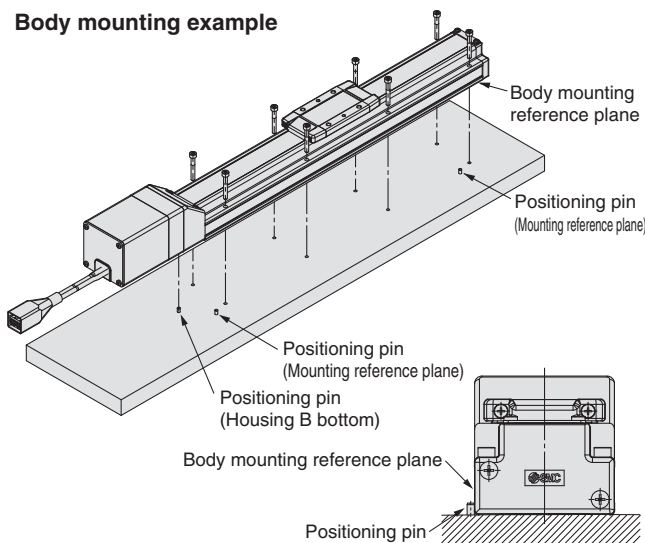
Tightening the screws with a higher torque than recommended may cause a malfunction, whilst the tightening with a lower torque can cause the displacement of the mounting position or in extreme conditions the actuator could become detached from its mounting position.

Body fixed



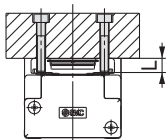
| Model | Bolt | øA [mm] | L [mm] |
|--------|------|---------|--------|
| LEFS25 | M4 | 4.5 | 24 |
| LEFS32 | M5 | 5.5 | 30 |
| LEFS40 | M6 | 6.6 | 31 |

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 [N·m] | L (Max. screw-in depth) [mm] |
|--------|-----------|------------------------------|------------------------------|
| LEFS25 | M5 x 0.8 | 3.0 | 8 |
| LEFS32 | M6 x 1 | 5.2 | 9 |
| LEFS40 | M8 x 1.25 | 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□SH | 4100 km |
| LEFS25□SA | 2500 km |
| LEFS25□SB | 1200 km |

| Model | Distance |
|-----------|----------|
| LEFS32□SH | 6000 km |
| LEFS32□SA | 4000 km |
| LEFS32□SB | 2000 km |

| Model | Distance |
|-----------|----------|
| LEFS40□SH | 6000 km |
| LEFS40□SA | 4000 km |
| LEFS40□SB | 2000 km |

Electric Actuator/Slider Type Ball Screw Drive

AC Servo Motor

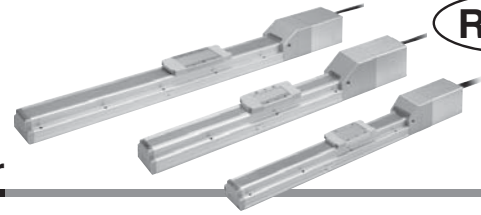
Clean Room Specification

Series 11-LEFS

LEFS25, 32, 40



RoHS



How to Order

11-LEFS H 25 S2 B - 100 - S 2 A1

Clean Series

| | |
|----|-------------|
| 11 | Vacuum type |
|----|-------------|

1 Accuracy

| | |
|---|---------------------|
| — | Basic type |
| H | High precision type |

2 Size

| |
|----|
| 25 |
| 32 |
| 40 |

3 Motor type

| Symbol | Type | Output (W) | Actuator size | Compatible driver |
|--------|--------------------------------------|------------|---------------|------------------------------------|
| S2* | AC servo motor (Incremental encoder) | 100 | 25 | LECSA□-S1 |
| S3 | | 200 | 32 | LECSA□-S3 |
| S4 | | 400 | 40 | LECSA2-S4 |
| S6* | AC servo motor (Absolute encoder) | 100 | 25 | LECSB□-S5 LECS□-S5 LECSS□-S5 |
| S7 | | 200 | 32 | LECSB□-S7 LECS□-S7 LECSS□-S7 |
| S8 | | 400 | 40 | LECSB2-S8 LECS2-S8 LECSS2-S8 |

* For motor type S2 and S6, the compatible driver part number suffixes are S1 and S5 respectively.

4 Lead [mm]

| Symbol | 11-LEFS25 | 11-LEFS32 | 11-LEFS40 |
|--------|-----------|-----------|-----------|
| A | 12 | 16 | 20 |
| B | 6 | 8 | 10 |

6 Motor option

| | |
|---|----------------|
| — | Without option |
| B | With lock |

7 Vacuum port*

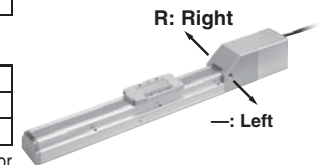
| | |
|---|---------------------|
| — | Left |
| R | Right |
| D | Both left and right |

* Select "D" for the vacuum port for suction of 50 L/min (ANR) or more.

5 Stroke [mm]

| | |
|------|------|
| 50 | 50 |
| to | to |
| 1000 | 1000 |

* Refer to the applicable stroke table.



8 Cable type

| | |
|---|--------------------------------|
| — | Without cable |
| S | Standard cable |
| R | Robotic cable (Flexible cable) |

Note 1) The motor and encoder cables are included. (The lock cable is also included when the motor with lock option is selected.)

Note 2) Standard cable entry direction is "(B) Counter axis side". (Refer to page 160 for details.)

9 Cable length

| | |
|---|---------------|
| — | Without cable |
| 2 | 2 m |
| 5 | 5 m |
| A | 10 m |

Note 3) The length of the encoder, motor and lock cables are the same.

11 I/O cable length [m]

| | |
|---|--------------------------------|
| — | Without cable |
| H | Without cable (Connector only) |
| 1 | 1.5 |

Note 4) When "Without driver" is selected for driver type, only "—: Without cable" can be selected. Refer to page 165 if I/O cable is required. (Options are shown on that page.)

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 |
|-----------|-------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| 11-LEFS25 | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | — | — | — | — | — | — | — |
| 11-LEFS32 | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | — | — | — |
| 11-LEFS40 | | — | — | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

* Please consult with SMC for non-standard strokes as they are produced as special orders.

Compatible Driver

| Driver type | Pulse input type /Positioning type | Pulse input type | CC-Link direct input type | SSCNET Ⅲ type |
|--------------------------|--|--|--|-------------------------|
| | | | | |
| Series | LECSA | LECSB | LECSA | LECSA |
| 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 | 148 | | | |

* 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)

—: Without cable and driver

Support Guide/Series LEFG

A support guide is designed to support work pieces with significant overhang. [Page 169](#)



Specifications

11-LEFS25, 32, 40 AC Servo Motor

| Actuator specifications | Model | | 11-LEFS25S ² ₆ | | 11-LEFS32S ³ ₇ | | 11-LEFS40S ⁴ ₈ | | |
|--|---|---------------------|---|-----|--------------------------------------|------|--------------------------------------|------|-----|
| | Stroke [mm] ^{Note 1)} | | 50 to 600 | | 50 to 800 | | 150 to 1000 | | |
| | Work load [kg] ^{Note 2)} | | Horizontal | 20 | 20 | 40 | 45 | 50 | 60 |
| | | | Vertical | 8 | 15 | 10 | 20 | 15 | 30 |
| | Max. speed [mm/s] ^{Note 3)} | Stroke range | Up to 400 | 900 | 450 | 1000 | 500 | 1000 | 500 |
| | | | 401 to 500 | 720 | 360 | 1000 | 500 | 1000 | 500 |
| | | | 501 to 600 | 540 | 270 | 800 | 400 | 1000 | 500 |
| | | | 601 to 700 | — | — | 620 | 310 | 940 | 470 |
| | | | 701 to 800 | — | — | 500 | 250 | 760 | 380 |
| | | | 801 to 900 | — | — | — | — | 620 | 310 |
| | | | 901 to 1000 | — | — | — | — | 520 | 260 |
| | Max. acceleration/deceleration [mm/s ²] | | 5000 (Refer to page 113 for limit according to work load and duty ratio.) | | | | | | |
| Positioning repeatability [mm] | | Basic type | ±0.02 | | | | | | |
| | | High precision type | ±0.01 | | | | | | |
| Lost motion [mm] ^{Note 4)} | | Basic type | 0.1 or less | | | | | | |
| | | High precision type | 0.05 or less | | | | | | |
| Lead [mm] | | | 12 | 6 | 16 | 8 | 20 | 10 | |
| Impact/Vibration resistance [m/s ²] ^{Note 5)} | | | 50/20 | | | | | | |
| Actuation type | | | Ball screw | | | | | | |
| Guide type | | | Linear guide | | | | | | |
| Operating temperature range [°C] | | | 5 to 40 | | | | | | |
| Operating humidity range [%RH] | | | 90 or less (No condensation) | | | | | | |
| Cleanliness class ^{Note 6)} | | | ISO Class 4 (ISO 14644-1) | | | | | | |
| | | | Class 10 (Fed.Std.209E) | | | | | | |
| Grease | Ball screw /Linear guide portion | | Low particle generation grease | | | | | | |
| Electric specifications | Motor output/Size | | 100 W/□40 | | 200 W/□60 | | 400 W/□60 | | |
| | Motor type | | AC servo motor (100/200 VAC) | | | | | | |
| | Encoder | | Motor type S2, S3, S4: Incremental 17-bit encoder (Resolution: 131072 p/rev) Motor type S6, S7, S8: Absolute 18-bit encoder (Resolution: 262144 p/rev) | | | | | | |
| | Power consumption [W] ^{Note 7)} | | Horizontal | 45 | | 65 | | 210 | |
| | | | Vertical | 145 | | 175 | | 230 | |
| | Standby power consumption when operating [W] ^{Note 8)} | | Horizontal | 2 | | 2 | | 2 | |
| | | | Vertical | 8 | | 8 | | 18 | |
| Max. instantaneous power consumption [W] ^{Note 9)} | | | 445 | | 725 | | 1275 | | |
| Lock unit specifications | Type ^{Note 10)} | | Non-magnetizing lock | | | | | | |
| | Holding force [N] | | 131 | 255 | 197 | 385 | 330 | 660 | |
| | Power consumption at 20°C [W] ^{Note 11)} | | 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) For details, refer to "Speed-Work Load Graph (Guide)" on page 113.

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 amount of particle generation changes according to the operating conditions and suction flow rate. Refer to the particle generation characteristics for details.

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.

Weight

| Series | | 11-LEFS25S□ | | | | | | | | | | | |
|----------------------------------|----|-----------------|------|------|------|------|------|------|------|------|------|------|------|
| Stroke [mm] | | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 |
| Motor type | S2 | 2.00 | 2.14 | 2.28 | 2.44 | 2.56 | 2.69 | 2.84 | 2.99 | 3.12 | 3.24 | 3.40 | 3.54 |
| | S6 | 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] | | S2: 0.2/S6: 0.3 | | | | | | | | | | | |

| Series | | 11-LEFS32S□ | | | | | | | | | | | | | | | |
|----------------------------------|----|-----------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Stroke [mm] | | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 |
| Motor type | S3 | 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 |
| | S7 | 3.34 | 3.54 | 3.74 | 3.94 | 4.14 | 4.34 | 4.54 | 4.74 | 4.94 | 5.14 | 5.34 | 5.54 | 5.74 | 5.94 | 6.14 | 6.34 |
| Additional weight with lock [kg] | | S3: 0.4/S7: 0.7 | | | | | | | | | | | | | | | |

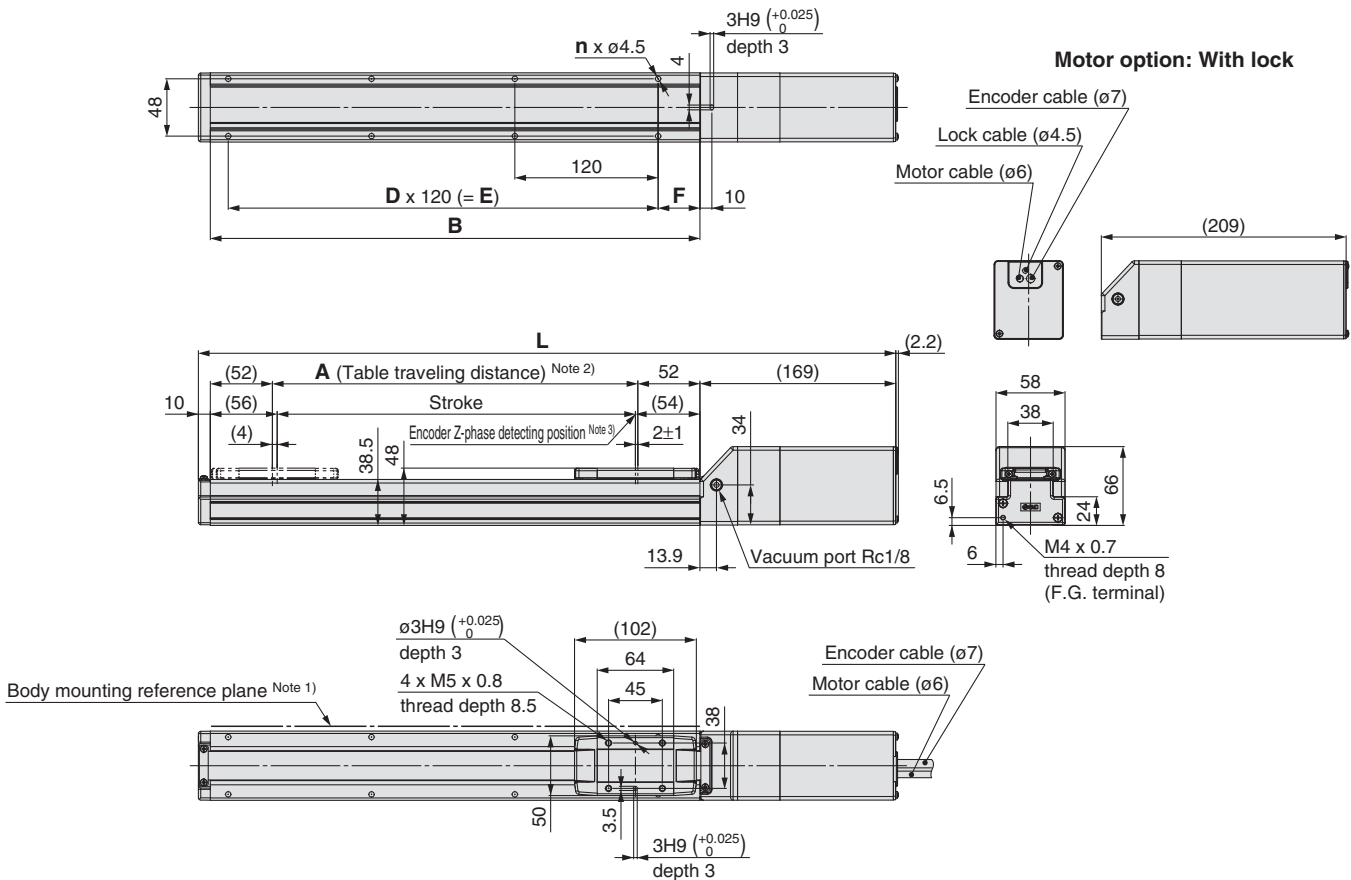
| Series | | 11-LEFS40S□ | | | | | | | | | | | | | | | | | |
|----------------------------------|----|-----------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|
| Stroke [mm] | | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 |
| Motor type | S4 | 5.82 | 6.10 | 6.38 | 6.65 | 6.95 | 7.25 | 7.51 | 7.80 | 8.07 | 8.25 | 8.63 | 8.90 | 9.20 | 9.45 | 9.76 | 10.05 | 10.32 | 10.60 |
| | S8 | 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] | | S4: 0.7/S8: 0.7 | | | | | | | | | | | | | | | | | |

Series 11-LEFS

Clean Room Specification

Dimensions: Ball Screw Drive

11-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.

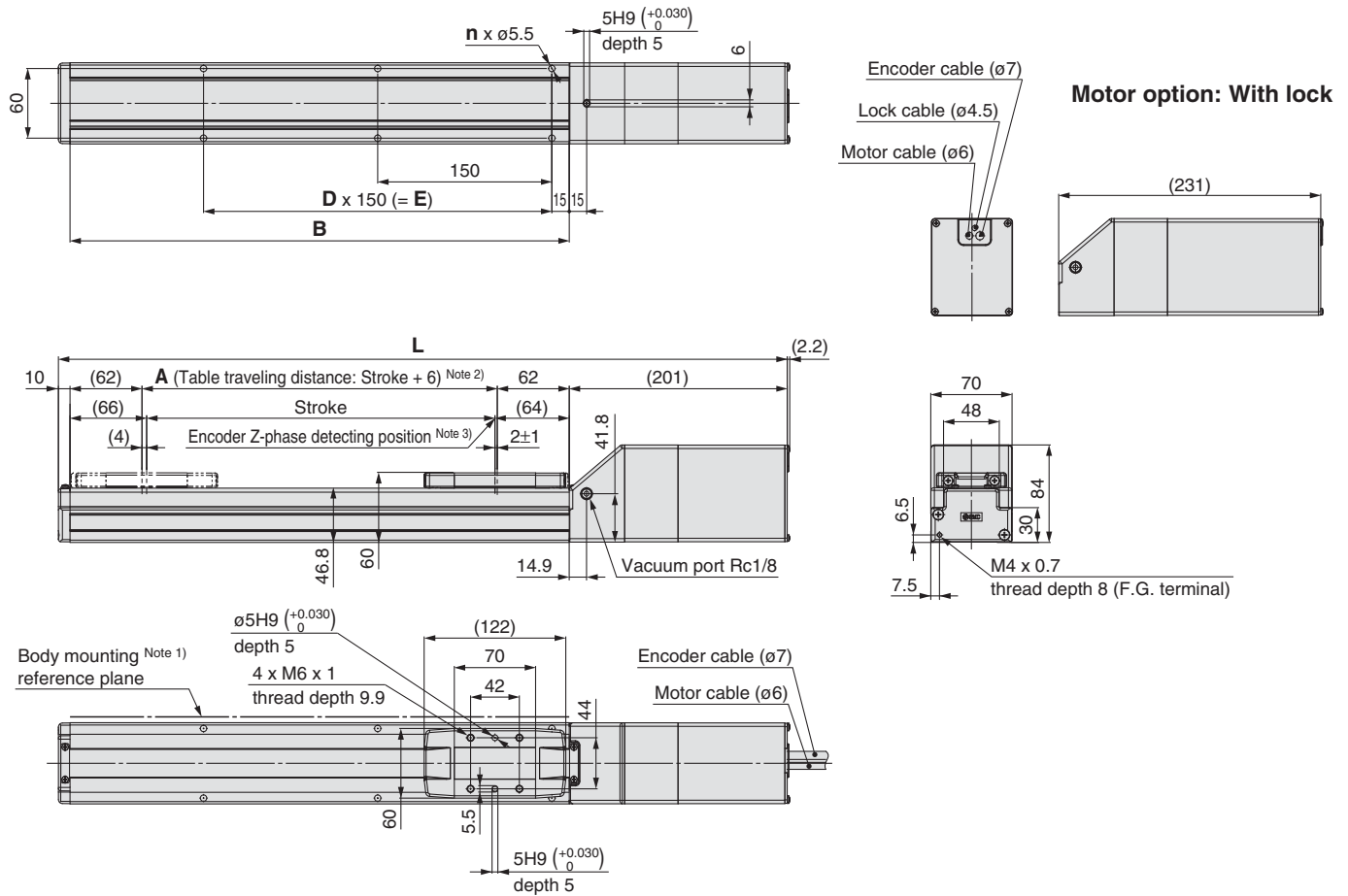
Dimensions

[mm]

| Model | L | | A | B | n | D | E | F |
|------------------|--------------|-----------|-----|-----|----|---|-----|----|
| | Without lock | With lock | | | | | | |
| 11-LEFS25□□-50□ | 339 | 379 | 56 | 160 | 4 | — | — | 20 |
| 11-LEFS25□□-100□ | 389 | 429 | 106 | 210 | 4 | — | — | |
| 11-LEFS25□□-150□ | 439 | 479 | 156 | 260 | 4 | — | — | |
| 11-LEFS25□□-200□ | 489 | 529 | 206 | 310 | 6 | 2 | 240 | |
| 11-LEFS25□□-250□ | 539 | 579 | 256 | 360 | 6 | 2 | 240 | |
| 11-LEFS25□□-300□ | 589 | 629 | 306 | 410 | 8 | 3 | 360 | |
| 11-LEFS25□□-350□ | 639 | 679 | 356 | 460 | 8 | 3 | 360 | 35 |
| 11-LEFS25□□-400□ | 689 | 729 | 406 | 510 | 8 | 3 | 360 | |
| 11-LEFS25□□-450□ | 739 | 779 | 456 | 560 | 10 | 4 | 480 | |
| 11-LEFS25□□-500□ | 789 | 829 | 506 | 610 | 10 | 4 | 480 | |
| 11-LEFS25□□-550□ | 839 | 879 | 556 | 660 | 12 | 5 | 600 | |
| 11-LEFS25□□-600□ | 889 | 929 | 606 | 710 | 12 | 5 | 600 | |

Dimensions: Ball Screw Drive

11-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

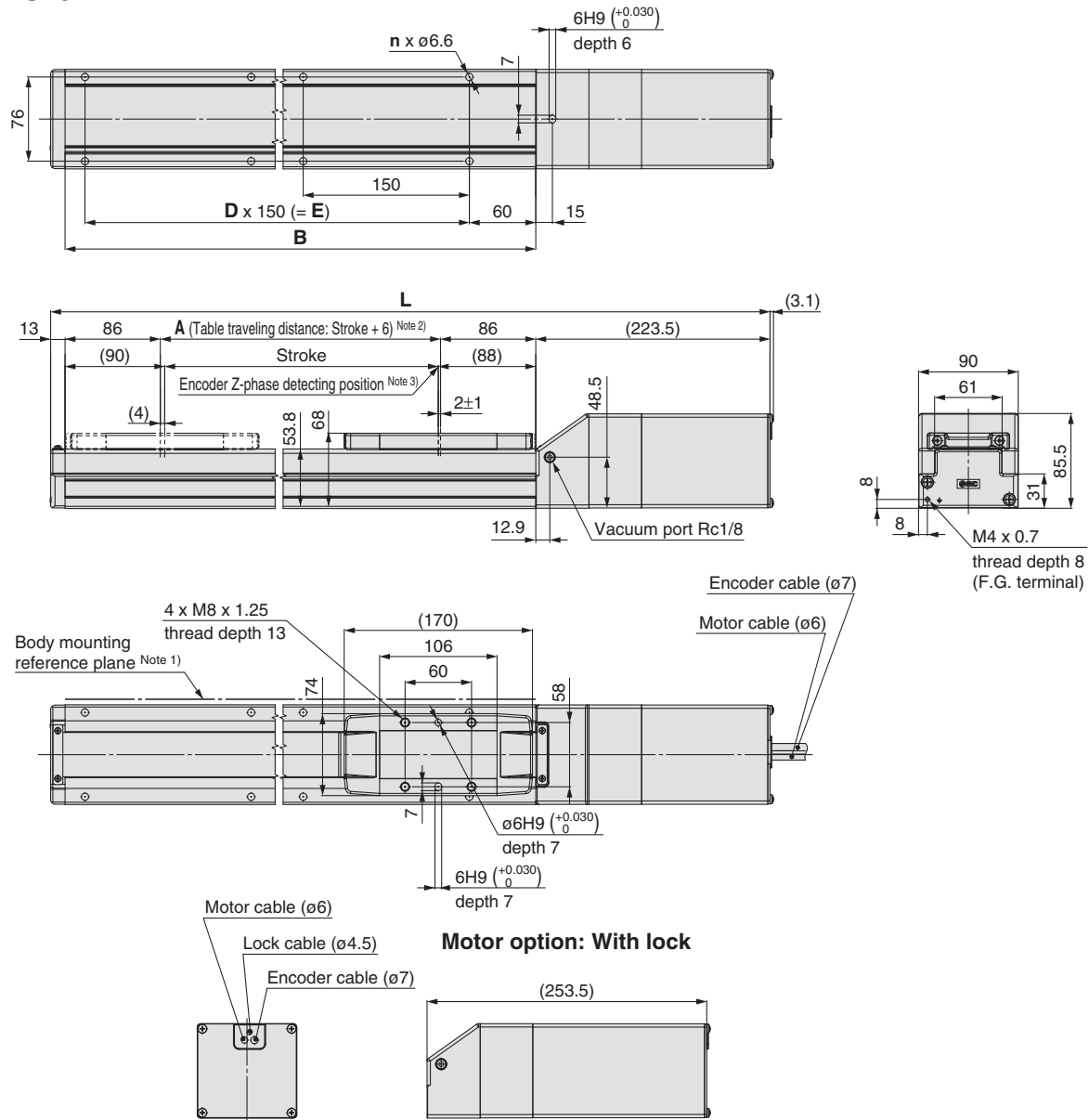
| Model | L | | A | B | n | D | E |
|------------------|--------------|-----------|-----|-----|----|---|-----|
| | Without lock | With lock | | | | | |
| 11-LEFS32□□-50□ | 391 | 421 | 56 | 180 | 4 | — | — |
| 11-LEFS32□□-100□ | 441 | 471 | 106 | 230 | 4 | — | — |
| 11-LEFS32□□-150□ | 491 | 521 | 156 | 280 | 4 | — | — |
| 11-LEFS32□□-200□ | 541 | 571 | 206 | 330 | 6 | 2 | 300 |
| 11-LEFS32□□-250□ | 591 | 621 | 256 | 380 | 6 | 2 | 300 |
| 11-LEFS32□□-300□ | 641 | 671 | 306 | 430 | 6 | 2 | 300 |
| 11-LEFS32□□-350□ | 691 | 721 | 356 | 480 | 8 | 3 | 450 |
| 11-LEFS32□□-400□ | 741 | 771 | 406 | 530 | 8 | 3 | 450 |
| 11-LEFS32□□-450□ | 791 | 821 | 456 | 580 | 8 | 3 | 450 |
| 11-LEFS32□□-500□ | 841 | 871 | 506 | 630 | 10 | 4 | 600 |
| 11-LEFS32□□-550□ | 891 | 921 | 556 | 680 | 10 | 4 | 600 |
| 11-LEFS32□□-600□ | 941 | 971 | 606 | 730 | 10 | 4 | 600 |
| 11-LEFS32□□-650□ | 991 | 1021 | 656 | 780 | 12 | 5 | 750 |
| 11-LEFS32□□-700□ | 1041 | 1071 | 706 | 830 | 12 | 5 | 750 |
| 11-LEFS32□□-750□ | 1091 | 1121 | 756 | 880 | 12 | 5 | 750 |
| 11-LEFS32□□-800□ | 1141 | 1171 | 806 | 930 | 14 | 6 | 900 |

Series 11-LEFS

Clean Room Specification

Dimensions: Ball Screw Drive

11-LEFS40



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 lock | With lock | | | | | |
| 11-LEFS40□□-150□ | 564.5 | 594.5 | 156 | 328 | 4 | — | 150 |
| 11-LEFS40□□-200□ | 614.5 | 644.5 | 206 | 378 | 6 | 2 | 300 |
| 11-LEFS40□□-250□ | 664.5 | 694.5 | 256 | 428 | 6 | 2 | 300 |
| 11-LEFS40□□-300□ | 714.5 | 744.5 | 306 | 478 | 6 | 2 | 300 |
| 11-LEFS40□□-350□ | 764.5 | 794.5 | 356 | 528 | 8 | 3 | 450 |
| 11-LEFS40□□-400□ | 814.5 | 844.5 | 406 | 578 | 8 | 3 | 450 |
| 11-LEFS40□□-450□ | 864.5 | 894.5 | 456 | 628 | 8 | 3 | 450 |
| 11-LEFS40□□-500□ | 914.5 | 944.5 | 506 | 678 | 10 | 4 | 600 |
| 11-LEFS40□□-550□ | 964.5 | 994.5 | 556 | 728 | 10 | 4 | 600 |
| 11-LEFS40□□-600□ | 1014.5 | 1044.5 | 606 | 778 | 10 | 4 | 600 |
| 11-LEFS40□□-650□ | 1064.5 | 1094.5 | 656 | 828 | 12 | 5 | 750 |
| 11-LEFS40□□-700□ | 1114.5 | 1144.5 | 706 | 878 | 12 | 5 | 750 |
| 11-LEFS40□□-750□ | 1164.5 | 1194.5 | 756 | 928 | 12 | 5 | 750 |
| 11-LEFS40□□-800□ | 1214.5 | 1244.5 | 806 | 978 | 14 | 6 | 900 |
| 11-LEFS40□□-850□ | 1264.5 | 1294.5 | 856 | 1028 | 14 | 6 | 900 |
| 11-LEFS40□□-900□ | 1314.5 | 1344.5 | 906 | 1078 | 14 | 6 | 900 |
| 11-LEFS40□□-950□ | 1364.5 | 1394.5 | 956 | 1128 | 16 | 7 | 1050 |
| 11-LEFS40□□-1000□ | 1414.5 | 1444.5 | 1006 | 1178 | 16 | 7 | 1050 |

| | | | | | | | | | | | |
|---------------------------------|------|-------------------------------|----------------|------|-------|-------|-------|----------------|--|------|--------------------|
| Specific Product Precautions | LEFG | LECS <input type="checkbox"/> | AC Servo Motor | | LECPA | LECP1 | LEC-G | LECA6 LECP6 | Step Motor (Servo/24 VDC) / Servo Motor (24 VDC) | | Model Selection |
| | | | LEFB | LEFS | | | | | LEFB | LEFS | |

Electric Actuator/Slider Type

Belt Drive AC Servo Motor

Series **LEFB**

LEFB25, 32, 40



How to Order

LEFB **40** **S4** **S** - **300** - **S** **2** **A1**

1 2 3 4 5 6 7 8 9 10

1 Size

| |
|----|
| 25 |
| 32 |
| 40 |

2 Motor mounting position

| | |
|---|-----------------|
| — | Top mounting |
| U | Bottom mounting |

3 Motor type

| Symbol | Type | Output (W) | Actuator size | Compatible driver |
|--------|--------------------------------------|------------|---------------|-------------------------------------|
| S2* | AC servo motor (Incremental encoder) | 100 | 25 | LECSA□-S1 |
| S3 | | 200 | 32 | LECSA□-S3 |
| S4 | | 400 | 40 | LECSA2-S4 |
| S6* | AC servo motor (Absolute encoder) | 100 | 25 | LECSB□-S5 LECSC□-S5 LECSS□-S5 |
| S7 | | 200 | 32 | LECSB□-S7 LECSC□-S7 LECSS□-S7 |
| S8 | | 400 | 40 | LECSB2-S8 LECSC2-S8 LECSS2-S8 |

* For motor type S2 and S6, the compatible driver part number suffixes are S1 and S5 respectively.

4 Equivalent lead

| | |
|---|-------|
| S | 54 mm |
|---|-------|

6 Motor option

| | |
|---|----------------|
| — | Without option |
| B | With lock |

8 Cable length

| | |
|---|---------------|
| — | Without cable |
| 2 | 2 m |
| 5 | 5 m |
| A | 10 m |

* The length of the encoder, motor and lock cables are the same.

5 Stroke

| | |
|------|---------|
| 300 | 300 mm |
| to | to |
| 3000 | 3000 mm |

* Refer to the applicable stroke table.

7 Cable type Note 1) Note 2)

| | |
|---|--------------------------------|
| — | Without cable |
| S | Standard cable |
| R | Robotic cable (Flexible cable) |

Note 1) The motor and encoder cables are included. (The lock cable is also included when the motor with lock option is selected.)

Note 2) Standard cable entry direction is "A" Axis side". (Refer to page 164 for details.)

9 Driver type

| | Compatible driver | Power supply voltage [V] | Size | | |
|----|-------------------|--------------------------|------|----|----|
| | | | 25 | 32 | 40 |
| — | 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 | ● | ● | ● |

10 I/O cable length [m] Note 3)

| | |
|---|--------------------------------|
| — | Without cable |
| H | Without cable (Connector only) |
| 1 | 1.5 |

Note 3) When "Without driver" is selected for driver type, only

"—: Without cable" can be selected.

Refer to page 161 if I/O cable is required. (Options are shown on that page)

* 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) —: Without cable and driver

Support Guide/Series **LEFG**

A support guide is designed to support work pieces with significant overhang.

Page 165



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 |
|--------|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|
| LEFB25 | ● | ● | ● | ● | ● | ● | ● | ● | ○ | ● | ○ | ○ | ● | ○ | ○ | ○ | ○ | ● | — | — |
| LEFB32 | ● | ● | ● | ● | ● | ● | ● | ● | ○ | ● | ○ | ○ | ● | ○ | ○ | ○ | ○ | ● | ● | — |
| LEFB40 | ● | ● | ● | ● | ● | ● | ● | ● | ○ | ● | ○ | ○ | ● | ○ | ○ | ○ | ○ | ● | ● | ● |

* Please consult with SMC for non-standard strokes as they are produced as special orders.

Compatible Driver

| 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 | 148 | | | |

Specifications

LEFB25, 32, 40 AC Servo Motor

| Model | | LEFB25S ² ₆ | LEFB32S ³ ₇ | LEFB40S ⁴ ₈ | |
|--------------------------|--|-----------------------------------|---|---|---|
| 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/s ²] | | 20000 (Refer to page 116 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/s ²] ^{Note 5)} | | 50/20 | | |
| | Actuation type | | Belt | | |
| | Guide type | | Linear guide | | |
| | Operating temperature range [°C] | | 5 to 40 | | |
| | 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 (100/200 VAC) | | |
| | Encoder | | Motor type S2, S3, S4: Incremental 17-bit encoder (Resolution: 131072 p/rev) Motor type S6, S7, S8: Absolute 18-bit encoder (Resolution: 262144 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 [N] | | 27 | 54 | 110 |
| | Power consumption at 20°C [W] ^{Note 10)} | | 6.3 | 7.9 | 7.9 |
| | Rated voltage [V] | | 24 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 116.

Note 3) Maximum acceleration/deceleration changes according to the work load. Check "Work Load-Acceleration/Deceleration Graph" of the catalogue.

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.

Model
Selection

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

LEFS

LEFB

LECA6
LECP6

LEC-G

LECP1

LECPA

AC Servo Motor

LEFS

LEFB

LECS□

LEFG

Specific Product
Precautions

Weight

| Series | | LEFB25S□ | | | | | | | | | | | | | | | | | |
|----------------------------------|----|-----------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Stroke [mm] | | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 |
| Motor type | S2 | 3.00 | 3.25 | 3.50 | 3.75 | 4.00 | 4.25 | 4.50 | 4.75 | 5.00 | 5.25 | 5.50 | 5.75 | 6.00 | 6.25 | 6.50 | 6.75 | 7.00 | 7.25 |
| | S6 | 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] | | S2: 0.2/S6: 0.3 | | | | | | | | | | | | | | | | | |

| Series | | LEFB32S□ | | | | | | | | | | | | | | | | | |
|----------------------------------|----|-----------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|
| Stroke [mm] | | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 |
| Motor type | S3 | 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 |
| | S7 | 4.84 | 5.19 | 5.54 | 5.81 | 6.24 | 6.59 | 6.94 | 7.29 | 7.64 | 7.99 | 8.34 | 8.69 | 9.04 | 9.39 | 9.74 | 10.09 | 10.44 | 10.79 |
| Additional weight with lock [kg] | | S3: 0.4/S7: 0.7 | | | | | | | | | | | | | | | | | |

| Series | | LEFB40S□ | | | | | | | | | | | | | | | | | |
|----------------------------------|----|-----------------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Stroke [mm] | | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 |
| Motor type | S4 | 7.10 | 7.55 | 8.00 | 8.45 | 8.90 | 9.35 | 9.80 | 10.25 | 10.70 | 11.15 | 11.60 | 12.05 | 12.50 | 12.95 | 13.40 | 13.85 | 14.30 | 14.75 |
| | S8 | 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 |
| Additional weight with lock [kg] | | S4: 0.7/S8: 0.7 | | | | | | | | | | | | | | | | | |

Handling

⚠ Caution

1. The belt drive actuator cannot be used vertically for applications.
2. In the case of the belt drive actuator, vibration may occur during operation at speeds within the actuator specifications, this could be caused by the operating conditions. Change the speed setting to a speed that does not cause vibration.

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

Maintenance

⚠ Warning

• Items for internal check

1. Lubricant condition on moving parts.
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

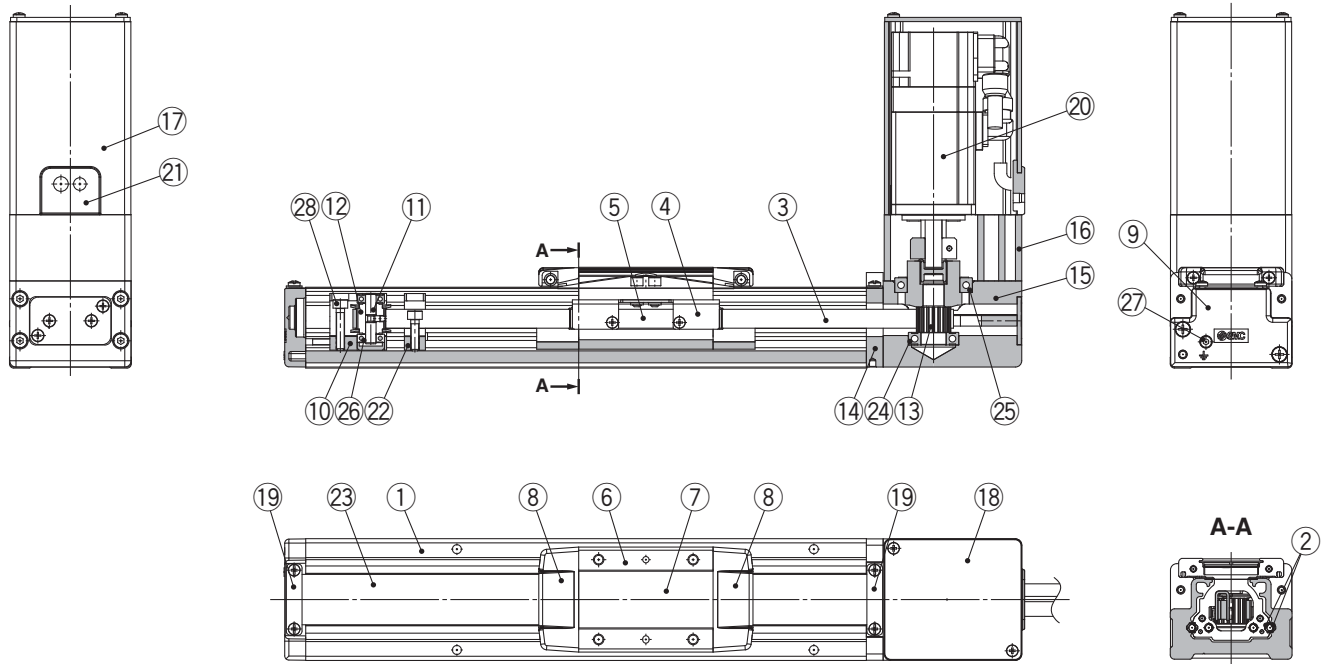
Flaw which is made when the belt runs on the flange.

e. Rubber back of the belt is softened and sticky.

f. Crack on the back of the belt

Construction

LEFB25S□S



* Motor bottom mounting type is the same.

Component Parts

| No. | Description | Material | Note |
|-----|-------------------|--------------------|------------|
| 1 | Body | Aluminium alloy | Anodised |
| 2 | Rail guide | | |
| 3 | Belt | | |
| 4 | Belt holder | Carbon steel | Chromating |
| 5 | Belt stopper | Aluminium alloy | Anodised |
| 6 | Table | Aluminium alloy | Anodised |
| 7 | Blanking plate | Aluminium alloy | Anodised |
| 8 | Seal band stopper | Synthetic resin | |
| 9 | Housing A | Aluminium die-cast | Coating |
| 10 | Pulley holder | Aluminium alloy | |
| 11 | Pulley shaft | Stainless steel | |
| 12 | End pulley | Aluminium alloy | Anodised |
| 13 | Motor pulley | Aluminium alloy | Anodised |
| 14 | Return flange | Aluminium alloy | Coating |

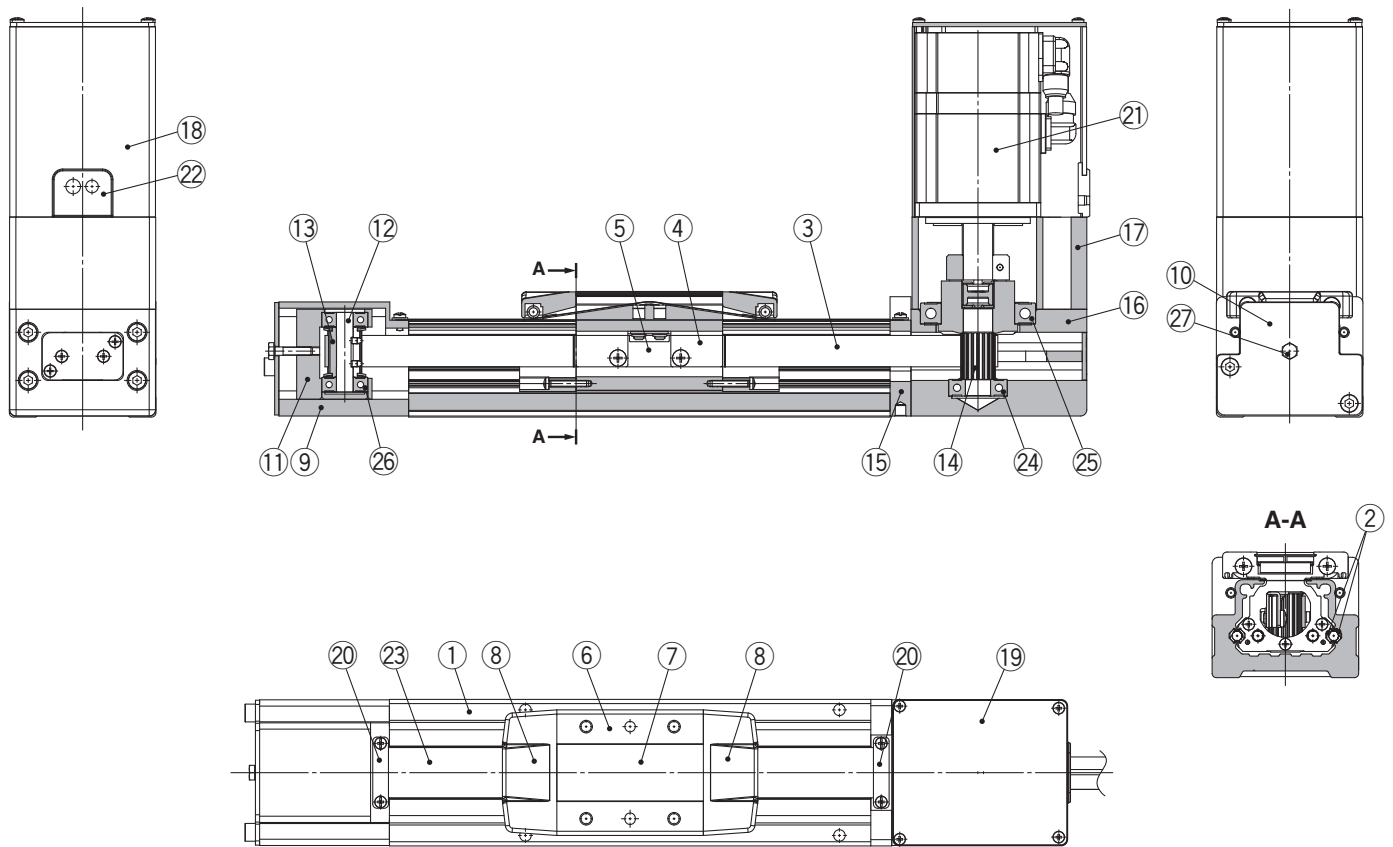
Component Parts

| No. | Description | Material | Note |
|-----|-------------------------|---------------------------|------------|
| 15 | Housing | Aluminium alloy | Coating |
| 16 | Motor mount | Aluminium alloy | Coating |
| 17 | Motor cover | Aluminium alloy | Anodised |
| 18 | Motor end cover | Aluminium alloy | Anodised |
| 19 | Band stopper | Stainless steel | |
| 20 | Motor | | |
| 21 | Rubber bushing | NBR | |
| 22 | Stopper | Aluminium alloy | |
| 23 | Dust seal band | Stainless steel | |
| 24 | Bearing | | |
| 25 | Bearing | | |
| 26 | Spacer | Stainless steel | |
| 27 | Tension adjustment bolt | Chromium molybdenum steel | Chromating |
| 28 | Pulley fixing bolt | Chromium molybdenum steel | Chromating |

Series LEFB

Construction

LEFB32/40S□S



* Motor bottom mounting type is the same.

Component Parts

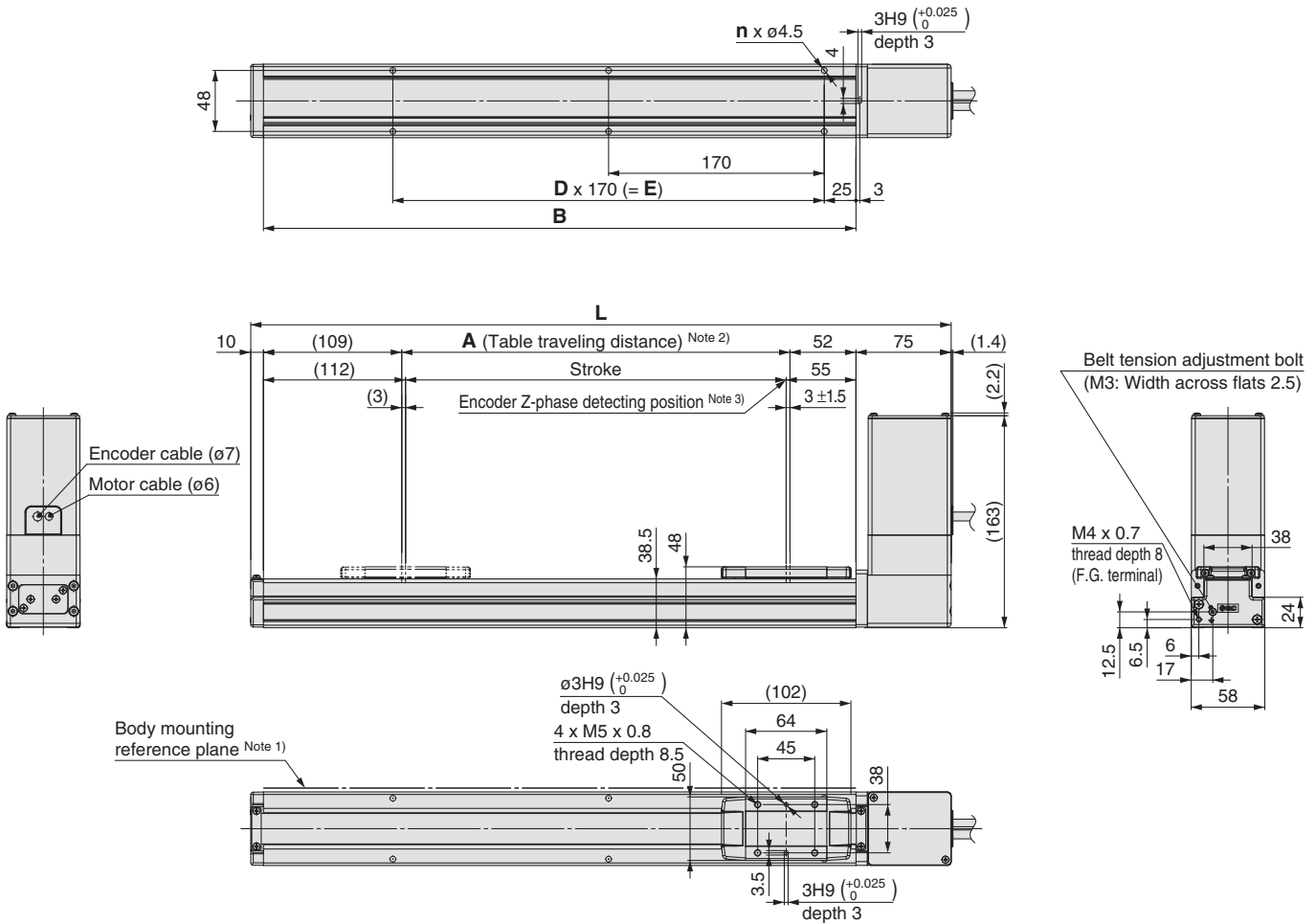
| No. | Description | Material | Note |
|-----|-------------------|-----------------|------------|
| 1 | Body | Aluminium alloy | Anodised |
| 2 | Rail guide | | |
| 3 | Belt | | |
| 4 | Belt holder | Carbon steel | Chromating |
| 5 | Belt stopper | Aluminium alloy | Anodised |
| 6 | Table | Aluminium alloy | Anodised |
| 7 | Blanking plate | Aluminium alloy | Anodised |
| 8 | Seal band stopper | Synthetic resin | |
| 9 | End block | Aluminium alloy | Coating |
| 10 | End block cover | | |
| 11 | Pulley holder | Aluminium alloy | |
| 12 | Pulley shaft | Stainless steel | |
| 13 | End pulley | Aluminium alloy | Anodised |
| 14 | Motor pulley | Aluminium alloy | Anodised |

Component Parts

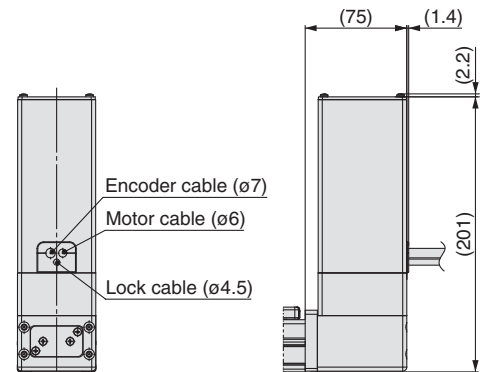
| No. | Description | Material | Note |
|-----|-------------------------|---------------------------|------------|
| 15 | Return flange | Aluminium alloy | Coating |
| 16 | Housing | Aluminium alloy | Coating |
| 17 | Motor mount | Aluminium alloy | Coating |
| 18 | Motor cover | Aluminium alloy | Anodised |
| 19 | Motor end cover | Aluminium alloy | Anodised |
| 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

| 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 |

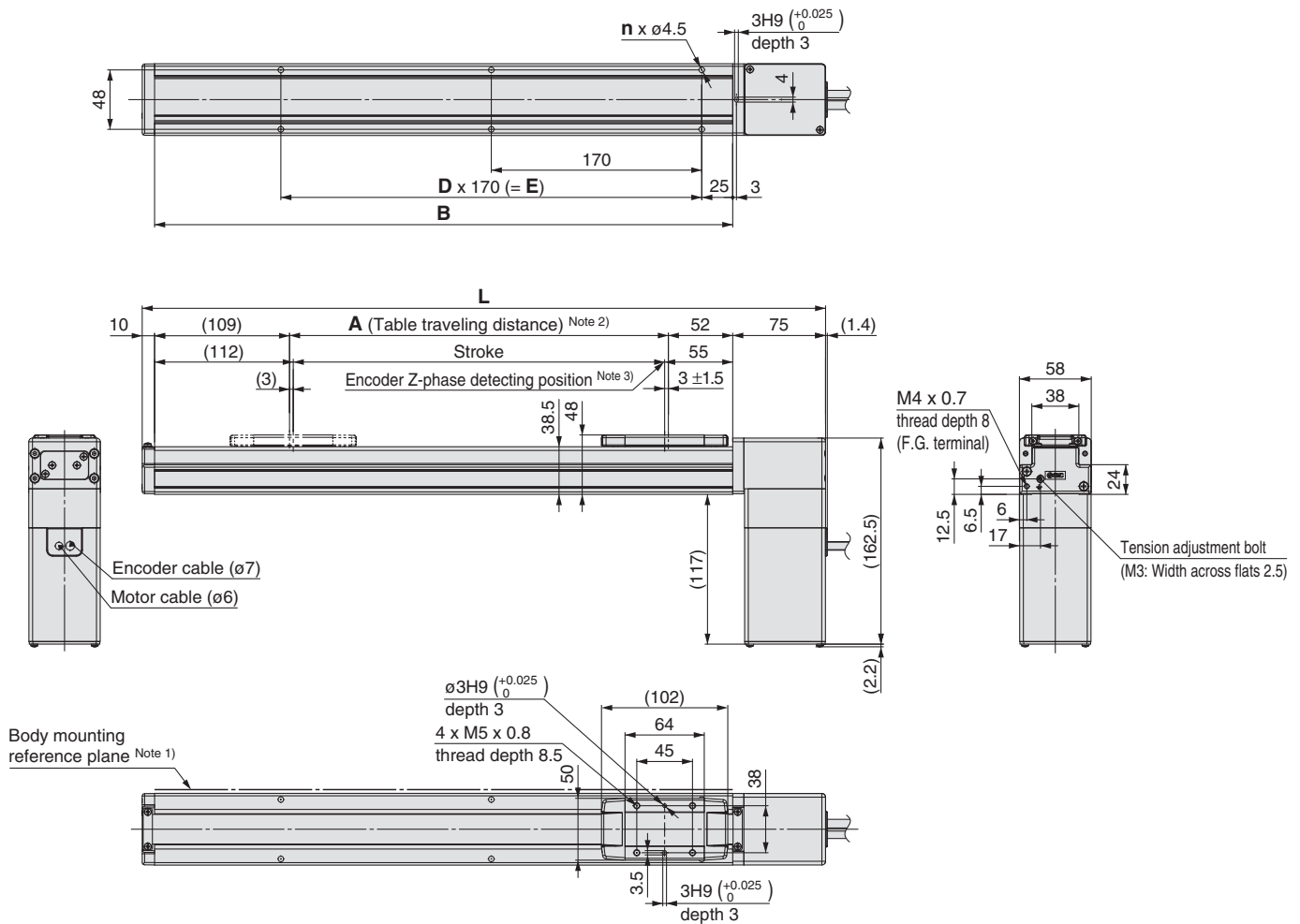
Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more because of R chamfering. (Recommended height 5 mm)

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.

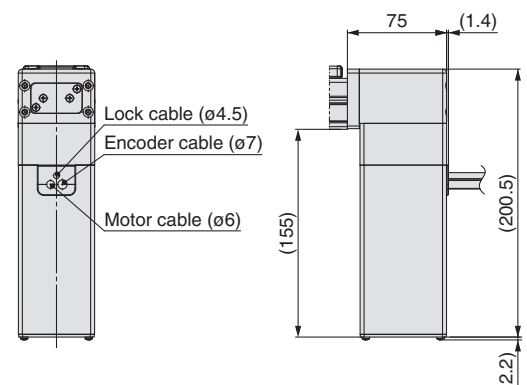
Note 3) The Z-phase first detecting position from the stroke end of the motor side

Dimensions: Belt Drive

LEFB25U/Motor bottom mounting type



Motor option: With lock



Dimensions

| 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 |

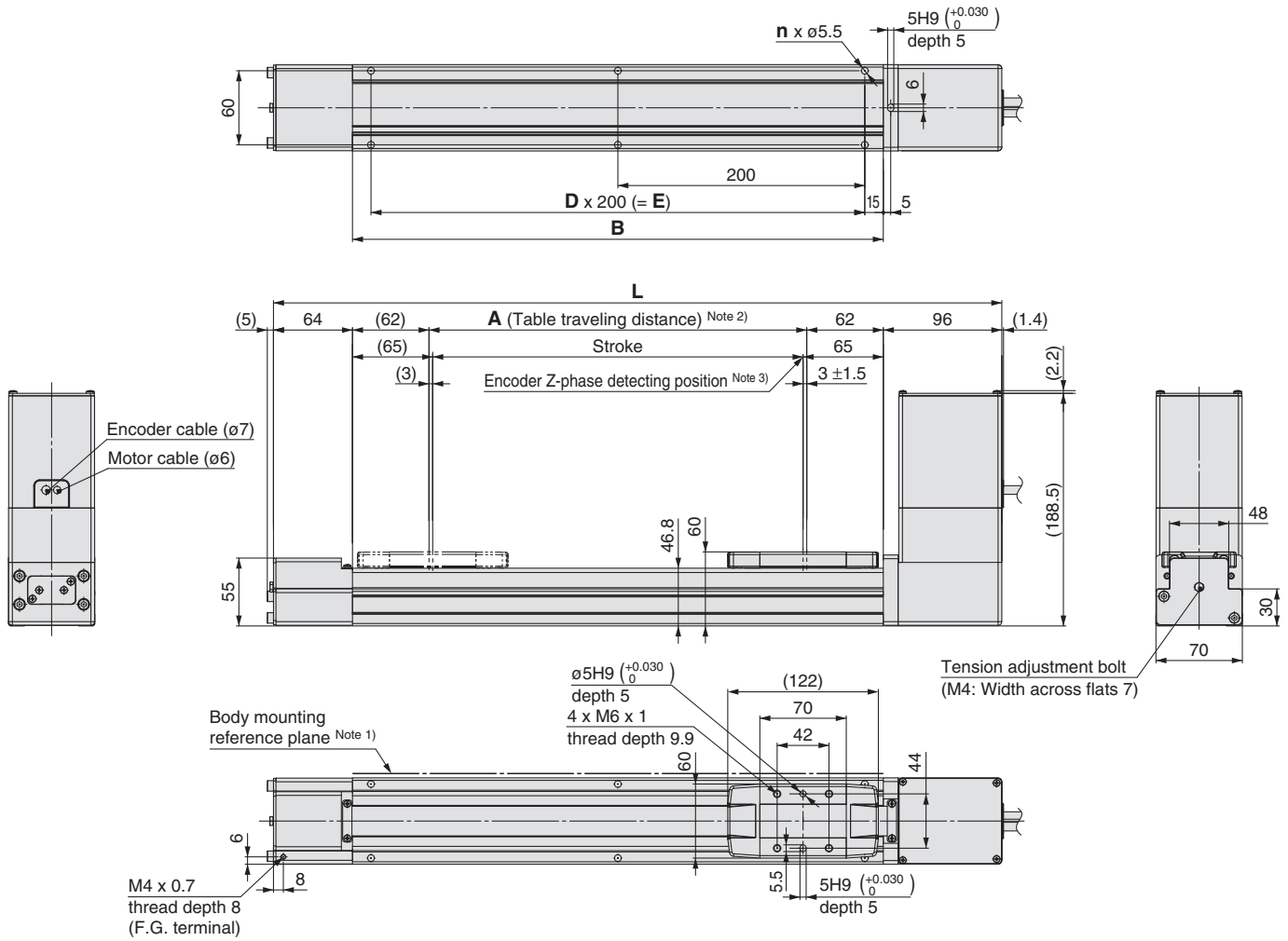
Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more because of R chamfering. (Recommended height 5 mm)

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.

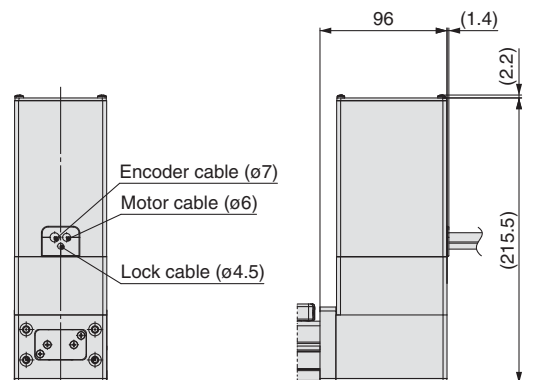
Note 3) The Z-phase first detecting position from the stroke end of the motor side

Dimensions: Belt Drive

LEFB32/Motor top mounting type



Motor option: With lock



Dimensions

| 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 |

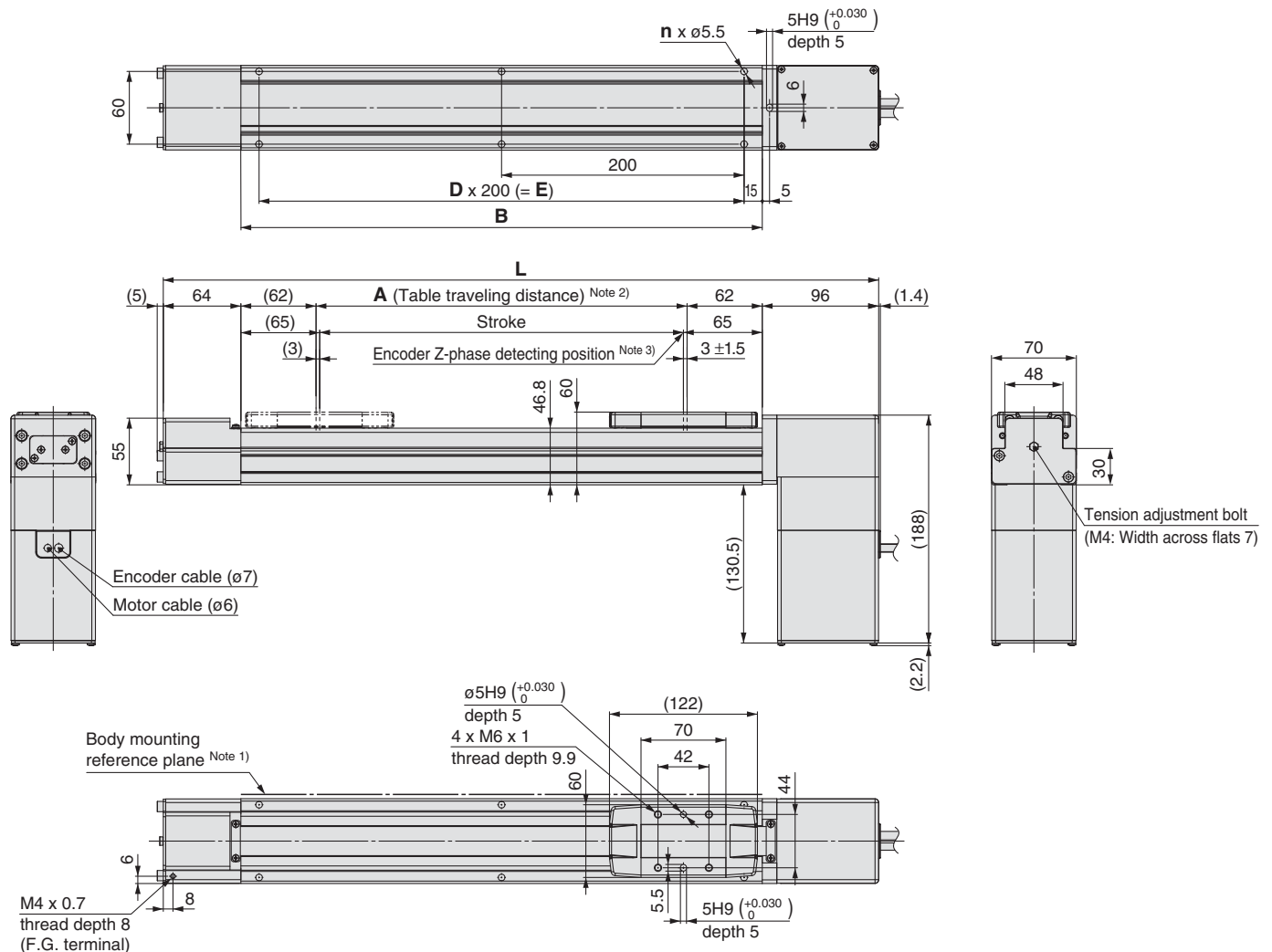
Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more because of R chamfering. (Recommended height 5 mm)

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

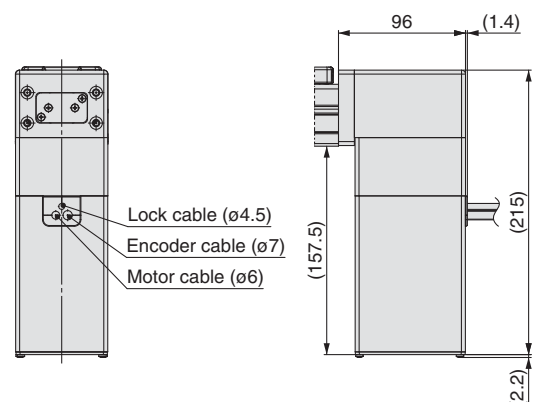
Dimensions: Belt Drive

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 |



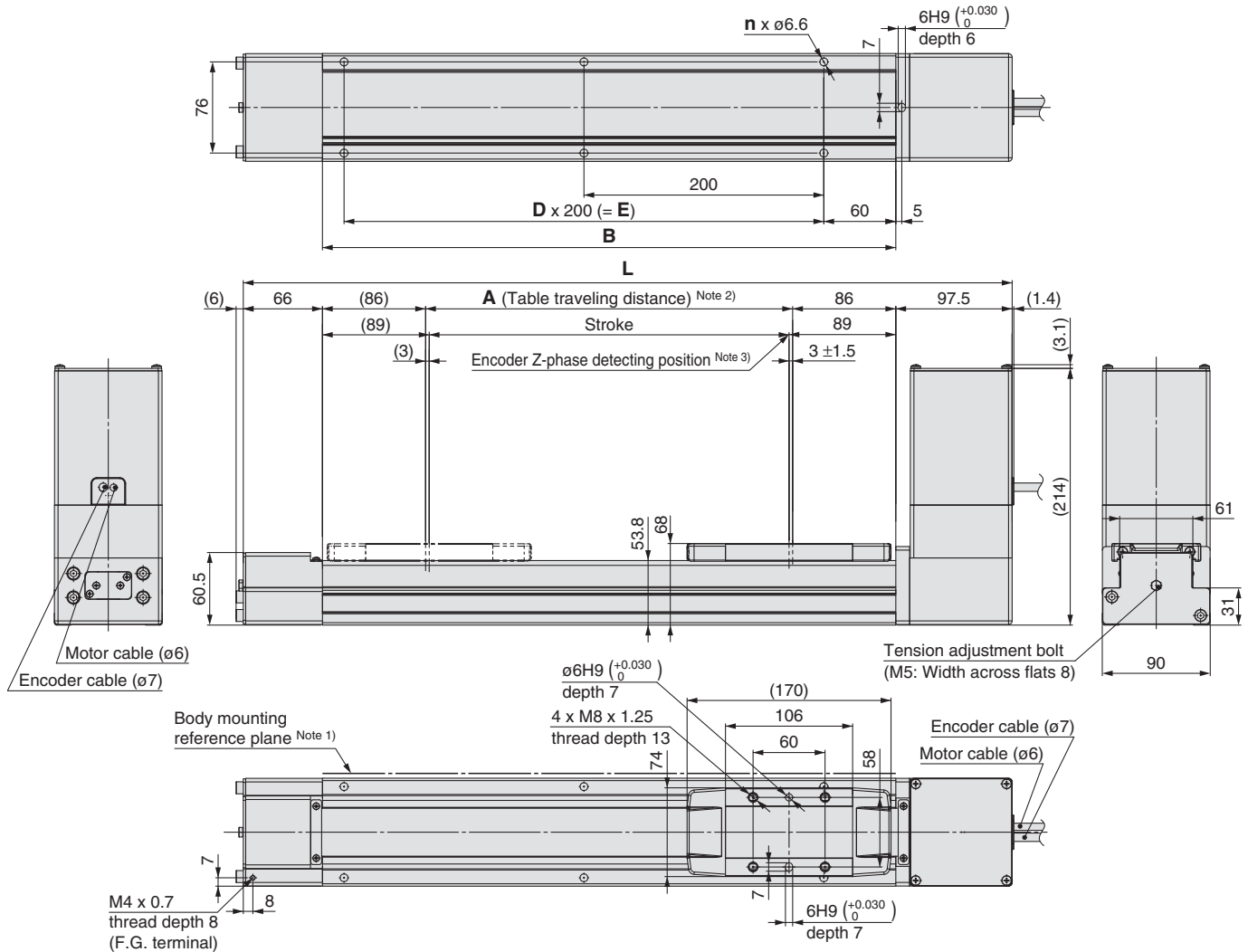
Note 1) When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more because of R chamfering. (Recommended height 5 mm)

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

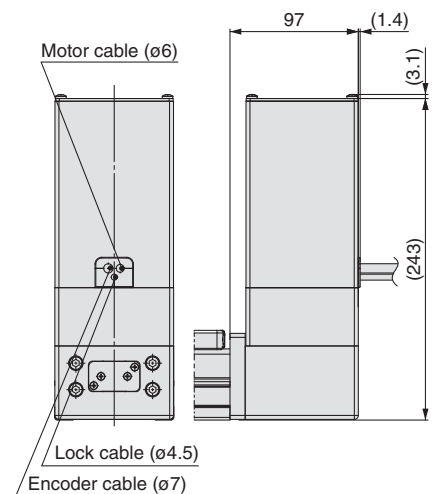
LEFB40/Motor top mounting type



Dimensions

| 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 |

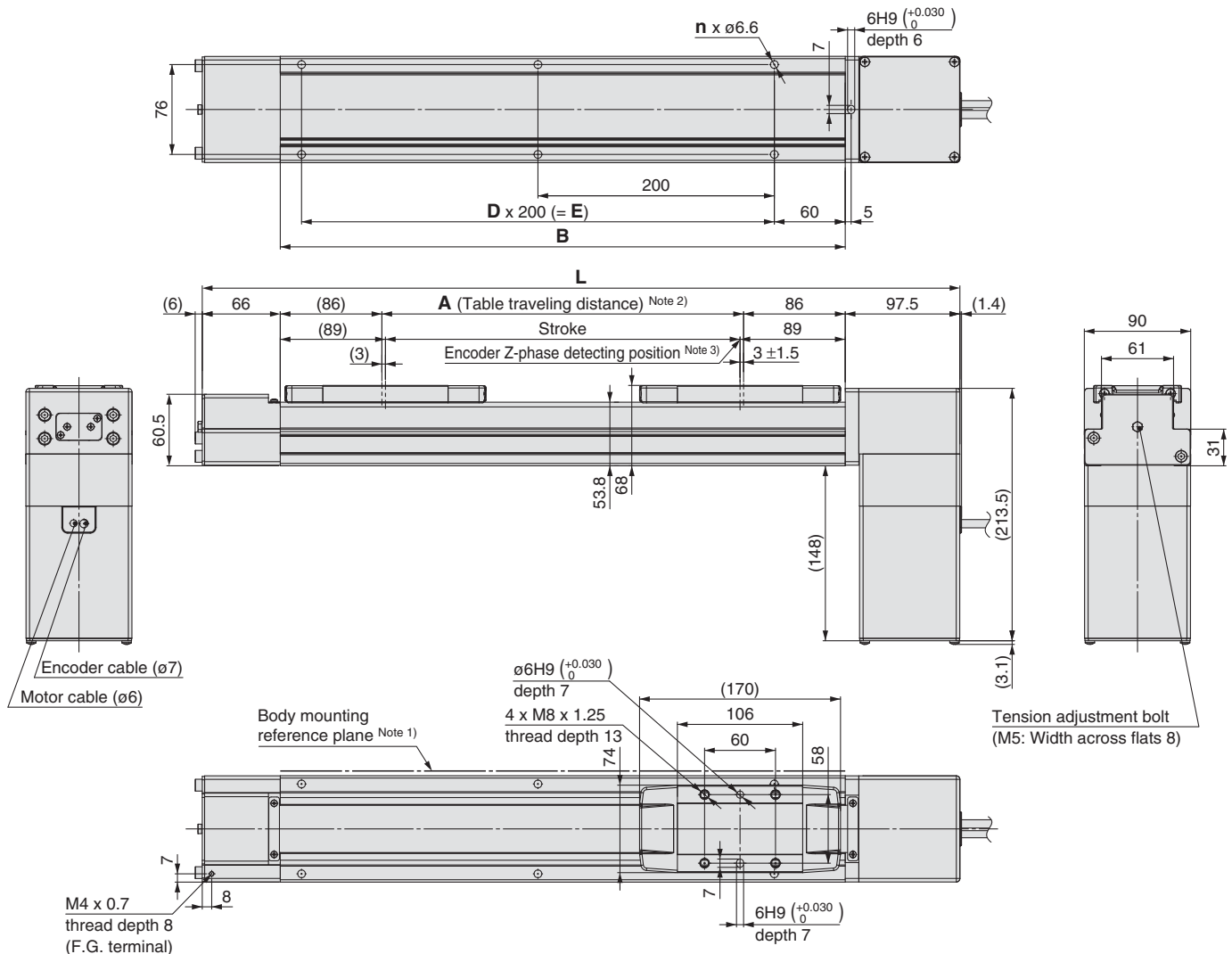
Motor option: With lock



- 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: Belt Drive

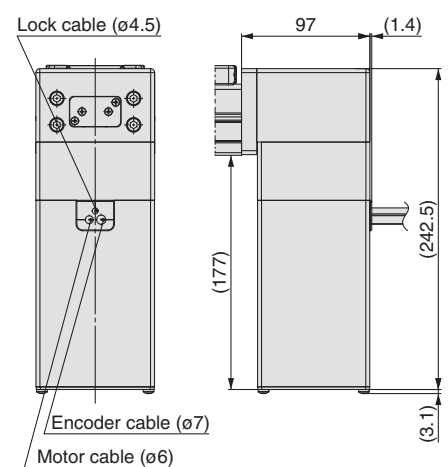
LEFB40U/Motor bottom mounting type



Dimensions

| 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 |

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

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

Model
Selection

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

LEFS

LEFB

LECA6
LECP6

LEC-G

LECP1

LECPA

AC Servo Motor

LEFS

LEFB

LECS ☐

LEFG

Specific Product
Precautions

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

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)

Absolute Type

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)



RoHS

Model Selection

LEFS

LEFB

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

LECA6
LECP6

LEC-G

LECP1

LECPA

LEFS

AC Servo Motor

LEFB

LECS

LEFG

Specific Product Precautions

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".



LECSA

LECSB

LECSC

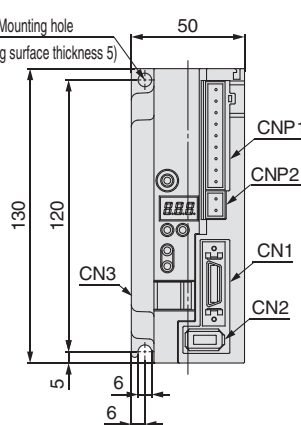
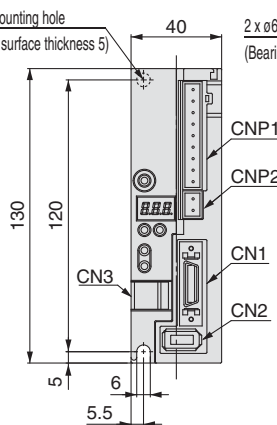
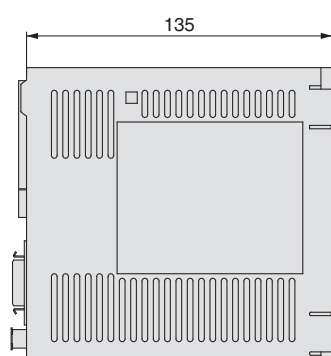
LECSS

Dimensions

LECSA

For LECSA-S1,S3

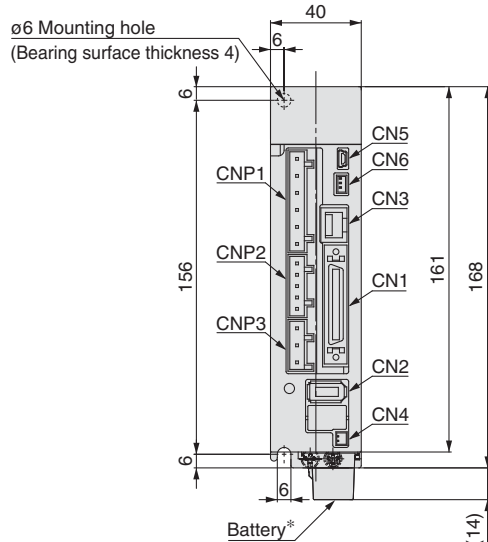
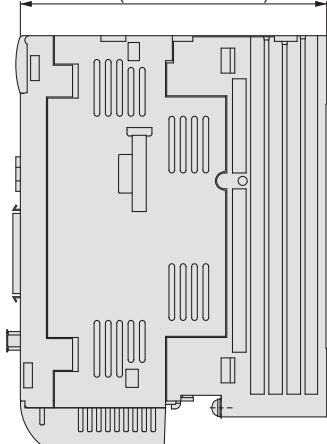
For LECSA-S4



| 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

135 (For LECSB-S5, S7)
170 (For LECSB-S8)

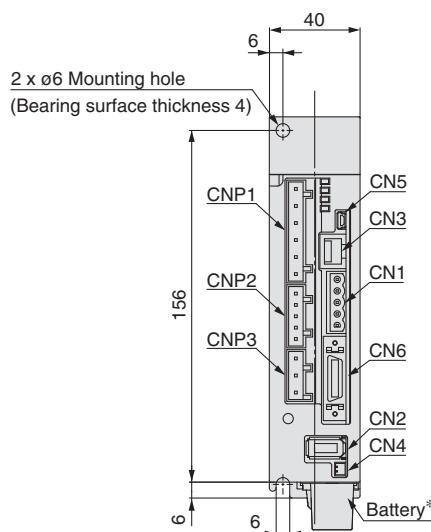
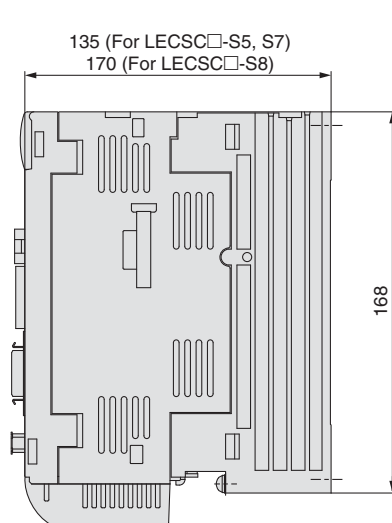


| Connector name | Description |
|----------------|--|
| CN1 | I/O signal connector |
| CN2 | Encoder connector |
| CN3 | RS-422 communication connector |
| CN4 | Battery connector |
| CN5 | USB communication connector |
| CN6 | Analogue monitor connector |
| CNP1 | Main circuit power supply connector |
| CNP2 | Control circuit power supply connector |
| CNP3 | Servo motor power connector |

* Battery included.

Dimensions

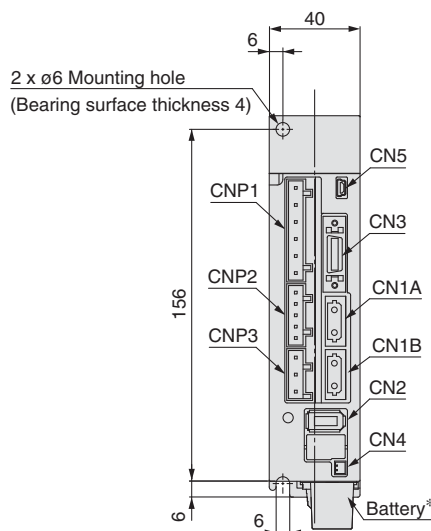
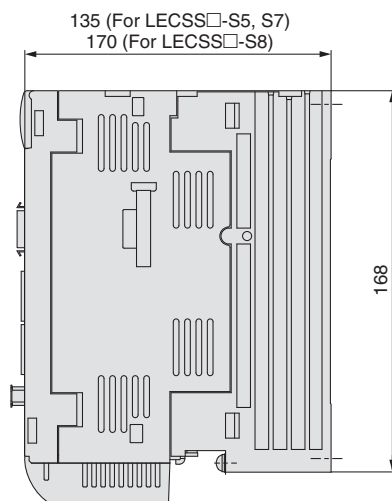
LECSC ☐



* Battery included.

| 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 |

LECSS ☐



* Battery included.

| 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 |

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 analogue 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 [°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 | |

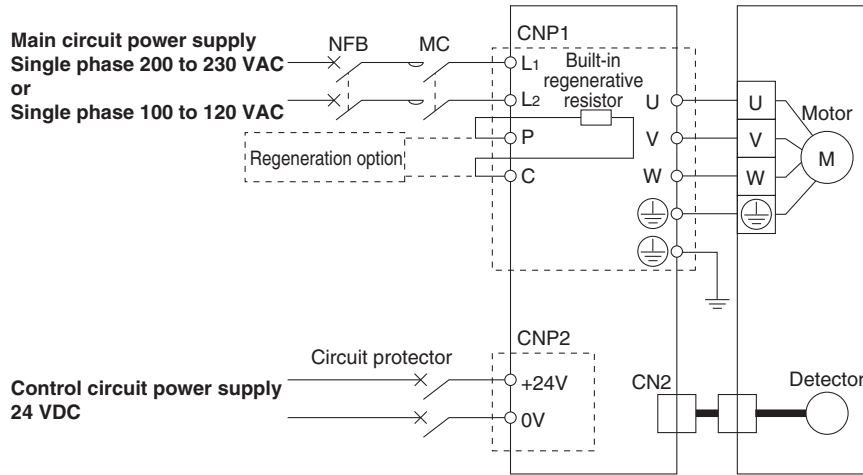
*1 If the system comprises of both CC-Link Ver. 1.00 and Ver. 1.10 compliant cables, Ver. 1.00 specifications are applied to the cable extensions and the cable length between stations.
*2 USB communication and RS422 communication cannot be performed at the same time.

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 [°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 |

Power Supply Wiring Example: LECSA

LECSA□-□

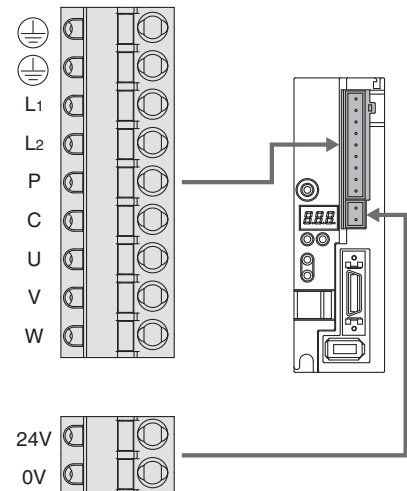


Main Circuit Power Supply Connector: CNP1 * Accessory

| 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). |
| L1 | 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 |
| L2 | | |
| 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) | |

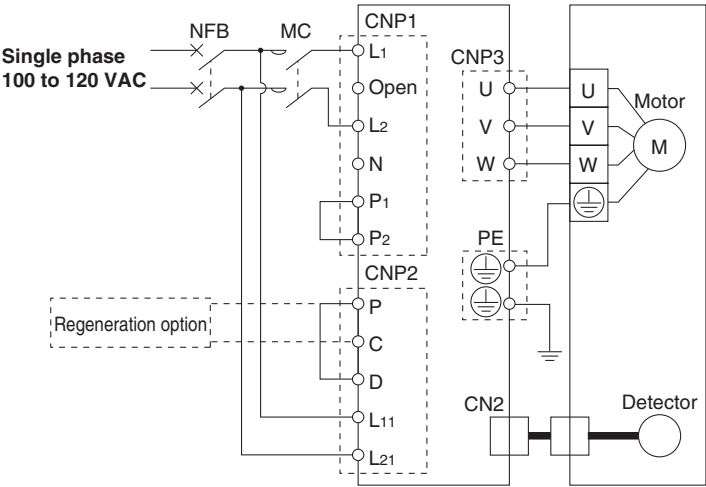
Control Circuit Power Supply Connector: CNP2 * Accessory

| 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 |



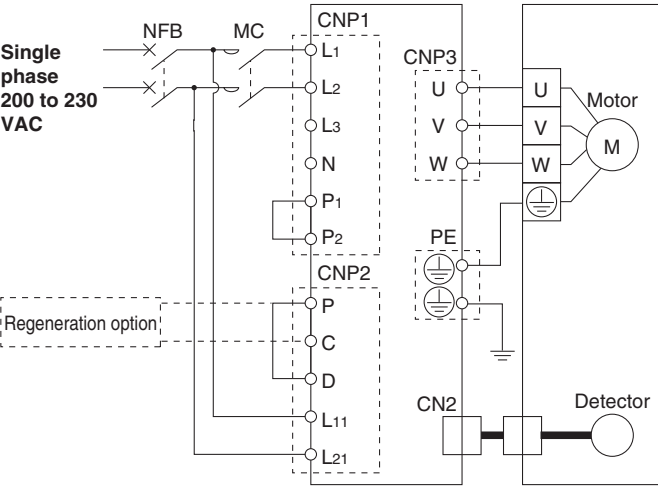
Power Supply Wiring Example: **LECSB, LECS, LECS**

LECSB1□
LECS1□
LECS1□

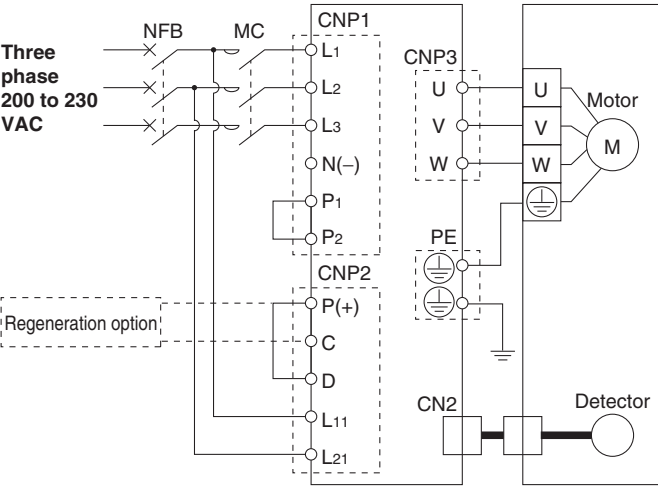


LECSB2□
LECS2□
LECS2□

For single phase 200 VAC



For three phase 200 VAC



Note) For single phase 200 to 230 VAC, power supply should be connected to L1 and L2 terminals, with nothing connected to L3.

Main Circuit Power Supply Connector: CNP1 * Accessory

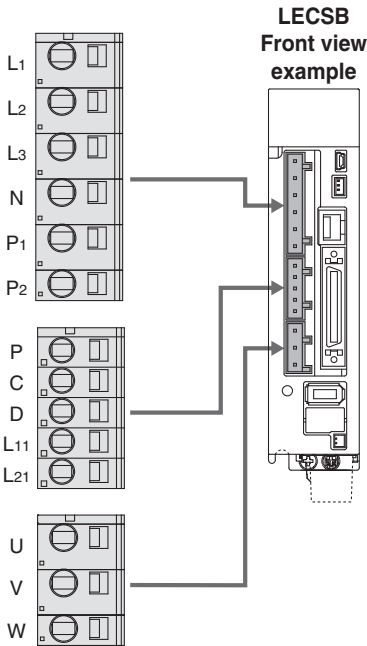
| Terminal name | Function | Details |
|---------------|---------------------------|--|
| L1 | Main circuit power supply | Connect the main circuit power supply. LECSB1/LECS1/LECS1: Single phase 100 to 120 VAC, 50/60 Hz Connection terminal: L1,L2 LECSB2/LECS2/LECS2: Single phase 200 to 230 VAC, 50/60 Hz Connection terminal: L1,L2 Three phase 200 to 230 VAC, 50/60 Hz Connection terminal: L1,L2,L3 |
| L2 | | |
| L3 | | |
| N | | Do not connect. |
| P1 | | Connect between P1 and P2. (Connected at time of shipping.) |
| P2 | | |

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 | | |
| L11 | Control circuit power supply | Connect the control circuit power supply. LECSB1/LECS1/LECS1: Single phase 100 to 120 VAC, 50/60 Hz Connection terminal: L11,L21 LECSB2/LECS2/LECS2: Single phase 200 to 230 VAC, 50/60 Hz Connection terminal: L11,L21 Three phase 200 to 230 VAC, 50/60 Hz Connection terminal: L11,L21 |
| L21 | | |

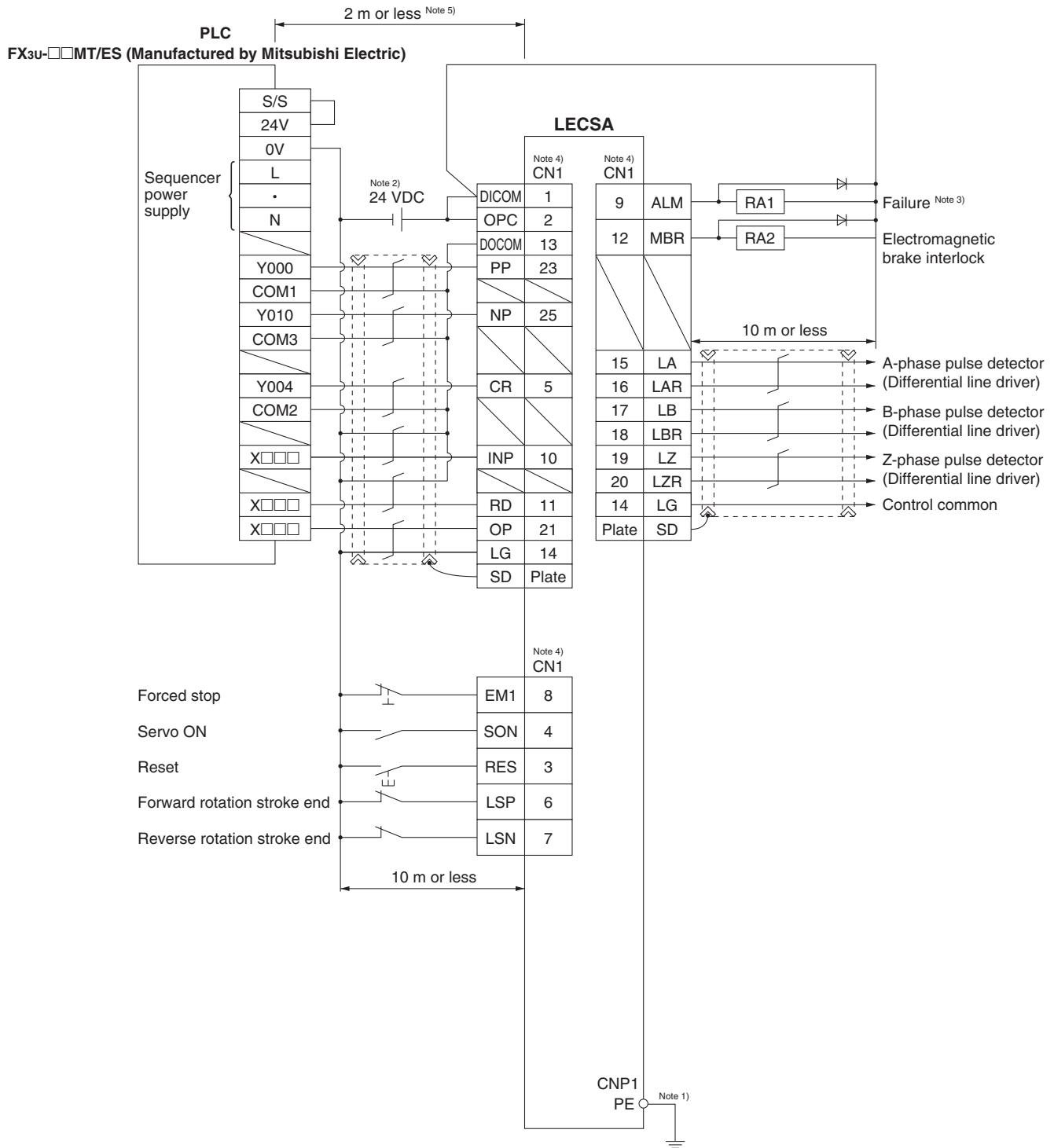
Motor Connector: CNP3 * Accessory

| 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) | |



Control Signal Wiring Example: LECSA

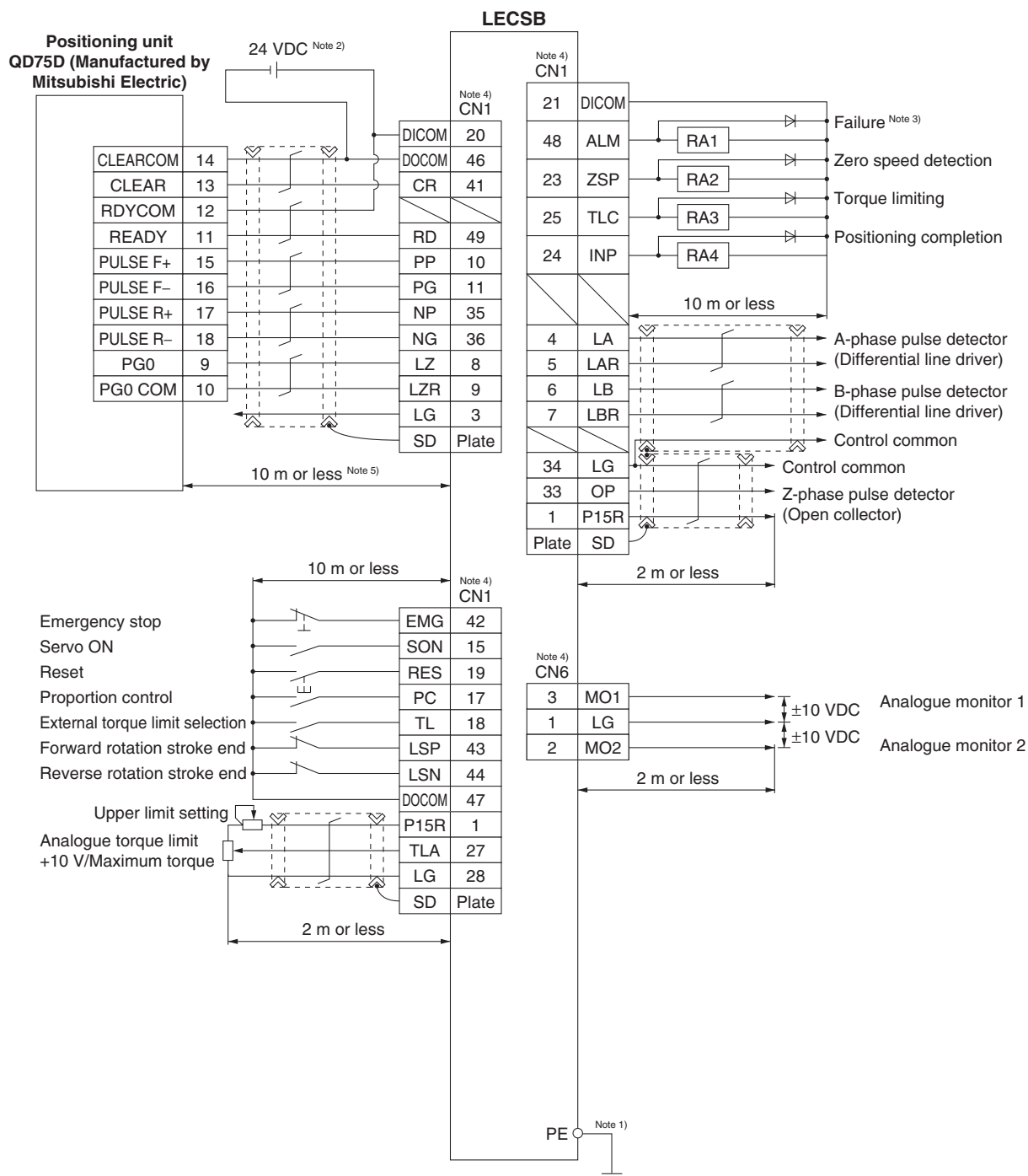
This wiring example shows connection with a PLC (FX3U-□□MT/ES) manufactured by Mitsubishi Electric as when used in position control mode. Refer to the LECSA operation manual and any technical literature or operation manuals for your PLC and positioning unit before connecting to another PLC or positioning 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 $\pm 10\%$ 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).

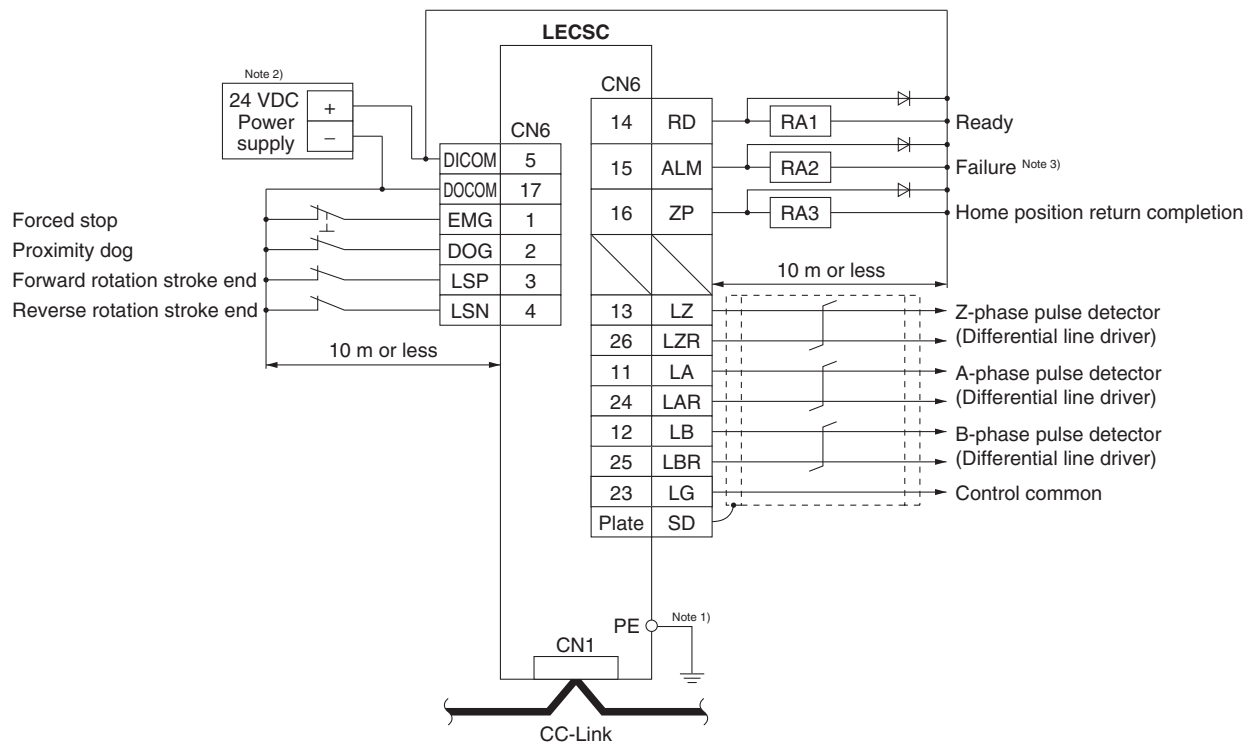
Note 2) For interface use, supply 24 VDC $\pm 10\%$ 300 mA using an external source.

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: LECS

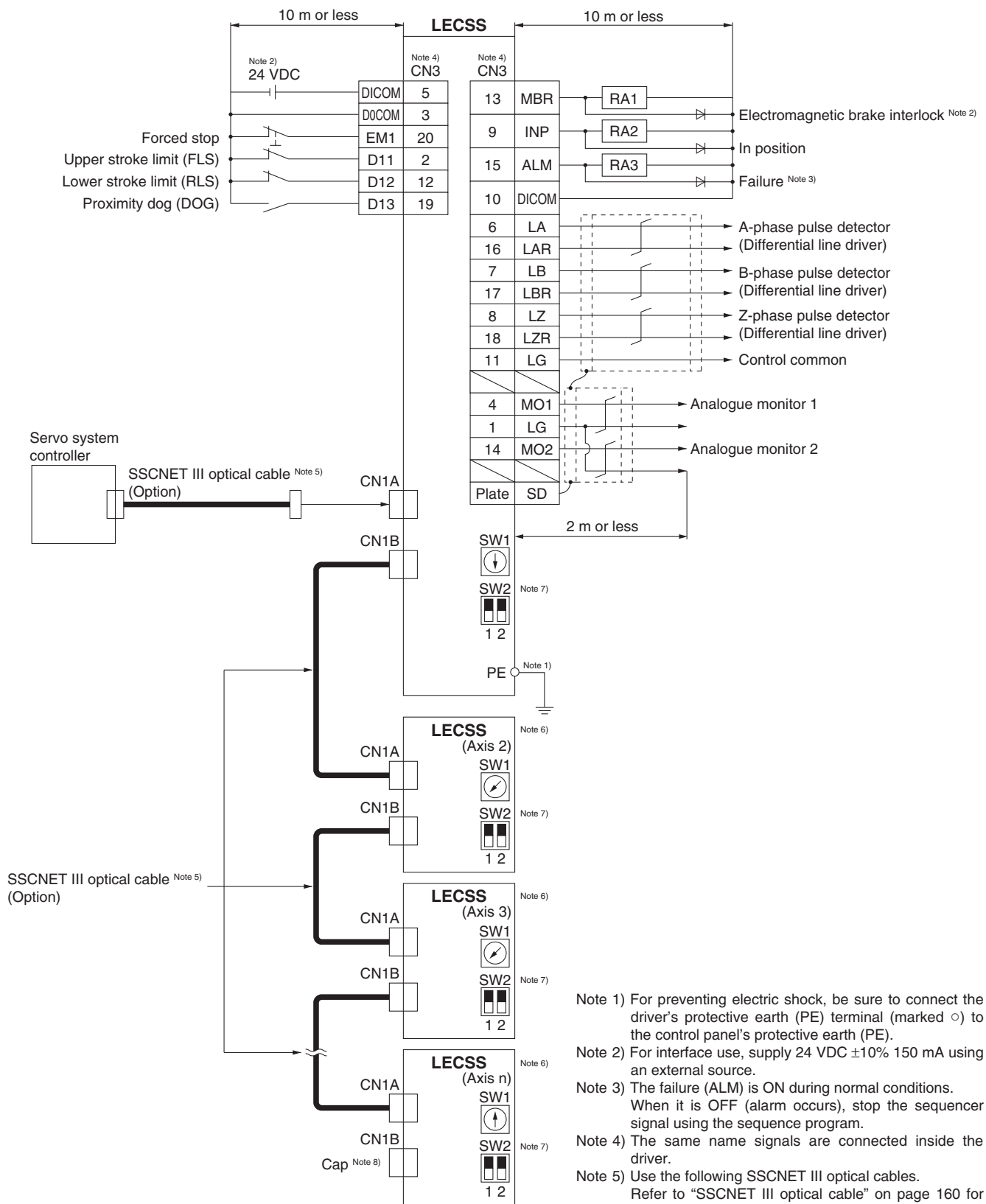


Note 1) For preventing electric shock, be sure to connect the driver's protective earth (PE) terminal (marked ○) to the control panel's protective earth (PE).

Note 2) For interface use, supply 24 VDC $\pm 10\%$ 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.

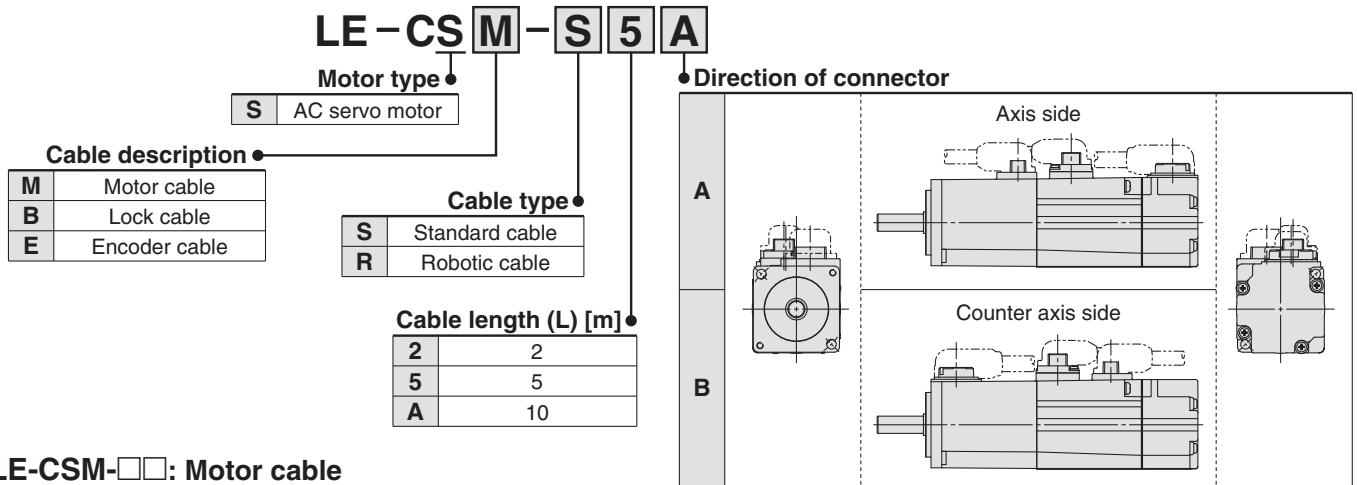
Control Signal Wiring Example: **LECSS**



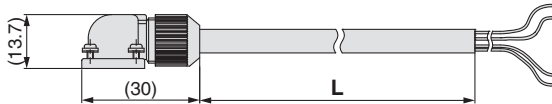
| Cable | Cable model | Cable length |
|--------------------------|-------------|---------------|
| SSCNET III optical cable | LE-CSS-□ | 0.15 m to 3 m |

Options

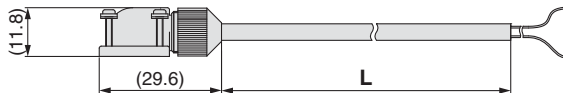
Motor cable, Lock cable, Encoder cable (LECS common)



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.

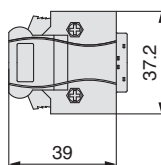
I/O connector

LE-CSNA

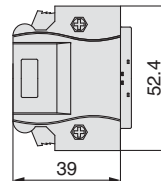
Driver type

| | |
|---|---------------|
| A | LECSA□, LECS□ |
| B | LECSB□ |
| S | LECSS□ |

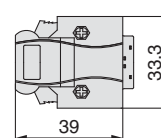
LE-CSNA



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.
 * Applicable conductor size: AWG24 to 30

LE-CSS - 1

Cable description

| | |
|----------|--------------------------|
| S | SSCNET III optical cable |
|----------|--------------------------|

- **Cable length**

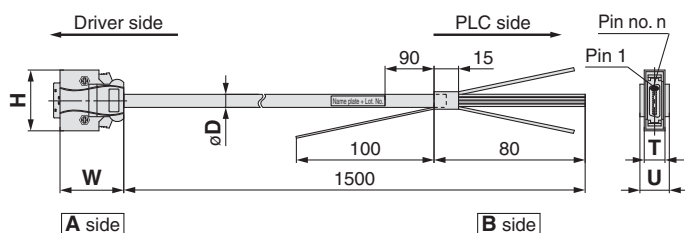
| | |
|----------|--------|
| L | 0.15 m |
| K | 0.3 m |
| J | 0.5 m |
| 1 | 1 m |
| 3 | 3 m |

I/O cable

LEC – CSN **A** – **1**

| Driver type | |
|-------------|---------------|
| A | LECSA□, LECS□ |
| B | LECSB□ |
| S | LECSS□ |



























| | |
|---|-----|
| 1 | 1.5 |
|---|-----|



































* LEC-CSNA-1: 10126-3000PE (connector)/10326-52F0-008 (shell kit)
manufactured by Sumitomo 3M Limited or equivalent item.
LEC-CSNB-1: 10150-3000PE (connector)/10350-52F0-008 (shell kit)
manufactured by Sumitomo 3M Limited or equivalent item.
LEC-CSNS-1: 10120-3000PE (connector)/10320-52F0-008 (shell kit)
manufactured by Sumitomo 3M Limited or equivalent item.
* Conductor size: AWG24

Wiring

LEC-CSNA-1: Pin no. 1 to 26
LEC-CSNB-1: Pin no. 1 to 50
LEC-CSNS-1: Pin no. 1 to 20

| Connector pin no. | | Pair no. of wire | Insulation colour | Dot mark | Dot colour |
|-------------------|----|------------------|-------------------|---|------------|
| A side | 1 | 1 | Orange |  | Red |
| | 2 | | |  | Black |
| | 3 | 2 | Light grey |  | Red |
| | 4 | | |  | Black |
| | 5 | 3 | White |  | Red |
| | 6 | | |  | Black |
| | 7 | 4 | Yellow |  | Red |
| | 8 | | |  | Black |
| | 9 | 5 | Pink |  | Red |
| | 10 | | |  | Black |
| | 11 | 6 | Orange |   | Red |
| | 12 | | |   | Black |
| | 13 | 7 | Light grey |   | Red |
| | 14 | | |   | Black |
| | 15 | 8 | White |   | Red |
| | 16 | | |   | Black |
| | 17 | 9 | Yellow |   | Red |
| | 18 | | |   | Black |

| Connector pin no. | | Pair no. of wire | Insulation colour | Dot mark | Dot colour |
|-------------------|----|------------------|-------------------|---|------------|
| A side | 19 | 10 | Pink |  | Red |
| | 20 | | |  | Black |
| | 21 | 11 | Orange |  | Red |
| | 22 | | |  | Black |
| | 23 | 12 | Light grey |  | Red |
| | 24 | | |  | Black |
| | 25 | 13 | White |  | Red |
| | 26 | | |  | Black |
| | 27 | 14 | Yellow |  | Red |
| | 28 | | |  | Black |
| | 29 | 15 | Pink |  | Red |
| | 30 | | |  | Black |
| | 31 | 16 | Orange |  | Red |
| | 32 | | |  | Black |
| | 33 | 17 | Light grey |  | Red |
| | 34 | | |  | Black |

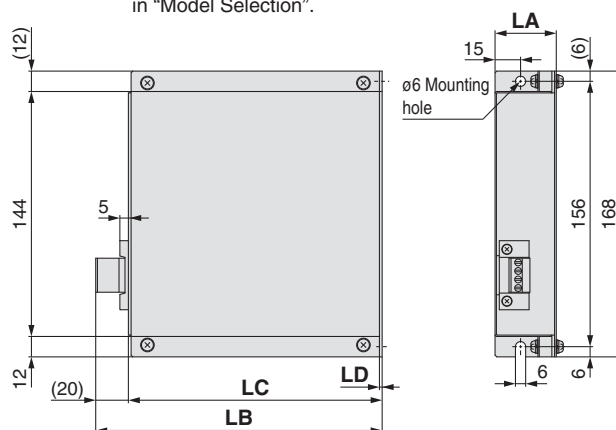
| Connector pin no. | Pair no. of wire | Insulation colour | Dot mark | Dot colour | |
|----------------------|---------------------|----------------------|---------------|---|-------|
| A side | 35 | 18 | White |  | Red |
| | 36 | | |  | Black |
| | 37 | 19 | Yellow |  | Red |
| | 38 | | |  | Black |
| | 39 | 20 | Pink |  | Red |
| | 40 | | |  | Black |
| | 41 | 21 | Orange |  | Red |
| | 42 | | |  | Black |
| | 43 | 22 | Light grey |  | Red |
| | 44 | | |  | Black |
| | 45 | 23 | White |  | Red |
| | 46 | | |  | Black |
| | 47 | 24 | Yellow |  | Red |
| | 48 | | |  | Black |
| | 49 | 25 | Pink |  | Red |
| | 50 | | |  | Black |

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.

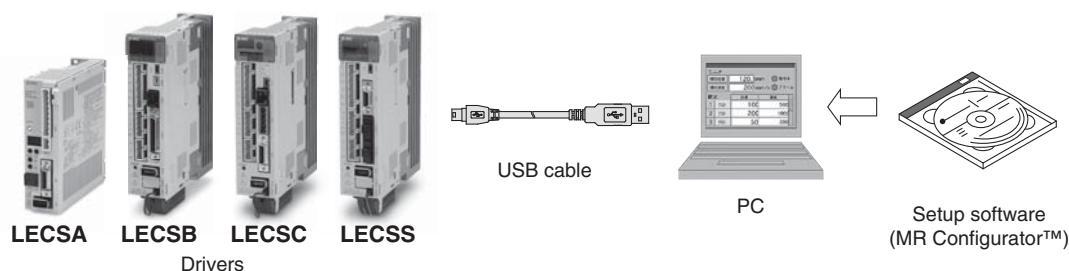
Cable O.D.

| | |
|-------------|------|
| Product no. | ØD |
| LEC-CSNA-1 | 11.1 |
| LEC-CSNB-1 | 13.8 |
| LEC-CSNS-1 | 9.1 |

Dimensions/Pin No.

| Product no. | W | H | T | U | Pin no. n |
|-------------|----|------|------|----|-----------|
| LEC-CSNA-1 | 39 | 37.2 | 12.7 | 14 | 14 |
| LEC-CSNB-1 | | 52.4 | | 18 | 26 |
| LEC-CSNS-1 | | 33.3 | | 14 | 21 |

Options



Setup software (MR Configurator™) (LECSA, LECSB, LECSC, LECSS common)

LEC-MR-SETUP221 E

• Display language

| | |
|---|------------------|
| — | 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 colour (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.

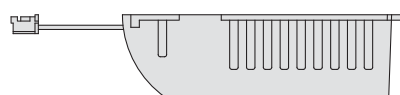
Battery (only for LECSB, LECSC or LECSS)

LEC-MR-J3BAT

* MR-J3BAT manufactured by Mitsubishi Electric.

Battery for replacement.

Absolute position data is maintained by installing the battery to the driver.





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.smc.eu>

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.



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.smc.eu>

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

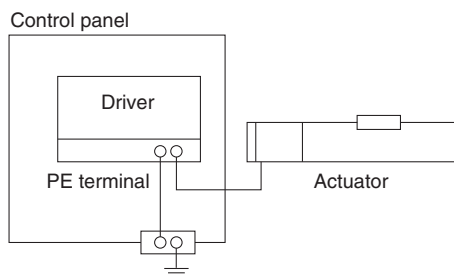
⚠ Warning

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.

Support Guide/Series (11-)LEFG

Model Selection

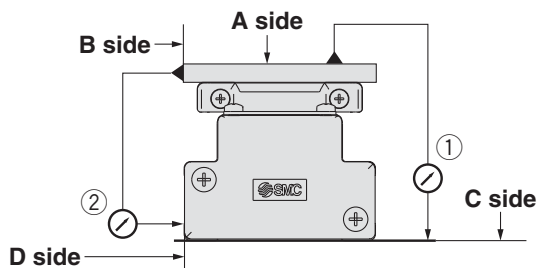


Rated Load

Unit: [N]

| Rated load | LEFG16 | LEFG25 | LEFG32 | LEFG40 |
|--------------------------|--------|--------|--------|--------|
| Basic dynamic rated load | 6250 | 8950 | 16500 | 22700 |
| Basic static rated load | 8350 | 13900 | 22000 | 34500 |

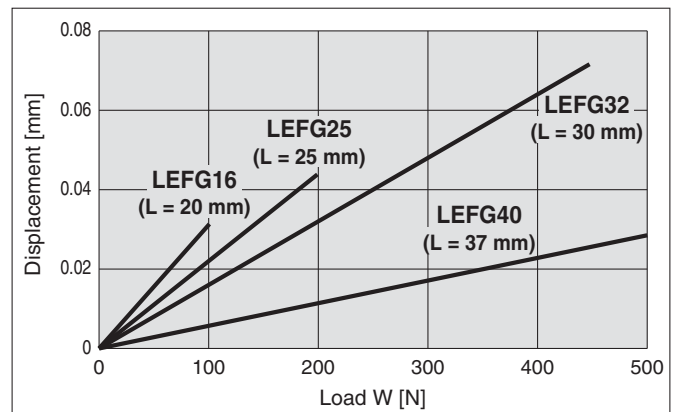
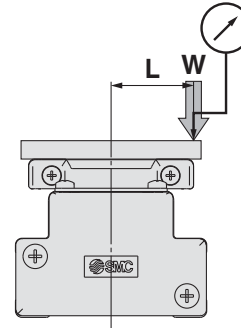
Table Accuracy



| Model | Traveling parallelism [mm] (Every 300 mm) | |
|--------|---|--|
| | ① C side traveling parallelism to A side | ② D side traveling parallelism to B side |
| LEFG16 | 0.05 | 0.03 |
| LEFG25 | 0.05 | 0.03 |
| LEFG32 | 0.05 | 0.03 |
| LEFG40 | 0.05 | 0.03 |

Note) Traveling parallelism does not include the mounting surface accuracy.

Table Displacement (Reference Value)



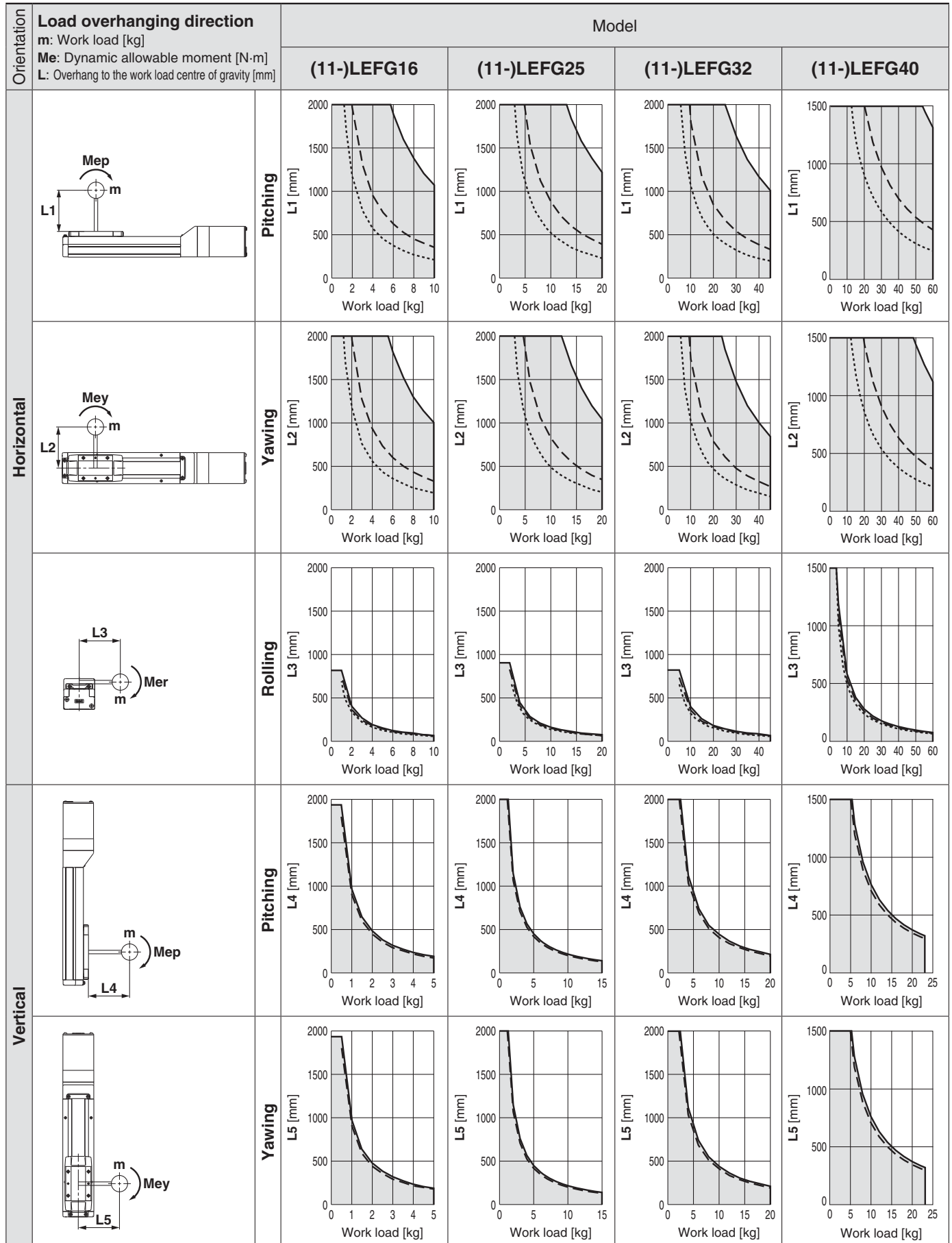
Note 1) This displacement is measured when a 15 mm aluminium plate is mounted and fixed on the table.

Note 2) Check the clearance and play of the guide separately.

Dynamic Allowable Moment

* This graph shows the amount of allowable overhang when the centre of gravity of the workpiece overhangs in one direction. When the centre of gravity of the workpiece overhangs in two directions, refer to the Electric Actuator Selection Software for confirmation, <http://www.smc.eu>

Acceleration/Deceleration — 1000 mm/s² - - - 3000 mm/s² 5000 mm/s²



Support Guide

Series (11-)LEFG

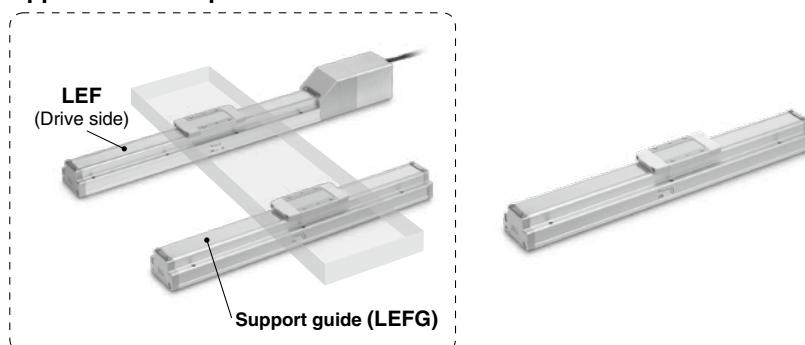
(11-)LEFG16, 25, 32, 40

RoHS

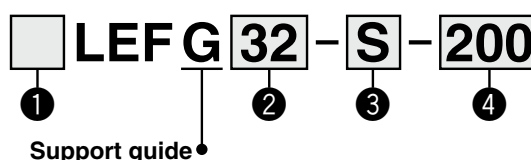
A support guide is designed to support work pieces with significant overhang.

- As the dimensions are the same as the LEF series body, installation is simple and contributes to a reduction in installation and assembly labour.
- The standard equipped seal bands prevent grease from splashing and external foreign matter from entering.

Application example



How to Order



| | |
|------|---------------------|
| — | General environment |
| 11-* | Clean Series |

* Only ball screw drive

| |
|----|
| 16 |
| 25 |
| 32 |
| 40 |

| Symbol | LEFG16 | LEFG25 | LEFG32 | LEFG40 | Note |
|--------|--------|--------|--------|--------|--|
| S | ● | ● | ● | ● | Ball screw drive |
| BT | ● | ● | ● | — | Step motor/Servo motor (24 VDC)/AC servo motor |
| BS | — | ● | ● | ● | Belt drive |
| | | | | | Step motor/Servo motor (24 VDC) |
| | | | | | AC servo motor |

| | |
|------|------|
| 50 | 50 |
| to | to |
| 3000 | 3000 |

Applicable Stroke Table*1

Ball Screw Drive/S

| Model | Stroke [mm] | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 | 1100 | 1200 |
|---------------|-------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| (11-)LEFG16-S | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | — | — | — | — | — | — | — | — | — | — | — | — |
| (11-)LEFG25-S | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ●*2 | ●*2 | ●*2 | ●*2 | — | — | — | — | — | — |
| (11-)LEFG32-S | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ●*2 | ●*2 | ●*2 | ●*2 | — | — |
| (11-)LEFG40-S | | — | — | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ●*2 | ●*2 |

Belt Drive/BT

| Model | Stroke [mm] | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 |
|-----------|-------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| LEFG16-BT | | — | — | — | — | — | ● | — | — | — | ● | — | ● | — | ● | — | ● | — | ● | — | ● |
| LEFG25-BT | | — | — | — | — | — | ● | — | — | — | ● | — | ● | — | ● | — | ● | — | ● | — | ● |
| LEFG32-BT | | — | — | — | — | — | ● | — | — | — | ● | — | ● | — | ● | — | ● | — | ● | — | ● |

| Model | Stroke [mm] | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 |
|-----------|-------------|------|------|------|------|------|------|------|------|------|------|
| LEFG16-BT | | — | — | — | — | — | — | — | — | — | — |
| LEFG25-BT | | — | ● | — | — | ● | — | — | ● | — | ● |
| LEFG32-BT | | — | ● | — | — | ● | — | — | ● | — | ● |

Belt Drive/BS

| Model | Stroke [mm] | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 |
|-----------|-------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| LEFG25-BS | | — | — | — | — | — | ● | — | ● | — | ● | — | ● | — | ● | — | ● | — | ● | — | ● |
| LEFG32-BS | | — | — | — | — | — | ● | — | ● | — | ● | — | ● | — | ● | — | ● | — | ● | — | ● |
| LEFG40-BS | | — | — | — | — | — | ● | — | ● | — | ● | — | ● | — | ● | — | ● | — | ● | — | ● |

| Model | Stroke [mm] | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2500 | 3000 |
|-----------|-------------|------|------|------|------|------|------|------|------|------|------|------|------|
| LEFG25-BS | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | — | — |
| LEFG32-BS | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | — | — |
| LEFG40-BS | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | — | — |

*1 Strokes are manufacturable in 1 mm increments. Refer to manufacturable stroke range. However, please consult with SMC for strokes other than those shown above as they are produced as special orders.

*2 Strokes not available for 11-LEFG Series

Weight**Ball Screw Drive/S**

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

AC Servo Motor

| Model \ Stroke [mm] | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 | 1100 | 1200 |
|---------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| (11-)LEFG16-S | 0.25 | 0.31 | 0.37 | 0.43 | 0.49 | 0.55 | 0.61 | 0.67 | 0.73 | 0.79 | — | — | — | — | — | — | — | — | — | — | — | — |
| (11-)LEFG25-S | 0.56 | 0.67 | 0.78 | 0.89 | 1.00 | 1.11 | 1.22 | 1.33 | 1.44 | 1.55 | 1.66 | 1.77 | 1.88 | 1.99 | 2.10 | 2.21 | — | — | — | — | — | — |
| (11-)LEFG32-S | 0.92 | 1.08 | 1.23 | 1.4 | 1.56 | 1.72 | 1.88 | 2.04 | 2.20 | 2.36 | 2.52 | 2.88 | 2.84 | 3.00 | 3.16 | 3.22 | 3.48 | 3.64 | 3.80 | 3.96 | — | — |
| (11-)LEFG40-S | — | — | 2.07 | 2.29 | 2.51 | 2.72 | 2.94 | 3.15 | 3.37 | 3.58 | 3.80 | 4.01 | 4.23 | 4.44 | 4.66 | 4.87 | 5.09 | 5.30 | 5.52 | 5.73 | 6.16 | 6.59 |

Belt Drive/BT

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

| Model \ Stroke [mm] | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 |
|---------------------|----|-----|-----|-----|-----|------|-----|-----|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|
| LEFG16-BT | — | — | — | — | — | 0.62 | — | — | — | 0.86 | — | 0.98 | — | 1.1 | — | 1.22 | — | 1.34 | — | 1.46 |
| LEFG25-BT | — | — | — | — | — | 1.25 | — | — | — | 1.69 | — | 1.91 | — | 2.13 | — | 2.35 | — | 2.57 | — | 2.79 |
| LEFG32-BT | — | — | — | — | — | 1.92 | — | — | — | 2.56 | — | 2.88 | — | 3.20 | — | 3.52 | — | 3.84 | — | 4.16 |

| Model \ Stroke [mm] | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 |
|---------------------|------|------|------|------|------|------|------|------|------|------|
| LEFG16-BT | — | — | — | — | — | — | — | — | — | — |
| LEFG25-BT | — | 3.23 | — | — | 3.89 | — | — | 4.55 | — | 4.99 |
| LEFG32-BT | — | 4.80 | — | — | 5.76 | — | — | 6.72 | — | 7.36 |

Belt Drive/BS

AC Servo Motor

| Model \ Stroke [mm] | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 |
|---------------------|----|-----|-----|-----|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|
| LEFG25-BS | — | — | — | — | — | 1.25 | — | — | — | 1.69 | — | 1.91 | — | 2.13 | — | 2.35 | — | 2.57 | — | 2.79 |
| LEFG32-BS | — | — | — | — | — | 1.72 | — | 2.04 | — | 2.36 | — | 2.68 | — | 3.00 | — | 3.32 | — | 3.64 | — | 3.96 |
| LEFG40-BS | — | — | — | — | — | 2.72 | — | 3.15 | — | 3.58 | — | 4.01 | — | 4.44 | — | 4.87 | — | 5.30 | — | 5.73 |

| Model \ Stroke [mm] | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2500 | 3000 |
|---------------------|------|------|------|------|------|------|------|------|------|-------|-------|-------|
| LEFG25-BS | 3.01 | 3.23 | 3.45 | 3.67 | 3.89 | 4.11 | 4.33 | 4.55 | 4.77 | 4.99 | — | — |
| LEFG32-BS | 4.28 | 4.60 | 4.92 | 5.24 | 5.56 | 5.88 | 6.20 | 6.52 | 6.84 | 7.16 | 8.76 | — |
| LEFG40-BS | 6.16 | 6.59 | 7.02 | 7.45 | 7.88 | 8.31 | 8.74 | 9.17 | 9.60 | 10.03 | 12.18 | 14.33 |

Model
Selection

LEFS

LEFB

LECA6
LECP6

LEC-G

LECP1

LECPA

LEFS

LEFB

LECS

LEFG

Specific Product
Precautions

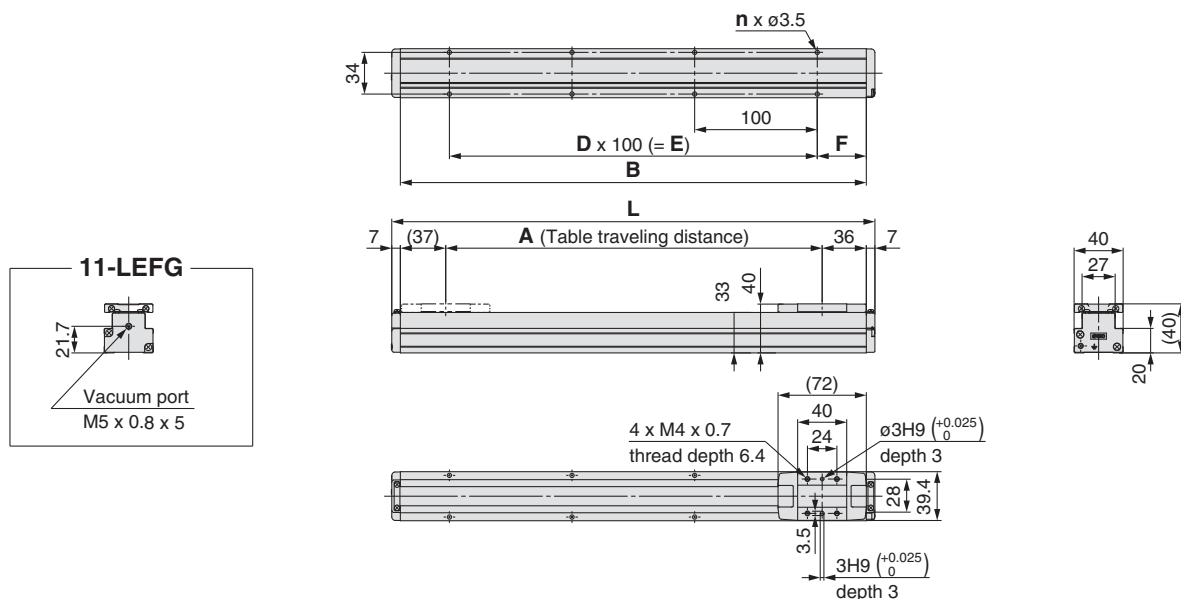
Step Motor (Servo/24 VDC) / Servo Motor (24 VDC)

AC Servo Motor

Series (11-)LEFG

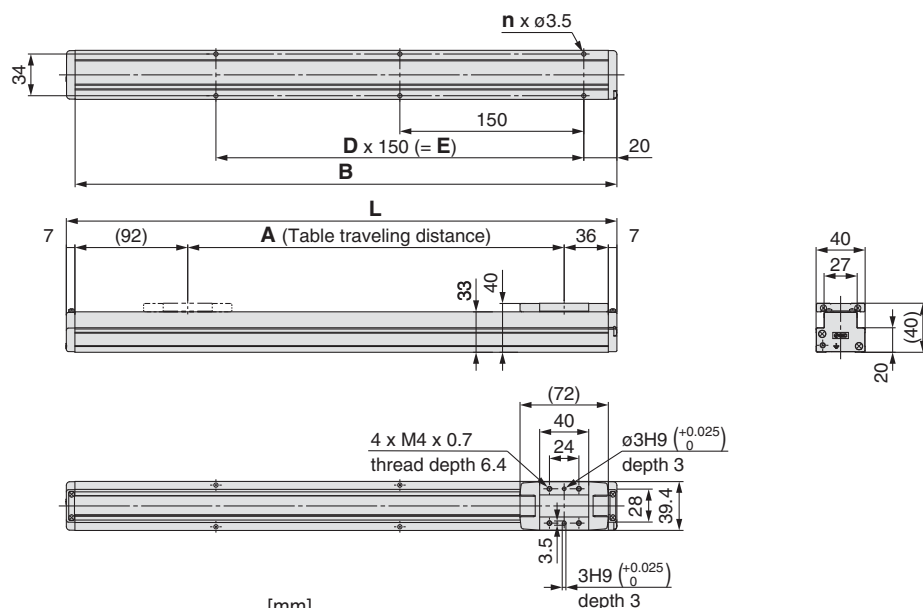
Dimensions: LEFG16

Ball screw drive/(11-)LEFG16-S



| Dimensions | | | | | | | [mm] |
|-------------------|-----|-----|-----|----|---|-----|------|
| Model | L | A | B | n | D | E | F |
| (11-)LEFG16-S-50 | 144 | 57 | 130 | 4 | — | — | 15 |
| (11-)LEFG16-S-100 | 194 | 107 | 180 | | | | 40 |
| (11-)LEFG16-S-150 | 244 | 157 | 230 | | | | |
| (11-)LEFG16-S-200 | 294 | 207 | 280 | | | | |
| (11-)LEFG16-S-250 | 344 | 257 | 330 | | | | |
| (11-)LEFG16-S-300 | 394 | 307 | 380 | | | | |
| (11-)LEFG16-S-350 | 444 | 357 | 430 | | | | |
| (11-)LEFG16-S-400 | 494 | 407 | 480 | | | | |
| (11-)LEFG16-S-450 | 544 | 457 | 530 | 10 | 4 | 400 | |
| (11-)LEFG16-S-500 | 594 | 507 | 580 | 12 | 5 | 500 | |

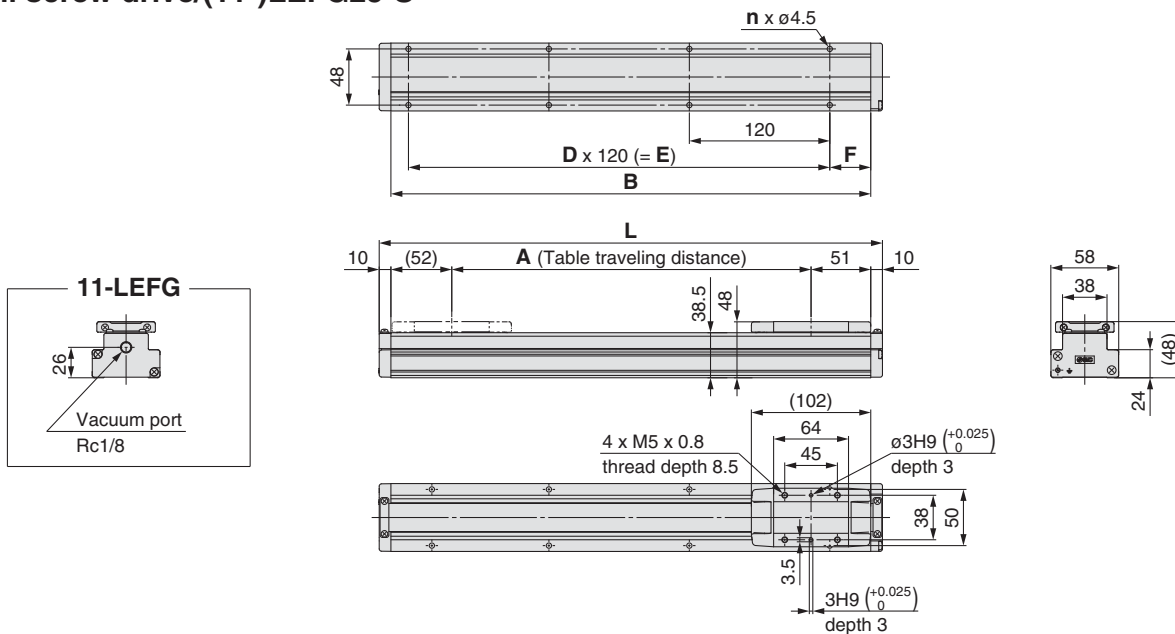
Belt drive (Step motor/Servo motor (24 VDC))/LEFG16-BT



| Model | L | A | B | n | D | E |
|----------------|------|------|------|----|---|------|
| LEFG16-BT-300 | 449 | 307 | 435 | 6 | 2 | 300 |
| LEFG16-BT-500 | 649 | 507 | 635 | 10 | 4 | 600 |
| LEFG16-BT-600 | 749 | 607 | 735 | | | |
| LEFG16-BT-700 | 849 | 707 | 835 | 12 | 5 | 750 |
| LEFG16-BT-800 | 949 | 807 | 935 | 14 | 6 | 900 |
| LEFG16-BT-900 | 1049 | 907 | 1035 | | | |
| LEFG16-BT-1000 | 1149 | 1007 | 1135 | 16 | 7 | 1050 |

Dimensions: LEFG25

Ball screw drive/(11-)LEFG25-S



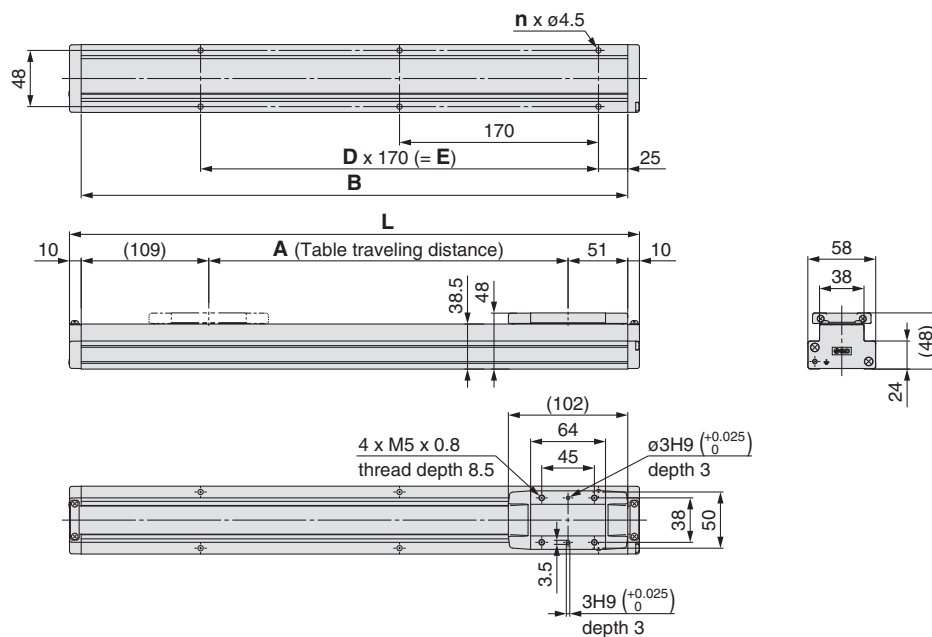
Dimensions

| Model | L | A | B | n | D | E | F |
|-------------------|-----|-----|-----|---|---|-----|----|
| (11-)LEFG25-S-50 | 180 | 57 | 160 | 4 | — | — | 20 |
| (11-)LEFG25-S-100 | 230 | 107 | 210 | | | | |
| (11-)LEFG25-S-150 | 280 | 157 | 260 | | | | |
| (11-)LEFG25-S-200 | 330 | 207 | 310 | 6 | 2 | 240 | 35 |
| (11-)LEFG25-S-250 | 380 | 257 | 360 | | | | |
| (11-)LEFG25-S-300 | 430 | 307 | 410 | | | | |
| (11-)LEFG25-S-350 | 480 | 357 | 460 | 8 | 3 | 360 | |
| (11-)LEFG25-S-400 | 530 | 407 | 510 | | | | |

Dimensions

| Model | L | A | B | n | D | E | F |
|-------------------|-----|-----|-----|----|---|-----|----|
| (11-)LEFG25-S-450 | 580 | 457 | 560 | 10 | 4 | 480 | 35 |
| (11-)LEFG25-S-500 | 630 | 507 | 610 | | | | |
| (11-)LEFG25-S-550 | 680 | 557 | 660 | | | | |
| (11-)LEFG25-S-600 | 730 | 607 | 710 | 12 | 5 | 600 | |
| (11-)LEFG25-S-650 | 780 | 657 | 760 | | | | |
| (11-)LEFG25-S-700 | 830 | 707 | 810 | | | | |
| (11-)LEFG25-S-750 | 880 | 757 | 860 | 14 | 6 | 720 | |
| (11-)LEFG25-S-800 | 930 | 807 | 910 | | | | |

Belt drive (Step motor/Servo motor (24 VDC))/LEFG25-BT



Dimensions

| Model | L | A | B | n | D | E |
|----------------|------|------|------|----|---|------|
| LEFG25-BT-300 | 487 | 307 | 467 | 6 | 2 | 340 |
| LEFG25-BT-500 | 687 | 507 | 667 | 8 | 3 | 510 |
| LEFG25-BT-600 | 787 | 607 | 767 | 10 | 4 | 680 |
| LEFG25-BT-700 | 887 | 707 | 867 | | | |
| LEFG25-BT-800 | 987 | 807 | 967 | | | |
| LEFG25-BT-900 | 1087 | 907 | 1067 | 14 | 6 | 1020 |
| LEFG25-BT-1000 | 1187 | 1007 | 1167 | | | |

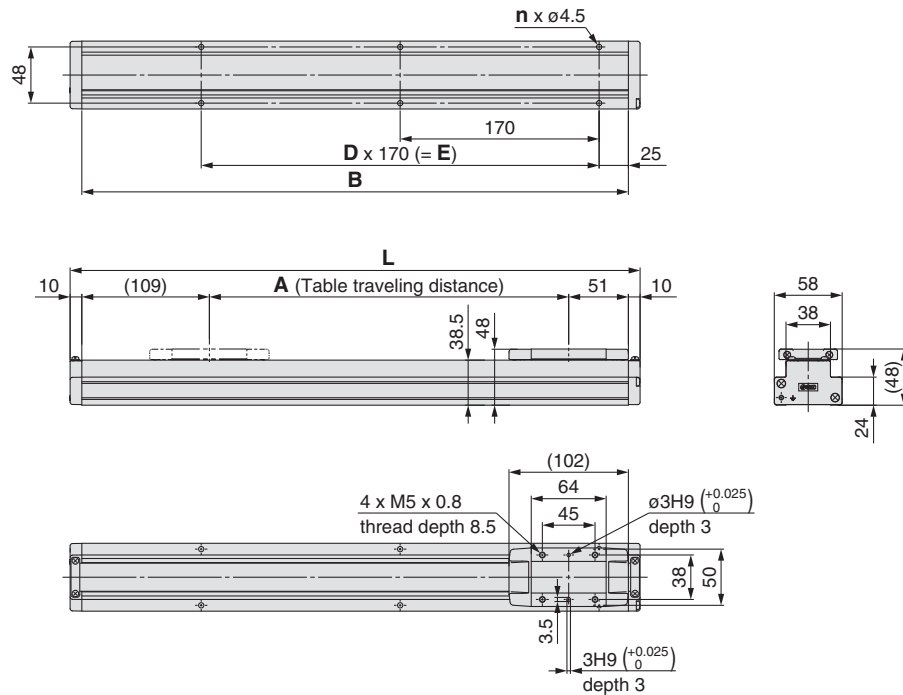
Dimensions

| Model | L | A | B | n | D | E |
|----------------|------|------|------|----|----|------|
| LEFG25-BT-1200 | 1387 | 1207 | 1367 | 16 | 7 | 1190 |
| LEFG25-BT-1500 | 1687 | 1507 | 1667 | 20 | 9 | 1530 |
| LEFG25-BT-1800 | 1987 | 1807 | 1967 | 24 | 11 | 1870 |
| LEFG25-BT-2000 | 2187 | 2007 | 2167 | 26 | 12 | 2040 |

Series (11-)LEFG

Dimensions: LEFG25

Belt drive (AC servo motor)/LEFG25-BS



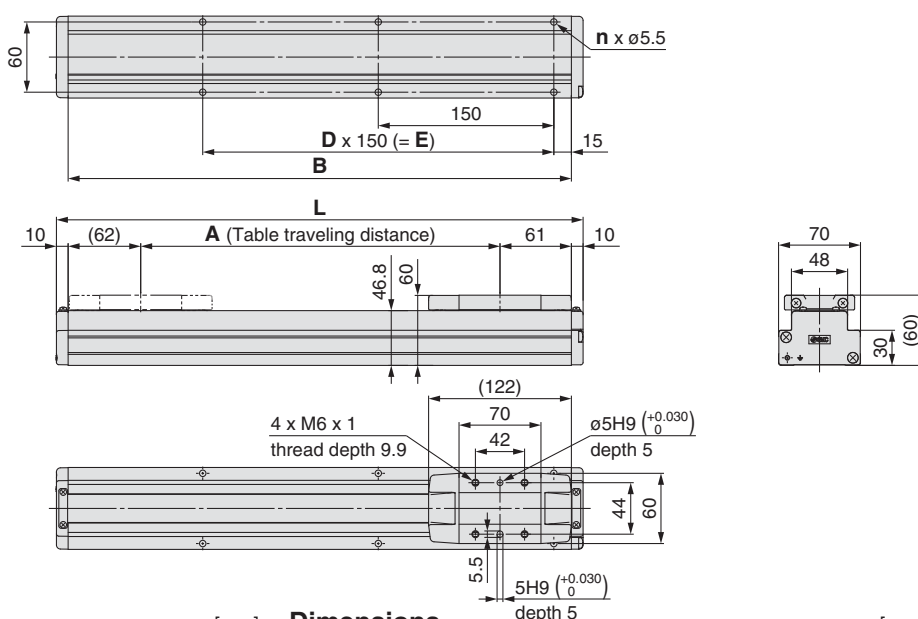
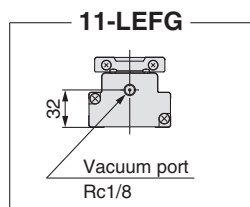
Dimensions

[mm]

| Model | L | A | B | n | D | E |
|----------------|------|------|------|----|----|------|
| LEFG25-BS-300 | 487 | 307 | 467 | 6 | 2 | 340 |
| LEFG25-BS-400 | 587 | 407 | 567 | 8 | 3 | 510 |
| LEFG25-BS-500 | 687 | 507 | 667 | 10 | 4 | 680 |
| LEFG25-BS-600 | 787 | 607 | 767 | 12 | 5 | 850 |
| LEFG25-BS-700 | 887 | 707 | 867 | 14 | 6 | 1020 |
| LEFG25-BS-800 | 987 | 807 | 967 | 16 | 7 | 1190 |
| LEFG25-BS-900 | 1087 | 907 | 1067 | 18 | 8 | 1360 |
| LEFG25-BS-1000 | 1187 | 1007 | 1167 | 20 | 9 | 1530 |
| LEFG25-BS-1100 | 1287 | 1107 | 1267 | 22 | 10 | 1700 |
| LEFG25-BS-1200 | 1387 | 1207 | 1367 | 24 | 11 | 1870 |
| LEFG25-BS-1300 | 1487 | 1307 | 1467 | 26 | 12 | 2040 |
| LEFG25-BS-1400 | 1587 | 1407 | 1567 | | | |
| LEFG25-BS-1500 | 1687 | 1507 | 1667 | | | |
| LEFG25-BS-1600 | 1787 | 1607 | 1767 | | | |
| LEFG25-BS-1700 | 1887 | 1707 | 1867 | | | |
| LEFG25-BS-1800 | 1987 | 1807 | 1967 | | | |
| LEFG25-BS-1900 | 2087 | 1907 | 2067 | | | |
| LEFG25-BS-2000 | 2187 | 2007 | 2167 | | | |

Dimensions: LEFG32

Ball screw drive/ (11-)LEFG32-S



Dimensions

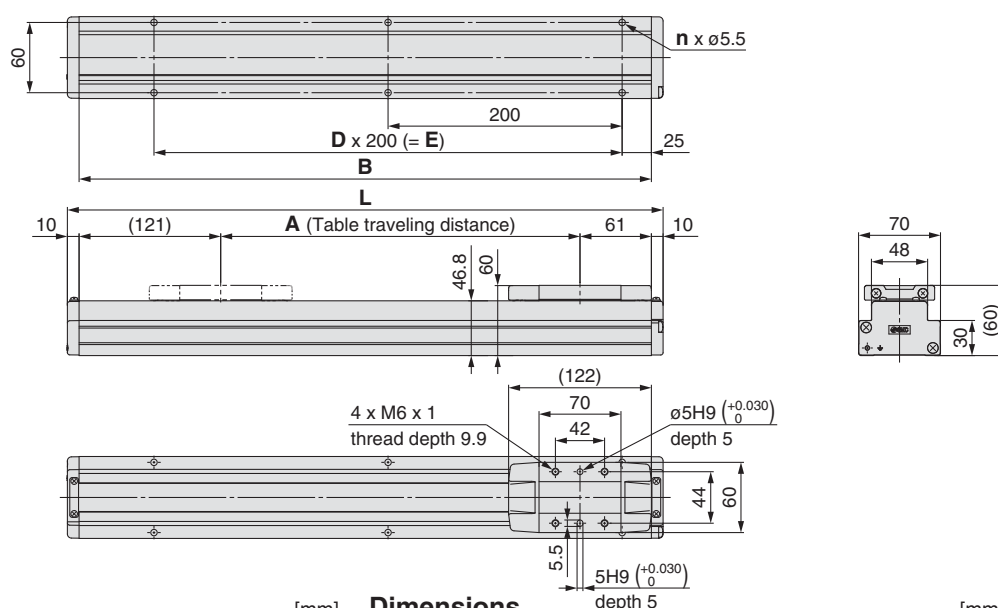
| Model | L | A | B | n | D | E |
|-------------------|-----|-----|-----|---|---|-----|
| (11-)LEFG32-S-50 | 200 | 57 | 180 | 4 | — | — |
| (11-)LEFG32-S-100 | 250 | 107 | 230 | | | |
| (11-)LEFG32-S-150 | 300 | 157 | 280 | | | |
| (11-)LEFG32-S-200 | 350 | 207 | 330 | | | |
| (11-)LEFG32-S-250 | 400 | 257 | 380 | 6 | 2 | 300 |
| (11-)LEFG32-S-300 | 450 | 307 | 430 | | | |
| (11-)LEFG32-S-350 | 500 | 357 | 480 | 8 | 3 | 450 |
| (11-)LEFG32-S-400 | 550 | 407 | 530 | | | |
| (11-)LEFG32-S-450 | 600 | 457 | 580 | | | |

* When a support guide is used for the LEFG32□□□□ (Motor parallel type), order a table spacer separately since the table height differs.
Table spacer part number: LEF-TS32 (For details, refer to page 173.)

Dimensions

| Model | L | A | B | n | D | E |
|--------------------|------|------|------|----|---|------|
| (11-)LEFG32-S-500 | 650 | 507 | 630 | 10 | 4 | 600 |
| (11-)LEFG32-S-550 | 700 | 557 | 680 | | | |
| (11-)LEFG32-S-600 | 750 | 607 | 730 | | | |
| (11-)LEFG32-S-650 | 800 | 657 | 780 | 12 | 5 | 750 |
| (11-)LEFG32-S-700 | 850 | 707 | 830 | | | |
| (11-)LEFG32-S-750 | 900 | 757 | 880 | | | |
| (11-)LEFG32-S-800 | 950 | 807 | 930 | 14 | 6 | 900 |
| (11-)LEFG32-S-850 | 1000 | 857 | 980 | | | |
| (11-)LEFG32-S-900 | 1050 | 907 | 1030 | | | |
| (11-)LEFG32-S-950 | 1100 | 957 | 1080 | 16 | 7 | 1050 |
| (11-)LEFG32-S-1000 | 1150 | 1007 | 1130 | | | |

Belt drive (Step motor/Servo motor (24 VDC))/LEFG32-BT



Dimensions

| Model | L | A | B | n | D | E |
|----------------|------|------|------|----|---|------|
| LEFG32-BT-300 | 509 | 307 | 489 | 6 | 2 | 400 |
| LEFG32-BT-500 | 709 | 507 | 689 | 8 | 3 | 600 |
| LEFG32-BT-600 | 809 | 607 | 789 | 10 | 4 | 800 |
| LEFG32-BT-700 | 909 | 707 | 889 | | | |
| LEFG32-BT-800 | 1009 | 807 | 989 | | | |
| LEFG32-BT-900 | 1109 | 907 | 1089 | 12 | 5 | 1000 |
| LEFG32-BT-1000 | 1209 | 1007 | 1189 | | | |

Dimensions

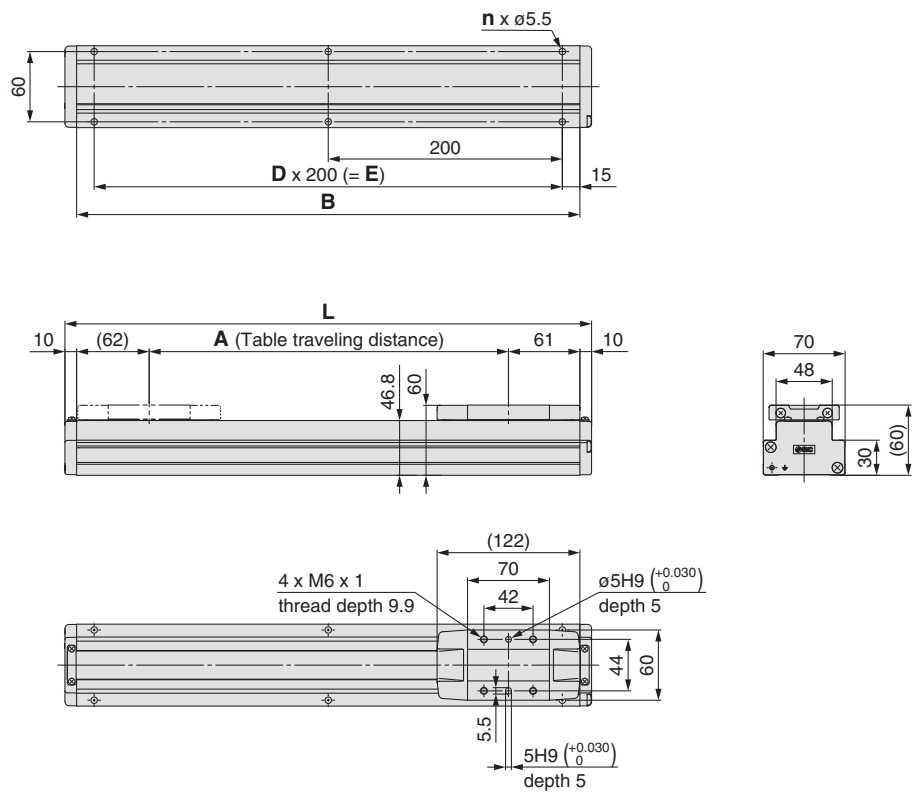
| Model | L | A | B | n | D | E |
|----------------|------|------|------|----|----|------|
| LEFG32-BT-1200 | 1409 | 1207 | 1389 | 14 | 6 | 1200 |
| LEFG32-BT-1500 | 1709 | 1507 | 1689 | 18 | 8 | 1600 |
| LEFG32-BT-1800 | 2009 | 1807 | 1989 | 20 | 9 | 1800 |
| LEFG32-BT-2000 | 2209 | 2007 | 2189 | 22 | 10 | 2000 |

* When a support guide is used for the LEFG32□□□□ (Motor parallel type), order a table spacer separately since the table height differs.
Table spacer part number: LEF-TS32 (For details, refer to page 173.)

Series (11-)LEFG

Dimensions: LEFG32

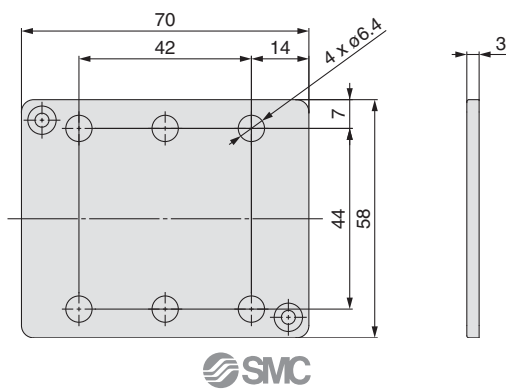
Belt drive (AC servo motor)/LEFG32-BS



| Dimensions [mm] | | | | | | |
|-----------------|------|------|------|----|----|------|
| Model | L | A | B | n | D | E |
| LEFG32-BS-300 | 450 | 307 | 430 | 6 | 2 | 400 |
| LEFG32-BS-400 | 550 | 407 | 530 | | | |
| LEFG32-BS-500 | 650 | 507 | 630 | 8 | 3 | 600 |
| LEFG32-BS-600 | 750 | 607 | 730 | | | |
| LEFG32-BS-700 | 850 | 707 | 830 | 10 | 4 | 800 |
| LEFG32-BS-800 | 950 | 807 | 930 | | | |
| LEFG32-BS-900 | 1050 | 907 | 1030 | 12 | 5 | 1000 |
| LEFG32-BS-1000 | 1150 | 1007 | 1130 | | | |
| LEFG32-BS-1100 | 1250 | 1107 | 1230 | 14 | 6 | 1200 |
| LEFG32-BS-1200 | 1350 | 1207 | 1330 | | | |
| LEFG32-BS-1300 | 1450 | 1307 | 1430 | 16 | 7 | 1400 |
| LEFG32-BS-1400 | 1550 | 1407 | 1530 | | | |
| LEFG32-BS-1500 | 1650 | 1507 | 1630 | 18 | 8 | 1600 |
| LEFG32-BS-1600 | 1750 | 1607 | 1730 | | | |
| LEFG32-BS-1700 | 1850 | 1707 | 1830 | 20 | 9 | 1800 |
| LEFG32-BS-1800 | 1950 | 1807 | 1930 | | | |
| LEFG32-BS-1900 | 2050 | 1907 | 2030 | 22 | 10 | 2000 |
| LEFG32-BS-2000 | 2150 | 2007 | 2130 | | | |
| LEFG32-BS-2500 | 2650 | 2507 | 2630 | 28 | 13 | 2600 |

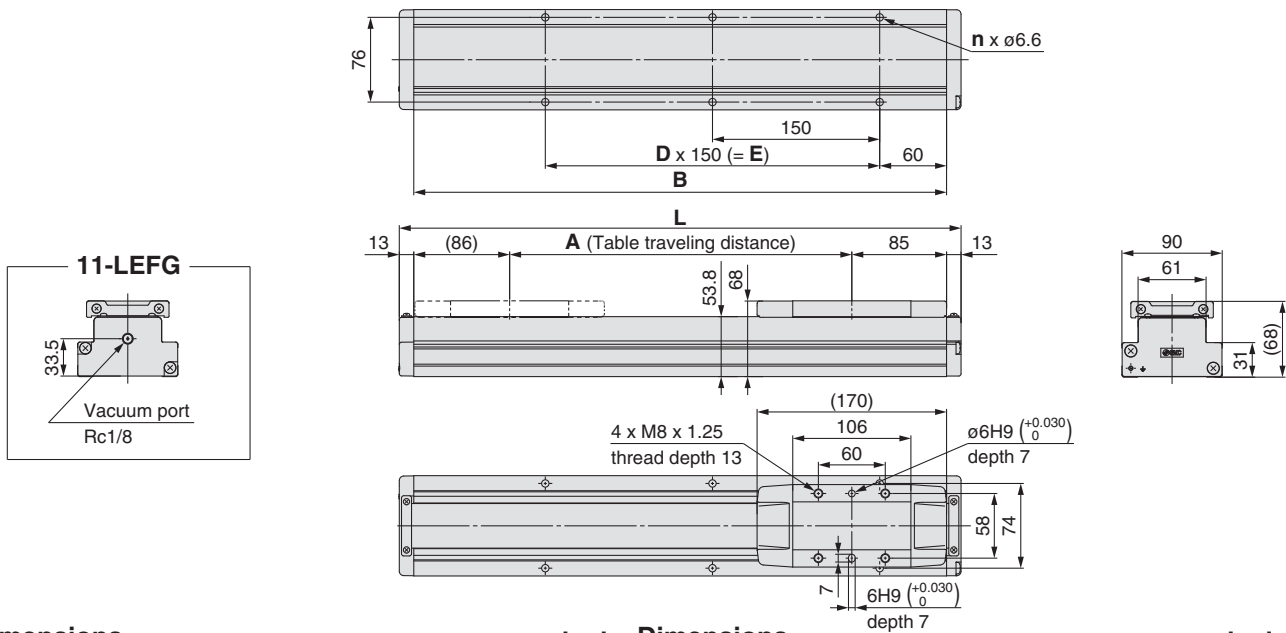
* When a support guide is used for the LEFG32□□□□ (Motor parallel type), order a table spacer separately since the table height differs.

Table spacer part number LEF-TS32



Dimensions: LEFG40

Ball screw drive/(11-)LEFG40-S



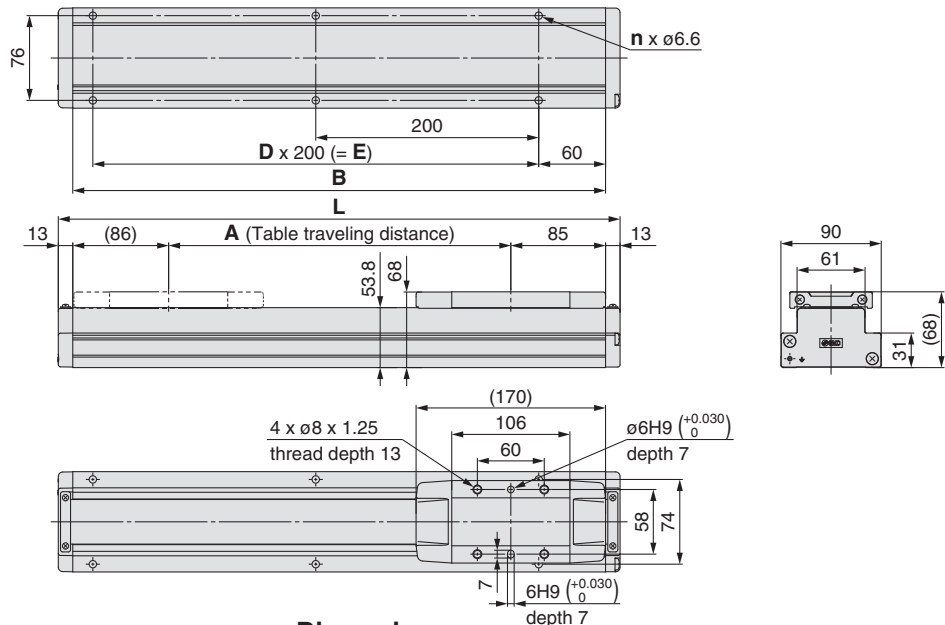
Dimensions

| Model | L | A | B | n | D | E |
|-------------------|-----|-----|-----|----|---|-----|
| (11-)LEFG40-S-150 | 354 | 157 | 328 | 4 | — | 150 |
| (11-)LEFG40-S-200 | 404 | 207 | 378 | 6 | 2 | 300 |
| (11-)LEFG40-S-250 | 454 | 257 | 428 | 6 | 2 | 300 |
| (11-)LEFG40-S-300 | 504 | 307 | 478 | 8 | 3 | 450 |
| (11-)LEFG40-S-350 | 554 | 357 | 528 | 8 | 3 | 450 |
| (11-)LEFG40-S-400 | 604 | 407 | 578 | 8 | 3 | 450 |
| (11-)LEFG40-S-450 | 654 | 457 | 628 | 10 | 4 | 600 |
| (11-)LEFG40-S-500 | 704 | 507 | 678 | 10 | 4 | 600 |
| (11-)LEFG40-S-550 | 754 | 557 | 728 | 10 | 4 | 600 |
| (11-)LEFG40-S-600 | 804 | 607 | 778 | 10 | 4 | 600 |

Dimensions

| Model | L | A | B | n | D | E |
|--------------------|------|------|------|----|---|------|
| (11-)LEFG40-S-650 | 854 | 657 | 828 | 12 | 5 | 750 |
| (11-)LEFG40-S-700 | 904 | 707 | 878 | 12 | 5 | 750 |
| (11-)LEFG40-S-750 | 954 | 757 | 928 | 14 | 6 | 900 |
| (11-)LEFG40-S-800 | 1004 | 807 | 978 | 14 | 6 | 900 |
| (11-)LEFG40-S-850 | 1054 | 857 | 1028 | 16 | 7 | 1050 |
| (11-)LEFG40-S-900 | 1104 | 907 | 1078 | 16 | 7 | 1050 |
| (11-)LEFG40-S-950 | 1154 | 957 | 1128 | 18 | 8 | 1200 |
| (11-)LEFG40-S-1000 | 1204 | 1007 | 1178 | 18 | 8 | 1200 |
| (11-)LEFG40-S-1100 | 1304 | 1107 | 1278 | 18 | 8 | 1200 |
| (11-)LEFG40-S-1200 | 1404 | 1207 | 1378 | 18 | 8 | 1200 |

Belt drive (AC servo motor)/LEFG40-BS



Dimensions

| Model | L | A | B | n | D | E |
|----------------|------|------|------|----|---|------|
| LEFG40-BS-300 | 504 | 307 | 478 | 6 | 2 | 400 |
| LEFG40-BS-400 | 604 | 407 | 578 | 8 | 3 | 600 |
| LEFG40-BS-500 | 704 | 507 | 678 | 8 | 3 | 600 |
| LEFG40-BS-600 | 804 | 607 | 778 | 10 | 4 | 800 |
| LEFG40-BS-700 | 904 | 707 | 878 | 10 | 4 | 800 |
| LEFG40-BS-800 | 1004 | 807 | 978 | 12 | 5 | 1000 |
| LEFG40-BS-900 | 1104 | 907 | 1078 | 12 | 5 | 1000 |
| LEFG40-BS-1000 | 1204 | 1007 | 1178 | 14 | 6 | 1200 |
| LEFG40-BS-1100 | 1304 | 1107 | 1278 | 14 | 6 | 1200 |
| LEFG40-BS-1200 | 1404 | 1207 | 1378 | 14 | 6 | 1200 |

Dimensions

| Model | L | A | B | n | D | E |
|----------------|------|------|------|----|----|------|
| LEFG40-BS-1300 | 1504 | 1307 | 1478 | 16 | 7 | 1400 |
| LEFG40-BS-1400 | 1604 | 1407 | 1578 | 16 | 7 | 1400 |
| LEFG40-BS-1500 | 1704 | 1507 | 1678 | 18 | 8 | 1600 |
| LEFG40-BS-1600 | 1804 | 1607 | 1778 | 18 | 8 | 1600 |
| LEFG40-BS-1700 | 1904 | 1707 | 1878 | 20 | 9 | 1800 |
| LEFG40-BS-1800 | 2004 | 1807 | 1978 | 20 | 9 | 1800 |
| LEFG40-BS-1900 | 2104 | 1907 | 2078 | 22 | 10 | 2000 |
| LEFG40-BS-2000 | 2204 | 2007 | 2178 | 22 | 10 | 2000 |
| LEFG40-BS-2500 | 2704 | 2507 | 2678 | 28 | 13 | 2600 |
| LEFG40-BS-3000 | 3204 | 3007 | 3178 | 32 | 15 | 3000 |

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.

Warning

- 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 catalogue information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.
- 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.
- Do not service or attempt to remove product and machinery/equipment until safety is confirmed.**
 - 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.
 - 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.
 - Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.
- Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.**
 - Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
 - 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 catalogue.
 - An application which could have negative effects on people, property, or animals requiring special safety analysis.
 - 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

- 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.

Caution

- SMC products are not intended for use as instruments for legal metrology.**
Measurement instruments that SMC manufactures or sells have not been qualified by type approval tests relevant to the metrology (measurement) laws of each country. Therefore, SMC products cannot be used for business or certification ordained by the metrology (measurement) laws of each country.

Safety Instructions

Be sure to read “Handling Precautions for SMC Products” (M-E03-3) before using.

SMC Corporation (Europe)

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Specifications are subject to change without prior notice and any obligation on the part of the manufacturer.

- *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.

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

- 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.
- 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.
- Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalogue 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

- The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
- 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.