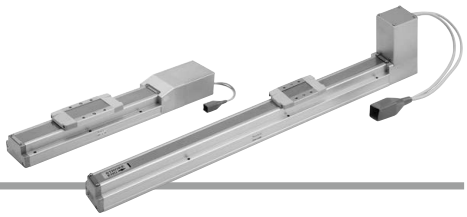
Model Selection

LEFS□E Series ▶ p. 139 LEFB□E Series ▶ p. 217



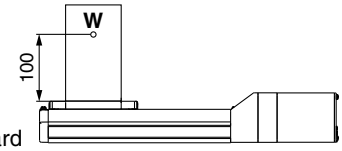
Selection Procedure

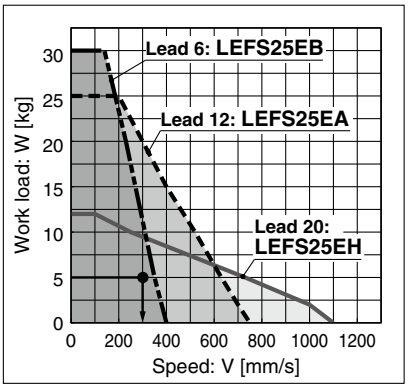
Step 1 Check the work load–speed. → **Step 2** Check the cycle time. → **Step 3** Check the allowable moment.

Selection Example

Operating conditions

- Workpiece mass: 5 [kg]
- Speed: 300 [mm/s]
- Acceleration/Deceleration: 3000 [mm/s^2]
- Stroke: 200 [mm]
- Mounting orientation: Horizontal upward
- Workpiece mounting condition:





<Speed–Work load graph> (LEFS25)

Step 1 Check the work load–speed. <Speed–Work load graph> (pages 106 to 108)

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

Selection example) The **LEFS25EA-200** can be temporarily selected as a possible candidate based on the graph shown on the right side.

Step 2 Check the cycle time.

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

Cycle time:

T can be found from the following equation.

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

- T1: Acceleration time and T3: Deceleration time can be 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.

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

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

$T1 = V/a1 = 300/3000 = 0.1$ [s],

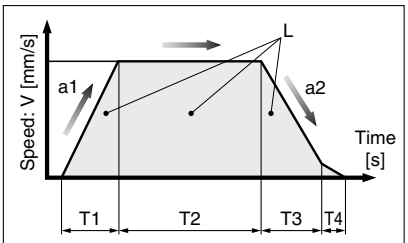
$T3 = V/a2 = 300/3000 = 0.1$ [s]

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

$T4 = 0.2$ [s]

The cycle time can be found as follows.

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

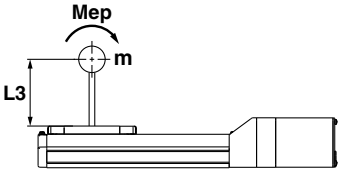


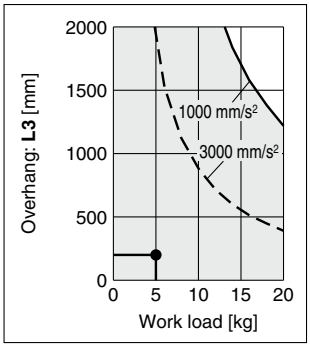
L : Stroke [mm] ··· (Operating condition)
V : Speed [mm/s] ··· (Operating condition)
a1: Acceleration [mm/s^2] ··· (Operating condition)
a2: Deceleration [mm/s^2] ··· (Operating condition)

T1: Acceleration time [s]
Time until reaching the set speed
T2: Constant speed time [s]
Time while the actuator is operating at a constant speed
T3: Deceleration time [s]
Time from the beginning of the constant speed operation to stop
T4: Settling time [s]
Time until positioning is completed

Step 3 Check the allowable moment. <Static allowable moment> (page 108) <Dynamic allowable moment> (page 109)

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





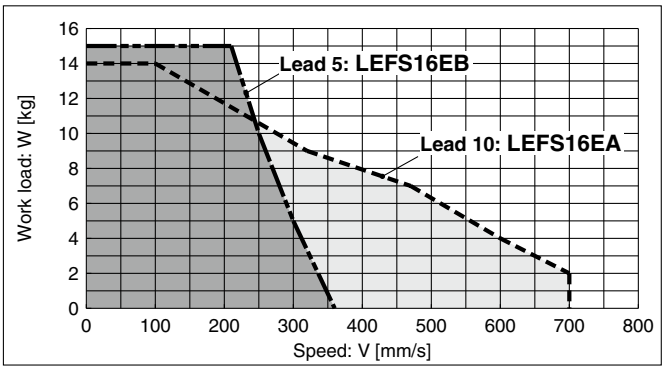
Based on the above calculation result, the LEFS25EA-200 should be selected.

Speed–Work Load Graph (Guide)
For Battery-less Absolute (Step Motor 24 VDC), In-line Motor Type

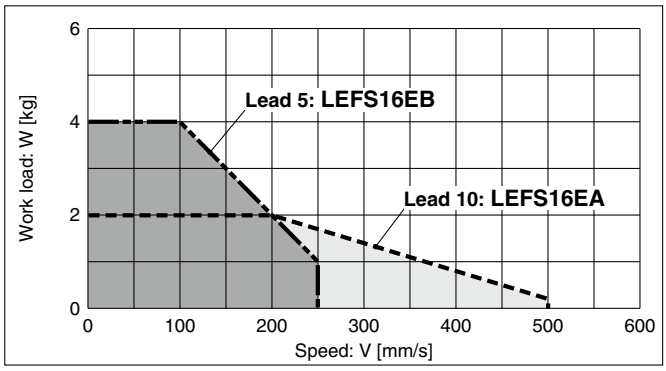
* The following graphs show the values when the moving force is 100%.

LEFS16/Ball Screw Drive

Horizontal

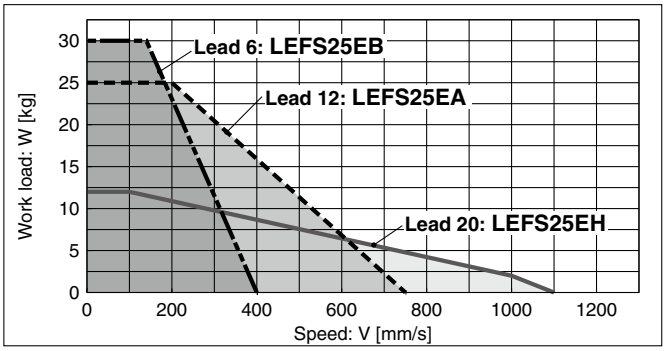


Vertical

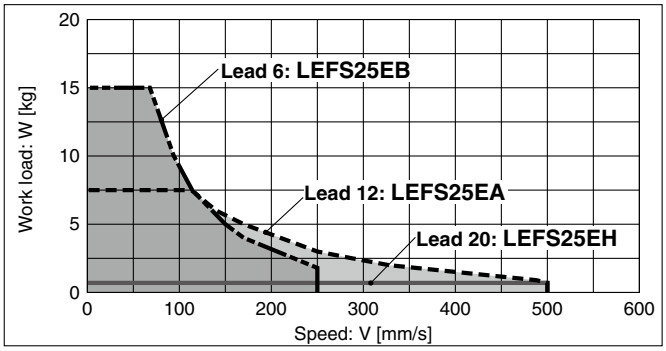


LEFS25/Ball Screw Drive

Horizontal

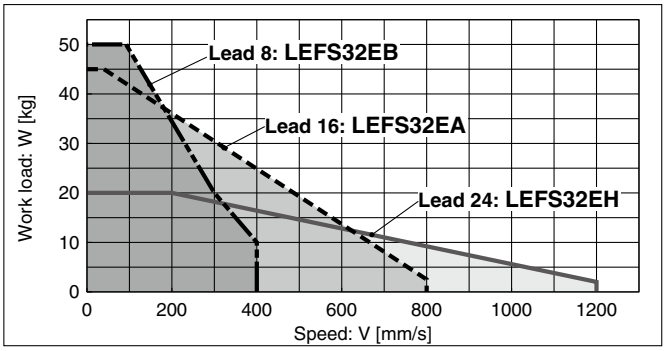


Vertical

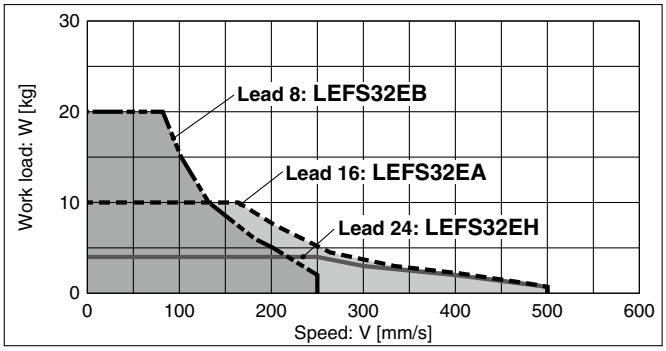


LEFS32/Ball Screw Drive

Horizontal

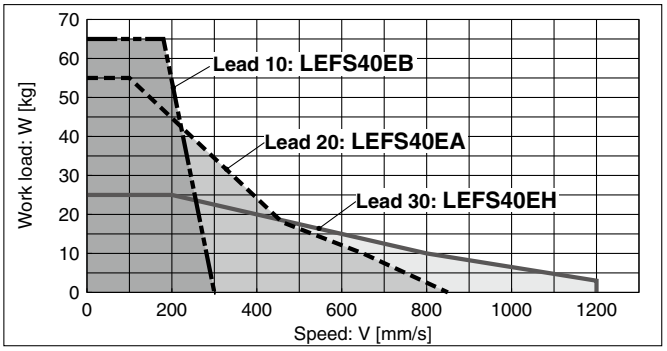


Vertical

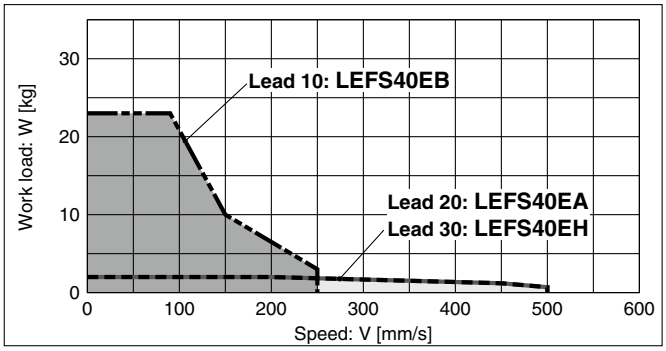


LEFS40/Ball Screw Drive

Horizontal



Vertical

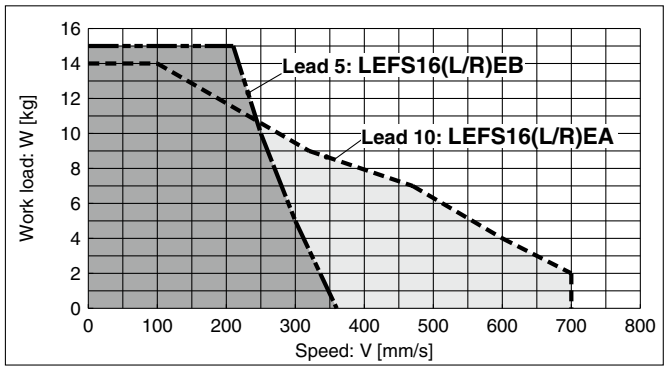


Speed–Work Load Graph (Guide)
For Battery-less Absolute (Step Motor 24 VDC), Motor Parallel Type

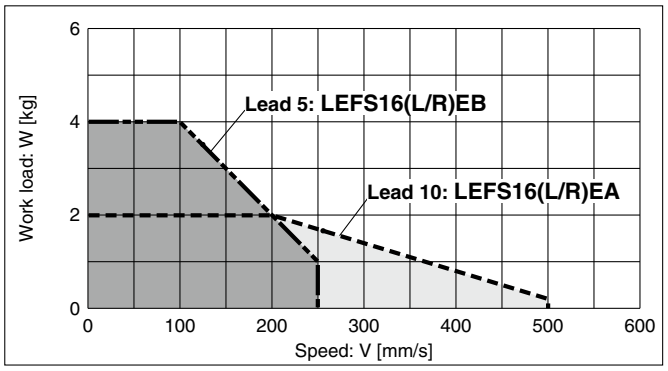
* The following graphs show the values when the moving force is 100%.

LEFS16(L/R)/Ball Screw Drive

Horizontal

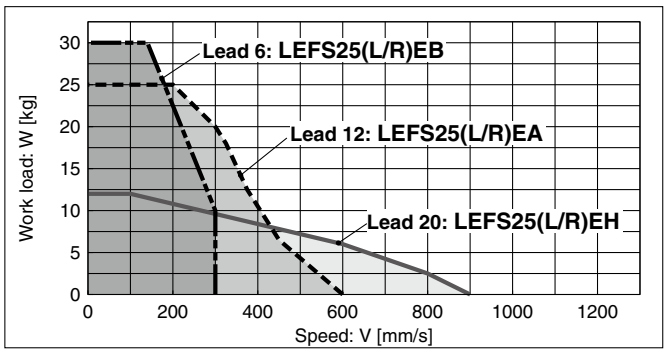


Vertical

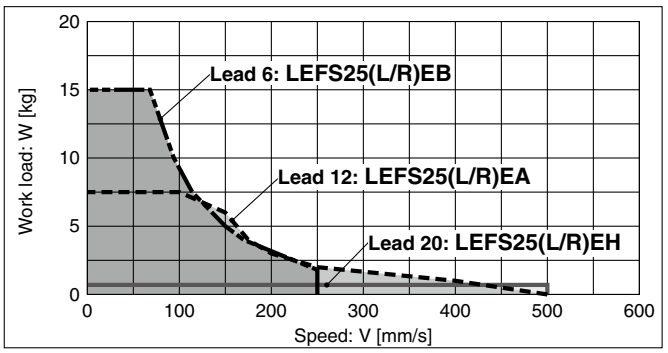


LEFS25(L/R)/Ball Screw Drive

Horizontal

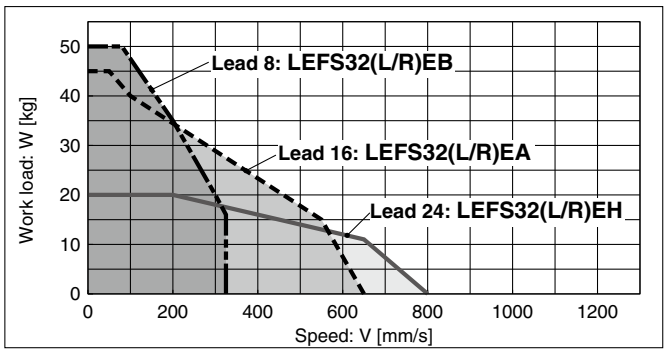


Vertical

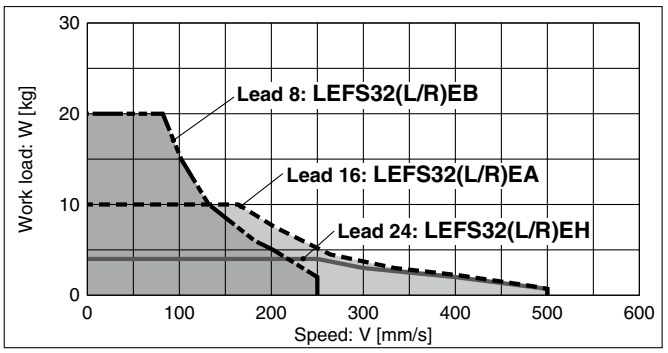


LEFS32(L/R)/Ball Screw Drive

Horizontal

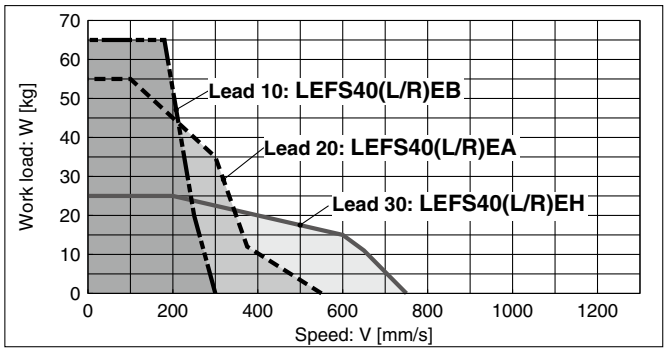


Vertical

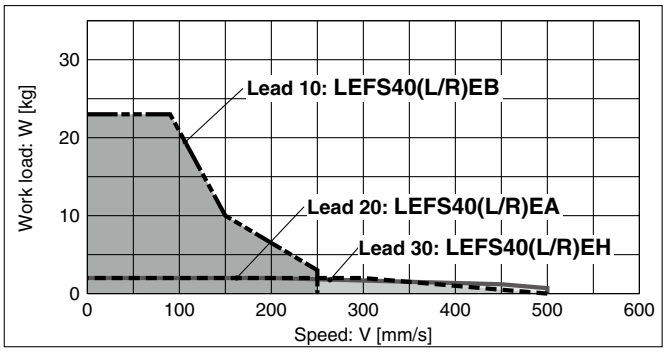


LEFS40(L/R)/Ball Screw Drive

Horizontal



Vertical

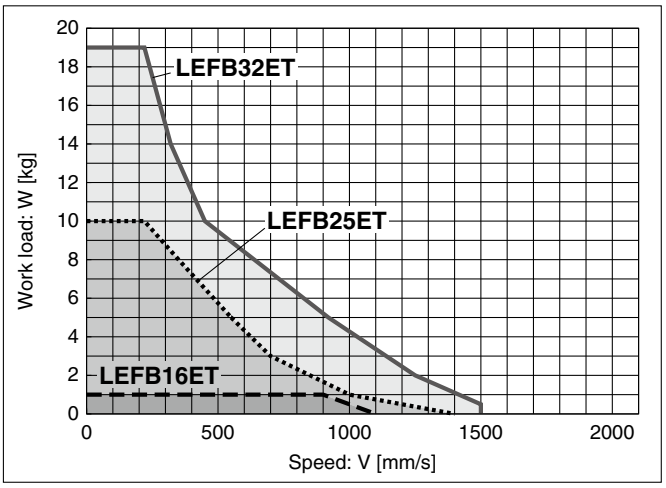


Speed–Work Load Graph (Guide) For Battery-less Absolute (Step Motor 24 VDC)

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

LEFB/Belt Drive

Horizontal



Static Allowable Moment∗1

[N·m]

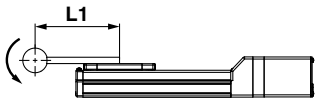
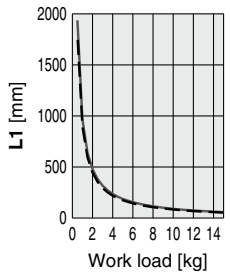
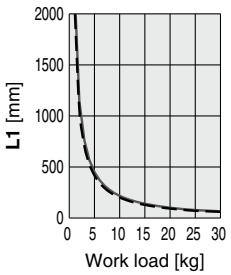
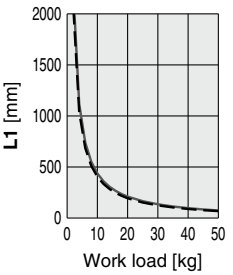
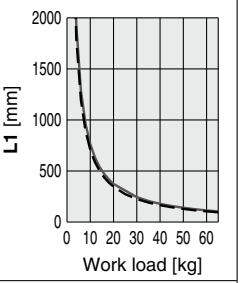
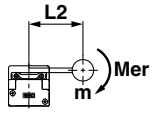
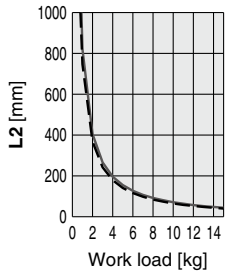
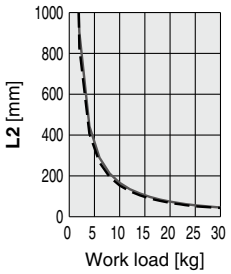
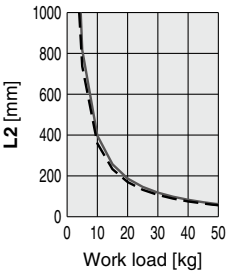
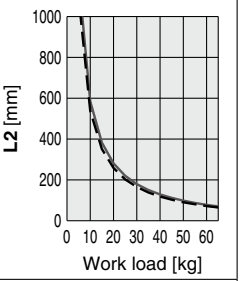
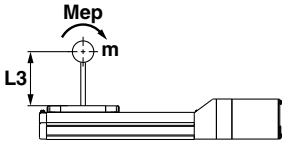
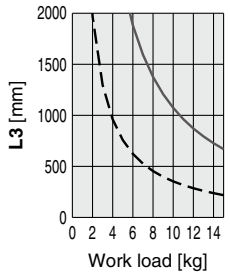
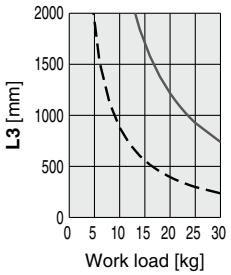
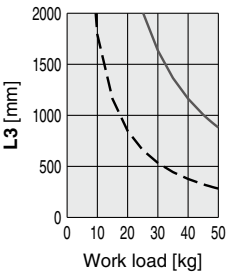
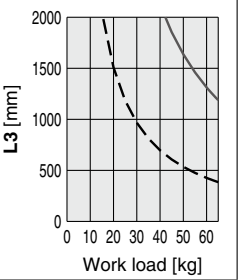
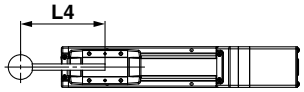
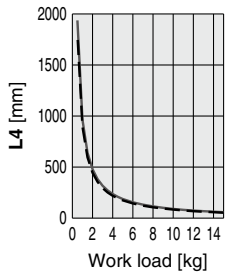
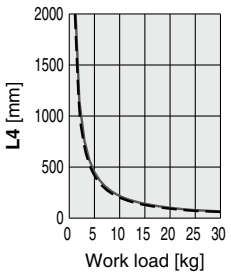
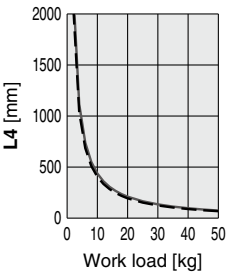
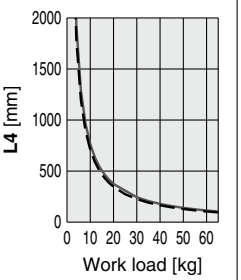
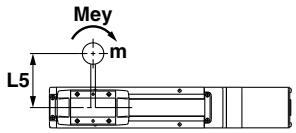
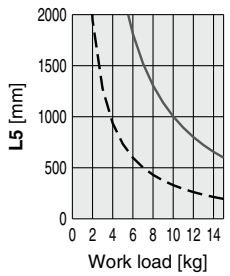
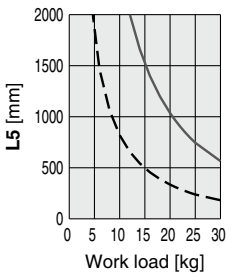
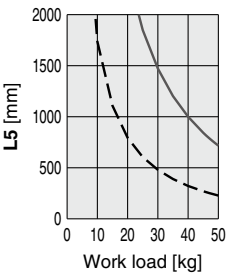
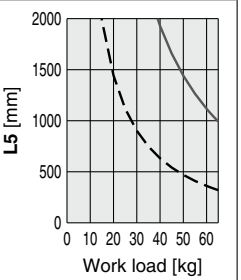
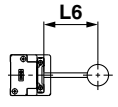
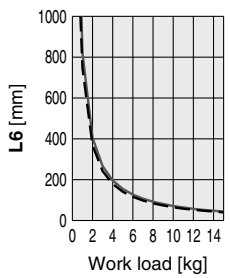
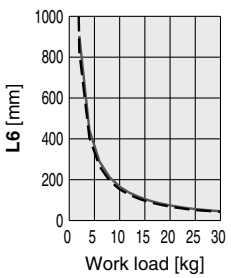
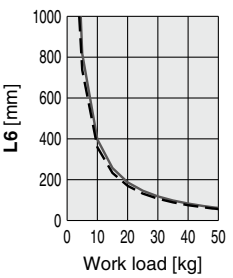
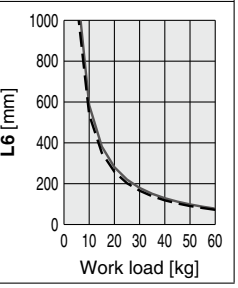
Model	Size	Pitching	Yawing	Rolling
LEF□	**16**	10.0	10.0	20.0
	25	27.0	27.0	52.0
	32	46.0	46.0	101.0
	40	110.0	110.0	207.0

∗1 The static allowable moment is the amount of static moment which can be applied to the actuator when it is stopped.
If the product is exposed to impact or repeated load, be sure to take adequate safety measures when using the product.

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

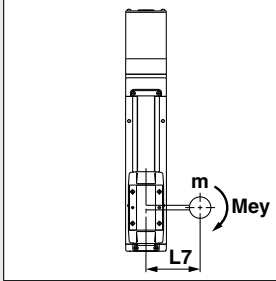
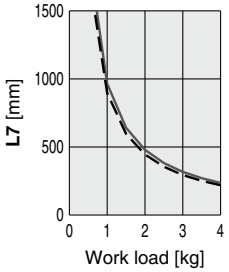
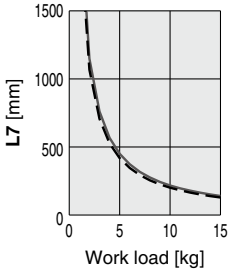
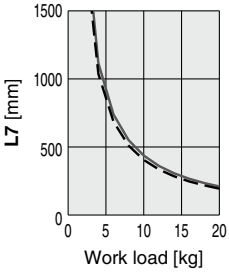
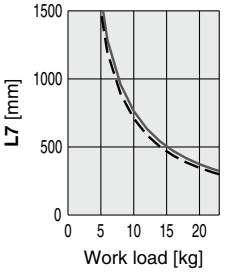
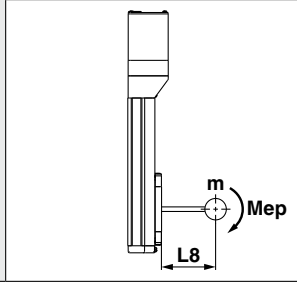
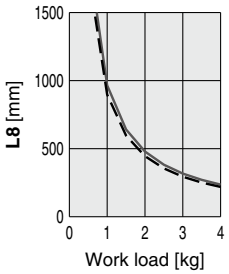
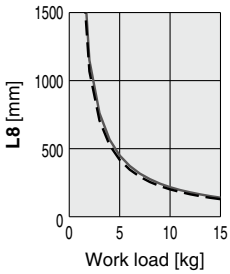
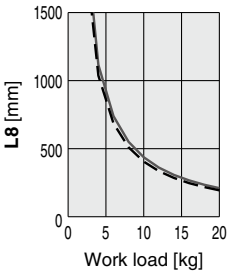
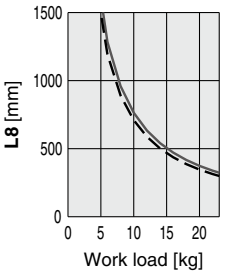
Acceleration/Deceleration ——1000 mm/s² – – –3000 mm/s²

Orientation	Load overhanging direction **m** : Work load [kg] **Me**: Allowable moment [N·m] **L** : Overhang to the work load center of gravity [mm]		Model LEF16	LEF25	LEF32	LEF40
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

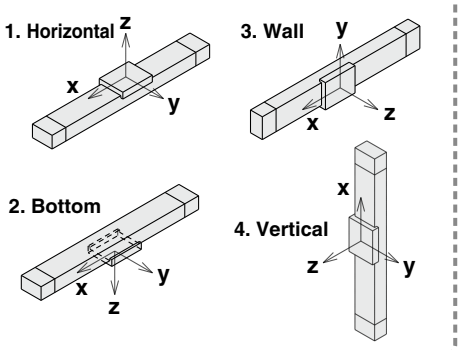
Acceleration/Deceleration ——1000 mm/s² – – –3000 mm/s²

Orientation	Load overhanging direction **m** : Work load [kg] **Me**: Allowable moment [N·m] **L** : Overhang to the work load center of gravity [mm]		Model			
			LEF16	**LEF25**	**LEF32**	**LEF40**
Vertical		Y				
		Z				

Calculation of Guide Load Factor

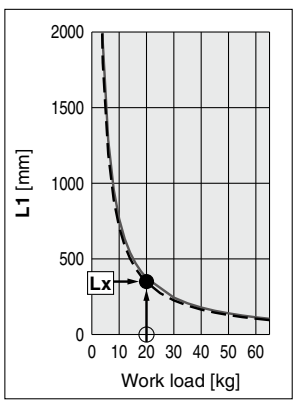
1. Decide operating conditions.
   Model: LEFS/LEFB
   Size: 16/25/32/40
   Mounting orientation: Horizontal/Bottom/Wall/Vertical
   Acceleration [mm/s²]: **a**
   Work load [kg]: **m**
   Work load center position [mm]: **Xc/Yc/Zc**
2. Select the target graph while referencing the model, size, and mounting 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.

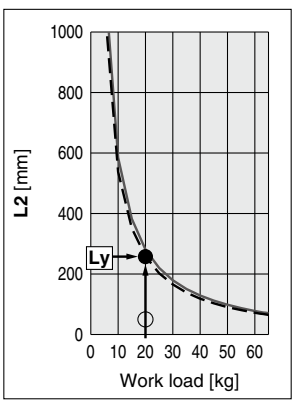
Mounting orientation



Example

1. Operating conditions
   Model: LEFS40
   Size: 40
   Mounting orientation: Horizontal
   Acceleration [mm/s²]: 3000
   Work load [kg]: 20
   Work load center position [mm]: **Xc = 0**, **Yc = 50**, **Zc = 200**
2. Select the graphs for horizontal of the LEF40 on page 109.
3. **Lx = 400 mm**, **Ly = 250 mm**, **Lz = 1500 mm**
4. The load factor for each direction can be found as follows.
   α**x = 0/400 = 0**
   α**y = 50/250 = 0.2**
   α**z = 200/1500 = 0.13**
5. α**x + αy + αz = 0.33 ≤ 1**





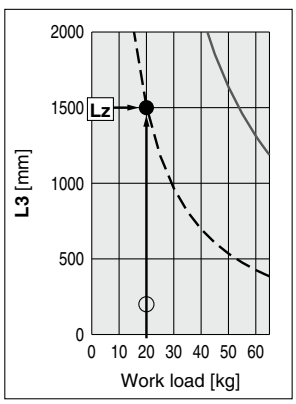
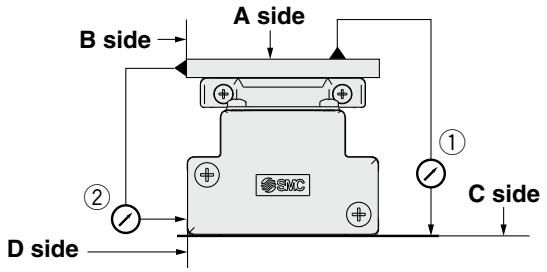


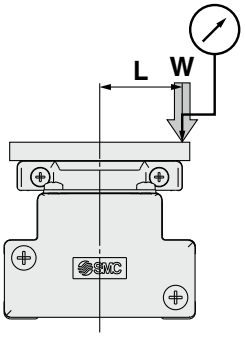
Table Accuracy (Reference Value)

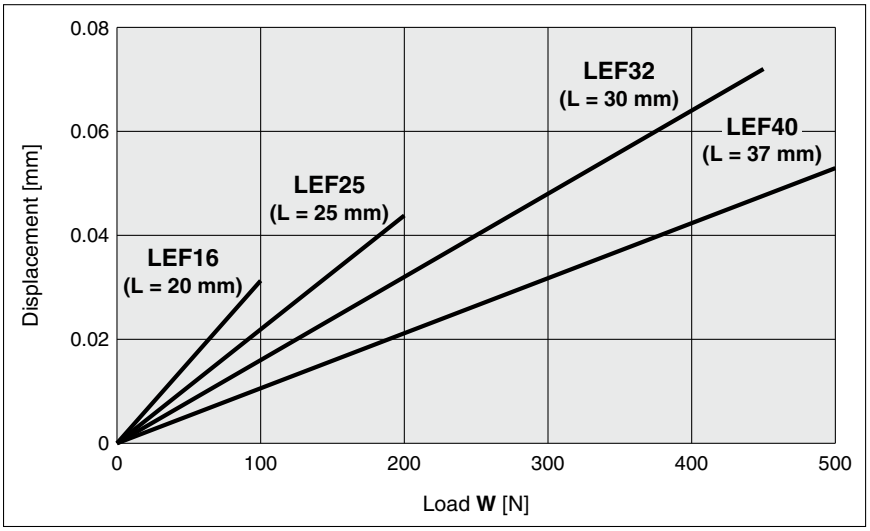


Model	Traveling parallelism [mm] (Every 300 mm)	
	① C side traveling parallelism to A side	② D side traveling parallelism to B side
LEF16	0.05	0.03
LEF25	0.05	0.03
LEF32	0.05	0.03
LEF40	0.05	0.03

∗ Traveling parallelism does not include the mounting surface accuracy. (Excludes when the stroke exceeds 2000 mm)

Table Displacement (Reference Value)

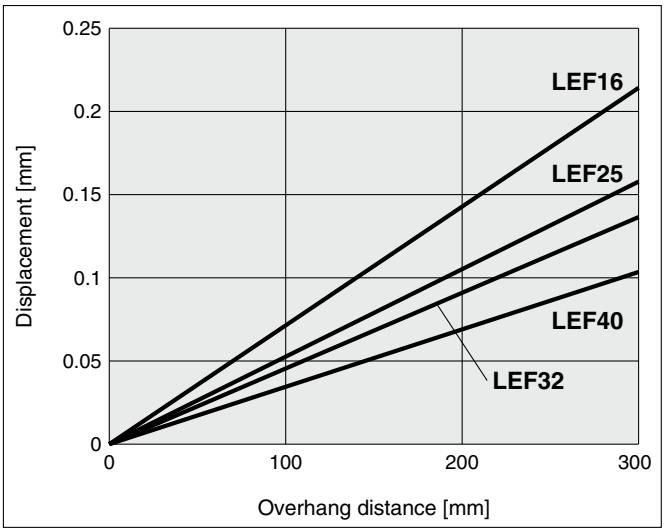




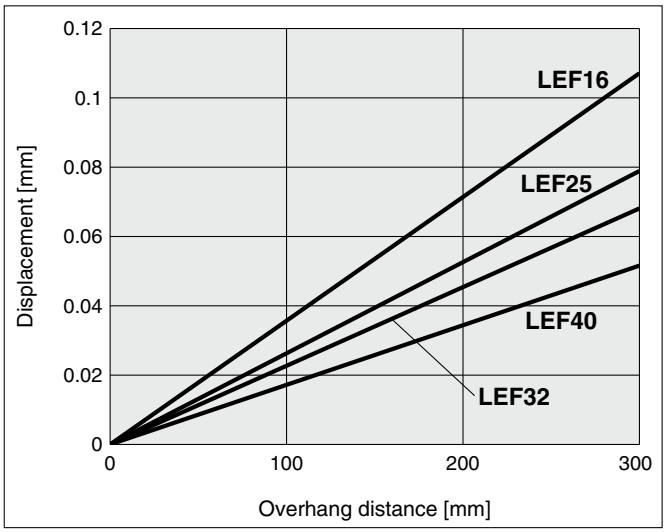
∗ This displacement is measured when a 15 mm aluminum plate is mounted and fixed on the table.
∗ Check the clearance and play of the guide separately.

Overhang Displacement Due to Table Clearance (Initial Reference Value)

Basic type



High-precision type



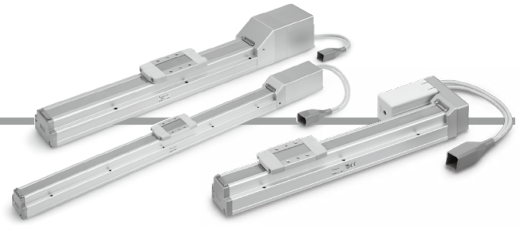
Battery-less Absolute (Step Motor 24 VDC)

Slider Type/Ball Screw Drive

LEFS Series LEFS16, 25, 32, 40

CE UK CA RoHS

* For details, refer to page 1343 and onward.



How to Order

LEFS **H** **25** **R** **E** **B** – **200** **[ ]** **C** **N** **K** – **R1** **CD17T**

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫ ⓬

For details on controllers, refer to the next page.

❶ Accuracy

Nil	Basic type
H	High-precision type

❷ Size

16
25
32
40

❸ Motor mounting position

Nil	In-line
R	Right side parallel
L	Left side parallel

❹ Motor type

E	Battery-less absolute (Step motor 24 VDC)

❺ Lead [mm]

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

❻ Stroke*1 [mm]

Stroke	Note	
	Size	Applicable stroke
50 to 500	**16**	50, 100, 150, 200, 250, 300, 350, 400, 450, 500
50 to 800	**25**	50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800
50 to 1000	**32**	50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 850, 900, 950, 1000
150 to 1200	**40**	150, 200, 250, 300, 350, 400, 450, 500, 550, 600, 650, 700, 750, 800, 850, 900, 950, 1000, 1100, 1200

❼ Motor option

Nil	Without option
B	With lock

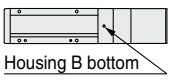
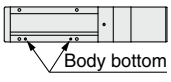
❽ Auto switch compatibility (In-line only)*2 *3 *4 *5

Nil	None
C	With (Includes 1 mounting bracket)

❾ Grease application (Seal band part)

Nil	With
N	Without (Roller specification)

❿ Positioning pin hole

Nil	Housing B bottom*6	 Housing B bottom
K	Body bottom 2 locations	 Body bottom

⓫ Actuator cable type/length

Robotic cable [m]

Nil	None	**R8**	8*7
R1	1.5	**RA**	10*7
R3	3	**RB**	15*7
R5	5	**RC**	20*7

For details on auto switches, refer to pages 275 to 278.

⑫ 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∗8	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∗9

Symbol	Type	Applicable interface
Nil	Without accessory	—
S	Straight type communication plug connector	DeviceNe® 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 Please contact SMC for non-standard strokes as they are produced as special orders.
∗2 Excludes the LEF16
∗3 If 2 or more are required, please order them separately. (Part no.: LEF-D-2-1 For details, refer to page 275.)
∗4 Order auto switches separately. (For details, refer to pages 276 to 278.)
∗5 When "Nil" is selected, the product will not come with a built-in magnet for an auto switch, and so a mounting bracket cannot be secured. Be sure to select an appropriate model initially as the product cannot be changed to have auto switch compatibility after purchase.
∗6 Refer to the body mounting example on page 280 for the mounting method.
∗7 Produced upon receipt of order
∗8 The DIN rail is not included. It must be ordered separately.
∗9 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 LEF 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.

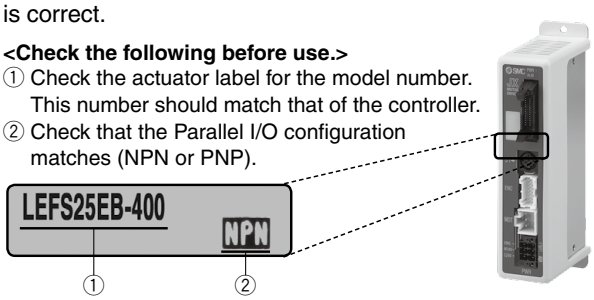
[Precautions relating to differences in controller versions]
When the JXC series is to be used in combination with the battery-less absolute encoder, use a controller that is version V3.4 or S3.4 or higher. For details, refer to pages 1077 and 1078.

[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					LEFS16□E		LEFS25□E			LEFS32□E			LEFS40□E		
Actuator specifications	Stroke [mm]*1				50 to 500		50 to 800			50 to 1000			150 to 1200		
	Work load [kg]*2	Horizontal			14	15	12	25	30	20	45	50	25	55	65
		Vertical			2	4	0.5	7.5	15	4	10	20	2	2	23
	Speed*2 [mm/s]	In-line	Stroke range	Up to 450	10 to 700	5 to 360	20 to 1100	12 to 750	6 to 400	24 to 1200	16 to 800	8 to 400	30 to 1200	20 to 850	10 to 300
				451 to 500	10 to 600	5 to 300	20 to 1100	12 to 750	6 to 400	24 to 1200	16 to 800	8 to 400	30 to 1200	20 to 850	10 to 300
				501 to 600	—	—	20 to 900	12 to 540	6 to 270	24 to 1200	16 to 800	8 to 400	30 to 1200	20 to 850	10 to 300
				601 to 700	—	—	20 to 630	12 to 420	6 to 230	24 to 930	16 to 620	8 to 310	30 to 1200	20 to 850	10 to 300
				701 to 800	—	—	20 to 550	12 to 330	6 to 180	24 to 750	16 to 500	8 to 250	30 to 1140	20 to 760	10 to 300
				801 to 900	—	—	—	—	—	24 to 610	16 to 410	8 to 200	30 to 930	20 to 620	10 to 300
				901 to 1000	—	—	—	—	—	24 to 500	16 to 340	8 to 170	30 to 780	20 to 520	10 to 250
				1001 to 1100	—	—	—	—	—	—	—	—	30 to 660	20 to 440	10 to 220
				1101 to 1200	—	—	—	—	—	—	—	—	30 to 570	20 to 380	10 to 190
		Parallel	Stroke range	Up to 450	10 to 700	5 to 360	20 to 900	12 to 600	6 to 300	24 to 800	16 to 650	8 to 325	30 to 750	20 to 550	10 to 300
				451 to 500	10 to 600	5 to 300	20 to 900	12 to 600	6 to 300	24 to 800	16 to 650	8 to 325	30 to 750	20 to 550	10 to 300
				501 to 600	—	—	20 to 900	12 to 540	6 to 270	24 to 800	16 to 650	8 to 325	30 to 750	20 to 550	10 to 300
				601 to 700	—	—	20 to 630	12 to 420	6 to 230	24 to 800	16 to 620	8 to 310	30 to 750	20 to 550	10 to 300
				701 to 800	—	—	20 to 550	12 to 330	6 to 180	24 to 750	16 to 500	8 to 250	30 to 750	20 to 550	10 to 300
				801 to 900	—	—	—	—	—	24 to 610	16 to 410	8 to 200	30 to 750	20 to 550	10 to 300
				901 to 1000	—	—	—	—	—	24 to 500	16 to 340	8 to 170	30 to 750	20 to 520	10 to 250
				1001 to 1100	—	—	—	—	—	—	—	—	30 to 660	20 to 440	10 to 220
				1101 to 1200	—	—	—	—	—	—	—	—	30 to 570	20 to 380	10 to 190
	Max. acceleration/deceleration [mm/s²]				3000										
	Positioning repeatability [mm]			Basic type	±0.02										
				High-precision type	±0.015 (Lead H: ±0.02)										
	Lost motion [mm]*3			Basic type	0.1 or less										
				High-precision type	0.05 or less										
	Lead [mm]				10	5	20	12	6	24	16	8	30	20	10
	Impact/Vibration resistance [m/s²]*4				50/20										
	Actuation type				Ball screw (LEFS□), Ball screw + Belt (LEFS□$^{R}_{L}$)										
	Guide type				Linear guide										
	Static allowable moment*5 [N·m]	Mep (Pitching)			10		27			46			110		
		Mey (Yawing)			10		27			46			110		
		Mer (Rolling)			20		52			101			207		
	Operating temperature range [°C]				5 to 40										
	Operating humidity range [%RH]				90 or less (No condensation)										
	Enclosure				IP30										
Electric specifications	Motor size				□28		□42			□56.4					
	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 51		Max. power 57			Max. power 123			Max. power 141		
Lock unit specifications	Type*7				Non-magnetizing lock										
	Holding force [N]				29	59	47	78	157	72	118	216	75	113	245
	Power [W]*8				2.9		5			5			5		
	Rated voltage [V]				24 VDC ±10%										

*1 Please contact SMC for non-standard strokes as they are produced as special orders.
*2 Speed changes according to the work load. Check the "Speed–Work Load Graph (Guide)" on pages 106 and 107.
Furthermore, if the cable length exceeds 5 m, then it will decrease by up to 10% for each 5 m.
*3 A reference value for correcting errors in reciprocal operation
*4 Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)
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.)
*5 The static allowable moment is the amount of static moment which can be applied to the actuator when it is stopped.
If the product is exposed to impact or repeated load, be sure to take adequate safety measures when using the product.
*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

Series	LEFS16□E									
Stroke [mm]	50	100	150	200	250	300	350	400	450	500
Product weight [kg]	0.85	0.92	1.00	1.07	1.15	1.22	1.30	1.37	1.45	1.52
Additional weight with lock [kg]	0.12									

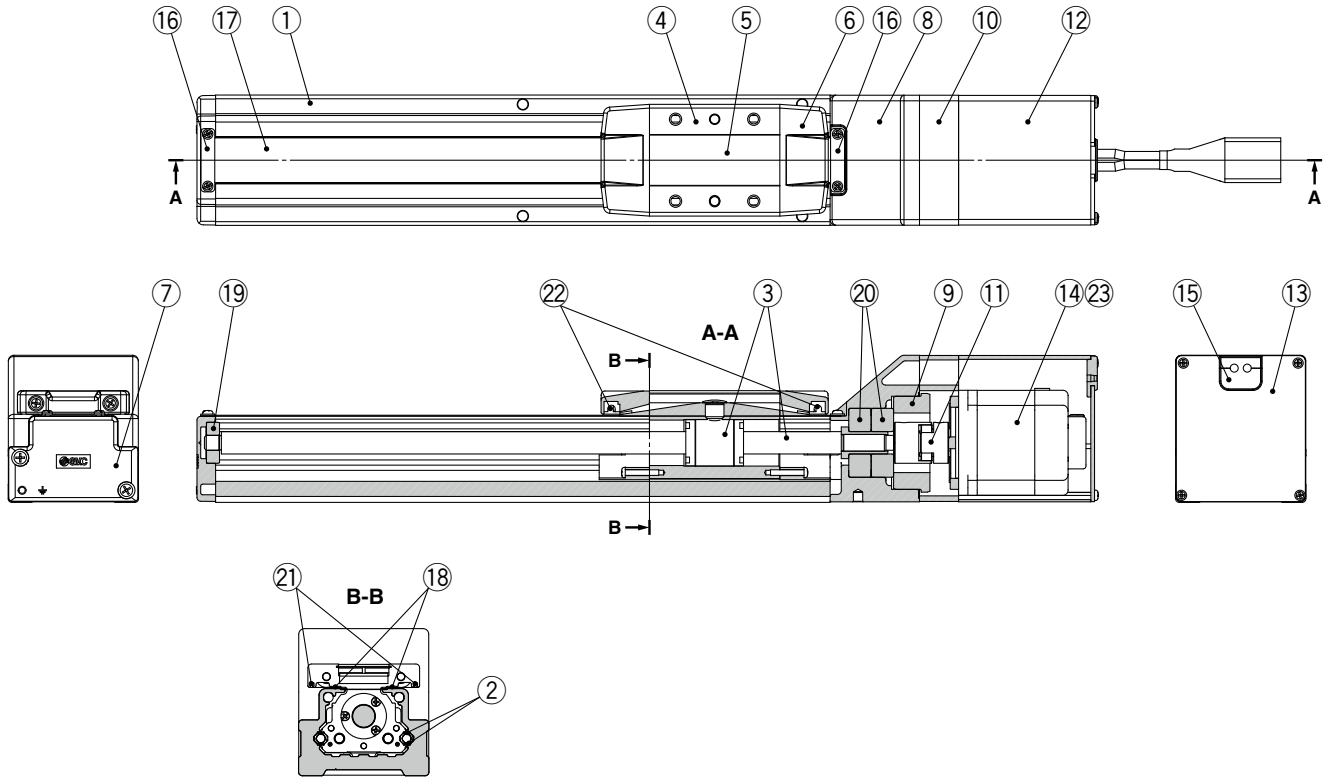
Series	LEFS25□E															
Stroke [mm]	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
Product weight [kg]	1.70	1.84	1.98	2.12	2.26	2.40	2.54	2.68	2.82	2.96	3.10	3.24	3.38	3.52	3.66	3.80
Additional weight with lock [kg]	0.26															

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

Series	LEFS40□E																			
Stroke [mm]	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950	1000	1100	1200
Product weight [kg]	5.37	5.65	5.93	6.21	6.49	6.77	7.15	7.33	7.61	7.89	8.17	8.45	8.73	9.01	9.29	9.57	9.85	10.13	10.69	11.25
Additional weight with lock [kg]	0.53																			

Construction: In-line Motor

LEFS16, 25, 32, 40



Component Parts

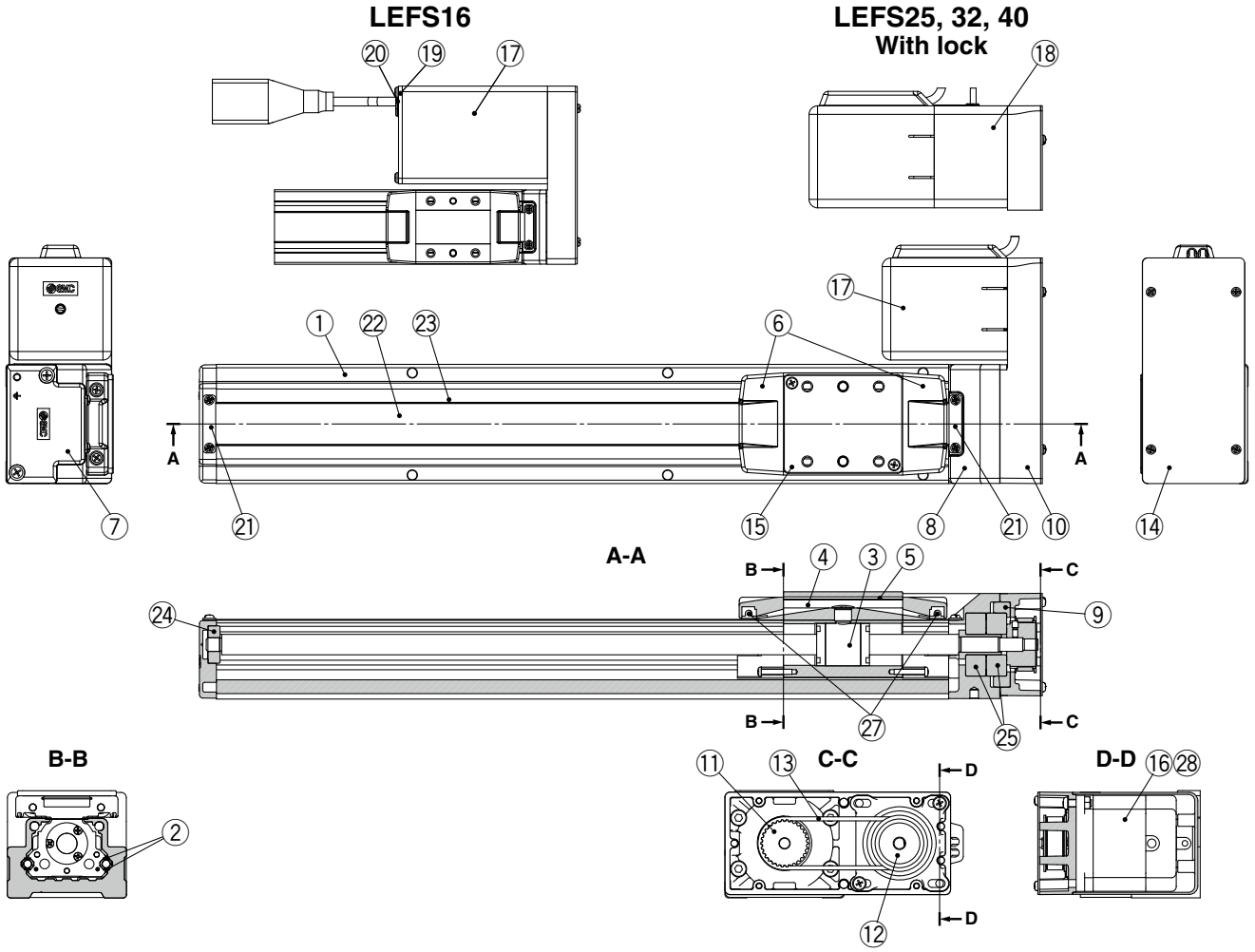
No.	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Rail guide**	—	
3	**Ball screw assembly**	—	
4	**Table**	Aluminum alloy	Anodized
5	**Blanking plate**	Aluminum alloy	Anodized
6	**Seal band holder**	Synthetic resin	
7	**Housing A**	Aluminum die-casted	Coating
8	**Housing B**	Aluminum die-casted	Coating
9	**Bearing stopper**	Aluminum alloy	
10	**Motor mount**	Aluminum alloy	Coating/Anodized
11	**Coupling**	—	
12	**Motor cover**	Aluminum alloy	Anodized
13	**End cover**	Aluminum alloy	Anodized
14	**Motor**	—	
15	**Rubber bushing**	NBR	

No.	Description		Material	Note
16	**Band stopper**		Stainless steel	
17	**Dust seal band**		Stainless steel	
18	**Seal magnet**	**LEFS40**	—	
19	**Bearing**		—	Stroke 250 mm or more
20	**Bearing**		—	
21	**Magnet**		—	With auto switch compatibility
22	**Roller assembly**		—	Without grease application
23	Heat dissipation sheet	**LEFS16**	—	

Replacement Parts/Grease Pack

Applied portion	Order no.
Ball screw	GR-S-010 (10 g) GR-S-020 (20 g)
Rail guide	
Dust seal band (When "Without" is selected for the grease application, grease is applied only on the back side.)	

Construction: Motor Parallel



Component Parts

No.	Description		Material	Note
1	Body		Aluminum alloy	Anodized
2	Rail guide		—	
3	Ball screw assembly		—	
4	Table		Aluminum alloy	Anodized
5	Blanking plate		Aluminum alloy	Anodized
6	Seal band holder		Synthetic resin	
7	Housing A		Aluminum die-casted	Coating
8	Housing B		Aluminum die-casted	Coating
9	Bearing stopper		Aluminum alloy	
10	Return plate		Aluminum alloy	Coating/Anodized
11	Pulley		Aluminum alloy	
12	Pulley		Aluminum alloy	
14	Cover plate		Aluminum alloy	Anodized
15	Table spacer	LEFS32	Aluminum alloy	Anodized (LEFS32 only)
16	Motor		—	
17	Motor cover	LEFS16	Aluminum alloy	Anodized
		LEFS25/32/40	Synthetic resin	
18	Motor cover with lock	LEFS25/32/40	Aluminum alloy	Anodized
19	End cover	LEFS16	Aluminum alloy	Anodized
20	Rubber bushing	LEFS16	NBR	
21	Band stopper		Stainless steel	

No.	Description		Material	Note
22	Dust seal band		Stainless steel	
23	Seal magnet	LEFS40	—	
24	Bearing		—	Stroke 250 mm or more
25	Bearing		—	
27	Roller assembly		—	Without grease application
28	Heat dissipation sheet	LEFS16	—	

Replacement Parts/Belt

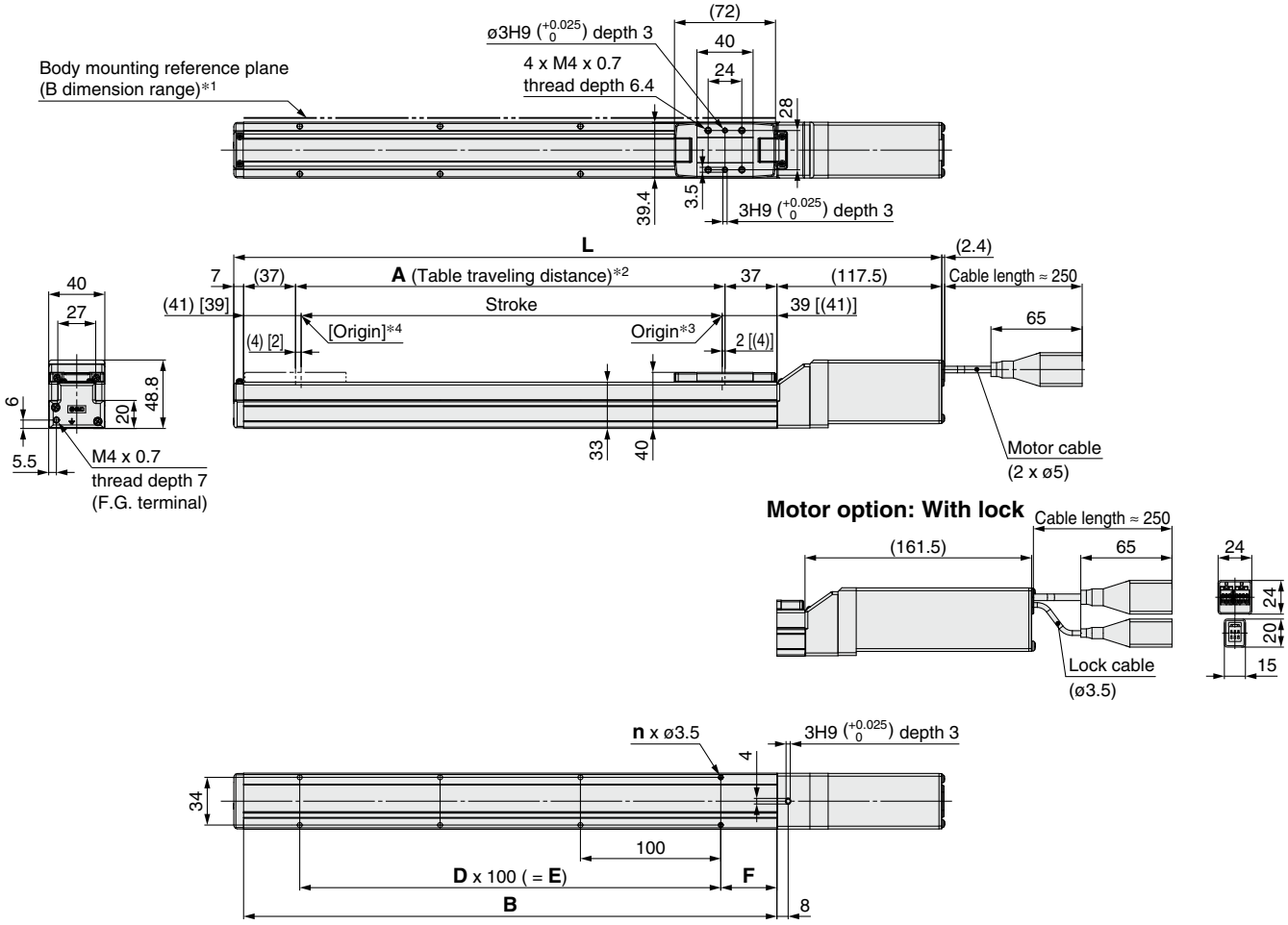
No.	Size	Order no.
13	16	LE-D-6-5
	25	LE-D-6-2
	32	LE-D-6-3
	40	LE-D-6-4

Replacement Parts/Grease Pack

Applied portion	Order no.
Ball screw	GR-S-010 (10 g) GR-S-020 (20 g)
Rail guide	
Dust seal band (When "Without" is selected for the grease application, grease is applied only on the back side.)	

Dimensions: In-line Motor

LEFS16E



*1 When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more because of round chamfering. (Recommended height: 5 mm)
In addition, be aware that surfaces other than the body mounting reference plane (B dimension range) may slightly protrude from the body mounting reference plane. Be sure to provide a clearance of 1 mm or more to avoid interference with workpieces, facilities, etc.
*2 This is the distance 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.
*3 Position after returning to origin
*4 [ ] for when the direction of return to origin has changed

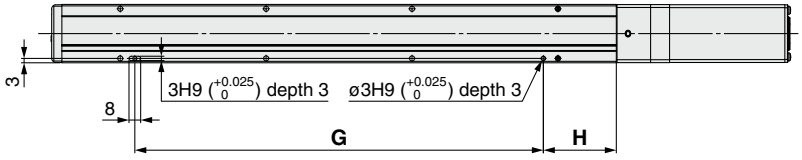
Dimensions [mm]

Model	L		A	B	n	D	E	F
	Without lock	With lock						
LEFS□16E□-50□	254.5	298.5	56	130	4	—	—	15
LEFS□16E□-100□	304.5	348.5	106	180				40
LEFS□16E□-150□	354.5	398.5	156	230				
LEFS□16E□-200□	404.5	448.5	206	280	6	2	200	
LEFS□16E□-250□	454.5	498.5	256	330				
LEFS□16E□-300□	504.5	548.5	306	380	8	3	300	
LEFS□16E□-350□	554.5	598.5	356	430				
LEFS□16E□-400□	604.5	648.5	406	480	10	4	400	
LEFS□16E□-450□	654.5	698.5	456	530				
LEFS□16E□-500□	704.5	748.5	506	580	12	5	500	

Dimensions: In-line Motor

LEFS16E

Positioning pin hole*1 (Option): Body bottom



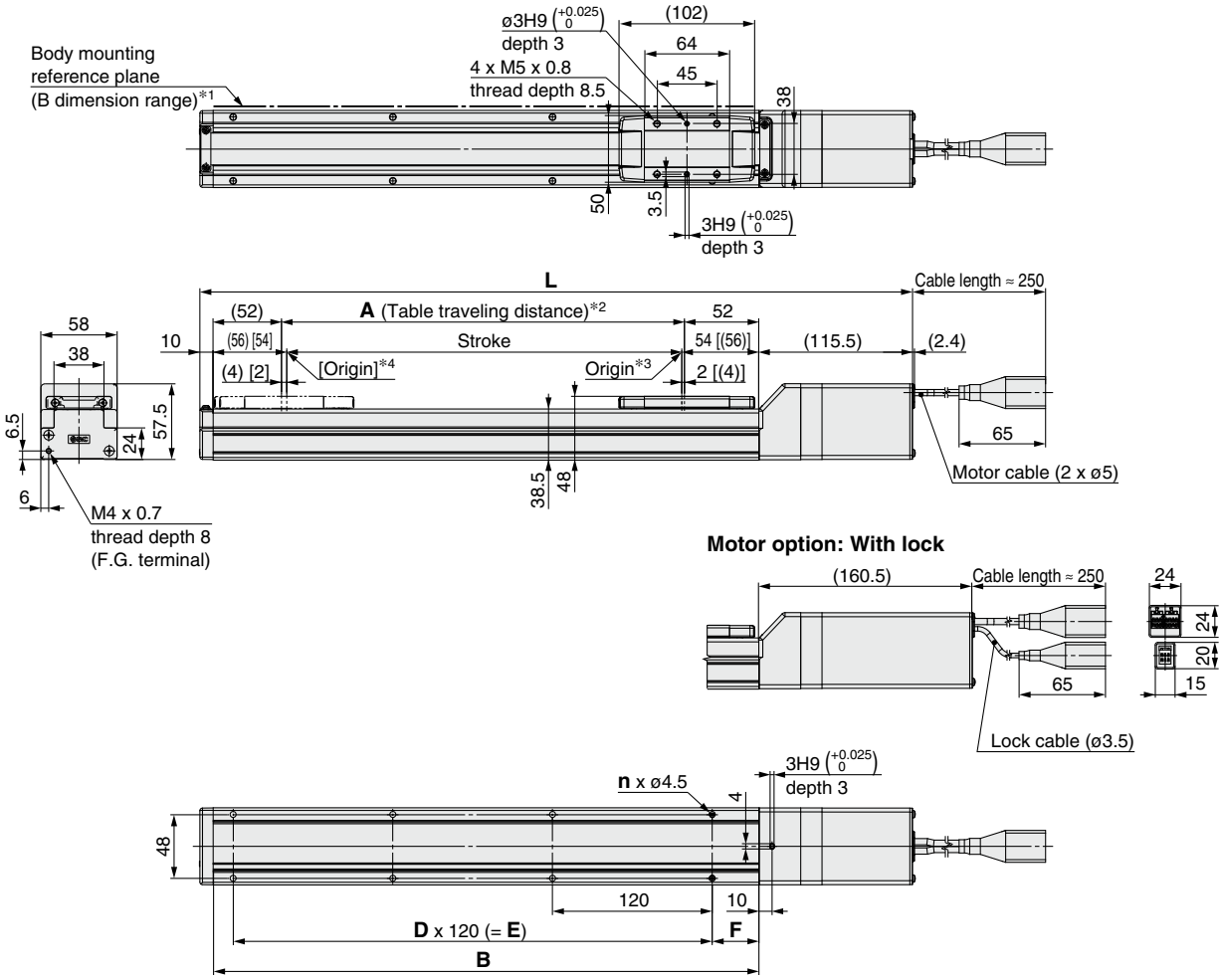
*1 When using the body bottom positioning pin holes, do not simultaneously use the housing B bottom pin hole.

Dimensions [mm]

Model	Positioning pin hole: K	
	G	H
LEFS□16E□-50□	80	25
LEFS□16E□-100□		50
LEFS□16E□-150□		
LEFS□16E□-200□	180	
LEFS□16E□-250□		
LEFS□16E□-300□	280	
LEFS□16E□-350□		
LEFS□16E□-400□	380	
LEFS□16E□-450□		
LEFS□16E□-500□	480	

Dimensions: In-line Motor

LEFS25E



*1 When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more because of round chamfering. (Recommended height: 5 mm)
In addition, be aware that surfaces other than the body mounting reference plane (B dimension range) may slightly protrude from the body mounting reference plane. Be sure to provide a clearance of 1 mm or more to avoid interference with workpieces, facilities, etc.
*2 This is the distance 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.
*3 Position after returning to origin
*4 [ ] for when the direction of return to origin has changed

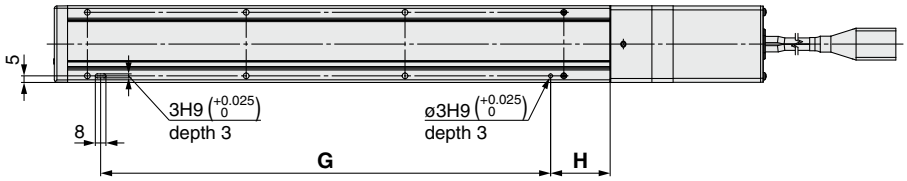
Dimensions [mm]

Model	L		A	B	n	D	E	F
	Without lock	With lock						
LEFS□25E□-50□	285.5	330.5	56	160	4	—	—	20
LEFS□25E□-100□	335.5	380.5	106	210	4	—	—	
LEFS□25E□-150□	385.5	430.5	156	260	4	—	—	
LEFS□25E□-200□	435.5	480.5	206	310	6	2	240	
LEFS□25E□-250□	485.5	530.5	256	360	6	2	240	
LEFS□25E□-300□	535.5	580.5	306	410	8	3	360	
LEFS□25E□-350□	585.5	630.5	356	460	8	3	360	
LEFS□25E□-400□	635.5	680.5	406	510	8	3	360	
LEFS□25E□-450□	685.5	730.5	456	560	10	4	480	35
LEFS□25E□-500□	735.5	780.5	506	610	10	4	480	
LEFS□25E□-550□	785.5	830.5	556	660	12	5	600	
LEFS□25E□-600□	835.5	880.5	606	710	12	5	600	
LEFS□25E□-650□	885.5	930.5	656	760	12	5	600	
LEFS□25E□-700□	935.5	980.5	706	810	14	6	720	
LEFS□25E□-750□	985.5	1030.5	756	860	14	6	720	
LEFS□25E□-800□	1035.5	1080.5	806	910	16	7	840	

Dimensions: In-line Motor

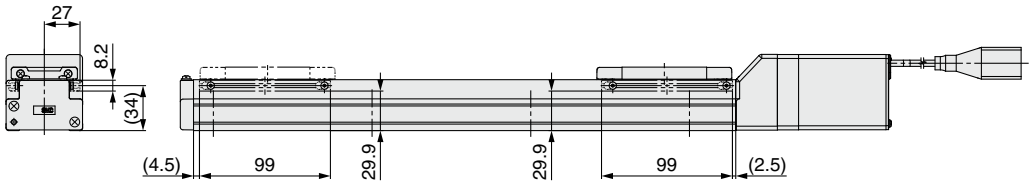
LEFS25E

Positioning pin hole*1 (Option): Body bottom



*1 When using the body bottom positioning pin holes, do not simultaneously use the housing B bottom pin hole.

With auto switch (Option)



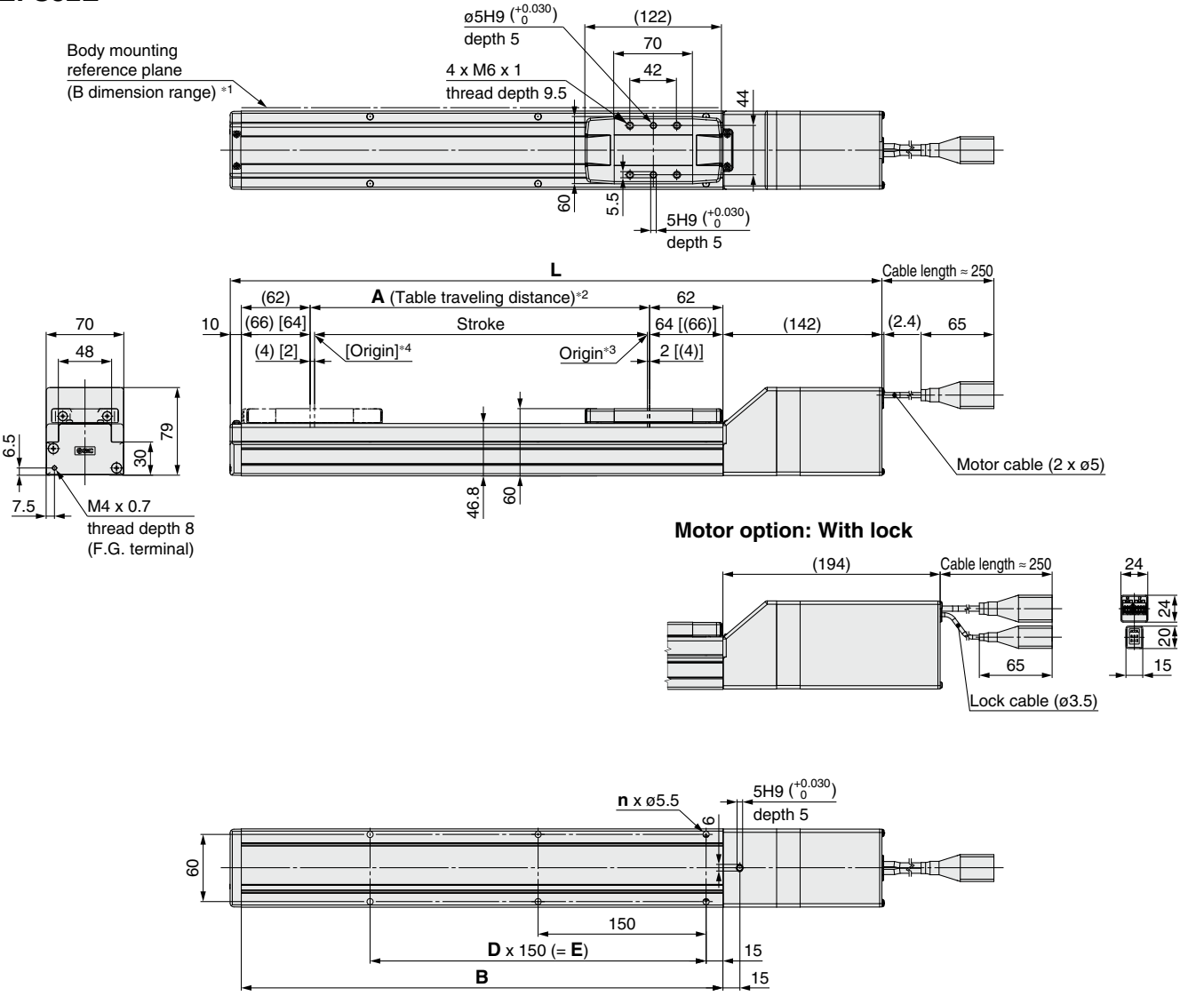
* For strokes of 99 mm or less, only 2 auto switch mounting brackets can be installed on the motor side.

Dimensions [mm]

Model	G	H
LEFS□25E□-50□	100	30
LEFS□25E□-100□	100	45
LEFS□25E□-150□	100	45
LEFS□25E□-200□	220	45
LEFS□25E□-250□	220	45
LEFS□25E□-300□	340	45
LEFS□25E□-350□	340	45
LEFS□25E□-400□	340	45
LEFS□25E□-450□	460	45
LEFS□25E□-500□	460	45
LEFS□25E□-550□	580	45
LEFS□25E□-600□	580	45
LEFS□25E□-650□	580	45
LEFS□25E□-700□	700	45
LEFS□25E□-750□	700	45
LEFS□25E□-800□	820	45

Dimensions: In-line Motor

LEFS32E



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In addition, be aware that surfaces other than the body mounting reference plane (B dimension range) may slightly protrude from the body mounting reference plane. Be sure to provide a clearance of 1 mm or more to avoid interference with workpieces, facilities, etc.
*2 This is the distance 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.
*3 Position after returning to origin
*4 [ ] for when the direction of return to origin has changed

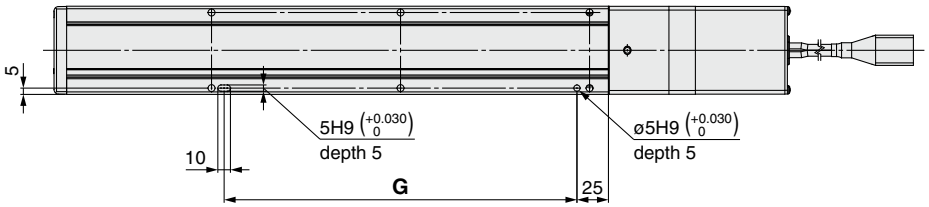
Dimensions [mm]

Model	L		A	B	n	D	E
	Without lock	With lock					
LEFS□32E□-50□	332	384	56	180	4	—	—
LEFS□32E□-100□	382	434	106	230	4	—	—
LEFS□32E□-150□	432	484	156	280	4	—	—
LEFS□32E□-200□	482	534	206	330	6	2	300
LEFS□32E□-250□	532	584	256	380	6	2	300
LEFS□32E□-300□	582	634	306	430	6	2	300
LEFS□32E□-350□	632	684	356	480	8	3	450
LEFS□32E□-400□	682	734	406	530	8	3	450
LEFS□32E□-450□	732	784	456	580	8	3	450
LEFS□32E□-500□	782	834	506	630	10	4	600
LEFS□32E□-550□	832	884	556	680	10	4	600
LEFS□32E□-600□	882	934	606	730	10	4	600
LEFS□32E□-650□	932	984	656	780	12	5	750
LEFS□32E□-700□	982	1034	706	830	12	5	750
LEFS□32E□-750□	1032	1084	756	880	12	5	750
LEFS□32E□-800□	1082	1134	806	930	14	6	900
LEFS□32E□-850□	1132	1184	856	980	14	6	900
LEFS□32E□-900□	1182	1234	906	1030	14	6	900
LEFS□32E□-950□	1232	1284	956	1080	16	7	1050
LEFS□32E□-1000□	1282	1334	1006	1130	16	7	1050

Dimensions: In-line Motor

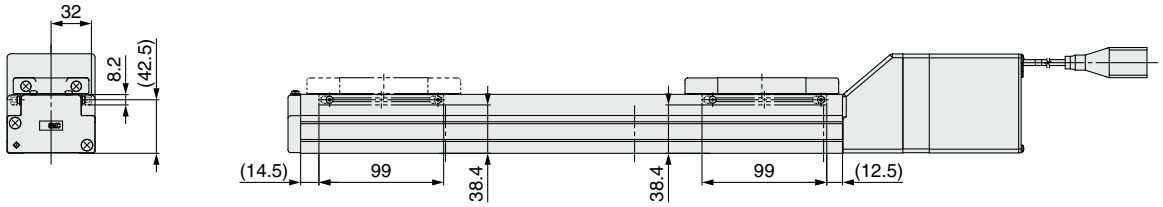
LEFS32E

Positioning pin hole*1 (Option): Body bottom



*1 When using the body bottom positioning pin holes, do not simultaneously use the housing B bottom pin hole.

With auto switch (Option)



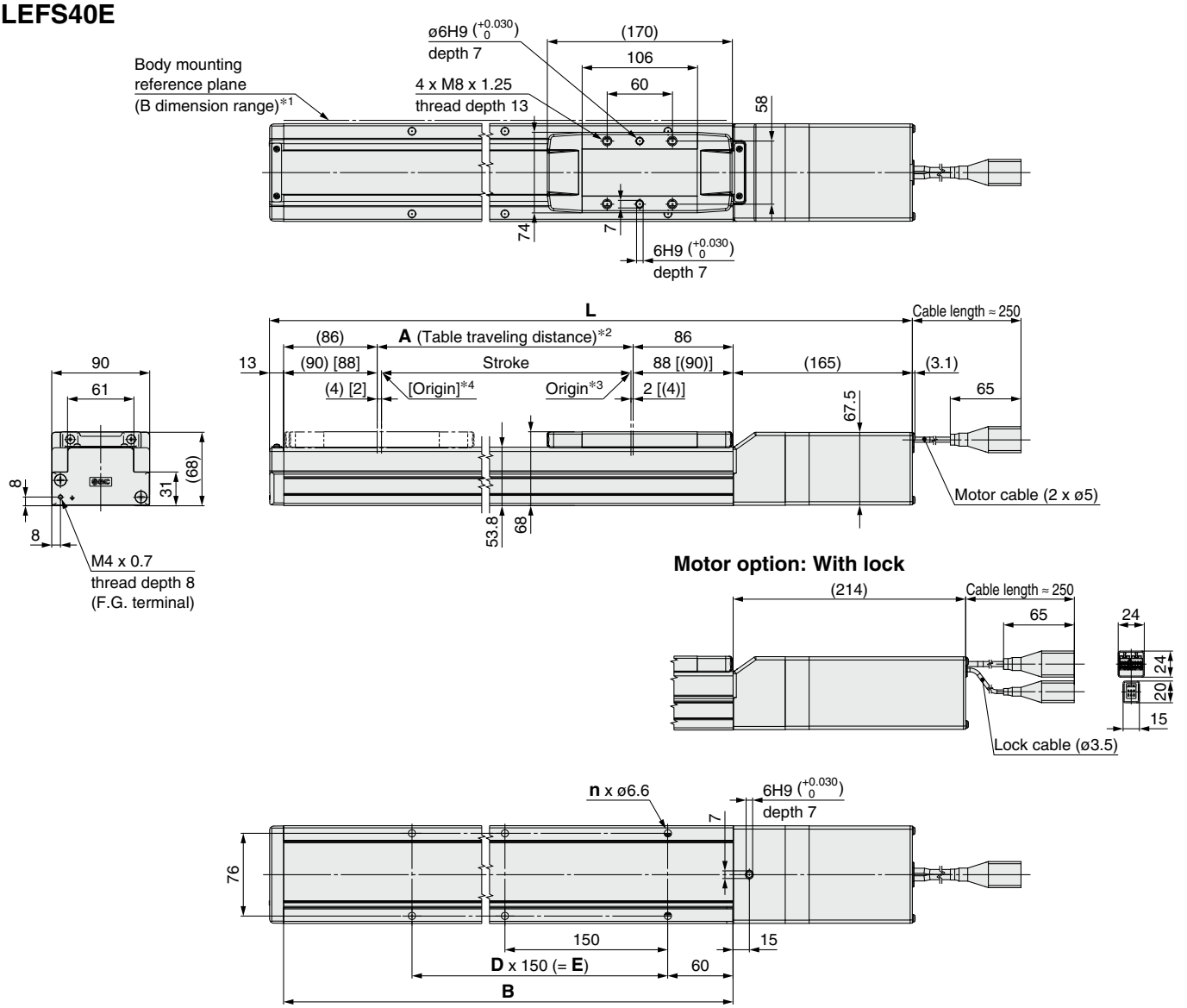
* For strokes of 99 mm or less, only 2 auto switch mounting brackets can be installed on the motor side.

Dimensions [mm]

Model	G
LEFS□32E□-50□	130
LEFS□32E□-100□	130
LEFS□32E□-150□	130
LEFS□32E□-200□	280
LEFS□32E□-250□	280
LEFS□32E□-300□	280
LEFS□32E□-350□	430
LEFS□32E□-400□	430
LEFS□32E□-450□	430
LEFS□32E□-500□	580
LEFS□32E□-550□	580
LEFS□32E□-600□	580
LEFS□32E□-650□	730
LEFS□32E□-700□	730
LEFS□32E□-750□	730
LEFS□32E□-800□	880
LEFS□32E□-850□	880
LEFS□32E□-900□	880
LEFS□32E□-950□	1030
LEFS□32E□-1000□	1030

Dimensions: In-line Motor

LEFS40E



*1 When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more because of round chamfering. (Recommended height: 5 mm)
In addition, be aware that surfaces other than the body mounting reference plane (B dimension range) may slightly protrude from the body mounting reference plane. Be sure to provide a clearance of 1 mm or more to avoid interference with workpieces, facilities, etc.

*2 This is the distance 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.

*3 Position after returning to origin

*4 [ ] for when the direction of return to origin has changed

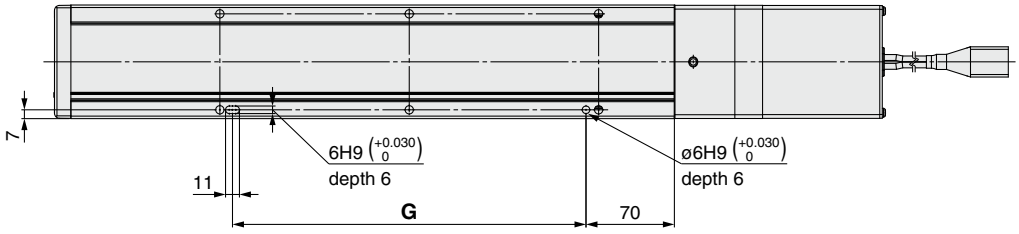
Dimensions [mm]

Model	L		A	B	n	D	E
	Without lock	With lock					
LEFS□40E□-150□	506	555	156	328	4	—	150
LEFS□40E□-200□	556	605	206	378	6	2	300
LEFS□40E□-250□	606	655	256	428	6	2	300
LEFS□40E□-300□	656	705	306	478	6	2	300
LEFS□40E□-350□	706	755	356	528	8	3	450
LEFS□40E□-400□	756	805	406	578	8	3	450
LEFS□40E□-450□	806	855	456	628	8	3	450
LEFS□40E□-500□	856	905	506	678	10	4	600
LEFS□40E□-550□	906	955	556	728	10	4	600
LEFS□40E□-600□	956	1005	606	778	10	4	600
LEFS□40E□-650□	1006	1055	656	828	12	5	750
LEFS□40E□-700□	1056	1105	706	878	12	5	750
LEFS□40E□-750□	1106	1155	756	928	12	5	750
LEFS□40E□-800□	1156	1205	806	978	14	6	900
LEFS□40E□-850□	1206	1255	856	1028	14	6	900
LEFS□40E□-900□	1256	1305	906	1078	14	6	900
LEFS□40E□-950□	1306	1355	956	1128	16	7	1050
LEFS□40E□-1000□	1356	1405	1006	1178	16	7	1050
LEFS□40E□-1100□	1456	1505	1106	1278	18	8	1200
LEFS□40E□-1200□	1556	1605	1206	1378	18	8	1200

Dimensions: In-line Motor

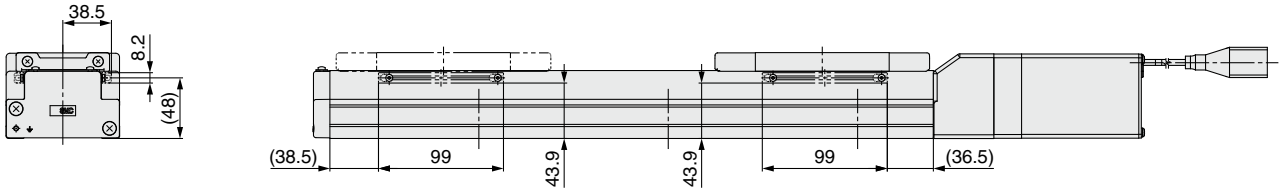
LEFS40E

Positioning pin hole*1 (Option): Body bottom



*1 When using the body bottom positioning pin holes, do not simultaneously use the housing B bottom pin hole.

With auto switch (Option)

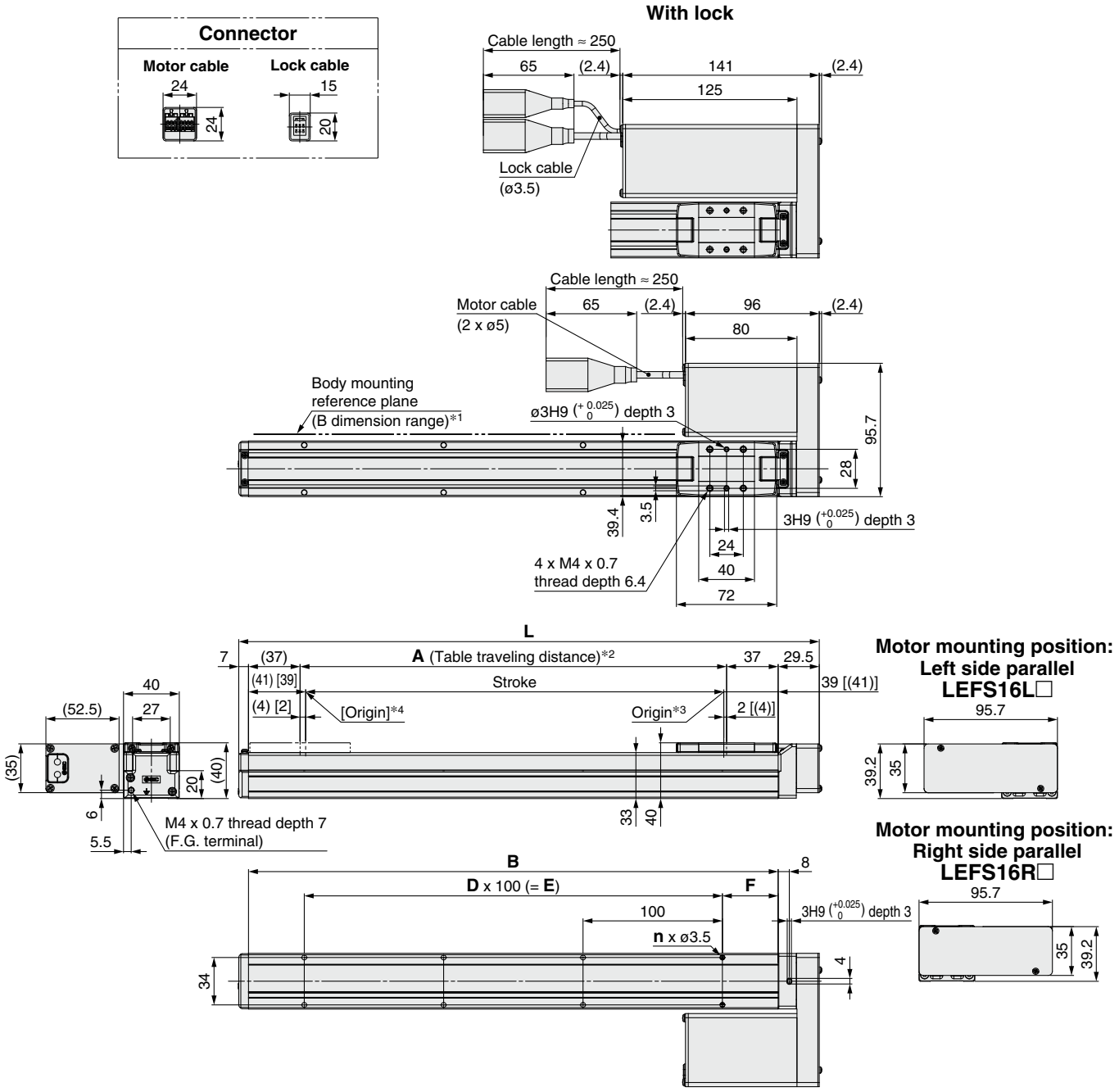


Dimensions [mm]

Model	G
LEFS□40E□-150□	130
LEFS□40E□-200□	280
LEFS□40E□-250□	280
LEFS□40E□-300□	280
LEFS□40E□-350□	430
LEFS□40E□-400□	430
LEFS□40E□-450□	430
LEFS□40E□-500□	580
LEFS□40E□-550□	580
LEFS□40E□-600□	580
LEFS□40E□-650□	730
LEFS□40E□-700□	730
LEFS□40E□-750□	730
LEFS□40E□-800□	880
LEFS□40E□-850□	880
LEFS□40E□-900□	880
LEFS□40E□-950□	1030
LEFS□40E□-1000□	1030
LEFS□40E□-1100□	1180
LEFS□40E□-1200□	1180

Dimensions: Motor Parallel

LEFS16RE



*1 When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 2 mm or more because of round chamfering. (Recommended height: 5 mm)
In addition, be aware that surfaces other than the body mounting reference plane (B dimension range) may slightly protrude from the body mounting reference plane. Be sure to provide a clearance of 1 mm or more to avoid interference with workpieces, facilities, etc.
*2 This is the distance 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.
*3 Position after returning to origin
*4 [ ] for when the direction of return to origin has changed

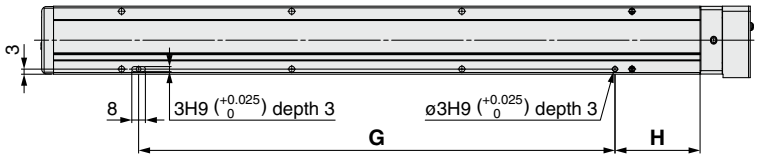
Dimensions [mm]

Model	L	A	B	n	D	E	F
LEFS□16□E□-50□	166.5	56	130	4	—	—	15
LEFS□16□E□-100□	216.5	106	180				40
LEFS□16□E□-150□	266.5	156	230				
LEFS□16□E□-200□	316.5	206	280	6	2	200	
LEFS□16□E□-250□	366.5	256	330				
LEFS□16□E□-300□	416.5	306	380	8	3	300	
LEFS□16□E□-350□	466.5	356	430				
LEFS□16□E□-400□	516.5	406	480	10	4	400	
LEFS□16□E□-450□	566.5	456	530				
LEFS□16□E□-500□	616.5	506	580	12	5	500	

Dimensions: Motor Parallel

LEFS16R

Positioning pin hole*1 (Option): Body bottom



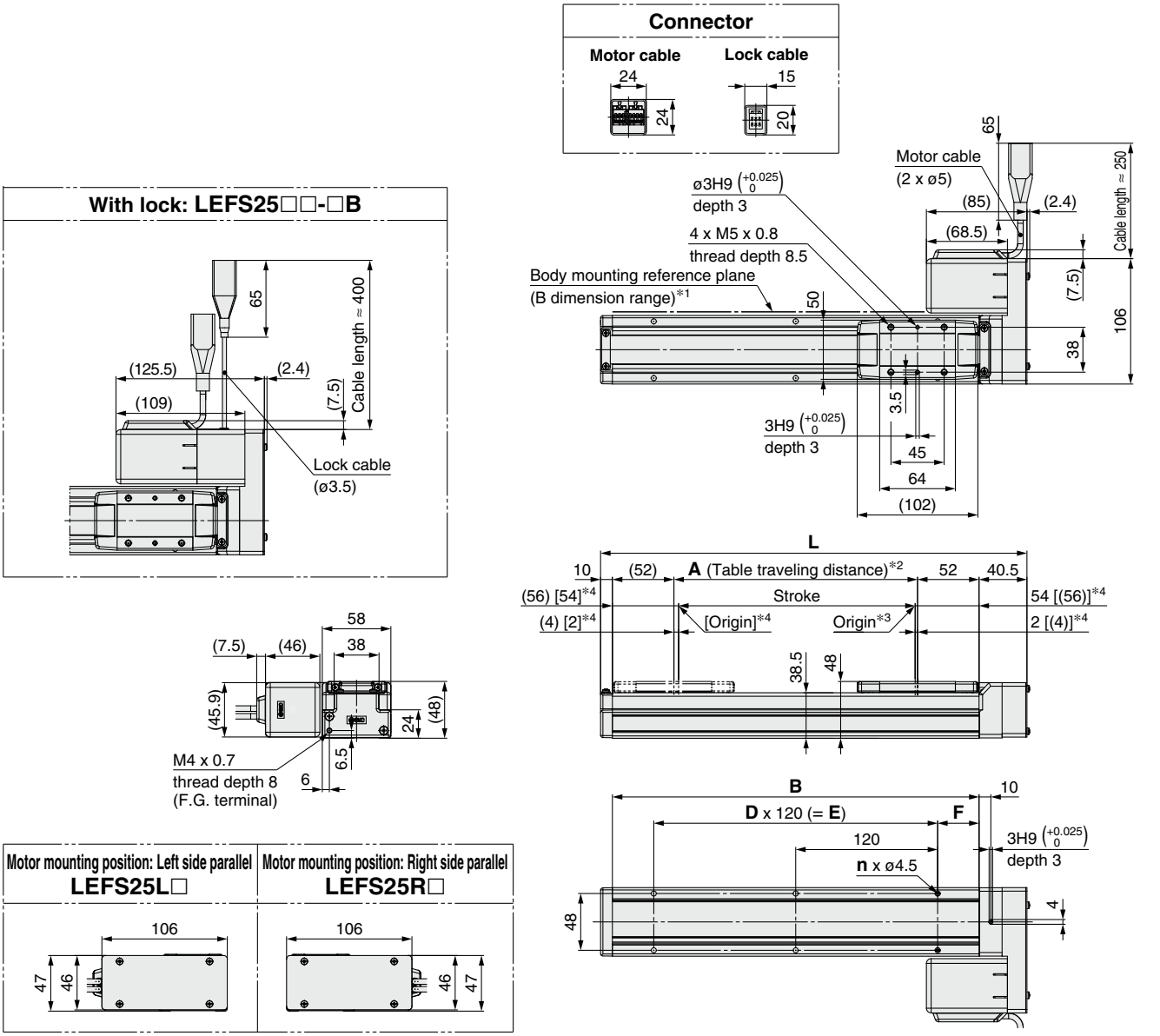
*1 When using the body bottom positioning pin holes, do not simultaneously use the housing B bottom pin hole.

Dimensions [mm]

Model	Positioning pin hole: K	
	G	H
LEFS□16□E□-50□	80	25
LEFS□16□E□-100□		50
LEFS□16□E□-150□		
LEFS□16□E□-200□	180	
LEFS□16□E□-250□		
LEFS□16□E□-300□	280	
LEFS□16□E□-350□		
LEFS□16□E□-400□	380	
LEFS□16□E□-450□		
LEFS□16□E□-500□	480	

Dimensions: Motor Parallel

LEFS25R



∗1 When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more. (Recommended height: 5 mm) In addition, be aware that surfaces other than the body mounting reference plane (B dimension range) may slightly protrude from the body mounting reference plane. Be sure to provide a clearance of 1 mm or more to avoid interference with workpieces, facilities, etc.

∗2 This is the distance 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.

∗3 Position after returning to origin

∗4 [ ] for when the direction of return to origin has changed

Dimensions [mm]

Model	L	A	B	n	D	E	F
LEFS□25□E□-50□	210.5	56	160	4	—	—	20
LEFS□25□E□-100□	260.5	106	210	4	—	—	35
LEFS□25□E□-150□	310.5	156	260	4	—	—	
LEFS□25□E□-200□	360.5	206	310	6	2	240	
LEFS□25□E□-250□	410.5	256	360	6	2	240	
LEFS□25□E□-300□	460.5	306	410	8	3	360	
LEFS□25□E□-350□	510.5	356	460	8	3	360	
LEFS□25□E□-400□	560.5	406	510	8	3	360	

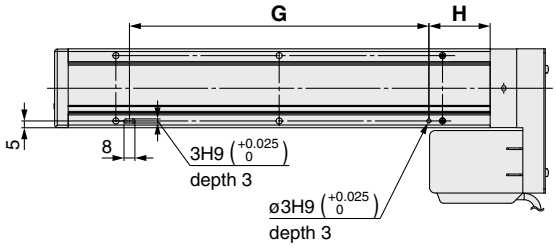
Dimensions [mm]

Model	L	A	B	n	D	E	F
LEFS□25□E□-450□	610.5	456	560	10	4	480	35
LEFS□25□E□-500□	660.5	506	610	10	4	480	
LEFS□25□E□-550□	710.5	556	660	12	5	600	
LEFS□25□E□-600□	760.5	606	710	12	5	600	
LEFS□25□E□-650□	810.5	656	760	12	5	600	
LEFS□25□E□-700□	860.5	706	810	14	6	720	
LEFS□25□E□-750□	910.5	756	860	14	6	720	
LEFS□25□E□-800□	960.5	806	910	16	7	840	

Dimensions: Motor Parallel

LEFS25R

Positioning pin hole*1 (Option): Body bottom



*1 When using the body bottom positioning pin holes, do not simultaneously use the housing B bottom pin hole.

Dimensions [mm]

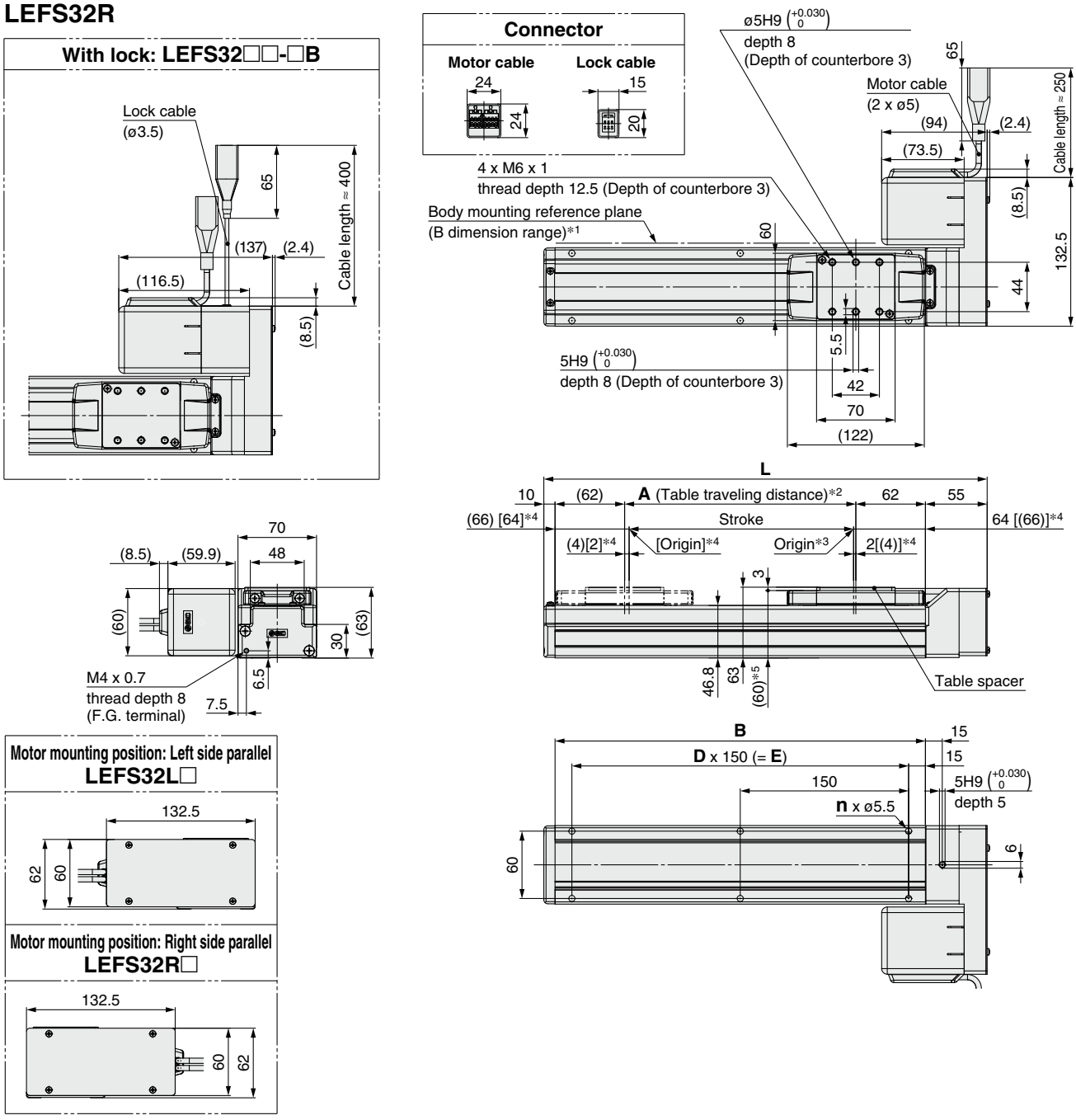
Model	G	H
LEFS□25□E□-50□	100	30
LEFS□25□E□-100□	100	45
LEFS□25□E□-150□	100	45
LEFS□25□E□-200□	220	45
LEFS□25□E□-250□	220	45
LEFS□25□E□-300□	340	45
LEFS□25□E□-350□	340	45
LEFS□25□E□-400□	340	45

Dimensions [mm]

Model	G	H
LEFS□25□E□-450□	460	45
LEFS□25□E□-500□	460	45
LEFS□25□E□-550□	580	45
LEFS□25□E□-600□	580	45
LEFS□25□E□-650□	580	45
LEFS□25□E□-700□	700	45
LEFS□25□E□-750□	700	45
LEFS□25□E□-800□	820	45

Dimensions: Motor Parallel

LEFS32R



*1 When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more. (Recommended height: 5 mm) In addition, be aware that surfaces other than the body mounting reference plane (B dimension range) may slightly protrude from the body mounting reference plane. Be sure to provide a clearance of 1 mm or more to avoid interference with workpieces, facilities, etc.
*2 This is the distance 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.
*3 Position after returning to origin
*4 [ ] for when the direction of return to origin has changed
*5 When the table spacer is removed

Dimensions [mm]

Model	L	A	B	n	D	E
LEFS□32□E□-50□	245	56	180	4	—	—
LEFS□32□E□-100□	295	106	230	4	—	—
LEFS□32□E□-150□	345	156	280	4	—	—
LEFS□32□E□-200□	395	206	330	6	2	300
LEFS□32□E□-250□	445	256	380	6	2	300
LEFS□32□E□-300□	495	306	430	6	2	300
LEFS□32□E□-350□	545	356	480	8	3	450
LEFS□32□E□-400□	595	406	530	8	3	450
LEFS□32□E□-450□	645	456	580	8	3	450
LEFS□32□E□-500□	695	506	630	10	4	600

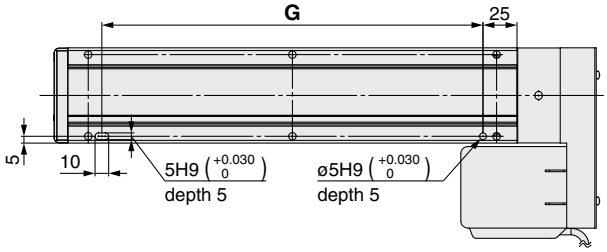
Dimensions [mm]

Model	L	A	B	n	D	E
LEFS□32□E□-550□	745	556	680	10	4	600
LEFS□32□E□-600□	795	606	730	10	4	600
LEFS□32□E□-650□	845	656	780	12	5	750
LEFS□32□E□-700□	895	706	830	12	5	750
LEFS□32□E□-750□	945	756	880	12	5	750
LEFS□32□E□-800□	995	806	930	14	6	900
LEFS□32□E□-850□	1045	856	980	14	6	900
LEFS□32□E□-900□	1095	906	1030	14	6	900
LEFS□32□E□-950□	1145	956	1080	16	7	1050
LEFS□32□E□-1000□	1195	1006	1130	16	7	1050

Dimensions: Motor Parallel

LEFS32R

Positioning pin hole*1 (Option): Body bottom



*1 When using the body bottom positioning pin holes, do not simultaneously use the housing B bottom pin hole.

Dimensions [mm]

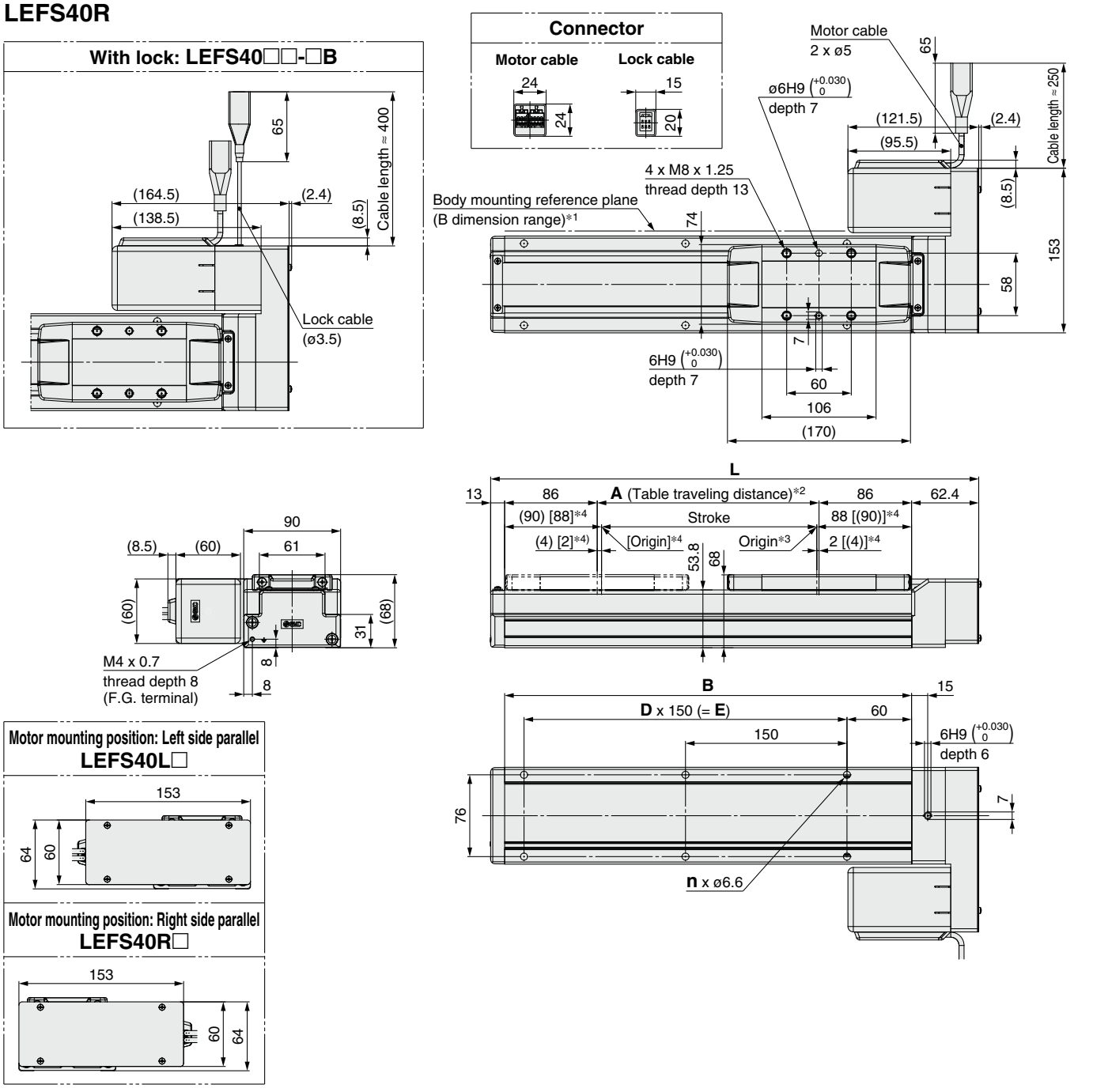
Model	G
LEFS□32□E□-50□	130
LEFS□32□E□-100□	130
LEFS□32□E□-150□	130
LEFS□32□E□-200□	280
LEFS□32□E□-250□	280
LEFS□32□E□-300□	280
LEFS□32□E□-350□	430
LEFS□32□E□-400□	430
LEFS□32□E□-450□	430
LEFS□32□E□-500□	580

Dimensions [mm]

Model	G
LEFS□32□E□-550□	580
LEFS□32□E□-600□	580
LEFS□32□E□-650□	730
LEFS□32□E□-700□	730
LEFS□32□E□-750□	730
LEFS□32□E□-800□	880
LEFS□32□E□-850□	880
LEFS□32□E□-900□	880
LEFS□32□E□-950□	1030
LEFS□32□E□-1000□	1030

Dimensions: Motor Parallel

LEFS40R



*1 When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more. (Recommended height: 5 mm)
In addition, be aware that surfaces other than the body mounting reference plane (B dimension range) may slightly protrude from the body mounting reference plane.
Be sure to provide a clearance of 1 mm or more to avoid interference with workpieces, facilities, etc.
*2 This is the distance 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.
*3 Position after returning to origin
*4 [ ] for when the direction of return to origin has changed

Dimensions [mm]

Model	L	A	B	n	D	E
LEFS□40□E□-150□	403.4	156	328	4	—	150
LEFS□40□E□-200□	453.4	206	378	6	2	300
LEFS□40□E□-250□	503.4	256	428	6	2	300
LEFS□40□E□-300□	553.4	306	478	6	2	300
LEFS□40□E□-350□	603.4	356	528	8	3	450
LEFS□40□E□-400□	653.4	406	578	8	3	450
LEFS□40□E□-450□	703.4	456	628	8	3	450
LEFS□40□E□-500□	753.4	506	678	10	4	600
LEFS□40□E□-550□	803.4	556	728	10	4	600
LEFS□40□E□-600□	853.4	606	778	10	4	600

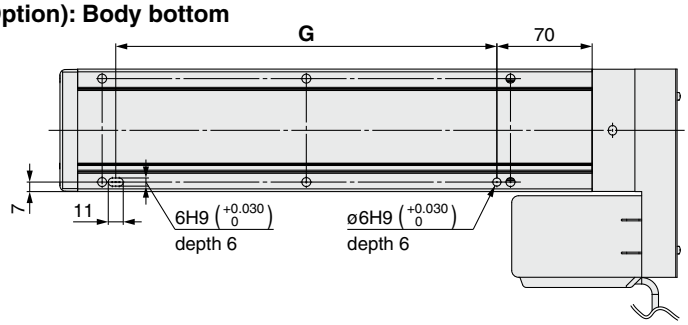
Dimensions [mm]

Model	L	A	B	n	D	E
LEFS□40□E□-650□	903.4	656	828	12	5	750
LEFS□40□E□-700□	953.4	706	878	12	5	750
LEFS□40□E□-750□	1003.4	756	928	12	5	750
LEFS□40□E□-800□	1053.4	806	978	14	6	900
LEFS□40□E□-850□	1103.4	856	1028	14	6	900
LEFS□40□E□-900□	1153.4	906	1078	14	6	900
LEFS□40□E□-950□	1203.4	956	1128	16	7	1050
LEFS□40□E□-1000□	1253.4	1006	1178	16	7	1050
LEFS□40□E□-1100□	1353.4	1106	1278	18	8	1200
LEFS□40□E□-1200□	1453.4	1206	1378	18	8	1200

Dimensions: Motor Parallel

LEFS40R

Positioning pin hole*1 (Option): Body bottom



*1 When using the body bottom positioning pin holes, do not simultaneously use the housing B bottom pin hole.

Dimensions [mm]

Model	G
LEFS□40□E□-150□	130
LEFS□40□E□-200□	280
LEFS□40□E□-250□	280
LEFS□40□E□-300□	280
LEFS□40□E□-350□	430
LEFS□40□E□-400□	430
LEFS□40□E□-450□	430
LEFS□40□E□-500□	580
LEFS□40□E□-550□	580
LEFS□40□E□-600□	580

Dimensions [mm]

Model	G
LEFS□40□E□-650□	730
LEFS□40□E□-700□	730
LEFS□40□E□-750□	730
LEFS□40□E□-800□	880
LEFS□40□E□-850□	880
LEFS□40□E□-900□	880
LEFS□40□E□-950□	1030
LEFS□40□E□-1000□	1030
LEFS□40□E□-1100□	1180
LEFS□40□E□-1200□	1180

Battery-less Absolute (Step Motor 24 VDC)

Slider Type/Belt Drive

LEFB Series LEFB16, 25, 32

CE UK CA

* For details, refer to page 1343 and onward.

RoHS

How to Order

LEFB 25 E T – 500 ❑ C N K – R1 CD17T

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿

For details on controllers, refer to the next page.

❶ Size

16
25
32

❷ Motor type

E	Battery-less absolute (Step motor 24 VDC)

❸ Equivalent lead [mm]

T	48

❹ Stroke*1 [mm]

Stroke	Note	
	Size	Applicable stroke
300 to 1000	**16**	300, 500, 600, 700, 800, 900, 1000
300 to 2000	**25**	300, 500, 600, 700, 800, 900, 1000, 1200, 1500, 1800, 2000
300 to 2000	**32**	300, 500, 600, 700, 800, 900, 1000, 1200, 1500, 1800, 2000

❺ Motor option

Nil	Without option
B	With lock

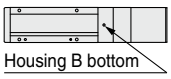
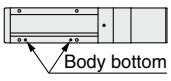
❻ Auto switch compatibility*2 *3 *4 *5

Nil	None
C	With (Includes 1 mounting bracket)

❼ Grease application (Seal band part)

Nil	With
N	Without (Roller specification)

❽ Positioning pin hole

Nil	Housing B bottom*6	
K	Body bottom 2 locations	

❾ Actuator cable type/length

Robotic cable [m]

Nil	None	**R8**	8*7
R1	1.5	**RA**	10*7
R3	3	**RB**	15*7
R5	5	**RC**	20*7

The belt drive actuator cannot be used for vertical applications.

For auto switches, refer to pages 275 to 278.

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∗8	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∗9

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 Please contact SMC for non-standard strokes as they are produced as special orders.
∗2 Excludes the LEF16
∗3 If 2 or more are required, please order them separately. (Part no.: LEF-D-2-1 For details, refer to page 275.)
∗4 Order auto switches separately. (For details, refer to pages 276 to 278.)
∗5 When "Nil" is selected, the product will not come with a built-in magnet for an auto switch, and so a mounting bracket cannot be secured. Be sure to select an appropriate model initially as the product cannot be changed to have auto switch compatibility after purchase.
∗6 Refer to the body mounting example on page 280 for the mounting method.
∗7 Produced upon receipt of order
∗8 The DIN rail is not included. It must be ordered separately.
∗9 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 LEF 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.

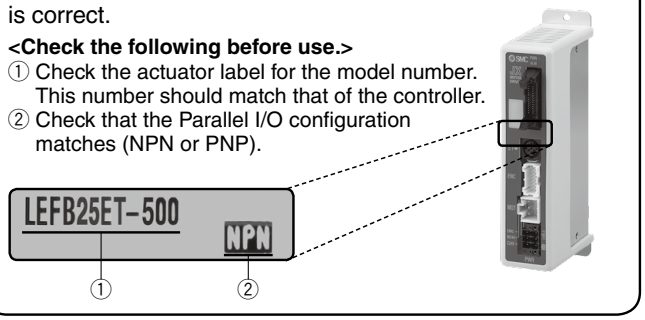
[Precautions relating to differences in controller versions]
When the JXC series is to be used in combination with the battery-less absolute encoder, use a controller that is version V3.4 or S3.4 or higher. For details, refer to pages 1077 and 1078.

[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			LEFB16E	LEFB25E	LEFB32E
Actuator specifications	Stroke [mm]*1		300, 500, 600, 700 800, 900, 1000	300, 500, 600, 700, 800, 900 1000, 1200, 1500, 1800, 2000	300, 500, 600, 700, 800, 900 1000, 1200, 1500, 1800, 2000
	Work load [kg]*2	Horizontal	1	10	19
	Speed [mm/s]*2		48 to 1100	48 to 1400	48 to 1500
	Max. acceleration/deceleration [mm/s²]		3000		
	Positioning repeatability [mm]		±0.08		
	Lost motion [mm]*3		0.1 or less		
	Equivalent lead [mm]		48	48	48
	Impact/Vibration resistance [m/s²]*4		50/20		
	Actuation type		Belt		
	Guide type		Linear guide		
	Static allowable moment*5 [N·m]	Mep (Pitching)	10	27	46
		Mey (Yawing)	10	27	46
		Mer (Rolling)	20	52	101
	Operating temperature range [°C]		5 to 40		
	Operating humidity range [%RH]		90 or less (No condensation)		
	Enclosure		IP30		
Electric specifications	Motor size		□28	□42	□56.4
	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 51	Max. power 60	Max. power 127
Lock unit specifications	Type*7		Non-magnetizing lock		
	Holding force [N]		4	19	36
	Power [W]*8		2.9	5	5
	Rated voltage [V]		24 VDC ±10%		

*1 Please contact SMC for non-standard strokes as they are produced as special orders.
*2 Speed changes according to the controller/driver type and work load. Check the "Speed–Work Load Graph (Guide)" on page 108.
Furthermore, if the cable length exceeds 5 m, then it will decrease by up to 10% for each 5 m. Cannot be used for vertical applications
*3 A reference value for correcting errors in reciprocal operation
*4 Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)
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.)
*5 The static allowable moment is the amount of static moment which can be applied to the actuator when it is stopped.
If the product is exposed to impact or repeated load, be sure to take adequate safety measures when using the product.
*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

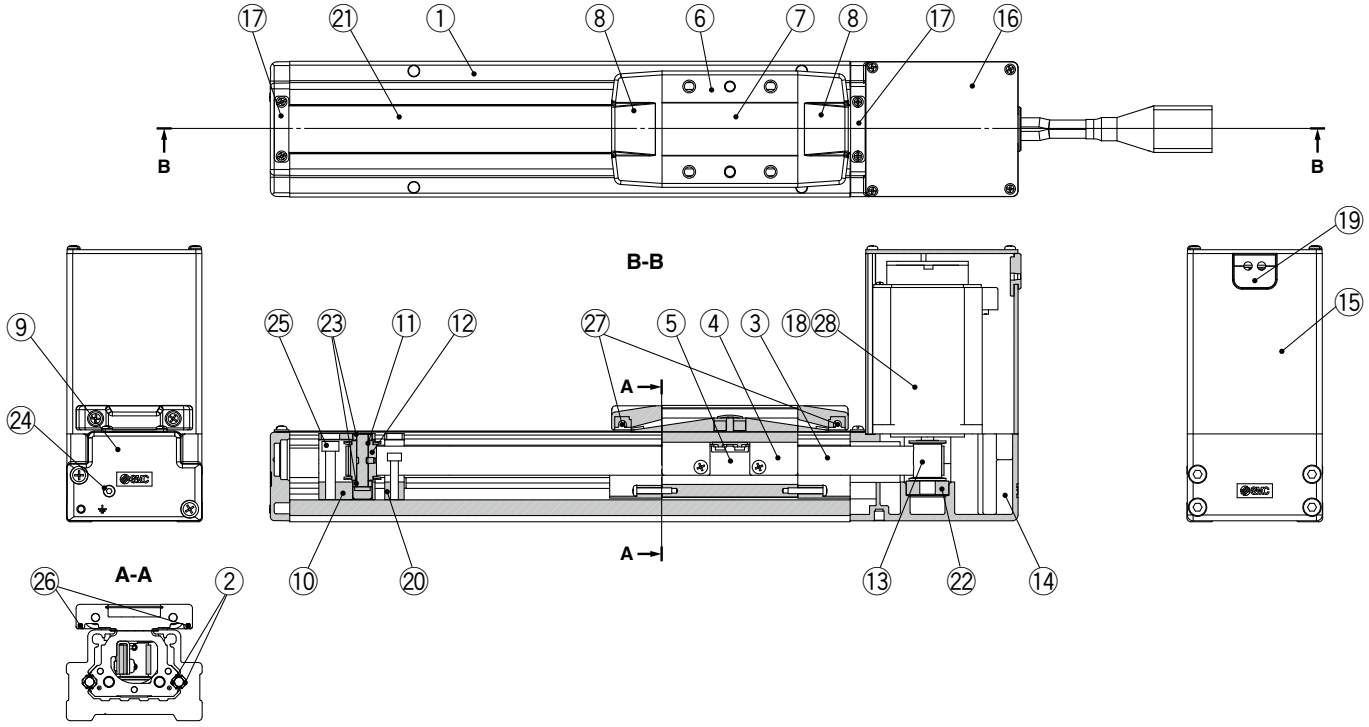
Series	LEFB16E						
Stroke [mm]	300	500	600	700	800	900	1000
Product weight [kg]	1.19	1.45	1.58	1.71	1.84	1.97	2.10
Additional weight with lock [kg]	0.12						

Series	LEFB25E										
Stroke [mm]	300	500	600	700	800	900	1000	1200	1500	1800	2000
Product weight [kg]	2.39	2.85	3.08	3.31	3.54	3.77	4.00	4.46	5.15	5.84	6.30
Additional weight with lock [kg]	0.26										

Series	LEFB32E										
Stroke [mm]	300	500	600	700	800	900	1000	1200	1500	1800	2000
Product weight [kg]	4.12	4.80	5.14	5.48	5.82	6.16	6.50	7.18	8.20	9.22	9.90
Additional weight with lock [kg]	0.53										

Construction

LEFB Series



Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Rail guide**	—	
3	**Belt**	—	
4	**Belt holder**	Carbon steel	Chromating
5	**Belt stopper**	Aluminum alloy	Anodized
6	**Table**	Aluminum alloy	Anodized
7	**Blanking plate**	Aluminum alloy	Anodized
8	**Seal band holder**	Synthetic resin	
9	**Housing A**	Aluminum die-cast	Coating
10	**Pulley holder**	Aluminum alloy	
11	**Pulley shaft**	Stainless steel	
12	**End pulley**	Aluminum alloy	Anodized
13	**Motor pulley**	Aluminum alloy	Anodized
14	**Motor mount**	Aluminum alloy	Coating/Anodized
15	**Motor cover**	Aluminum alloy	Anodized
16	**End cover**	Aluminum alloy	Anodized
17	**Band stopper**	Stainless steel	

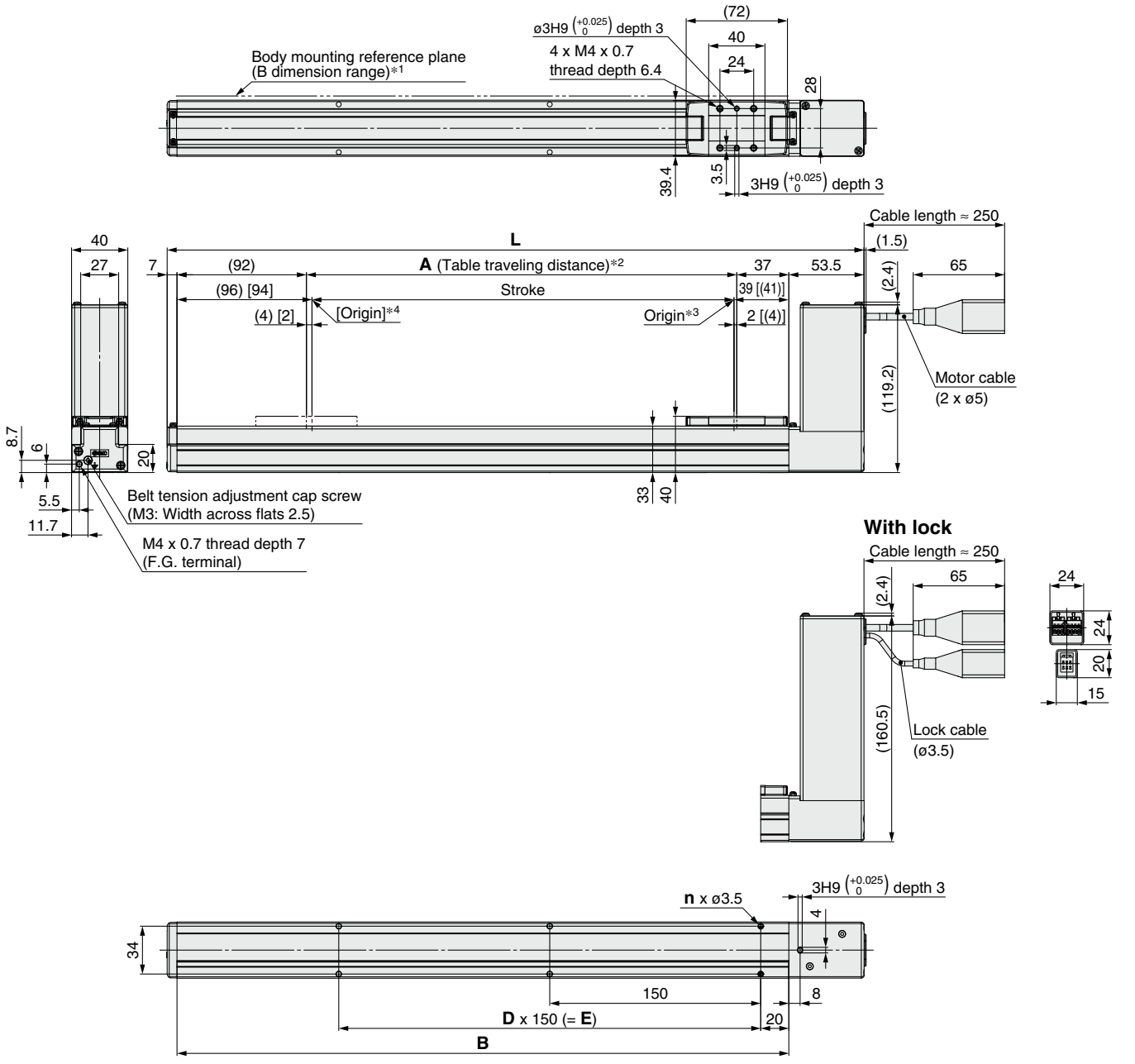
No.	Description	Material	Note
18	**Motor**	—	
19	**Rubber bushing**	NBR	
20	**Stopper**	Aluminum alloy	
21	**Dust seal band**	Stainless steel	
22	**Bearing**	—	
23	**Bearing**	—	
24	**Tension adjustment cap screw**	Chromium molybdenum steel	Chromating
25	**Pulley retaining screw**	Chromium molybdenum steel	Chromating
26	**Magnet**	—	With auto switch compatibility
27	**Roller assembly**	—	Without grease application
28	Heat dissipation sheet **LEFB16**	—	

Replacement Parts/Grease Pack

Applied portion	Order no.
Rail guide	GR-S-010 (10 g) GR-S-020 (20 g)
Dust seal band (When "Without" is selected for the grease application, grease is applied only on the back side.)	

Dimensions: Belt Drive

LEFB16E



*1 When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 2 mm or more because of round chamfering. (Recommended height: 5 mm)
*2 This is the distance 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.
*3 Position after returning to origin
*4 [ ] for when the direction of return to origin has changed

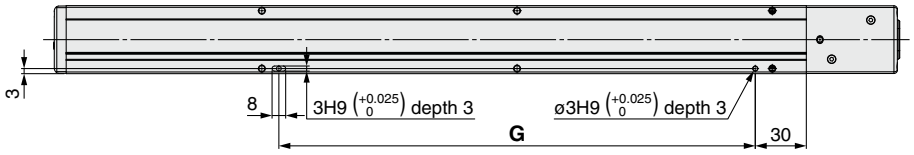
Dimensions [mm]

Model	L	A	B	n	D	E
LEFB16ET-300□	495.5	306	435	6	2	300
LEFB16ET-500□	695.5	506	635	10	4	600
LEFB16ET-600□	795.5	606	735			
LEFB16ET-700□	895.5	706	835	12	5	750
LEFB16ET-800□	995.5	806	935	14	6	900
LEFB16ET-900□	1095.5	906	1035			
LEFB16ET-1000□	1195.5	1006	1135	16	7	1050

Dimensions: Belt Drive

LEFB16E

Positioning pin hole*1 (Option): Body bottom



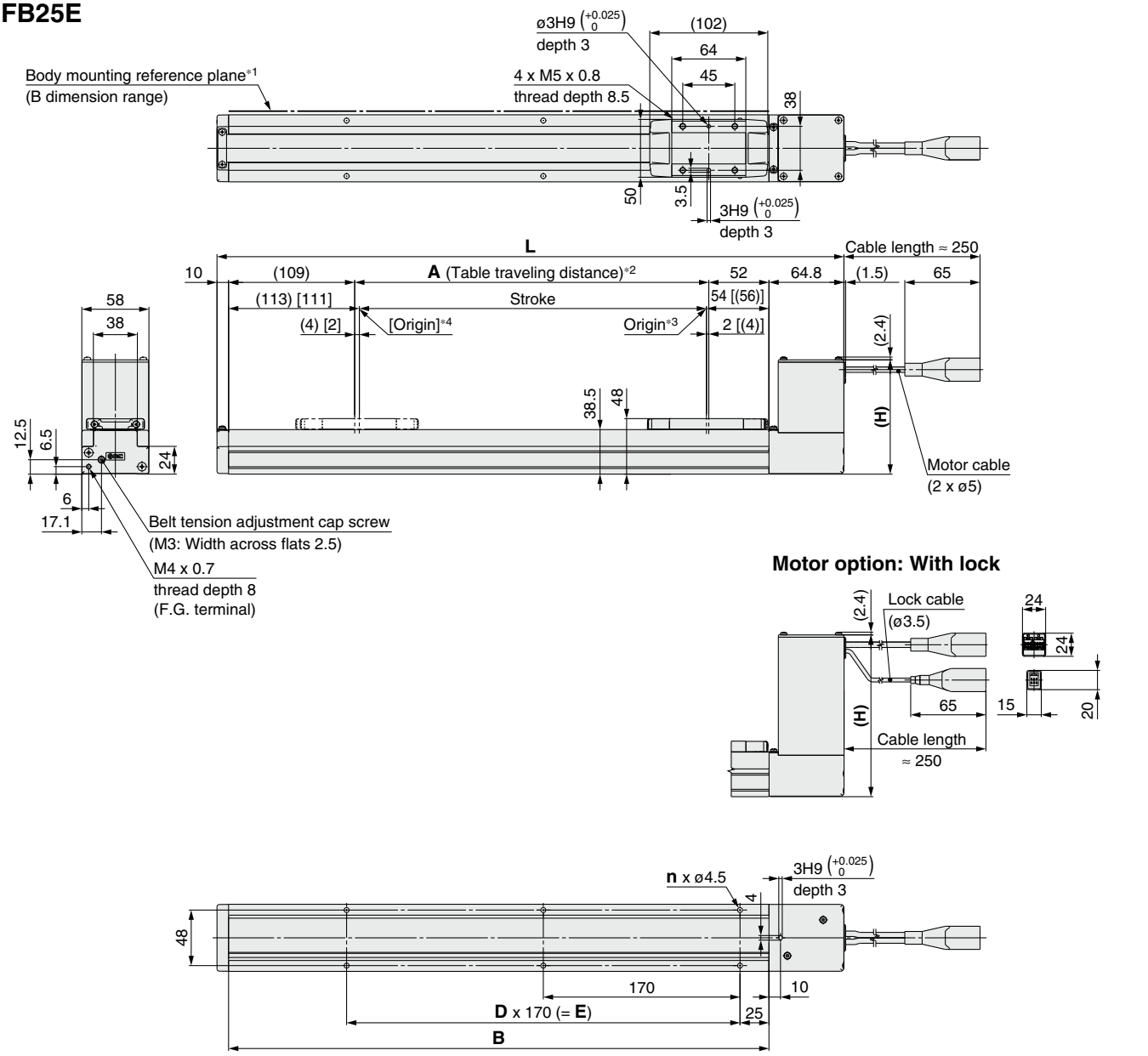
*1 When using the body bottom positioning pin holes, do not simultaneously use the housing B bottom pin hole.

Dimensions [mm]

Model	Positioning pin hole: **K**
	G
LEFB16ET-300□	280
LEFB16ET-500□	580
LEFB16ET-600□	
LEFB16ET-700□	730
LEFB16ET-800□	880
LEFB16ET-900□	
LEFB16ET-1000□	1030

Dimensions: Belt Drive

LEFB25E



Motor option: With lock

*1 When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more because of round chamfering. (Recommended height: 5 mm)
*2 This is the distance 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.
*3 Position after returning to origin
*4 [ ] for when the direction of return to origin has changed

[mm]

Model	H
LEFB25ET-ST	115.8
LEFB25ET-STB	158.8

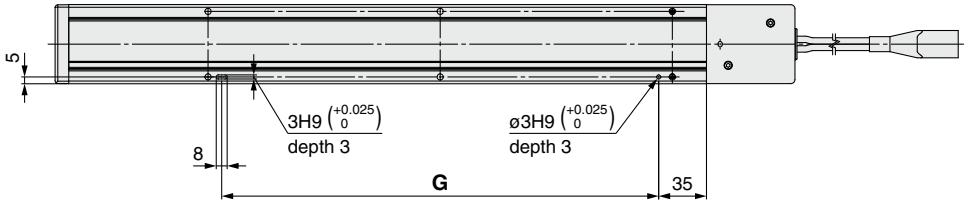
Dimensions

Model	L	A	B	n	D	E
LEFB25ET-300□	541.8	306	467	6	2	340
LEFB25ET-500□	741.8	506	667	8	3	510
LEFB25ET-600□	841.8	606	767	10	4	680
LEFB25ET-700□	941.8	706	867	10	4	680
LEFB25ET-800□	1041.8	806	967	12	5	850
LEFB25ET-900□	1141.8	906	1067	14	6	1020
LEFB25ET-1000□	1241.8	1006	1167	14	6	1020
LEFB25ET-1200□	1441.8	1206	1367	16	7	1190
LEFB25ET-1500□	1741.8	1506	1667	20	9	1530
LEFB25ET-1800□	2041.8	1806	1967	24	11	1870
LEFB25ET-2000□	2241.8	2006	2167	26	12	2040

Dimensions: Belt Drive

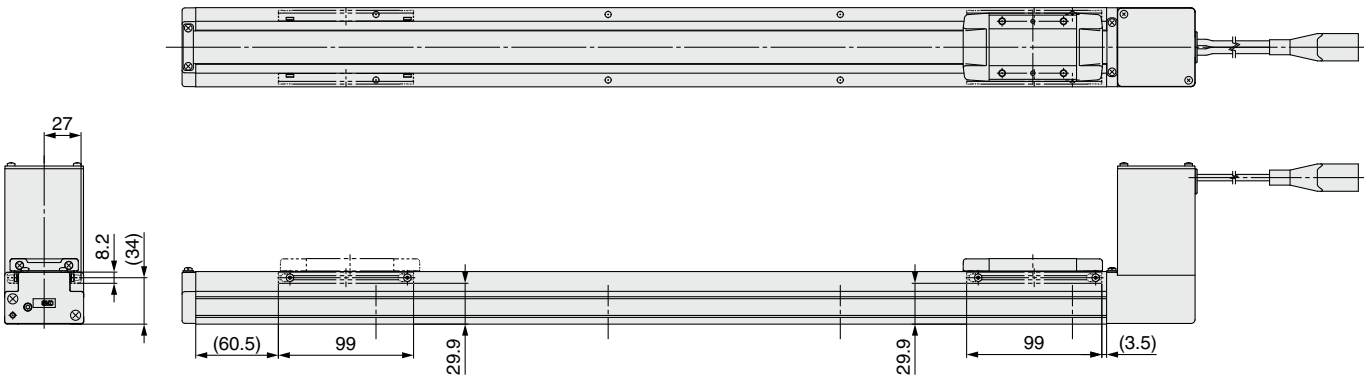
LEFB25E

Positioning pin hole*1 (Option): Body bottom



*1 When using the body bottom positioning pin holes, do not simultaneously use the housing B bottom pin hole.

With auto switch (Option)

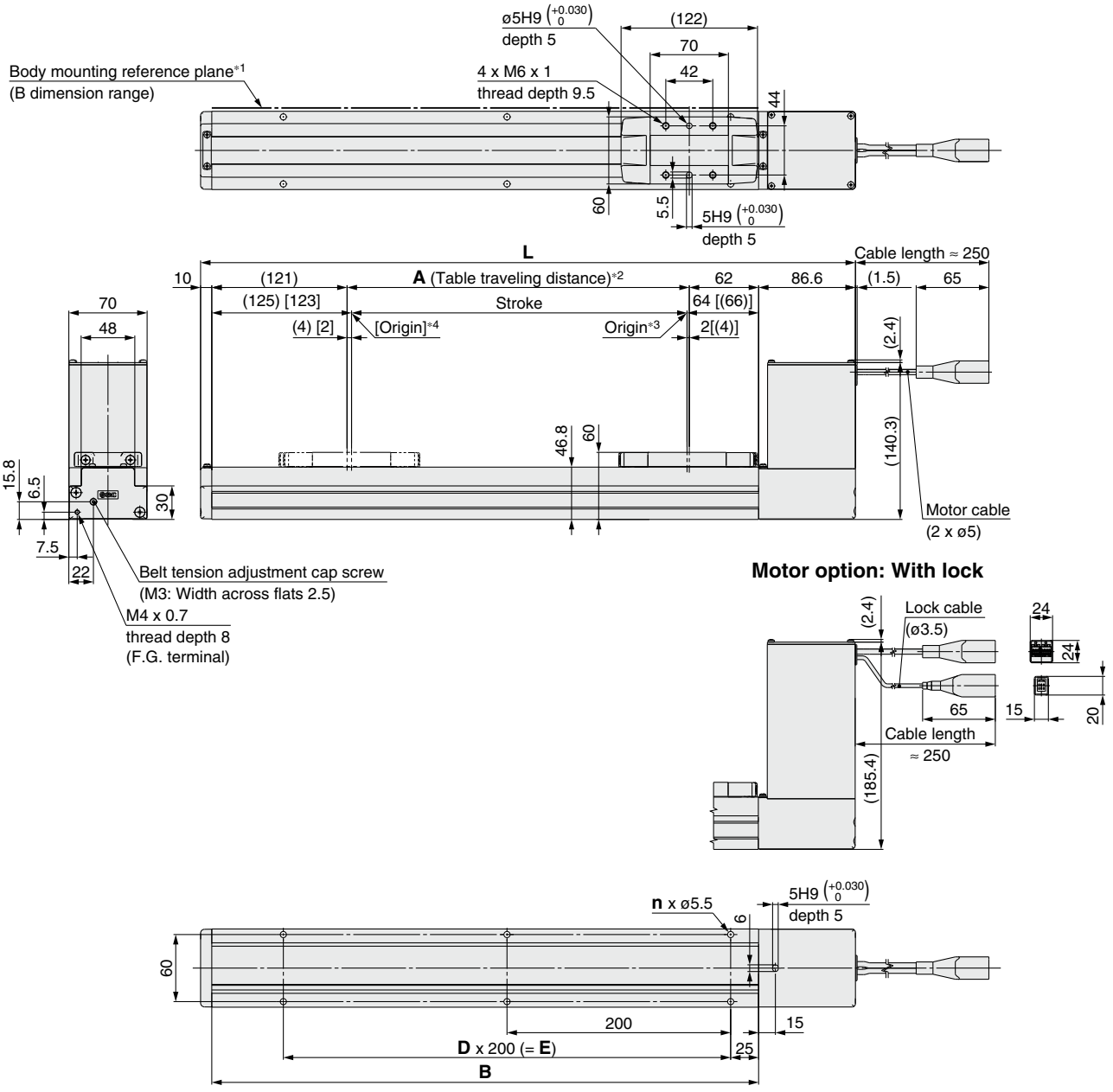


Dimensions [mm]

Model	G
LEFB25ET-300□	320
LEFB25ET-500□	490
LEFB25ET-600□	660
LEFB25ET-700□	660
LEFB25ET-800□	830
LEFB25ET-900□	1000
LEFB25ET-1000□	1000
LEFB25ET-1200□	1170
LEFB25ET-1500□	1510
LEFB25ET-1800□	1850
LEFB25ET-2000□	2020

Dimensions: Belt Drive

LEFB32E



*1 When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more because of round chamfering. (Recommended height: 5 mm)
*2 This is the distance 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.
*3 Position after returning to origin
*4 [ ] for when the direction of return to origin has changed

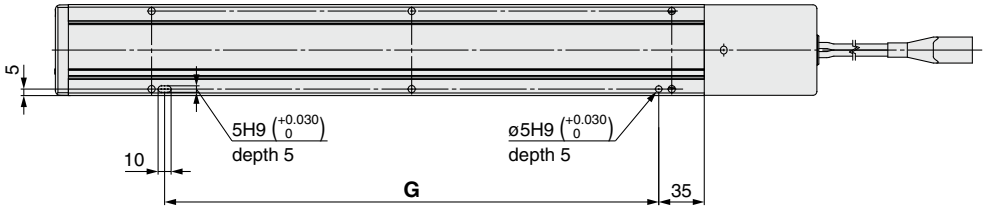
Dimensions [mm]

Model	L	A	B	n	D	E
LEFB32ET-300□	585.6	306	489	6	2	400
LEFB32ET-500□	785.6	506	689	8	3	600
LEFB32ET-600□	885.6	606	789	8	3	600
LEFB32ET-700□	985.6	706	889	10	4	800
LEFB32ET-800□	1085.6	806	989	10	4	800
LEFB32ET-900□	1185.6	906	1089	12	5	1000
LEFB32ET-1000□	1285.6	1006	1189	12	5	1000
LEFB32ET-1200□	1485.6	1206	1389	14	6	1200
LEFB32ET-1500□	1785.6	1506	1689	18	8	1600
LEFB32ET-1800□	2085.6	1806	1989	20	9	1800
LEFB32ET-2000□	2285.6	2006	2189	22	10	2000

Dimensions: Belt Drive

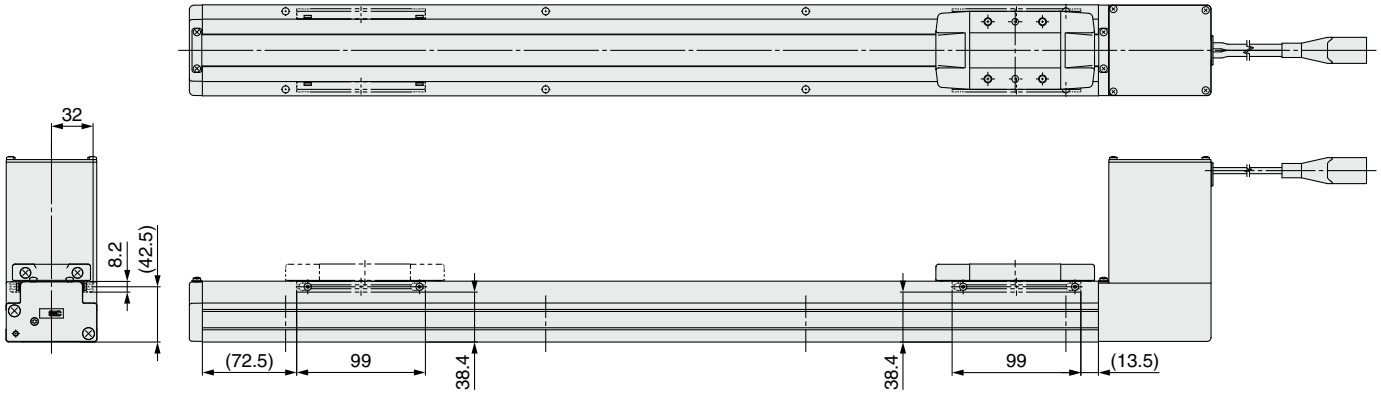
LEFB32E

Positioning pin hole*1 (Option): Body bottom



*1 When using the body bottom positioning pin holes, do not simultaneously use the housing B bottom pin hole.

With auto switch (Option)

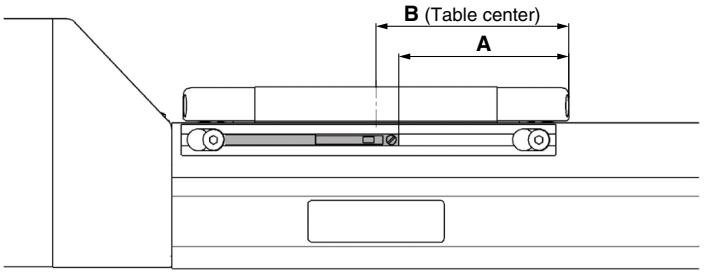


Dimensions [mm]

Model	G
LEFB32ET-300□	380
LEFB32ET-500□	580
LEFB32ET-600□	580
LEFB32ET-700□	780
LEFB32ET-800□	780
LEFB32ET-900□	980
LEFB32ET-1000□	980
LEFB32ET-1200□	1180
LEFB32ET-1500□	1580
LEFB32ET-1800□	1780
LEFB32ET-2000□	1980

Auto Switch Mounting

Auto Switch Mounting Position



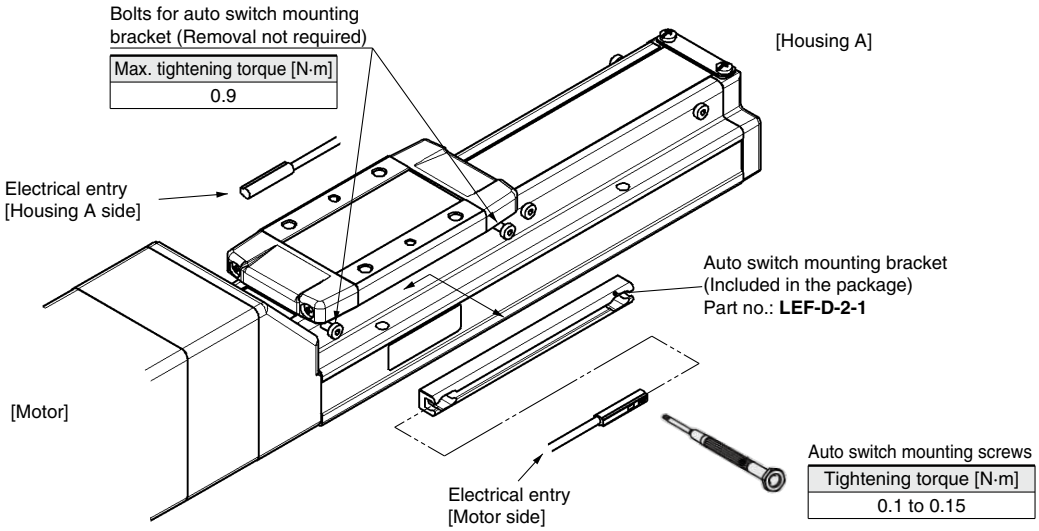
[mm]

Model	Size	A	B	Operating range
LEFS LEFB	25	45	51	4.9
	32	55	61	3.9
	40	79	85	5.3

* The applicable auto switch is D-M9 (N/P/B) (W) (M/L/Z).
* The operating range is a guideline including hysteresis, not meant to be guaranteed. There may be large variations depending on the ambient environment.
* Adjust the auto switch after confirming the operating conditions in the actual setting.

Auto Switch Mounting

Rotate the bolts for auto switch mounting bracket three to four times to loosen them (Removing them is not required), and slide and remove the auto switch mounting bracket. Then, insert a switch into the groove on the mounting bracket.
As the mounting bolts for installing the product body interfere with the auto switch mounting bracket, mount the auto switch mounting bracket after installing the product body. After installing product body, tighten the bolts for the auto switch mounting bracket.



* The applicable auto switch is D-M9 (N/P/B) (W) (M/L/Z).
* The direction of the lead wire entry is specified. If it is mounted in the opposite direction, the auto switch may malfunction.
* Tighten the auto switch mounting screws (provided together with the auto switch), using a precision screwdriver with a handle diameter of approximately 5 to 6 mm.
* If more than two auto switch mounting brackets are required, please order them separately. All eight bolts for attaching the auto switch mounting bracket at the stroke end are tightened into the body when the product is shipped.
  For 50-mm stroke type, only four bolts are tightened on the motor side.

Solid State Auto Switch
Direct Mounting Type
D-M9N/D-M9P/D-M9B

Refer to the SMC website for details on products that are compliant with international standards.

Grommet

- **2-wire load current is reduced (2.5 to 40 mA).**
- **Using flexible cable as standard spec.**

Auto Switch Specifications

PLC: Programmable Logic Controller

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

⚠Caution

Precautions

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

Oilproof Flexible Heavy-duty Lead Wire Specifications

Auto switch model		**D-M9N**	**D-M9P**	**D-M9B**
Sheath	Outside diameter [mm]	ø2.6		
Insulator	Number of cores	3 cores (Brown/Blue/Black)		2 cores (Brown/Blue)
	Outside diameter [mm]	ø0.88		
Conductor	Effective area [mm²]	0.15		
	Strand diameter [mm]	ø0.05		
Min. bending radius [mm] (Reference values)		17		

∗ Refer to page 1363 for solid state auto switch common specifications.
∗ Refer to page 1363 for lead wire lengths.

Weight

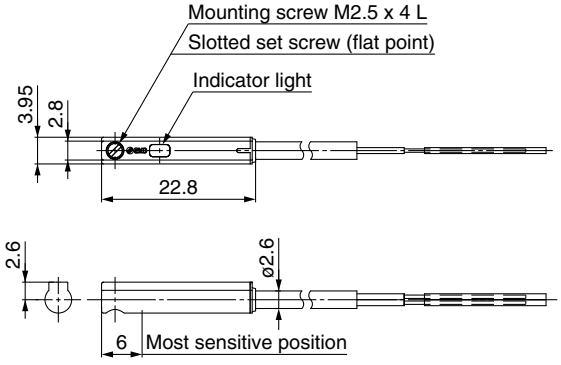
[g]

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

Dimensions

[mm]

D-M9□



Normally Closed Solid State Auto Switch Direct Mounting Type
D-M9NE(V)/D-M9PE(V)/D-M9BE(V)

Refer to the SMC website for details on products that are compliant with international standards.

Grommet

- **Output signal turns on when no magnetic force is detected.**
- **Can be used for the actuator adopted by the solid state auto switch D-M9 series (excluding special order products)**

⚠Caution

Precautions

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

Auto Switch Specifications

PLC: Programmable Logic Controller

D-M9□E, D-M9□EV (With indicator light)						
Auto switch model	D-M9NE	D-M9NEV	D-M9PE	D-M9PEV	D-M9BE	D-M9BEV
Electrical entry direction	In-line	Perpendicular	In-line	Perpendicular	In-line	Perpendicular
Wiring type	3-wire				2-wire	
Output type	NPN		PNP		—	
Applicable load	IC circuit, Relay, PLC				24 VDC relay, PLC	
Power supply voltage	5, 12, 24 VDC (4.5 to 28 V)				—	
Current consumption	10 mA or less				—	
Load voltage	28 VDC or less		—		24 VDC (10 to 28 VDC)	
Load current	40 mA or less				2.5 to 40 mA	
Internal voltage drop	0.8 V or less at 10 mA (2 V or less at 40 mA)				4 V or less	
Leakage current	100 μA or less at 24 VDC				0.8 mA or less	
Indicator light	Red LED illuminates when turned ON.					
Standard	CE/UKCA marking					

Oilproof Flexible Heavy-duty Lead Wire Specifications

Auto switch model		D-M9NE(V)	D-M9PE(V)	D-M9BE(V)
Sheath	Outside diameter [mm]	ø2.6		
Insulator	Number of cores	3 cores (Brown/Blue/Black)		2 cores (Brown/Blue)
	Outside diameter [mm]	ø0.88		
Conductor	Effective area [mm²]	0.15		
	Strand diameter [mm]	ø0.05		
Min. bending radius [mm] (Reference values)		17		

∗ Refer to page 1363 for solid state auto switch common specifications.
∗ Refer to page 1363 for lead wire lengths.

Weight

[g]

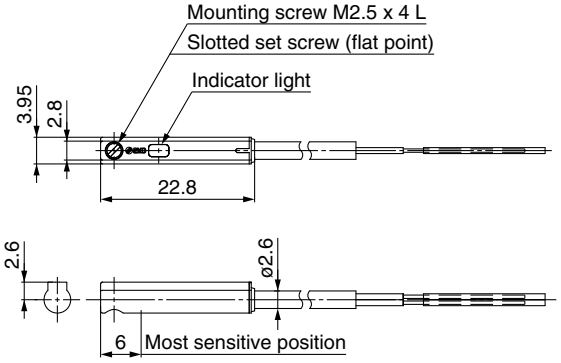
Auto switch model		D-M9NE(V)	D-M9PE(V)	D-M9BE(V)
Lead wire length	0.5 m (**Nil**)	8		7
	1 m (**M**)∗1	14		13
	3 m (**L**)	41		38
	5 m (**Z**)∗1	68		63

∗1 The 1 m and 5 m options are produced upon receipt of order.

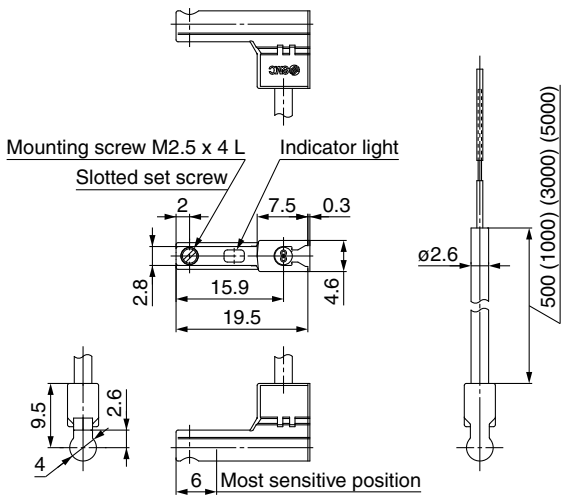
Dimensions

[mm]

D-M9□E



D-M9□EV



2-Color Indicator Solid State Auto Switch
Direct Mounting Type
D-M9NW/D-M9PW/D-M9BW

Refer to the SMC website for details on products that are compliant with international standards.

Grommet

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

⚠Caution

Precautions

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

Auto Switch Specifications

PLC: Programmable Logic Controller

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

Oilproof Flexible Heavy-duty Lead Wire Specifications

Auto switch model		**D-M9NW**	**D-M9PW**	**D-M9BW**
Sheath	Outside diameter [mm]	ø2.6		
Insulator	Number of cores	3 cores (Brown/Blue/Black)		2 cores (Brown/Blue)
	Outside diameter [mm]	ø0.88		
Conductor	Effective area [mm²]	0.15		
	Strand diameter [mm]	ø0.05		
Min. bending radius [mm] (Reference values)		17		

∗ Refer to page 1363 for solid state auto switch common specifications.
∗ Refer to page 1363 for lead wire lengths.

Weight

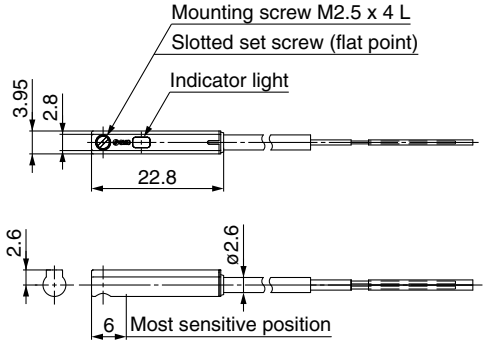
[g]

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

Dimensions

[mm]

D-M9□W



LEF 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.

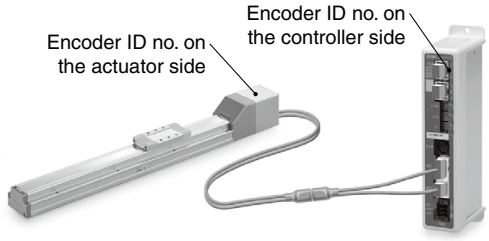
- When an electric actuator is connected and the power is turned ON for the first time after purchase*1
- When the actuator or motor is replaced
- When the controller is replaced

*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.

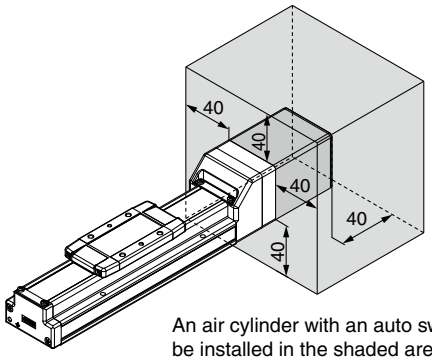
When a controller is changed after pairing is completed				
	Encoder ID no. (∗ Numbers below are examples.)			
Actuator	17623	17623	17623	17623
Controller	17623	17699	17699	17623
ID mismatch error occurred?	No	Yes	Error reset ⇒ No	



The ID number is automatically checked when the control power supply is turned ON.
An error is output if the ID number does not match.

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.

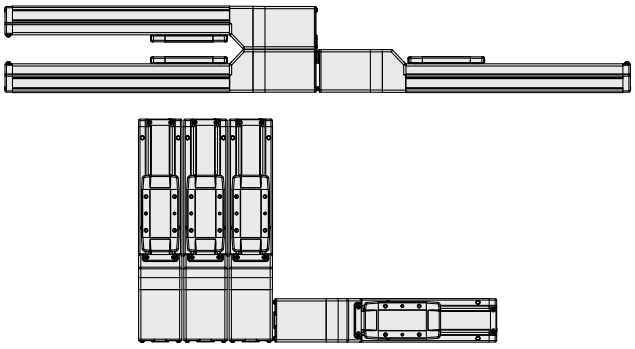


An air cylinder with an auto switch cannot be installed in the shaded area.

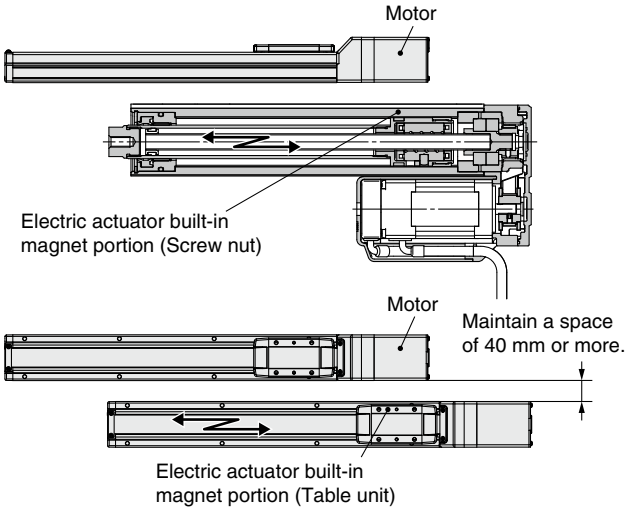
● When lining up actuators

SMC actuators can be used with their motors adjacent to each other. However, maintain a space of 40 mm or more between the motors and the position where the magnet passes.
The magnet is in the middle of the table.

○ Can be used with their motors adjacent to each other

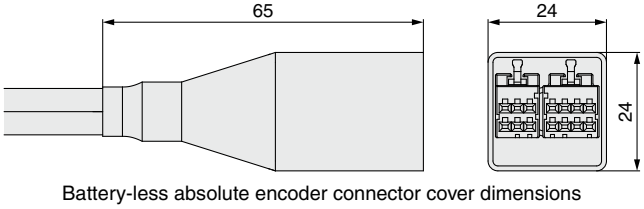


× Do not allow the motors to be in close proximity to the position where the magnet passes.



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