

Electric Actuator

Series LEF



Slider Type

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

Ball Screw Drive Series LEFS

Size: 16, 25, 32, 40 ▶Page 8

Max. work load: **60** kg
Positioning repeatability: ± 0.02 mm
Clean room specification also available



Clean room specification ▶Page 13
11-LEFS

Belt Drive Series LEFB

Size: 16, 25, 32 ▶Page 8

Max. stroke: **2,000** mm
Max. speed: **2,000** mm/s



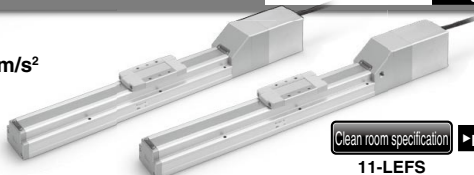
AC Servo Motor Type

* Not applicable to UL.

Ball Screw Drive Series LEFS

Size: 25, 32, 40 ▶Page 42

Improved high speed transfer ability
High acceleration/deceleration: $20,000 \text{ mm/s}^2$
Pulse input type
With internal absolute encoder (For LECSB/C/S)
Clean room specification also available

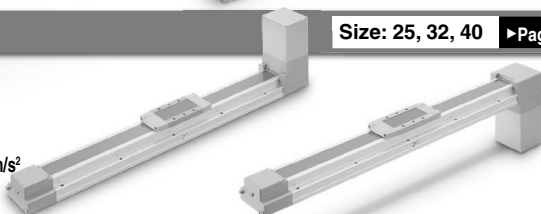


Clean room specification ▶Page 48
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Belt Drive Series LEFB

Size: 25, 32, 40 ▶Page 52

Max. speed: **2,000** mm/s
Max. stroke: **3,000** mm
Max. acceleration/deceleration: **20,000** mm/s²
Motor bottom mounting type also available



Step Motor (Servo/24 VDC)

Controller/
Driver

Servo Motor (24 VDC)

▶Page 367

- ▶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



▶Page 409

LEF

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LECA6
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LECPA

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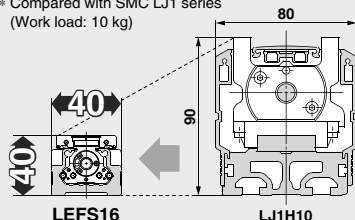
LAT3

Series LEF

● Compact

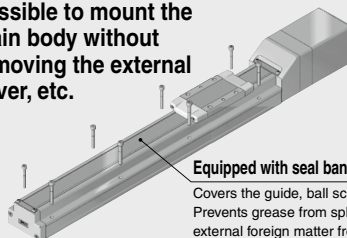
Height/width dimensions reduced by approx. **50%**

* Compared with SMC LJ1 series
(Work load: 10 kg)



● Easy mounting of the body/Reduction of the installation labor

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



Equipped with seal bands as standard

Covers the guide, ball screw and belt.
Prevents grease from splashing and external foreign matter from entering.

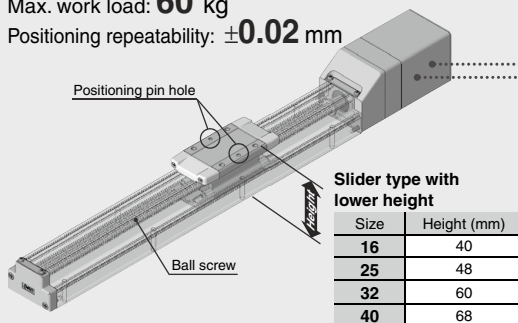
Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

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

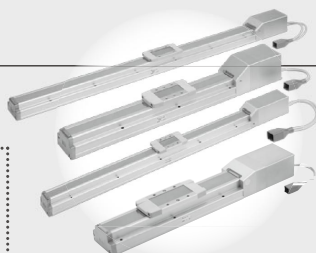
Max. work load: **60 kg**

Positioning repeatability: ± 0.02 mm



Slider type with lower height

Size	Height (mm)
16	40
25	48
32	60
40	68



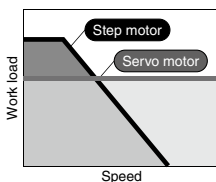
Non-magnetizing lock mechanism
(Option)

Drop prevention in case of power failure (Maintained)*

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

Compatible motors

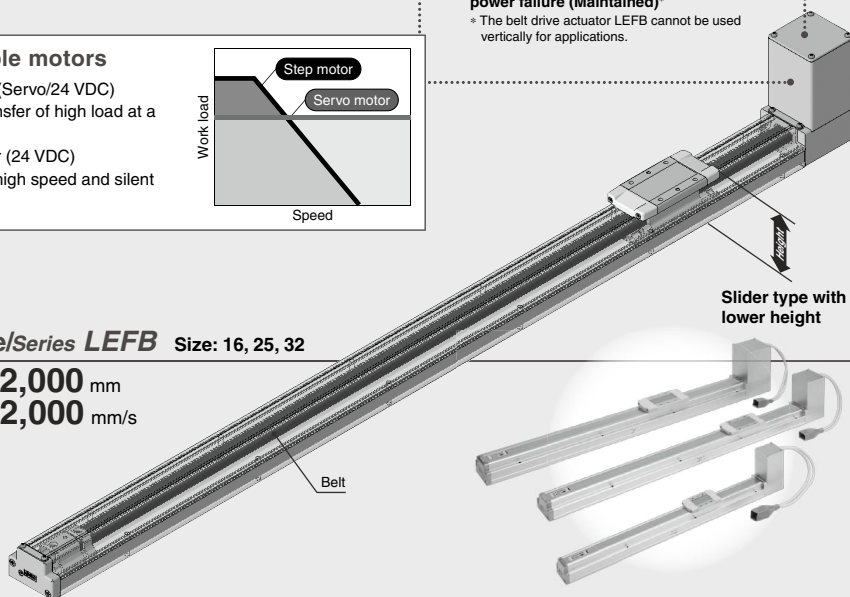
- Step motor (Servo/24 VDC)
Ideal for transfer of high load at a low speed
- Servo motor (24 VDC)
Stable at a high speed and silent operation



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

Max. stroke: **2,000** mm

Max. speed: **2,000** mm/s

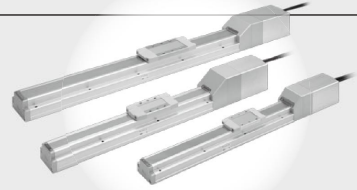
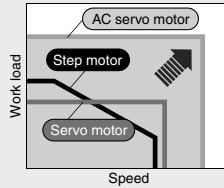


Slider type with lower height

AC Servo Motor

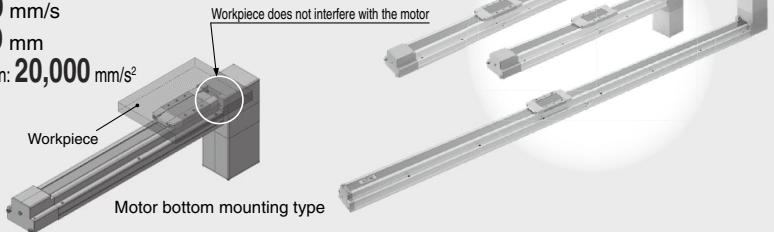
Ball Screw Drive/Series LEFS Size: 25, 32, 40

High output motor (100/200/400 W)
Improved high speed transfer ability
High acceleration/deceleration
compatible: $20,000 \text{ mm/s}^2$
Pulse input type
With internal absolute encoder
(For LECSB/C/S)



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

Max. speed: **2,000** mm/s
Max. stroke: **3,000** mm
Max. acceleration/deceleration: **20,000** mm/s²



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Clean room specification

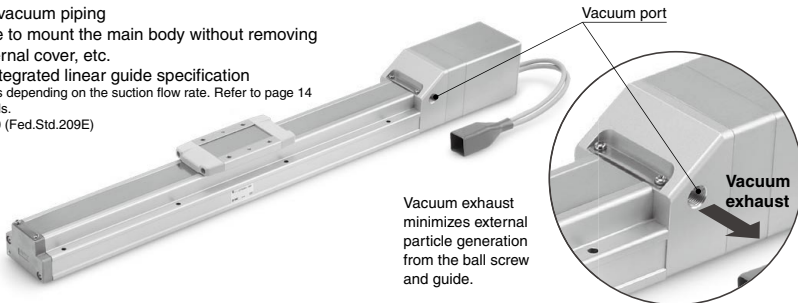
Ball Screw Drive/Series 11-LEFS

ISO Class 4^{*1, *2} (ISO14644-1)!

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

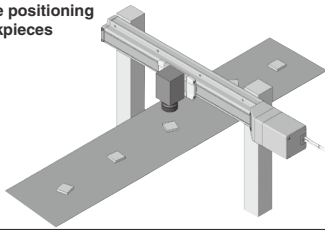
^{*1} Changes depending on the suction flow rate. Refer to page 14 for details.

^{*2} Class 10 (Fed.Std.209E)

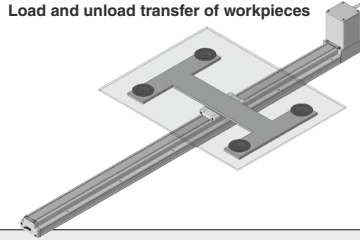


Application Examples

Precise positioning of workpieces



Load and unload transfer of workpieces



Series Variations

Ball Screw Drive/Series LEFS

Type	*1 Size	Lead (mm)	Stroke (mm)*2	
Step motor (Servo/24 VDC)	16	5	100, 200, 300, 400	
		10		
	25	6	100, 200, 300, 400, 500, 600	
		12		
	32	8	100, 200, 300, 400, 500, 600, 700, 800	
		16		
Servo motor (24 VDC)	16	10	200, 300, 400, 500, 600, 700, 800, 900, 1000	
		20		
	25	6	100, 200, 300, 400, 500, 600	
		12		
AC servo motor	25	6	100, 200, 300, 400, 500, 600	
		12		
	32	8	100, 200, 300, 400, 500, 600, 700, 800	
		16		
	40	10	200, 300, 400, 500, 600, 700, 800, 900, 1000	
		20		

*1 The size corresponds to the bore of the air cylinder with an equivalent force. (For the ball screw drive)

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

*3 For clean room specification, refer to pages 26 and 64.

Belt Drive/Series LEFB

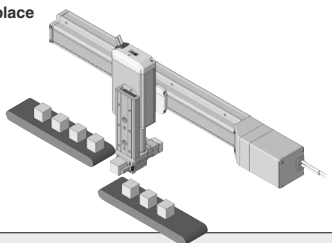
Type	*1 Size	Equivalent lead (mm)	Stroke (mm)*2	
Step motor (Servo/24 VDC)	16	48	300, 500, 600, 700, 800, 900, 1000	
	25	48	300, 500, 600, 700, 800, 900, 1000, 1200, 1500, 1800, 2000	
	32	48	300, 500, 600, 700, 800, 900, 1000, 1200, 1500, 1800, 2000	
Servo motor (24 VDC)	16	48	300, 500, 600, 700, 800, 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	

*1 The size corresponds to the bore of the air cylinder with an equivalent force. (For the ball screw drive)

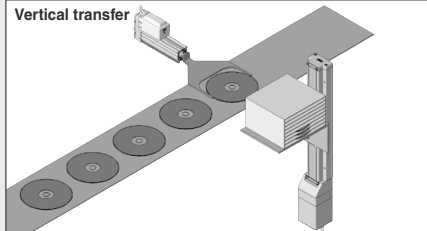
*2 Consult with SMC for non-standard strokes as they are produced as special orders.

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

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	
															Page 8 ^{*3}
															Page 42 ^{*3}

	Work load: Horizontal (kg) ^{*3}					Speed (mm/s)				Page
	5	10	15	20	25	500	1000	1500	2000	
										Page 8
										Page 52

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LAT3

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

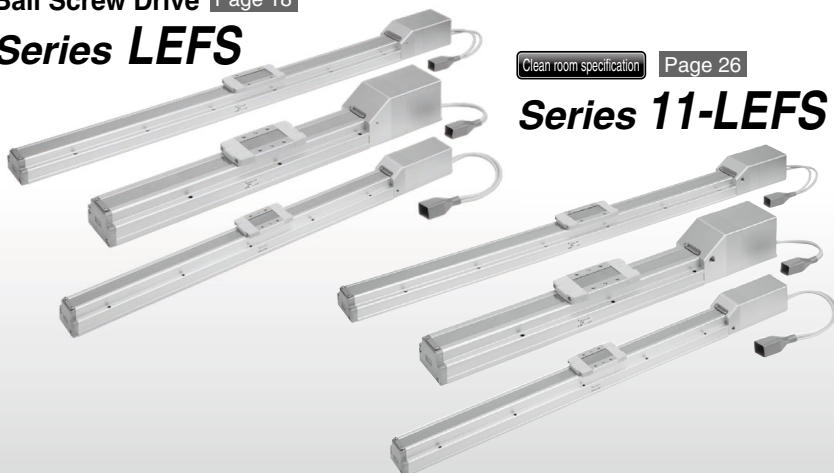
Ball Screw Drive **Page 18**

Series LEFS

Clean room specification

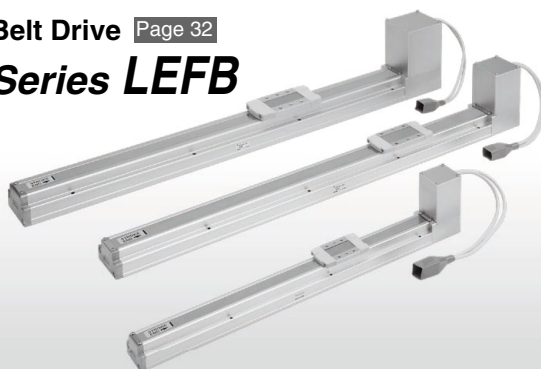
Page 26

Series 11-LEFS



Belt Drive **Page 32**

Series LEFB



Step Motor/Servo Motor Controller **Page 367**

Step Motor Driver

Series LECP6/LECA6

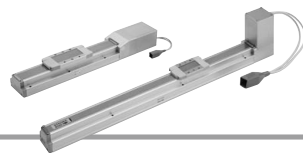
Series LEC-G

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



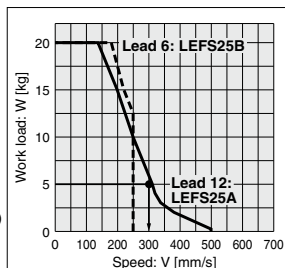
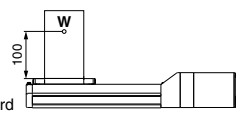
Selection Procedure

Step 1 Check the work load-speed. → **Step 2** Check the cycle time. → **Step 3** Check the allowable moment.

Selection Example

Operating conditions

- Workpiece mass: 5 [kg]
- Speed: 300 [mm/s]
- Acceleration/Deceleration: 3,000 [mm/s²]
- Stroke: 200 [mm]
- Mounting orientation: Horizontal upward



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

Step 1 Check the work load-speed. <Speed-Work load graph> (Pages 9 and 10)

Select the target model based on the workpiece mass 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, please 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.

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

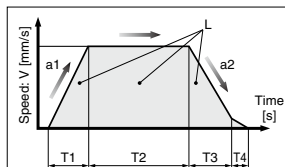
$$T3 = V/a2 = 300/3000 = 0.1 \text{ [s]}$$

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

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

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

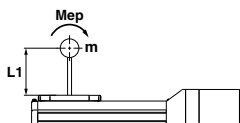
T3: Deceleration time [s]

Time from the beginning of the constant speed operation to stop

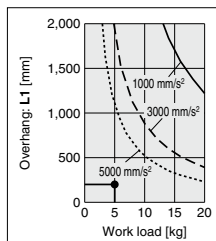
T4: Settling time [s]

Time until in position is completed

Step 3 Check the guide moment.



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



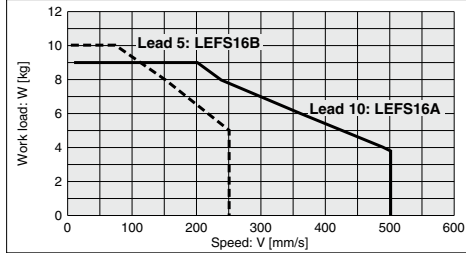
* If the step motor and servo motors do not meet your specifications, please also consider the AC servo specifications (Page 41).

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

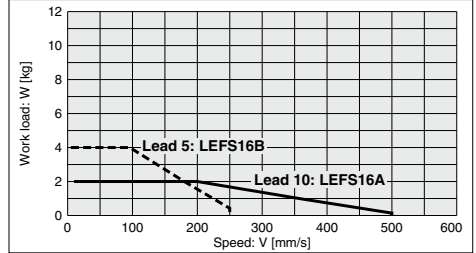
* The following graph shows the values when moving force is 100%.

LEFS16/Ball Screw Drive

Horizontal

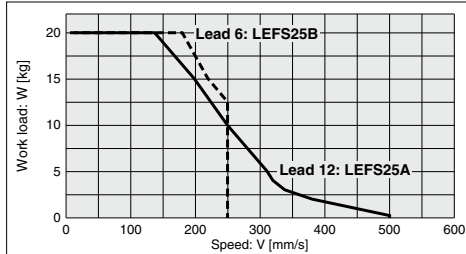


Vertical

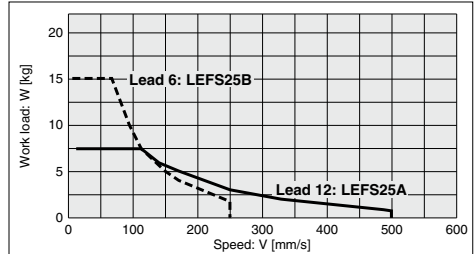


LEFS25/Ball Screw Drive

Horizontal

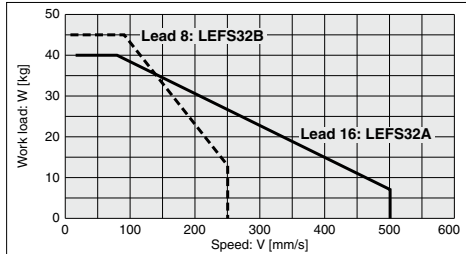


Vertical

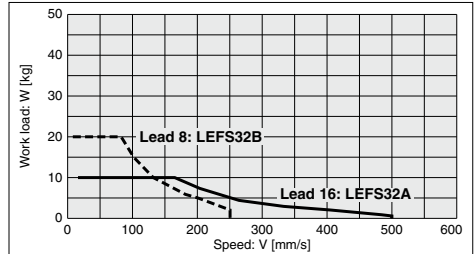


LEFS32/Ball Screw Drive

Horizontal

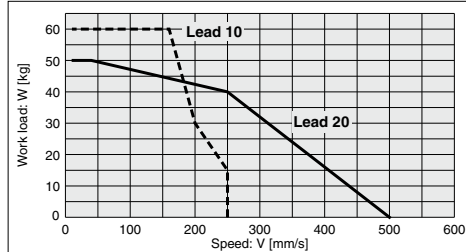


Vertical

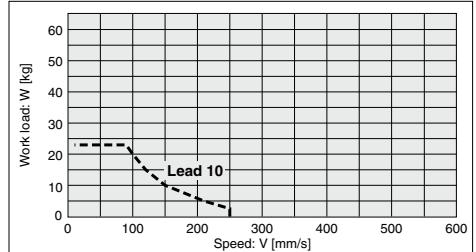


LEFS40/Ball Screw Drive

Horizontal



Vertical



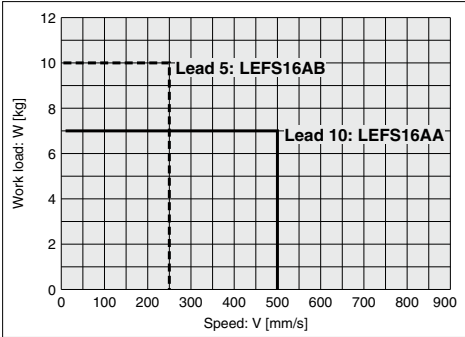
Series LEF

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

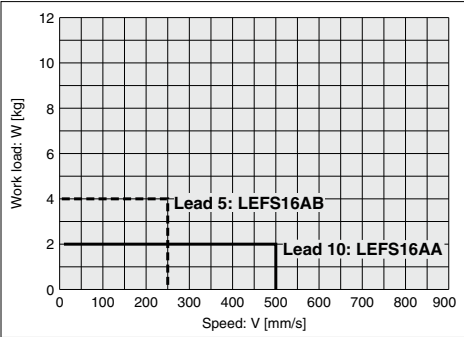
* The following graph shows the values when moving force is 250%.

LEFS16A/Ball Screw Drive

Horizontal

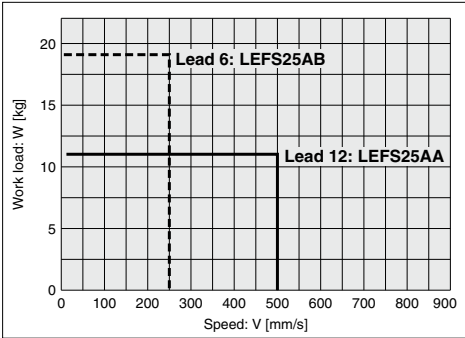


Vertical

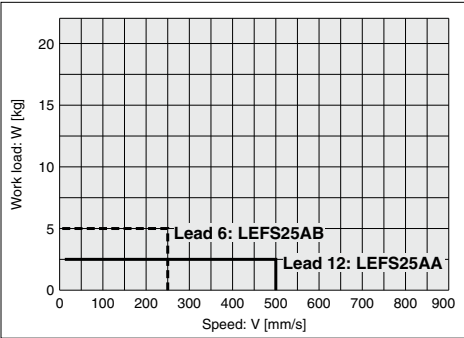


LEFS25A/Ball Screw Drive

Horizontal



Vertical

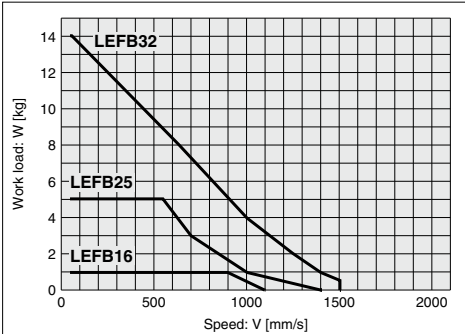


Step Motor (Servo/24 VDC)

LEFB/Belt Drive

* When moving force is 100%

Horizontal

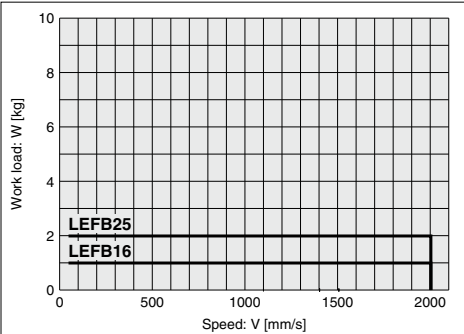


Servo Motor (24 VDC)

LEFB/Belt Drive

* When moving force is 250%

Horizontal



Dynamic Allowable Moment

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

Acceleration/Deceleration — 1,000 mm/s² - - - 3,000 mm/s² 5,000 mm/s²

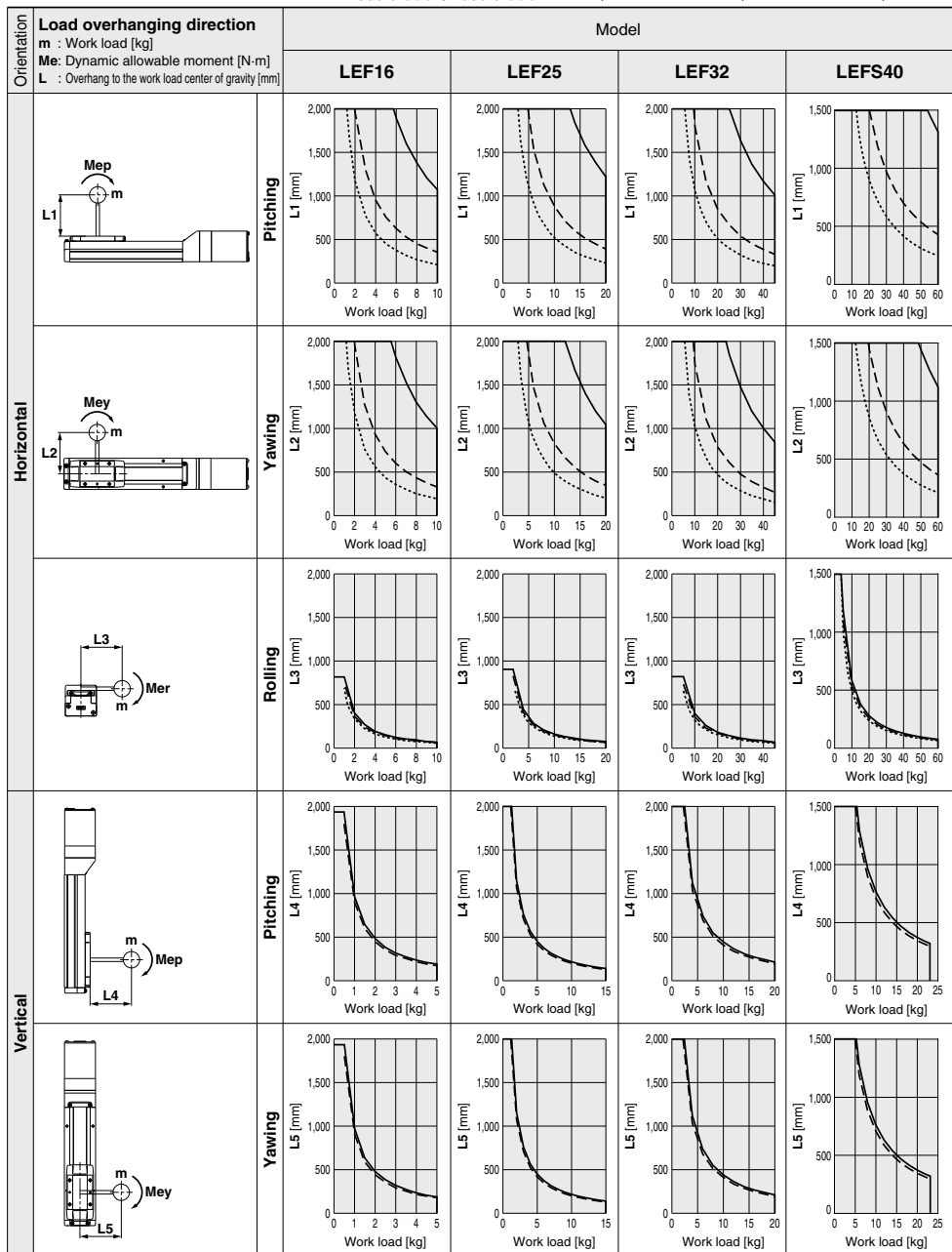
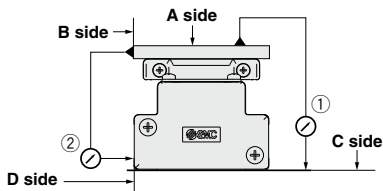


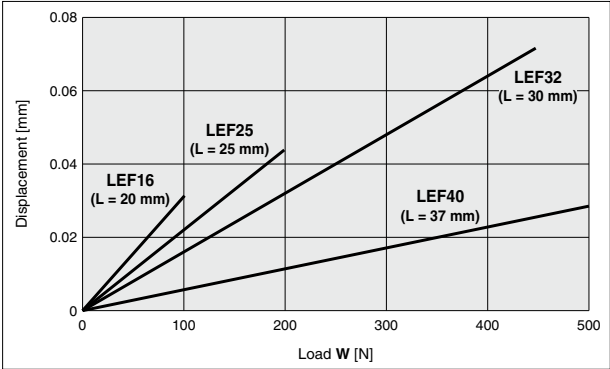
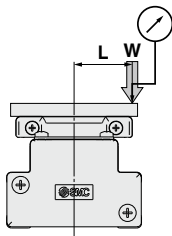
Table Accuracy



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 aluminum plate is mounted and fixed on the table.
Note 2) Please confirm 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.

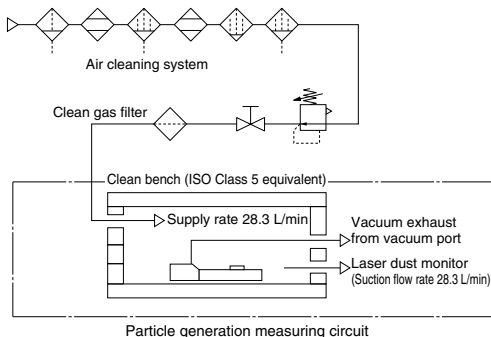
Test Method (Example)

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

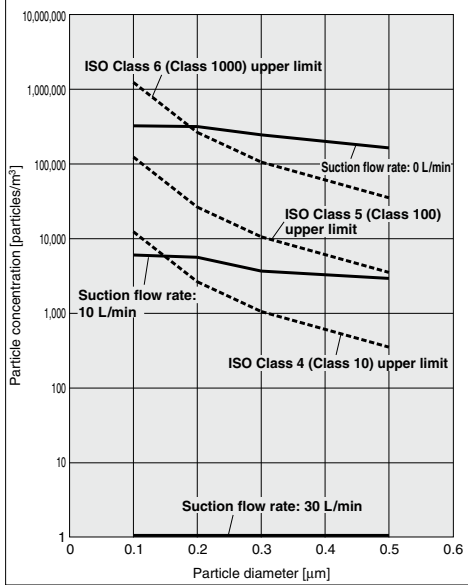
Note 2) Actuator: 1 million cycles

Series 11-LEFS

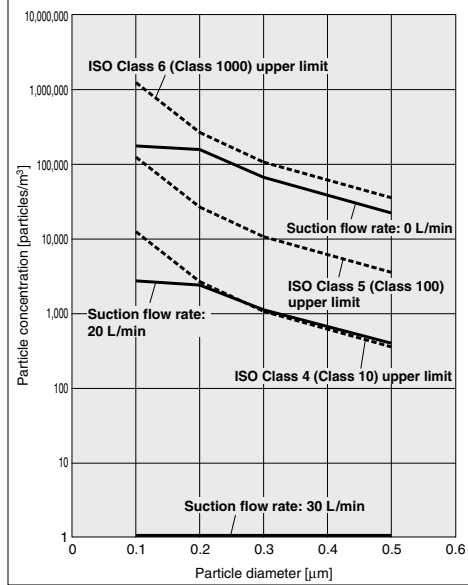
Clean room specification

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

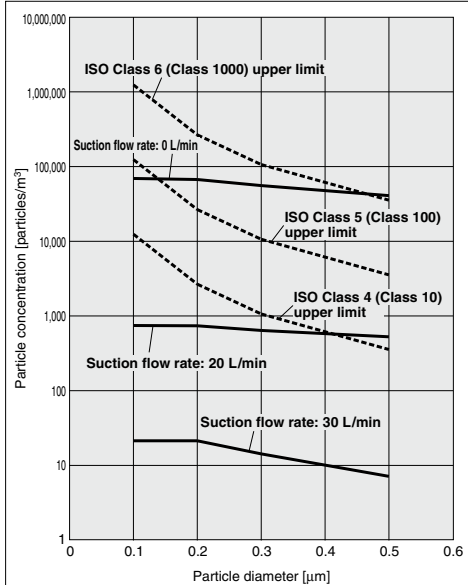
11-LEFS16 Speed 500mm/s



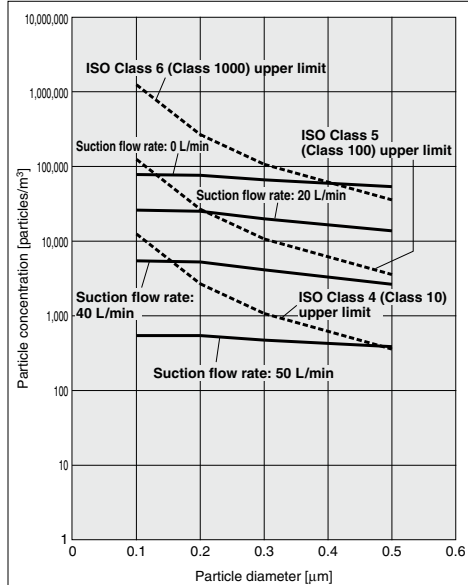
11-LEFS25 Speed 500mm/s



11-LEFS32 Speed 500mm/s



11-LEFS40 Speed 500mm/s



Model Selection

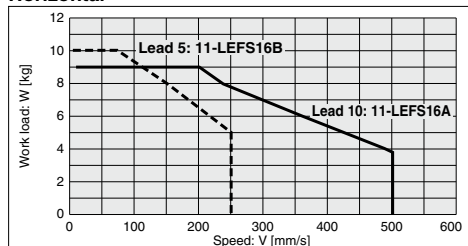
Speed-Work Load Graph (Guide)

Step Motor (Servo/24 VDC)

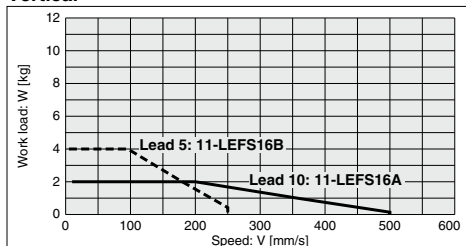
* The following graph shows the values when moving force is 100%.

11-LEFS16/Ball Screw Drive

Horizontal

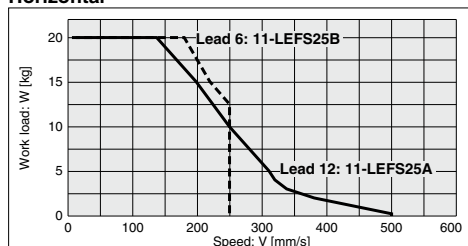


Vertical

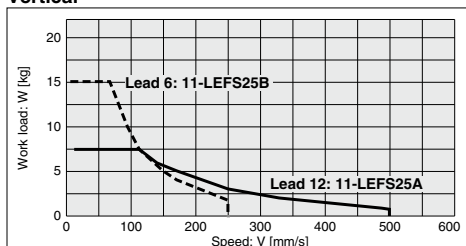


11-LEFS25/Ball Screw Drive

Horizontal

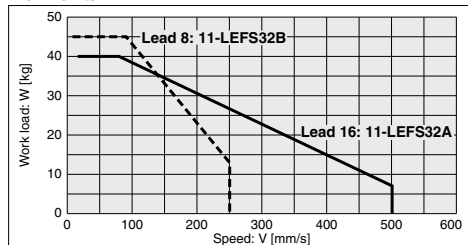


Vertical

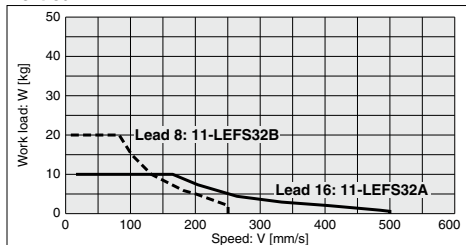


11-LEFS32/Ball Screw Drive

Horizontal

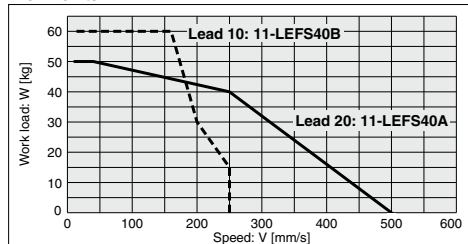


Vertical

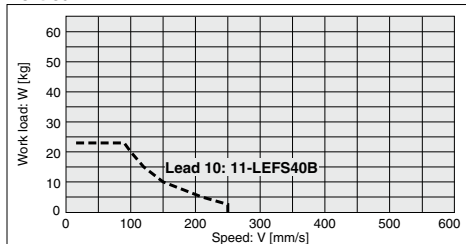


11-LEFS40/Ball Screw Drive

Horizontal



Vertical



Series 11-LEFS

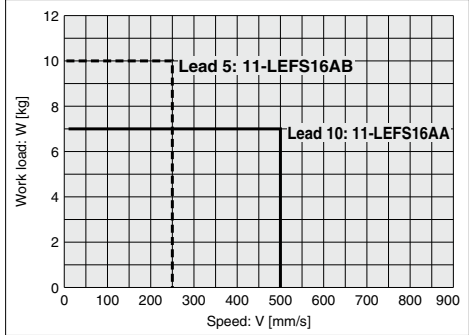
Clean room specification

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

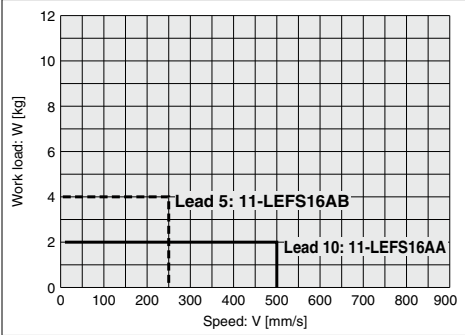
* The following graph shows the values when moving force is 250%.

11-LEFS16A/Ball Screw Drive

Horizontal

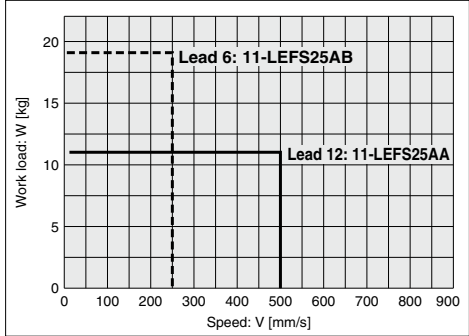


Vertical

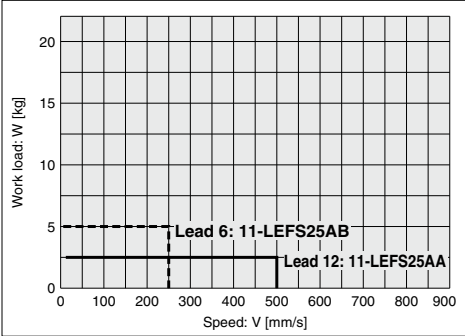


11-LEFS25A/Ball Screw Drive

Horizontal



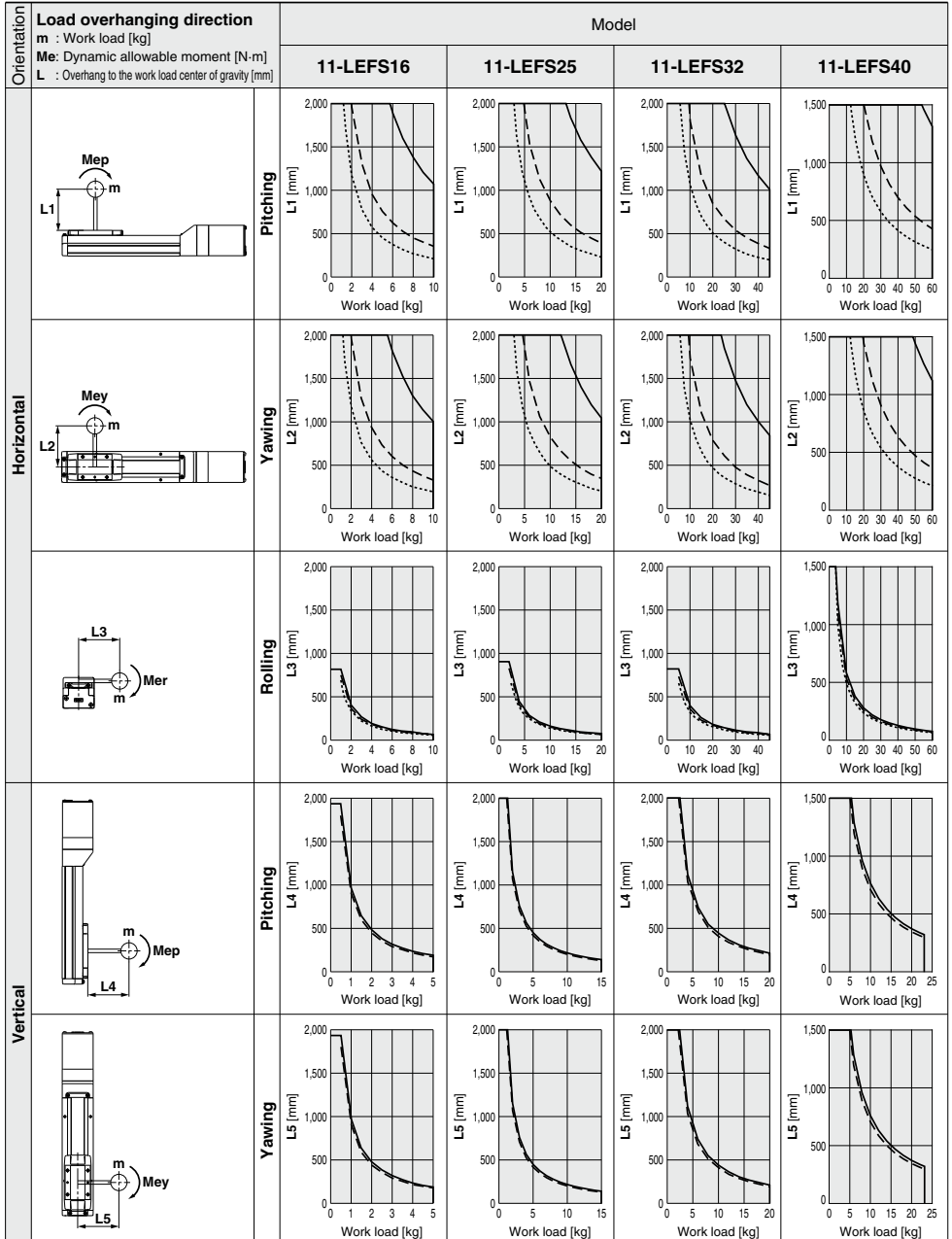
Vertical



Dynamic Allowable Moment

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

Acceleration/Deceleration — 1,000 mm/s² - - - 3,000 mm/s² 5,000 mm/s²



LEF

LEJ

LEL

LEY
LEYG

LES
LESH

LEPY
LEPS

LER

LEH

LECA6
LECP6

LEC-G

LECP1

LECPA

LECS

LAT3

Electric Actuator/Slider Type Ball Screw Drive

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

Series LEFS

LEFS16, 25, 32, 40



RoHS

How to Order

LEFS 16 [] B - 100 [] - S 1 6N 1 []

1 2 3 4 5 6 7 8 9 10

1 Size

16
25
32
40

2 Motor type

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

3 Lead [mm]

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

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 384 for the noise filter set. Refer to the LECA Operation Manual for installation.

[UL-compliant products]

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

4 Stroke [mm]

100	100
to	to
1000	1000

* Refer to the applicable stroke table.

Applicable stroke table

Model	Stroke										Manufacturable stroke range [mm]
	100	200	300	400	500	600	700	800	900	1000	
LEFS16	●	●	●	●	—	—	—	—	—	—	100 to 400
LEFS25	●	●	●	●	●	●	—	—	—	—	100 to 600
LEFS32	●	●	●	●	●	●	●	●	—	—	100 to 800
LEFS40	—	●	●	●	●	●	●	●	●	●	200 to 1000

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



Made to Order Specifications (For details, refer to page 79.)

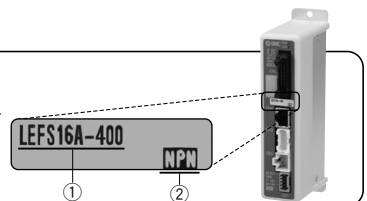
Symbol	Specifications
X139	Support guide

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

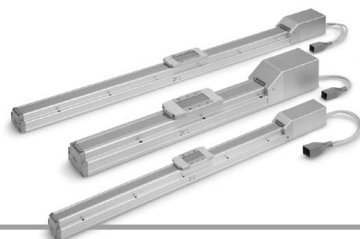
Confirm that the combination of the controller/driver and the actuator is correct.

<Check the following before use.>

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



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



5 Motor option

Nil	Without option
B	With lock

6 Actuator cable type^{*1}

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

^{*1} The standard cable should be used on fixed parts. For using on moving parts, select the robotic cable.

^{*2} Only available for the motor type "Step motor."

7 Actuator cable length [m]

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

* Produced upon receipt of order (Robotic cable only). Refer to the specifications Note 2) on pages 20 and 21.

8 Controller/Driver type^{*1}

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

^{*1} For details about controllers/driver and compatible motors, refer to the compatible controllers/driver below.

^{*2} Only available for the motor type "Step motor."

9 I/O cable length [m]^{*1}

Nil	Without cable
1	1.5
3	3 ^{*2}
5	5 ^{*2}

^{*1} When "Without controller/driver" is selected for controller/driver types, I/O cable cannot be selected. Refer to page 384 (For LECP6/LECA6), page 397 (For LECP1) or page 404 (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.

10 Controller/Driver mounting

Nil	Screw mounting
D	DIN rail mounting*

* DIN rail is not included. Order it separately.

Compatible Controllers/Driver

Type	Step data input type	Step data input type	Programless type	Pulse input type
				
Series	LECP6	LECA6	LECP1	LECPA
Features	Value (Step data) input Standard controller		Capable of setting up operation (step data) without using a PC or teaching box	Operation by pulse signals
Compatible motor	Step motor (Servo/24 VDC)	Servo motor (24 VDC)	Step motor (Servo/24 VDC)	
Maximum number of step data	64 points		14 points	—
Power supply voltage	24 VDC			
Reference page	Page 376	Page 376	Page 391	Page 398

Specifications

Step Motor (Servo/24 VDC)

Model		LEFS16		LEFS25		LEFS32		LEFS40		
Actuator specifications	Stroke [mm] ^{Note 1)}	100, 200, 300, 400		100, 200, 300 400, 500, 600		100, 200, 300, 400 500, 600, 700, 800		200, 300, 400, 500, 600 700, 800, 900, 1000		
	Work load [kg] ^{Note 2)}	Horizontal	9	10	20	20	40	45	50	60
		Vertical	2	4	7.5	15	10	20	—	23
	Speed [mm/s] ^{Note 2)}	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]	3,000								
	Positioning repeatability [mm]	±0.02								
	Lead [mm]	10	5	12	6	16	8	20	10	
	Impact/Vibration resistance [m/s ²] ^{Note 3)}	50/20								
	Actuation type	Ball screw								
	Guide type	Linear guide								
Electric specifications	Operating temperature range [°C]	5 to 40								
	Operating humidity range [%RH]	90 or less (No condensation)								
	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] ^{Note 4)}	22		38		50		100		
	Standby power consumption when operating [W] ^{Note 5)}	18		16		44		43		
	Max. instantaneous power consumption [W] ^{Note 6)}	51		57		123		141		
	Type ^{Note 7)}	Non-magnetizing lock								
Lock unit specifications	Holding force [N]	20	39	78	157	108	216	113	225	
	Power consumption [W] ^{Note 8)}	2.9		5		5		5		
	Rated voltage [V]	24 VDC ±10%								

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

Note 2) Speed changes according to the work load. Check "Speed-Work Load Graph (Guide)" on page 9.

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

Note 3) 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 4) The power consumption (including the controller) is for when the actuator is operating.

Note 5) The standby power consumption when operating (including the controller) is for when the actuator is stopped in the set position during the operation.

Note 6) 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 7) With lock only

Note 8) 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)}	100, 200, 300, 400		100, 200, 300 400, 500, 600		
	Work load [kg] ^{Note 2)}	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]	3,000				
	Positioning repeatability [mm]	±0.02				
	Lead [mm]	10	5	12	6	
	Impact/Vibration resistance [m/s ²] ^{Note 3)}	50/20				
	Actuation type	Ball screw				
	Guide type	Linear guide				
Electric specifications	Operating temperature range [°C]	5 to 40				
	Operating humidity range [%RH]	90 or less (No condensation)				
	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 4)}	63		102		
	Standby power consumption when operating [W] ^{Note 5)}	Horizontal 4/Vertical 9		Horizontal 4/Vertical 9		
	Max. instantaneous power consumption [W] ^{Note 6)}	70		113		
Lock unit specifications	Type ^{Note 7)}	Non-magnetizing lock				
	Holding force [N]	20	39	78	157	
	Power consumption [W] ^{Note 8)}	2.9		5		
	Rated voltage [V]	24 VDC ±10%				

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

Note 2) Check "Speed-Work Load Graph (Guide)" on page 10 for details.

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

Note 3) 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 4) The power consumption (including the controller) is for when the actuator is operating.

Note 5) The standby power consumption when operating (including the controller) is for when the actuator is stopped in the set position during the operation.

Note 6) 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 7) With lock only

Note 8) For an actuator with lock, add the power consumption for the lock.

Weight

Series	LEFS16			
Stroke [mm]	100	200	300	400
Product weight [kg]	0.90	1.05	1.20	1.35
Additional weight with lock [kg]	0.12			

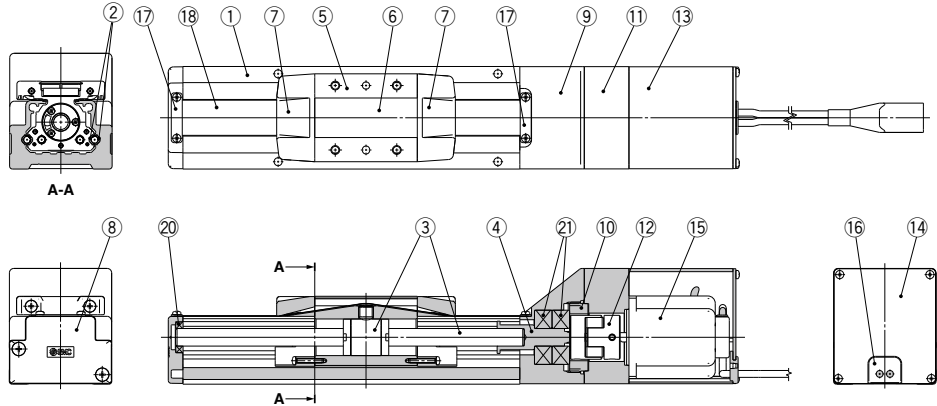
Series	LEFS25					
Stroke [mm]	100	200	300	400	500	600
Product weight [kg]	1.84	2.12	2.40	2.68	2.96	3.24
Additional weight with lock [kg]	0.26					

Series	LEFS32							
Stroke [mm]	100	200	300	400	500	600	700	800
Product weight [kg]	3.35	3.75	4.15	4.55	4.95	5.35	5.75	6.15
Additional weight with lock [kg]	0.53							

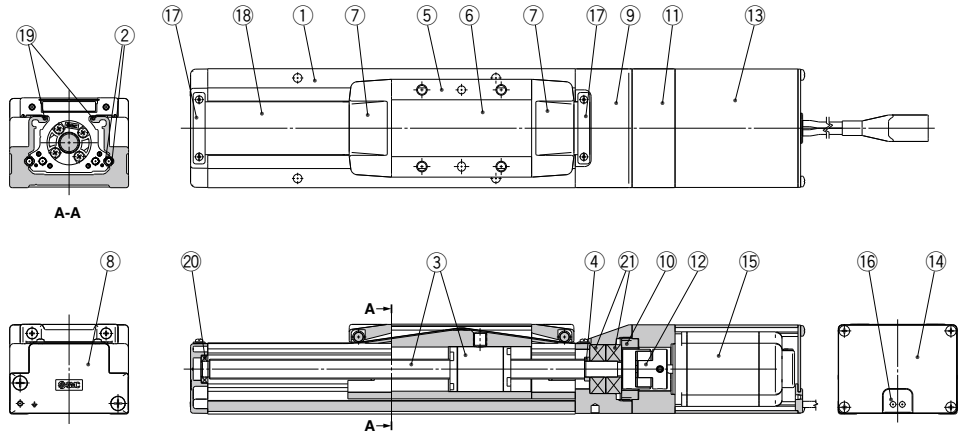
Series	LEFS40									
Stroke [mm]	200	300	400	500	600	700	800	900	1000	
Product weight [kg]	5.65	6.21	6.77	7.33	7.89	8.45	9.01	9.57	10.13	
Additional weight with lock [kg]	0.53									

Construction

LEFS16, 25, 32



LEFS40

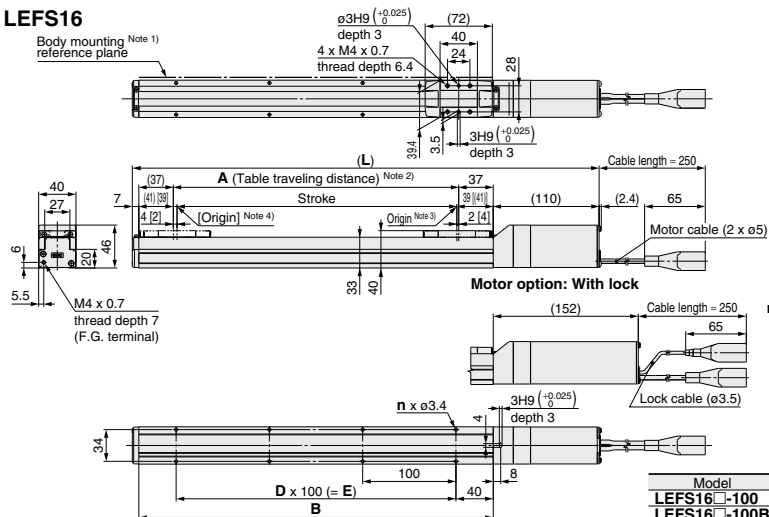


No.	Description	Material	Note
1	Body	Aluminum alloy	Anodized
2	Rail guide	—	
3	Ball screw assembly	—	
4	Connected shaft LEFS16, 25, 32 Spacer LEFS40	—	
5	Table	Aluminum alloy	Anodized
6	Blanking plate	Aluminum alloy	Anodized
7	Seal band stopper	Synthetic resin	
8	Housing A	Aluminum die-casted	Coating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

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

Dimensions: Ball Screw Drive

LEFS16



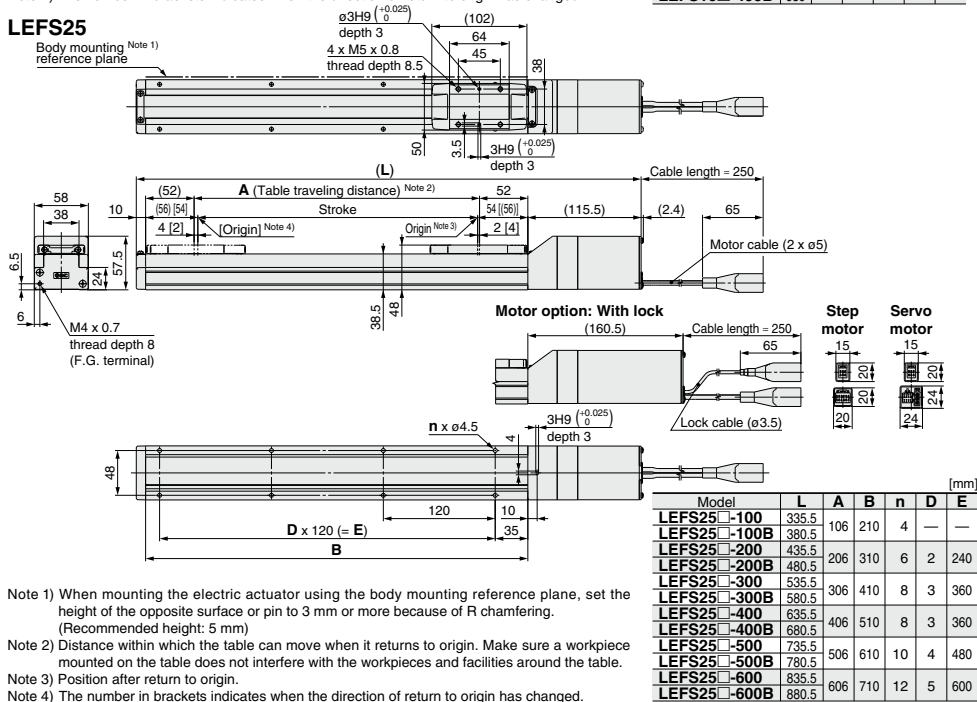
Note 1) When mounting the electric actuator using the body mounting reference plane, set the height of the opposite surface or pin to 2 mm or more because of R chamfering. (Recommended height: 5 mm)

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 workpieces and facilities around the table.

Note 3) Position after return to origin.

Note 4) The number in brackets indicates when the direction of return to origin has changed.

LEFS25



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

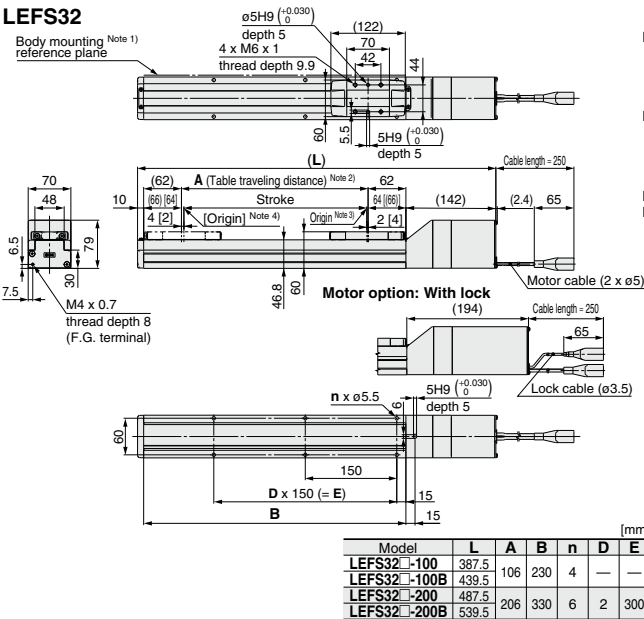
Note 2) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the workpieces and facilities around the table.

Note 3) Position after return to origin.

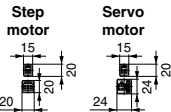
Note 4) The number in brackets indicates when the direction of return to origin has changed.

Dimensions: Ball Screw Drive

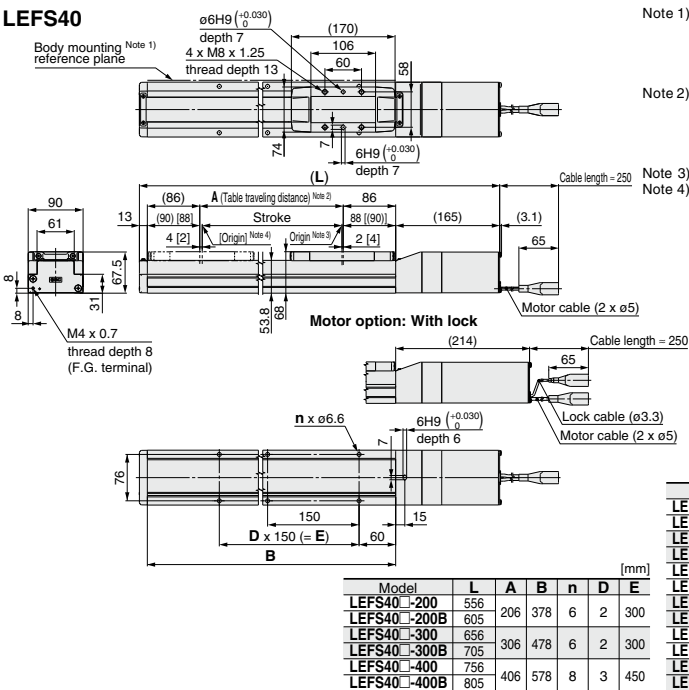
LEFS32



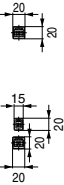
- Note 1) When mounting the electric actuator using the body mounting reference plane, set the height of the opposite surface or pin to 3 mm or more because of R chamfering. (Recommended height: 5 mm)
- Note 2) Distance within which the table can move when it returns to origin.
- Note 3) Position after return to origin.
- Note 4) The number in brackets indicates when the direction of return to origin has changed.



LEFS40



- Note 1) When mounting the electric actuator using the body mounting reference plane, set the height of the opposite surface or pin to 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.
- Note 3) Position after return to origin.
- Note 4) The number in brackets indicates when the direction of return to origin has changed.



LAT3	LECS□	LECPA	LECP1	LEC-G	LECA6 LECP6	LEH	LER	LEPY LEPS	LES LESH	LEY LEYG	LEL	LEJ	LEF
------	-------	-------	-------	-------	----------------	-----	-----	--------------	-------------	-------------	-----	-----	-----

Electric Actuator/Slider Type Ball Screw Drive

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

Clean room specification

Series 11-LEFS

LEFS16, 25, 32, 40



RoHS

How to Order

11 - LEFS 16 B - 100 - S 1 6N 1

1 2 3 4 5 6 7 8 9 10 11

Clean series

11 Vacuum type

1 Size

16
25
32
40

2 Motor type

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

3 Lead [mm]

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

4 Stroke [mm]

100	100
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 384 for the noise filter set. Refer to the LECA Operation Manual for installation.

[UL-compliant products]

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

Applicable stroke table

● Standard

Model \ Stroke	100	200	300	400	500	600	700	800	900	1000	Manufacturable stroke range [mm]
11-LEFS16	●	●	●	●	—	—	—	—	—	—	100 to 400
11-LEFS25	●	●	●	●	●	—	—	—	—	—	100 to 600
11-LEFS32	●	●	●	●	●	●	●	●	—	—	100 to 800
11-LEFS40	—	●	●	●	●	●	●	●	●	●	200 to 1000

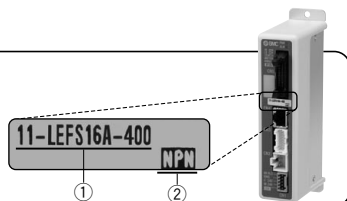
* Consult with SMC for non-standard strokes as they are produced as special orders.

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

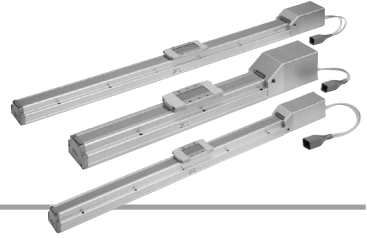
Confirm that the combination of the controller/driver and the actuator is correct.

<Check the following before use.>

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



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



5 Motor option

Nil	Without option
B	With lock

8 Actuator cable length [m]

Nil	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 28 and 29.

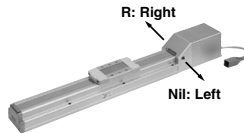
11 Controller/Driver mounting

Nil	Screw mounting
D	DIN rail mounting*

* DIN rail is not included. Order it separately.

6 Vacuum port

Nil	Left
R	Right



9 Controller/Driver type^{*1}

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

*1 For details about controllers/driver and compatible motors, refer to the compatible controllers/driver below.

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

7 Actuator cable type^{*1}

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

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

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

10 I/O cable length [m]^{*1}

Nil	Without cable
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 384 (For LECP6/LECA6), page 397 (For LECP1) or page 404 (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 Controllers/Driver

Type	Step data input type	Step data input type	Programless type	Pulse input type
				
Series	LECP6	LECA6	LECP1	LECPA
Features	Value (Step data) input Standard controller		Capable of setting up operation (step data) without using a PC or teaching box	Operation by pulse signals
Compatible motor	Step motor (Servo/24 VDC)	Servo motor (24 VDC)	Step motor (Servo/24 VDC)	
Maximum number of step data	64 points		14 points	—
Power supply voltage	24 VDC			
Reference page	Page 376	Page 376	Page 391	Page 398

Specifications

Step Motor (Servo/24 VDC)

Model		11-LEFS16		11-LEFS25		11-LEFS32		11-LEFS40		
Actuator specifications	Stroke [mm] ^{Note 1)}	100, 200, 300, 400		100, 200, 300 400, 500, 600		100, 200, 300, 400 500, 600, 700, 800		200, 300, 400, 500, 600 700, 800, 900, 1000		
	Work load [kg] ^{Note 2)}	Horizontal	9	10	20	20	40	45	50	60
		Vertical	2	4	7.5	15	10	20	—	23
	Speed [mm/s] ^{Note 2)}	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]	3,000								
	Positioning repeatability [mm]	±0.02								
	Lead [mm]	10	5	12	6	16	8	20	10	
	Impact/Vibration resistance [m/s ²] ^{Note 3)}	50/20								
	Actuation type	Ball screw								
	Guide type	Linear guide								
Electric specifications	Operating temperature range [°C]	5 to 40								
	Operating humidity range [%RH]	90 or less (No condensation)								
	Cleanliness class ^{Note 4)}	ISO Class 4 (ISO 14644-1) Class 10 (Fed.Std.209E)								
	Grease	Ball screw /Linear guide portion Low particle generation grease								
	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] ^{Note 5)}	22		38		50		100		
	Standby power consumption when operating [W] ^{Note 6)}	18		16		44		43		
Lock unit specifications	Max. instantaneous power consumption [W] ^{Note 7)}	51		57		123		141		
	Type ^{Note 8)}	Non-magnetizing lock								
	Holding force [N]	20	39	78	157	108	216	113	225	
	Power consumption [W] ^{Note 9)}	2.9		5		5		5		
	Rated voltage [V]	24 VDC ±10%								

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

Note 2) Speed changes according to the work load. Check "Speed-Work Load Graph (Guide)" on page 15.

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

Note 3) 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 4) The amount of particle generation changes according to the operating conditions and suction flow rate. Refer to the particle generation characteristics for details.

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		11-LEFS16A		11-LEFS25A		
Actuator specifications	Stroke [mm] ^{Note 1)}	100, 200, 300, 400		100, 200, 300 400, 500, 600		
	Work load [kg] ^{Note 2)}	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]	3,000				
	Positioning repeatability [mm]	±0.02				
	Lead [mm]	10	5	12	6	
	Impact/Vibration resistance [m/s ²] ^{Note 3)}	50/20				
	Actuation type	Ball screw				
	Guide type	Linear guide				
Electric specifications	Operating temperature range [°C]	5 to 40				
	Operating humidity range [%RH]	90 or less (No condensation)				
	Cleanliness class ^{Note 4)}	ISO Class 4 (ISO 14644-1) Class 10 (Fed.Std.209E)				
	Grease	Ball screw/Linear guide portion	Low particle generation grease			
	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		
Lock unit specifications	Standby power consumption when operating [W] ^{Note 6)}	Horizontal 4/Vertical 9		Horizontal 4/Vertical 9		
	Max. instantaneous power consumption [W] ^{Note 7)}	70		113		
	Type ^{Note 8)}	Non-magnetizing lock				
	Holding force [N]	20	39	78	157	
	Power consumption [W] ^{Note 9)}	2.9			5	
	Rated voltage [V]	24 VDC ±10%				

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

Note 2) Check "Speed-Work Load Graph (Guide)" on page 16 for details. Furthermore, if the cable length exceeds 5 m, then it will decrease by up to 10% for each 5 m.

Note 3) 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 4) The amount of particle generation changes according to the operating conditions and suction flow rate. Refer to the particle generation characteristics for details.

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 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

Model	11-LEFS16			
Stroke [mm]	100	200	300	400
Product weight [kg]	0.90	1.05	1.20	1.35
Additional weight with lock [kg]	0.12			

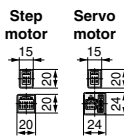
Model	11-LEFS25					
Stroke [mm]	100	200	300	400	500	600
Product weight [kg]	1.84	2.12	2.40	2.68	2.96	3.24
Additional weight with lock [kg]	0.26					

Model	11-LEFS32							
Stroke [mm]	100	200	300	400	500	600	700	800
Product weight [kg]	3.35	3.75	4.15	4.55	4.95	5.35	5.75	6.15
Additional weight with lock [kg]	0.53							

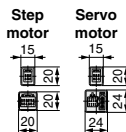
Model	11-LEFS40									
Stroke [mm]	200	300	400	500	600	700	800	900	1000	
Product weight [kg]	5.65	6.21	6.77	7.33	7.89	8.45	9.01	9.57	10.13	
Additional weight with lock [kg]	0.53									

Clean room specification

11-LEFS16



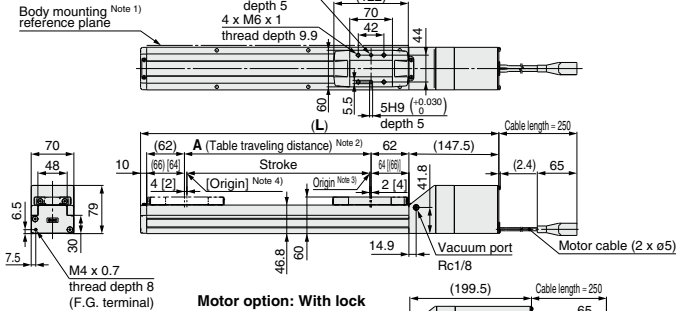
Model	L	A	B	n	D	E
11-LEFS16-100	300.5	106	180	4	—	—
11-LEFS16-100B	342.5					
11-LEFS16-200	400.5	206	280	6	2	200
11-LEFS16-200B	442.5					
11-LEFS16-300	500.5	306	380	8	3	300
11-LEFS16-300B	542.5					
11-LEFS16-400	600.5	406	480	10	4	400
11-LEFS16-400B	642.5					

Body mounting
reference plane

Model	L	A	B	n	D	E
11-LFS25-100	341.5	106	210	4	—	—
11-LFS25-100B	386.5					
11-LFS25-200	441.5					
11-LFS25-200B	486.5	206	310	6	2	240
11-LFS25-300	541.5					
11-LFS25-300B	586.5	306	410	8	3	360
11-LFS25-400	641.5					
11-LFS25-400B	686.5	406	510	8	3	360
11-LFS25-500	741.5					
11-LFS25-500B	786.5	506	610	10	4	480
11-LFS25-600	841.5					
11-LFS25-600B	886.5	606	710	12	5	600

Dimensions: Ball Screw Drive

11-LEFS32



Motor option: With lock

Note 1) When mounting the electric actuator using the body mounting reference plane, set the height of the opposite surface or pin to 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 workpieces and facilities around the table.

Note 3) Position after return to origin.

Note 4) The number in brackets indicates when the direction of return to origin has changed.

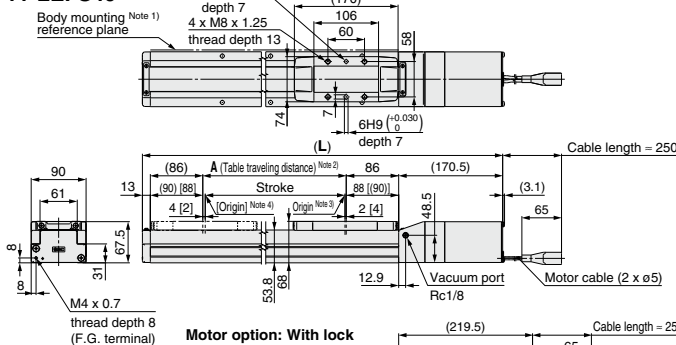
Step motor

Servo motor



Model	L	A	B	n	D	E
11-LEFS32-300	587.5	306	430	6	2	300
11-LEFS32-300B	639.5					
11-LEFS32-400	687.5	406	530	8	3	450
11-LEFS32-400B	739.5					
11-LEFS32-500	787.5					
11-LEFS32-500B	839.5	506	630	10	4	600
11-LEFS32-600	887.5					
11-LEFS32-600B	939.5	606	730	10	4	600
11-LEFS32-700	987.5					
11-LEFS32-700B	1039.5	706	830	12	5	750
11-LEFS32-800	1087.5					
11-LEFS32-800B	1139.5	806	930	14	6	900

11-LEFS40



Motor option: With lock

Note 1) When mounting the electric actuator using the body mounting reference plane, set the height of the opposite surface or pin to 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 workpieces and facilities around the table.

Note 3) Position after return to origin.

Note 4) The number in brackets indicates when the direction of return to origin has changed.



Model	L	A	B	n	D	E
11-LEFS40-500	861.5	506	678	10	4	600
11-LEFS40-500B	910.5					
11-LEFS40-600	961.5	606	778	10	4	600
11-LEFS40-600B	1010.5					
11-LEFS40-700	1061.5					
11-LEFS40-700B	1110.5	706	878	12	5	750
11-LEFS40-800	1161.5					
11-LEFS40-800B	1210.5	806	978	14	6	900
11-LEFS40-900	1261.5					
11-LEFS40-900B	1310.5	906	1078	14	6	900
11-LEFS40-1000	1361.5					
11-LEFS40-1000B	1410.5	1006	1178	16	7	1050

Model	L	A	B	n	D	E
11-LEFS40-200	561.5					
11-LEFS40-200B	610.5	206	378	6	2	300
11-LEFS40-300	661.5					
11-LEFS40-300B	710.5	306	478	6	2	300
11-LEFS40-400	761.5					
11-LEFS40-400B	810.5	406	578	8	3	450

Electric Actuator/Slider Type

Belt Drive

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

Series LEFB

LEFB16, 25, 32



RoHS

How to Order

The belt drive actuator cannot be used vertically for applications.

LEFB **16** **T** - **500** - **R** **1** **6N** **1**

1 2 3 4 5 6 7 8 9 10

1 Size

16
25
32

2 Motor type

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

3 Equivalent lead [mm]

T	48
---	----

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 384 for the noise filter set. Refer to the LECA Operation Manual for installation.

[UL-compliant products]

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

4 Stroke [mm]

300	300
to	to
2000	2000

* Refer to the applicable stroke table.

Applicable stroke table

● Standard

Model \ Stroke	300	500	600	700	800	900	1000	1200	1500	1800	2000
LEFB16	●	●	●	●	●	●	●	—	—	—	—
LEFB25	●	●	●	●	●	●	●	●	●	●	●
LEFB32	●	●	●	●	●	●	●	●	●	●	●

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



Made to Order Specifications (For details, refer to page 79.)

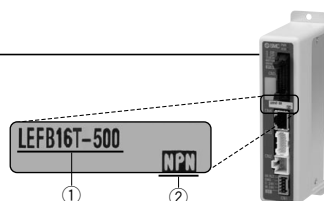
Symbol	Specifications
X139	Support guide

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

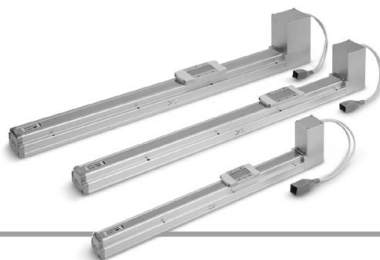
Confirm that the combination of the controller/driver and the actuator is correct.

<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.smcworld.com>



5 Motor option

Nil	Without option
B	With lock

6 Actuator cable type^{*1}

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

^{*1} The standard cable should be used on fixed parts. For using on moving parts, select the robotic cable.

^{*2} Only available for the motor type "Step motor."

7 Actuator cable length [m]

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

*Produced upon receipt of order (Robotic cable only)
Refer to the specifications Note 2) on pages 34 and 35.

8 Controller/Driver type^{*1}

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

^{*1} For details about controllers/driver and compatible motors, refer to the compatible controllers/driver below.

^{*2} Only available for the motor type "Step motor."

9 I/O cable length [m]^{*1}

Nil	Without cable
1	1.5
3	3 ^{*2}
5	5 ^{*2}

^{*1} When "Without controller/driver" is selected for controller/driver types, I/O cable cannot be selected. Refer to page 384 (For LECP6/LECA6), page 397 (For LECP1) or page 404 (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.

10 Controller/Driver mounting

Nil	Screw mounting
D	DIN rail mounting*

* DIN rail is not included. Order it separately.

Compatible Controllers/Driver

Type	Step data input type	Step data input type	Programless type	Pulse input type
				
Series	LECP6	LECA6	LECP1	LECPA
Features	Value (Step data) input Standard controller		Capable of setting up operation (step data) without using a PC or teaching box	Operation by pulse signals
Compatible motor	Step motor (Servo/24 VDC)	Servo motor (24 VDC)	Step motor (Servo/24 VDC)	
Maximum number of step data	64 points		14 points	—
Power supply voltage	24 VDC			
Reference page	Page 376	Page 376	Page 391	Page 398

Specifications

Step Motor (Servo/24 VDC)

Model		LEFB16	LEFB25	LEFB32
Actuator specifications	Stroke [mm] ^{Note 1)}	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] ^{Note 2)} Horizontal	1	5	14
	Speed [mm/s] ^{Note 2)}	48 to 1100	48 to 1400	48 to 1500
	Max. acceleration/deceleration [mm/s ²]	3,000		
	Positioning repeatability [mm]	±0.1		
	Equivalent lead [mm]	48	48	48
	Impact/Vibration resistance [m/s ²] ^{Note 3)}	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] ^{Note 4)}	24	32	52
	Standby power consumption when operating [W] ^{Note 5)}	18	16	44
	Max. instantaneous power consumption [W] ^{Note 6)}	51	60	127
	Type ^{Note 7)}	Non-magnetizing lock		
Lock unit specifications	Holding force [N]	4	19	36
	Power consumption [W] ^{Note 8)}	2.9	5	5
	Rated voltage [V]	24 VDC ±10%		

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

Note 2) Speed changes according to the work load. Check "Speed-Work Load Graph (Guide)" on page 10.

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

Note 3) 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 4) The power consumption (including the controller) is for when the actuator is operating.

Note 5) The standby power consumption when operating (including the controller) is for when the actuator is stopped in the set position during the operation.

Note 6) 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 7) With lock only

Note 8) For an actuator with lock, add the power consumption for the lock.

Specifications

Servo Motor (24 VDC)

Model		LEFB16A	LEFB25A
Actuator specifications	Stroke [mm] ^{Note 1)}	300, 500, 600, 700 800, 900, 1000	300, 500, 600, 700, 800, 900 1000, 1200, 1500, 1800, 2000
	Work load [kg] ^{Note 2)} Horizontal	1	2
	Speed [mm/s] ^{Note 2)}	48 to 2000	48 to 2000
	Max. acceleration/deceleration [mm/s ²]	3,000	
	Positioning repeatability [mm]	±0.1	
	Equivalent lead [mm]	48	48
	Impact/Vibration resistance [m/s ²] ^{Note 3)}	50/20	
	Actuation type	Belt	
	Guide type	Linear guide	
	Operating temperature range [°C]	5 to 40	
Electric specifications	Operating humidity range [%RH]	90 or less (No condensation)	
	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 4)}	78	69
	Standby power consumption when operating [W] ^{Note 5)}	Horizontal 4	Horizontal 5
	Max. instantaneous power consumption [W] ^{Note 6)}	87	120
	Type ^{Note 7)}	Non-magnetizing lock	
Lock unit specifications	Holding force [N]	4	19
	Power consumption [W] ^{Note 8)}	2.9	5
	Rated voltage [V]	24 VDC ±10%	

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

Note 2) Check "Speed-Work Load Graph (Guide)" on page 10 for details. Furthermore, if the cable length exceeds 5 m, then it will decrease by up to 10% for each 5 m.

Note 3) 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 4) The power consumption (including the controller) is for when the actuator is operating.

Note 5) The standby power consumption when operating (including the controller) is for when the actuator is stopped in the set position during the operation.

Note 6) 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 7) With lock only

Note 8) For an actuator with lock, add the power consumption for the lock.

Weight

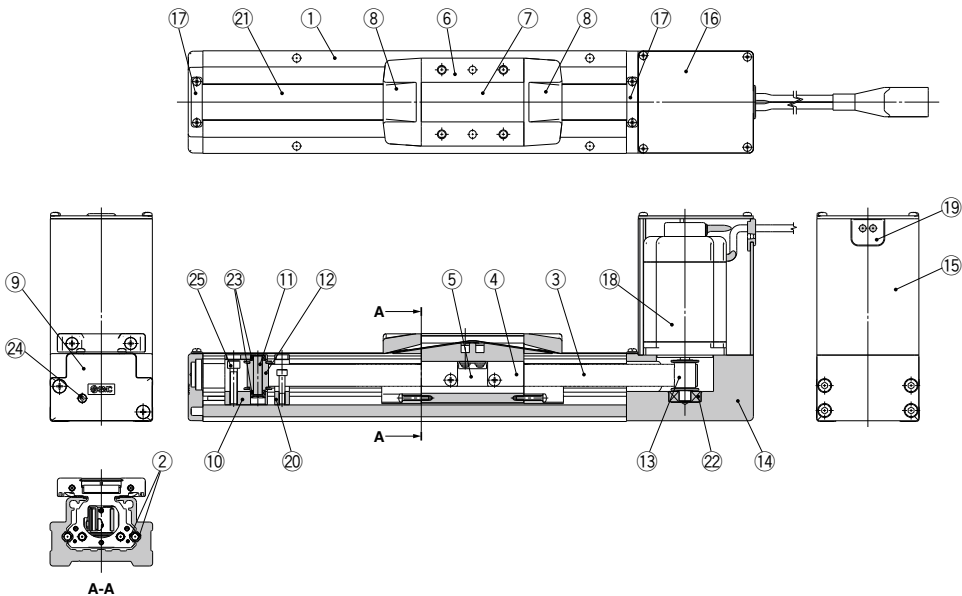
Series	LEFB16						
Stroke [mm]	300	500	600	700	800	900	1000
Product weight [kg]	1.19	1.45	1.58	1.71	1.84	1.97	2.10
Additional weight with lock [kg]	0.12						

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										

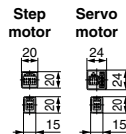
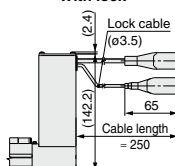
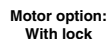
Construction

Series LEFB



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

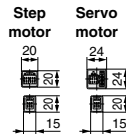
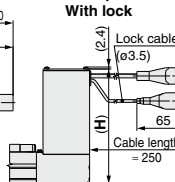
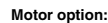
LEFB16



Note 4) The number in brackets indicates when the direction of return to origin has changed.

Model	L	A	B	n	D	E
LEFB16-T-300	495.5	306	435	6	2	300
LEFB16-T-500	495.5	506	635	10	4	600
LEFB16-T-600	795.5	606	735	10	4	600
LEFB16-T-700	895.5	706	835	12	5	750
LEFB16-T-800	995.5	806	935	14	6	900
LEFB16-T-900	1095.5	906	1035	14	6	900
LEFB16-T-1000	1195.5	1006	1135	16	7	1050

LEFB25



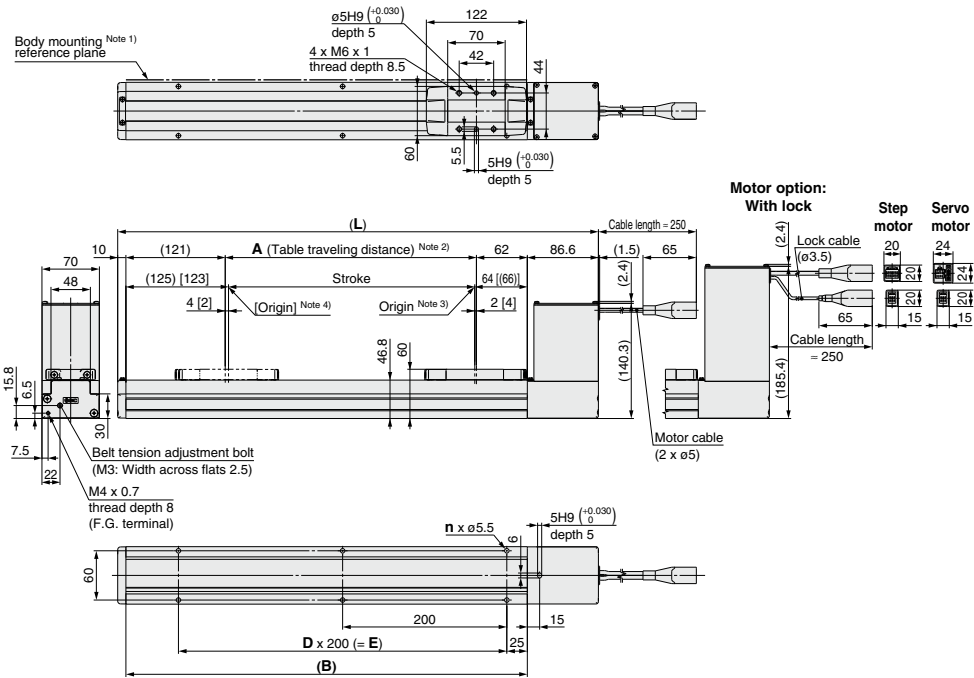
Note 4) The number in brackets indicates when the direction of return to origin has changed.

Model	H [mm]
LEFB25T- <u>ST</u>	115.8
LEFB25T- <u>ST</u> B	158.8
LEFB25AT- <u>ST</u>	98.8
LEFB25AT- <u>ST</u> B	139.8

Model	L	A	B	n	D	E
LEFB25□JT-300□	541.8	306	467	6	2	340
LEFB25□JT-500□	741.6	506	667	8	3	510
LEFB25□JT-600□	841.8	606	767	10	4	680
LEFB25□JT-700□	941.8	706	867	10	4	680
LEFB25□JT-800□	1041.8	806	967	12	5	850
LEFB25□JT-900□	1141.8	906	1067	14	6	1020
LEFB25□JT-1000□	1241.8	1006	1167	14	6	1020
LEFB25□JT-1200□	1441.8	1206	1367	16	7	1190
LEFB25□JT-1500□	1741.8	1506	1667	20	9	1530
LEFB25□JT-1800□	2041.8	1806	1967	24	11	1870
LEFB25□JT-2000□	2241.8	2006	2167	26	12	2040

Dimensions: Belt Drive

LEFB32



- Note 1) When mounting the electric actuator using the body mounting reference plane, set the height of the opposite surface or pin to 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 workpieces and facilities around the table.
- Note 3) Position after return to origin.
- Note 4) The number in brackets indicates when the direction of return to origin has changed.

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



Series LEF

Electric Actuator/ Specific Product Precautions 1

Be sure to read before handling. Refer to page 459 for Safety Instructions and the Operation Manual for Electric Actuator Precautions.

Please download it via our website, <http://www.smcworld.com>

Design

Caution

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

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

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

This can cause 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. Please check these points before use.

If the table collides against the stroke end of the actuator, the guide, belt or internal stopper can be broken. This may lead to abnormal operation.



Handle the actuator with care when it is used in the vertical direction as the workpiece will fall freely from its own weight.

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 catalog.

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.



Series LEF Electric Actuator/ Specific Product Precautions 2

Be sure to read before handling. Refer to page 459 for Safety Instructions and the Operation Manual for Electric Actuator Precautions.

Please download it via our website, <http://www.smcworld.com>

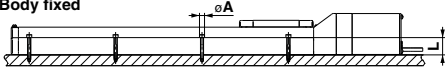
Handling

⚠ Caution

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

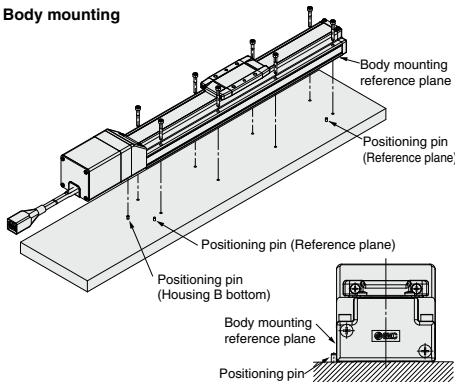
Tightening the screws with a higher torque than recommended may cause a malfunction, whilst the tightening with a lower torque can cause the displacement of the mounting position or in extreme conditions the actuator could become detached from its mounting position.

Body fixed



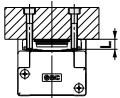
Model	Bolt	ϕA (mm)	L (mm)
LEF□16	M3	3.5	20
LEF□25	M4	4.5	24
LEF□32	M5	5.5	30
LEFS40	M6	6.6	31

Body mounting



The travelling parallelism is the reference plane for the body mounting reference plane.
If the travelling 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.

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

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

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

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

16. 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.

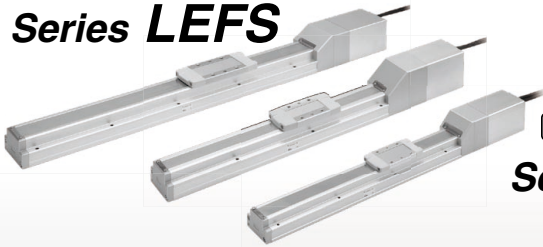
e. Rubber back of the belt is softened and sticky.

f. Crack on the back of the belt

AC Servo Motor

Ball Screw Drive Page 56

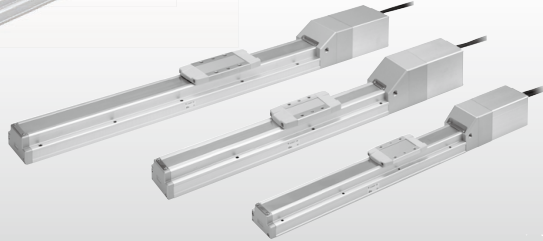
Series **LEFS**



Clean room specification

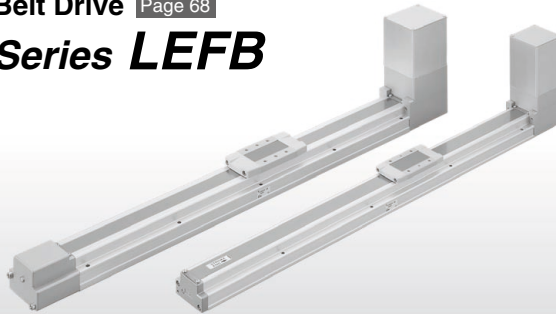
Page 64

Series **11-LEFS**



Belt Drive Page 68

Series **LEFB**



AC Servo Motor Driver Page 409

Series **LECS** ☐



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



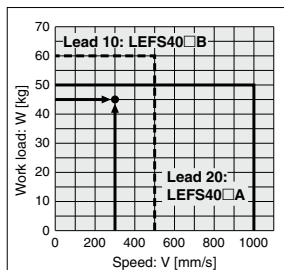
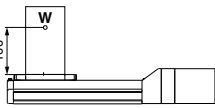
Selection Procedure

Step 1 Check the work load-speed. → **Step 2** Check the cycle time. → **Step 3** Check the allowable moment.

Selection Example

Operating conditions

- Workpiece mass: 45 [kg]
- Speed: 300 [mm/s]
- Acceleration/Deceleration: 3,000 [mm/s²]
- Stroke: 200 [mm]
- Mounting position: Horizontal upward



Step 1 Check the work load-speed. <Speed-Work load graph> (Page 43)

Select the target model based on the workpiece mass 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, please 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.

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

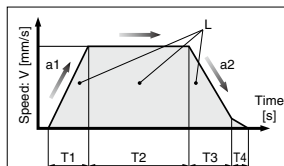
$$T3 = V/a2 = 300/3000 = 0.1 \text{ [s]}$$

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

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

Therefore, the cycle time can be obtained as follows.

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



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

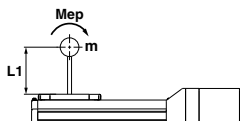
T3: Deceleration time [s]

Time from the beginning of the constant speed operation to stop

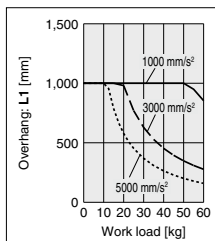
T4: Settling time [s]

Time until in position is completed

Step 3 Check the guide moment.



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

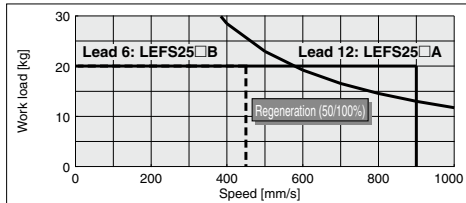


Speed–Work Load Graph (Guide)

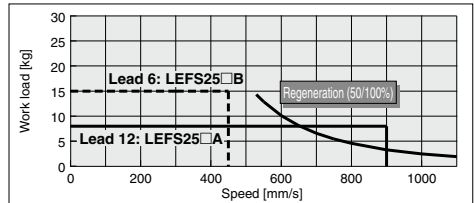
* The allowable speed is restricted depending on the stroke.
Select it by referring to "Allowable Stroke Speed" below.

LEFS25/Ball Screw Drive

Horizontal

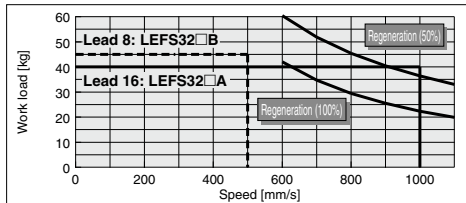


Vertical

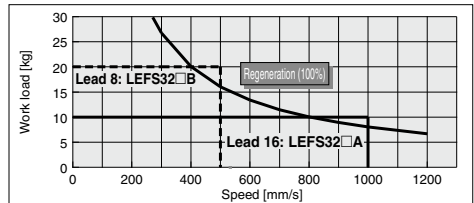


LEFS32/Ball Screw Drive

Horizontal

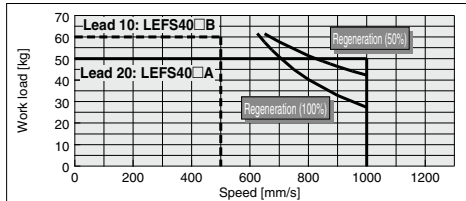


Vertical

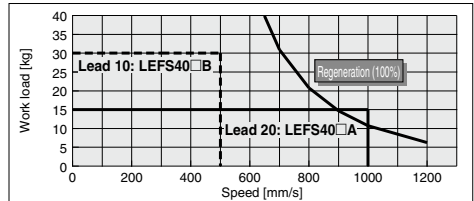


LEFS40/Ball Screw Drive

Horizontal



Vertical



Required conditions for "Regeneration option"

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

[How to read the graph]

Required conditions change depending on the operating conditions.

Regeneration (50%) : Duty ratio 50% or more

Regeneration (100%) : Duty ratio 100%

"Regeneration Option" Models

Size	Model
LEFS25□	LEC-MR-RB-032
LEFS32□	LEC-MR-RB-032
LEFS40□	LEC-MR-RB-032

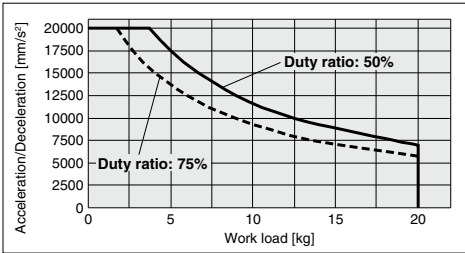
Allowable Stroke Speed

Model	AC servo motor	Lead Symbol	Lead [mm]	Stroke [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	A	12	900				720	540	—	—	—	—
		B	6	450				360	270	—	—	—	—
		(Motor rotation speed)			(4500 rpm)				(3650 rpm)	(2700 rpm)	—	—	—
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)	—	—
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)

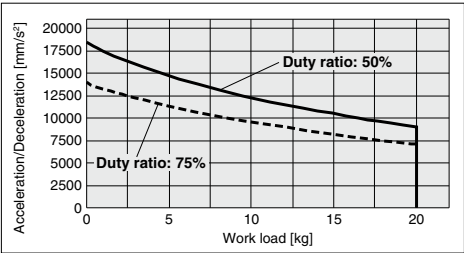
Work Load–Acceleration/Deceleration Graph (Guide)

LEFS25/Ball Screw Drive: Horizontal

LEFS25S□A

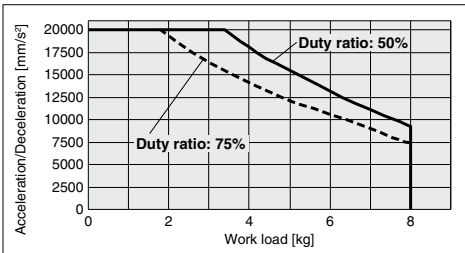


LEFS25S□B

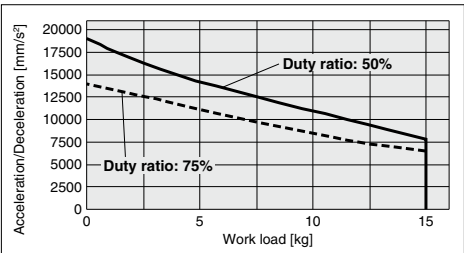


LEFS25/Ball Screw Drive: Vertical

LEFS25S□A

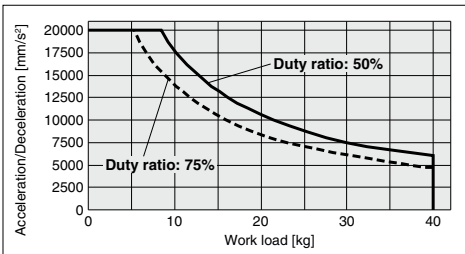


LEFS25S□B

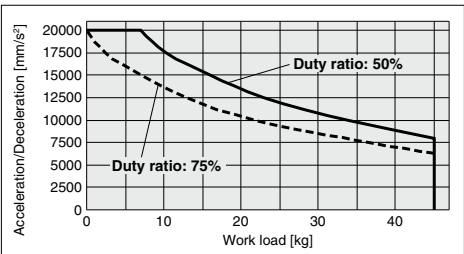


LEFS32/Ball Screw Drive: Horizontal

LEFS32S□A

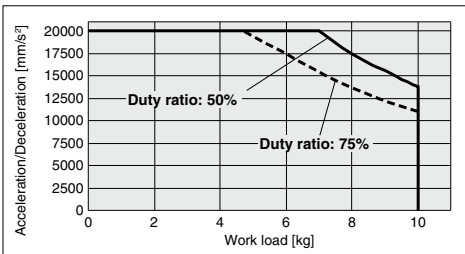


LEFS32S□B

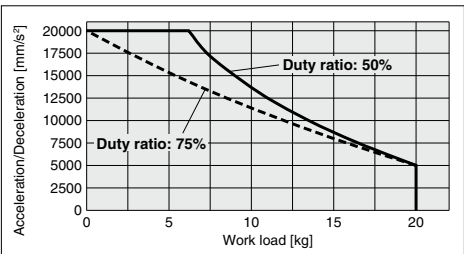


LEFS32/Ball Screw Drive: Vertical

LEFS32S□A



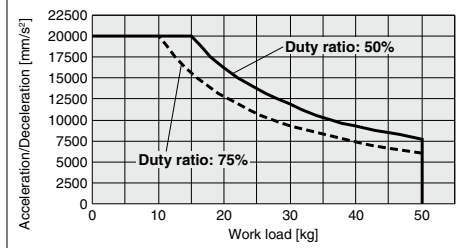
LEFS32S□B



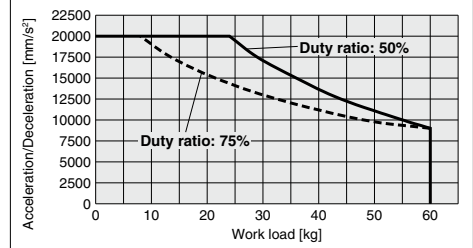
Work Load–Acceleration/Deceleration Graph (Guide)

LEFS40/Ball Screw Drive: Horizontal

LEFS40S□A

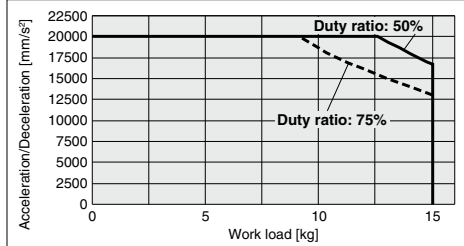


LEFS40S□B

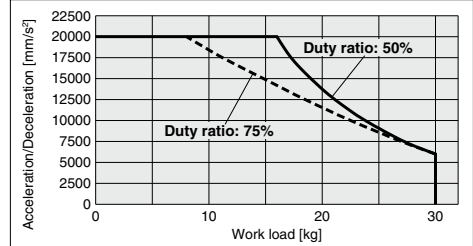


LEFS40/Ball Screw Drive: Vertical

LEFS40S□A



LEFS40S□B



Dynamic Allowable Moment

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

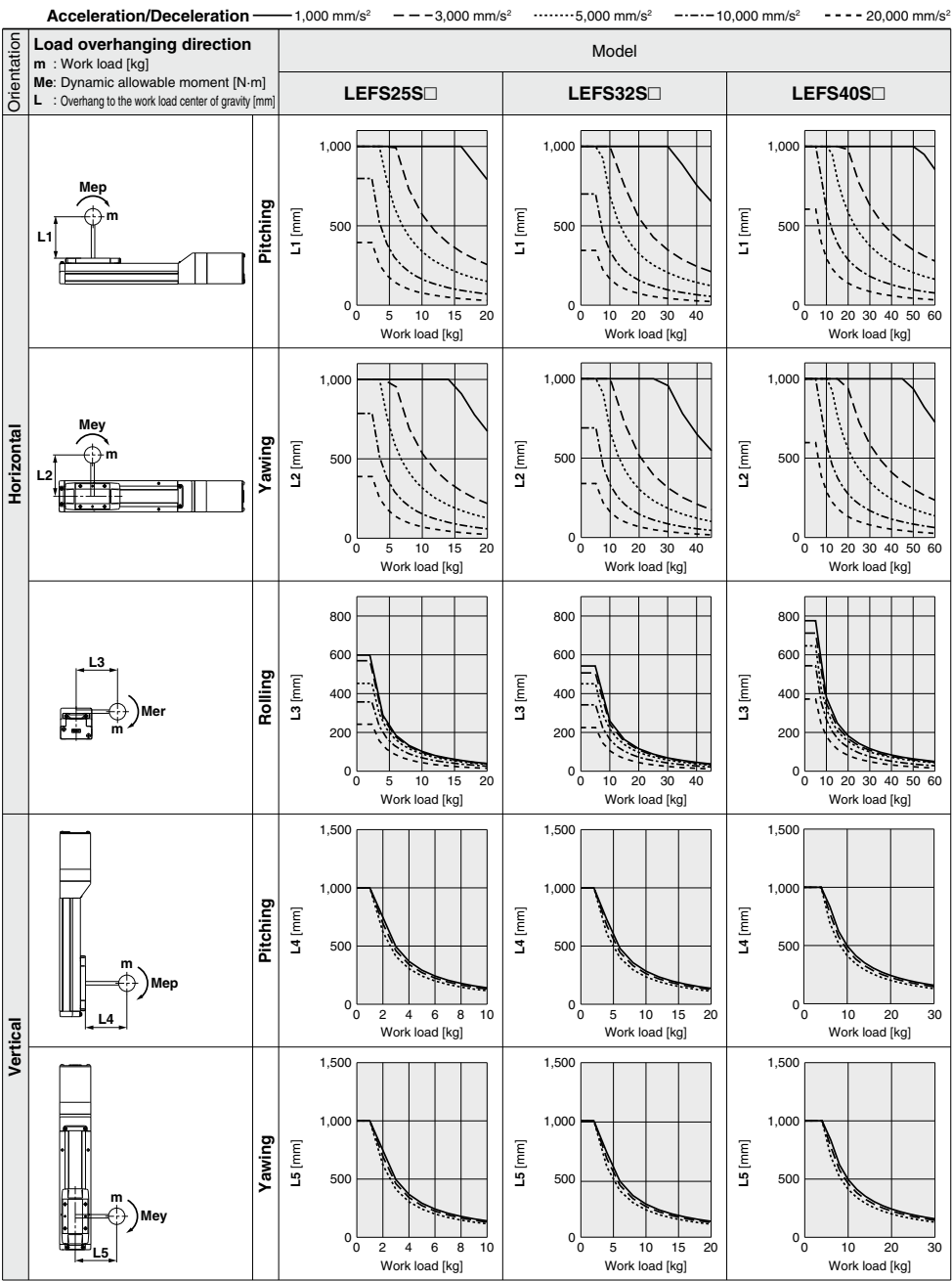
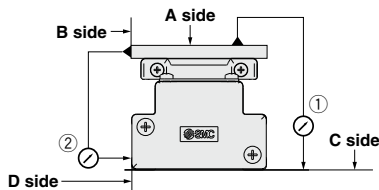


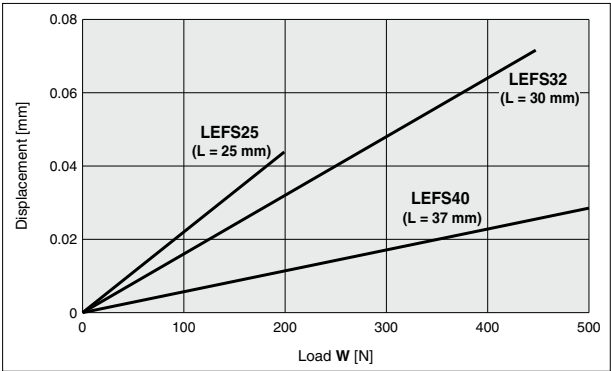
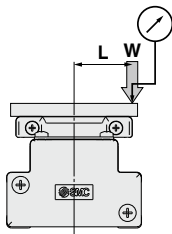
Table Accuracy



Model	Traveling parallelism [mm] (Every 300 mm)	
	① C side traveling parallelism to A side	② D side traveling parallelism to B side
LEFS25	0.05	0.03
LEFS32	0.05	0.03
LEFS40	0.05	0.03

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

Table Displacement (Reference Value)



Note 1) This displacement is measured when a 15 mm aluminum plate is mounted and fixed on the table.
Note 2) Please confirm the clearance and play of the guide separately.

- LEF
- LEJ
- LEL
- LEY
LEYG
- LES
LESH
- LEPY
LEPS
- LER
- LEH
- LECA6
LECP6
- LEC-G
- LECP1
- LECPA
- LECS
- LAT3

Particle Generation Characteristics

Particle Generation Measuring Method

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

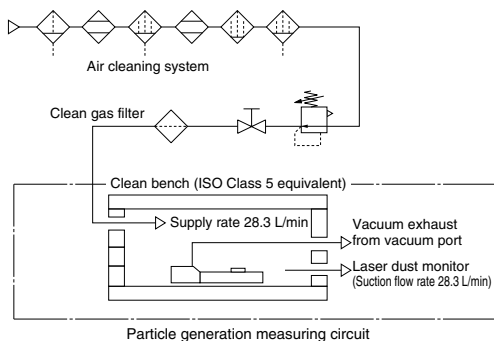
Test Method (Example)

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.

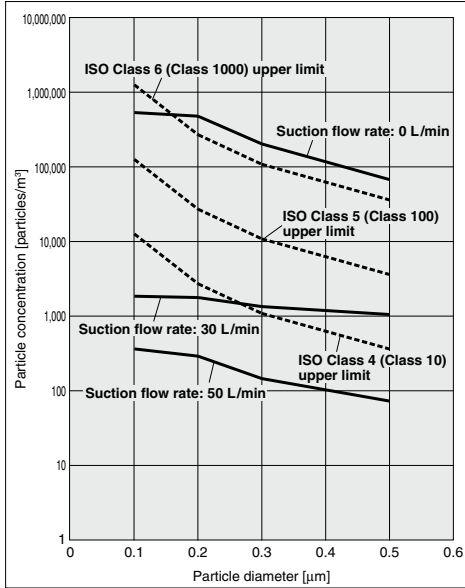
The plots in the graphs indicate the 95% upper confidence limit of the average particle concentration of particles with a diameter within the horizontal axis range.

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

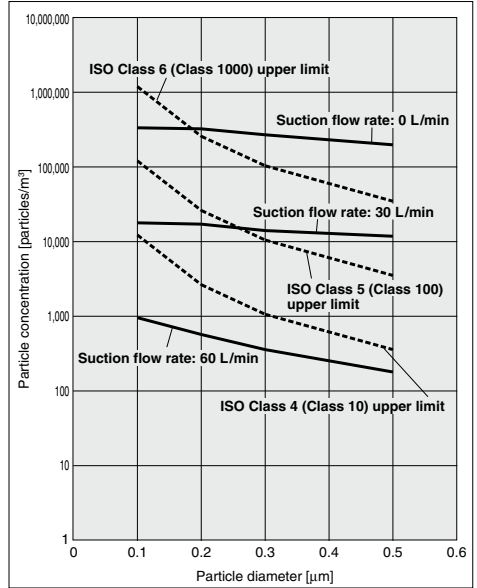
Note 2) Actuator: 1 million cycles

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

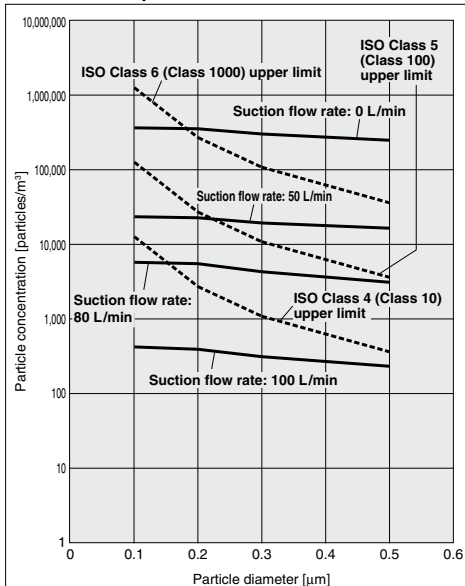
11-LEFS25 Speed 900 mm/s



11-LEFS32 Speed 1000 mm/s



11-LEFS40 Speed 1000 mm/s



LEF

LEJ

LEL

LEY
LEYG

LES
LESH

LEPY
LEPS

LER

LEH

LECA6
LECP6

LEC-G

LECP1

LECPA

LECS

LAT3

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

Clean room specification

Model Selection

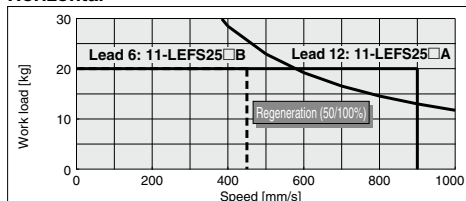
Speed-Work Load Graph (Guide)

AC Servo Motor

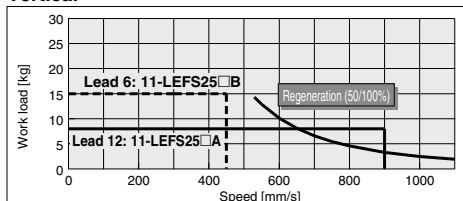
* The allowable speed is restricted depending on the stroke.
Select it by referring to "Allowable Stroke Speed" below.

11-LEFS25/Ball Screw Drive

Horizontal

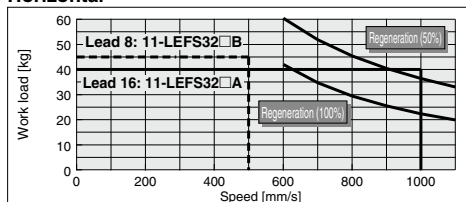


Vertical

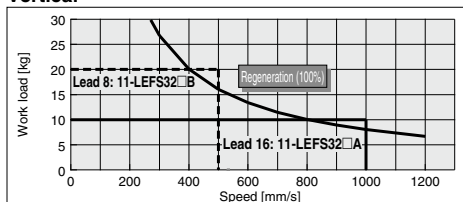


11-LEFS32/Ball Screw Drive

Horizontal

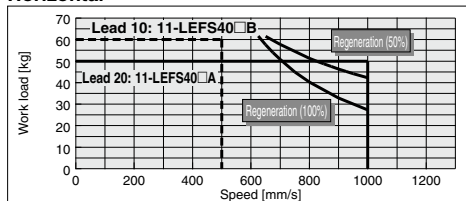


Vertical

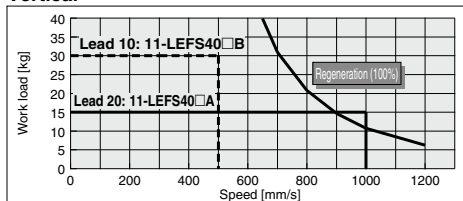


11-LEFS40/Ball Screw Drive

Horizontal



Vertical



Required conditions for "Regeneration option"

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

[How to read the graph]

Required conditions change depending on the operating conditions.

Regeneration (50%) : Duty ratio 50% or more

Regeneration (100%): Duty ratio 100%

"Regeneration Option" Models

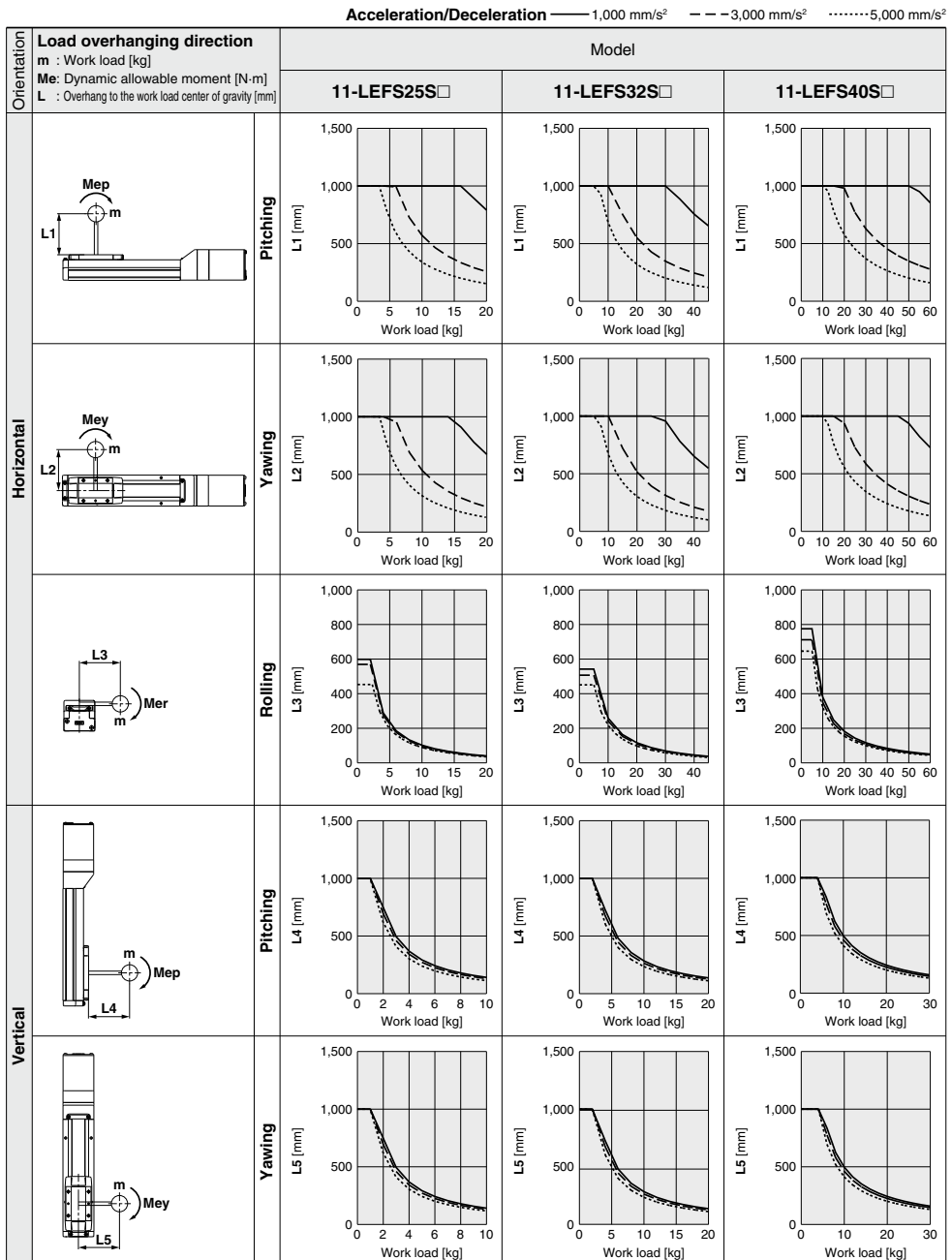
Size	Model
11-LEFS25□	LEC-MR-RB-032
11-LEFS32□	LEC-MR-RB-032
11-LEFS40□	LEC-MR-RB-032

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
11-LEFS25	100 W /□40	A	12	900				720	540	—	—	—	—
		B	6	450				360	270	—	—	—	—
		(Motor rotation speed)		(4500 rpm)				(3650 rpm)	(2700 rpm)	—	—	—	—
		A	16	1000	1000	1000	1000	1000	800	620	500	—	—
11-LEFS32	200 W /□60	B	8	500	500	500	500	500	400	310	250	—	—
		(Motor rotation speed)		(3750 rpm)				(3000 rpm)	(2325 rpm)	(1875 rpm)	—	—	—
		A	20	—	—	—	1000	940	760	620	520	—	—
		B	10	—	—	—	500	—	470	380	310	260	—
11-LEFS40	400 W /□60	(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 center of gravity of the workpiece overhangs in one direction. When the center of gravity of the workpiece overhangs in two directions, refer to the Electric Actuator Selection Software for confirmation. <http://www.smcworld.com>



LEF

LEJ

LEL

LEY
LEYG

LES
LESH

LEPY
LEPS

LER

LEH

LECA6
LECP6

LEC-G

LECP1

LECPA

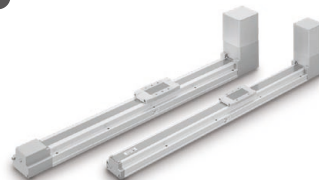
LECS□

LAT3

Electric Actuator/Slider Type AC Servo Motor

Belt Drive/Series LEFB

Model Selection



Selection Procedure

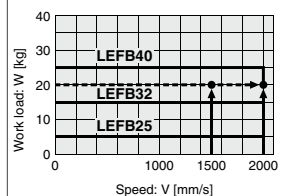
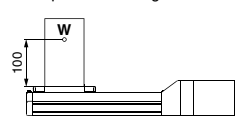
Step 1 Check the work load-speed. → **Step 2** Check the cycle time. → **Step 3** Check the allowable moment.

Selection Example

Operating conditions

- Workpiece mass: 20 [kg]
- Speed: 1,500 [mm/s]
- Acceleration/Deceleration: 3,000 [mm/s²]
- Stroke: 2,000 [mm]
- Mounting position: Horizontal upward

• Workpiece mounting condition:



<Speed-Work load graph>
(LEFB40)

Step 1 Check the work load-speed. <Speed-Work load graph> (Page 53)
Select the target model based on the workpiece mass 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, please 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.

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

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

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

$$= \frac{2000 - 0.5 \cdot 1500 \cdot (0.5 + 0.5)}{1500}$$

$$= 0.83 \text{ [s]}$$

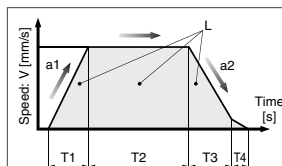
$$T4 = 0.05 \text{ [s]}$$

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)

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

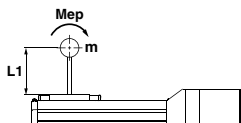
T3: Deceleration time [s]

Time from the beginning of the constant speed operation to stop

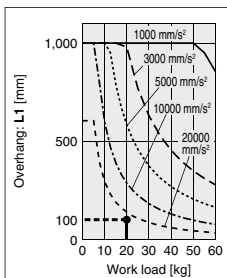
T4: Settling time [s]

Time until in position is completed

Step 3 Check the guide moment.

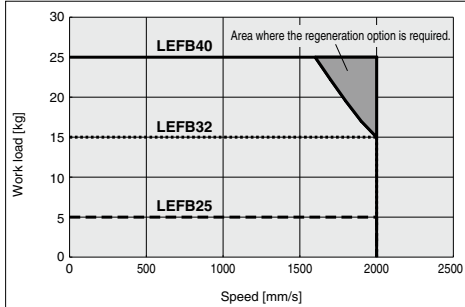


Based on the above calculation result, the **LEFB40S4S-2000** is selected.



Speed-Work Load Graph (Guide)

LEFB□/Belt Drive

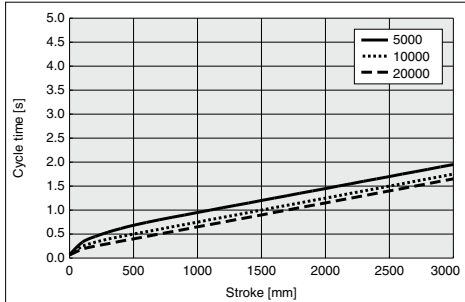


* The shaded area in the graph requires the regeneration option (LEC-MR-RB-032).

Cycle Time Graph (Guide)

LEFB□/Belt Drive

LEFB25/32/40



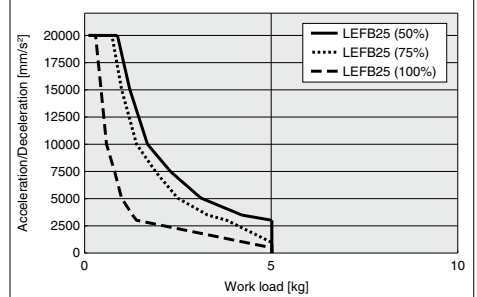
* Cycle time is for when maximum speed.

* Maximum stroke: LEB25: 2000 mm
LEB32: 2500 mm
LEB40: 3000 mm

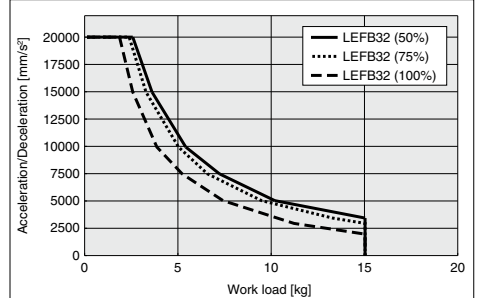
Work Load-Acceleration/Deceleration Graph (Guide)

LEFB□/Belt Drive

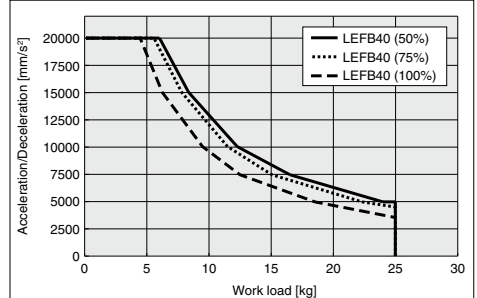
LEFB25S□ (Duty ratio)



LEFB32S□ (Duty ratio)



LEFB40S□ (Duty ratio)



Dynamic Allowable Moment

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

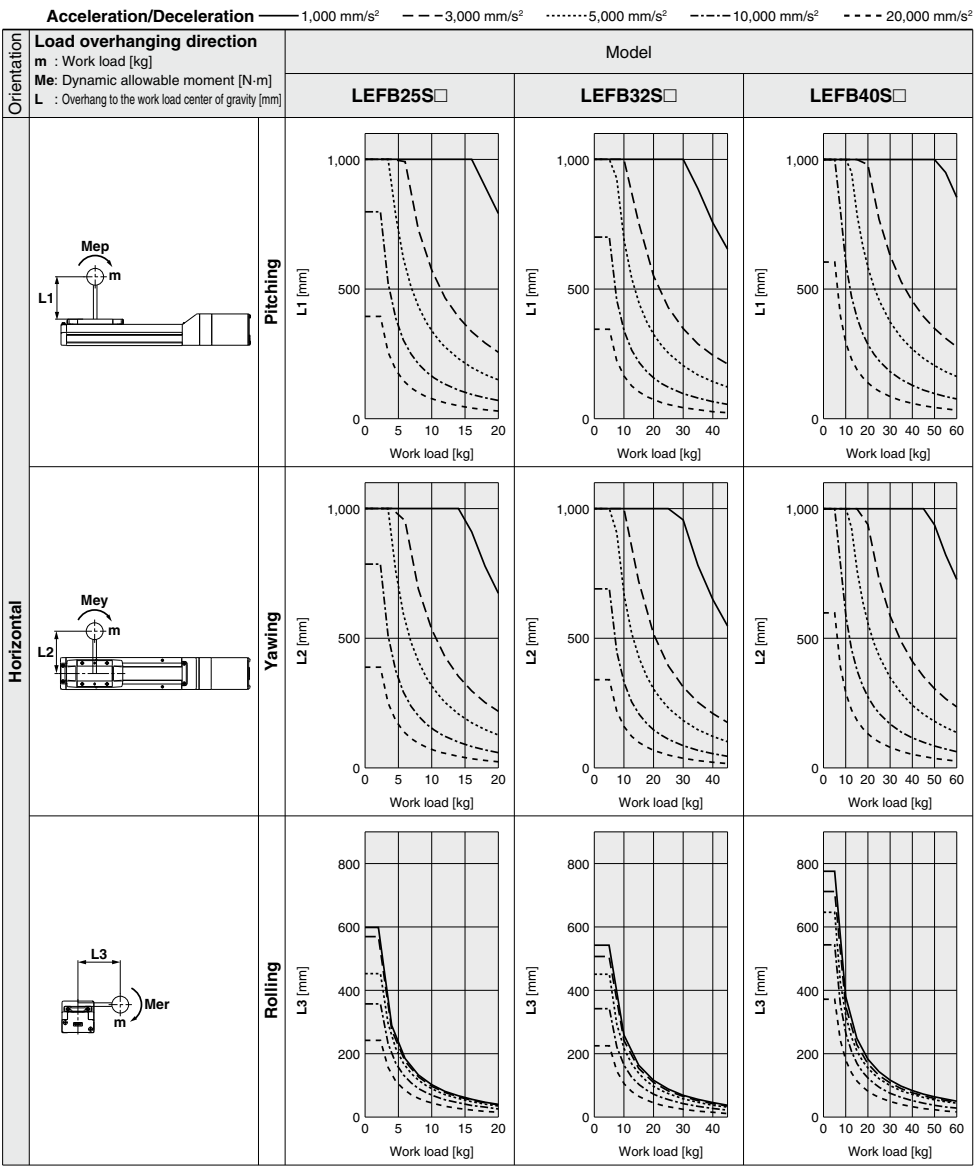
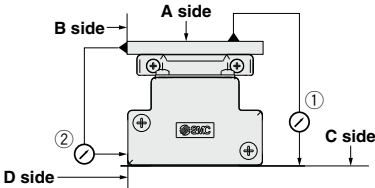


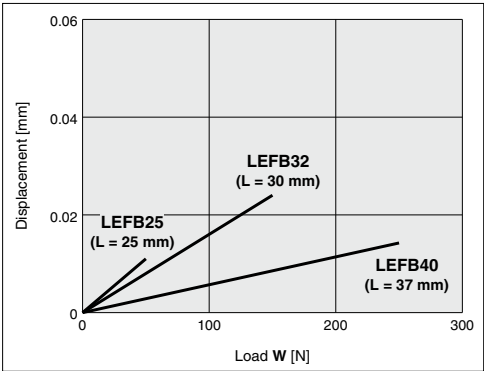
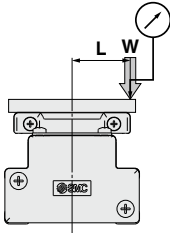
Table Accuracy



Model	Traveling parallelism [mm] (Every 300 mm)	
	① C side traveling parallelism to A side	② D side traveling parallelism to B side
LEFB25	0.05	0.03
LEFB32	0.05	0.03
LEFB40	0.05	0.03

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

Table Displacement (Reference Value)



Note 1) This displacement is measured when a 15 mm aluminum plate is mounted and fixed on the table.
Note 2) Please confirm the clearance and play of the guide separately.

- LEF
- LEJ
- LEL
- LEY
LEYG
- LES
LESH
- LEPY
LEPS
- LER
- LEH
- LECA6
LECP6
- LEC-G
- LECP1
- LECPA
- LECS□
- LAT3

Electric Actuator/Slider Type

Ball Screw Drive AC Servo Motor

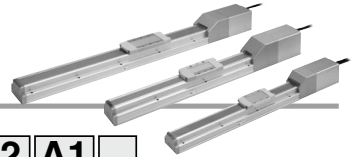
Series LEFS

LEFS25, 32, 40



RoHS

How to Order



LEFS **25** **S2** **B** - **100** **□** - **S** **2** **A1** **□**

1 2 3 4 5 6 7 8 9

1 Size

25
32
40

2 Motor type

Symbol	Type	Output (W)	Actuator size	Compatible drivers
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				LECSB□-S7 LECS□-S7 LECSS□-S7
S8		200	32	LECSB2-S8 LECS□2-S8 LECSS2-S8
				LECSB2-S8 LECS□2-S8 LECSS2-S8

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

3 Lead [mm]

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

4 Stroke [mm]

100
to
1000

* Refer to the table below for details.

5 Motor option

NII	Without option
B	With lock

6 Cable type

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

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". (Refer to page 425 for details.)

7 Cable length [m]

NII	Without cable
2	2
5	5
A	10

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

8 Driver type

	Compatible drivers	Power supply voltage (V)	Size
			25 32 40
NII	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	LECS□1-S□	100 to 120	● ● ●
C2	LECS□2-S□	200 to 230	● ● ●
S1	LECS□1-S□	100 to 120	● ● ●
S2	LECS□2-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)

NII : Without cable and driver



Made to Order Specifications
(For details, refer to page 79.)

Symbol	Specifications
X139	Support guide

* Applicable stroke table

Model	Stroke (mm)	100	200	300	400	500	600	700	800	900	1000
LEFS25		●	●	●	●	●	●	—	—	—	—
LEFS32		●	●	●	●	●	●	●	—	—	—
LEFS40		—	●	●	●	●	●	●	●	●	●

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

9 I/O connector

NII	Without connector
H	With connector

Compatible Drivers

Driver type	Pulse input type /Positioning type	Pulse input type	CC-Link direct input type	SSCNET III type
Series	LECSA	LECSB	LECS□	LECSS
Number of point tables	Up to 7	—	Up to 255 (2 stations occupied)	—
Pulse input	○	○	—	—
Applicable network	—	—	CC-Link	SSCNET III
Control encoder	Incremental 17-bit encoder	Absolute 18-bit encoder	Absolute 18-bit encoder	Absolute 18-bit encoder
Communication function	USB communication	USB communication, RS422 communication	USB communication, RS422 communication	USB communication
Power supply voltage (V)	100 to 120 VAC (50/60 Hz), 200 to 230 VAC (50/60 Hz)			
Reference page	Page 409			

Specifications

LEFS25, 32, 40 AC Servo Motor

Model			LEFS25S ¹		LEFS32S ¹		LEFS40S ¹	
Stroke [mm] ^{Note 1)}			100, 200, 300, 400 500, 600		100, 200, 300, 400 500, 600, 700, 800		200, 300, 400, 500 600, 700, 800, 900 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]			20,000 (Refer to page 43 for limit according to work load and duty ratio.)					
Positioning repeatability [mm]			±0.02					
Lead [mm]			12	6	16	8	20	10
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)					
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 5)}	Horizontal	45	65		210			
	Vertical	145	175		230			
Standby power consumption when operating [W] ^{Note 6)}	Horizontal	2	2		2			
	Vertical	8	8		18			
Max. instantaneous power consumption [W] ^{Note 7)}			445		725		1275	
Type ^{Note 8)}			Non-magnetizing lock					
Holding force [N]			131	255	197	385	330	660
Power consumption at 20°C [W] ^{Note 9)}			6.3		7.9		7.9	
Rated voltage [V]			24 VDC. ⁰ / _{10%}					

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

Note 2) For details, refer to "Speed-Work Load Graph (Guide)" on page 43.

Note 3) The allowable speed changes according to the stroke.

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 driver) is for when the actuator is operating.

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

Note 7) The maximum instantaneous power consumption (including the driver) is for when the actuator is operating.

Note 8) Only when motor option "With lock" is selected.

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

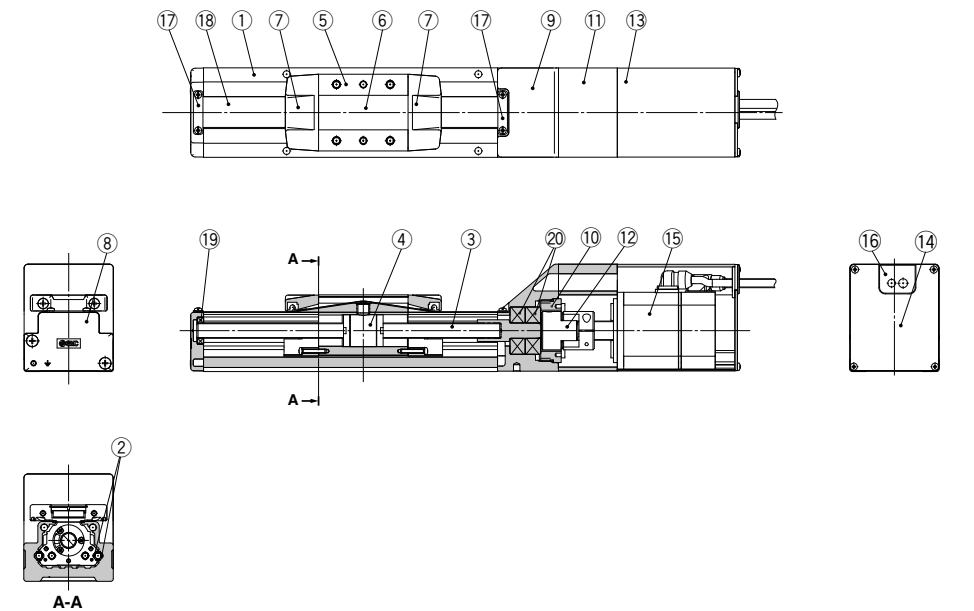
Weight

Series	LEFS25					
Stroke [mm]	100	200	300	400	500	600
Product weight [kg]	2.20	2.50	2.75	3.05	3.30	3.60
Additional weight with lock [kg]	0.35					

Series	LEFS32							
Stroke [mm]	100	200	300	400	500	600	700	800
Product weight [kg]	3.60	4.00	4.40	4.80	5.20	5.60	6.00	6.40
Additional weight with lock [kg]	0.70							

Series	LEFS40									
Stroke [mm]	200	300	400	500	600	700	800	900	1000	
Product weight [kg]	6.20	6.75	7.35	7.90	8.35	9.00	9.55	10.15	10.70	
Additional weight with lock [kg]	0.70									

Construction



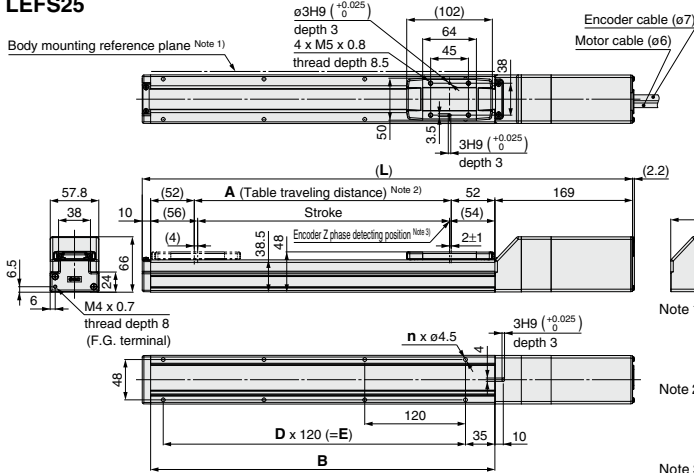
Component Parts

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

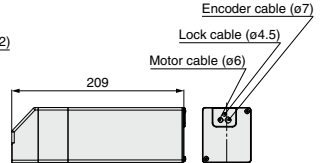
No.	Description	Material	Note
11	Motor mount	Aluminum alloy	Coating
12	Coupling	—	
13	Motor cover	Aluminum alloy	Anodized
14	Motor end cover	Aluminum alloy	Anodized
15	Motor	—	
16	Grommet	NBR	
17	Band stopper	Stainless steel	
18	Dust seal band	Stainless steel	
19	Bearing	—	
20	Bearing	—	

Dimensions: Ball Screw Drive

LEFS25



Motor option: With lock



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

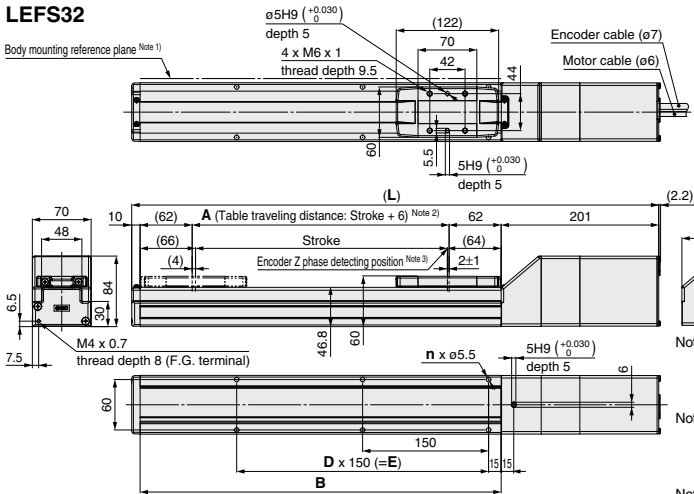
Note 2) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the workpieces and facilities around the table.

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

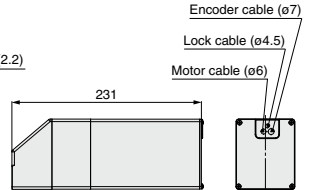
Model	L	A	B	n	D	E
LEFS25-100-□□□□	389	106	210	4	—	—
LEFS25-100B-□□□□	429					
LEFS25-200-□□□□	489	206	310	6	2	240
LEFS25-200B-□□□□	529					
LEFS25-300-□□□□	589	306	410	8	3	360
LEFS25-300B-□□□□	629					

Model	L	A	B	n	D	E
LEFS25-400-□□□□	689	406	510	8	3	360
LEFS25-400B-□□□□	729					
LEFS25-500-□□□□	789	506	610	10	4	480
LEFS25-500B-□□□□	829					
LEFS25-600-□□□□	889	606	710	12	5	600
LEFS25-600B-□□□□	929					

LEFS32



Motor option: With lock



Note 1) When mounting the electric actuator using the body mounting reference plane, set the height of the opposite surface or pin to 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 workpieces and facilities around the table.

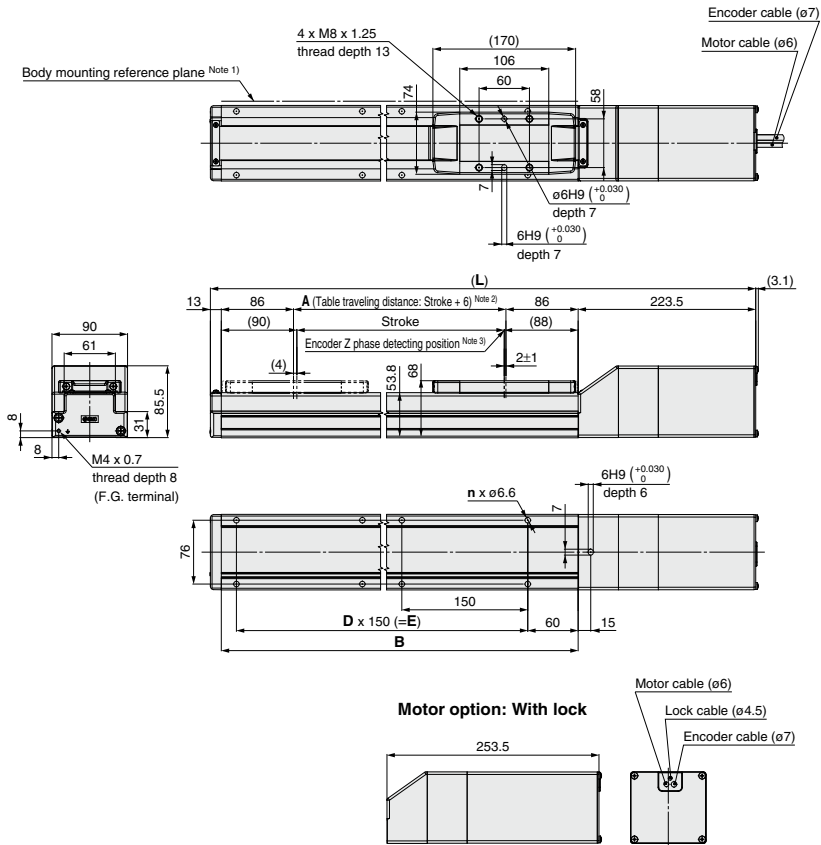
Note 3) The Z phase first detecting position from the stroke end of the motor side.

Model	L	A	B	n	D	E
LEFS32-100-□□□□	441	106	230	4	—	—
LEFS32-100B-□□□□	471					
LEFS32-200-□□□□	541	206	330	6	2	300
LEFS32-200B-□□□□	571					
LEFS32-300-□□□□	641	306	430	6	2	300
LEFS32-300B-□□□□	671					
LEFS32-400-□□□□	741	406	530	8	3	450
LEFS32-400B-□□□□	771					

Model	L	A	B	n	D	E
LEFS32-500-□□□□	841	506	630	10	4	600
LEFS32-500B-□□□□	871					
LEFS32-600-□□□□	941	606	730	10	4	600
LEFS32-600B-□□□□	971					
LEFS32-700-□□□□	1041	706	830	12	5	750
LEFS32-700B-□□□□	1071					
LEFS32-800-□□□□	1141	806	930	14	6	900
LEFS32-800B-□□□□	1171					

Dimensions: **Ball Screw Drive**

LEFS40



- Note 1) When mounting the electric actuator using the body mounting reference plane, set the height of the opposite surface or pin to 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 workpieces and facilities around the table.
- Note 3) The Z phase first detecting position from the stroke end of the motor side.

Model	L	A	B	n	D	E
LEFS40-200	614.5	206	378	6	2	300
LEFS40-200B	644.5					
LEFS40-300	714.5	306	478	6	2	300
LEFS40-300B	744.5					
LEFS40-400	814.5	406	578	8	3	450
LEFS40-400B	844.5					
LEFS40-500	914.5	506	678	10	4	600
LEFS40-500B	944.5					
LEFS40-600	1014.5	606	778	10	4	600
LEFS40-600B	1044.5					
LEFS40-700	1114.5	706	878	12	5	750
LEFS40-700B	1144.5					
LEFS40-800	1214.5	806	978	14	6	900
LEFS40-800B	1244.5					
LEFS40-900	1314.5	906	1078	14	6	900
LEFS40-900B	1344.5					
LEFS40-1000	1414.5	1006	1178	16	7	1050
LEFS40-1000B	1444.5					



Series LEFS Electric Actuator/ Specific Product Precautions 1

Be sure to read before handling. Refer to page 459 for Safety Instructions and the Operation Manual for Electric Actuator Precautions.

Please download it via our website, <http://www.smcworld.com>

Design

⚠ Caution

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

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

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

This can cause failure.

Selection

⚠ Warning

1. Do not increase the speed in excess of the operating limit.

Select a suitable actuator by the relationship of the allowable work load and speed, and the allowable speed of each stroke. If the product is used outside of the operating limit, it will have adverse effects such as creating noise, degrading accuracy and shortening the life of the product.

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

This can cause 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.

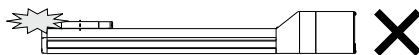
Handling

⚠ 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. Please check these points before use.

If the table collides against the stroke end of the actuator, the guide, belt or internal stopper can be broken. This may lead to abnormal operation.



Handle the actuator with care when it is used in the vertical direction as the workpiece will fall freely from its own weight.

2. The actual speed of this actuator is affected by the work load and stroke.

Check specifications with reference to the model selection section of the catalog.

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

4. Do not dent, scratch or cause other damage to the body and table mounting surfaces.

This may cause unevenness in the mounting surface, play in the guide or an increase in the sliding resistance.

5. Do not apply strong impact or an excessive moment while mounting 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 before handling. Refer to page 459 for Safety Instructions and the Operation Manual for Electric Actuator Precautions.

Please download it via our website, <http://www.smcworld.com>

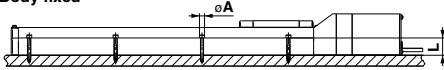
Handling

⚠ Caution

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

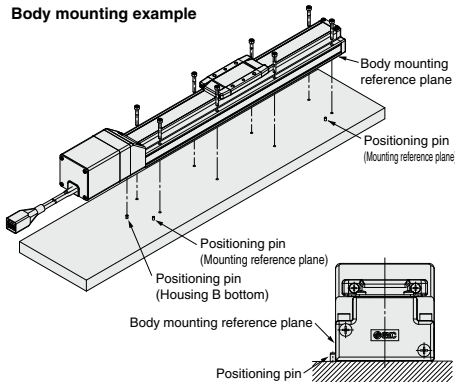
Tightening the screws with a higher torque than recommended may cause a malfunction, whilst the tightening with a lower torque can cause the displacement of the mounting position or in extreme conditions the actuator could become detached from its mounting position.

Body fixed



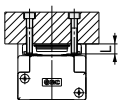
Model	Bolt	ϕA (mm)	L (mm)
LEFS25	M4	4.5	24
LEFS32	M5	5.5	30
LEFS40	M6	6.6	31

Body mounting example



The travelling 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)
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.

LAT3	LECS□	LECPA	LECP1	LEC-G	LECA6 LECP6	LEH	LER	LEPY LEPS	LES LESH	LEY LEYG	LEL	LEJ	LEF
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Electric Actuator/Slider Type

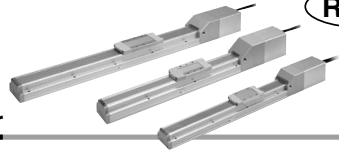
Ball Screw Drive AC Servo Motor Clean room specification

Series 11-LEFS

LEFS25, 32, 40



RoHS



How to Order

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

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

Clean series ●

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

① Size

25
32
40

② Motor type

Symbol	Type	Output (W)	Actuator size	Compatible drivers
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 LECSS□-S5 LECSS□-S5
S7		200	32	LECSB□-S7 LECSS□-S7 LECSS□-S7
S8		400	40	LECSB2-S8 LECSS2-S8 LECSS2-S8

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

③ Lead [mm]

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

⑤ Motor option

NII	Without option
B	With lock

⑥ Vacuum port*

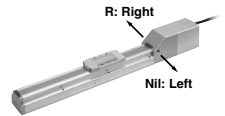
NII	Left
R	Right
D	Both left and right

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

④ Stroke [mm]

100	100
to	to
1000	1000

* Refer to the applicable stroke table.



⑦ Cable type Note 1) Note 2)

NII	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 425 for details.)

⑧ Cable length Note 3)

NII	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.

⑩ I/O connector

NII	Without connector
H	With connector

⑨ Driver type

	Compatible drivers	Power supply voltage (V)	Size
			25 32 40
NII	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	LECSA1-S□	100 to 120	● ● —
C2	LECSA2-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)

NII : Without cable and driver

* Applicable stroke table

● Standard

Model	Stroke (mm)	100	200	300	400	500	600	700	800	900	1000
11-LEFS25	●	●	●	●	●	●	—	—	—	—	—
11-LEFS32	●	●	●	●	●	●	●	●	—	—	—
11-LEFS40	—	—	●	●	●	●	●	●	●	●	●

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

Compatible Drivers

Driver type	Pulse input type /Positioning type	Pulse input type	CC-Link direct input type	SSCNET III type
Series	LECSA	LECSB	LECSS	LECSS
Number of point tables	Up to 7	—	Up to 255 (2 stations occupied)	—
Pulse input	○	○	—	—
Applicable network	—	—	CC-Link	SSCNET III
Control encoder	Incremental 17-bit encoder	Absolute 18-bit encoder	Absolute 18-bit encoder	Absolute 18-bit encoder
Communication function	USB communication	USB communication, RS422 communication	USB communication, RS422 communication	USB communication
Power supply voltage (V)	100 to 120 VAC (50/60 Hz), 200 to 230 VAC (50/60 Hz)			
Reference page	Page 409			

Specifications

11-LEFS25, 32, 40 AC Servo Motor

Model			11-LEFS25S ²		11-LEFS32S ³		11-LEFS40S ⁴			
Stroke [mm] ^{Note 1)}			100, 200, 300, 400 500, 600		100, 200, 300, 400 500, 600, 700, 800		200, 300, 400, 500, 600 700, 800, 900, 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]			5,000 (Refer to page 50 for limit according to work load and duty ratio.)							
Positioning repeatability [mm]			±0.02							
Lead [mm]			12	6	16	8	20	10		
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) Class 10 (Fed.Std.209E)							
Grease			Ball screw /Linear guide portion Low particle generation grease							
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					
Type ^{Note 9)}			Non-magnetizing lock							
Holding force [N]			131	255	197	385	330	660		
Power consumption at 20°C [W] ^{Note 10)}			6.3	7.9	7.9					
Rated voltage [V]			24 VDC: ^{5/10%}							

Note 1) 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 50.

Note 3) The allowable speed changes according to the stroke.

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 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	11-LEFS25					
Stroke [mm]	100	200	300	400	500	600
Product weight [kg]	2.20	2.50	2.75	3.05	3.30	3.60
Additional weight with lock [kg]	0.35					

Series	11-LEFS32							
Stroke [mm]	100	200	300	400	500	600	700	800
Product weight [kg]	3.60	4.00	4.40	4.80	5.20	5.60	6.00	6.40
Additional weight with lock [kg]	0.70							

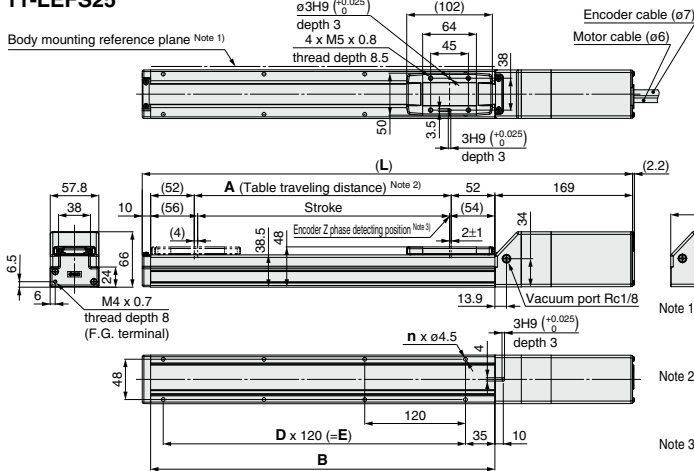
Series	11-LEFS40								
Stroke [mm]	200	300	400	500	600	700	800	900	1000
Product weight [kg]	6.20	6.75	7.35	7.90	8.35	9.00	9.55	10.15	10.70
Additional weight with lock [kg]	0.70								

Series 11-LEFS

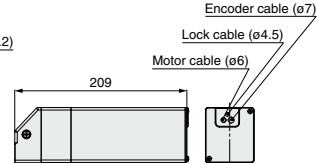
Clean room specification

Dimensions: Ball Screw Drive

11-LEFS25



Motor option: With lock



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

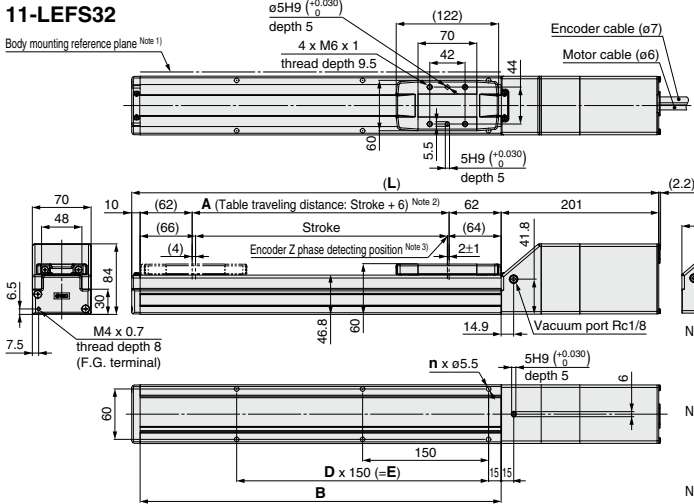
Note 2) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the workpieces and facilities around the table.

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

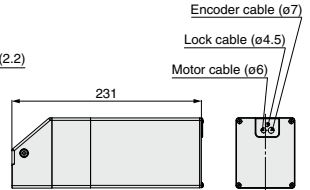
Model	L	A	B	n	D	E
11-LEFS25-100-□□□□	389	106	210	4	—	—
11-LEFS25-100B-□□□□	429					
11-LEFS25-200-□□□□	489	206	310	6	2	240
11-LEFS25-200B-□□□□	529					
11-LEFS25-300-□□□□	589	306	410	8	3	360
11-LEFS25-300B-□□□□	629					

Model	L	A	B	n	D	E
11-LEFS25-400-□□□□	689	406	510	8	3	360
11-LEFS25-400B-□□□□	729					
11-LEFS25-500-□□□□	789	506	610	10	4	480
11-LEFS25-500B-□□□□	829					
11-LEFS25-600-□□□□	889	606	710	12	5	600
11-LEFS25-600B-□□□□	929					

11-LEFS32



Motor option: With lock



Note 1) When mounting the electric actuator using the body mounting reference plane, set the height of the opposite surface or pin to 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 workpieces and facilities around the table.

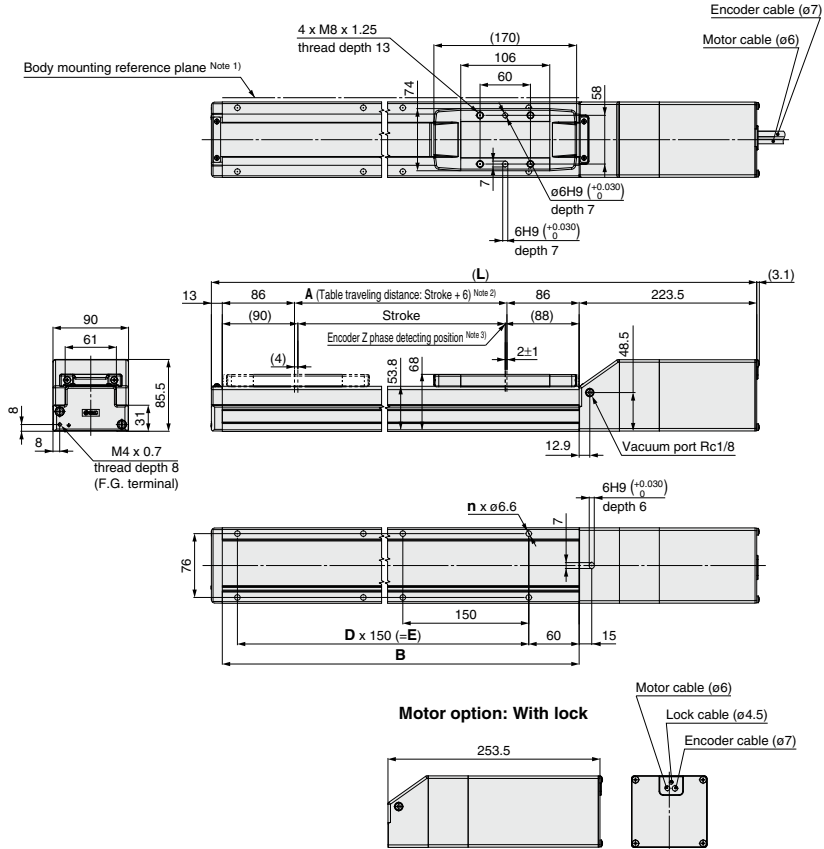
Note 3) The Z phase first detecting position from the stroke end of the motor side.

Model	L	A	B	n	D	E
11-LEFS32-100-□□□□	441	106	230	4	—	—
11-LEFS32-100B-□□□□	471					
11-LEFS32-200-□□□□	541	206	330	6	2	300
11-LEFS32-200B-□□□□	571					
11-LEFS32-300-□□□□	641	306	430	6	2	300
11-LEFS32-300B-□□□□	671					
11-LEFS32-400-□□□□	741	406	530	8	3	450
11-LEFS32-400B-□□□□	771					

Model	L	A	B	n	D	E
11-LEFS32-500-□□□□	841	506	630	10	4	600
11-LEFS32-500B-□□□□	871					
11-LEFS32-600-□□□□	941	606	730	10	4	600
11-LEFS32-600B-□□□□	971					
11-LEFS32-700-□□□□	1041	706	830	12	5	750
11-LEFS32-700B-□□□□	1071					
11-LEFS32-800-□□□□	1141	806	930	14	6	900
11-LEFS32-800B-□□□□	1171					

Dimensions: Ball Screw Drive

11-LEFS40



Motor option: With lock

Note 1) When mounting the electric actuator using the body mounting reference plane, set the height of the opposite surface or pin to 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 workpieces and facilities around the table.

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

Model	L	A	B	n	D	E
11-LEFS40-200-□□□□	614.5	206	378	6	2	300
11-LEFS40-200B-□□□□	644.5					
11-LEFS40-300-□□□□	714.5	306	478	6	2	300
11-LEFS40-300B-□□□□	744.5					
11-LEFS40-400-□□□□	814.5	406	578	8	3	450
11-LEFS40-400B-□□□□	844.5					
11-LEFS40-500-□□□□	914.5	506	678	10	4	600
11-LEFS40-500B-□□□□	944.5					
11-LEFS40-600-□□□□	1014.5	606	778	10	4	600
11-LEFS40-600B-□□□□	1044.5					
11-LEFS40-700-□□□□	1114.5	706	878	12	5	750
11-LEFS40-700B-□□□□	1144.5					
11-LEFS40-800-□□□□	1214.5	806	978	14	6	900
11-LEFS40-800B-□□□□	1244.5					
11-LEFS40-900-□□□□	1314.5	906	1078	14	6	900
11-LEFS40-900B-□□□□	1344.5					
11-LEFS40-1000-□□□□	1414.5	1006	1178	16	7	1050
11-LEFS40-1000B-□□□□	1444.5					

Electric Actuator/Slider Type

Belt Drive AC Servo Motor

Series **LEFB**

LEFB25, 32, 40



RoHS

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

NII	Top mounting
U	Bottom mounting

3 Motor type

Symbol	Type	Output (W)	Actuator size	Compatible drivers	
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 LECSS□-S5 LECSS□-S5	
S7				LECSB□-S7 LECSS□-S7 LECSS□-S7	
S8		400	40	LECSB2-S8 LECSS2-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

NII	Without option
B	With lock

8 Cable length

NII	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)

NII	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 425 for details.)

9 Driver type

	Compatible drivers	Power supply voltage	Size
			25 32 40
NII	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	LECSS1-S□	100 to 120	● ● ●
C2	LECSS2-S□	200 to 230	● ● ●
S1	LECSA1-S□	100 to 120	● ● ●
S2	LECSA2-S□	200 to 230	● ● ●

10 I/O connector

NII	Without connector
H	With connector

* 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)

NII : Without cable and driver



Made to Order Specifications
(For details, refer to page 79.)

Symbol	Specifications
X139	Support guide

* Applicable stroke table

	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2500	3000
LEFB25	●	●	●	●	●	●	●	●	○	●	○	○	●	○	○	○	○	●	—	—
LEFB32	●	●	●	●	●	●	●	●	●	○	○	○	●	○	○	○	○	●	—	—
LEFB40	●	●	●	●	●	●	●	●	○	●	○	○	●	○	○	○	○	●	●	●

* Consult with SMC as all non-standard and non-made-to-order strokes are produced as special orders.

Compatible Drivers

Driver type	Pulse input type /Positioning type	Pulse input type	CC-Link direct input type	SSCNET III type
Series	LECSA	LECSB	LECSS	LECSS
Number of point tables	Up to 7	—	Up to 255 (2 stations occupied)	—
Pulse input	○	○	—	—
Applicable network	—	—	CC-Link	SSCNET III
Control encoder	Incremental 17-bit encoder	Absolute 18-bit encoder	Absolute 18-bit encoder	Absolute 18-bit encoder
Communication function	USB communication	USB communication, RS422 communication	USB communication, RS422 communication	USB communication
Power supply voltage (V)	100 to 120 VAC (50/60 Hz), 200 to 230 VAC (50/60 Hz)			
Reference page	Page 409			

Specifications

LEFB25, 32, 40 AC Servo Motor

Model		LEFB25S ¹	LEFB32S ²	LEFB40S ³
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	15	25
	Max. speed [mm/s]	2,000	2,000	2,000
	Max. acceleration/deceleration [mm/s ²]	20,000 (Refer to page 53 for limit according to work load and duty ratio.) ^{Note 3)}		
	Positioning repeatability [mm]	±0.08		
	Equivalent lead [mm]	54		
	Impact/Vibration resistance [m/s ²] ^{Note 4)}	50/20		
	Actuation type	Belt		
	Guide type	Linear guide		
	Operating temperature range [°C]	5 to 40		
Electric specifications	Operating humidity range [%RH]	90 or less (No condensation)		
	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 5)}	Horizontal	29	41
		Vertical	—	72
	Standby power consumption when operating [W] ^{Note 6)}	Horizontal	2	—
		Vertical	2	—
	Max. instantaneous power consumption [W] ^{Note 7)}	445	725	1275
	Type ^{Note 8)}	Non-magnetizing lock		
Lock unit specifications	Holding force [N]	27	54	110
	Power consumption at 20°C [W] ^{Note 9)}	6.3	7.9	7.9
	Rated voltage [V]	24 VDC ^{90%}		

Note 1) 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 53.

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

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 driver) is for when the actuator is operating.

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

Note 7) The maximum instantaneous power consumption (including the driver) is for when the actuator is operating.

Note 8) Only when motor option "With lock" is selected.

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

Weight

Series	LEFB25□S																	
Stroke [mm]	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000
Product weight [kg]	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
Additional weight with lock [kg]	0.35																	

Series	LEFB32S□S																			
Stroke [mm]	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2500	
Product weight [kg]	4.90	5.25	5.60	5.95	6.30	6.65	7.00	7.35	7.70	8.05	8.40	8.75	9.10	9.45	9.80	10.15	10.50	10.85	12.60	
Additional weight with lock [kg]	0.75																			

Series	LEFB40S□S																			
Stroke [mm]	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2500	3000
Product weight [kg]	7.10	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	17.00	19.25
Additional weight with lock [kg]	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

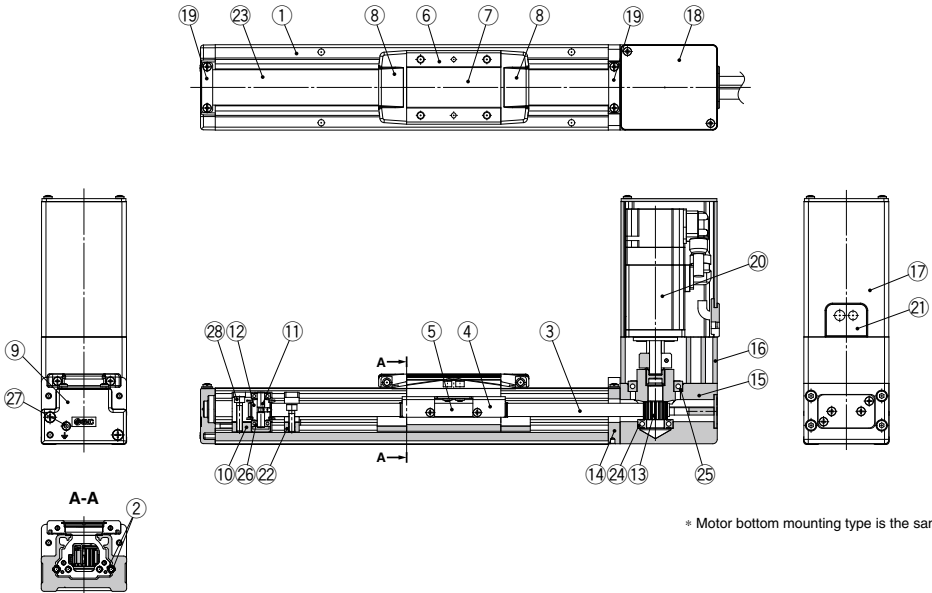
Flaw which is made when the belt runs on the flange.

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

f. Crack on the back of the belt

Construction

LEFB25S□S



Component Parts

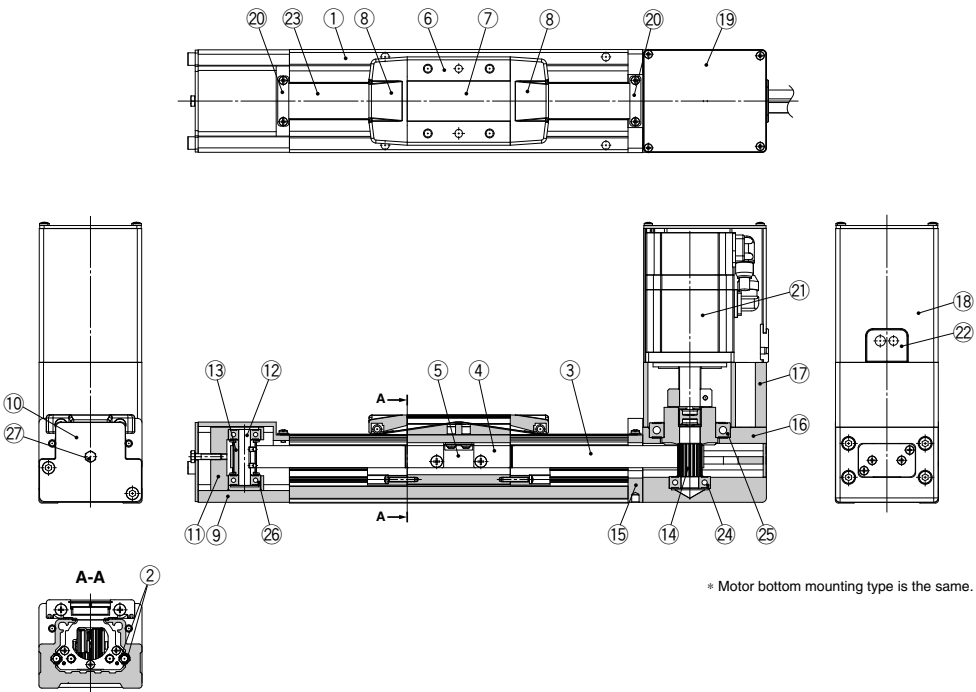
No.	Description	Material	Note
1	Body	Aluminum alloy	Anodized
2	Rail guide		
3	Belt		
4	Belt holder	Carbon steel	Chromate treated
5	Belt stopper	Aluminum alloy	Anodized
6	Table	Aluminum alloy	Anodized
7	Blanking plate	Aluminum alloy	Anodized
8	Seal band stopper	Synthetic resin	
9	Housing A	Aluminum die-cast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

Component Parts

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

Construction

LEFB32/40S□S



* Motor bottom mounting type is the same.

Component Parts

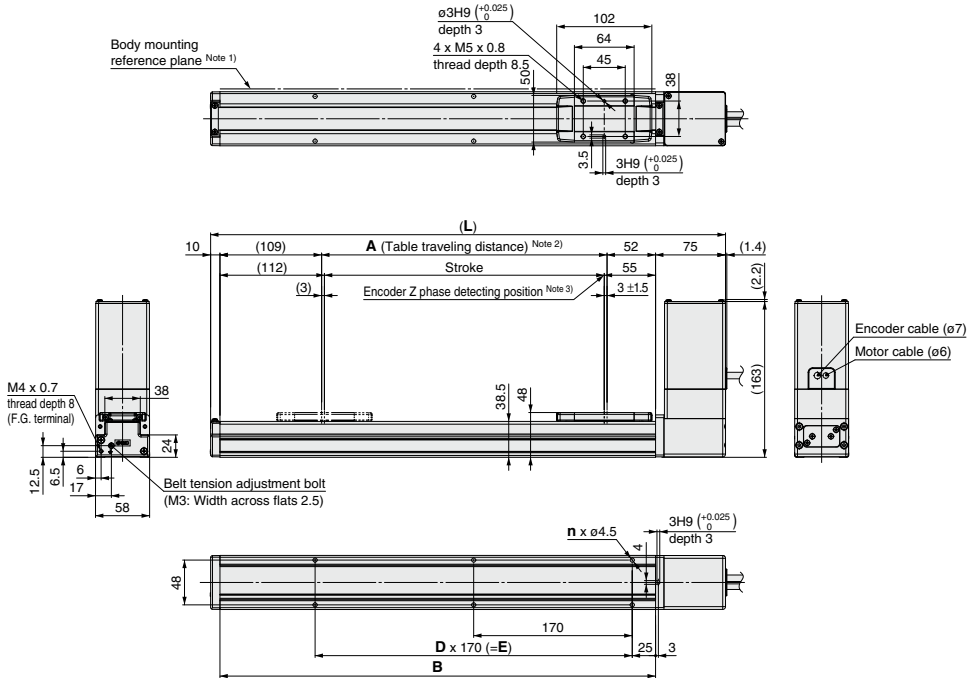
No.	Description	Material	Note
1	Body	Aluminum alloy	Anodized
2	Rail guide		
3	Belt		
4	Belt holder	Carbon steel	Chromate treated
5	Belt stopper	Aluminum alloy	Anodized
6	Table	Aluminum alloy	Anodized
7	Blanking plate	Aluminum alloy	Anodized
8	Seal band stopper	Synthetic resin	
9	End block	Aluminum alloy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

Component Parts

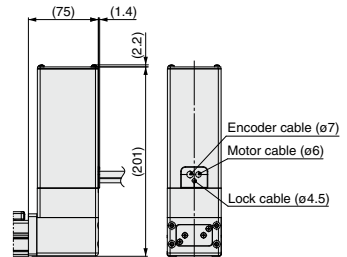
No.	Description	Material	Note
15	Return flange	Aluminum alloy	Coating
16	Housing	Aluminum alloy	Coating
17	Motor mount	Aluminum alloy	Coating
18	Motor cover	Aluminum alloy	Anodized
19	Motor end cover	Aluminum alloy	Anodized
20	Band stopper	Stainless steel	
21	Motor		
22	Rubber bushing	NBR	
23	Dust seal band	Stainless steel	
24	Bearing		
25	Bearing		
26	Bearing		
27	Tension adjustment bolt	Chromium molybdenum steel	Chromate treated

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

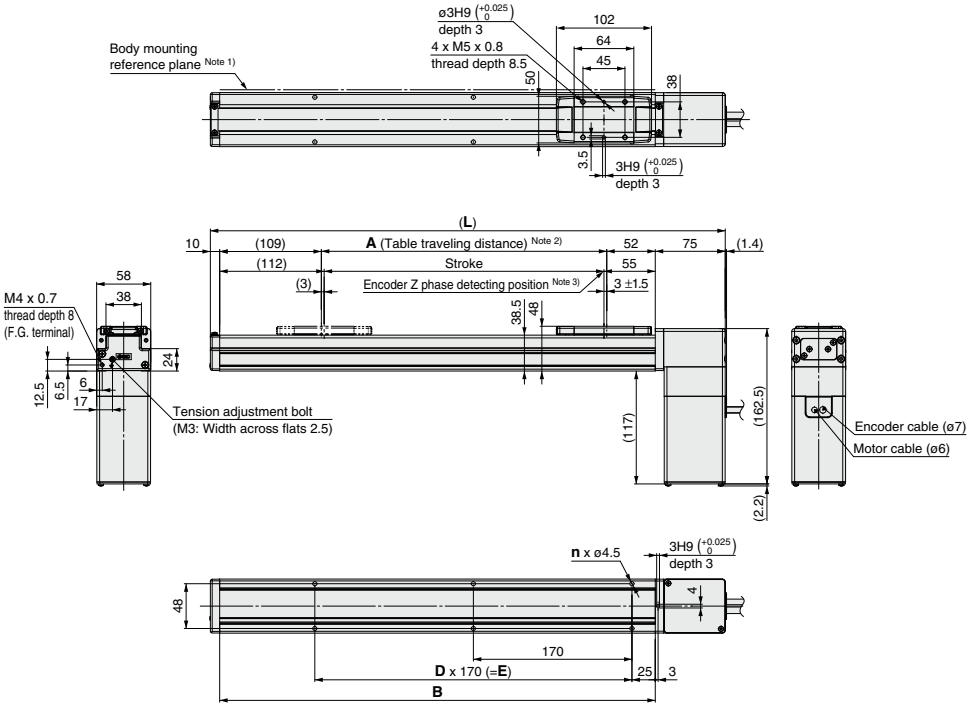
Note 1) When mounting the electric actuator using the body mounting reference plane, set the height of the opposite surface or pin to 3 mm or more because of R chamfering. (Recommended height: 5 mm)

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 workpieces and facilities around the table.

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

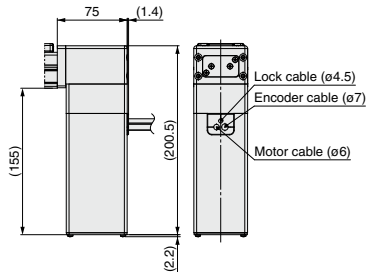
Dimensions: Belt Drive

LEFB25U/Motor bottom mounting type



Dimensions [mm]							
Stroke	L	A	B	n	D	E	
300	552	306	467	6	2	340	
400	652	406	567	8	3	510	
500	752	506	667	8	3	510	
600	852	606	767	10	4	680	
700	952	706	867	10	4	680	
800	1052	806	967	12	5	850	
900	1152	906	1067	14	6	1020	
1000	1252	1006	1167	14	6	1020	
1100	1352	1106	1267	16	7	1190	
1200	1452	1206	1367	16	7	1190	
1300	1552	1306	1467	18	8	1360	
1400	1652	1406	1567	20	9	1530	
1500	1752	1506	1667	20	9	1530	
1600	1852	1606	1767	22	10	1700	
1700	1952	1706	1867	22	10	1700	
1800	2052	1806	1967	24	11	1870	
1900	2152	1906	2067	24	11	1870	
2000	2252	2006	2167	26	12	2040	

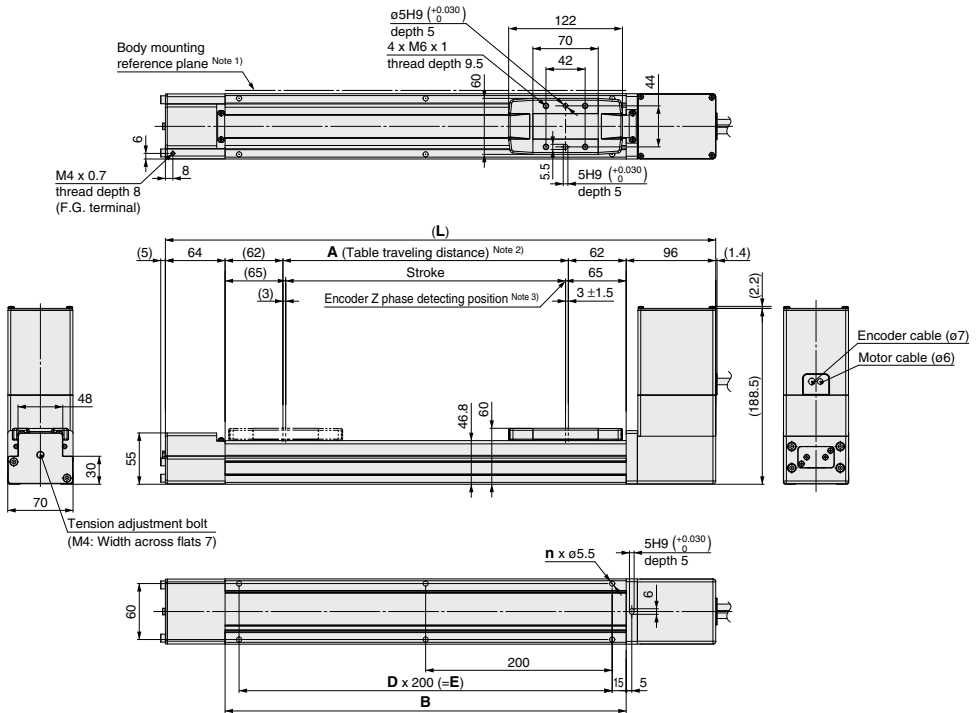
Motor option: With lock



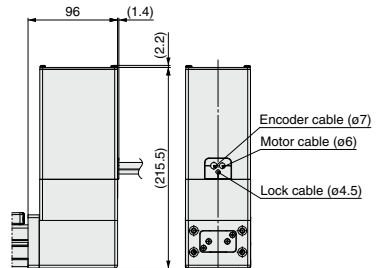
- Note 1) When mounting the electric actuator using the body mounting reference plane, set the height of the opposite surface or pin to 3 mm or more because of R chamfering. (Recommended height: 5 mm)
- Note 2) Distance within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the workpieces 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

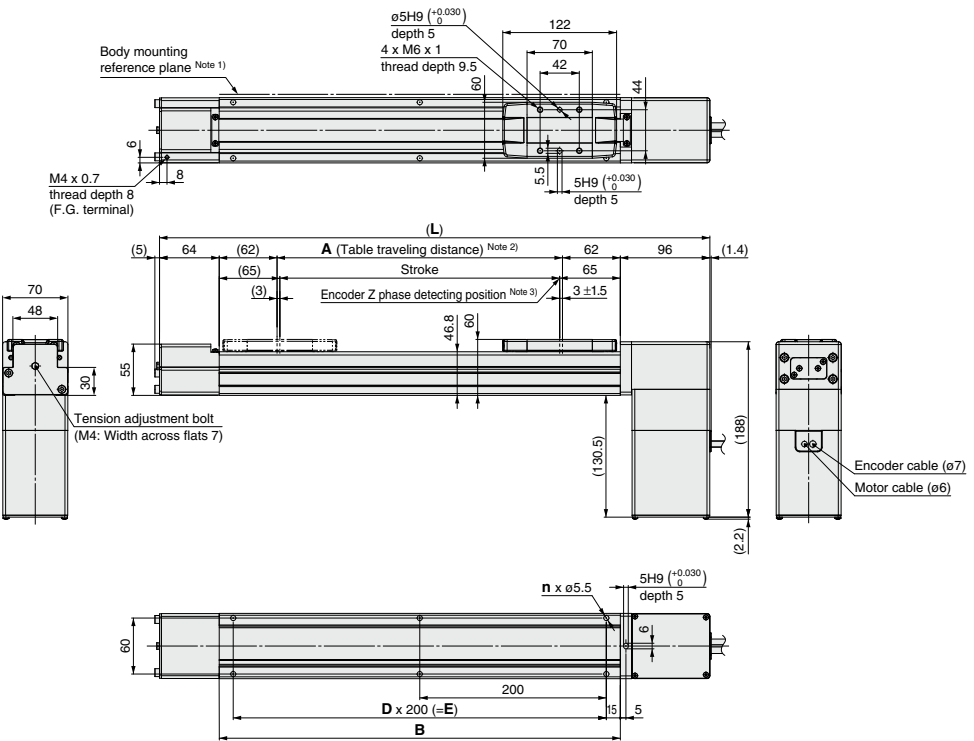
Note 1) When mounting the electric actuator using the body mounting reference plane, set the height of the opposite surface or pin to 3 mm or more because of R chamfering. (Recommended height: 5 mm)

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 workpieces 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

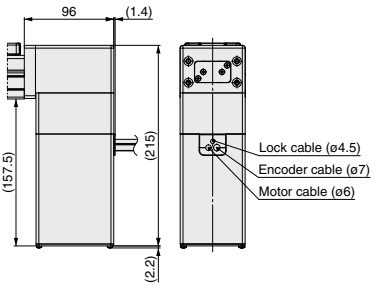


Motor option: With lock

Dimensions

[mm]

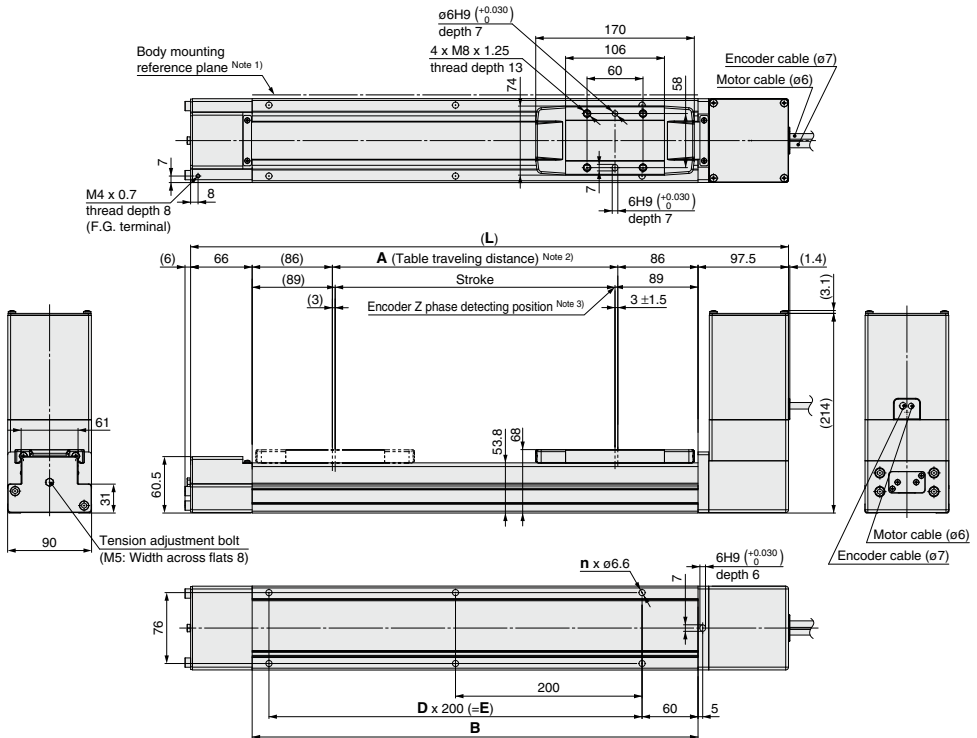
Stroke	L	A	B	n	D	E
300	590	306	430	6	2	400
400	690	406	530	6	2	400
500	790	506	630	8	3	600
600	890	606	730	8	3	600
700	990	706	830	10	4	800
800	1090	806	930	10	4	800
900	1190	906	1030	12	5	1000
1000	1290	1006	1130	12	5	1000
1100	1390	1106	1230	14	6	1200
1200	1490	1206	1330	14	6	1200
1300	1590	1306	1430	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 electric actuator using the body mounting reference plane, set the height of the opposite surface or pin to 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 workpieces and facilities around the table.
- Note 3) The Z phase first detecting position from the stroke end of the motor side.

Dimensions: Belt Drive

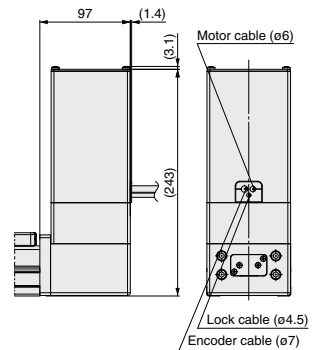
LEFB40/Motor top mounting type



Dimensions

	L	A	B	n	D	E
Stroke						
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



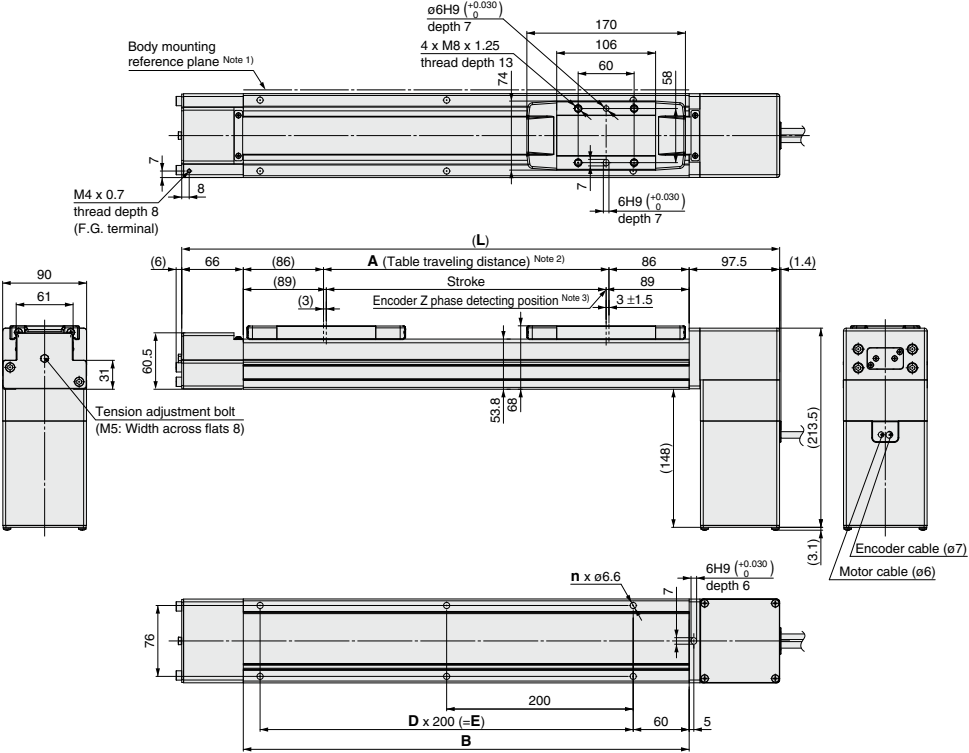
Note 1) When mounting the electric actuator using the body mounting reference plane, set the height of the opposite surface or pin to 3 mm or more because of R chamfering. (Recommended height: 5 mm)

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 workpieces and facilities around the table.

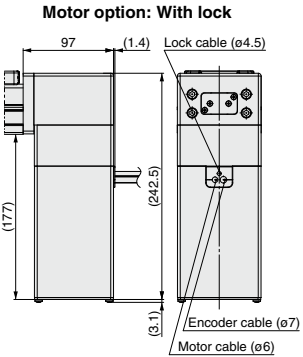
Note 3) The Z phase first detecting position from the stroke end of the motor side.

Dimensions: **Belt Drive**

LEFB40U/Motor bottom mounting type



Dimensions [mm]						
Stroke	L	A	B	n	D	E
300	641.5	306	478	6	2	400
400	741.5	406	578	6	2	400
500	841.5	506	678	8	3	600
600	941.5	606	778	8	3	600
700	1041.5	706	878	10	4	800
800	1141.5	806	978	10	4	800
900	1241.5	906	1078	12	5	1000
1000	1341.5	1006	1178	12	5	1000
1100	1441.5	1106	1278	14	6	1200
1200	1541.5	1206	1378	14	6	1200
1300	1641.5	1306	1478	16	7	1400
1400	1741.5	1406	1578	16	7	1400
1500	1841.5	1506	1678	18	8	1600
1600	1941.5	1606	1778	18	8	1600
1700	2041.5	1706	1878	20	9	1800
1800	2141.5	1806	1978	20	9	1800
1900	2241.5	1906	2078	22	10	2000
2000	2341.5	2006	2178	22	10	2000
2500	2841.5	2506	2678	28	13	2600
3000	3341.5	3006	3178	32	15	3000



- Note 1) When mounting the electric actuator using the body mounting reference plane, set the height of the opposite surface or pin to 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 workpieces and facilities around the table.
- Note 3) The Z phase first detecting position from the stroke end of the motor side.

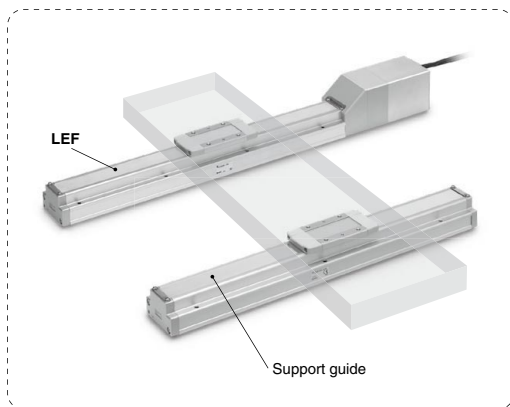
1 Support Guide

Symbol
-X139

A support guide is designed to support workpieces 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 labor.
- The standard equipped seal bands prevent grease from splashing and external foreign matter from entering.

Application example



How to Order

LEFS - - **X139**

Size

16
25
32
40

Stroke

Refer to the table below for applicable strokes.

Applicable stroke table

Model	Applicable strokes													
	100	200	300	400	500	600	700	800	900	1000	1200	1500	1800	2000
LEFS16[Stroke]-X139	●	●	●	●	●	●	●	●	●	●	—	—	—	—
LEFS25[Stroke]-X139	●	●	●	●	●	●	●	●	●	●	●	●	●	●
LEFS32[Stroke]-X139	●	●	●	●	●	●	●	●	●	●	●	●	●	●
LEFS40[Stroke]-X139	●	●	●	●	●	●	●	●	●	●	●	●	●	●

● : Available — : Not available

LEF

LEJ

LEL

LEY
LEYG

LES
LESH

LEPY
LEPS

LER

LEH

LECA6
LECP6

LEC-G

LECP1

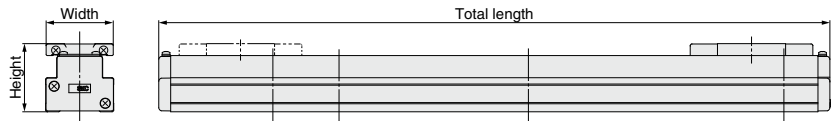
LECPA

LECS

LAT3

Dimensions

LEFS16, 25, 32, 40



Dimensions (mm)

Model	External dimensions		
	Height	Width	Total length
LEFS16-[Stroke]-X139	40	40	49 + [Stroke]
LEFS25-[Stroke]-X139	48	58	130 + [Stroke]
LEFS32-[Stroke]-X139	60	70	150 + [Stroke]
LEFS40-[Stroke]-X139	68	90	204 + [Stroke]

Weight

Model	Stroke (kg)													
	100	200	300	400	500	600	700	800	900	1000	1200	1500	1800	2000
LEFS16-[Stroke]-X139	0.31	0.43	0.55	0.67	0.79	0.91	1.03	1.15	1.27	1.39	—	—	—	—
LEFS25-[Stroke]-X139	0.67	0.89	1.11	1.33	1.55	1.77	1.99	2.21	2.43	2.65	3.09	3.75	4.41	4.85
LEFS32-[Stroke]-X139	1.08	1.40	1.72	2.04	2.36	2.68	3.00	3.32	3.64	3.96	4.60	5.56	6.52	7.16
LEFS40-[Stroke]-X139	1.86	2.29	2.72	3.15	3.58	4.01	4.44	4.87	5.30	5.73	6.59	7.88	9.17	10.03