

Electric Slide Tables

Series LES/LESH



Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

• Reduced cycle time

• Positioning repeatability: ± 0.05 mm

• Max. pushing force: 180 N

Max. acceleration/deceleration: 5,000 mm/s²

Max. speed: 400 mm/s

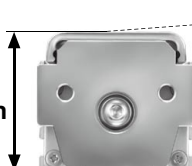
Compact Type Series LES

Size: 8, 16, 25 ▶Page 216



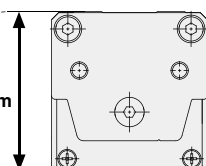
Compared with the LESH, Workpiece mounting surface height: Reduced by up to 12%

40.3 mm



Compact type
New LES16D

46 mm



LESH16D

Basic type/R type



Symmetrical type/L type



In-line motor type/D type



High Rigidity Type Series LESH

Size: 8, 16, 25 ▶Page 240

High rigidity

Deflection: 0.016 mm*

* LESH16-50 Load: 25 N

Basic type/R type

Series LESH□R



Symmetrical type/L type

Series LESH□L



In-line motor type/D type

Series LESH□D



Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

Controller/Driver

▶Page 367

►Step data input type

Series LECP6/LECA6

- 64 points positioning
- Input using controller setting kit or teaching box



►Programless type

Series LECP1

- 14 points positioning
- Control panel setting



►Pulse input type

Series LECPA



Compact Type Series LES

Vertical
work
load

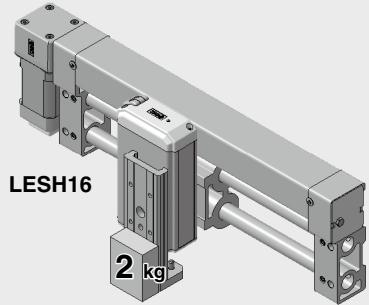
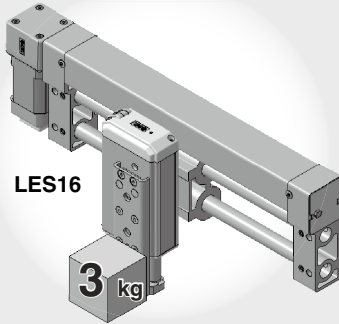
Increased by up to **50%***

* By reducing weight of the moving parts

* Compared with the LESH16

Model	Vertical work load (kg)
LES16	3.0
LESH16	2.0

Applications



Light
weight

Reduced by up to **29%**

Model	Weight (kg)	Reduction amount
LES16D-100	1.20	Reduced by 0.50 kg
LESH16D-100	1.70	

- Max. pushing force: 180 N
- Possible to reduce cycle time
Max. acceleration/deceleration: 5,000 mm/s²
Max. speed: 400 mm/s
- Positioning repeatability: ± 0.05 mm
- 2 types of motors selectable/Step motor (Servo/24 VDC), Servo motor (24 VDC)

Basic type/R type

Series LES□R



Symmetrical type/L type

Series LES□L



In-line motor type/D type

Series LES□D



High Rigidity Type Series LESH

High rigidity Deflection: 0.016 mm* * LESH16-50 Load: 25 N

Integration of the guide rail and the table Uses a circulating linear guide.

Positioning pin hole

Improved workpiece mounting reproducibility

Workpiece mounting tap

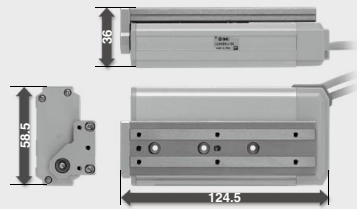
Body mounting through-hole

Can be mounted from the top.



Compact, Space-saving

For LESH8 R/L, 50 mm stroke

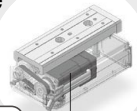


Reduced by 61% in volume*

* Compared with the LESH16-50/LXSH-50
* For R/L type

Motor integrated into the body

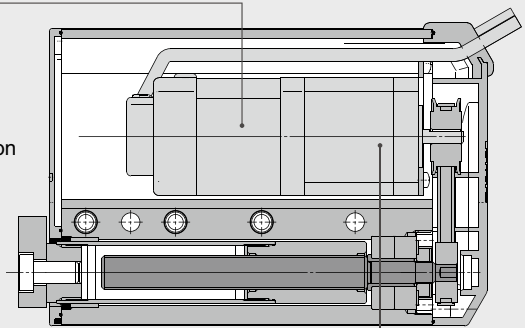
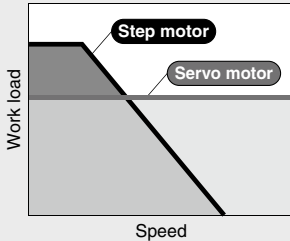
Built-in motor



Integration of the guide rail and the table

2 types of motors selectable

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

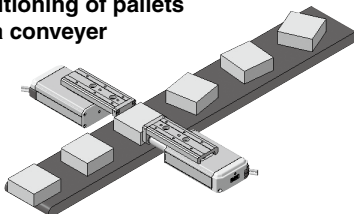


Non-magnetizing lock mechanism (Option)

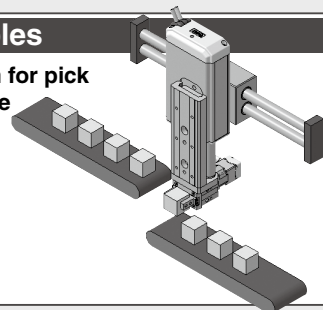
Prevents workpieces from dropping (holding)

Application Examples

Positioning of pallets on a conveyor

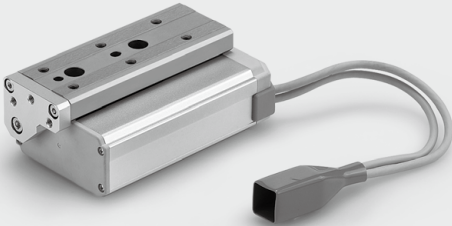


Z motion for pick and place

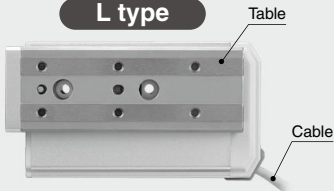


Symmetrical Type/L Type

The locations of the table and cable are opposite those of the basic type (R type), expanding design applications.

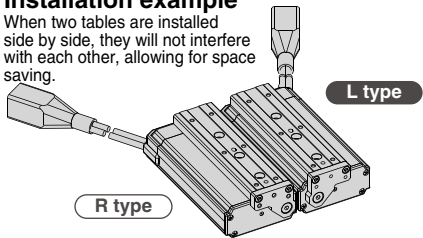


L type

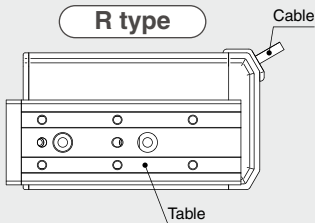


Installation example

When two tables are installed side by side, they will not interfere with each other, allowing for space saving.



R type

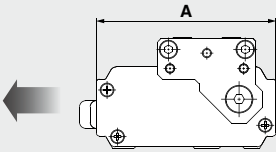
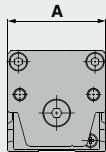


In-line Motor Type/D Type

Width dimension shortened by up to **45%**

D type

R type



A Dimension

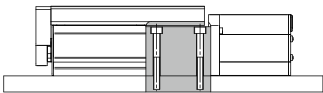
(mm)

Size	D type	R/L type
8	32	58.5
16	45	72.5
25	61	106

How to Mount

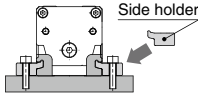
Through-hole mounting

(R/L/D type)



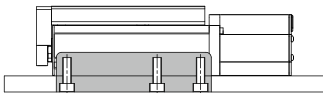
Side holder mounting

(D type)



Body tapped mounting

(R/L/D type)



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

Model Selection 1



Selection Procedure

For the high rigidity type LESH series, refer to page 240.

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

Selection Example

Step 1 Check the work load-speed. <Speed-Work load graph> (Page 217)

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

Selection example) The LES16□J-50 is temporarily selected based on the graph shown on the right side.

Step 2 Check the cycle time.

It is possible to obtain an approximate cycle time by using method 1, but if a more detailed cycle time is required, use method 2.

Method 1: Check the cycle time graph. (Page 218)

Method 2: Calculation <Speed-Work load graph> (Page 217)

Calculate the cycle time using the following calculation method.

Calculation example)

T1 to T4 can be calculated as follows.

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.

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

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

- 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.

$$T4 = 0.15 \text{ [s]}$$

$$T1 = V/a1 = 220/5000 = 0.04 \text{ [s]}$$

$$T3 = V/a2 = 220/5000 = 0.04 \text{ [s]}$$

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} = \frac{50 - 0.5 \cdot 220 \cdot (0.04 + 0.04)}{220} = 0.19 \text{ [s]}$$

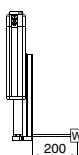
$$T4 = 0.15 \text{ [s]}$$

Therefore, the cycle time can be obtained as follows.

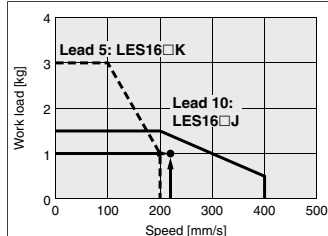
$$T = T1 + T2 + T3 + T4 = 0.04 + 0.19 + 0.04 + 0.15 = 0.42 \text{ [s]}$$

Operating conditions

- Workpiece mass: 1 [kg]
- Workpiece mounting condition:
- Speed: 220 [mm/s]
- Mounting orientation: Vertical
- Stroke: 50 [mm]
- Acceleration/Deceleration: 5,000 [mm/s²]
- Cycle time: 0.5 seconds

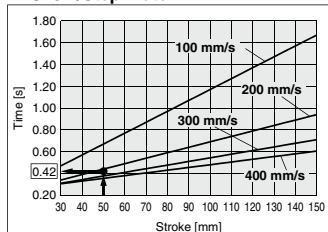


LES16□/Step Motor Vertical



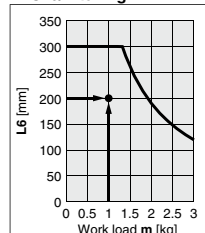
<Speed-Work load graph>

LES16□/Step Motor



<Cycle time>

LES16□/Pitching

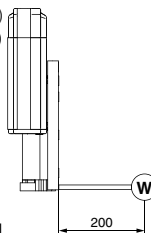


<Dynamic allowable moment>

Step 3 Check the allowable moment. <Static allowable moment> (Page 218)

<Dynamic allowable moment> (Page 219)

Confirm the moment that applies to the actuator is within the allowable range for both static and dynamic conditions.



Based on the above calculation result, the LES16□J-50 is selected.

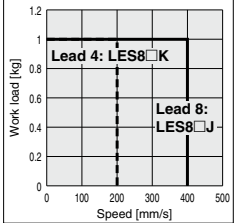
Speed-Work Load Graph (Guide)

Step Motor (Servo/24 VDC)

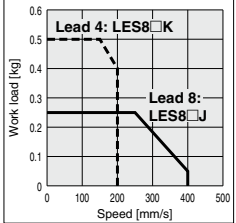
* The following graph shows the values when moving force is 100%.

LES8□

Horizontal

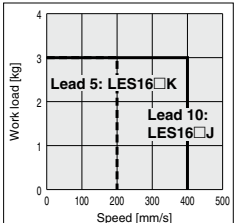


Vertical

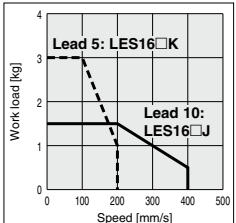


LES16□

Horizontal

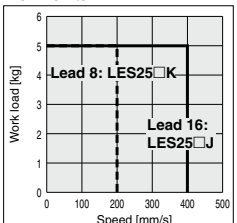


Vertical

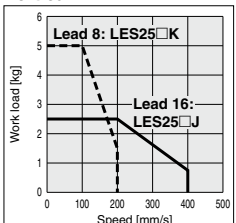


LES25□

Horizontal



Vertical

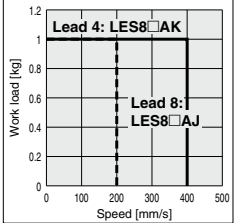


Servo Motor (24 VDC)

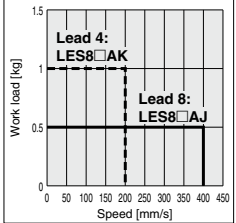
* The following graph shows the values when moving force is 250%.

LES8□A

Horizontal

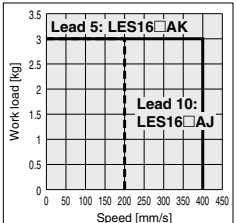


Vertical

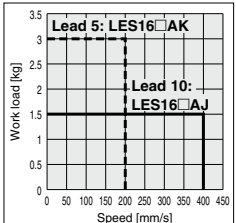


LES16□A

Horizontal

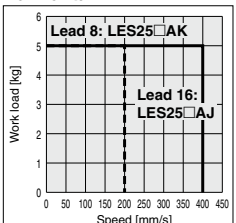


Vertical

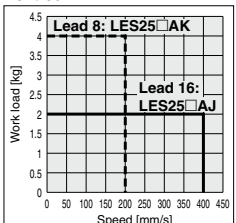


LES25□A

Horizontal

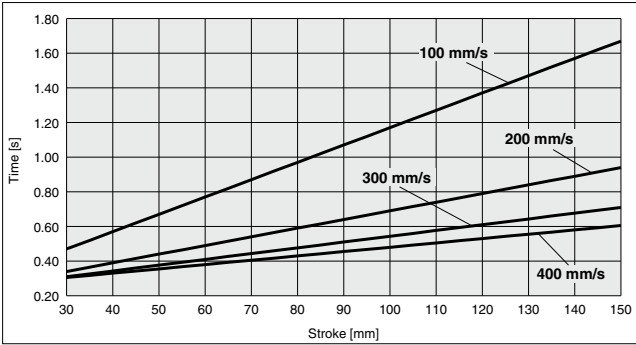


Vertical



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

Cycle Time (Guide)



Operating Conditions

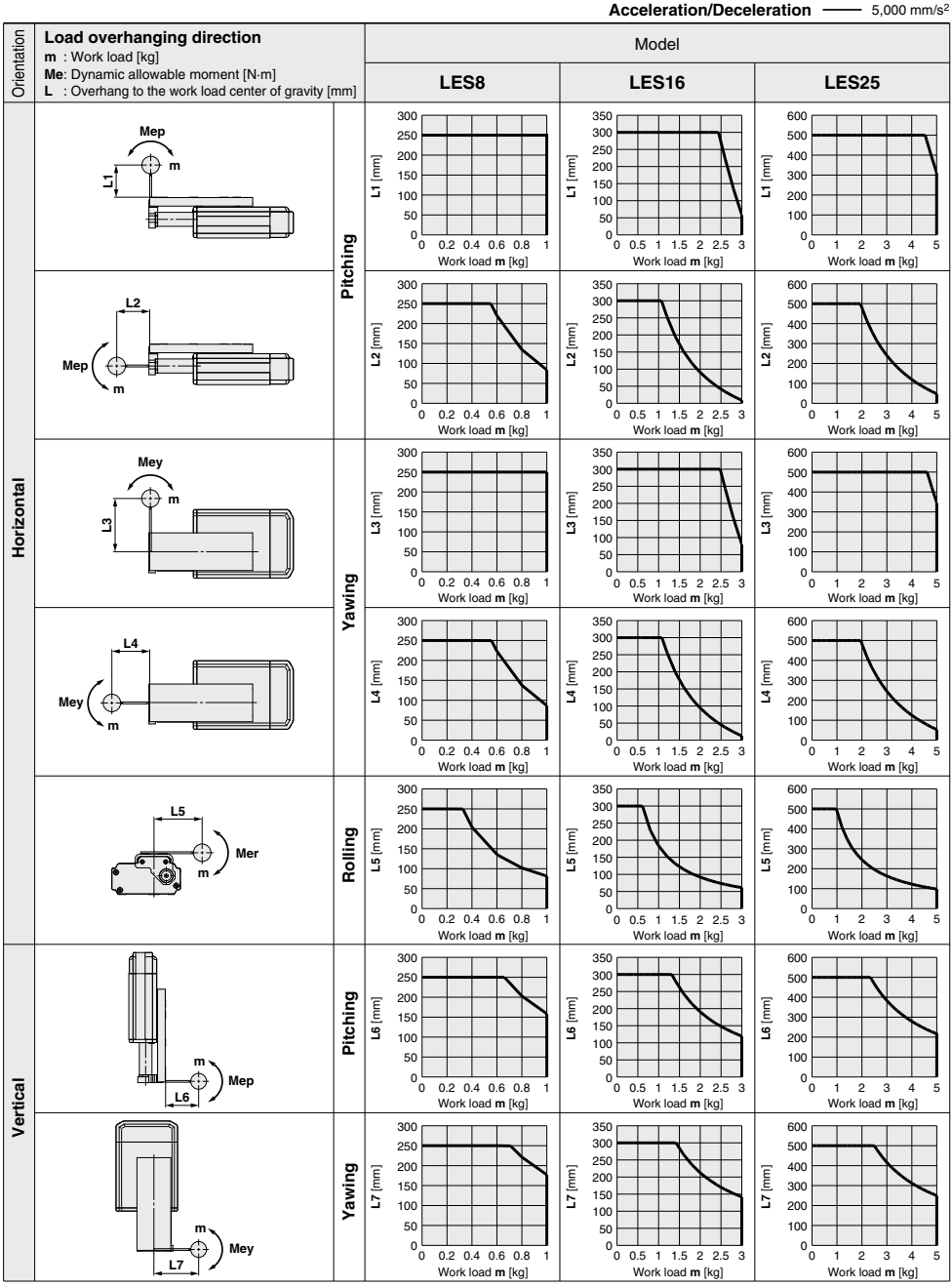
Acceleration/Deceleration: 5,000 mm/s²
In position: 0.5

Static Allowable Moment

Model		LES8	LES16	LES25
Pitching	[N·m]	2	4.8	14.1
Yawing	[N·m]	2	4.8	14.1
Rolling	[N·m]	0.8	1.8	4.8

Dynamic Allowable Moment

Note 1) 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.
 Note 2) For static moment as well, use a product below the range in the graph. <http://www.smcworld.com>



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

Series **LES**

Model Selection 2



Selection Procedure

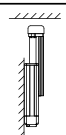
For the high rigidity type LESH series, refer to page 244.

Step 1 Check the required force.**Step 2** Check the set value of pushing force.**Step 3** Check the duty ratio.

Selection Example

Operating conditions

- Pushing force: 90 [N]
- Workpiece mass: 1 [kg]
- Speed: 100 [mm/s]
- Stroke: 100 [mm]
- Mounting orientation: Vertical upward
- Pushing time + Operation (A): 1.5 seconds
- All cycle time (B): 6 seconds

**Step 1** Check the required force.

Calculate the approximate required force for pushing operation.
Selection example) • Pushing force: 90 [N]

- Workpiece mass: 1 [kg]
- Therefore, the approximate required force can be obtained as $90 + 10 = 100$ [N].

Select the target model based on the approximate required force with reference to the specifications (Pages 226 and 227).

Selection example) Based on the specifications,

- Approximate required force: 100 [N]
 - Speed: 100 [mm/s]
- Therefore, the LES25□ is temporarily selected.

Then, calculate the required force for pushing operation.

If the mounting position is vertical upward, add the actuator table weight.

Selection example) Based on the <Table weight>,

- LES25□ table weight: 0.5 [kg]
- Therefore, the required force can be obtained as $100 + 5 = 105$ [N].

Step 2 Check the set value of pushing force.

<Set value of pushing force–Force graph> (Page 221)

Select the target model based on the required force with reference to the <Set value of pushing force–Force graph>, and confirm the set value of pushing force.

Selection example) Based on the graph shown on the right side,

- Required force: 105 [N]
- Therefore, the LES25□K is temporarily selected.
This set value of pushing force is 40 [%].

Step 3 Check the duty ratio.

Confirm the allowable duty ratio based on the set value of pushing force with reference to the <Allowable duty ratio>.

Selection example) Based on the <Allowable duty ratio>,

- Set value of pushing force: 40 [%]
- Therefore, the allowable duty ratio can be obtained as 30 [%].

Calculate the duty ratio for operating conditions, and confirm it does not exceed the allowable duty ratio.

Selection example) • Pushing time + Operation (A): 1.5 seconds

- All cycle time (B): 6 seconds
- Therefore, the duty ratio can be obtained as $1.5/6 \times 100 = 25$ [%], and this is the allowable range.

Based on the above calculation result, the LES25□K-100 is selected.

For allowable moment, the selection procedure is the same as the positioning control.

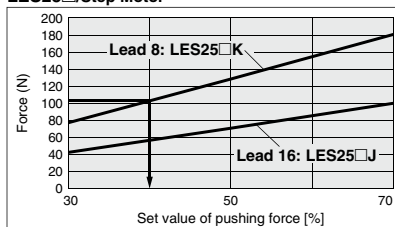
Table Weight

[kg]

Model	Stroke [mm]					
	30	50	75	100	125	150
LES8	0.06	0.08	0.10	—	—	—
LES16	0.10	0.13	0.18	0.20	—	—
LES25	0.25	0.30	0.36	0.50	0.55	0.59

* If the mounting position is vertical upward, add the table weight.

LES25□/Step Motor



<Set value of pushing force–Force graph>

Allowable Duty Ratio

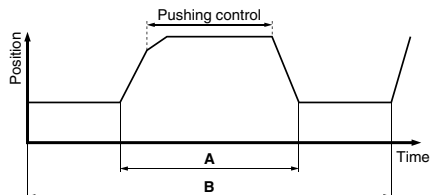
Step Motor (Servo/24 VDC)

Set value of pushing force (%)	Duty ratio (%)	Continuous pushing time (minute)
30	—	—
50 or less	30 or less	5 or less
70 or less	20 or less	3 or less

Servo Motor (24 VDC)

Set value of pushing force (%)	Duty ratio (%)	Continuous pushing time (minute)
50	—	—
75 or less	30 or less	5 or less
100 or less	20 or less	3 or less

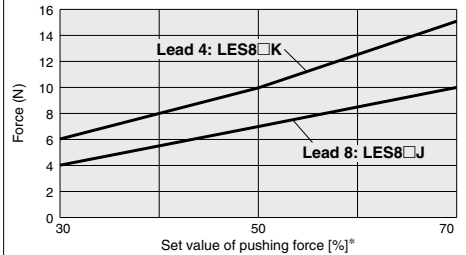
* The pushing force of the LES8□A is up to 75%.



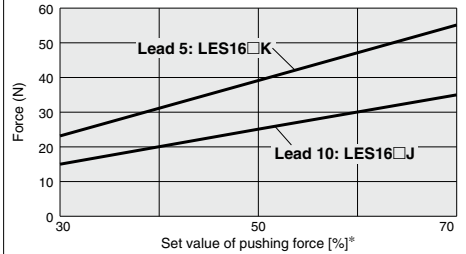
Set Value of Pushing Force–Force Graph

Step Motor (Servo/24 VDC)

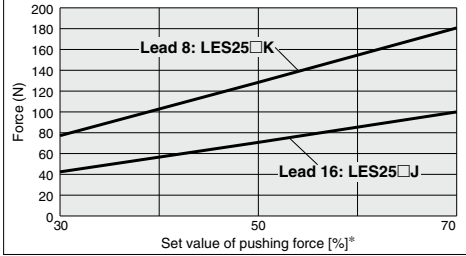
LES8□



LES16□

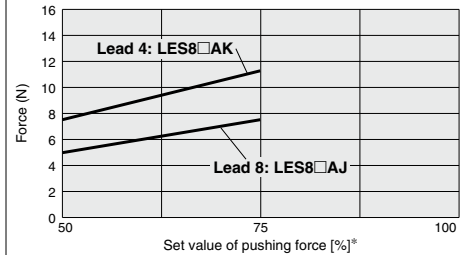


LES25□

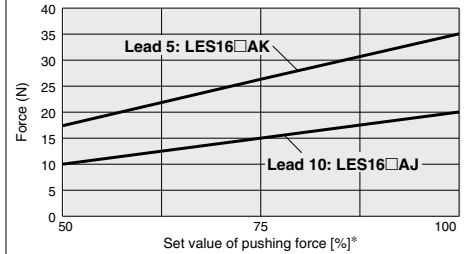


Servo Motor (24 VDC)

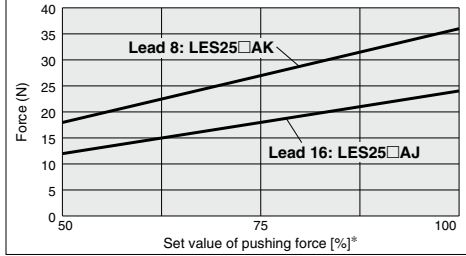
LES8□A



LES16□A



LES25^R□A

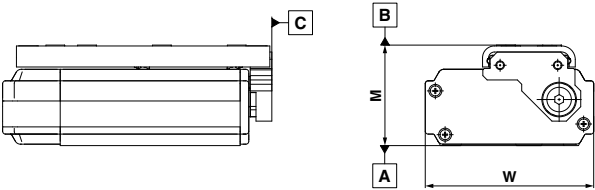


* Set values for the controller.

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

Table Accuracy

* These values are initial guideline values.



Model	LES8	LES16	LES25
B side parallelism to A side	0.4 mm		
B side traveling parallelism to A side	Refer to Graph 1.		
C side perpendicularity to A side	0.2 mm		
M dimension tolerance	±0.3 mm		
W dimension tolerance	±0.2 mm		

Graph 1 B side traveling parallelism to A side

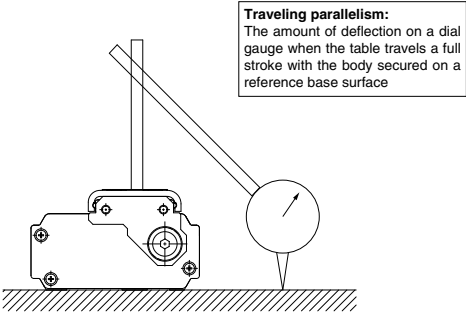
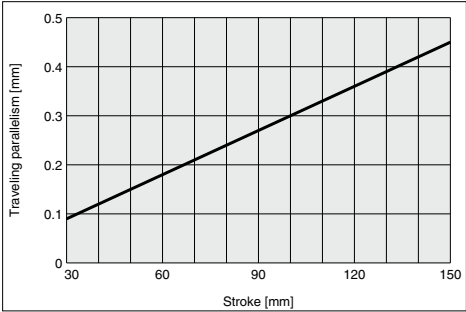
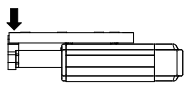


Table Deflection (Reference Value)

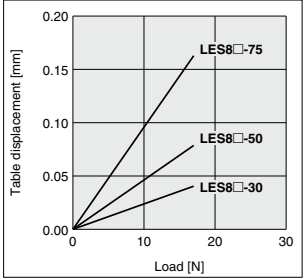
* These values are initial guideline values.

Pitching moment

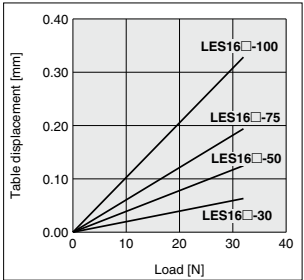
Table displacement due to pitch moment load
Table displacement when loads are applied to the section marked with the arrow with the slide table stuck out.



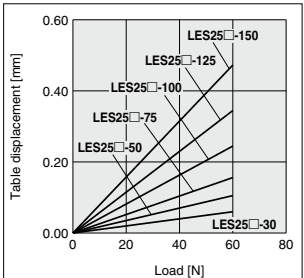
LES8



LES16

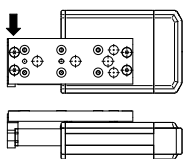


LES25

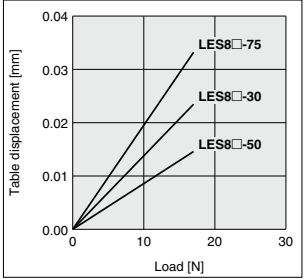


Yawing moment

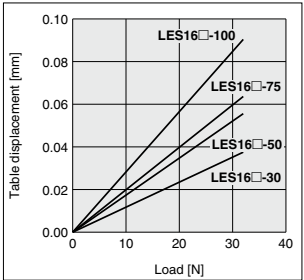
Table displacement due to yaw moment load
Table displacement when loads are applied to the section marked with the arrow with the slide table stuck out.



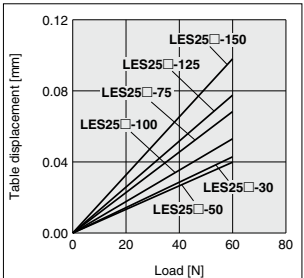
LES8



LES16

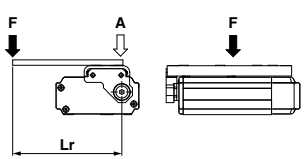


LES25



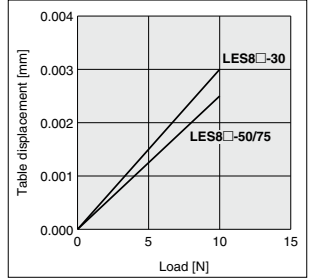
Rolling moment

Table displacement due to roll moment load
Table displacement of section A when loads are applied to the section F with the slide table retracted.



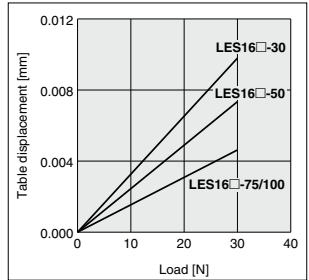
LES8

Lr = 80 mm



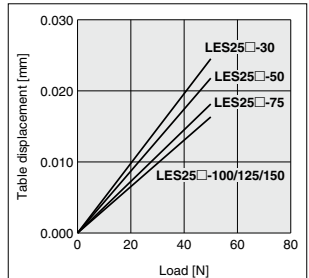
LES16

Lr = 60 mm



LES25

Lr = 100 mm



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

Electric Slide Table/Compact Type

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

Series LES

LES8, 16, 25



RoHS

How to Order

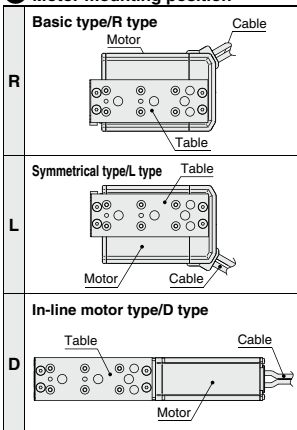
LES **8** **R** **J** - **30** **1** **6N** **1**

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

1 Size

8
16
25

2 Motor mounting position



3 Motor type

Symbol	Type	Compatible controllers/driver
Nil	Step motor (Servo/24 VDC)	LECP6 LECP1 LECPA
A	Servo motor* (24 VDC)	LECA6

* LES25DA is not available.

⚠ Caution

[CE-compliant products]

① EMC compliance was tested by combining the electric actuator LES 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 Lead [mm]

Symbol	LES8	LES16	LES25
J	8	10	16
K	4	5	8

5 Stroke [mm]

Stroke	30	50	75	100	125	150
Model						
LES8	●*	●*	●	—	—	—
LES16	●*	●*	●	●	—	—
LES25	●*	●	●	●	●	●

* R/L type with lock is not available.

6 Motor option

Nil	Without option
B	With lock

7 Body option

Nil	Without option
S	Dustproof specification*

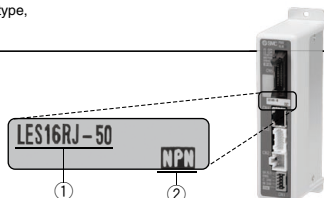
* For R/L type (IP5X equivalent), a scraper is mounted on the rod cover, and gaskets are mounted on both the end covers. For D type, a scraper is mounted on the rod cover.

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>



Basic type (R type)



Symmetrical type (L type)

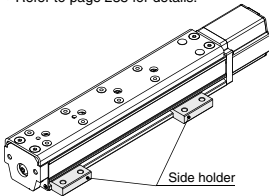


In-line motor type (D type)

8 Mounting*

Symbol	Mounting	R type L type	D type
Nil	Without side holder	●	●
H	With side holder (4 pcs.)	—	●

* Refer to page 238 for details.



9 Actuator cable type*1

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

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

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

10 Actuator cable length [m]

	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 3) on page 226.

11 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 Refer to page 367 for the detailed specifications of the controller/driver.

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

12 I/O cable length [m]*1

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

*1 When "Without 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.

13 Controller/Driver mounting

Nil	Screw mounting
D	DIN rail mounting*

* DIN rail is not included. Order it separately.
Refer to page 377 for details.

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 391	Page 398

Specifications

Step Motor (Servo/24 VDC)

Model		LES8□		LES16□		LES25□	
Actuator specifications	Stroke [mm]	30, 50, 75		30, 50, 75, 100		30, 50, 75, 100, 125, 150	
	Work load [kg] Note 1)	1		3		5	
		Horizontal	0.5	0.25	3	1.5	5
	Vertical						
	Pushing force 30 to 70 % [N] Note 2) 3)	6 to 15	4 to 10	23.5 to 55	15 to 35	77 to 180	43 to 100
	Speed [mm/s] Note 1) 3)	10 to 200	20 to 400	10 to 200	20 to 400	10 to 200	20 to 400
	Pushing speed [mm/s]	10 to 20	20	10 to 20	20	10 to 20	20
	Max. acceleration/deceleration [mm/s ²]	5,000					
	Positioning repeatability [mm]	±0.05					
	Screw lead [mm]	4	8	5	10	8	16
Impact/Vibration resistance [m/s ²] Note 4)	50/20						
Actuation type	Slide screw + Belt (R/L type), Slide screw (D type)						
Guide type	Linear guide (Circulating type)						
Operating temperature range [°C]	5 to 40						
Operating humidity range [%RH]	90 or less (No condensation)						
Electric specifications	Motor size	□20		□28		□42	
	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)	18		69		45	
	Standby power consumption when operating [W] Note 6)	7		15		13	
	Max. instantaneous power consumption [W] Note 7)	35		69		67	
	Type	Non-magnetizing lock					
	Holding force [N]	24	2.5	300	48	500	77
	Power consumption [W] Note 9)	4		3.6		5	
Lock unit specifications	Rated voltage [V]	24 VDC ±10%					

Note 1) Speed changes according to the work load. Check "Speed-Work Load Graph (Guide)" on page 217.

Note 2) Pushing force accuracy is ±20% (F.S.).

Note 3) The speed and force may change depending on the cable length, load and mounting conditions. Furthermore, if the cable length exceeds 5 m, then it will decrease by up to 10% for each 5 m. (At 15 m: Reduced by up to 20%)

Note 4) 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.)

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.)

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. Except during the pushing 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		LES8□A		LES16□A		LES25 ^R A Note 1)	
Actuator specifications	Stroke [mm]	30, 50, 75		30, 50, 75, 100		30, 50, 75, 100, 125, 150	
	Work load [kg]	1		3		5	
		Horizontal		3		5	
	Pushing force 50 to 100% [N] Note 2)	1		3		5	
		Vertical		1.5		2	
	Speed [mm/s]	10 to 200		10 to 200		10 to 200	
	Pushing speed [mm/s]	10 to 20		10 to 20		10 to 20	
	Max. acceleration/deceleration [mm/s ²]			5,000			
	Positioning repeatability [mm]			±0.05			
	Screw lead [mm]	4		5		8	
Electric specifications	Impact/Vibration resistance [m/s ²] Note 3)			50/20			
	Actuation type			Slide screw + Belt (R/L type), Slide screw (D type)			
	Guide type			Linear guide (Circulating type)			
	Operating temperature range [°C]			5 to 40			
	Operating humidity range [%RH]			90 or less (No condensation)			
	Motor size	□20		□28		□42	
	Motor output [W]	10		30		36	
	Motor type			Servo motor (24 VDC)			
	Encoder (Angular displacement sensor)			Incremental A/B/Z phase (800 pulse/rotation)			
	Rated voltage [V]			24 VDC ±10%			
Lock unit specifications	Power consumption [W] Note 4)	42		68		97	
	Standby power consumption when operating [W] Note 5)	8 (Horizontal)/19 (Vertical)		9 (Horizontal)/23 (Vertical)		16 (Horizontal)/32 (Vertical)	
	Max. instantaneous power consumption [W] Note 6)	71		102		111	
	Type			Non-magnetizing lock			
	Holding force [N]						
	Power consumption [W] Note 8)						
	Rated voltage [V]						

Note 1) LES25DA is not available.

Note 2) The pushing force values for LES8□A is 50 to 75%. Pushing force accuracy is ±20% (F.S.).

Note 3) 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.)

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.)

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. Except during the pushing 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

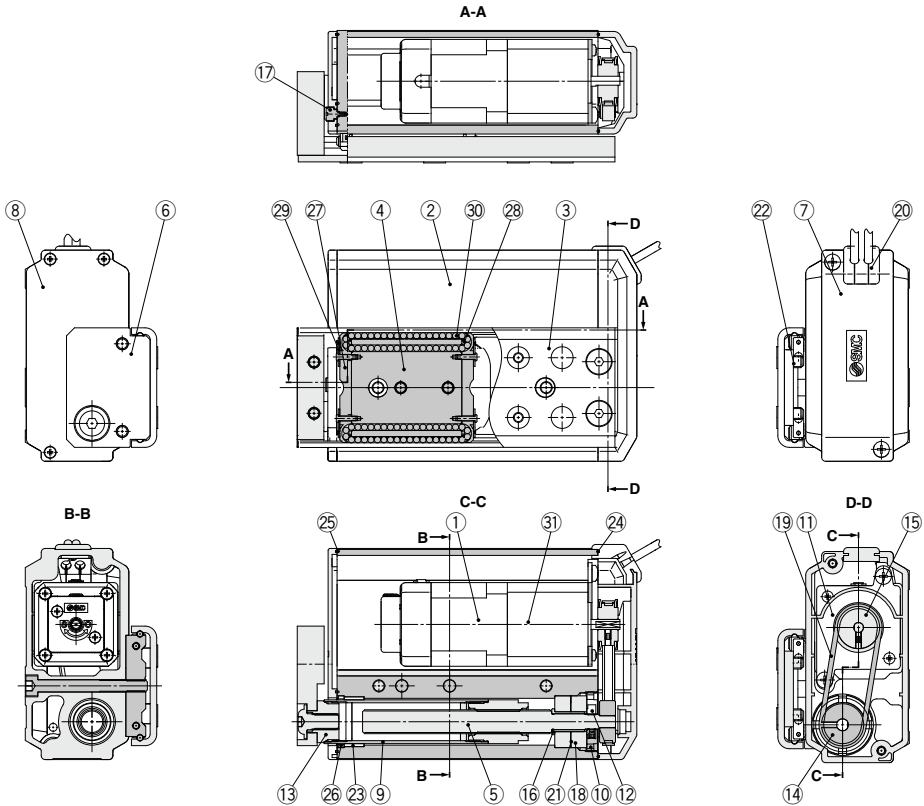
Note 8) For an actuator with lock, add the power consumption for the lock.

Weight

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

		Without lock						With lock						[kg]
Stroke [mm]		30	50	75	100	125	150	30	50	75	100	125	150	
Model	LES8 ^R (A)	0.45	0.54	0.59	—	—	—	—	—	0.66	—	—	—	
	LES16 ^R (A)	0.91	1.00	1.16	1.24	—	—	—	—	1.29	1.37	—	—	
	LES25 ^R (A)	1.81	2.07	2.41	3.21	3.44	3.68	—	2.34	2.68	3.48	3.71	3.95	
	LES8D(A)	0.40	0.52	0.58	—	—	—	0.47	0.59	0.65	—	—	—	
	LES16D(A)	0.77	0.90	1.11	1.20	—	—	0.90	1.03	1.25	1.33	—	—	
	LES25D	1.82	2.05	2.35	3.07	3.27	3.47	2.08	2.31	2.61	3.33	3.53	3.74	

Construction: Basic Type/R Type, Symmetrical Type/L Type



Component Parts

No.	Description	Material	Note
1	Motor	—	—
2	Body	Aluminum alloy	Anodized
3	Table	Stainless steel	Heat treatment + Electroless nickel plated
4	Guide block	Stainless steel	Heat treatment
5	Lead screw	Stainless steel	Heat treatment + Specially treated
6	End plate	Aluminum alloy	Anodized
7	Pulley cover	Synthetic resin	—
8	End cover	Synthetic resin	—
9	Rod	Stainless steel	—
10	Bearing stopper	Structural steel Brass	Electroless nickel plated Electroless nickel plated (LES25R/L□ only)
11	Motor plate	Structural steel	—
12	Lock nut	Structural steel	Chromate treated
13	Socket	Structural steel	Electroless nickel plated
14	Lead screw pulley	Aluminum alloy	—
15	Motor pulley	Aluminum alloy	—
16	Spacer	Stainless steel	LES25R/L□ only
17	Origin stopper	Structural steel	Electroless nickel plated
18	Bearing	—	—
19	Belt	—	—

No.	Description	Material	Note
20	Grommet	Synthetic resin	—
21	Sim ring	Structural steel	—
22	Stopper	Structural steel	—
23	Bushing	—	Dustproof specification only
24	Pulley gasket	NBR	Dustproof specification only
25	End gasket	NBR	Dustproof specification only
26	Scraper	NBR	Dustproof specification only
27	Cover	Synthetic resin	—
28	Return guide	Synthetic resin	—
29	Cover support	Stainless steel	—
30	Steel ball	Special steel	—
31	Lock	—	With lock only

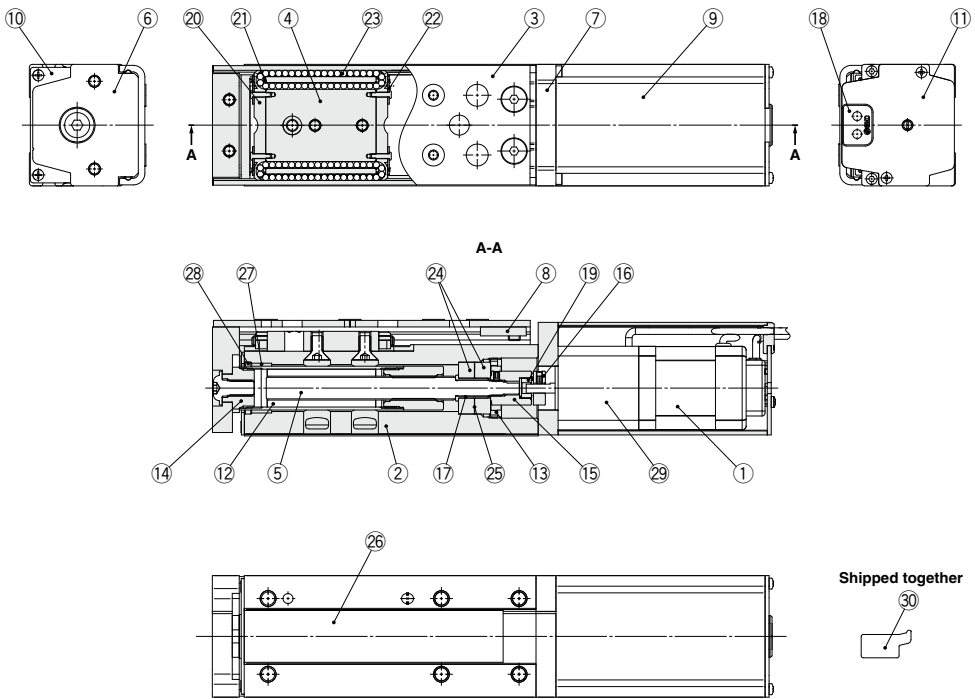
Replacement Parts/Belt

Size	Order no.
LES8 ^R	LE-D-1-1
LES16 ^R	LE-D-1-2
LES25 ^R	LE-D-1-3
LES25 ^R A	LE-D-1-4

Replacement Parts/Grease Pack

Applied portion	Order no.
Guide unit	GR-S-010 (10 g) GR-S-020 (20 g)

Construction: In-line Motor Type/D Type



Component Parts

No.	Description	Material	Note
1	Motor	—	—
2	Body	Aluminum alloy	Anodized
3	Table	Stainless steel	Heat treatment + Electroless nickel plated
4	Guide block	Stainless steel	Heat treatment
5	Lead screw	Stainless steel	Heat treatment + Specially treated
6	End plate	Aluminum alloy	Anodized
7	Motor flange	Aluminum alloy	Anodized
8	Stopper	Structural steel	—
9	Motor cover	Aluminum alloy	Anodized
10	End cover	Aluminum alloy	Anodized
11	Motor end cover	Aluminum alloy	Anodized
12	Rod	Stainless steel	—
13	Bearing stopper	Structural steel	Electroless nickel plated
		Brass	Electroless nickel plated (LES25D□ only)
14	Socket	Structural steel	Electroless nickel plated
15	Hub (Lead screw side)	Aluminum alloy	—
16	Hub (Motor side)	Aluminum alloy	—
17	Spacer	Stainless steel	LES25D□ only
18	Grommet	NBR	—
19	Spider	NBR	—
20	Cover	Synthetic resin	—

No.	Description	Material	Note
21	Return guide	Synthetic resin	—
22	Cover support	Stainless steel	—
23	Steel ball	Special steel	—
24	Bearing	—	—
25	Sim ring	Structural steel	—
26	Masking tape	—	—
27	Bushing	—	Dustproof specification only
28	Scraper	NBR	Dustproof specification only
29	Lock	—	With lock only
30	Side holder	Aluminum alloy	Anodized

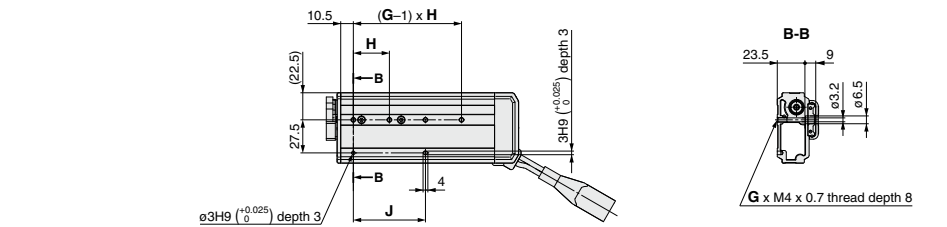
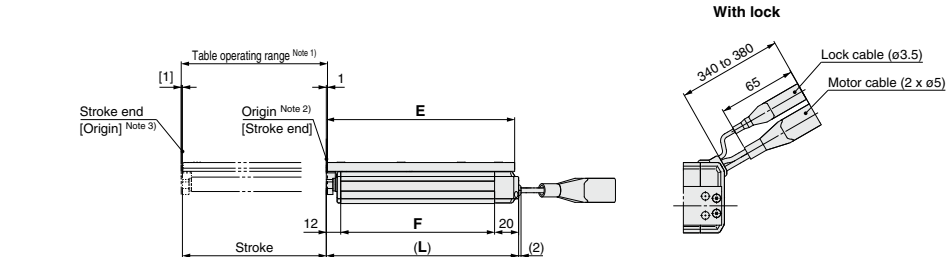
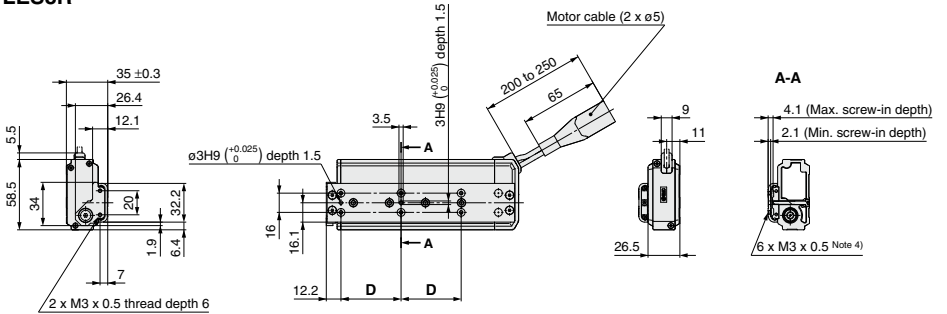
Optional Parts/Side Holder

Model	Order no.
LES8D	LE-D-3-1
LES16D	LE-D-3-2
LES25D	LE-D-3-3

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

Dimensions: **Basic Type/R Type**

LES8R



Note 1) Range within which the table can move when it returns to origin.
Make sure a workpiece mounted on the table does not interfere with the workpieces and facilities around the table.

Note 2) Position after return to origin.

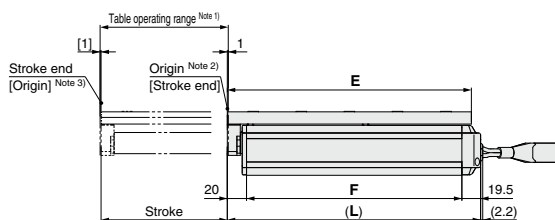
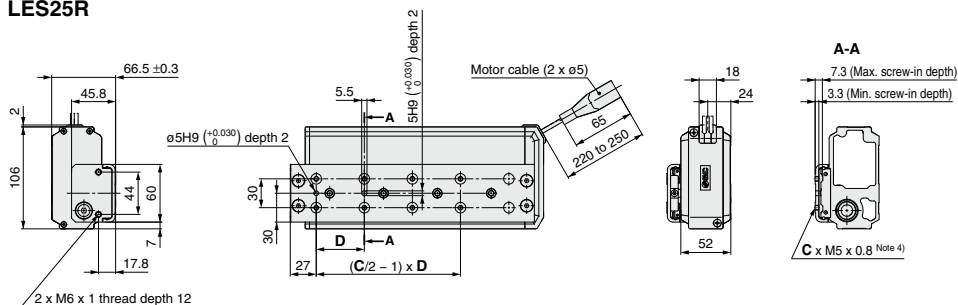
Note 3) The number in brackets indicates when the direction of return to origin has changed.

Note 4) If workpiece fixing bolts are too long, they can touch the guide block and cause a malfunction, etc.
Use bolts that are between the maximum and minimum screw-in depths in length.

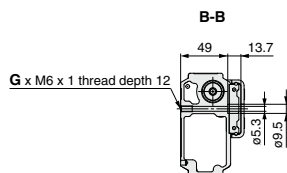
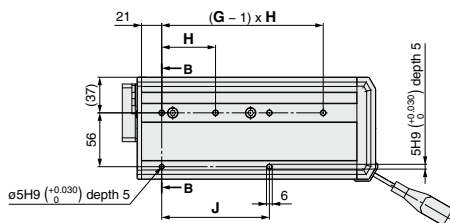
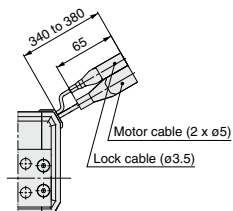
Connector		
	Step motor	Servo motor
Motor cable	 20 20	 24 24
Lock cable	 15 20	 15 20

Dimensions (mm)							
Model	L	D	E	F	G	H	J
LES8R□□-30□□-□□□□□□	94.5	26	88.7	62.5	2	27	27
LES8R□□-50□□-□□□□□□	137.5	46	131.7	105.5	3	29	58
LES8R□□-75□□-□□□□□□	162.5	50	156.7	130.5	4	30	60

Dimensions: Basic Type/R Type

LES25R

With lock



Note 1) Range within which the table can move when it returns to origin.

Make sure a workpiece mounted on the table does not interfere with the workpieces and facilities around the table.

Note 2) Position after return to origin.

Note 3) The number in brackets indicates when the direction of return to origin has changed.

Note 4) If workpiece fixing bolts are too long, they can touch the guide block and cause a malfunction, etc.
Use bolts that are between the maximum and minimum screw-in depths in length.

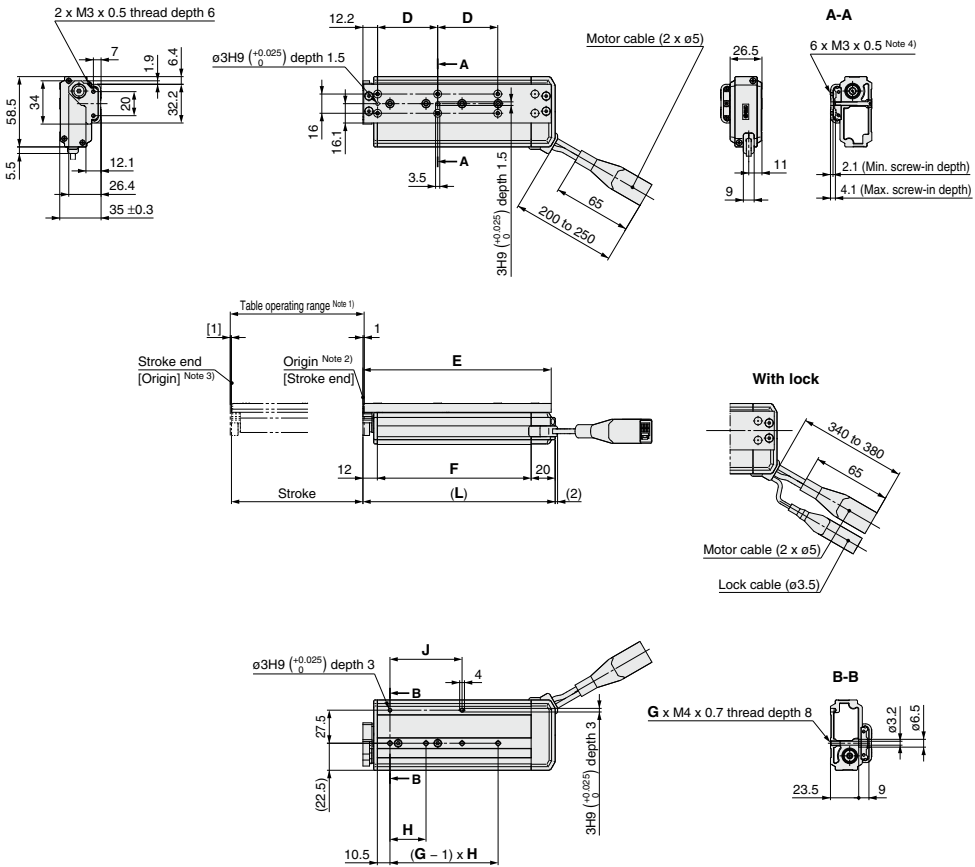
	Connector	
	Step motor	Servo motor
Motor cable		
Lock cable		

Dimensions

Dimensions								(mm)
Model	L	C	D	E	F	G	H	J
LES25R□□-30□□-□□□□	144.5	4	48	133.5	105	2	46	46
LES25R□□-50□□-□□□□	170.5	6	42	159.5	131	2	84	84
LES25R□□-75□□-□□□□	204.5	6	55	193.5	165	2	112	112
LES25R□□-100□□-□□□□	277.5	8	50	266.5	238	4	56	112
LES25R□□-125□□-□□□□	302.5	8	55	291.5	263	4	59	118
LES25R□□-150□□-□□□□	327.5	8	62	316.5	288	4	62	124

Dimensions: Symmetrical Type/L Type

LES8L



Note 1) Range within which the table can move when it returns to origin.
Make sure a workpiece mounted on the table does not interfere with the workpieces and facilities around the table.

Note 2) Position after return to origin.

Note 3) The number in brackets indicates when the direction of return to origin has changed.

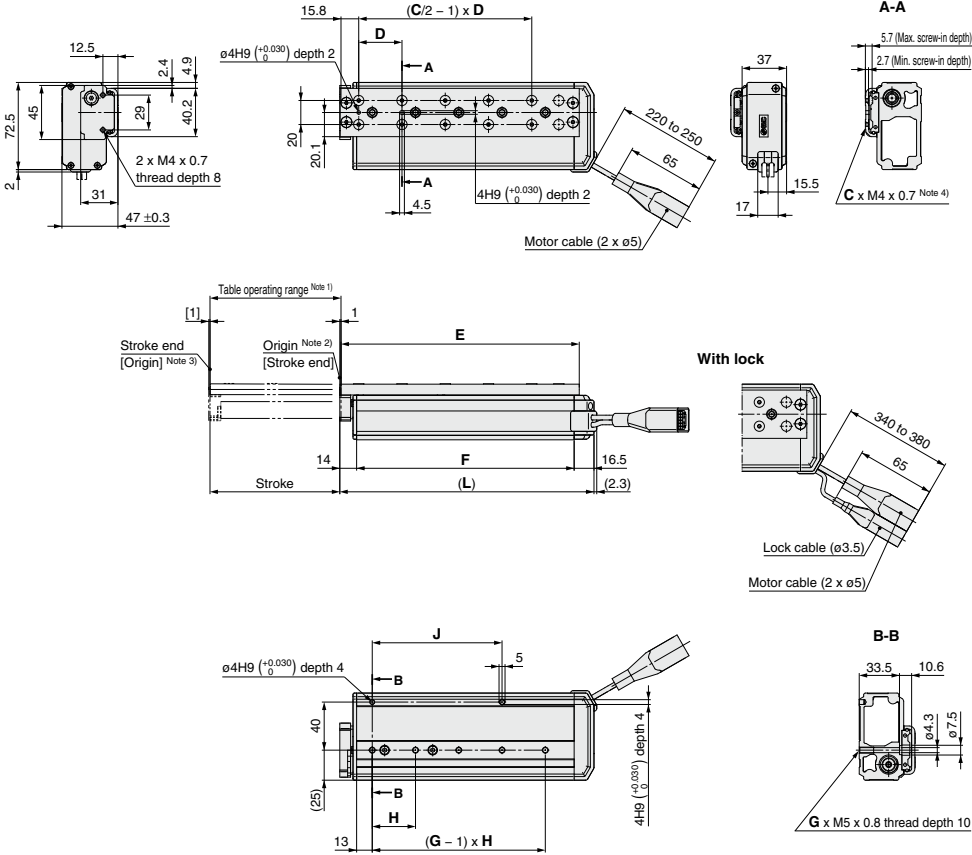
Note 4) If workpiece fixing bolts are too long, they can touch the guide block and cause a malfunction, etc.
Use bolts that are between the maximum and minimum screw-in depths in length.

Connector	
Motor cable	
Lock cable	

Dimensions		(mm)						
Model	L	D	E	F	G	H	J	
LES8L□□-30□□-□□□□□□	94.5	26	88.7	62.5	2	27	27	
LES8L□□-50□□-□□□□□□	137.5	46	131.7	105.5	3	29	58	
LES8L□□-75□□-□□□□□□	162.5	50	156.7	130.5	4	30	60	

Dimensions: **Symmetrical Type/L Type**

LES16L

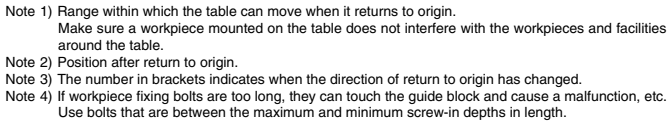


- Note 1) Range within which the table can move when it returns to origin.
Make sure a workpiece mounted on the table does not interfere with the workpieces and facilities around the table.
- Note 2) Position after return to origin.
- Note 3) The number in brackets indicates when the direction of return to origin has changed.
- Note 4) If workpiece fixing bolts are too long, they can touch the guide block and cause a malfunction, etc.
Use bolts that are between the maximum and minimum screw-in depths in length.

Connector		
	Step motor	Servo motor
Motor cable		
Lock cable		

Dimensions (mm)								
Model	L	C	D	E	F	G	H	J
LES16L□-30□-□□□□	108.5	4	38	102.3	78	2	40	40
LES16L□-50□-□□□□	136.5	6	34	130.3	106	2	78	78
LES16L□-75□-□□□□	180.5	8	36	174.3	150	4	36	72
LES16L□-100□-□□□□	205.5	10	36	199.3	175	5	36	108

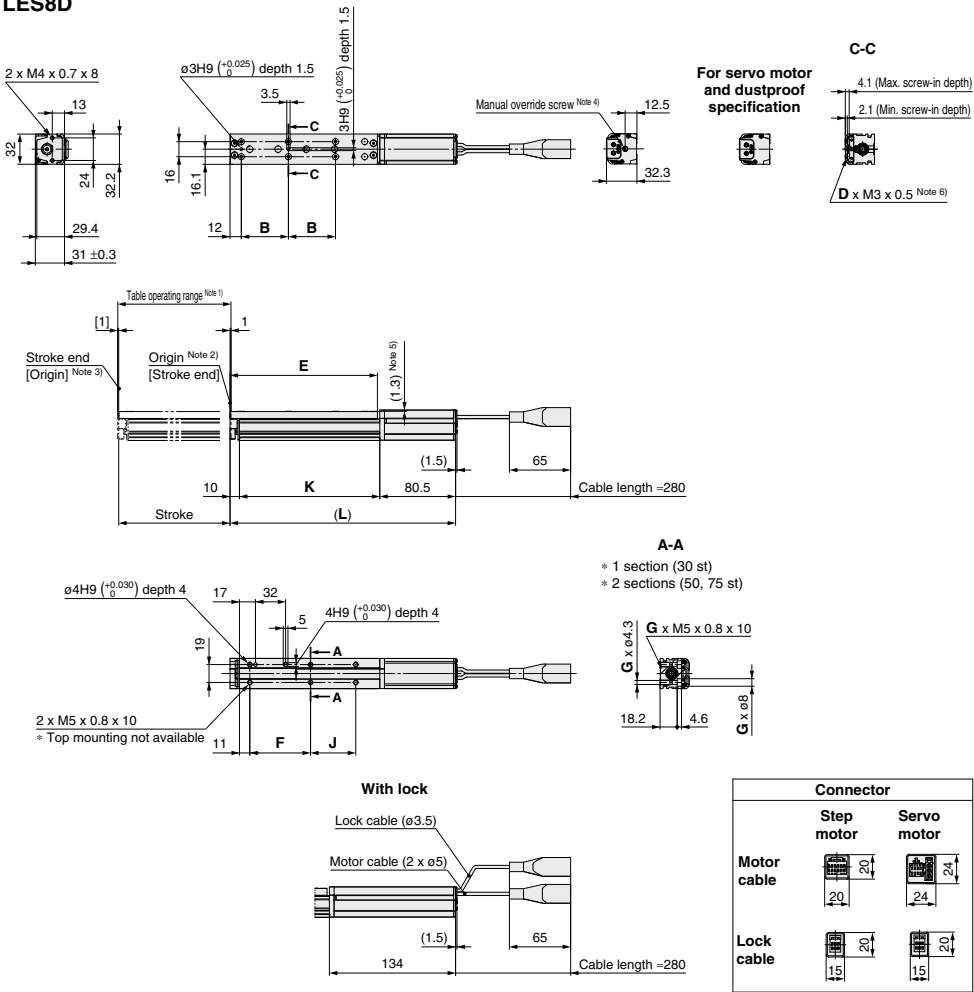
LES25L



Dimensions								(mm)
Model	L	C	D	E	F	G	H	J
LES25□□-30□□-□□□□	144.5	4	48	133.5	105	2	46	46
LES25□□-50□□-□□□□	170.5	6	42	159.5	131	2	84	84
LES25□□-75□□-□□□□	204.5	6	55	193.5	165	2	112	112
LES25□□-100□□-□□□□	277.5	8	50	266.5	238	4	56	112
LES25□□-125□□-□□□□	302.5	8	55	291.5	263	4	59	118
LES25□□-150□□-□□□□	327.5	8	62	316.5	288	4	62	124

Dimensions: In-line Motor Type/D Type

LES8D

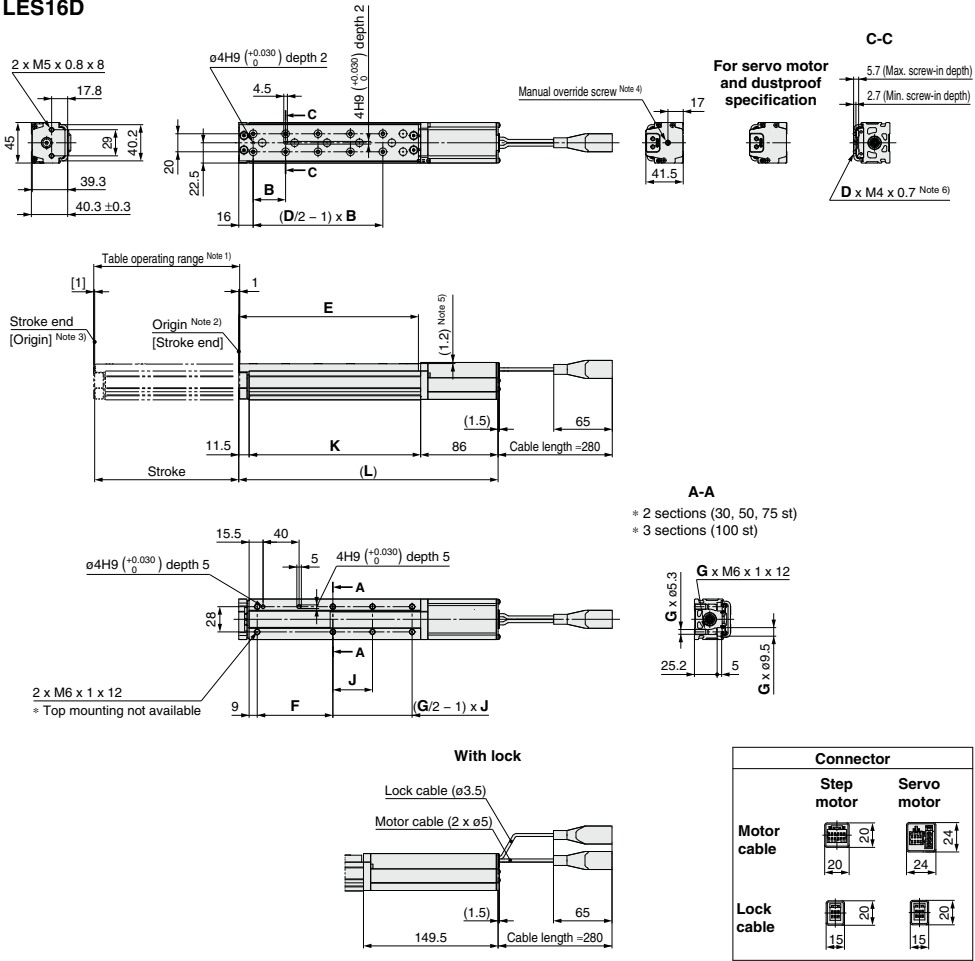


Note 1) Range within which the table can move when it returns to origin.
Note 2) Position after return to origin.
Note 3) The number in brackets indicates when the direction of return to origin has changed.
Note 4) The distance between the motor end cover and the manual override screw is up to 16 mm. The motor end cover hole size is ø5.5.
Note 5) The table is lower than the motor cover. Make sure it does not interfere with the workpiece.
Note 6) If workpiece fixing bolts are too long, they can touch the guide block and cause a malfunction, etc.
Use bolts that are between the maximum and minimum screw-in depths in length.

Dimensions		(mm)						
Model	(L)	B	D	E	F	G	J	K
LES8D□□-30□□-□□□□□□	171.5	26	6	88.5	44.5	2	—	81
LES8D□□-30B□□-□□□□□□	225							
LES8D□□-50□□-□□□□□□	214.5	46	6	131.5	64.5	4	23	124
LES8D□□-50B□□-□□□□□□	268							
LES8D□□-75□□-□□□□□□	239.5	50	6	156.5	64.5	4	48	149
LES8D□□-75B□□-□□□□□□	293							

Dimensions: In-line Motor Type/D Type

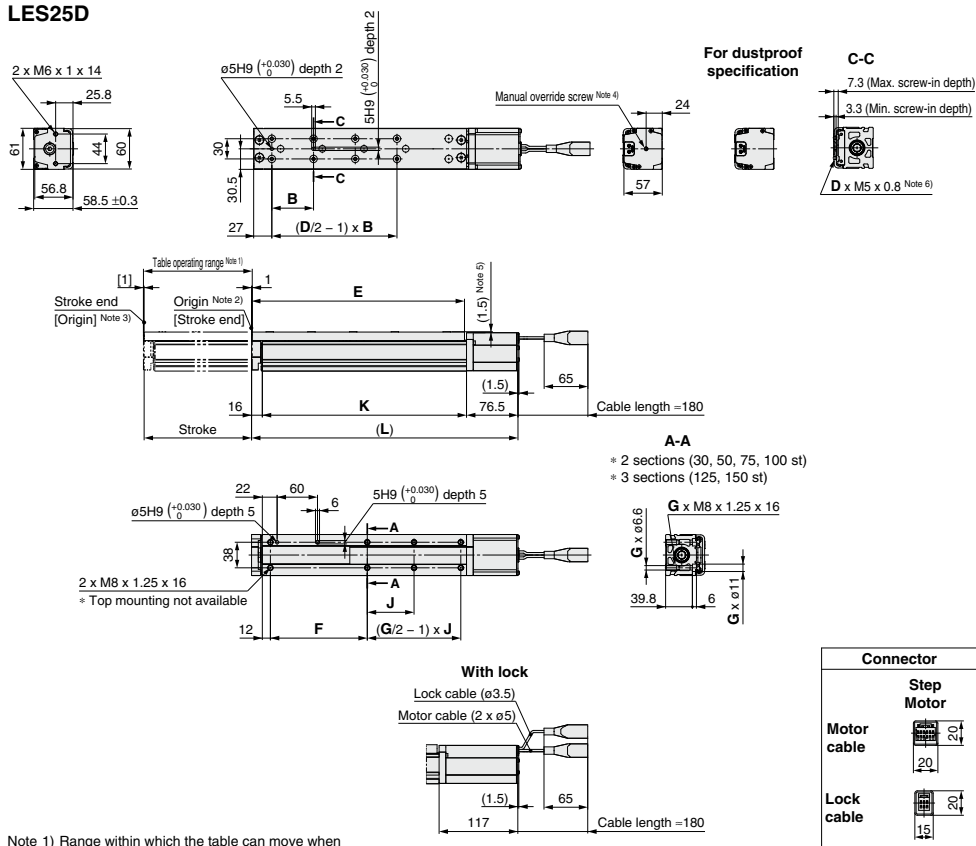
LES16D



Dimensions

Model	(L)	B	D	E	F	G	J	K
LES16D□-30□□-□□□□	193	38	4	102.5	56.5	4	18.5	95.5
LES16D□-30B□□-□□□□	256.5							
LES16D□-50□□-□□□□	221	34	6	130.5	65	4	38	123.5
LES16D□-50B□□-□□□□	284.5							
LES16D□-75□□-□□□□	265	36	8	174.5	84	4	63	167.5
LES16D□-75B□□-□□□□	328.5							
LES16D□-100□□-□□□□	290	36	10	199.5	84	6	44	192.5
LES16D□-100B□□-□□□□	353.5							

Dimensions: In-line Motor Type/D Type

LES25D

Note 1) Range within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the workpieces and facilities around the table.

Note 2) Position after return to origin.

Note 3) The number in brackets indicates when the direction of return to origin has changed.

Note 4) The distance between the motor end cover and the manual override screw is up to 4 mm.
The motor end cover hole size is $\varnothing 5.5$.

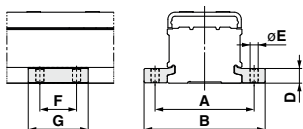
Note 5) The table is lower than the motor cover.

Note 6) If workpiece fixing bolts are too long, they can touch the guide block and cause a malfunction, etc. Use bolts that are between the maximum and minimum screw-in depths in length.

Dimensions

Model	(L)	B	D	E	F	G	J	K
LES25D□-30□-□□□□□	214	48	4	133.5	81	4	19	121.5
LES25D□-30B□-□□□□□	254.5							
LES25D□-50□-□□□□□	240							
LES25D□-50B□-□□□□□	280.5	42	6	159.5	87	4	39	147.5
LES25D□-75□-□□□□□	274							
LES25D□-75B□-□□□□□	314.5							
LES25D□-100□-□□□□□	347	50	8	266.5	144	4	89	254.5
LES25D□-100B□-□□□□□	387.5							
LES25D□-125□-□□□□□	372							
LES25D□-125B□-□□□□□	412.5	55	8	291.5	144	6	57	279.5
LES25D□-150□-□□□□□	397							
LES25D□-150B□-□□□□□	437.5							

Side Holder



Part no. (Note)	A	B	D	E	F	G	Applicable model
LE-D-3-1	45	57.6	6.7	4.5	20	33	LES8D
LE-D-3-2	60	74	8.3	5.5	25	40	LES16D
LE-D-3-3	81	99	12	6.6	30	49	LES25D

Note) Model numbers for 1 side holder.

LAT3	LECS□	LECPA	LECP1	LEC-G	LECA6 LECP6	LEH	LER	LEPY LEPS	LES LESH	LEY LEYG	LEL	LEJ	LEF
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Electric Slide Table/High Rigidity Type Series **LESH** Model Selection 1

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)



Selection Procedure For the compact type LES series, refer to page 216.

Step 1 Check the work load-speed.

Step 2 Check the cycle time.

Step 3 Check the allowable moment.

Selection Example

Step 1 Check the work load-speed. <Speed-Work load graph> (Page 241)

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

Selection example) The **LESH16□J-50** is temporarily selected based on the graph shown on the right side.

Step 2 Check the cycle time.

It is possible to obtain an approximate cycle time by using method 1, but if a more detailed cycle time is required, use method 2.

* Although it is possible to make a suitable selection by using method 1, this calculation is based on a maximum load condition. Therefore, if a more detailed selection for each load is required, use method 2.

Method 1: Check the cycle time graph. (Page 242)

Method 2: Calculation <Speed-Work load graph> (Page 241)

Calculate the cycle time using the following calculation method.

Calculation example)

T1 to T4 can be calculated as follows.

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.

$$T4 = 0.15 \text{ [s]}$$

$$T1 = V/a1 = 220/5000 = 0.04 \text{ [s]}$$

$$T3 = V/a2 = 220/5000 = 0.04 \text{ [s]}$$

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} = \frac{50 - 0.5 \cdot 220 \cdot (0.04 + 0.04)}{220} = 0.19 \text{ [s]}$$

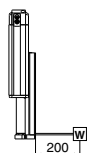
$$T4 = 0.15 \text{ [s]}$$

Therefore, the cycle time can be obtained as follows.

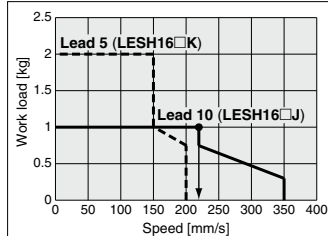
$$T = T1 + T2 + T3 + T4 = 0.04 + 0.19 + 0.04 + 0.15 = 0.42 \text{ [s]}$$

Operating conditions

- Workpiece mass: 1 [kg]
- Workpiece mounting condition:
- Speed: 220 [mm/s]
- Mounting orientation: Vertical
- Stroke: 50 [mm]
- Acceleration/Deceleration: 5,000 [mm/s²]
- Cycle time: 0.5 seconds

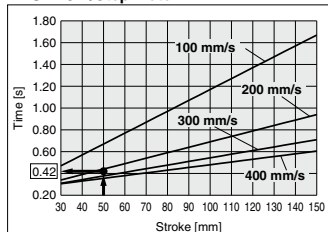


LESH16□/Step Motor Vertical



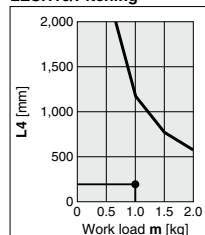
<Speed-Work load graph>

LESH16□/Step Motor



<Cycle time>

LESH16/Pitching

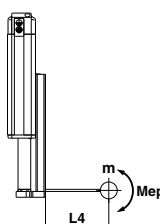


<Dynamic allowable moment>

Step 3 Check the allowable moment. <Static allowable moment> (Page 242)

<Dynamic allowable moment> (Page 243)

Confirm the moment that applies to the actuator is within the allowable range for both static and dynamic conditions.



Based on the above calculation result, the **LESH16□J-50** is selected.

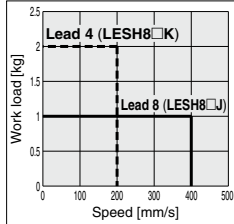
Speed-Work Load Graph (Guide)

Step Motor (Servo/24 VDC)

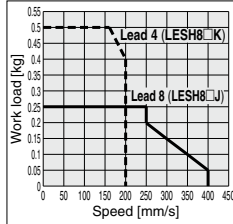
* The following graph shows the values when moving force is 100%.

LESH8□

Horizontal

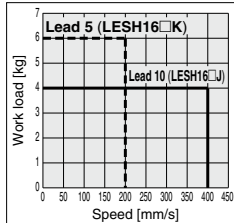


Vertical

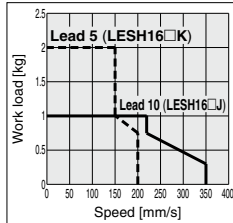


LESH16□

Horizontal

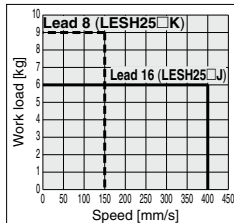


Vertical

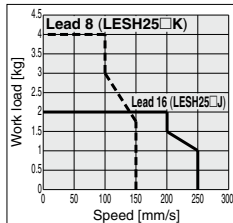


LESH25□

Horizontal



Vertical

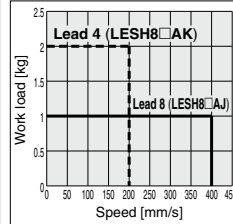


Servo Motor (24 VDC)

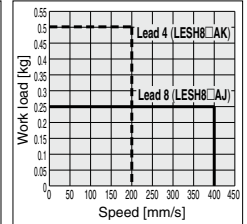
* The following graph shows the values when moving force is 250%.

LESH8□A

Horizontal

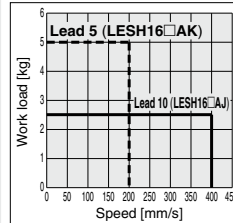


Vertical

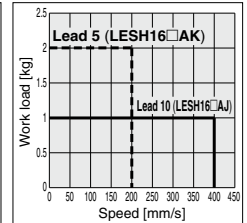


LESH16□A

Horizontal

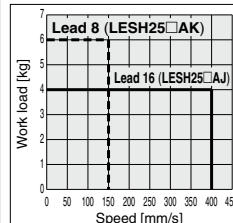


Vertical

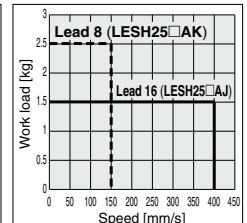


LESH25^RLA

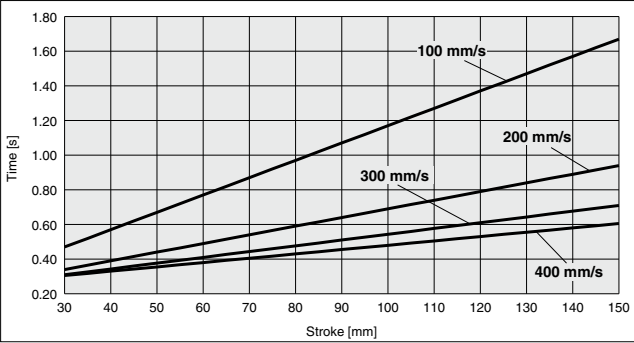
Horizontal



Vertical



Cycle Time (Guide)



Operating Conditions

Acceleration/Deceleration: 5,000 mm/s²
In position: 0.5

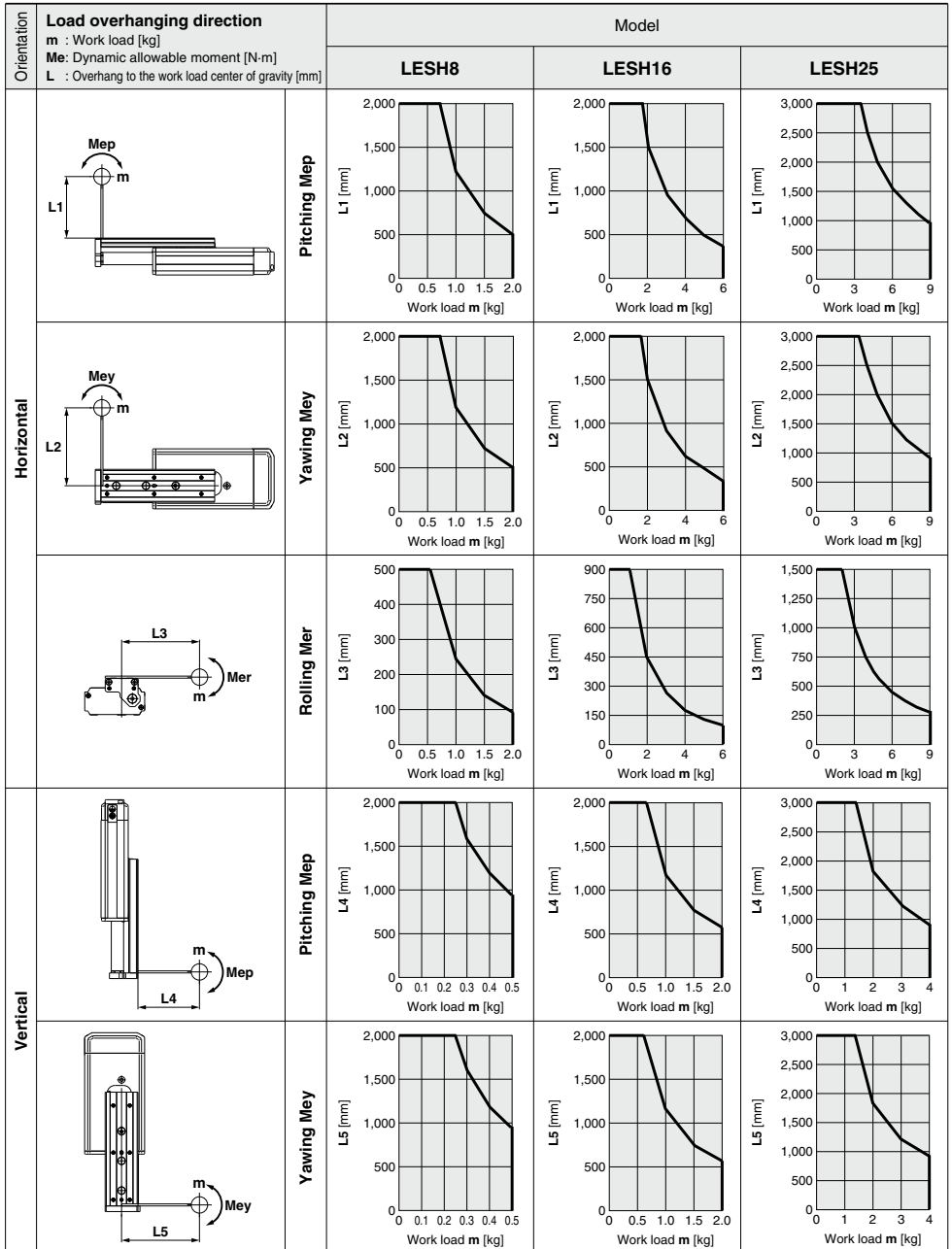
Static Allowable Moment

Model		LESH8		LESH16		LESH25		
Stroke	[mm]	50	75	50	100	50	100	150
Pitching	[N·m]	11		26	43	77	112	155
Yawing	[N·m]	11						
Rolling	[N·m]	12		48		146	177	152

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 — 5,000 mm/s²



LEF

LEJ

LEL

LEY
LEYG

LES
LESH

LEPY
LEPS

LER

LEH

LECA6
LECP6

LEC-G

LECP1

LECPA

LECS

LAT3

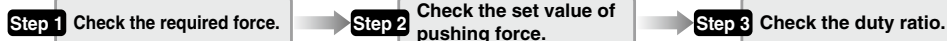
Electric Slide Table/High Rigidity Type Series **LESH** Model Selection 2

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)



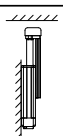
Selection Procedure For the compact type LES series, refer to page 220.



Selection Example

Operating conditions

- Pushing force: 90 [N]
- Workpiece mass: 1 [kg]
- Speed: 100 [mm/s]
- Stroke: 100 [mm]
- Mounting orientation: Vertical upward
- Pushing time + Operation (A): 1.5 seconds
- All cycle time (B): 6 seconds



Step 1 Check the required force.

Calculate the approximate required force for pushing operation.
Selection example) • Pushing force: 90 [N]

- Workpiece mass: 1 [kg]
Therefore, the approximate required force can be obtained as $90 + 10 = 100$ [N].

Select the target model based on the approximate required force with reference to the specifications (Pages 250 and 251).

Selection example) Based on the specifications,

- Approximate required force: 100 [N]
- Speed: 100 [mm/s]
Therefore, the **LESH25□** is temporarily selected.

Then, calculate the required force for pushing operation.

If the mounting position is vertical upward, add the actuator table weight.

Selection example) Based on the <Table weight>.

- **LESH25□** table weight: 1.3 [kg]
Therefore, the required force can be obtained as $100 + 13 = 113$ [N].

Step 2 Check the set value of pushing force.

<Set value of pushing force–Force graph> (Page 245)

Select the target model based on the required force with reference to the <Set value of pushing force–Force graph>, and confirm the set value of pushing force.

Selection example) Based on the graph shown on the right side,

- Required force: 113 [N]
Therefore, the **LESH25□K** is temporarily selected.
This set value of pushing force is 40 [%].

Step 3 Check the duty ratio.

Confirm the allowable duty ratio based on the set value of pushing force with reference to the <Allowable duty ratio>.

Selection example) Based on the <Allowable duty ratio>.

- Set value of pushing force: 40 [%]
Therefore, the allowable duty ratio can be obtained as 30 [%].

Calculate the duty ratio for operating conditions, and confirm it does not exceed the allowable duty ratio.

Selection example) • Pushing time + Operation (A): 1.5 seconds

- All cycle time (B): 6 seconds
Therefore, the duty ratio can be obtained as $1.5/6 \times 100 = 25$ [%], and this is the allowable range.

Based on the above calculation result, the **LESH25□K-100** is selected.

For allowable moment, the selection procedure is the same as the positioning control.

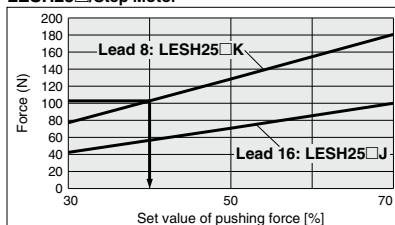
Table Weight

[kg]

Model	Stroke [mm]			
	50	75	100	150
LESH8	0.2	0.3	—	—
LESH16	0.4	—	0.7	—
LESH25	0.9	—	1.3	1.7

* If the mounting position is vertical upward, add the table weight.

LESH25□/Step Motor



<Set value of pushing force–Force graph>

Allowable Duty Ratio

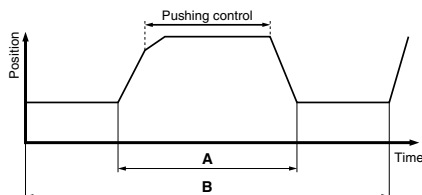
Step Motor (Servo/24 VDC)

Set value of pushing force (%)	Duty ratio (%)	Continuous pushing time (minute)
30	—	—
50 or less	30 or less	5 or less
70 or less	20 or less	3 or less

Servo Motor (24 VDC)

Set value of pushing force (%)	Duty ratio (%)	Continuous pushing time (minute)
50	—	—
75 or less	30 or less	5 or less
100 or less	20 or less	3 or less

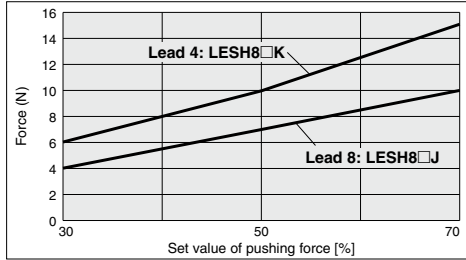
* The pushing force of the LESH8□A is up to 75%.



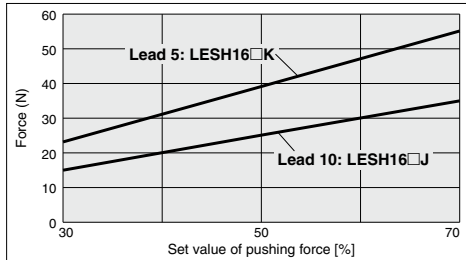
Set Value of Pushing Force–Force Graph

Step Motor (Servo/24 VDC)

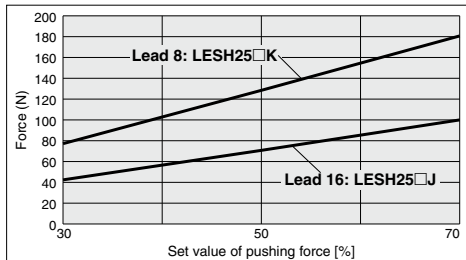
LESH8□



LESH16□

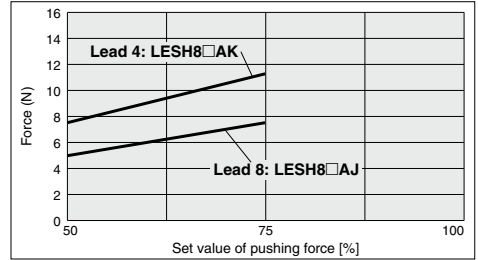


LESH25□

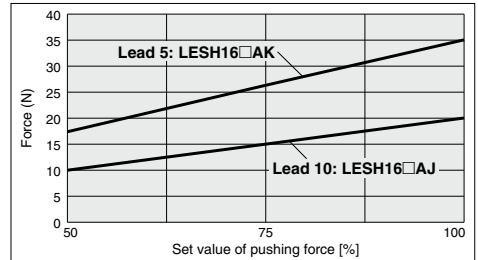


Servo Motor (24 VDC)

LESH8□A



LESH16□A



LESH25^R□A

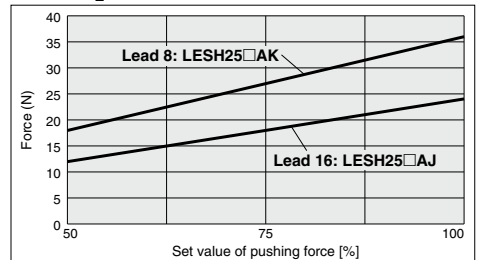
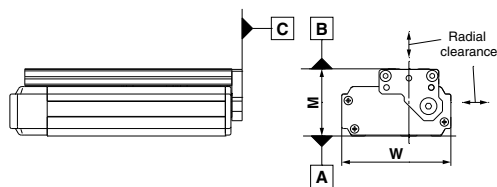


Table Accuracy

* These values are initial guideline values.

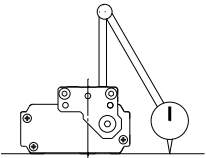
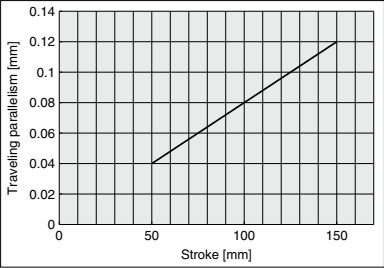


Model	LESH8	LESH16	LESH25
B side parallelism to A side [mm]	Refer to Table 1.		
B side traveling parallelism to A side [mm]	Refer to Graph 1.		
C side perpendicularity to A side [mm]	0.05	0.05	0.05
M dimension tolerance [mm]	±0.3		
W dimension tolerance [mm]	±0.2		
Radial clearance [μm]	-4 to 0	-10 to 0	-14 to 0

Table 1 B side parallelism to A side

Model	Stroke [mm]			
	50	75	100	150
LESH8	0.055	0.065	—	—
LESH16	0.05	—	0.08	—
LESH25	0.06	—	0.08	0.125

Graph 1 B side traveling parallelism to A side



Traveling parallelism:
The amount of deflection on a dial gauge when the table travels a full stroke with the body secured on a reference base surface

Table Deflection (Reference Value)

* These values are initial guideline values.

Table displacement due to pitch moment load
Table displacement when loads are applied to the section marked with the arrow with the slide table stuck out.



LESH8

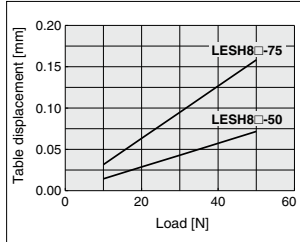
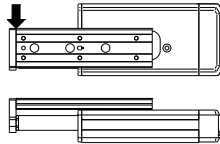


Table displacement due to yaw moment load
Table displacement when loads are applied to the section marked with the arrow with the slide table stuck out.



LESH8

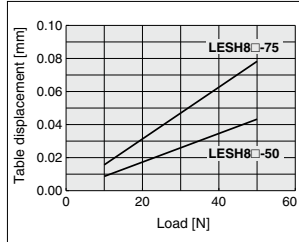
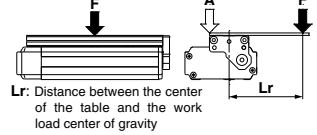
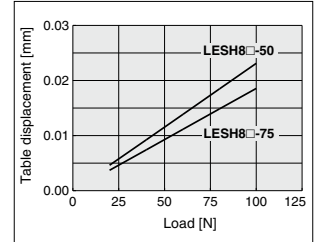


Table displacement due to roll moment load
Table displacement of section A when loads are applied to the section F with the slide table retracted.

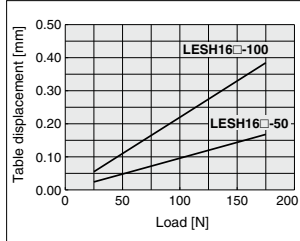


LESH8

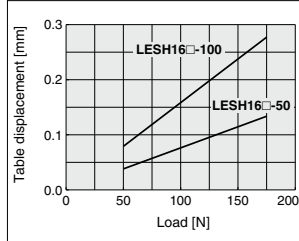
Lr = 70 mm



LESH16

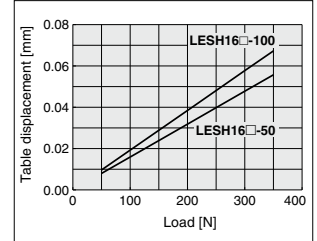


LESH16

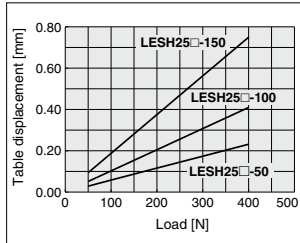


LESH16

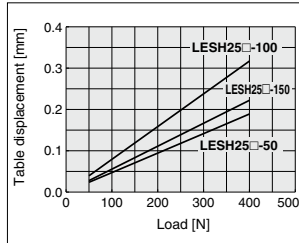
Lr = 120 mm



LESH25

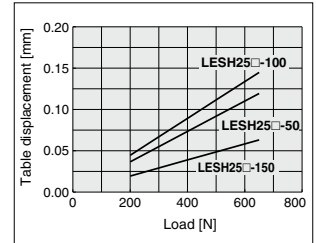


LESH25



LESH25

Lr = 200 mm



Electric Slide Table/High Rigidity Type

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

Series LESH



LESH8, 16, 25

RoHS

How to Order

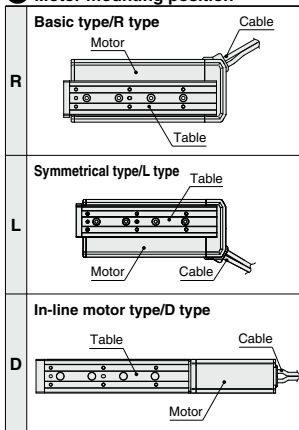
LESH **8** **R** **J** - **50** **□** **□** **□** - **S** **1** **6N** **1** **□**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬

① Size

8
16
25

② Motor mounting position



③ Motor type

Symbol	Type	Compatible controllers/driver
Nil	Step motor (Servo/24 VDC)	LECP6 LECP1 LECPA
A	Servo motor* (24 VDC)	LECA6

* LESH25DA is not available.

⚠ Caution

[CE-compliant products]

① EMC compliance was tested by combining the electric actuator LESH 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 Lead [mm]

Symbol	LESH8	LESH16	LESH25
J	8	10	16
K	4	5	8

⑤ Stroke [mm]

Model	Stroke 50	75	100	150
LESH8	●*	●	—	—
LESH16	●*	—	●	—
LESH25	●	—	●	●

* R/L type with lock is not available.

⑥ Motor option

Nil	Without option
B	With lock

⑦ Body option

Nil	Without option
S	Dustproof specification*

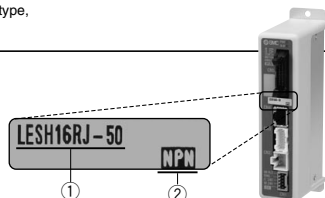
* For R/L type (IP5X equivalent), a scraper is mounted on the rod cover, and gaskets are mounted on both the end covers. For D type, a scraper is mounted on the rod cover.

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>

Electric Slide Table/High Rigidity Type *Series LESH*



Basic type (R type)



Symmetrical type (L type)

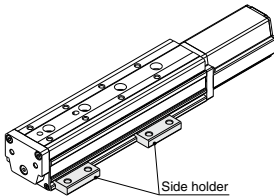


In-line motor type (D type)

8 Mounting*

Symbol	Mounting	R type L type	D type
NII	Without side holder	●	●
H	With side holder (4 pcs.)	—	●

* Refer to page 263 for details.



Side holder

9 Actuator cable type*

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

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

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

10 Actuator cable length [m]

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

* Produced upon receipt of order (Robotic cable only)
Refer to the specifications Note 3) on page 250.

11 Controller/Driver type*

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 Refer to page 367 for the detailed specifications of the controller/driver.

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

12 I/O cable length [m]*¹

Nil	Without cable
1	1.5
3	3* ²
5	5* ²

*¹ When "Without 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.

13 Controller/Driver mounting

Nil	Screw mounting
D	DIN rail mounting*

* DIN rail is not included. Order it separately.
Refer to page 377 for details.

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	
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 391	Page 398

Specifications

Step Motor (Servo/24 VDC)

Model		LESH8□		LESH16□		LESH25□				
Actuator specifications	Stroke [mm]	50, 75		50, 100		50, 100, 150				
	Work load [kg] Note 1) 3)	Horizontal		2	1	6	4	9	6	
		Vertical		0.5	0.25	2	1	4	2	
	Pushing force [N] 30% to 70% Note 2) 3)	6 to 15	4 to 10	23.5 to 55	15 to 35	77 to 180	43 to 100			
	Speed [mm/s] Note 1) 3)	10 to 200	20 to 400	10 to 200	20 to 400	10 to 150	20 to 400			
	Pushing speed [mm/s]	10 to 20	20	10 to 20	20	10 to 20	20			
	Max. acceleration/deceleration [mm/s ²]	5,000								
	Positioning repeatability [mm]	±0.05								
	Screw lead [mm]	4	8	5	10	8	16			
	Impact/Vibration resistance [m/s ²] Note 4)	50/20								
Actuation type	Slide screw + Belt (R/L type), Slide screw (D type)									
Guide type	Linear guide (Circulating type)									
Operating temperature range [°C]	5 to 40									
Operating humidity range [%RH]	90 or less (No condensation)									
Electric specifications	Motor size	□20		□28		□42				
	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)	20		43		67				
	Standby power consumption when operating [W] Note 6)	7		15		13				
	Max. instantaneous power consumption [W] Note 7)	35		60		74				
	Type	Non-magnetizing lock								
	Holding force [N]	24		2.5		300		48	500	77
	Power consumption [W] Note 9)	4				3.6		5		
Rated voltage [V]	24 VDC ±10%									

Note 1) Speed changes according to the work load. Check "Speed-Work Load Graph (Guide)" on page 241.

Note 2) Pushing force accuracy is ±20% (F.S.).

Note 3) The speed and force may change depending on the cable length, load and mounting conditions. Furthermore, if the cable length exceeds 5 m, then it will decrease by up to 10% for each 5 m. (At 15 m: Reduced by up to 20%)

Note 4) 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.)

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.)

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. Except during the pushing 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		LESH8□A		LESH16□A		LESH25□A Note 1)			
Actuator specifications	Stroke [mm]	50, 75		50, 100		50, 100, 150			
	Work load [kg]	Horizontal		2	1	5	2.5	6	4
		Vertical		0.5	0.25	2	1	2.5	1.5
	Pushing force 50 to 100% [N] Note 2)	7.5 to 11	5 to 7.5	17.5 to 35	10 to 20	18 to 36	12 to 24		
	Speed [mm/s]	10 to 200	20 to 400	10 to 200	20 to 400	10 to 150	20 to 400		
	Pushing speed [mm/s] Note 2)	10 to 20	20	10 to 20	20	10 to 20	20		
	Max. acceleration/deceleration [mm/s ²]	5,000							
	Positioning repeatability [mm]	±0.05							
	Screw lead [mm]	4	8	5	10	8	16		
	Impact/Vibration resistance [m/s ²]	Note 3) 50/20							
Actuation type	Slide screw + Belt (R/L type), Slide screw (D type)								
Guide type	Linear guide (Circulating type)								
Operating temperature range [°C]	5 to 40								
Operating humidity range [%RH]	90 or less (No condensation)								
Electric specifications	Motor size	□20		□28		□42			
	Motor output [W]	10		30		36			
	Motor type	Servo motor (24 VDC)							
	Encoder	Incremental A/B/Z phase (800 pulse/rotation)							
	Rated voltage [V]	24 VDC ±10%							
	Power consumption [W] Note 4)	58		84		144			
	Standby power consumption when operating [W] Note 5)	4 (Horizontal)/7 (Vertical)		2 (Horizontal)/15 (Vertical)		4 (Horizontal)/43 (Vertical)			
	Max. instantaneous power consumption [W] Note 6)	84		124		158			
	Type	Non-magnetizing lock							
	Holding force [N]	24	2.5	300	48	500	77		
Lock unit specifications	Power consumption [W] Note 8)	3.5		2.9		5			
	Rated voltage [V]	24 VDC ±10%							

Note 1) LESH25DA is not available.

Note 2) The pushing force values for LESH8□A is 50% to 75%. Pushing force accuracy is ±20% (F.S.).

Note 3) 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.)

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.)

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. Except during the pushing 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

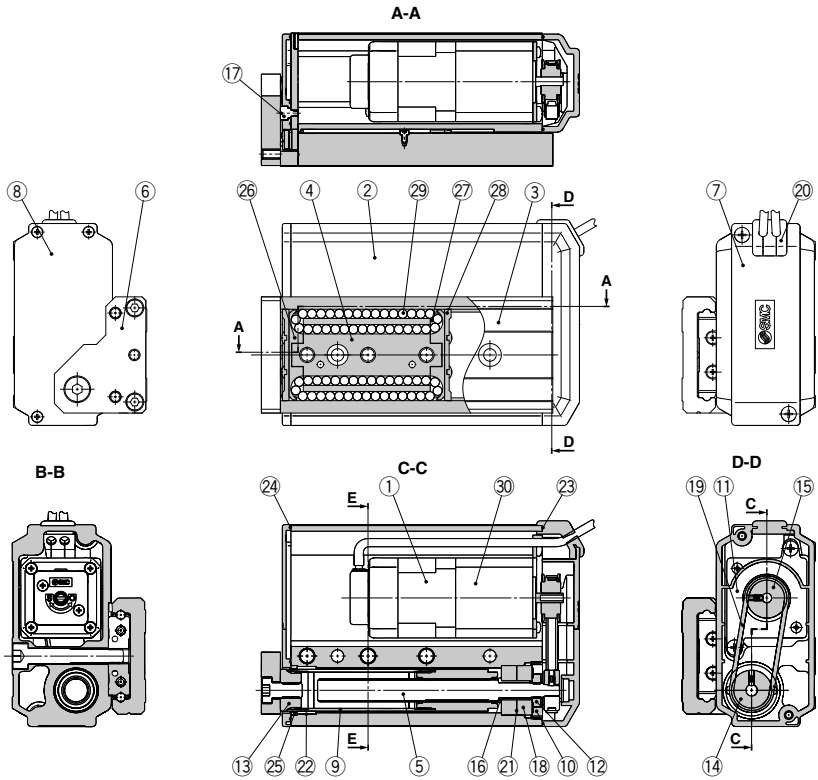
Note 8) For an actuator with lock, add the power consumption for the lock.

Weight

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

Model		Basic type/R type, Symmetrical type/L type						In-line motor type/D type					
		LESH8 ⁺ (A)		LESH16 ⁺ (A)		LESH25 ⁺ (A)		LESH8D(A)		LESH16D(A)		LESH25D	
Stroke [mm]		50	75	50	100	50	100	150	50	75	50	100	150
Product weight [kg]	Without lock	0.55	0.70	1.15	1.60	2.50	3.30	4.26	0.57	0.70	1.25	1.70	2.52
	With lock	—	0.76	—	1.71	2.84	3.64	4.60	0.63	0.76	1.36	1.81	2.86

Construction: Basic Type/R Type, Symmetrical Type/L Type



Component Parts

No.	Description	Material	Note
1	Motor	—	—
2	Body	Aluminum alloy	Anodized
3	Table	Stainless steel	Heat treatment + Electroless nickel plated
4	Guide block	Stainless steel	Heat treatment
5	Lead screw	Stainless steel	Heat treatment + Specially treated
6	End plate	Aluminum alloy	Anodized
7	Pulley cover	Synthetic resin	—
8	End cover	Synthetic resin	—
9	Rod	Stainless steel	—
10	Bearing stopper	Structural steel Brass	Electroless nickel plated Electroless nickel plated (LESH25R/L□ only)
11	Motor plate	Structural steel	—
12	Lock nut	Structural steel	Chromate treated
13	Socket	Structural steel	Electroless nickel plated
14	Lead screw pulley	Aluminum alloy	—
15	Motor pulley	Aluminum alloy	—
16	Spacer	Stainless steel	LESH25R/L□ only
17	Origin stopper	Structural steel	Electroless nickel plated
18	Bearing	—	—
19	Belt	—	—
20	Grommet	Synthetic resin	—
21	Sim ring	Structural steel	—

No.	Description	Material	Note
22	Bushing	—	Dustproof specification only
23	Pulley gasket	NBR	Dustproof specification only
24	End gasket	NBR	Dustproof specification only
25	Scraper	NBR	Dustproof specification only/Rod
26	Cover	Synthetic resin	—
27	Return guide	Synthetic resin	—
28	Scraper	Stainless steel + NBR	Linear guide
29	Steel ball	Special steel	—
30	Lock	—	With lock only

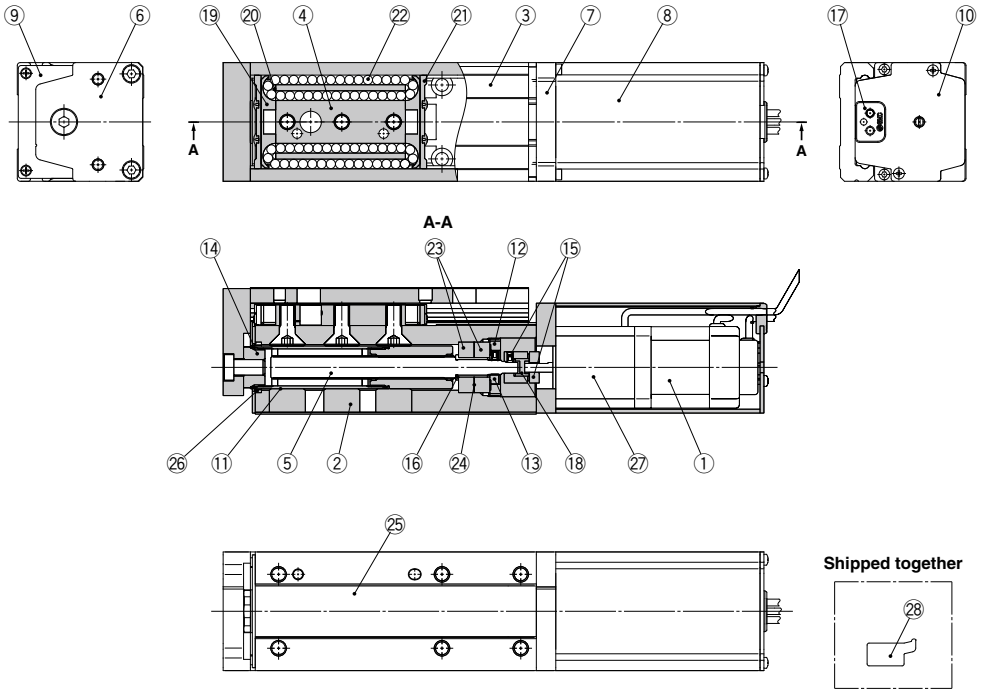
Replacement Parts/Belt

Model	Order no.
LESH8□	LE-D-1-1
LESH16□	LE-D-1-2
LESH25□	LE-D-1-3
LESH25□A	LE-D-1-4

Replacement Parts/Grease Pack

Applied portion	Order no.
Guide unit	GR-S-010 (10 g) GR-S-020 (20 g)

Construction: In-line Motor Type/D Type



Component Parts

No.	Description	Material	Note
1	Motor	—	—
2	Body	Aluminum alloy	Anodized
3	Table	Stainless steel	Heat treatment + Electroless nickel plated
4	Guide block	Stainless steel	Heat treatment
5	Lead screw	Stainless steel	Heat treatment + Specially treated
6	End plate	Aluminum alloy	Anodized
7	Motor flange	Aluminum alloy	Anodized
8	Motor cover	Aluminum alloy	Anodized
9	End cover	Aluminum alloy	Anodized
10	Motor end cover	Aluminum alloy	Anodized
11	Rod	Stainless steel	—
12	Bearing stopper	Structural steel Brass	Electroless nickel plated Electroless nickel plated (LESH25D□ only)
13	Socket	Structural steel	Electroless nickel plated
14	Hub (Lead screw side)	Aluminum alloy	—
15	Hub (Motor side)	Aluminum alloy	—
16	Spacer	Stainless steel	LESH25D□ only
17	Grommet	NBR	—
18	Spider	NBR	—
19	Cover	Synthetic resin	—
20	Return guide	Synthetic resin	—
21	Scraper	Stainless steel + NBR	Linear guide

No.	Description	Material	Note
22	Steel ball	Special steel	—
23	Bearing	—	—
24	Sim ring	Structural steel	—
25	Masking tape	—	—
26	Scraper	NBR	Dustproof specification only/ Rod
27	Lock	—	With lock only
28	Side holder	Aluminum alloy	Anodized

Optional Parts/Side Holder

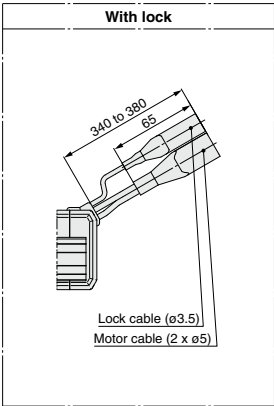
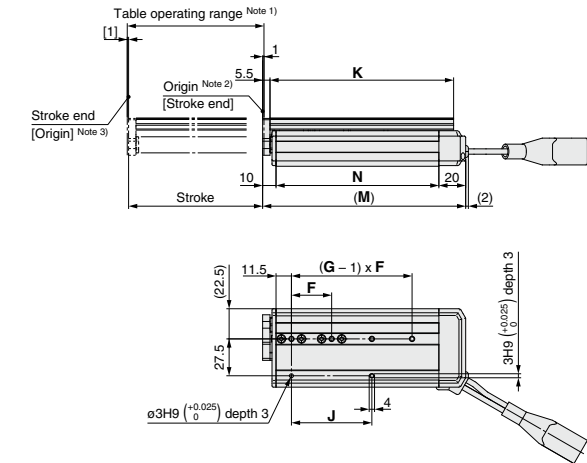
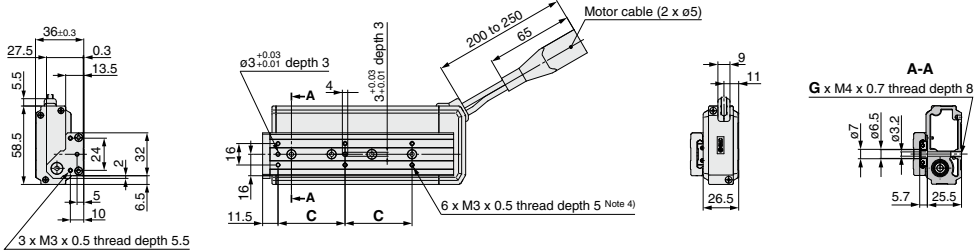
Model	Order no.
LESH8D	LE-D-3-1
LESH16D	LE-D-3-2
LESH25D	LE-D-3-3

Replacement Parts/Grease Pack

Applied portion	Order no.
Guide unit	GR-S-010 (10 g) GR-S-020 (20 g)

Dimensions: **Basic Type/R Type**

LESH8R



Connector	
Step motor	Servo motor
	
Motor cable	Motor cable
Lock cable	Lock cable
	

[mm]						
Model	C	F	G	J	K	N
LESH8R□-50□-□□□□□	46	29	3	58	111	125.5
LESH8R□-75□-□□□□□	50	30	4	60	137	121.5

Note 1) Range within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the workpieces and facilities around the table.

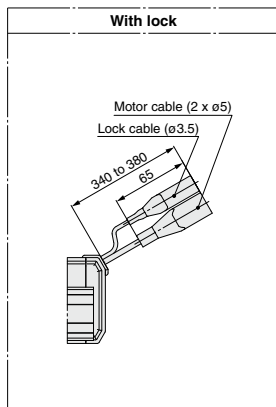
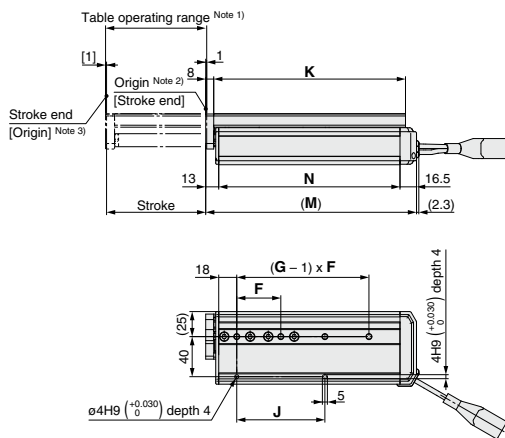
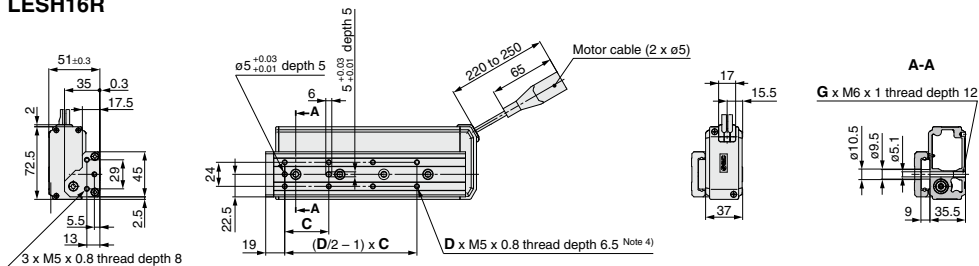
Note 2) Position after return to origin.

Note 3) The number in brackets indicates when the direction of return to origin has changed.

Note 4) If workpiece fixing bolts are too long, they can touch the guide block and cause a malfunction, etc. Use bolts that are between the maximum and minimum screw-in depths in length.

Dimensions: Basic Type/R Type

LESH16R



Connector		
	Step motor	Servo motor
Motor cable		
Lock cable		

								[mm]
Model	C	D	F	G	J	K	M	N
LESH16R□□-50□-□□□□□	40	6	45	2	45	116.5	135.5	106
LESH16R□□-100□-□□□□□	44	8	44	4	88	191.5	210.5	181

Note 1) Range within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the workpieces and facilities around the table.

Note 2) Position after return to origin.

Note 3) The number in brackets indicates when the direction of return to origin has changed.

Note 4) If workpiece fixing bolts are too long, they can touch the guide block and cause a malfunction, etc.

Use bolts that are between the maximum and minimum screw-in depths in length.

LEFT

LEV

TEST

KEY



Copy

2

4

1

37

LE

LEC

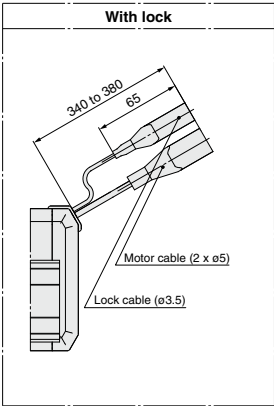
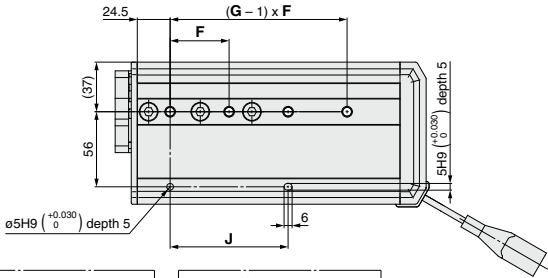
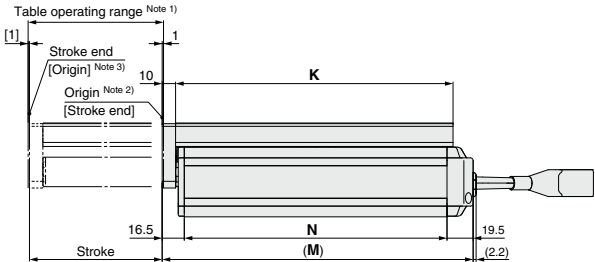
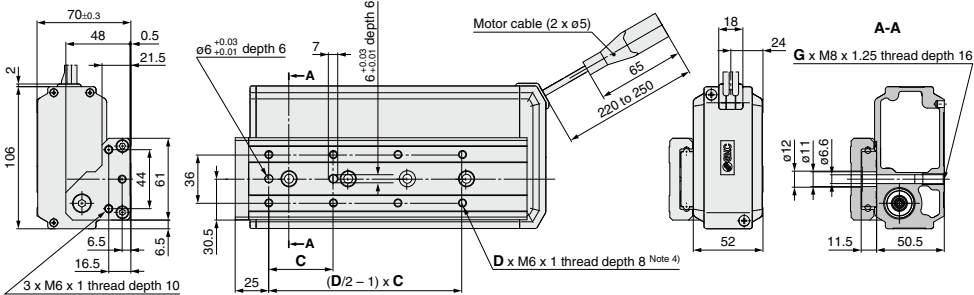
LEC

LECT

LAT

Dimensions: **Basic Type/R Type**

LESH25R



	Step motor	Servo motor
Motor cable	20	24
Lock cable	15	15

	[mm]							
Model	C	D	F	G	J	K	M	N
LESH25R□□-50□□-□□□□□	75	4	80	2	80	143	168	132
LESH25R□□-100□□-□□□□□	48	8	44	4	88	207	232	196
LESH25R□□-150□□-□□□□□	65	8	66	4	132	285	310	274

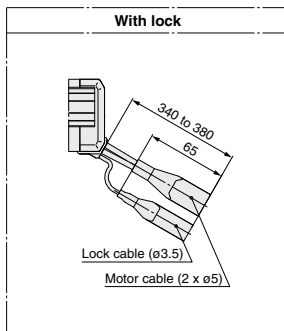
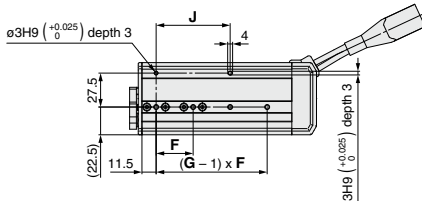
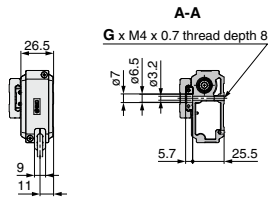
Note 1) Range within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the workpieces and facilities around the table.

Note 2) Position after return to origin.

Note 3) The number in brackets indicates when the direction of return to origin has changed.

Note 4) If workpiece fixing bolts are too long, they can touch the guide block and cause a malfunction, etc.

Use bolts that are between the maximum and minimum screw-in depths in length.

LESH8L

	Connector	
	Step motor	Servo motor
Motor cable		
Lock cable		

Model	C	F	G	J	K	M	N
LESH8L□□-50□□-□□□□	46	29	3	58	111	125.5	95.5
LESH8L□□-75□□-□□□□	50	30	4	60	137	151.5	121.5

Note 4) If workpiece fixing bolts are too long, they can touch the guide block and cause a malfunction, etc.
Use bolts that are between the maximum and minimum screw-in depths in length.

Dimensions: Symmetrical Type/L Type

LESH16L

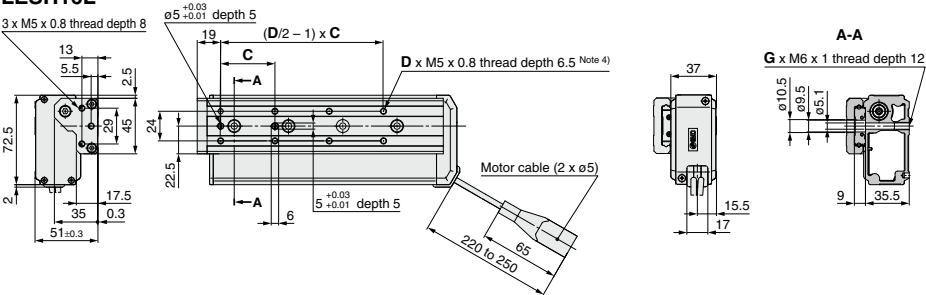
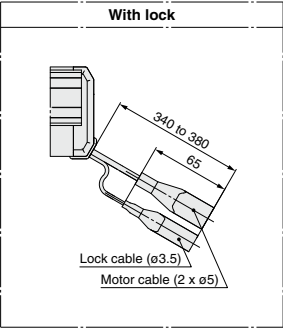
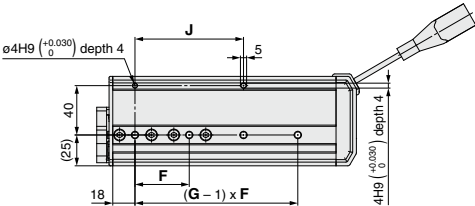
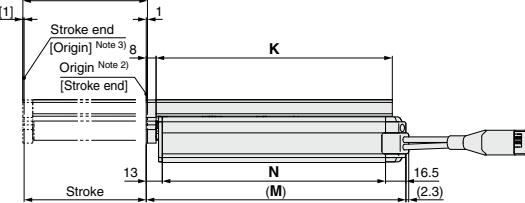


Table operating range (Note 1)



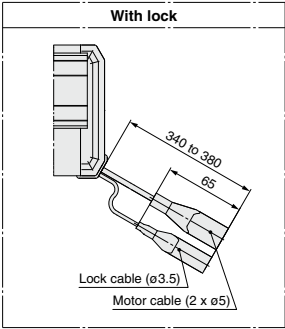
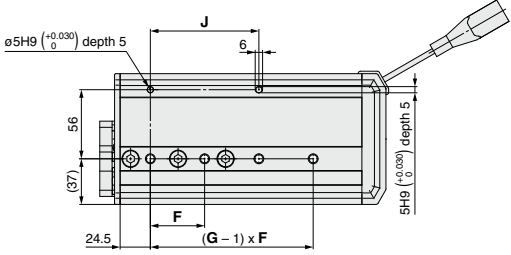
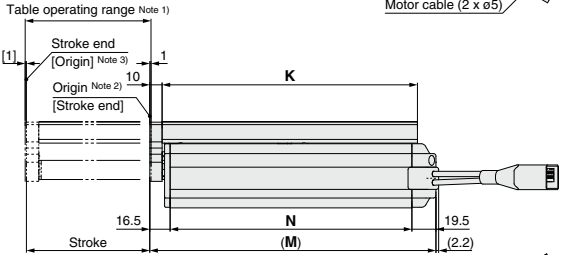
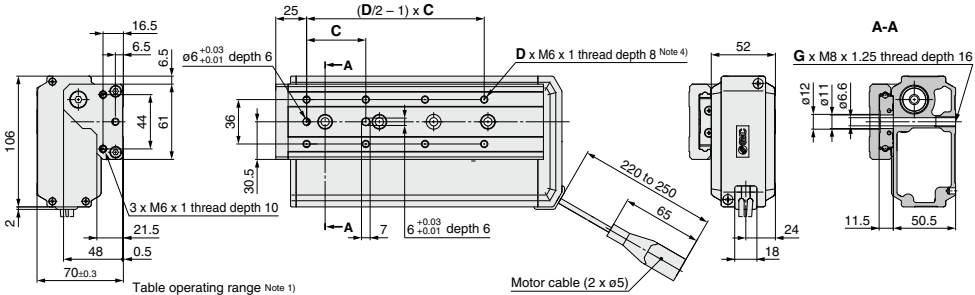
Connector		
	Step motor	Servo motor
Motor cable		
Lock cable		

Model	C	D	F	G	J	K	M	N
LESH16L□-50□-□□□□□	40	6	45	2	45	116.5	135.5	106
LESH16L□-100□-□□□□□	44	8	44	4	88	191.5	210.5	181

Note 1) Range within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the workpieces and facilities around the table.
Note 2) Position after return to origin.
Note 3) The number in brackets indicates when the direction of return to origin has changed.
Note 4) If workpiece fixing bolts are too long, they can touch the guide block and cause a malfunction, etc. Use bolts that are between the maximum and minimum screw-in depths in length.

Dimensions: Symmetrical Type/L Type

LESH25L



Connector	
Step motor	Servo motor
Motor cable	20 20 20 20
Lock cable	15 15 15 15

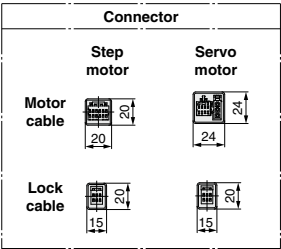
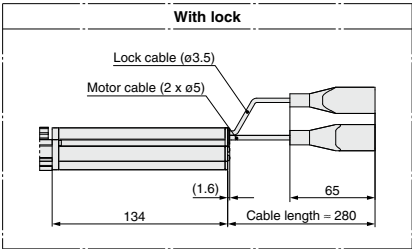
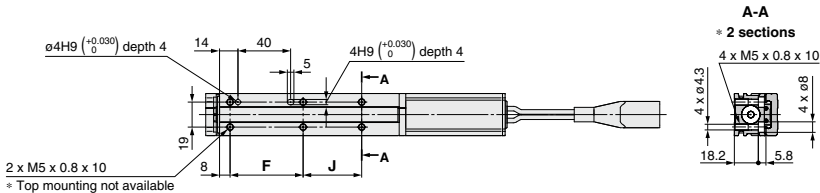
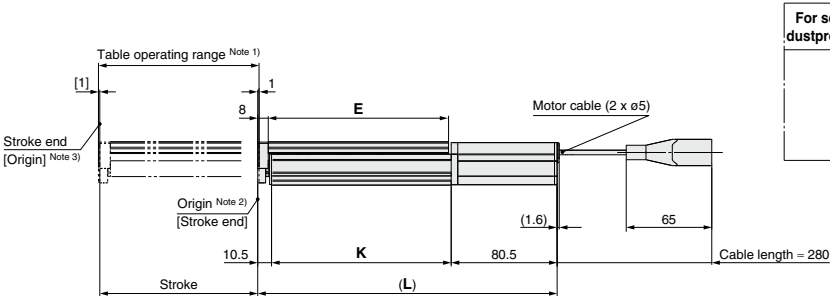
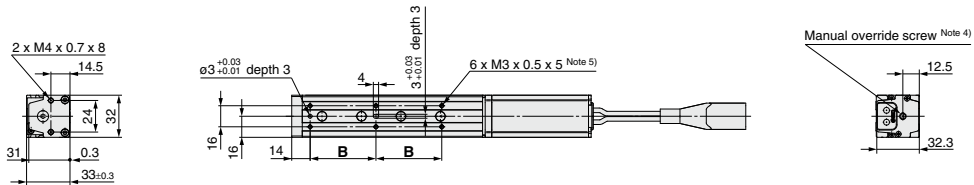
Model	C	D	F	G	J	K	M	N
LESH25L□□-50□□-□□□□	75	4	80	2	80	143	168	132
LESH25L□□-100□□-□□□□	48	8	44	4	88	207	232	196
LESH25L□□-150□□-□□□□	65	8	66	4	132	285	310	274

Note 1) Range within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the workpieces and facilities around the table.
Note 2) Position after return to origin.
Note 3) The number in brackets indicates when the direction of return to origin has changed.
Note 4) If workpiece fixing bolts are too long, they can touch the guide block and cause a malfunction, etc. Use bolts that are between the maximum and minimum screw-in depths in length.

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

Dimensions: In-line Motor Type/D Type

LESH8D



Model	L	B	E	F	J	K
LESH8D□□-50□□-□□□□□□	201.5	46	111	54.5	19.5	110.5
LESH8D□□-50B□□-□□□□□□	255					
LESH8D□□-75□□-□□□□□□	227.5	50	137	55.5	44.5	136.5
LESH8D□□-75B□□-□□□□□□	281					

Note 1) Range within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the workpieces and facilities around the table.

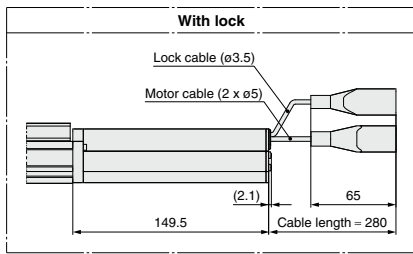
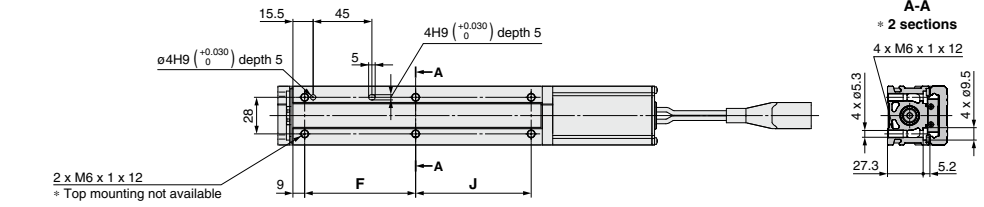
Note 2) Position after return to origin.

Note 3) The number in brackets indicates when the direction of return to origin has changed.

Note 4) The distance between the motor and cover and the manual override screw is up to 16 mm. The motor end cover hole size is $\phi 5.5$.

Note 5) If workpiece fixing bolts are too long, they can touch the guide block and cause a malfunction, etc. Use bolts that are between the maximum and minimum screw-in depths in length.

LESH16D



Connector	
Motor cable	Servo motor
Lock cable	

Model	L	B	D	E	F	J	K
LESH16D□□-50□□-□□□□□□	219.5	40	6	116.5	65	39.5	122
LESH16D□□-50B□□-□□□□□□	283						
LESH16D□□-100□□-□□□□□□	288.5	44	8	191.5	85	88.5	191
LESH16D□□-100B□□-□□□□□□	352						

Note 1) Range within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the workpieces and facilities around the table.

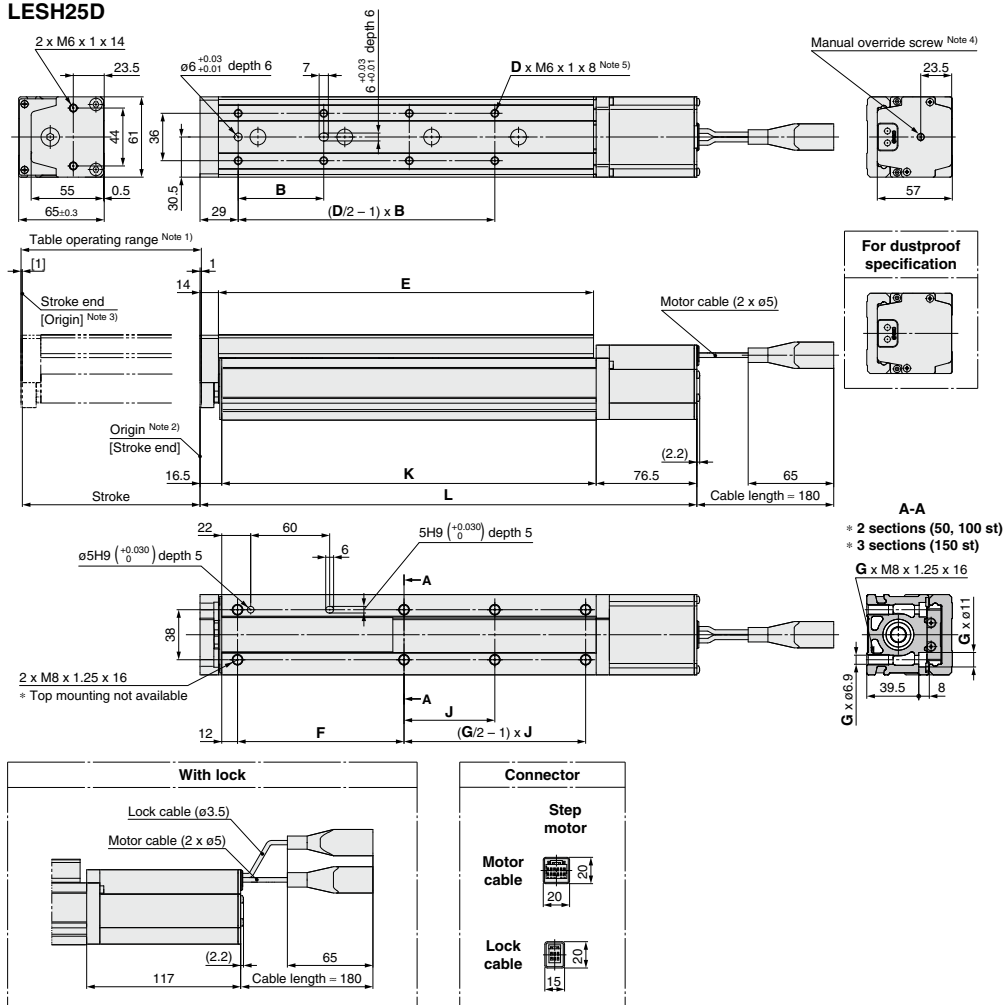
Note 2) Position after return to origin.

Note 3) The number in brackets indicates when the direction of return to origin has changed.

Note 4) The distance between the motor end cover and the manual override screw is up to 17 mm.
The motor end cover hole size is $\phi 5.5$.

Note 5) If workpiece fixing bolts are too long, they can touch the guide block and cause a malfunction, etc.
Use bolts that are between the maximum and minimum screw-in depths in length.

Dimensions: In-line Motor Type/D Type

LESH25D

									[mm]
Model	L	B	D	E	F	G	J	K	
LESH25D□-50□□-□□□□	237.5	75	4	143	84	4	40.5	144.5	
LESH25D□-50B□□-□□□□	278								
LESH25D□-100□□-□□□□	299.5	48	8	207	98.5		88	206.5	
LESH25D□-100B□□-□□□□	340								
LESH25D□-150□□-□□□□	377.5	65		285	126.5	6	69	284.5	
LESH25D□-150B□□-□□□□	418								

Note 1) Range within which the table can move when it returns to origin. Make sure a workpiece mounted on the table does not interfere with the workpieces and facilities around the table.

Note 2) Position after return to origin.

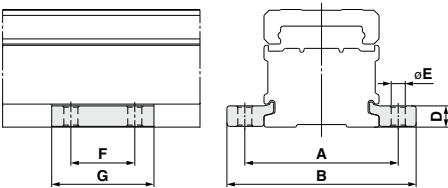
Note 3) The number in brackets indicates when the direction of return to origin has changed.

Note 4) The distance between the motor end cover and the manual override screw is up to 4 mm.

The motor end cover hole size is $\phi 5.5$.

Note 5) If workpiece fixing bolts are too long, they can touch the guide block and cause a malfunction, etc.
Use bolts that are between the maximum and minimum screw-in depths in length.

Side Holder (In-line Motor Type/D Type)



							[mm]
Part no. Note)	A	B	D	E	F	G	Applicable model
LE-D-3-1	45	57.6	6.7	4.5	20	33	LESH8D
LE-D-3-2	60	74	8.3	5.5	25	40	LESH16D
LE-D-3-3	81	99	12	6.6	30	49	LESH25D

Note) Model numbers for 1 side holder.

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



Series LES/LESH Electric Slide Tables/ 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.

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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. INP output signal

1) Positioning operation

When the product comes within the set range by step data [In position], the INP output signal will turn on.

Initial value: Set to [0.50] or higher.

2) Pushing operation

When the effective force exceeds step data [Trigger LV], the INP output signal will turn on. Use the product within the specified range of [Pushing force] and [Trigger LV].

To ensure that the actuator pushes the workpiece with the set [Pushing force], it is recommended that the [Trigger LV] be set to the same value as the [Pushing force].

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

3. Use the product with the following moving force.

- Step motor (Servo/24 VDC): 100%
- Servo motor (24 VDC) : 250%

If the moving force is set below the above values, it may cause an alarm.

Handling

Caution

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

Check the model selection section of the catalog.

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

Additional force will cause the displacement of the origin position since it is based on detected motor torque.

6. The table and guide block are made of special stainless steel, but can rust in an environment where droplets of water adhere to it.

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

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

8. Do not dent, scratch or cause other damage to the surface over which the rail and guide will move.

This may cause play or an increase in the sliding resistance.

9. Do not apply strong impact or an excessive moment while mounting a workpiece.

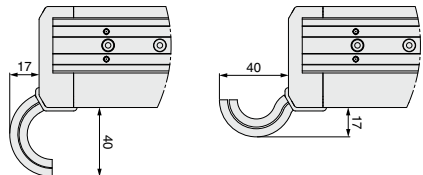
If an external force over the allowable moment is applied, it may cause play in the guide or an increase in the sliding resistance.

10. Keep the flatness of mounting surface 0.02 mm or less.

Unevenness of a workpiece or base mounted on the body of the product may cause play on the guide and increased sliding resistance. Do not deform the mounting surface by mounting with workpieces tucked in.

11. Do not drive the main body with the table fixed.

12. When mounting the product, for R/L type fixed cable, keep the following dimension or more for bends in the cable. For D type, keep a 40 mm or longer diameter for bends in the cable.





Series LES/LESH

Electric Slide Tables/ Specific Product Precautions 2

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Handling

⚠ Caution

13. When mounting the product, use screws with adequate length and tighten them to the maximum torque or less.

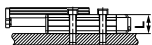
Tightening the screws with a higher torque than recommended may cause a malfunction, whilst the tightening with a lower torque can cause the displacement of the mounting position or in extreme conditions the actuator could become detached from its mounting position.

Body fixed/ Side mounting (Body tapped)



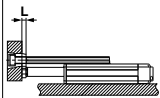
Model	Bolt	Max. tightening torque (N·m)	L (Max. screw-in depth mm)
LES8R/L	M4 x 0.7	1.5	8
LES8D	M5 x 0.8	3	10
LES16R/L			
LES16D	M6 x 1	5.2	12
LESH16□			
LES25R/L			
LES25D	M8 x 1.25	10	16
LESH25□			

Body fixed/ Side mounting (Through-hole)



Model	Bolt	Max. tightening torque (N·m)	L (mm)
LES8R/L	M3 x 0.5	0.63	23.5
LES8D			25.5
LES16R/L	M4 x 0.7	1.5	18.2
LES16D			33.5
LESH16□			25.2
LES25R/L	M5 x 0.8	3	35.5
LES25D			27.3
LESH25□			49
LES25D			39.8
LESH25R/L	M6 x 1	5.2	50.5
LESH25D			39.5

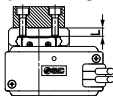
Workpiece fixed/ Front mounting



Model	Bolt	Max. tightening torque (N·m)	L (mm)
LES8R/L	M3 x 0.5	0.63	6
LES8D			5.5
LES16R/L	M4 x 0.7	1.5	8
LES16D			
LESH16□	M5 x 0.8	3	12
LES25R/L			10
LES25D	M6 x 1	5.2	14

To prevent the workpiece fixing bolts from penetrating the end plate, use bolts that are 0.5 mm or shorter than the maximum screw-in depth. If long bolts are used, they can touch the end plate and cause a malfunction, etc.

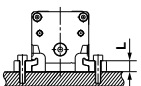
Workpiece fixed/ Top mounting



Model	Bolt	Max. tightening torque (N·m)	L (Min. to Max. screw-in depth mm)
LES8□	M3 x 0.5	0.63	2.1 to 4.1
LESH8□			5 (Max.)
LES16□	M4 x 0.7	1.5	2.7 to 5.7
LESH16□			6.5 (Max.)
LES25□	M5 x 0.8	3	3.3 to 7.3
LESH25□			8 (Max.)
LESH25D	M6 x 1	5.2	8 (Max.)

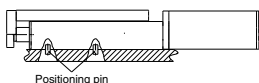
To prevent the workpiece fixing bolts from touching the guide block, use bolts that are 0.5 mm or shorter than the maximum screw-in depth. If long bolts are used, they can touch the guide block and cause a malfunction, etc.

Body fixed/Side mounting (Side holder)



Model	Bolt	Max. tightening torque (N·m)	L (mm)
LESH8D	M4 x 0.7	1.5	6.7
LESH16D	M5 x 0.8	3	8.3
LESH25D	M6 x 1	5.2	12

When using the side holders to install the actuator, be sure to use the positioning pin. It can be displaced when vibration or excessive external force is applied.



Positioning pin

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

If the product is set to the same position as a workpiece, the following alarms may be generated and operation may become unstable.

a. "Posn failed" alarm is generated.

The product cannot reach a pushing start position due to variation in the width of workpieces.

b. "Pushing ALM" alarm is generated.

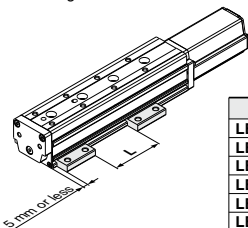
The product is pushed back from a pushing start position after starting to push.

15. When external force is applied to the table, it is necessary to reduce the work 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.

16. When using the side holders to install the actuator, use within the following dimension range.

Otherwise, installation balance will deteriorate and cause loosening.

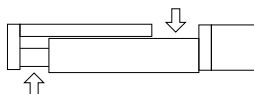


Model	L (mm)
LES8D□-30	5 to 10
LES8D□-50	20 to 30
LES8D□-75	50 to 60
LES16D□-30	5 to 10
LES16D□-50	20 to 30
LES16D□-75	60 to 75
LES16D□-100	85 to 100
LES25D□-30	5 to 15
LES25D□-50	25 to 35
LES25D□-75	60 to 75
LES25D□-100	70 to 100
LES25D□-125	155 to 170
LES25D□-150	160 to 180

17. For the LES□□D, do not grasp or peel off a masking tape on the bottom of the body.

The masking tape may peel off and foreign matter may get inside the actuator.

18. For the LES□□D, a gap will form between the motor flange and table when the table moves (marked with the arrow below). Be careful not to put hands or fingers in a gap.





Series LES/LESH

Electric Slide Tables/ Specific Product Precautions 3

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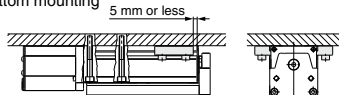
Handling

⚠ Caution

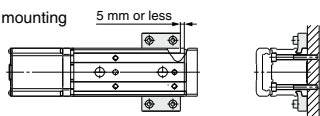
19. When mounting the body with through-holes in the following mounting orientations, make sure to use two side holders as shown in the figures.

Otherwise, installation balance will deteriorate and cause loosening.

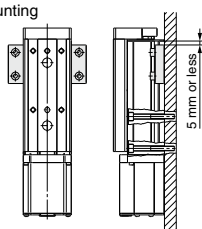
Bottom mounting



Wall mounting

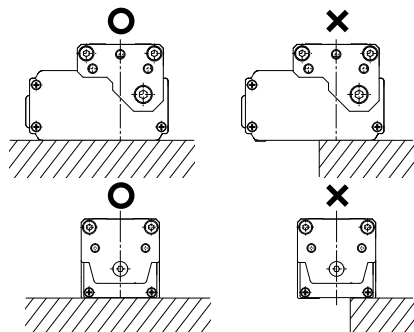


Vertical mounting



20. Install the body as shown below with the ○.

Since the product support becomes unstable, it may cause a malfunction, noise or an increase in the deflection.



21. Even with the same product number, the table of some products can be moved by hand and the table of some products cannot be moved by hand. However, there is no abnormality with these products. (Without lock)

This difference is caused because there is a little variation with the positive efficiency (when the table is moved by the motor) and there is a large variation with the reverse-efficiency (when the table is moved manually) due to the product characteristics. There is hardly any difference among products when they are operated by the motor.

Maintenance

⚠ Warning

1. Ensure that the power supply is stopped before starting maintenance work or replacement of the product.
2. For lubrication, wear protective glasses.
3. Perform maintenance according to the following requirements.

• Maintenance frequency

Perform maintenance according to the table below.

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

* Select whichever comes sooner.

• Items for visual appearance check

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

• Items for belt check (R/L type only)

Stop operation immediately and replace the belt when belt appear to be below.

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

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