Model Selection 1

LES□E Series ▶ p. 659

Selection Procedure

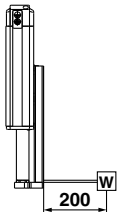
For the high rigidity type LESH series, refer to page 687.

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

Selection Example

Operating conditions

- Workpiece mass: 2 [kg]
- Speed: 200 [mm/s]
- Mounting orientation: Vertical
- Stroke: 50 [mm]
- Acceleration/Deceleration: 5000 [mm/s²]
- Cycle time: 0.5 s
- Workpiece mounting condition:

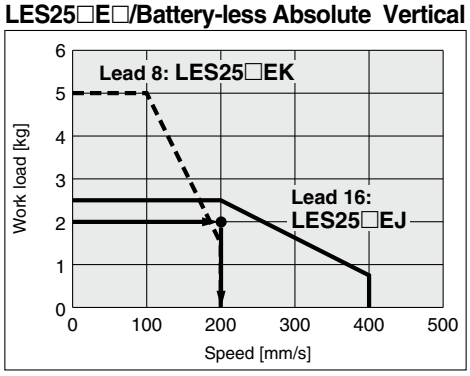


Step 1 **Check the work load–speed. <Speed–Work load graph>** (page 642)

Select a model based on the workpiece mass and speed while referencing the speed–work load graph.

Selection example) The **LES25□EJ-50** can be temporarily selected as a possible candidate based on the graph shown on the right side.

LES25□E□/Battery-less Absolute Vertical



<Speed–Work load graph>

Step 2 **Check the cycle time.**

It is possible to find 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 642)

Method 2: Calculation <Speed–Work load graph> (page 642)

Calculate **the cycle time** using the following calculation method.

Cycle time:

T can be found from the following equation.

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

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

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

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

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

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

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

Calculation example)

T1 to T4 can be calculated as follows.

$T1 = V/a1 = 200/5000 = 0.04$ [s],

$T3 = V/a2 = 200/5000 = 0.04$ [s]

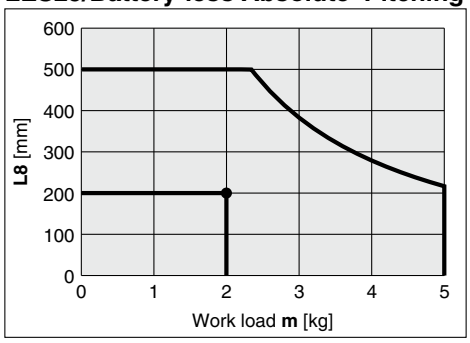
$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} = \frac{50 - 0.5 \cdot 200 \cdot (0.04 + 0.04)}{200} = 0.21 \text{ [s]}$$

$T4 = 0.15$ [s]

The cycle time can be found as follows.

$T = T1 + T2 + T3 + T4$
$= 0.04 + 0.21 + 0.04 + 0.15$
$= \mathbf{0.44\ [s]}$

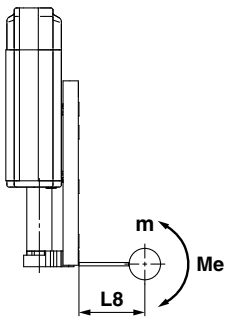
LES25/Battery-less Absolute Pitching



<Dynamic allowable moment>

Step 3 **Check the allowable moment. <Static allowable moment>** (page 642) **<Dynamic allowable moment>** (page 643)

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 LES25□EJ-50 should be selected.

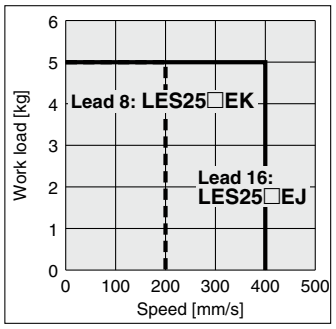
Speed–Work Load Graph (Guide)

Battery-less Absolute (Step Motor 24 VDC)

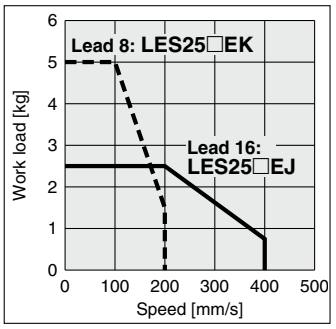
∗ The following graphs show the values when the moving force is 100%.

LES25□E□

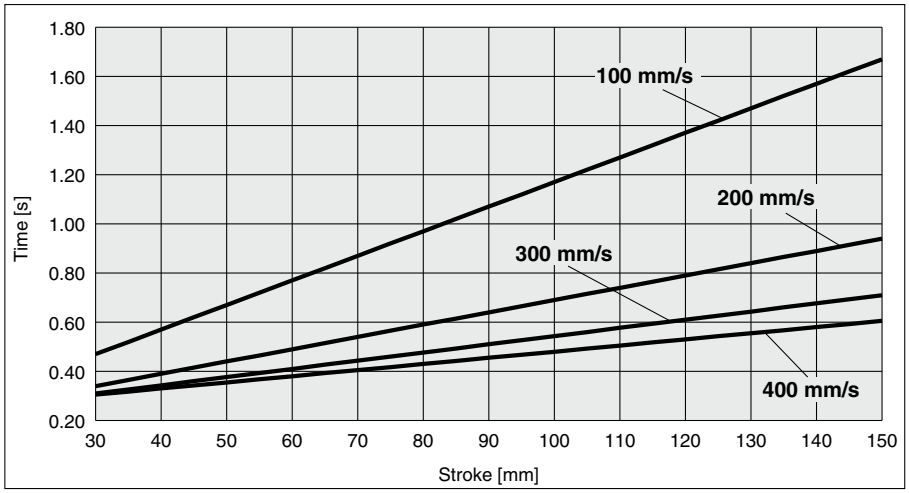
Horizontal



Vertical



Cycle Time Graph (Guide)



Operating Conditions

Acceleration/Deceleration: 5000 mm/s^2
In position: 0.5 mm

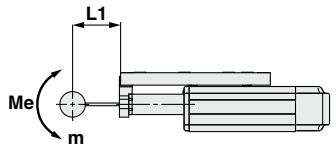
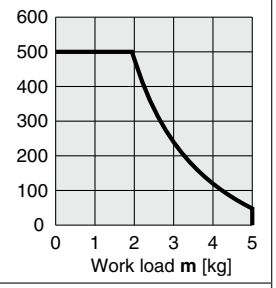
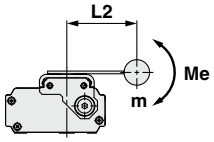
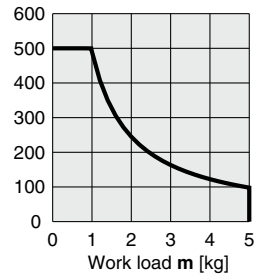
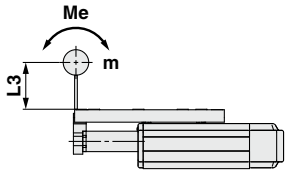
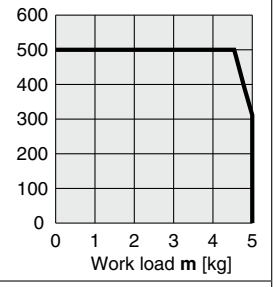
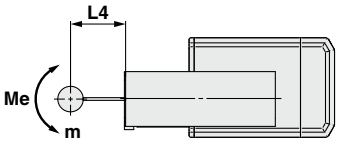
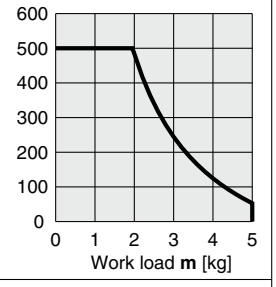
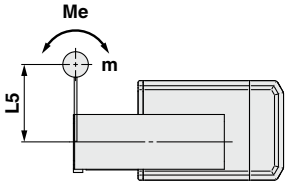
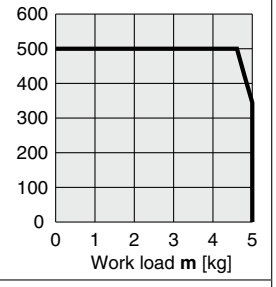
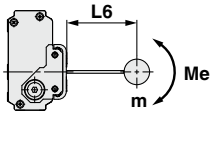
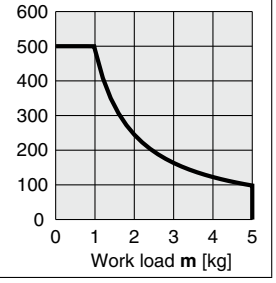
Static Allowable Moment

Model		LES25
Pitching	[N·m]	14.1
Yawing	[N·m]	14.1
Rolling	[N·m]	4.8

Dynamic Allowable Moment

* These graphs show the amount of allowable overhang (guide unit) when the center of gravity of the workpiece overhangs in one direction. When selecting the overhang, refer to the "Calculation of Guide Load Factor" or the Electric Actuator Model Selection Software for confirmation: https://www.smcworld.com

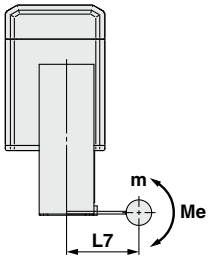
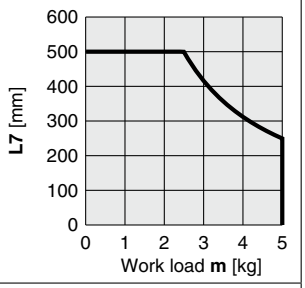
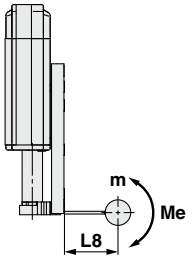
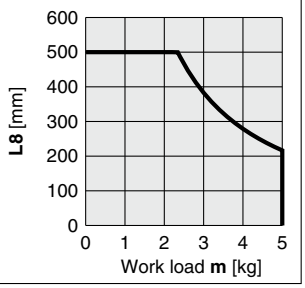
Acceleration/Deceleration —— 5000 mm/s²

Orientation	Load overhanging direction **m** : Work load [kg] **Me**: Allowable moment [N·m] **L** : Overhang to the work load center of gravity [mm]		Model **LES25**
Horizontal/Bottom		X	
		Y	
		Z	
Wall		X	
		Y	
		Z	

Dynamic Allowable Moment

* These graphs show the amount of allowable overhang (guide unit) when the center of gravity of the workpiece overhangs in one direction. When selecting the overhang, refer to the "Calculation of Guide Load Factor" or the Electric Actuator Model Selection Software for confirmation: https://www.smcworld.com

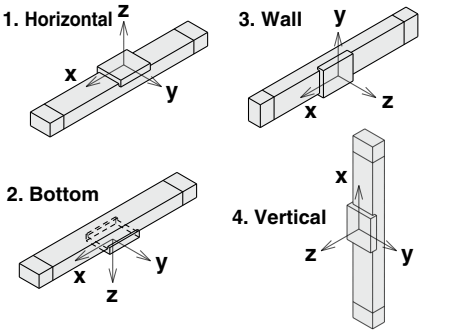
Acceleration/Deceleration —— 5000 mm/s²

Orientation	Load overhanging direction **m** : Work load [kg] **Me**: Allowable moment [N·m] **L** : Overhang to the work load center of gravity [mm]		Model **LES25**
Vertical		Y	
		Z	

Calculation of Guide Load Factor

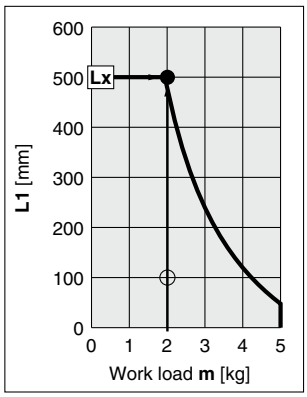
1. Decide operating conditions.
   Model: LES
   Size: 25
   Mounting orientation: Horizontal/Bottom/Wall/Vertical
   Acceleration [mm/s²]: **a**
   Work load [kg]: **m**
   Work load center position [mm]: **Xc/Yc/Zc**
2. Select the target graph while referencing the model, size, and mounting orientation.
3. Based on the acceleration and work load, find the overhang [mm]: **Lx/Ly/Lz** from the graph.
4. Calculate the load factor for each direction.
   α**x = Xc/Lx**, α**y = Yc/Ly**, α**z = Zc/Lz**
5. Confirm the total of α**x**, α**y**, and α**z** is 1 or less.
   α**x + αy + αz ≤ 1**
   When 1 is exceeded, please consider a reduction of acceleration and work load, or a change of the work load center position and series.

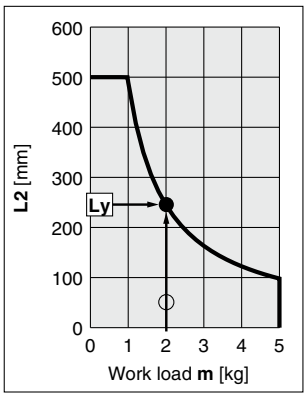
Mounting orientation

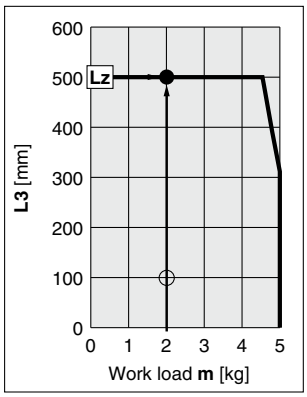


Example

1. Operating conditions
   Model: LES
   Size: 25
   Mounting orientation: Horizontal
   Acceleration [mm/s²]: 5000
   Work load [kg]: 2.0
   Work load center position [mm]: **Xc = 100**, **Yc = 50**, **Zc = 100**
2. Select three graphs from the top on page 643.
3. **Lx = 500 mm**, **Ly = 240 mm**, **Lz = 500 mm**
4. The load factor for each direction can be found as follows.
   α**x = 100/500 = 0.20**
   α**y = 50/240 = 0.21**
   α**z = 100/500 = 0.20**
5. α**x + αy + αz = 0.61 ≤ 1**







Model Selection 2

Selection Procedure

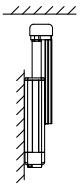
For the high rigidity type LESH series, refer to page 691.

Step 1 Check the required force. → **Step 2** Check the pushing force set value. → **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 s
- Full cycle time (B): 6 s



Step 1 Check the required force.

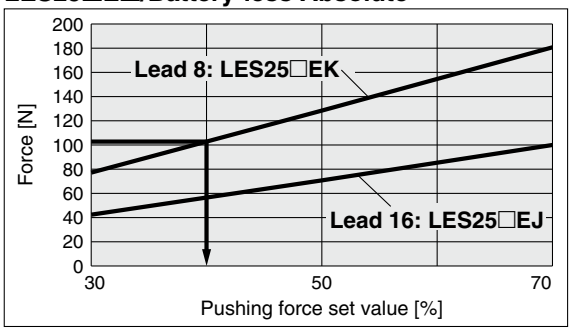
Calculate the approximate required force for a pushing operation.
Selection example) •Pushing force: 90 [N]
•Workpiece mass: 1 [kg]
The approximate required force can be found to be 90 + 10 = 100 [N].
Select a model based on the approximate required force while referencing the specifications (page 661).
Selection example) Based on the specifications,
•Approximate required force: 100 [N]
•Speed: 100 [mm/s]
The **LES25□E** can be temporarily selected as a possible candidate.
Then, calculate the required force for a pushing operation.
If the mounting position is vertical upward, add the actuator table weight.
Selection example) Based on the table weight,
•**LES25□E** table weight: 0.5 [kg]
The required force can be found to be 100 + 5 = 105 [N].

Table Weight [kg]

Model	Stroke [mm]					
	30	50	75	100	125	150
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□E□/Battery-less Absolute



<Pushing force set value–Force graph>

Step 2 Check the pushing force set value.

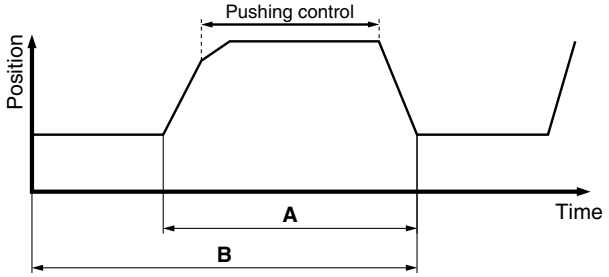
<Pushing force set value–Force graph> (page 646)
Select a model based on the required force while referencing the pushing force set value–force graph, and confirm the pushing force set value.
Selection example) Based on the graph shown on the right side,
•Required force: 105 [N]
The **LES25□EK** can be temporarily selected as a possible candidate.
This pushing force set value is 40 [%].

Step 3 Check the duty ratio.

Confirm the allowable duty ratio based on the pushing force set value while referencing the allowable duty ratio.
Selection example) Based on the allowable duty ratio,
•Pushing force set value: 40 [%]
The allowable duty ratio can be found to be 30 [%].
Calculate the duty ratio for the operating conditions, and confirm it does not exceed the allowable duty ratio.
Selection example) •Pushing time + Operation (A): 1.5 s
•Full cycle time (B): 6 s
The duty ratio can be found to be 1.5/6 x 100 = 25 [%], and this is within the allowable range.

Allowable Duty Ratio
Battery-less Absolute

Pushing force set value [%]	Duty ratio [%]	Continuous pushing time [min]
30	—	—
50 or less	30 or less	5 or less
70 or less	20 or less	3 or less



Based on the above calculation result, the LES25□EK-100 should be selected.
For allowable moment, the selection procedure is the same as that for the positioning control.

Pushing Force Set Value–Force Graph

Battery-less Absolute (Step Motor 24 VDC)

LES25□E□

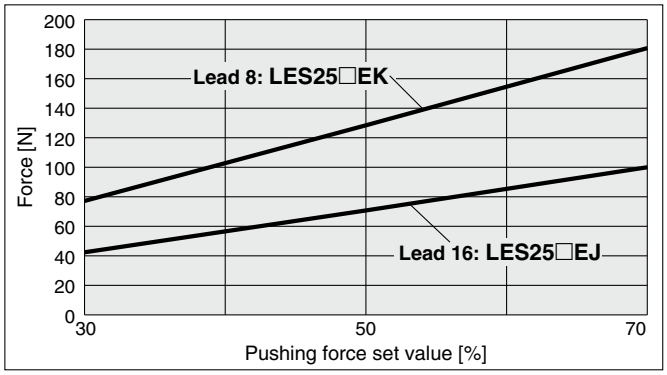
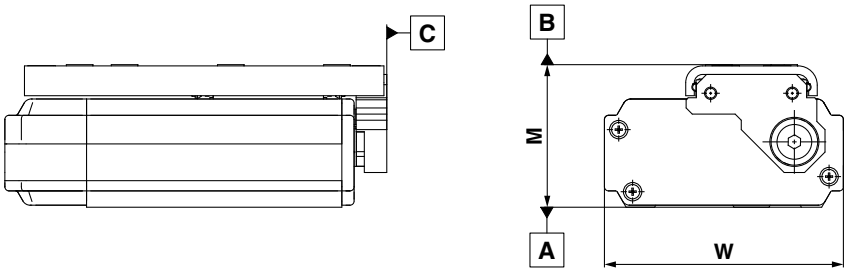


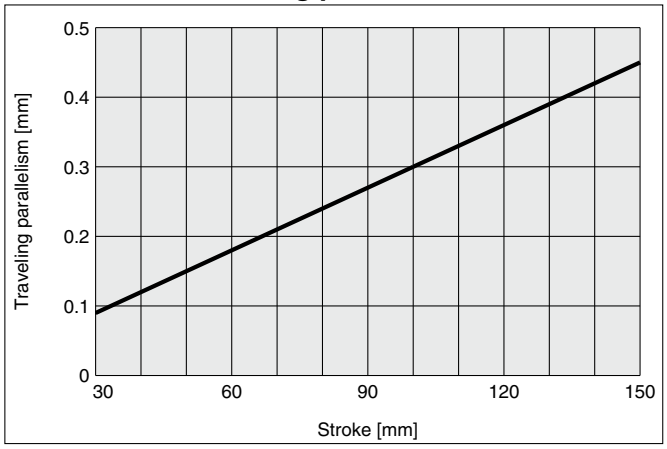
Table Accuracy

* These values are initial guideline values.



Model	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**



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

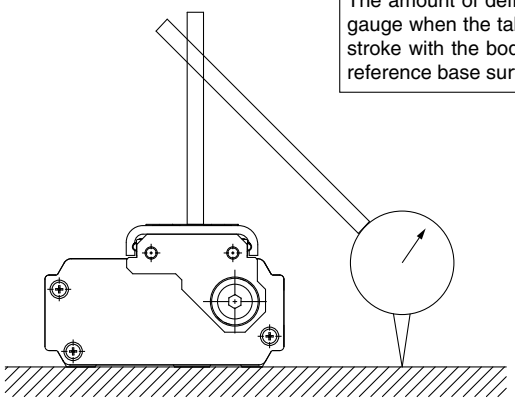
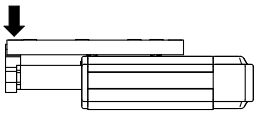


Table Deflection (Reference Value)

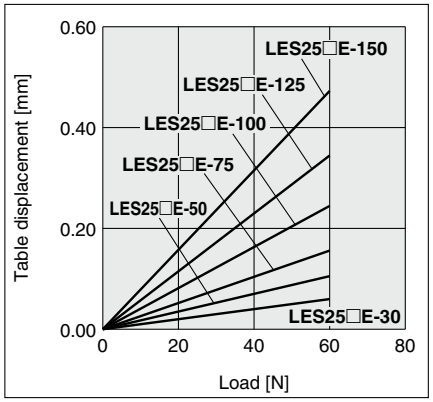
* These values are initial guideline values.

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.

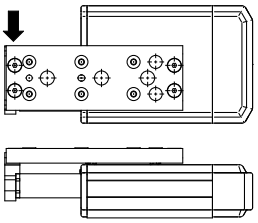


LES25

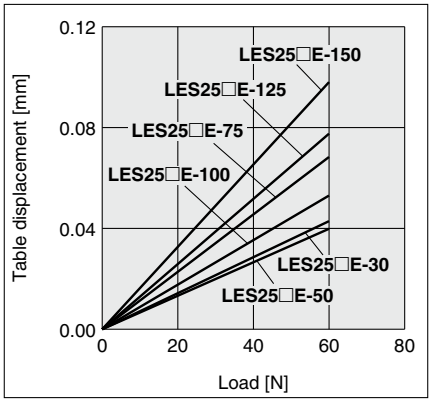


Yawing moment

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.

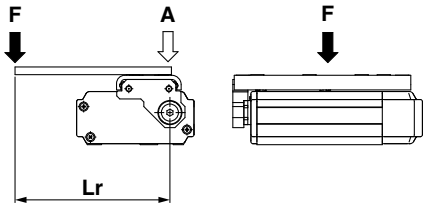


LES25

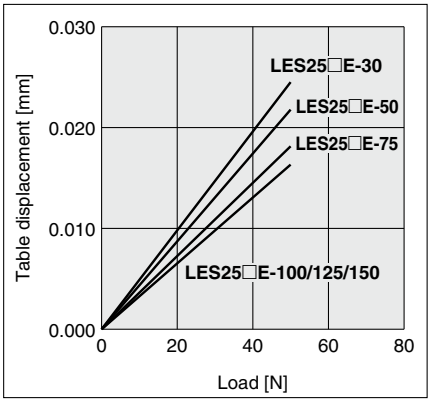


Rolling moment

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.



LES25 **Lr** = 100 mm



Battery-less Absolute (Step Motor 24 VDC)

Slide Table/Compact Type

LES Series LES25

CE UKCA RoHS

* For details, refer to page 1343 and onward.

Compact type

How to Order

LES 25 R E J – 30 ☐ ☐ ☐ – R1 CD17T

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿

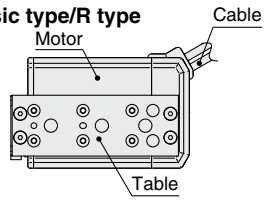
For details on controllers, refer to the next page.

❶ Size

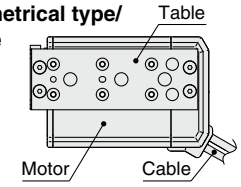
25

❷ Motor mounting position

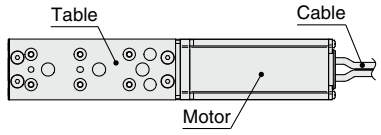
R — **Basic type/R type**



L — **Symmetrical type/ L type**



D — **In-line motor type/D type**



❸ Motor type

Symbol	Type	Compatible controllers/drivers		
E	Battery-less absolute (Step motor 24 VDC)	JXC51	JXCP1	JXCEF
		JXC61	JXCD1	JXC9F
		JXCE1	JXCL1	JXCPF
		JXC91	JXCM1	JXCLF

❹ Lead [mm]

J	16
K	8

❺ Stroke [mm]

Stroke	Applicable stroke
30 to 150	30*1, 50, 75, 100, 125, 150

❻ Motor option

Nil	Without option
B	With lock*1

Applicable motor option chart

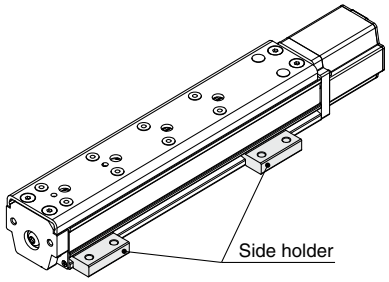
Motor mounting position	Size	Stroke 30	Stroke 50 or more
R/L	**25**	×	○
D	**25**	○	○

❼ Body option

Nil	Without option
S	Dust-protected*2

❽ Mounting*3

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



❾ Actuator cable type/length

Robotic cable [m]

Nil	None	**R8**	8*4
R1	1.5	**RA**	10*4
R3	3	**RB**	15*4
R5	5	**RC**	20*4

⑩ Controller

Nil	Without controller
C□1□□	With controller

C D 1 7 T

Interface (Communication protocol/Input/Output)

Symbol	Type	Number of axes, Special specification: Standard	Number of axes, Special specification: With STO sub-function
5	Parallel input (NPN)	●	
6	Parallel input (PNP)	●	
E	EtherCAT	●	●
9	EtherNet/IP™	●	●
P	PROFINET	●	●
D	DeviceNet®	●	
L	IO-Link	●	●
M	CC-Link	●	

Mounting

7	Screw mounting
8∗5	DIN rail

Number of axes, Special specification

Symbol	Number of axes	Specification
1	Single axis	Standard
F	Single axis	With STO sub-function

Communication plug connector, I/O cable∗6

Symbol	Type	Applicable interface
Nil	Without accessory	—
S	Straight type communication plug connector	DeviceNet® CC-Link Ver. 1.10
T	T-branch type communication plug connector	
1	I/O cable (1.5 m)	Parallel input (NPN) Parallel input (PNP)
3	I/O cable (3 m)	
5	I/O cable (5 m)	

∗1 As the applicable motor mounting positions and motor options vary depending on the stroke, refer to the applicable motor option chart on page 659.
∗2 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.
∗3 For details, refer to page 667.
∗4 Produced upon receipt of order
∗5 The DIN rail is not included. It must be ordered separately.
∗6 Select "Nil" for anything other than DeviceNet®, CC-Link, or parallel input.
Select "Nil," "S," or "T" for DeviceNet® or CC-Link.
Select "Nil," "1," "3," or "5" for parallel input.

⚠Caution

[CE/UKCA-compliant products]
EMC compliance was tested by combining the electric actuator LES series and the controller JXC series.
The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, compliance with 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 compliance with the EMC directive for the machinery and equipment as a whole.

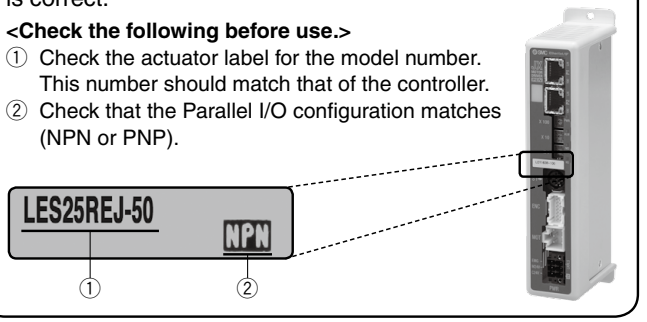
[Precautions relating to differences in controller versions]
When the JXC series is to be used in combination with the battery-less absolute encoder, use a controller that is version V3.4 or S3.4 or higher. For details, refer to pages 1077 and 1078.

[UL certification]
The JXC series controllers used in combination with electric actuators are UL certified.

The actuator and controller are sold as a package.

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

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



∗ Refer to the Operation Manual for using the products.
Please download it via our website: https://www.smcworld.com

Type	Step data input type	EtherCAT direct input type	EtherCAT direct input type with STO sub-function	EtherNet/IP™ direct input type	EtherNet/IP™ direct input type with STO sub-function	PROFINET direct input type	PROFINET direct input type with STO sub-function	DeviceNet® direct input type	IO-Link direct input type	IO-Link direct input type with STO sub-function	CC-Link direct input type
											
Series	**JXC51 JXC61**	**JXCE1**	**JXCEF**	**JXC91**	**JXC9F**	**JXCP1**	**JXCPF**	**JXCD1**	**JXCL1**	**JXCLF**	**JXCM1**
Features	Parallel I/O	EtherCAT direct input	EtherCAT direct input with STO sub-function	EtherNet/IP™ direct input	EtherNet/IP™ direct input with STO sub-function	PROFINET direct input	PROFINET direct input with STO sub-function	DeviceNet® direct input	IO-Link direct input	IO-Link direct input with STO sub-function	CC-Link direct input
Compatible motor	Battery-less absolute (Step motor 24 VDC)										
Max. number of step data	64 points										
Power supply voltage	24 VDC										
Reference page	1017	1063									

Specifications

Battery-less Absolute (Step Motor 24 VDC)

Model			LES25□E	
Actuator specifications	Stroke [mm]		30, 50, 75, 100, 125, 150	
	Work load [kg]*1	Horizontal	5	
		Vertical	5	2.5
	Pushing force 30 to 70% [N]*2 *3		77 to 180	43 to 100
	Speed [mm/s]*1 *3		10 to 200	20 to 400
	Pushing speed [mm/s]		10 to 20	20
	Max. acceleration/deceleration [mm/s²]		5000	
	Positioning repeatability [mm]		±0.05	
	Lost motion [mm]*4		0.3 or less	
	Screw lead [mm]		8	16
	Impact/Vibration resistance [m/s²]*5		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)	
	Enclosure		IP30	
Electric specifications	Motor size		□42	
	Motor type		Battery-less absolute (Step motor 24 VDC)	
	Encoder		Battery-less absolute	
	Power supply voltage [V]		24 VDC ±10%	
	Power [W]*6 *8		Max. power 67	
Lock unit specifications	Type	*7	Non-magnetizing lock	
	Holding force [N]		500	77
	Power [W]*8		5	
	Rated voltage [V]		24 VDC ±10%	

*1 Speed changes according to the work load. Check the "Speed–Work Load Graph (Guide)" on page 642.
*2 Pushing force accuracy is ±20% (F.S.).
*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%)
*4 A reference value for correcting errors in reciprocal operation
*5 Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The 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. (The test was performed with the actuator in the initial state.)
*6 Indicates the max. power during operation (including the controller)
This value can be used for the selection of the power supply.
*7 With lock only
*8 For an actuator with lock, add the power for the lock.

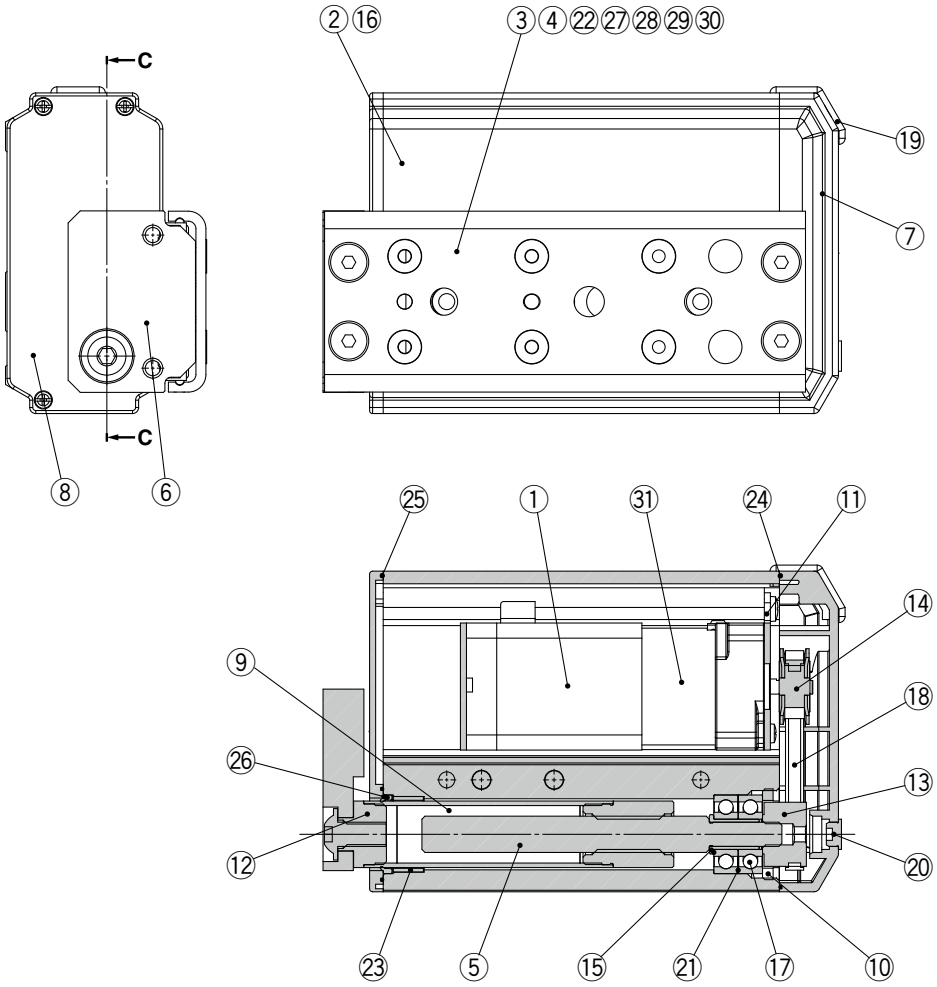
Weight

Battery-less Absolute (Step Motor 24 VDC)

[kg]

		Without lock						With lock					
Stroke [mm]		30	50	75	100	125	150	30	50	75	100	125	150
Model	LES25$^{R}_{L}$	1.81	2.07	2.41	3.21	3.44	3.68	—	2.34	2.68	3.48	3.71	3.95
	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 plating
4	**Guide block**	Stainless steel	Heat treatment
5	**Lead screw**	Stainless steel	Heat treatment + Special treatment
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	Electroless nickel plating
		Brass	Electroless nickel plating (LES25R/L□ only)
11	**Motor plate**	Structural steel	—
12	**Socket**	Structural steel	Electroless nickel plating
13	**Lead screw pulley**	Aluminum alloy	—
14	**Motor pulley**	Aluminum alloy	—
15	**Spacer**	Stainless steel	LES25R/L□ only
16	**Origin stopper**	Structural steel	Electroless nickel plating
17	**Bearing**	—	—
18	**Belt**	—	—
19	**Grommet**	Synthetic resin	—
20	**Cap**	Silicone rubber	—
21	**Sim ring**	Structural steel	—

No.	Description	Material	Note
22	**Stopper**	Structural steel	—
23	**Bushing**	—	Dust-protected option only
24	**Pulley gasket**	NBR	Dust-protected option only
25	**End gasket**	NBR	Dust-protected option only
26	**Scraper**	NBR	Dust-protected option 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

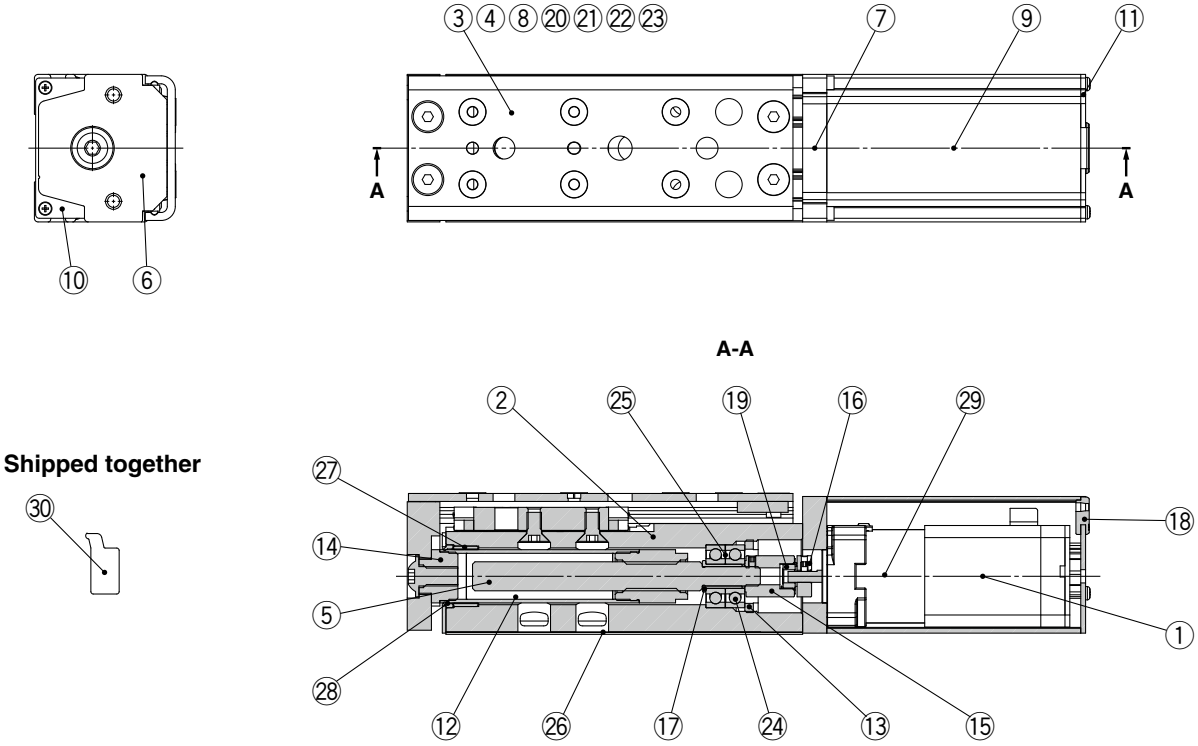
Replacement Parts/Belt

Size	Order no.	Note
LES25□	LE-D-1-3	—

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 plating
4	**Guide block**	Stainless steel	Heat treatment
5	**Lead screw**	Stainless steel	Heat treatment + Special treatment
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 plating
		Brass	Electroless nickel plating (LES25D□ only)
14	**Socket**	Structural steel	Electroless nickel plating
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**	—	Dust-protected option only
28	**Scraper**	NBR	Dust-protected option only
29	**Lock**	—	With lock only
30	**Side holder**	Aluminum alloy	Anodized

Optional Parts/Side Holder

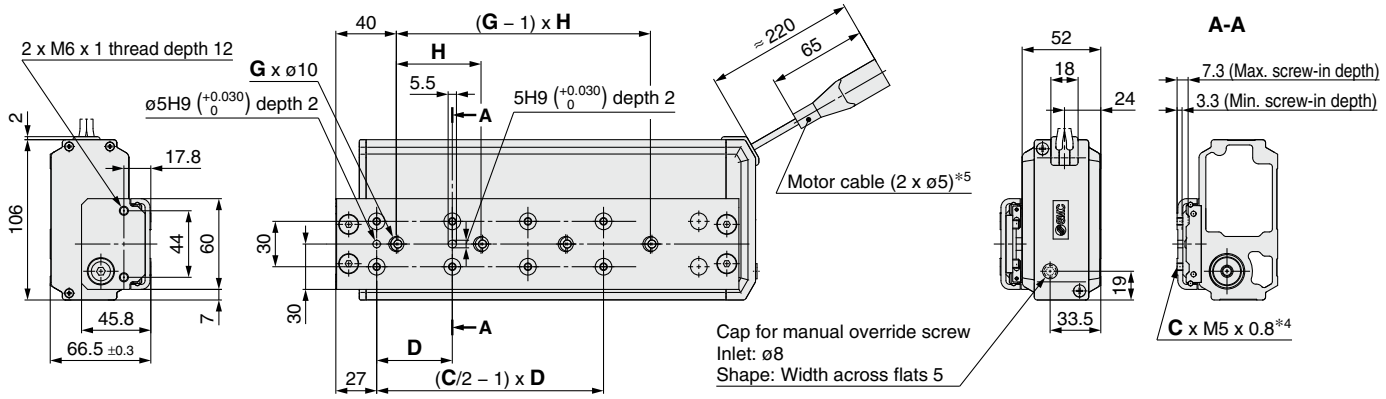
Model	Order no.
LES25D	LE-D-3-3

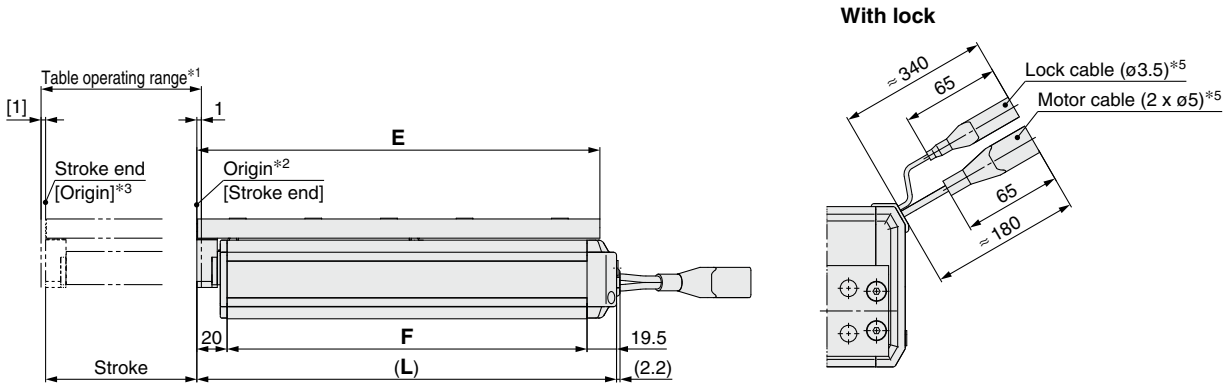
Replacement Parts/Grease Pack

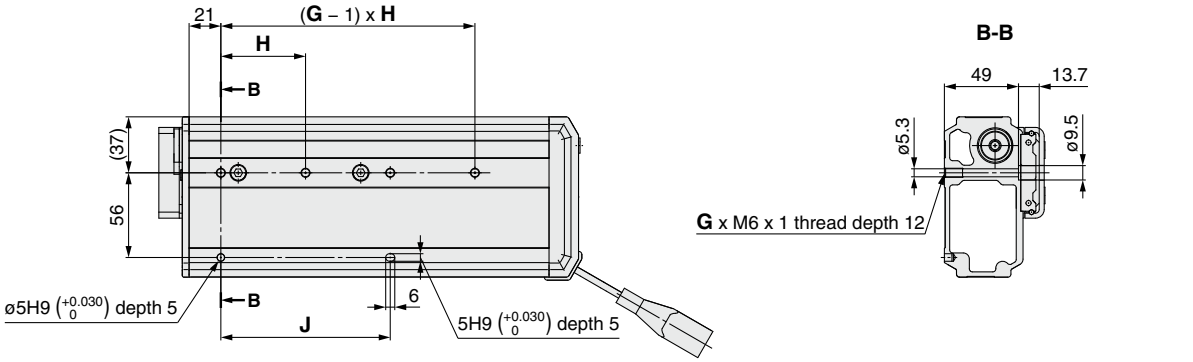
Applied portion	Order no.
Guide unit	GR-S-010 (10 g) GR-S-020 (20 g)

Dimensions: Basic Type/R Type

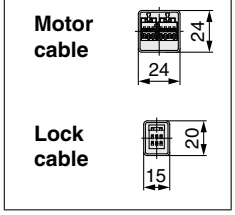
LES25RE







Connector



*1 This is the range within which the table can move when it returns to origin.
Make sure that workpieces mounted on the table do not interfere with other workpieces or the facilities around the table.
*2 Position after returning to origin
*3 [ ] for when the direction of return to origin has changed
*4 If workpiece retaining screws are too long, they can touch the guide block and cause a malfunction.
Use screws that are between the maximum and minimum screw-in depths in length.
*5 Secure the motor cable and lock cable so that the cables are not repeatedly bent.

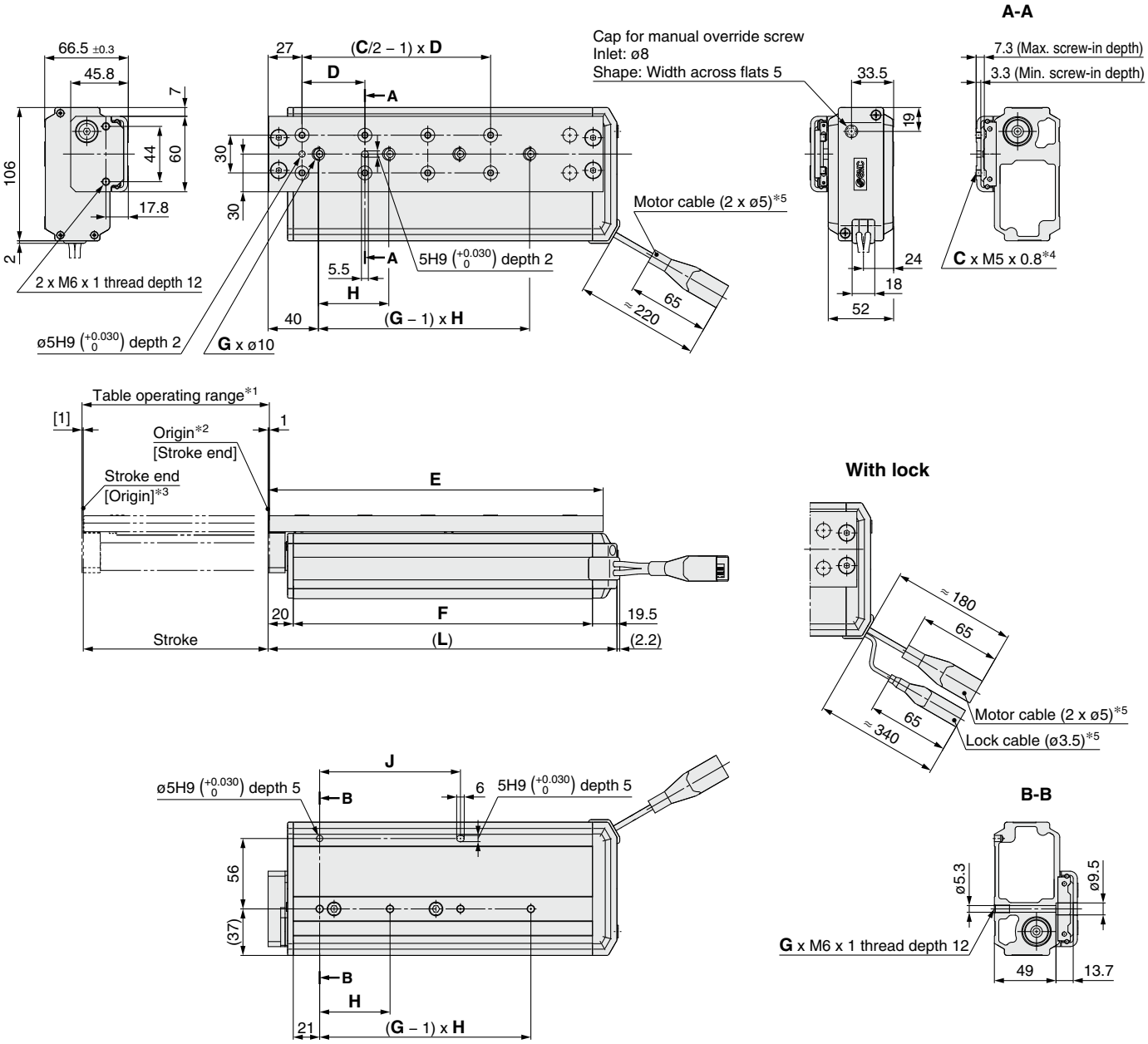
Dimensions

[mm]

Model	L	C	D	E	F	G	H	J
LES25RE□-30□-□□□□□	144.5	4	48	133.5	105	2	46	46
LES25RE□-50□□-□□□□□	170.5	6	42	159.5	131	2	84	84
LES25RE□-75□□-□□□□□	204.5	6	55	193.5	165	2	112	112
LES25RE□-100□□-□□□□□	277.5	8	50	266.5	238	4	56	112
LES25RE□-125□□-□□□□□	302.5	8	55	291.5	263	4	59	118
LES25RE□-150□□-□□□□□	327.5	8	62	316.5	288	4	62	124

Dimensions: Symmetrical Type/L Type

LES25LE



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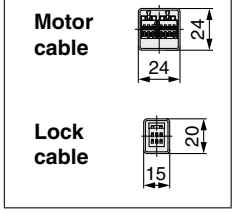


*1 This is the range within which the table can move when it returns to origin. Make sure that workpieces mounted on the table do not interfere with other workpieces or the facilities around the table.
*2 Position after returning to origin
*3 [ ] for when the direction of return to origin has changed
*4 If workpiece retaining screws are too long, they can touch the guide block and cause a malfunction. Use screws that are between the maximum and minimum screw-in depths in length.
*5 Secure the motor cable and lock cable so that the cables are not repeatedly bent.

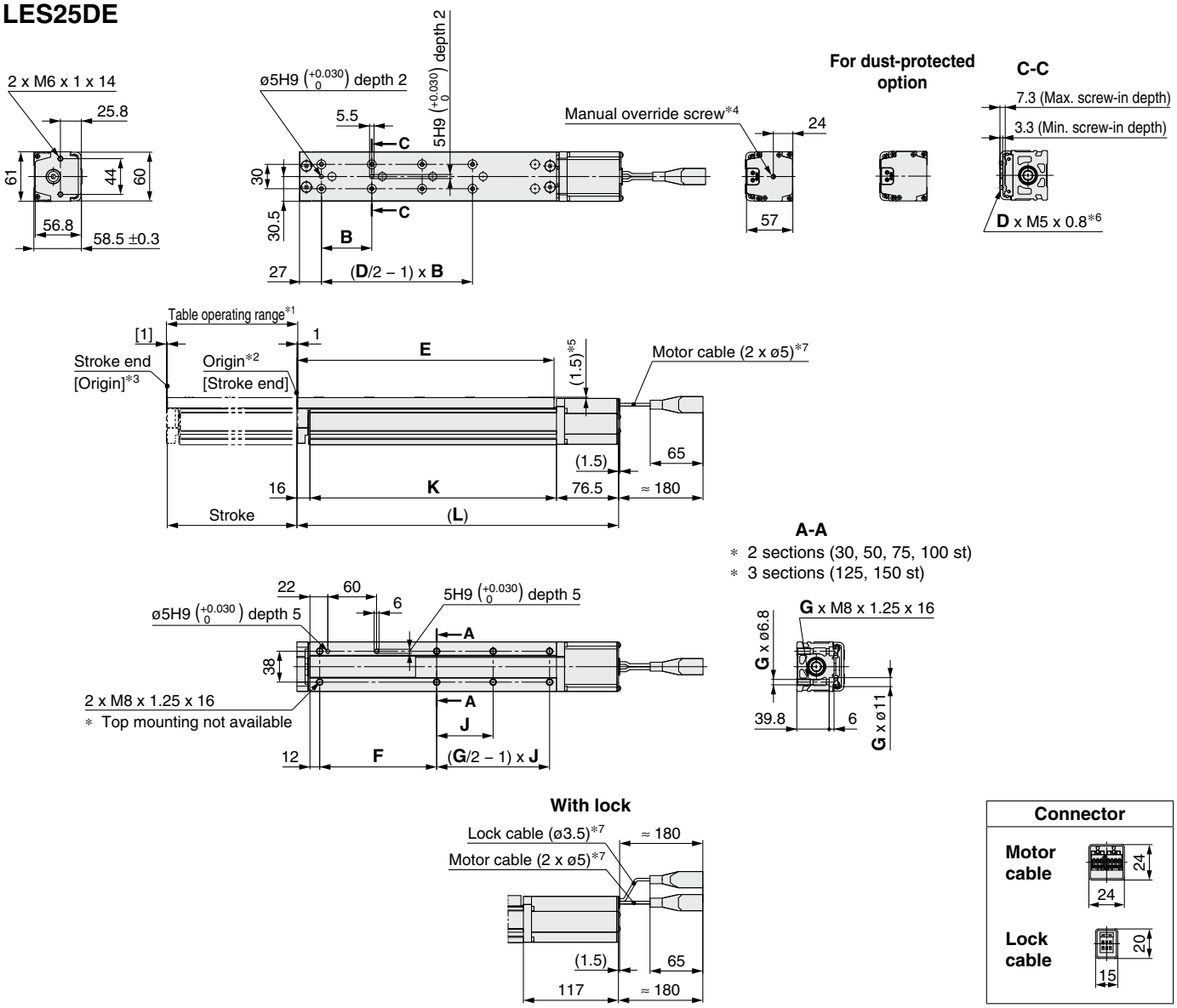
Dimensions

[mm]

Model	L	C	D	E	F	G	H	J
LES25LE□-30□-□□□□□	144.5	4	48	133.5	105	2	46	46
LES25LE□-50□□-□□□□□	170.5	6	42	159.5	131	2	84	84
LES25LE□-75□□-□□□□□	204.5	6	55	193.5	165	2	112	112
LES25LE□-100□□-□□□□□	277.5	8	50	266.5	238	4	56	112
LES25LE□-125□□-□□□□□	302.5	8	55	291.5	263	4	59	118
LES25LE□-150□□-□□□□□	327.5	8	62	316.5	288	4	62	124

Dimensions: In-line Motor Type/D Type

LES25DE



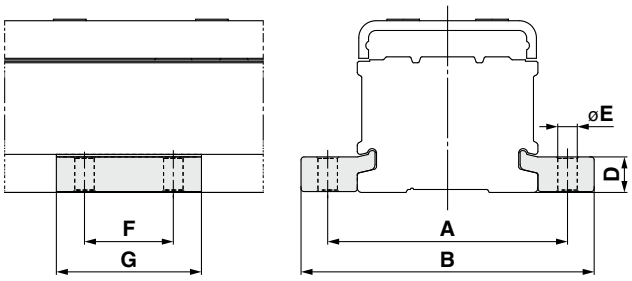
Connector

∗1 This is the range within which the table can move when it returns to origin. Make sure that workpieces mounted on the table do not interfere with other workpieces or the facilities around the table.
∗2 Position after returning to origin
∗3 [ ] for when the direction of return to origin has changed
∗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 ø5.5.
∗5 The table is lower than the motor cover.
∗6 If workpiece retaining screws are too long, they can touch the guide block and cause a malfunction. Use screws that are between the maximum and minimum screw-in depths in length.
∗7 Secure the motor cable and lock cable so that the cables are not repeatedly bent.

Dimensions [mm]

Model	(L)	B	D	E	F	G	J	K
LES25DE□-30□□-□□□□□	214	48	4	133.5	81	4	19	121.5
LES25DE□-30B□□-□□□□□	254.5							
LES25DE□-50□□-□□□□□	240	42	6	159.5	87	4	39	147.5
LES25DE□-50B□□-□□□□□	280.5							
LES25DE□-75□□-□□□□□	274	55	6	193.5	96	4	64	181.5
LES25DE□-75B□□-□□□□□	314.5							
LES25DE□-100□□-□□□□□	347	50	8	266.5	144	4	89	254.5
LES25DE□-100B□□-□□□□□	387.5							
LES25DE□-125□□-□□□□□	372	55	8	291.5	144	6	57	279.5
LES25DE□-125B□□-□□□□□	412.5							
LES25DE□-150□□-□□□□□	397	62	8	316.5	144	6	69.5	304.5
LES25DE□-150B□□-□□□□□	437.5							

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



[mm]

Part no.*1	A	B	D	E	F	G	Applicable model
LE-D-3-3	81	99	12	6.6	30	49	**LES25DE**

*1 Part number for 1 side holder

Model Selection 1

LESH□E Series ▶ p. 705

Selection Procedure

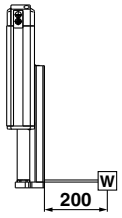
For the compact type LES series, refer to page 641.

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

Selection Example

Operating conditions

- Workpiece mass: 2 [kg]
- Speed: 200 [mm/s]
- Mounting orientation: Vertical
- Stroke: 50 [mm]
- Acceleration/Deceleration: 5000 [mm/s²]
- Cycle time: 0.5 s
- Workpiece mounting condition:

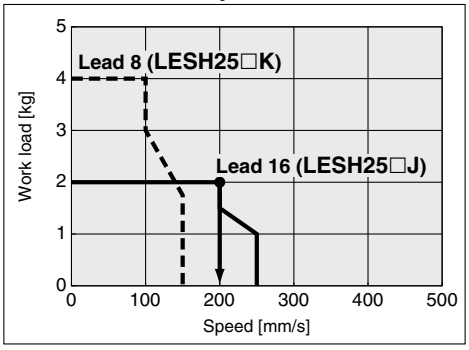


Step 1 **Check the work load–speed. <Speed–Work load graph>** (page 688)

Select a model based on the workpiece mass and speed while referencing the speed–work load graph.

Selection example) The **LESH25□EJ-50** can be temporarily selected as a possible candidate based on the graph shown on the right side.

LESH25□E□/Battery-less Absolute Vertical



<Speed–Work load graph>

Step 2 **Check the cycle time.**

It is possible to find 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 688)

Method 2: Calculation <Speed–Work load graph> (page 688)

Calculate **the cycle time** using the following calculation method.

Cycle time:

T can be found from the following equation.

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

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

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

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

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

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

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

Calculation example)

T1 to T4 can be calculated as follows.

$T1 = V/a1 = 200/5000 = 0.04$ [s],

$T3 = V/a2 = 200/5000 = 0.04$ [s]

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} = \frac{50 - 0.5 \cdot 200 \cdot (0.04 + 0.04)}{200} = 0.21 \text{ [s]}$$

$T4 = 0.15$ [s]

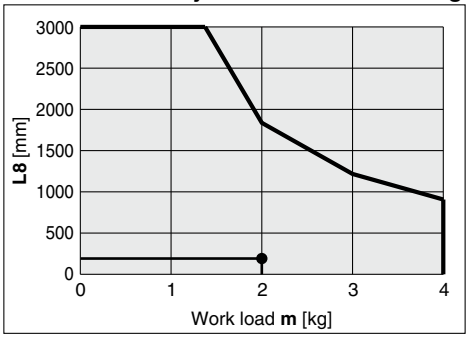
The cycle time can be found as follows.

$T = T1 + T2 + T3 + T4$

$= 0.04 + 0.21 + 0.04 + 0.15$

$=$ **0.44 [s]**

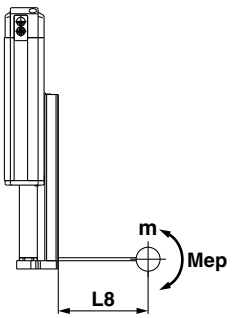
LESH25□/Battery-less Absolute Pitching



<Dynamic allowable moment>

Step 3 **Check the allowable moment. <Static allowable moment>** (page 688) **<Dynamic allowable moment>** (page 689)

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 LESH25□EJ-50 should be selected.

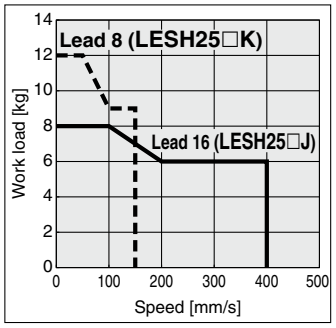
Speed–Work Load Graph (Guide)

Battery-less Absolute (Step Motor 24 VDC)

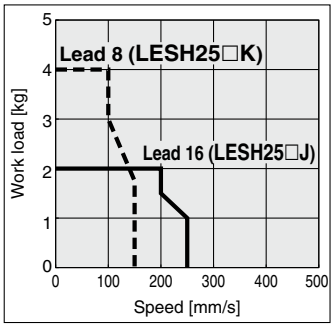
∗ The following graphs show the values when the moving force is 100%.

LESH25□E□

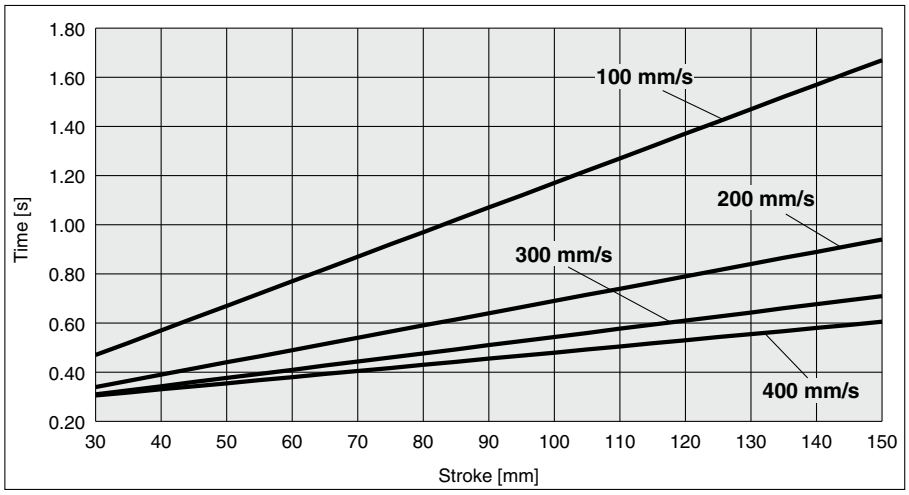
Horizontal



Vertical



Cycle Time Graph (Guide)



Operating Conditions

Acceleration/Deceleration: 5000 mm/s^2

In position: 0.5 mm

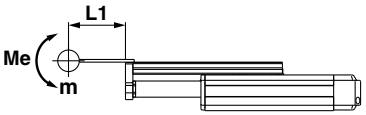
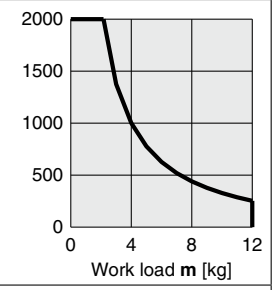
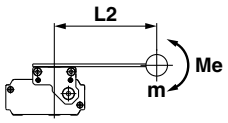
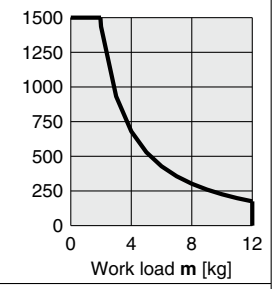
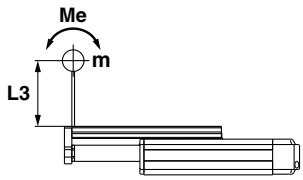
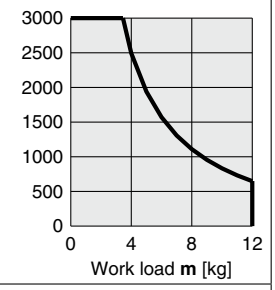
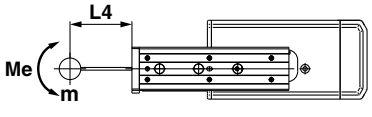
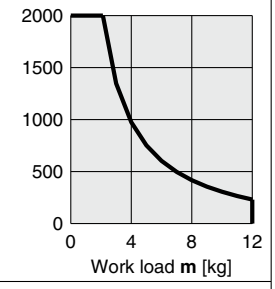
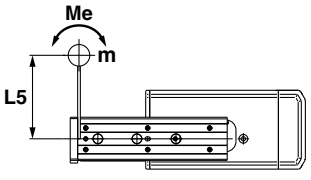
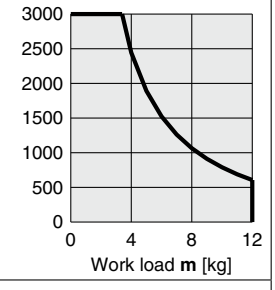
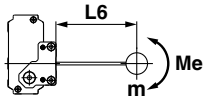
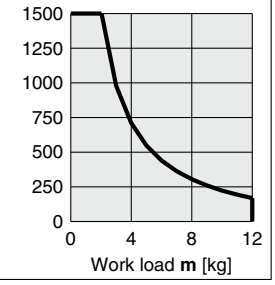
Static Allowable Moment

Model		LESH25		
Stroke	[mm]	**50**	**100**	**150**
Pitching	[N·m]	77	112	155
Yawing	[N·m]			
Rolling	[N·m]	146	177	152

Dynamic Allowable Moment

* These graphs show the amount of allowable overhang (guide unit) when the center of gravity of the workpiece overhangs in one direction. When selecting the overhang, refer to the "Calculation of Guide Load Factor" or the Electric Actuator Model Selection Software for confirmation: https://www.smcworld.com

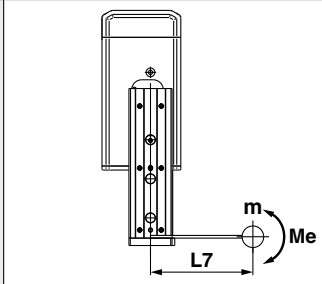
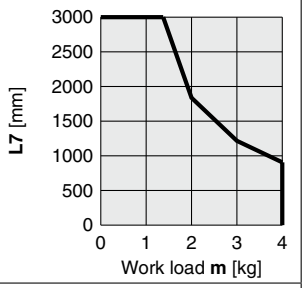
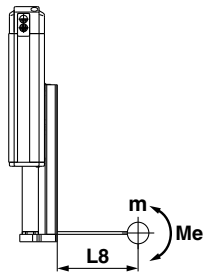
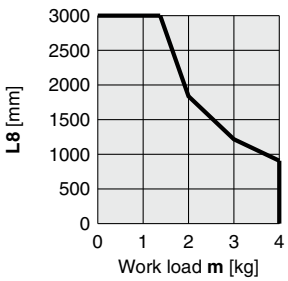
Acceleration/Deceleration —— 5000 mm/s²

Orientation	Load overhanging direction **m** : Work load [kg] **Me**: Allowable moment [N·m] **L** : Overhang to the work load center of gravity [mm]		Model **LESH25**
Horizontal/Bottom		**X**	
		**Y**	
		**Z**	
Horizontal (Wall)		**X**	
		**Y**	
		**Z**	

Dynamic Allowable Moment

* These graphs show the amount of allowable overhang (guide unit) when the center of gravity of the workpiece overhangs in one direction. When selecting the overhang, refer to the "Calculation of Guide Load Factor" or the Electric Actuator Model Selection Software for confirmation: https://www.smcworld.com

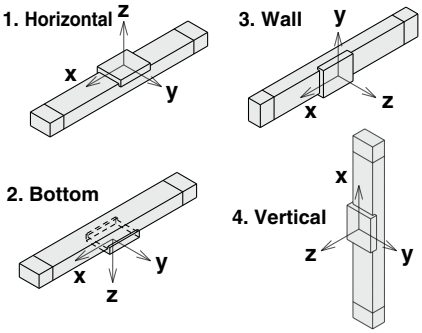
Acceleration/Deceleration —— 5000 mm/s²

Orientation	Load overhanging direction **m** : Work load [kg] **Me**: Allowable moment [N·m] **L** : Overhang to the work load center of gravity [mm]		Model **LESH25**
Vertical		**Y**	
		**Z**	

Calculation of Guide Load Factor

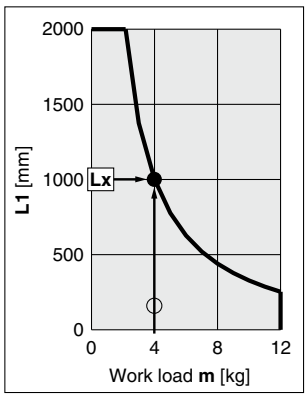
1. Decide operating conditions.
   Model: LESH
   Size: 25
   Mounting orientation: Horizontal/Bottom/Wall/Vertical
   Acceleration [mm/s²]: **a**
   Work load [kg]: **m**
   Work load center position [mm]: **Xc/Yc/Zc**
2. Select the target graph while referencing the model, size, and mounting orientation.
3. Based on the acceleration and work load, find the overhang [mm]: **Lx/Ly/Lz** from the graph.
4. Calculate the load factor for each direction.
   α**x = Xc/Lx**, α**y = Yc/Ly**, α**z = Zc/Lz**
5. Confirm the total of α**x**, α**y**, and α**z** is 1 or less.
   α**x + αy + αz ≤ 1**
   When 1 is exceeded, please consider a reduction of acceleration and work load, or a change of the work load center position and series.

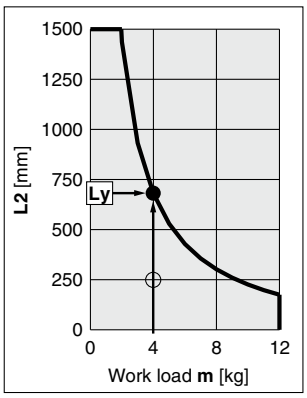
Mounting orientation

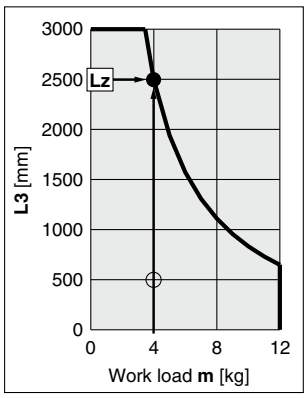


Example

1. Operating conditions
   Model: LESH
   Size: 25
   Mounting orientation: Horizontal
   Acceleration [mm/s²]: 5000
   Work load [kg]: 4.0
   Work load center position [mm]: **Xc = 250**, **Yc = 250**, **Zc = 500**
2. Select three graphs from the top on page 689.
3. **Lx = 1000 mm**, **Ly = 650 mm**, **Lz = 2500 mm**
4. The load factor for each direction can be found as follows.
   α**x = 250/1000 = 0.25**
   α**y = 250/650 = 0.38**
   α**z = 500/2500 = 0.20**
5. α**x + αy + αz = 0.83 ≤ 1**







Model Selection 2

Selection Procedure

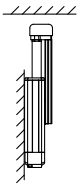
For the compact type LES series, refer to page 645.

Step 1 Check the required force. → **Step 2** Check the pushing force set value. → **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 s
- Full cycle time (B): 6 s



Step 1 Check the required force.

Calculate the approximate required force for a pushing operation.
Selection example) •Pushing force: 90 [N]
•Workpiece mass: 1 [kg]
The approximate required force can be found to be 90 + 10 = 100 [N].
Select a model based on the approximate required force while referencing the specifications (page 707).
Selection example) Based on the specifications,
•Approximate required force: 100 [N]
•Speed: 100 [mm/s]
The **LESH25□E** can be temporarily selected as a possible candidate.
Then, calculate the required force for a pushing operation.
If the mounting position is vertical upward, add the actuator table weight.
Selection example) Based on the table weight,
•**LESH25□E** table weight: 1.3 [kg]
The required force can be found to be 100 + 13 = 113 [N].

Step 2 Check the pushing force set value.

<Pushing force set value–Force graph> (page 692)

Select a model based on the required force while referencing the pushing force set value–force graph, and confirm the pushing force set value.
Selection example) Based on the graph shown on the right side,
•Required force: 113 [N]
The **LESH25□EK** can be temporarily selected as a possible candidate.
This pushing force set value is 40 [%].

Step 3 Check the duty ratio.

Confirm the allowable duty ratio based on the pushing force set value while referencing the allowable duty ratio,
Selection example) Based on the allowable duty ratio,
•Pushing force set value: 40 [%]
The allowable duty ratio can be found to be 30 [%].
Calculate the duty ratio for the operating conditions, and confirm it does not exceed the allowable duty ratio.
Selection example) •Pushing time + Operation (A): 1.5 s
•Full cycle time (B): 6 s
The duty ratio can be found to be 1.5/6 x 100 = 25 [%], and this is within the allowable range.

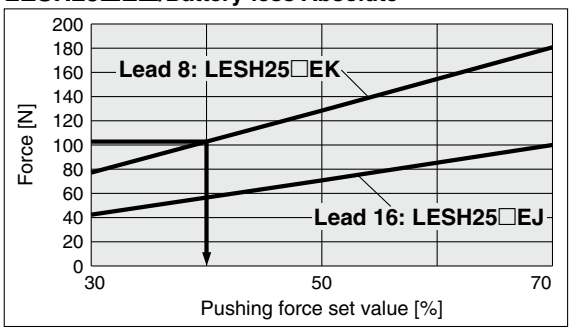
Based on the above calculation result, the LESH25□EK-100 should be selected.
For allowable moment, the selection procedure is the same as that for the positioning control.

Table Weight [kg]

Model	Stroke [mm]			
	50	75	100	150
LESH25	0.9	—	1.3	1.7

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

LESH25□E□/Battery-less Absolute

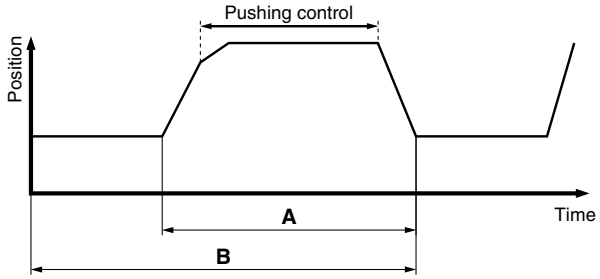


<Pushing force set value–Force graph>

Allowable Duty Ratio

Battery-less Absolute

Pushing force set value [%]	Duty ratio [%]	Continuous pushing time [min]
30	—	—
50 or less	30 or less	5 or less
70 or less	20 or less	3 or less



Pushing Force Set Value–Force Graph

Battery-less Absolute (Step Motor 24 VDC)

LESH25□E□

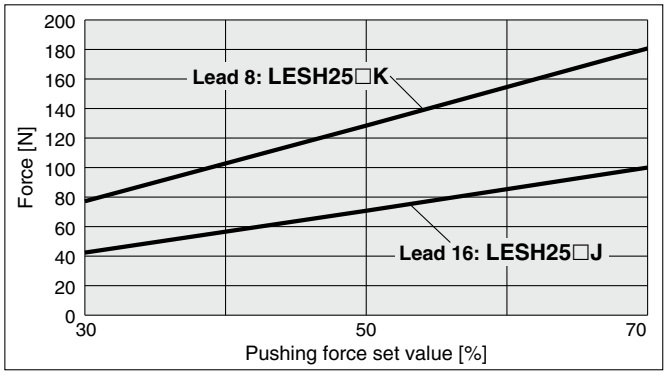
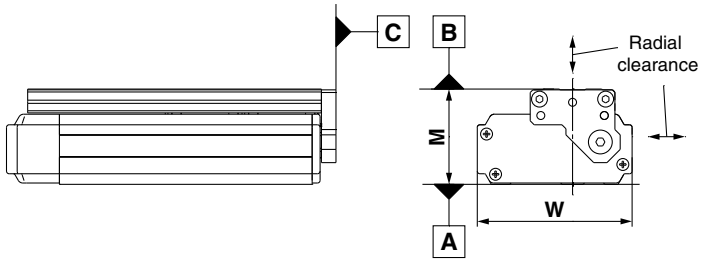


Table Accuracy

* These values are initial guideline values.

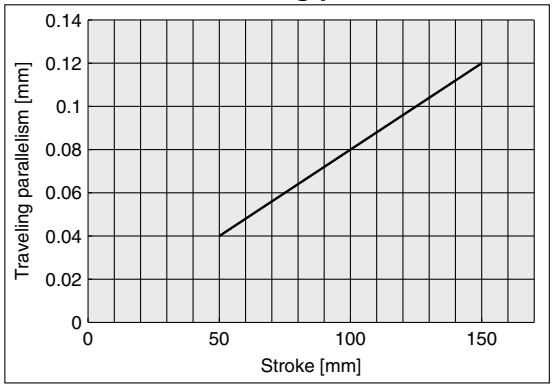


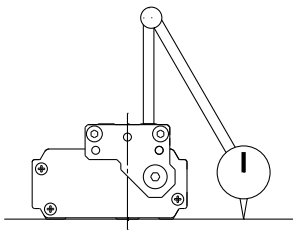
Model	LESH25
B side parallelism to A side [mm]	Refer to Table 1.
B side traveling parallelism to A side [mm]	Refer to Graph 1.
C side perpendicularity to A side [mm]	0.05
M dimension tolerance [mm]	±0.3
W dimension tolerance [mm]	±0.2
Radial clearance [μm]	−14 to 0

Table 1 B side parallelism to A side

Model	Stroke [mm]			
	50	75	100	150
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.

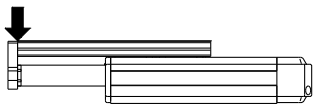


Table displacement due to yaw moment load
Table displacement when loads are applied to the section marked with the arrow with the slide table stuck out.

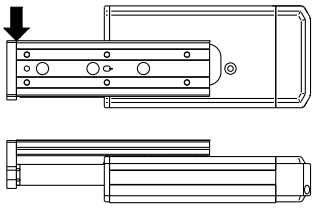
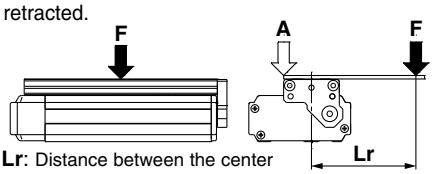
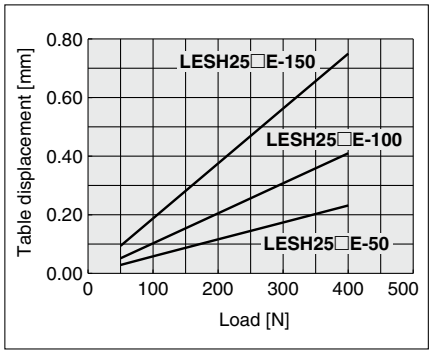


Table displacement due to roll moment load
Table displacement of section A when loads are applied to the section F with the slide table retracted.

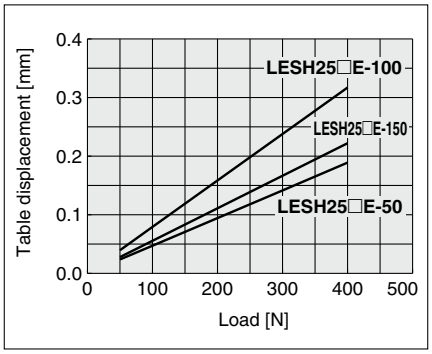


Lr: Distance between the center of the table and the work load center of gravity

LESH25

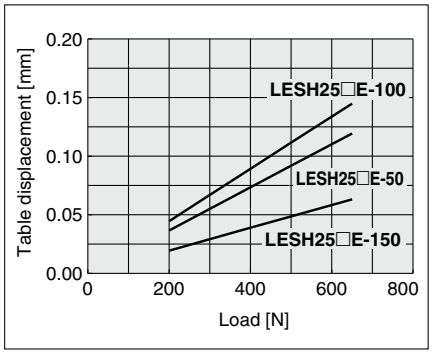


LESH25



LESH25

Lr = 200 mm



Battery-less Absolute (Step Motor 24 VDC)

Slide Table/High Rigidity Type

LESH Series LESH25

CE UKCA RoHS

* For details, refer to page 1343 and onward.

High rigidity type

How to Order

LESH 25 R E J – 50 □ □ □ – R1 CD17T

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿

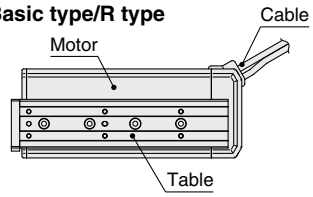
For details on controllers, refer to the next page.

❶ Size

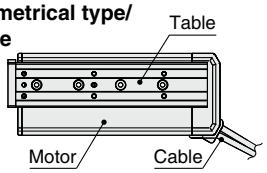
25

❷ Motor mounting position

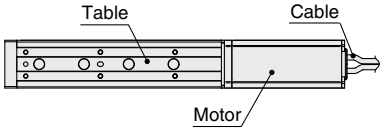
R — Basic type/R type



L — Symmetrical type/ L type



D — In-line motor type/D type



❸ Motor type

Symbol	Type	Compatible controllers/drivers		
E	Battery-less absolute (Step motor 24 VDC)	JXC51	JXCP1	JXCEF
		JXC61	JXCD1	JXC9F
		JXCE1	JXCL1	JXCPF
		JXC91	JXCM1	JXCLF

❹ Lead [mm]

J	16
K	8

❺ Stroke [mm]

Stroke	Applicable stroke
50 to 150	50, 100, 150

❻ Motor option

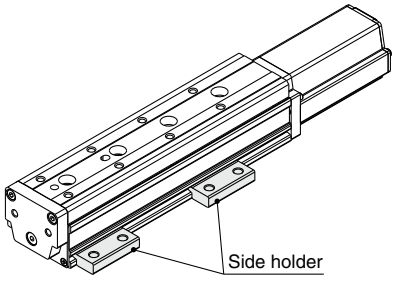
Nil	Without option
B	With lock

❼ Body option

Nil	Without option
S	Dust-protected*1

❽ Mounting*2

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



❾ Actuator cable type/length

Robotic cable [m]

Nil	None	R8	8*3
R1	1.5	RA	10*3
R3	3	RB	15*3
R5	5	RC	20*3

⑩ Controller

Nil	Without controller
C□1□□	With controller

C D 1 7 T

Interface (Communication protocol/Input/Output)

Symbol	Type	Number of axes, Special specification: Standard	Number of axes, Special specification: With STO sub-function
5	Parallel input (NPN)	●	
6	Parallel input (PNP)	●	
E	EtherCAT	●	●
9	EtherNet/IP™	●	●
P	PROFINET	●	●
D	DeviceNet®	●	
L	IO-Link	●	●
M	CC-Link	●	

Mounting

7	Screw mounting
8∗4	DIN rail

Number of axes, Special specification

Symbol	Number of axes	Specification
1	Single axis	Standard
F	Single axis	With STO sub-function

Communication plug connector, I/O cable∗5

Symbol	Type	Applicable interface
Nil	Without accessory	—
S	Straight type communication plug connector	DeviceNet® CC-Link Ver. 1.10
T	T-branch type communication plug connector	
1	I/O cable (1.5 m)	Parallel input (NPN) Parallel input (PNP)
3	I/O cable (3 m)	
5	I/O cable (5 m)	

∗1 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.
∗2 For details, refer to page 713.
∗3 Produced upon receipt of order
∗4 The DIN rail is not included. It must be ordered separately.
∗5 Select "Nil" for anything other than DeviceNet®, CC-Link, or parallel input.
Select "Nil," "S," or "T" for DeviceNet® or CC-Link.
Select "Nil," "1," "3," or "5" for parallel input.

⚠Caution

[CE/UKCA-compliant products]
EMC compliance was tested by combining the electric actuator LES series and the controller JXC series.
The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, compliance with 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 compliance with the EMC directive for the machinery and equipment as a whole.

[Precautions relating to differences in controller versions]
When the JXC series is to be used in combination with the battery-less absolute encoder, use a controller that is version V3.4 or S3.4 or higher. For details, refer to pages 1077 and 1078.

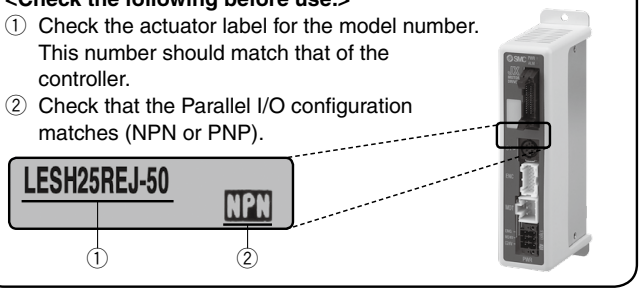
[UL certification]
The JXC series controllers used in combination with electric actuators are UL certified.

The actuator and controller are sold as a package.

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

<Check the following before use.>

① Check the actuator label for the model number. This number should match that of the controller.
② Check that the Parallel I/O configuration matches (NPN or PNP).



∗ Refer to the Operation Manual for using the products.
Please download it via our website: https://www.smcworld.com

Type	Step data input type	EtherCAT direct input type	EtherCAT direct input type with STO sub-function	EtherNet/IP™ direct input type	EtherNet/IP™ direct input type with STO sub-function	PROFINET direct input type	PROFINET direct input type with STO sub-function	DeviceNet® direct input type	IO-Link direct input type	IO-Link direct input type with STO sub-function	CC-Link direct input type
											
Series	**JXC51 JXC61**	**JXCE1**	**JXCEF**	**JXC91**	**JXC9F**	**JXCP1**	**JXCPF**	**JXCD1**	**JXCL1**	**JXCLF**	**JXCM1**
Features	Parallel I/O	EtherCAT direct input	EtherCAT direct input with STO sub-function	EtherNet/IP™ direct input	EtherNet/IP™ direct input with STO sub-function	PROFINET direct input	PROFINET direct input with STO sub-function	DeviceNet® direct input	IO-Link direct input	IO-Link direct input with STO sub-function	CC-Link direct input
Compatible motor	Battery-less absolute (Step motor 24 VDC)										
Max. number of step data	64 points										
Power supply voltage	24 VDC										
Reference page	1017	1063									

Specifications

Battery-less Absolute (Step Motor 24 VDC)

Model				LESH25□E	
Actuator specifications	Stroke [mm]			50, 100, 150	
	Work load [kg]*1 *3	Horizontal		12	8
		Vertical		4	2
	Pushing force [N] 30% to 70%*2 *3			77 to 180	43 to 100
	Speed [mm/s]*1 *3			10 to 150	20 to 400
	Pushing speed [mm/s]			10 to 20	20
	Max. acceleration/deceleration [mm/s²]			5000	
	Positioning repeatability [mm]			±0.05	
	Lost motion [mm]*4			0.15 or less	
	Screw lead [mm]			8	16
	Impact/Vibration resistance [m/s²]*5			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)	
	Enclosure			IP30	
Electric specifications	Motor size			□42	
	Motor type			Battery-less absolute (Step motor 24 VDC)	
	Encoder			Battery-less absolute	
	Power supply voltage [V]			24 VDC ±10%	
	Power [W]*6 *8			Max. power 74	
Lock unit specifications	Type		*7	Non-magnetizing lock	
	Holding force [N]			500	77
	Power [W]*8			5	
	Rated voltage [V]			24 VDC ±10%	

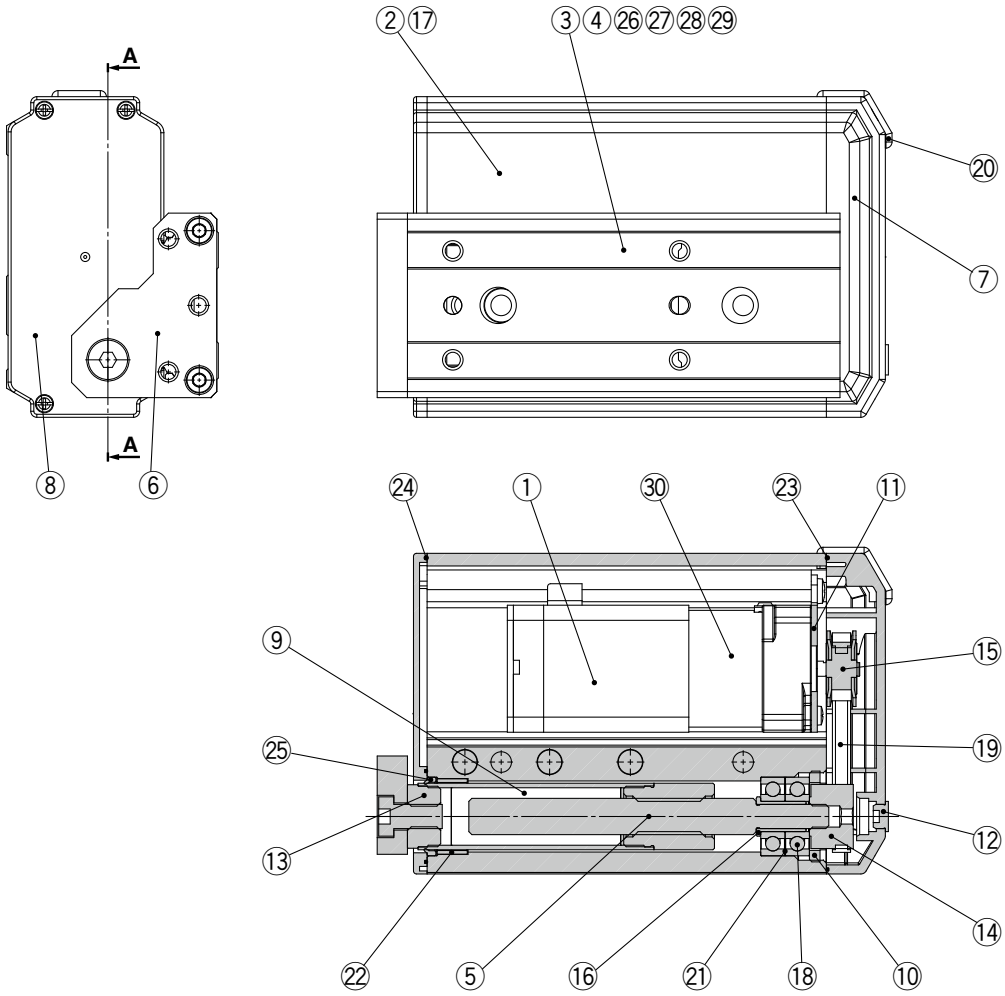
*1 Speed changes according to the work load. Check the "Speed–Work Load Graph (Guide)" on page 688.
*2 Pushing force accuracy is ±20% (F.S.).
*3 The speed and force may change depending on the cable length, load, and mounting conditions. Furthermore, if the cable length exceeds 5 m, then it will decrease by up to 10% for each 5 m. (At 15 m: Reduced by up to 20%)
*4 A reference value for correcting errors in reciprocal operation
*5 Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The 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. (The test was performed with the actuator in the initial state.)
*6 Indicates the max. power during operation (including the controller)
This value can be used for the selection of the power supply.
*7 With lock only
*8 For an actuator with lock, add the power for the lock.

Weight

Battery-less Absolute (Step Motor 24 VDC)

Model		Basic type/R type, Symmetrical type/L type			In-line motor type/ D type		
		LESH25$^{R}_{L}$			LESH25D		
Stroke [mm]		50	100	150	50	100	150
Product weight [kg]	Without lock	2.50	3.30	4.26	2.52	3.27	3.60
	With lock	2.84	3.64	4.60	2.86	3.61	3.94

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 plating
4	**Guide block**	Stainless steel	Heat treatment
5	**Lead screw**	Stainless steel	Heat treatment + Special treatment
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	Electroless nickel plating
		Brass	Electroless nickel plating (LESH25R/L□ only)
11	**Motor plate**	Structural steel	
12	**Cap**	Silicone rubber	—
13	**Socket**	Structural steel	Electroless nickel plating
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 plating
18	**Bearing**	—	—
19	**Belt**	—	—
20	**Grommet**	Synthetic resin	—
21	**Sim ring**	Structural steel	—

No.	Description	Material	Note
22	**Bushing**	—	Dust-protected option only
23	**Pulley gasket**	NBR	Dust-protected option only
24	**End gasket**	NBR	Dust-protected option only
25	**Scraper**	NBR	Dust-protected option 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

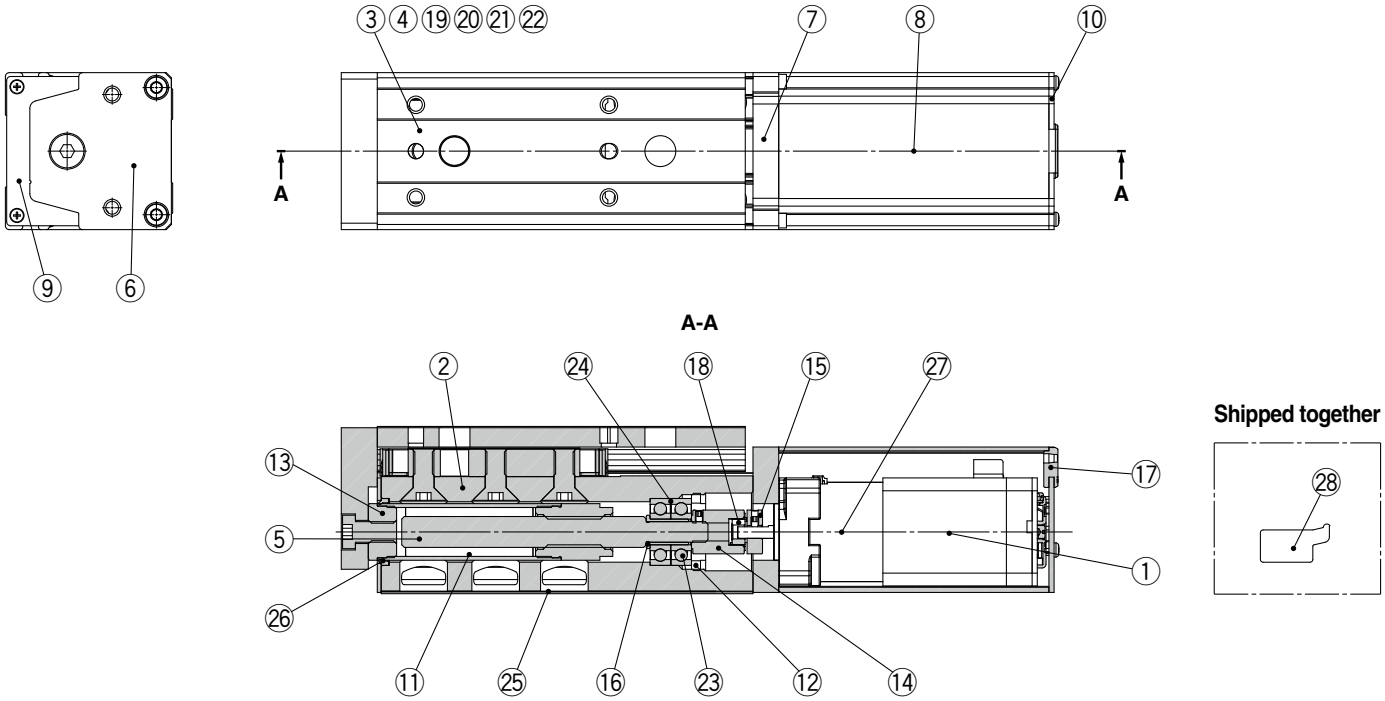
Replacement Parts/Belt

Model	Order no.
LESH25□	LE-D-1-3

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 plating
4	**Guide block**	Stainless steel	Heat treatment
5	**Lead screw**	Stainless steel	Heat treatment + Special treatment
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	Electroless nickel plating
		Brass	Electroless nickel plating (LESH25D□ only)
13	**Socket**	Structural steel	Electroless nickel plating
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	Dust-protected option only/ Rod
27	**Lock**	—	With lock only
28	**Side holder**	Aluminum alloy	Anodized

Optional Parts/Side Holder

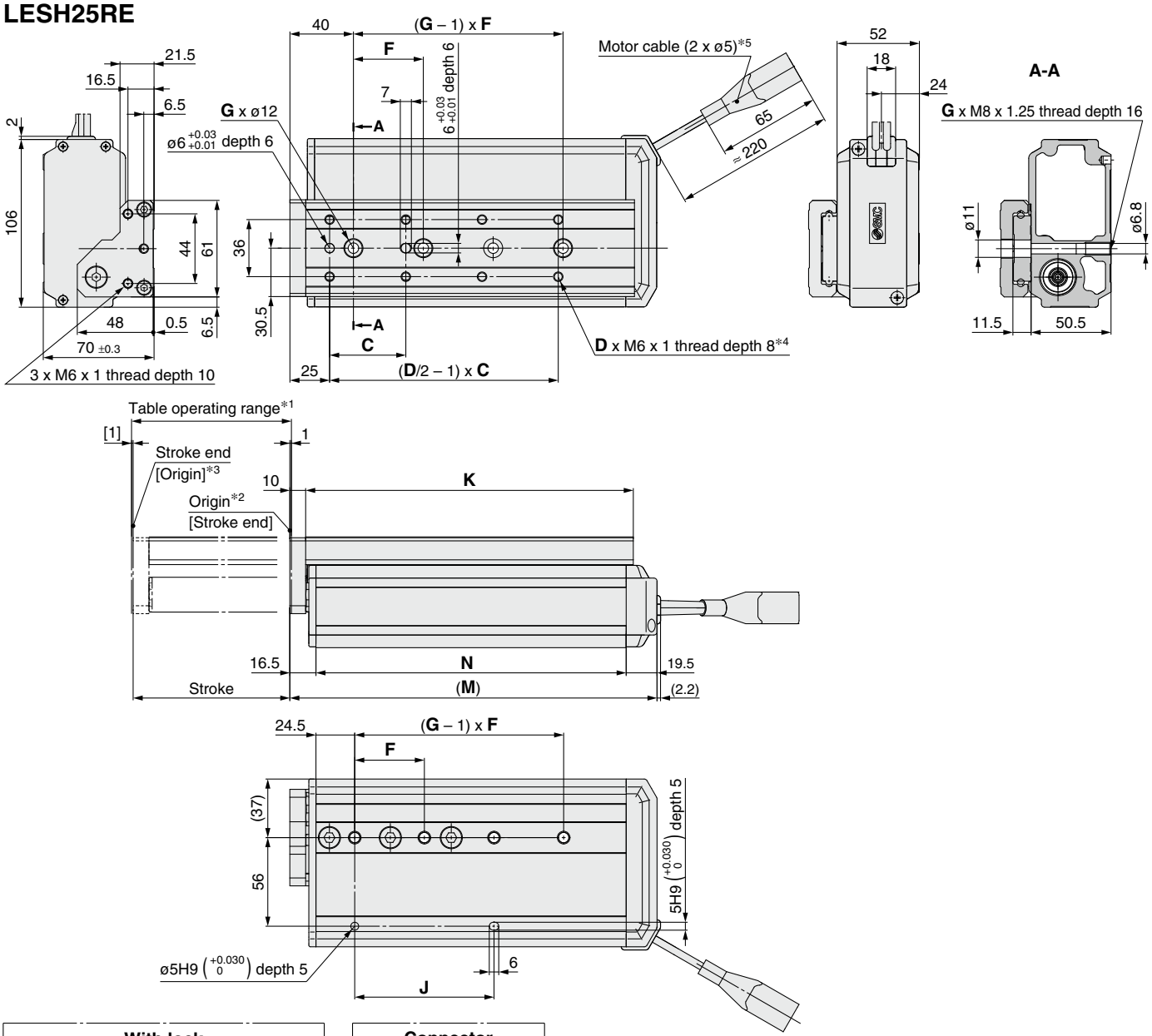
Model	Order no.
LESH25D	LE-D-3-3

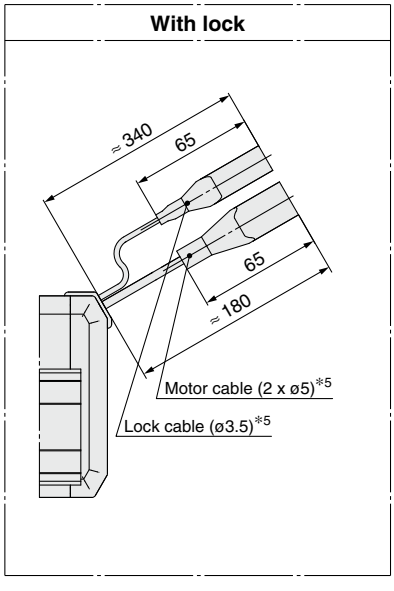
Replacement Parts/Grease Pack

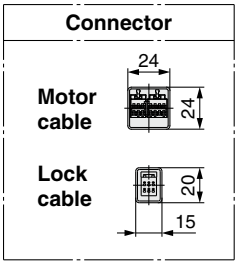
Applied portion	Order no.
Guide unit	GR-S-010 (10 g) GR-S-020 (20 g)

Dimensions: Basic Type/R Type

LESH25RE







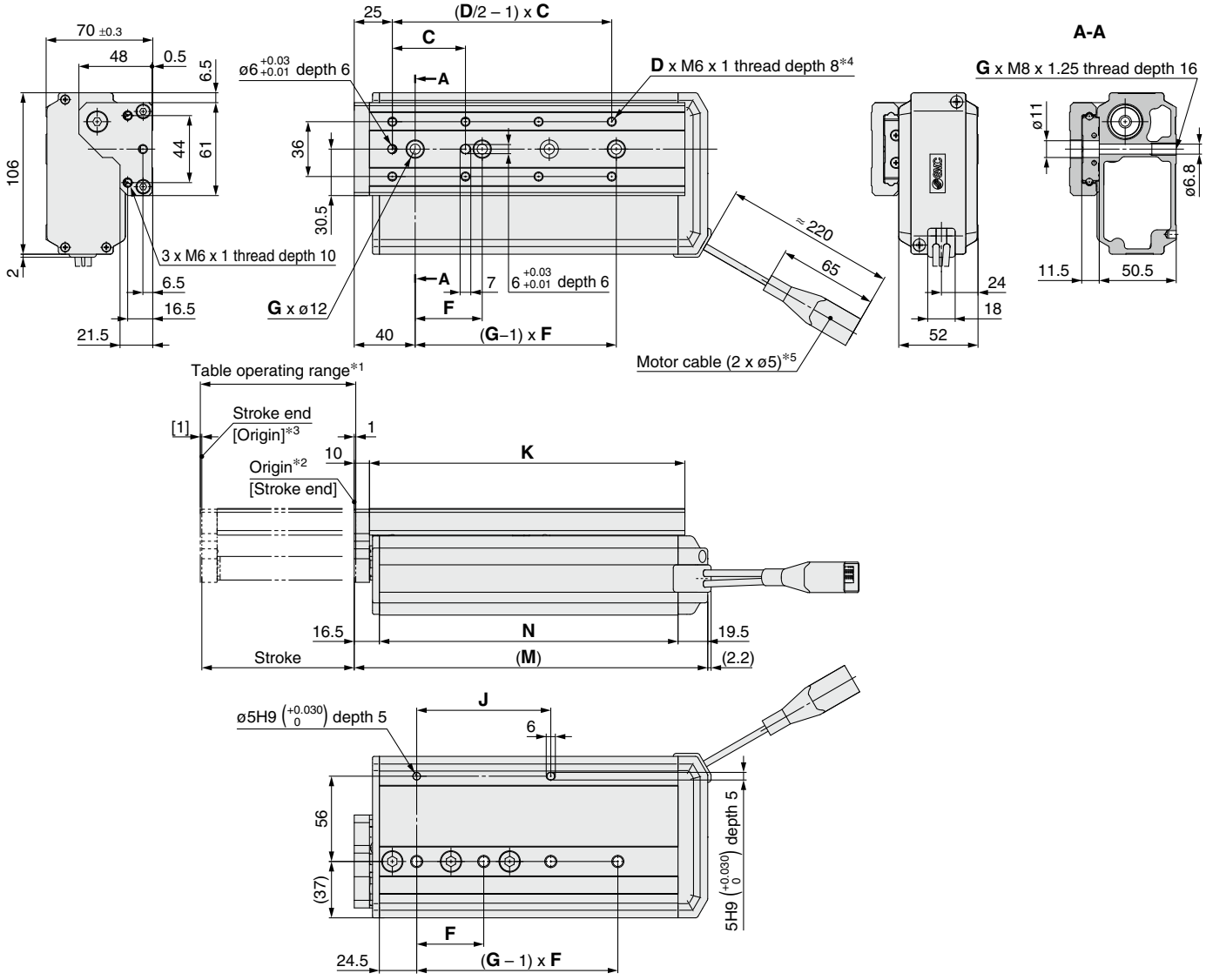
[mm]

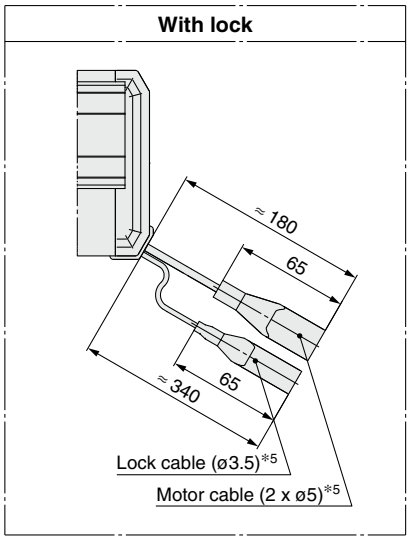
Model	C	D	F	G	J	K	M	N
LESH25RE□-50□□-□□□□□	75	4	80	2	80	143	168	132
LESH25RE□-100□□-□□□□□	48	8	44	4	88	207	232	196
LESH25RE□-150□□-□□□□□	65	8	66	4	132	285	310	274

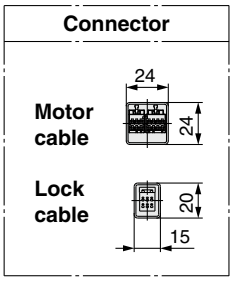
∗1 This is the range within which the table can move when it returns to origin. Make sure that workpieces mounted on the table do not interfere with other workpieces or the facilities around the table.
∗2 Position after returning to origin
∗3 [ ] for when the direction of return to origin has changed
∗4 If workpiece retaining screws are too long, they can touch the guide block and cause a malfunction. Use screws that are between the maximum and minimum screw-in depths in length.
∗5 Secure the motor cable and lock cable so that the cables are not repeatedly bent.

Dimensions: Symmetrical Type/L Type

LESH25LE







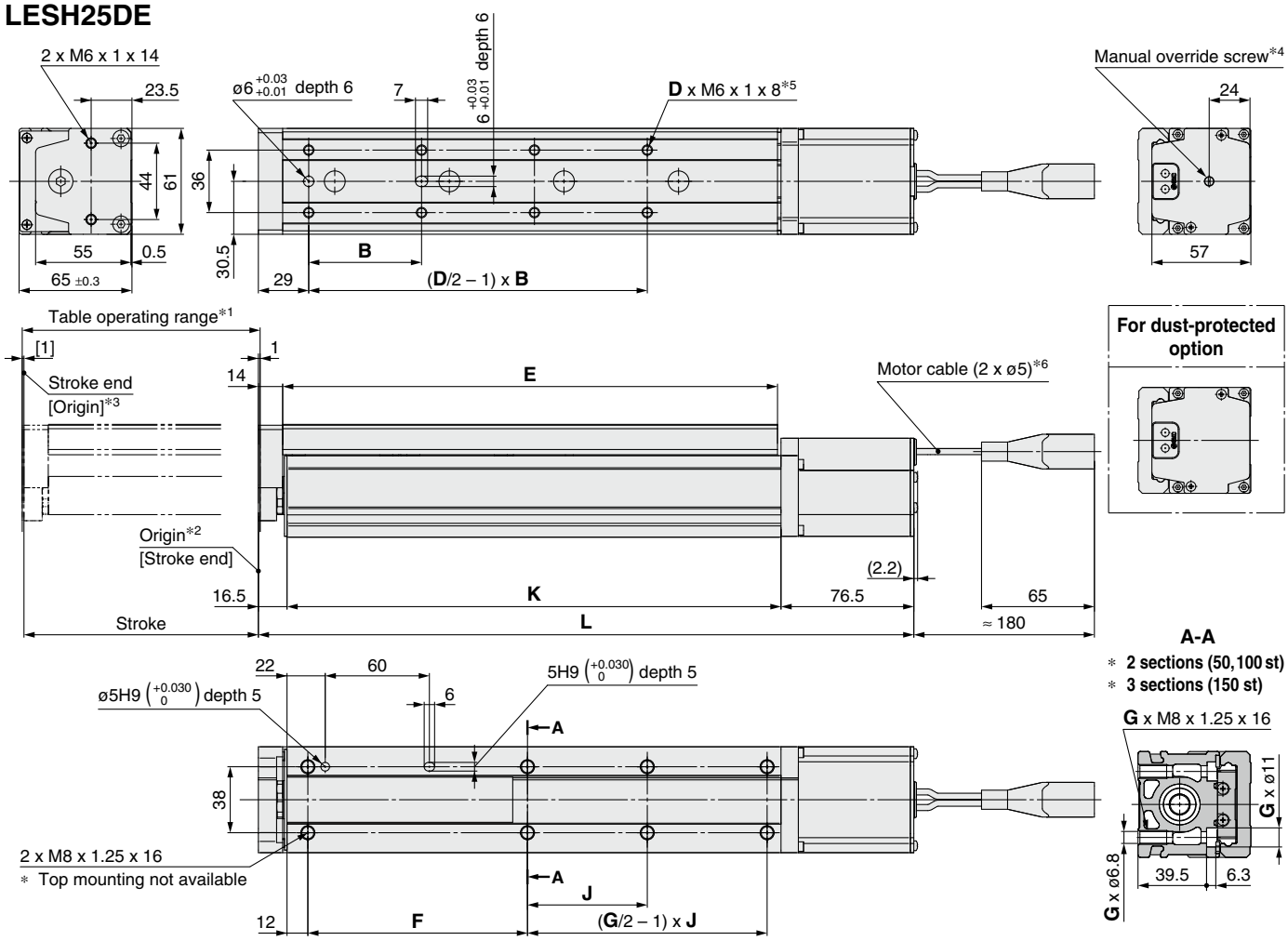
[mm]

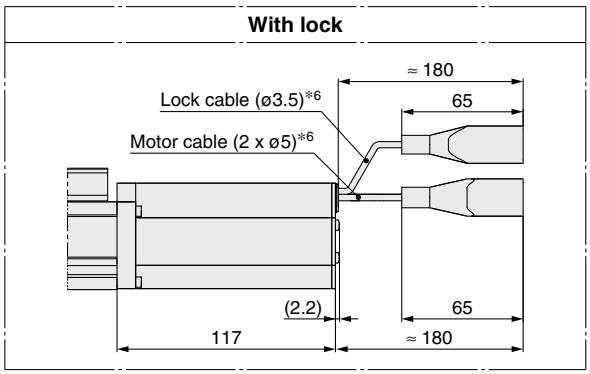
Model	C	D	F	G	J	K	M	N
LESH25LE□-50□□-□□□□□	75	4	80	2	80	143	168	132
LESH25LE□-100□□-□□□□□	48	8	44	4	88	207	232	196
LESH25LE□-150□□-□□□□□	65	8	66	4	132	285	310	274

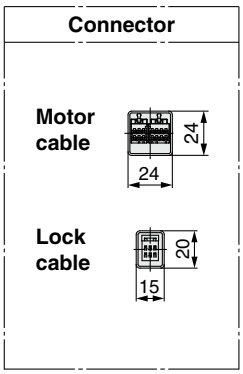
∗1 This is the range within which the table can move when it returns to origin. Make sure that workpieces mounted on the table do not interfere with other workpieces or the facilities around the table.
∗2 Position after returning to origin
∗3 [ ] for when the direction of return to origin has changed
∗4 If workpiece retaining screws are too long, they can touch the guide block and cause a malfunction. Use screws that are between the maximum and minimum screw-in depths in length.
∗5 Secure the motor cable and lock cable so that the cables are not repeatedly bent.

Dimensions: In-line Motor Type/D Type

LESH25DE





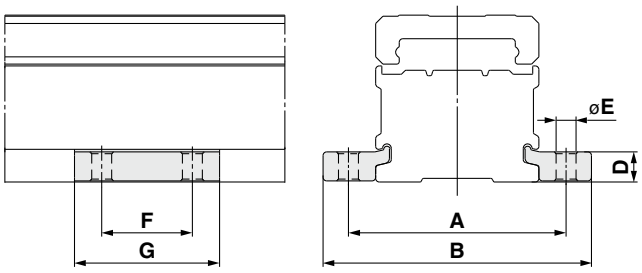


[mm]

Model	L	B	D	E	F	G	J	K
LESH25DE□-50□□-□□□□□	237.5	75	4	143	84	4	40.5	144.5
LESH25DE□-50B□□-□□□□□	278							
LESH25DE□-100□□-□□□□□	299.5	48	8	207	98.5		88	206.5
LESH25DE□-100B□□-□□□□□	340							
LESH25DE□-150□□-□□□□□	377.5	65		285	126.5	6	69	284.5
LESH25DE□-150B□□-□□□□□	418							

∗1 This is the range within which the table can move when it returns to origin. Make sure that workpieces mounted on the table do not interfere with other workpieces or the facilities around the table.
∗2 Position after returning to origin
∗3 [ ] for when the direction of return to origin has changed
∗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 ø5.5.
∗5 If workpiece retaining screws are too long, they can touch the guide block and cause a malfunction. Use screws that are between the maximum and minimum screw-in depths in length.
∗6 Secure the motor cable and lock cable so that the cables are not repeatedly bent.

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



[mm]

Part no.*1	A	B	D	E	F	G	Applicable model
LE-D-3-3	81	99	12	6.6	30	49	**LESH25DE**

*1 Part number for 1 side holder

LES/LESH Series
Battery-less Absolute Encoder Type Specific Product Precautions

Be sure to read this before handling the products. Refer to page 1351 for safety instructions and pages 1352 to 1357 for electric actuator precautions.

Handling

⚠Caution

1. Absolute encoder ID mismatch error at the first connection

In the following cases, an "ID mismatch error" alarm occurs after the power is turned ON. Perform a return to origin operation after resetting the alarm before use.

- When an electric actuator is connected and the power is turned ON for the first time after purchase*1
- When the actuator or motor is replaced
- When the controller is replaced

*1 If you have purchased an electric actuator and controller with the set part number, the pairing may have already been completed and the alarm may not be generated.

"ID mismatch error"

Operation is enabled by matching the encoder ID on the electric actuator side with the ID registered in the controller. This alarm occurs when the encoder ID is different from the registered contents of the controller. By resetting this alarm, the encoder ID is registered (paired) to the controller again.

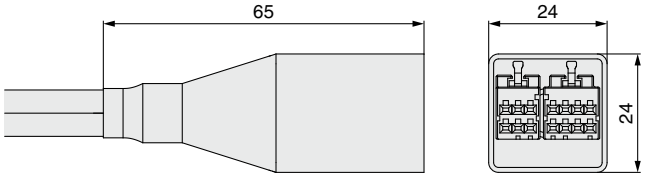
When a controller is changed after pairing is completed				
	Encoder ID no. (* Numbers below are examples.)			
Actuator	17623	17623	17623	17623
Controller	17623	17699	17699	17623
ID mismatch error occurred?	No	Yes	Error reset ⇒ No	

2. In environments where strong magnetic fields are present, use may be limited.

A magnetic sensor is used in the encoder. Therefore, if the actuator motor is used in an environment where strong magnetic fields are present, malfunction or failure may occur.
Do not expose the actuator motor to magnetic fields with a magnetic flux density of 1 mT or more.
When installing an electric actuator and an air cylinder with an auto switch (ex. CDQ2 series) or multiple electric actuators side by side, maintain a space of 40 mm or more around the motor. Refer to the construction drawing of the actuator motor.

3. The connector size of the motor cable is different from that of the electric actuator with an incremental encoder.

The motor cable connector of an electric actuator with a battery-less absolute encoder is different from that of an electric actuator with an incremental encoder. As the connector cover dimensions are different, take the dimensions below into consideration during the design process.



Battery-less absolute encoder connector cover dimensions