

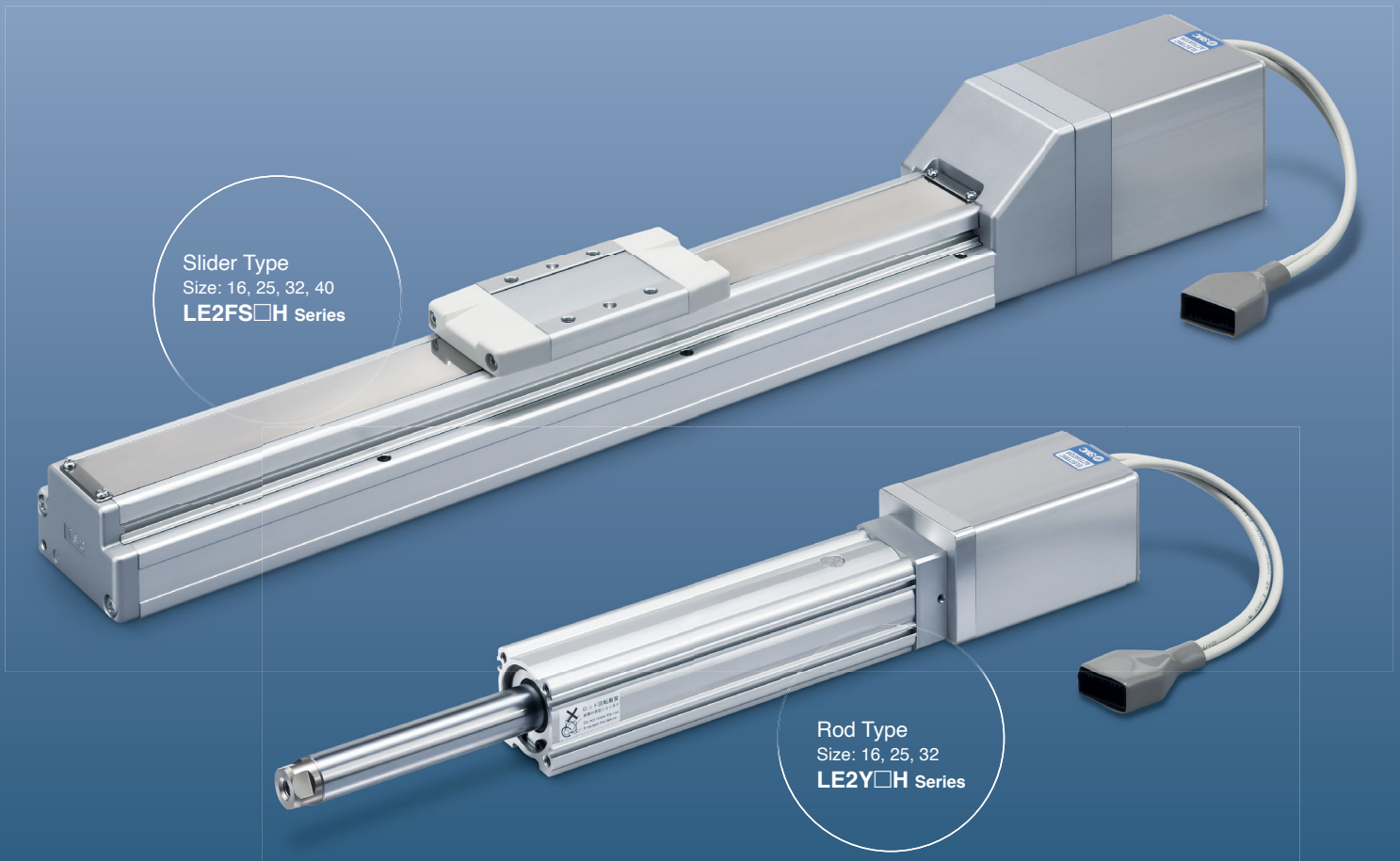
Compatible with Manifold Controller

New



Electric Actuators Slider Type/Rod Type

Battery-less Absolute (Step Motor 24 VDC)



Slider Type
Size: 16, 25, 32, 40
LE2FS□H Series

Rod Type
Size: 16, 25, 32
LE2Y□H Series

Series Variations

| Series | Size | Max. work load [kg] | Max. pushing force [N] | Max. speed [mm/s] | Positioning repeatability [mm] |
|---------------------|------|---------------------|------------------------|-------------------|---|
| Slider Type p. 4 | 16 | 18 | 154 | 1200 | ±0.015 (Lead H for size 25/32/40: ±0.02) |
| | 25 | 40 | 511 | | |
| | 32 | 68 | 796 | | |
| | 40 | 80 | 637 | | |
| Rod Type p. 28 | 16 | 40 | 154 | 900 | ±0.02 |
| | 25 | 70 | 511 | | |
| | 32 | 100 | 796 | | |

Annual CO₂ emissions:
Max. **38 %** reduction
(SMC comparison) **p. 1**

8.7 kg-CO₂e/year (14.1)

* The numerical values vary depending on the operating conditions.

Manifold Controller

Up to **16 axes** can be connected

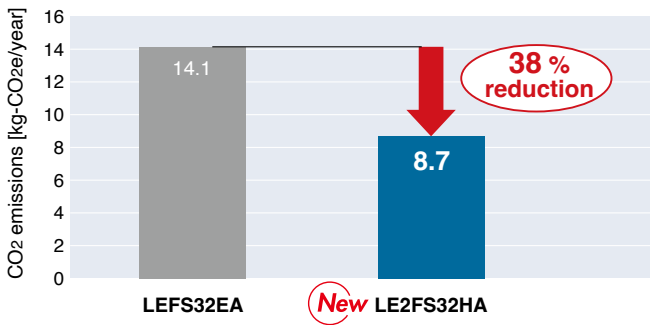


LE2FS□H/LE2Y□H Series



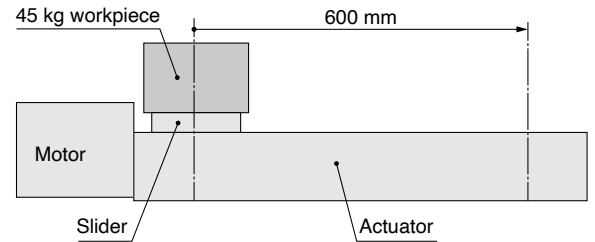
CAT.EUS100-170A-UK

Annual CO₂ emissions reduced by up to 38 % through motor control optimization (SMC comparison)



Operating conditions

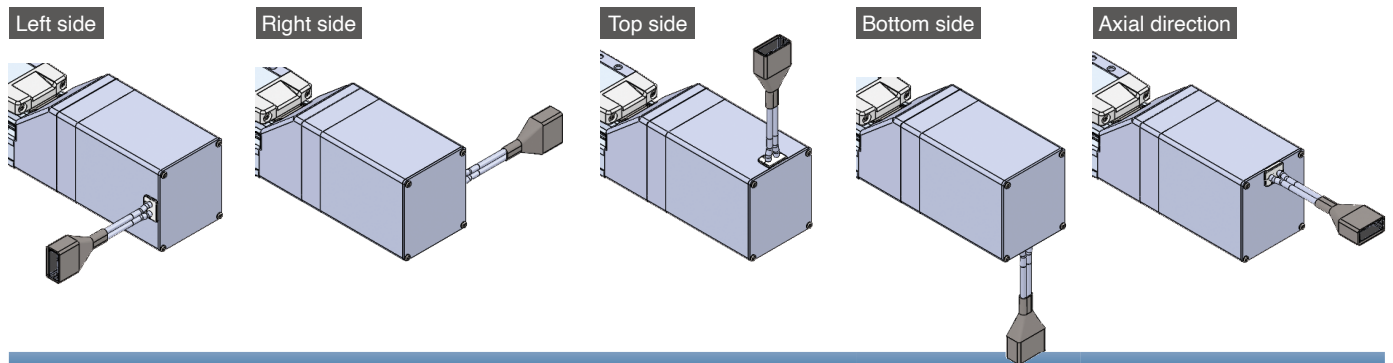
- Slider type, Size 32
- Acceleration/Deceleration: 3000 mm/s²
- Speed: 50 mm/s
- Duty ratio: 20 %



* The numerical values vary depending on the operating conditions.

Select from 5 cable entry directions

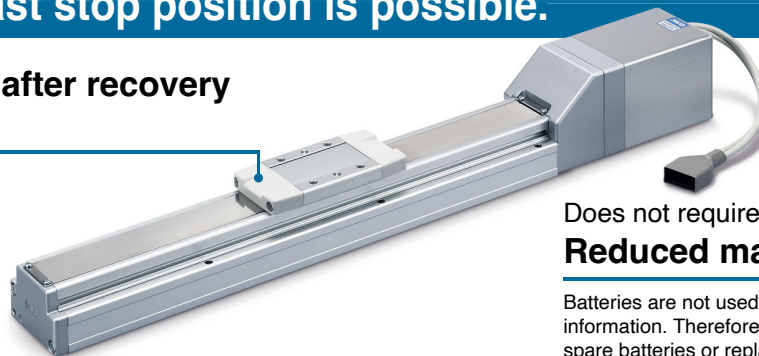
p. 16, 36



Restart from the last stop position is possible.

Easy operation restart after recovery of the power supply

The position information is held by the encoder even when the power supply is turned off. A return to origin operation is not necessary when the power supply is recovered.



Does not require the use of batteries.

Reduced maintenance

Batteries are not used to store the position information. Therefore, there is no need to store spare batteries or replace dead batteries.

Detection of table stop position by means of an auto switch is possible. p. 27

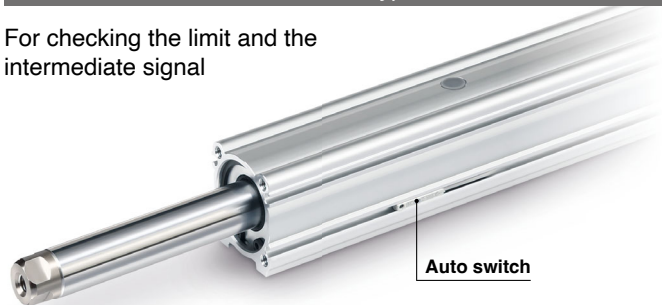
For the slider type

Allows for position detection of the table throughout the stroke



For the rod type

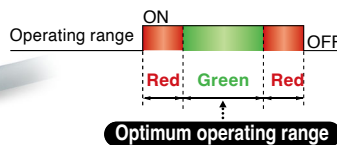
For checking the limit and the intermediate signal



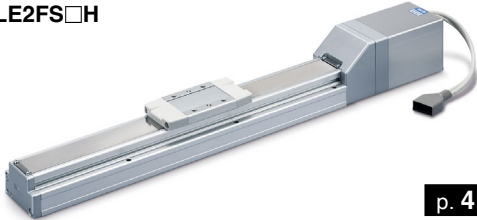

2-colour indicator solid state auto switch (D-M9□ series)

Accurate setting of the mounting position can be performed without mistakes.

A **green** light lights up when within the optimum operating range.

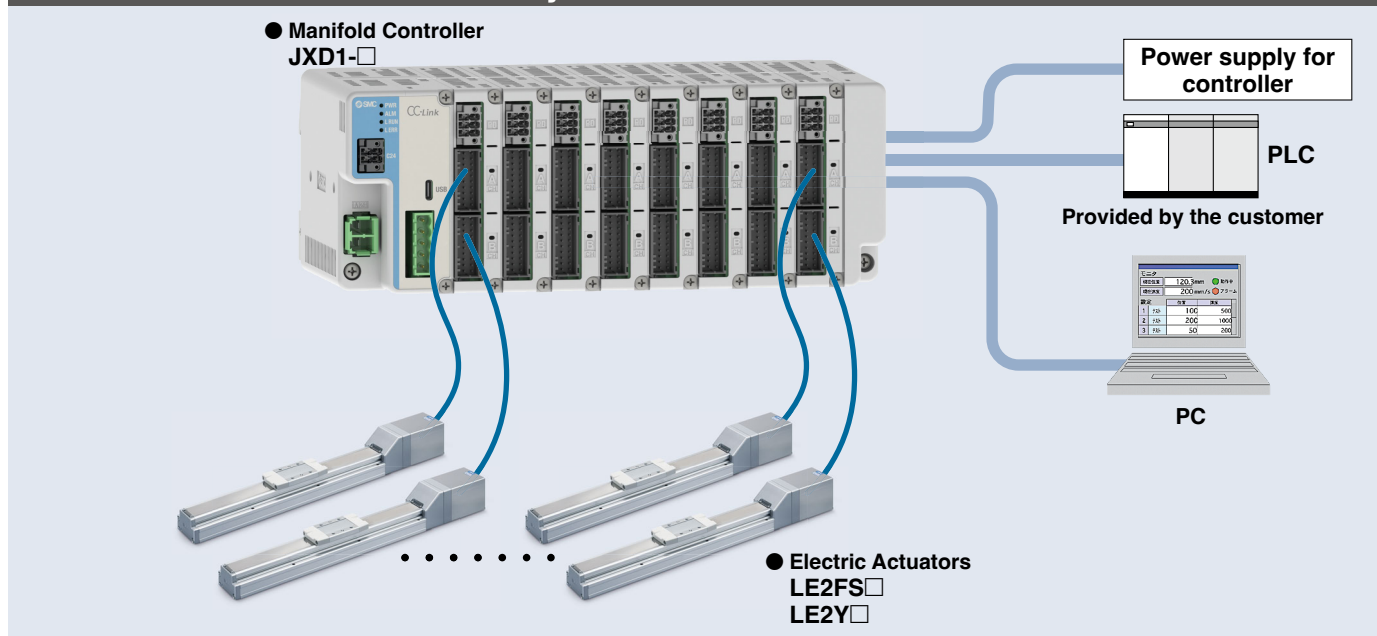


Variations

| Type | | Slider type | Rod type | |
|---|---|---|---|----------|
| Series | | LE2FS□H  <p>p. 4</p> | LE2Y□H  <p>p. 28</p> | |
| | Actuation type | In-line: Ball screw Parallel: Ball screw + Belt | | |
| Max. speed*1 [mm/s] | | 1200 | 900 | |
| Positioning repeatability [mm] | | ±0.015 (Lead H for size 25/32/40: ±0.02) | ±0.02 | |
| Drive motor | Battery-less absolute (Step motor 24 VDC) | ● | ● | |
| Power supply | | 24 VDC ±10 % | | |
| Operation mode | | Positioning operation Pushing | | |
| Size | 16 | ● | ● | |
| | 25 | ● | ● | |
| | 32 | ● | ● | |
| | 40 | ● | — | |
| Max. work load [kg] The values in parentheses are for when mounted vertically. | Size | 16 | 18 (12) | 40 (10) |
| | | 25 | 40 (15) | 70 (30) |
| | | 32 | 68 (20) | 100 (46) |
| | | 40 | 80 (40) | — |
| Max. pushing force [N] | Size | 16 | 154 | 154 |
| | | 25 | 511 | 511 |
| | | 32 | 796 | 796 |
| | | 40 | 637 | — |
| Max. stroke [mm] | | 1200 | 500 | |
| Auto switch mounting | | ● | ● | |

*1 The numerical values vary depending on the actuator type, work load, speed, and specifications. Please contact SMC for further details.

System Construction

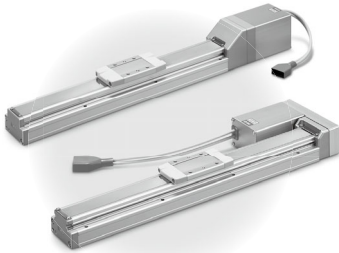


Compatible with Manifold Controller

Electric Actuators

Slider Type LE2FS□H Series **p. 4**

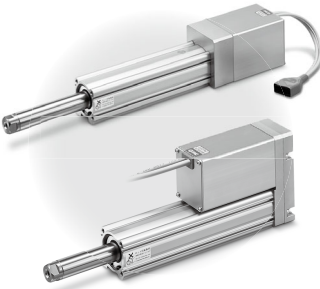
Battery-less Absolute (Step Motor 24 VDC)



| | |
|-----------------------|-------|
| Model Selection | p. 5 |
| How to Order | p. 16 |
| Specifications | p. 17 |
| Dimensions | p. 19 |

Rod Type LE2Y□H Series **p. 28**

Battery-less Absolute (Step Motor 24 VDC)



| | |
|-----------------------|-------|
| Model Selection | p. 29 |
| How to Order | p. 36 |
| Specifications | p. 37 |
| Dimensions | p. 39 |

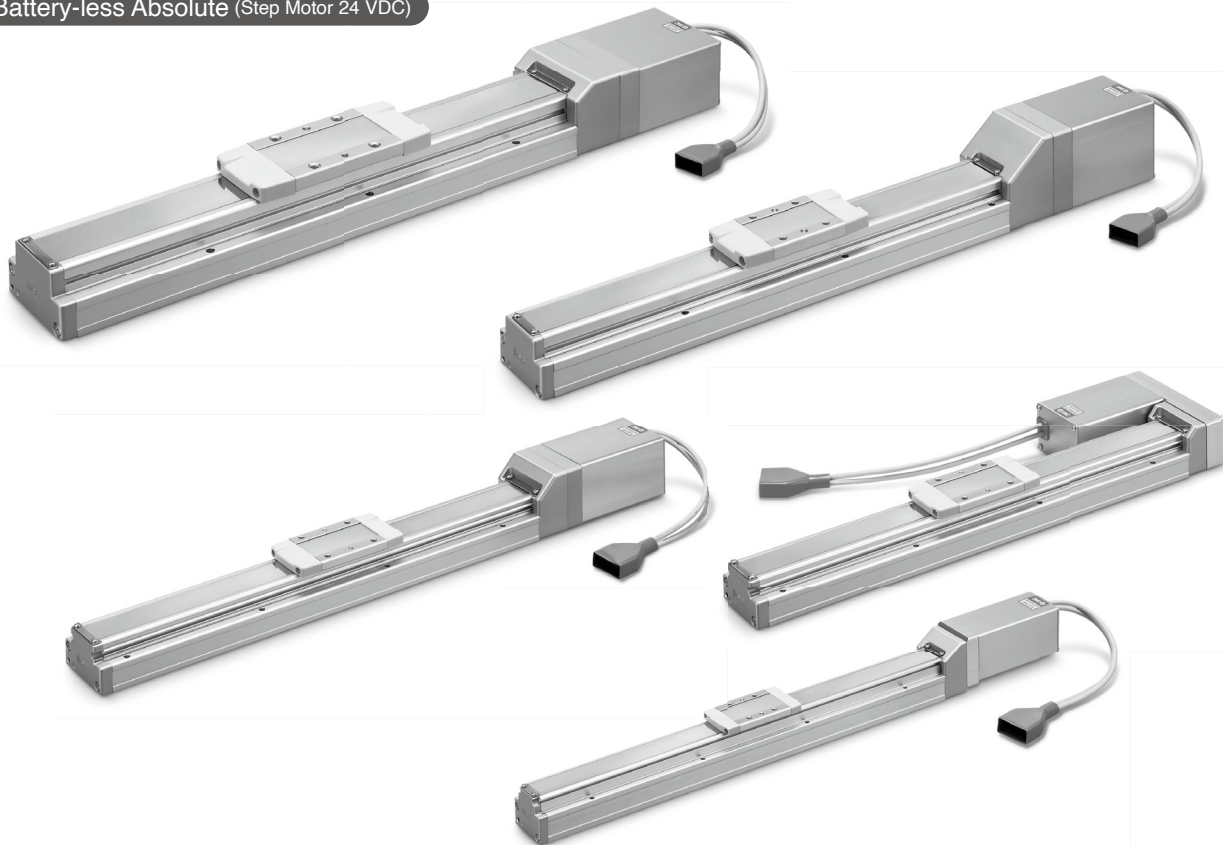
| | |
|--|-----------|
| Auto Switch Mounting | p. 27, 47 |
| Solid State Auto Switch, Normally Closed Solid State Auto Switch, 2-Colour Indicator Solid State Auto Switch | p. 48 |

Slider Type

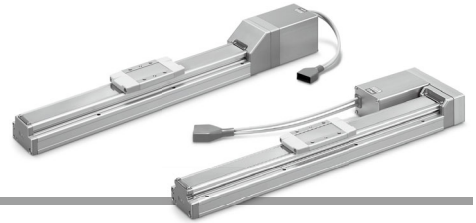
LE2FS□H Series

p. 5

Battery-less Absolute (Step Motor 24 VDC)



Model Selection



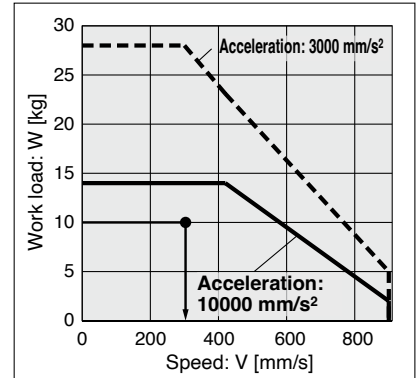
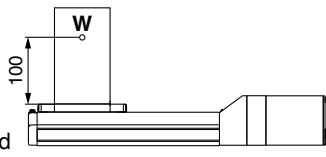
Selection Procedure



Selection Example

Operating conditions

- Workpiece mass: 10 [kg]
- Speed: 300 [mm/s]
- Acceleration/Deceleration: 10000 [mm/s²]
- Stroke: 200 [mm]
- Mounting orientation: Horizontal upward
- Workpiece mounting condition:



<Speed-Work load graph>
(LE2FS25H/Battery-less absolute)

Step 1 Check the work load-speed. <Speed-Work load graph> (pages 8 to 11)
Select a model based on the workpiece mass and speed while referencing the speed-work load graph.
Selection example) The **LE2FS25H-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.

$$T = T1 + T2 + T3 + T4 [s]$$

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

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

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

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

- T4: Settling time varies depending on the conditions such as actuator types, load, and in position of the step data. Reference value for settling time: 0.15 s or less
The following value is used for this calculation.

$$T4 = 0.15 [s]$$

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

$$T1 = V/a1 = 300/10000 = 0.03 [s],$$

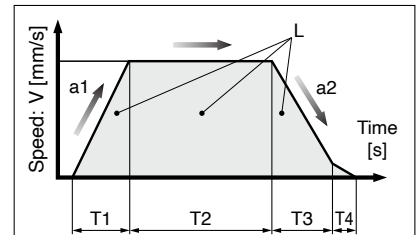
$$T3 = V/a2 = 300/10000 = 0.03 [s]$$

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} = \frac{200 - 0.5 \cdot 300 \cdot (0.03 + 0.03)}{300} = 0.64 [s]$$

$$T4 = 0.15 [s]$$

The cycle time can be found as follows.

$$T = T1 + T2 + T3 + T4 = 0.03 + 0.64 + 0.03 + 0.15 = 0.85 [s]$$

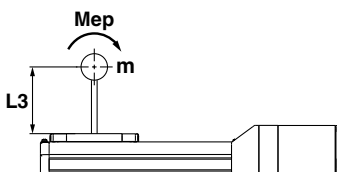


- L : Stroke [mm] ... (Operating condition)
- V : Speed [mm/s] ... (Operating condition)
- a1 : Acceleration [mm/s²] ... (Operating condition)
- a2 : Deceleration [mm/s²] ... (Operating condition)

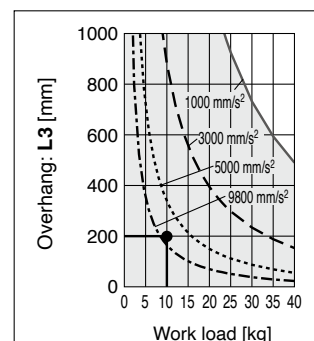
- T1: Acceleration time [s]
Time until reaching the set speed
- T2: Constant speed time [s]
Time while the actuator is operating at a constant speed
- T3: Deceleration time [s]
Time from the beginning of the constant speed operation to stop
- T4: Settling time [s]
Time until positioning is completed

Step 3 Check the allowable moment. <Static allowable moment> (page 11)
<Dynamic allowable moment> (pages 12, 13)

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 LE2FS25H-200 should be selected.



Selection Procedure

Pushing Control Selection Procedure

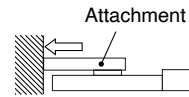


* The duty ratio is a ratio of the operation time in one cycle.

Selection Example

Operating conditions

- Mounting condition: Horizontal (pushing)
- Attachment height: 50 [mm]
- Pushing force: 40 [N]
- Duty ratio: 15 [%]
- Speed: 100 [mm/s]
- Stroke: 200 [mm]



Step 1 Check the duty ratio.

<Conversion table of pushing force–duty ratio>

Select the [Pushing force] from the duty ratio while referencing the conversion table of pushing force–duty ratio.

Selection example)

Based on the table below,

- Duty ratio: 100 [%]

The pushing force set value will be 45 [%].

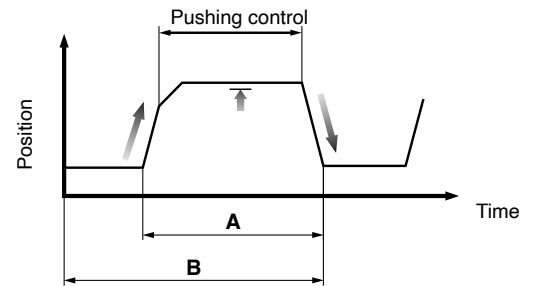
<Conversion table of pushing force–duty ratio>

(LE2FS16H/Battery-less absolute)

| Ambient temperature | Pushing force set value [%] | Duty ratio [%] | Continuous pushing time [min] |
|---------------------|-----------------------------|----------------|-------------------------------|
| 40 °C or less | 45 or less | 100 | No restriction |

* [Pushing force set value] is one of the step data input to the controller.

* [Continuous pushing time] is the time that the actuator can continuously keep pushing.



$$\text{Duty ratio} = A/B \times 100 [\%]$$

Step 2 Check the pushing force.

<Force conversion graph>

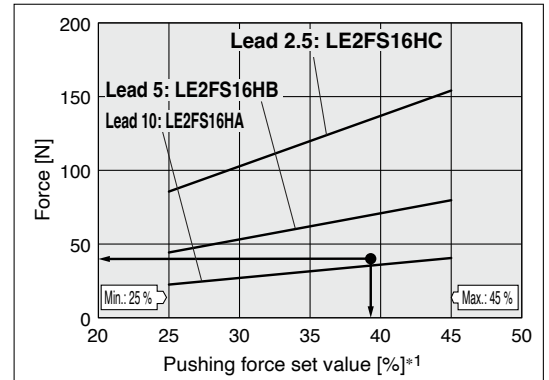
Select a model based on the pushing force set value and force while referencing the force conversion graph.

Selection example)

Based on the graph shown on the right side,

- Pushing force: 40 [N]
- Pushing force set value: 39 [%]

The **LE2FS16HA** can be temporarily selected as a possible candidate.



<Force conversion graph>
(LE2FS16□H/Step motor)

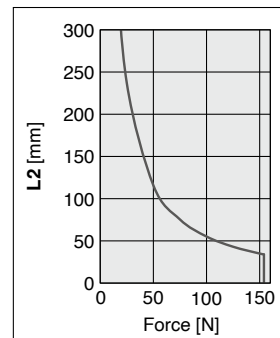
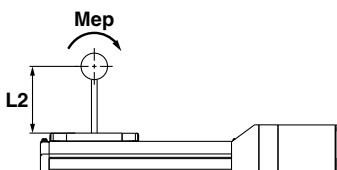
*1 Set values for the controller

Step 3 Check the dynamic allowable moment during a pushing operation.

<Static allowable moment> (page 11)

<Dynamic allowable moment> (page 7)

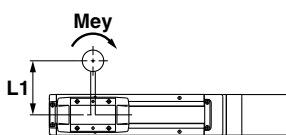
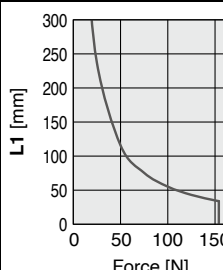
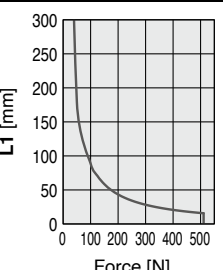
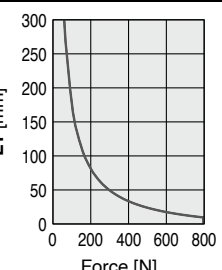
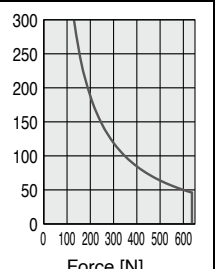
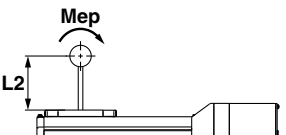
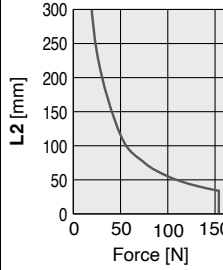
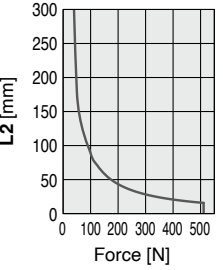
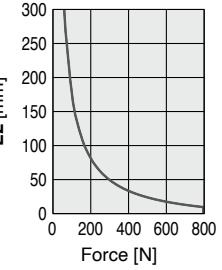
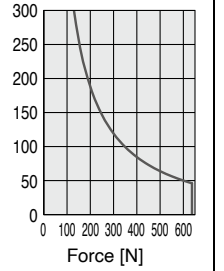
Confirm the moment that applies to the actuator is within the allowable range for both static and dynamic conditions.



Based on the above calculation result, the **LE2FS16HA-200** should be selected.

Dynamic Allowable Moment for Pushing

* These graphs show the amount of allowable overhang (guide unit) when the centre of gravity of the workpiece overhangs in one direction.

| Orientation | Load overhanging direction F: Force Me: Allowable moment [N·m] L: Overhang to the work load centre of gravity [mm] | Model | | | |
|---------------------------------|---|--|--|--|--|
| | | LE2FS16 | LE2FS25 | LE2FS32 | LE2FS40 |
| Horizontal/Bottom/Wall/Vertical |  Y |  |  |  |  |
| |  Z |  |  |  |  |

Calculation of Guide Load Factor

1. Decide operating conditions.

Model: LE2FS□H

The position applied the pushing force [mm]: **Yc/Zc**

Size: 16/25/32/40

Pushing force: **F**

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]: **Ly/Lz** from the graph.

4. Calculate the load factor for each direction.

$$\alpha_y = Yc/Ly, \alpha_z = Zc/Lz$$

5. Confirm the total of α_y and α_z is 1 or less.

$$\alpha_y + \alpha_z \leq 1$$

When 1 is exceeded, please consider a reduction of acceleration and work load, or a change of the work load centre position and series.

Example

1. Operating conditions

Model: LE2FS40H

Size: 40

Work load centre position [mm]: **Yc = 100, Zc = 200**

2. Determine the **fw = 1.5**

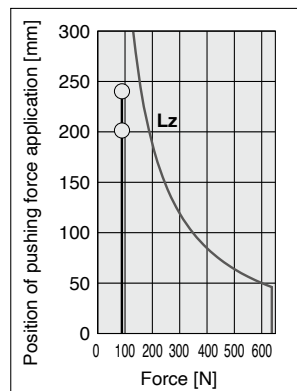
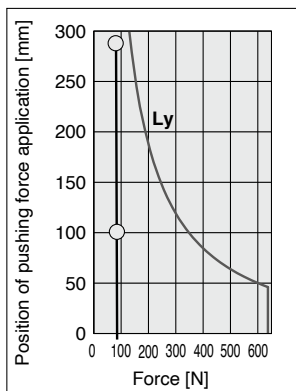
3. **Ly = 950 mm, Lz = 800 mm**

4. The load factor for each direction can be found as follows.

$$\alpha_y = 100/950 = 0.11$$

$$\alpha_z = 200/800 = 0.25$$

$$\alpha_y + \alpha_z = 0.36 \leq 1$$

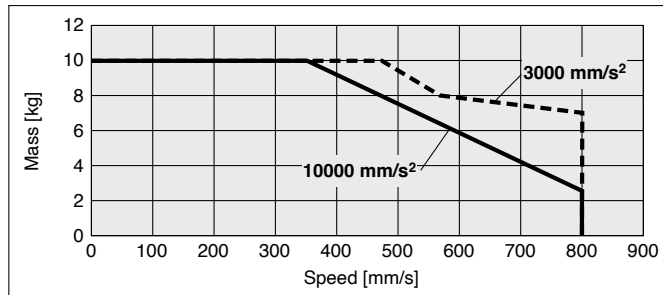


* When the product repeatedly cycles with partial strokes, operate it at a full stroke at least once every few dozen cycles.

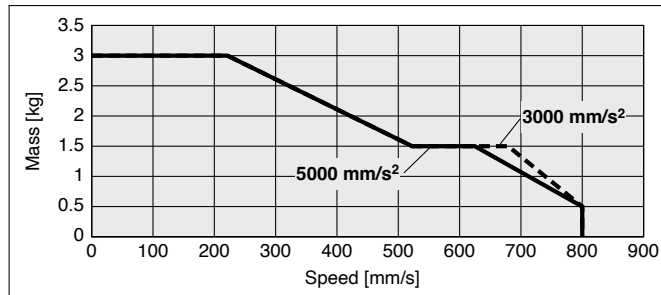
Speed-Work Load Graph (Guide)

LE2FS16/Ball Screw Drive

Horizontal/Lead 10

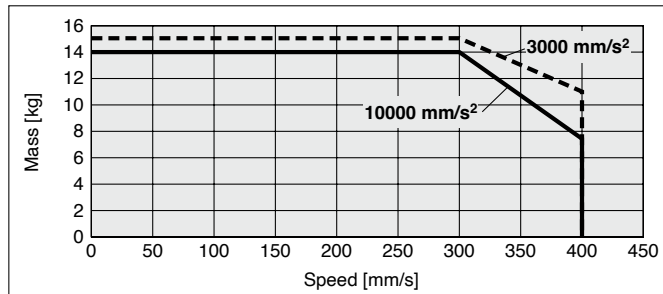


Vertical/Lead 10

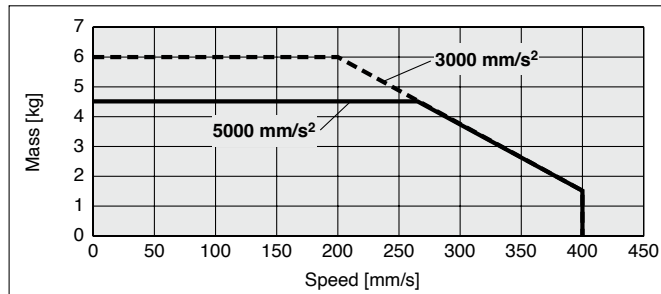


LE2FS16/Ball Screw Drive

Horizontal/Lead 5

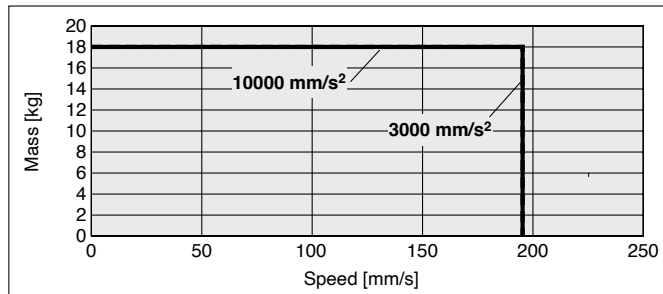


Vertical/Lead 5

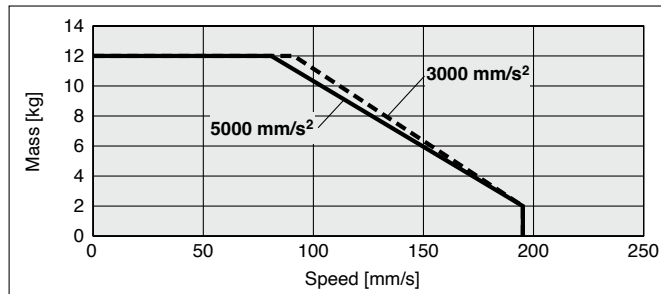


LE2FS16/Ball Screw Drive

Horizontal/Lead 2.5



Vertical/Lead 2.5



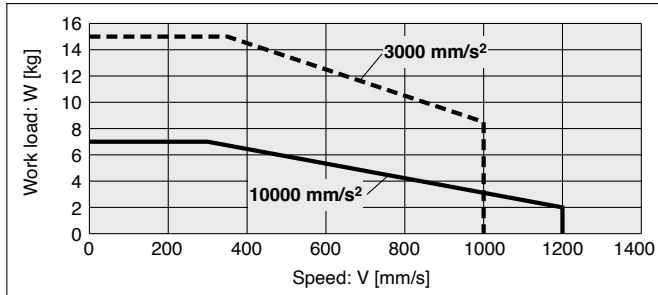
LE2FS□H Series

Battery-less Absolute (Step Motor 24 VDC)

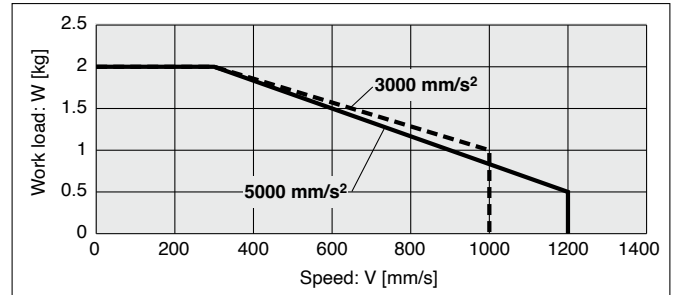
Speed-Work Load Graph (Guide)

LE2FS25/Ball Screw Drive

Horizontal/Lead 20

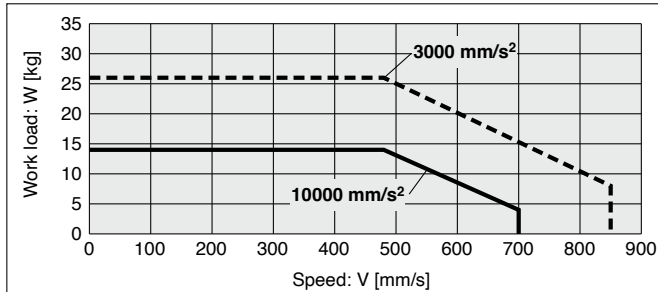


Vertical/Lead 20

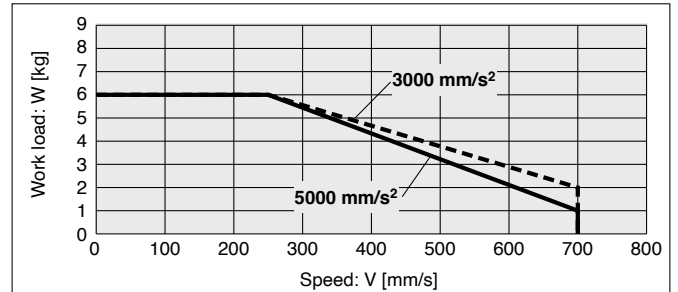


LE2FS25/Ball Screw Drive

Horizontal/Lead 12

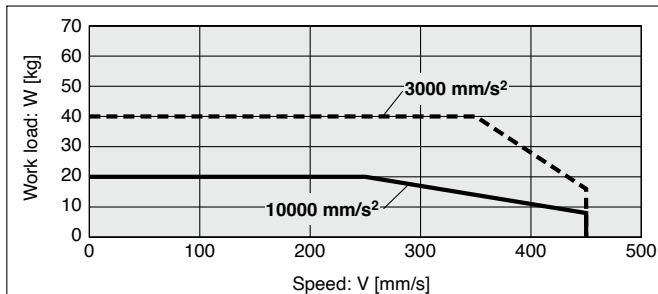


Vertical/Lead 12

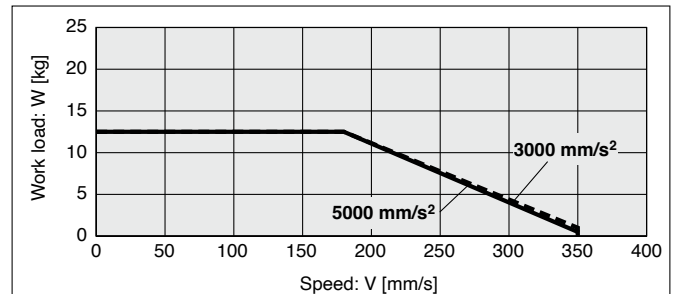


LE2FS25/Ball Screw Drive

Horizontal/Lead 6

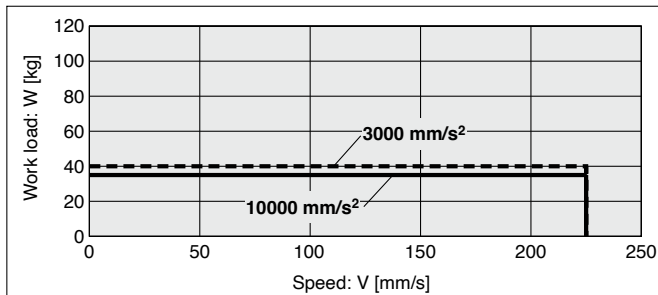


Vertical/Lead 6

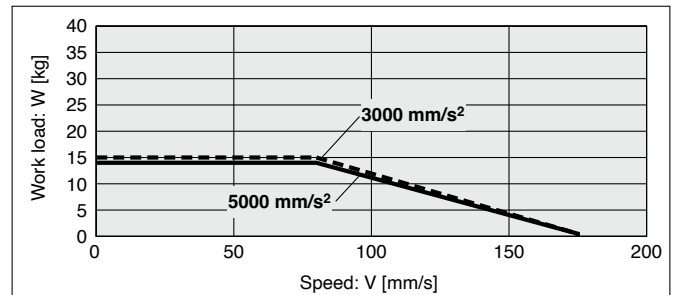


LE2FS25/Ball Screw Drive

Horizontal/Lead 3



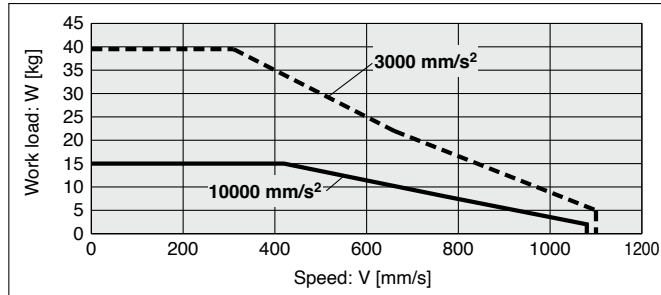
Vertical/Lead 3



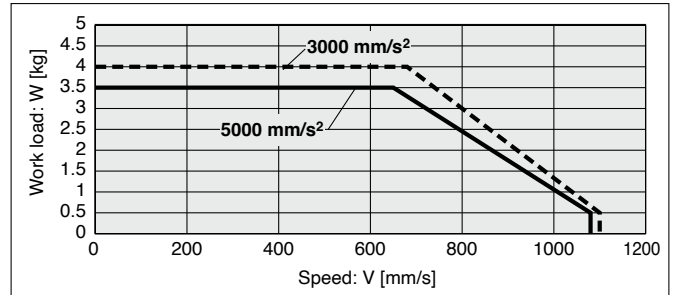
Speed-Work Load Graph (Guide)

LE2FS32/Ball Screw Drive

Horizontal/Lead 24

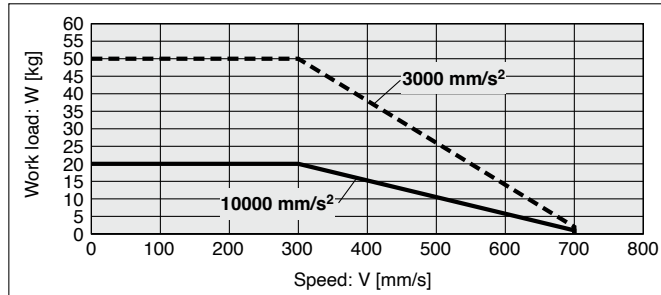


Vertical/Lead 24

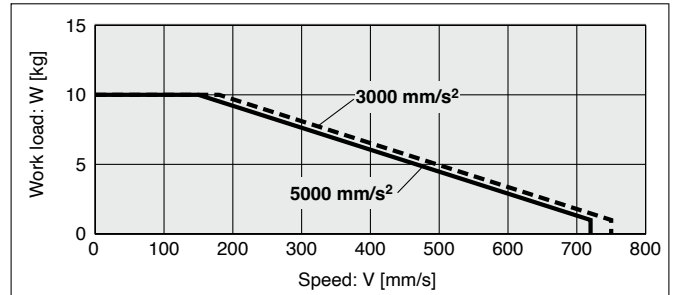


LE2FS32/Ball Screw Drive

Horizontal/Lead 16

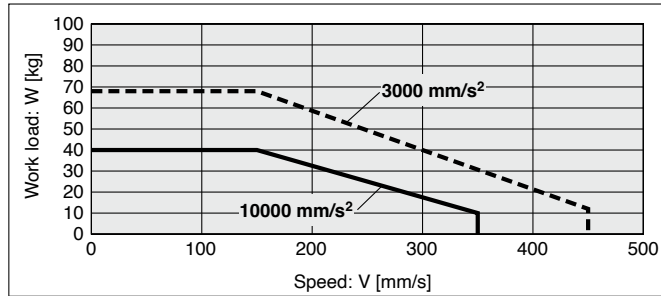


Vertical/Lead 16

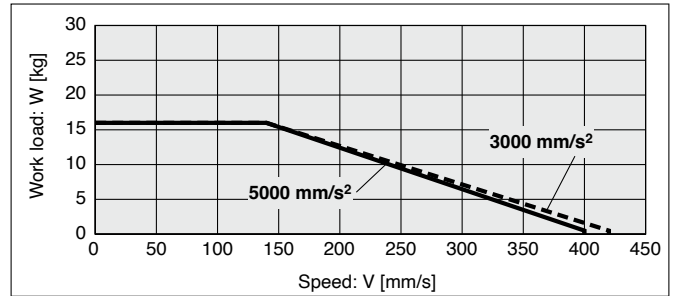


LE2FS32/Ball Screw Drive

Horizontal/Lead 8

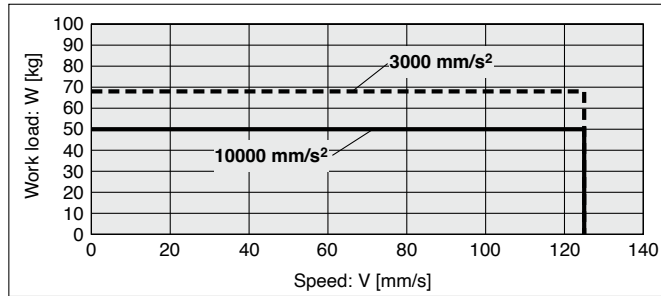


Vertical/Lead 8

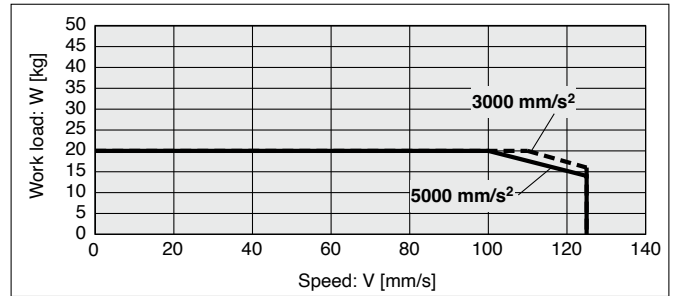


LE2FS32/Ball Screw Drive

Horizontal/Lead 4



Vertical/Lead 4



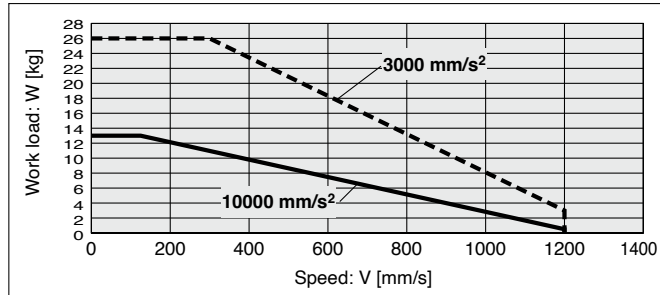
LE2FS□H Series

Battery-less Absolute (Step Motor 24 VDC)

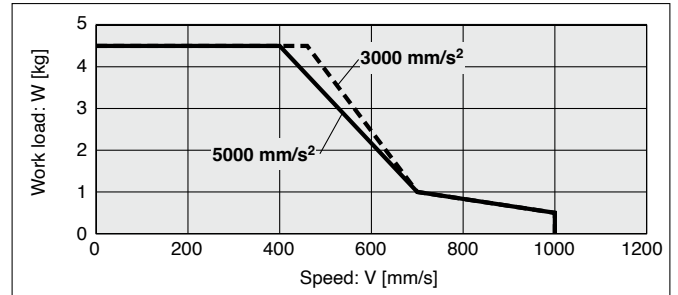
Speed-Work Load Graph (Guide)

LE2FS40/Ball Screw Drive

Horizontal/Lead 30

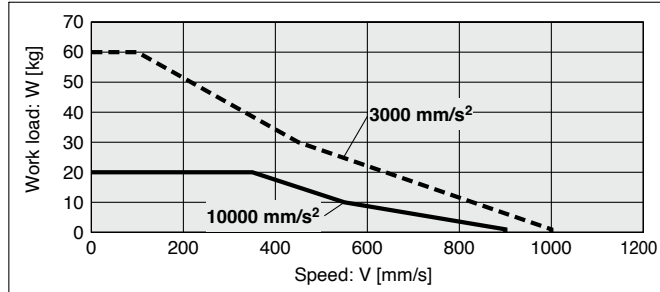


Vertical/Lead 30

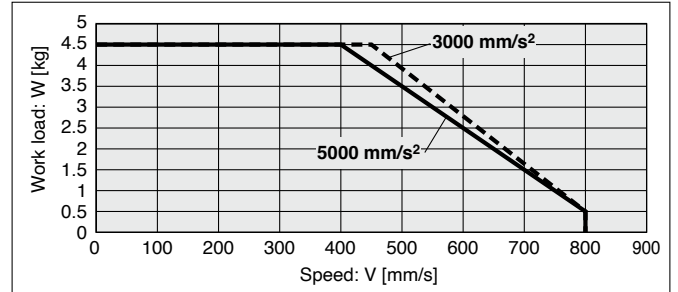


LE2FS40/Ball Screw Drive

Horizontal/Lead 20

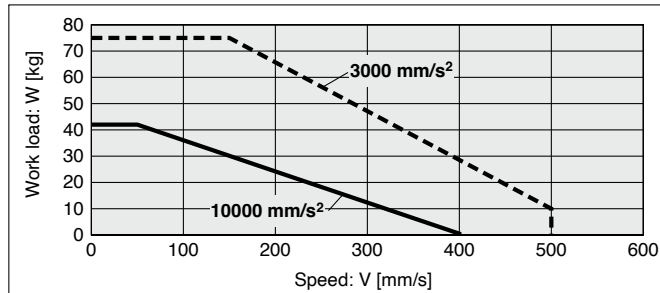


Vertical/Lead 20

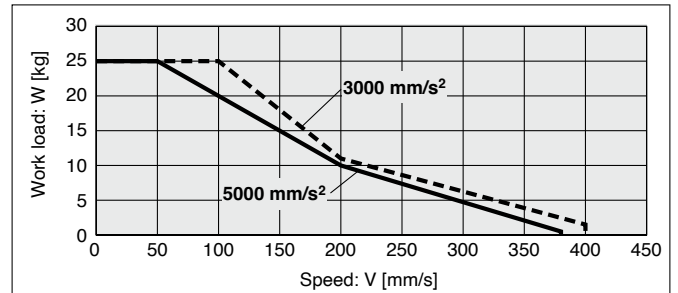


LE2FS40/Ball Screw Drive

Horizontal/Lead 10

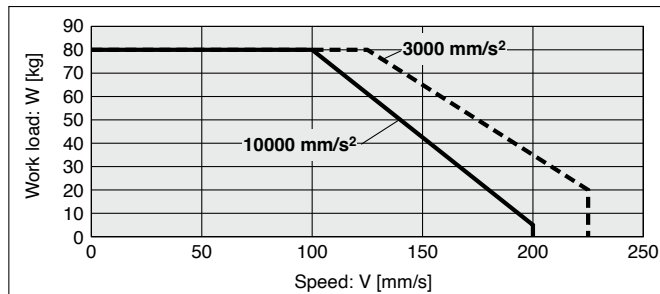


Vertical/Lead 10

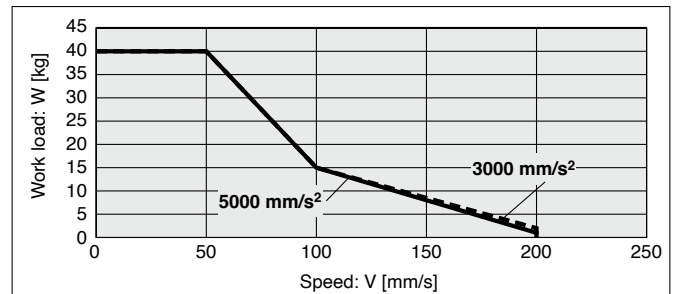


LE2FS40/Ball Screw Drive

Horizontal/Lead 5



Vertical/Lead 5



Static Allowable Moment*1

| | | | | | [N·m] |
|---------|------|----------|--------|---------|-------|
| Model | Size | Pitching | Yawing | Rolling | |
| LE2FS□H | 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 | |

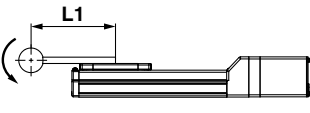
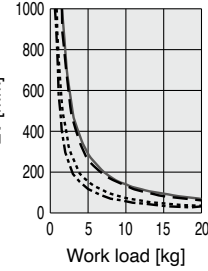
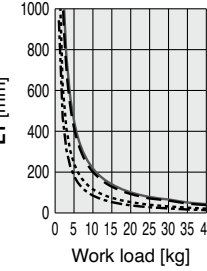
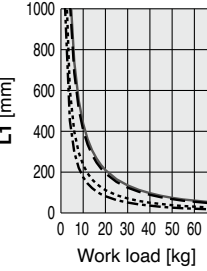
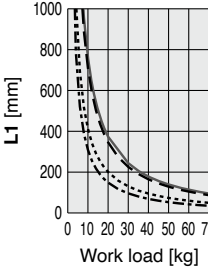
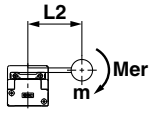
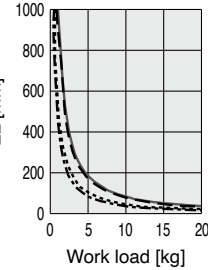
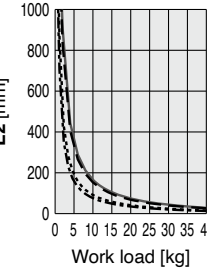
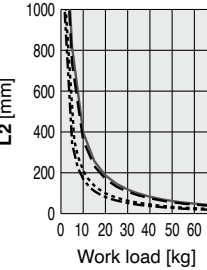
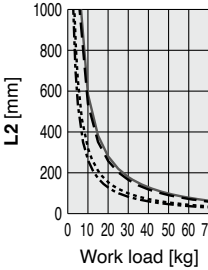
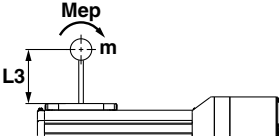
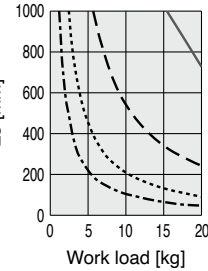
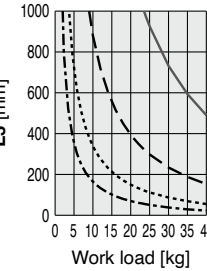
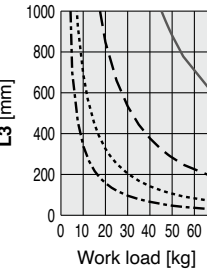
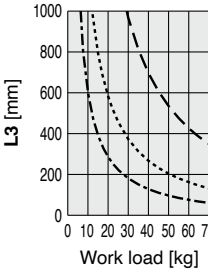
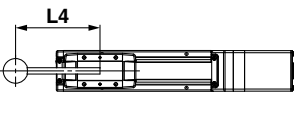
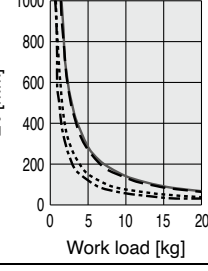
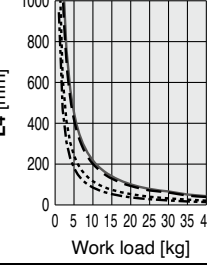
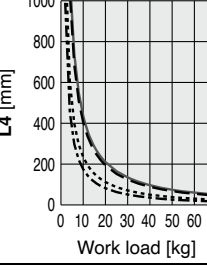
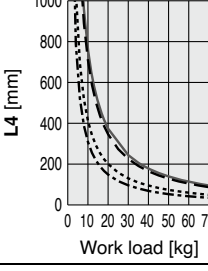
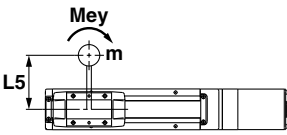
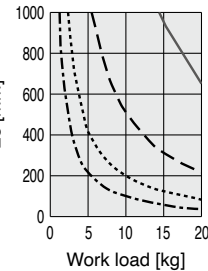
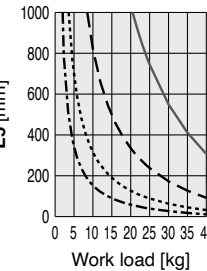
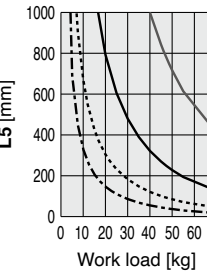
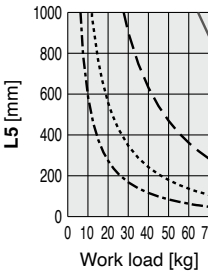
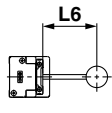
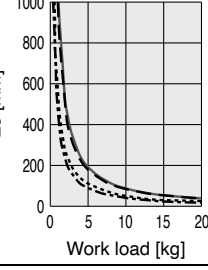
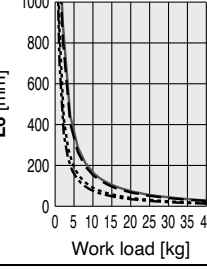
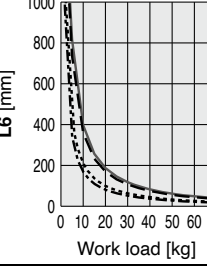
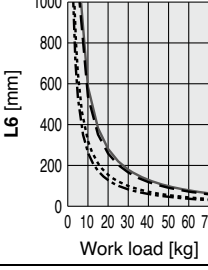
*1 The static allowable moment is the amount of static moment which can be applied to the actuator when it is stopped.
If the product is exposed to impact or repeated load, be sure to take adequate safety measures when using the product.

Dynamic Allowable Moment

* These graphs show the amount of allowable overhang (guide unit) when the centre of gravity of the workpiece overhangs in one direction.

Acceleration

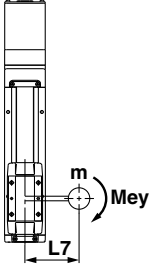
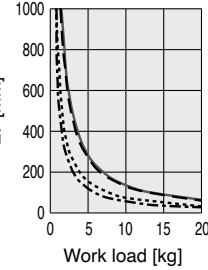
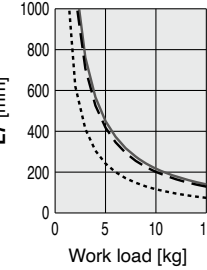
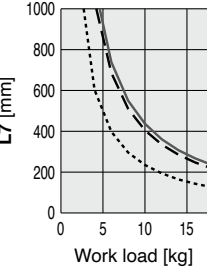
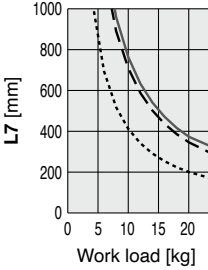
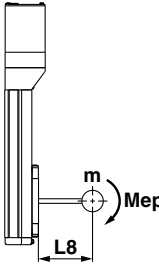
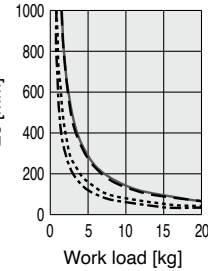
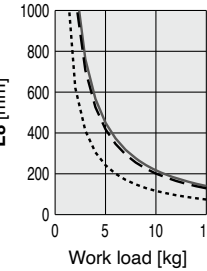
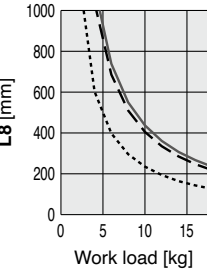
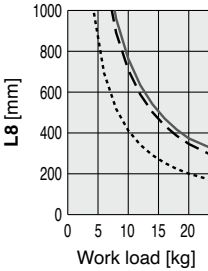
— 1000 mm/s² - - - 3000 mm/s² ····· 5000 mm/s² - - - - 10000 mm/s²

| Orientation | Load overhanging direction m : Work load [kg] Me: Allowable moment [N·m] L : Overhang to the work load centre of gravity [mm] | Model | | | |
|-------------------|--|---|---|---|---|
| | | LE2FS16H | LE2FS25H | LE2FS32H | LE2FS40H |
| Horizontal/Bottom |  X |  |  |  |  |
| |  Y |  |  |  |  |
| |  Z |  |  |  |  |
| Wall |  X |  |  |  |  |
| |  Y |  |  |  |  |
| |  Z |  |  |  |  |

Dynamic Allowable Moment

* These graphs show the amount of allowable overhang (guide unit) when the centre of gravity of the workpiece overhangs in one direction.

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

| Orientation | Load overhanging direction m : Work load [kg] Me: Allowable moment [N·m] L : Overhang to the work load centre of gravity [mm] | Model | | | |
|-------------|--|--|--|--|--|
| | | LE2FS16H | LE2FS25H | LE2FS32H | LE2FS40H |
| Vertical | Y  |  |  |  |  |
| | Z  |  |  |  |  |

Calculation of Guide Load Factor

- Decide operating conditions.

Model: LE2FS□H

Size: 16/25/32/40

Mounting orientation: Horizontal/Bottom/Wall/Vertical

Acceleration [mm/s²]: a

Work load [kg]: m

Work load centre position [mm]: Xc/Yc/Zc

- Select the target graph while referencing the model, size, and mounting orientation.

- Based on the acceleration and work load, find the overhang [mm]: Lx/Ly/Lz from the graph.

- Calculate the load factor for each direction.

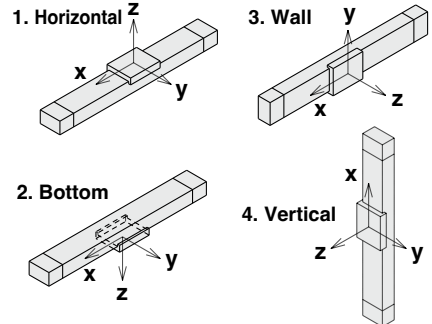
$$\alpha_x = X_c/L_x, \alpha_y = Y_c/L_y, \alpha_z = Z_c/L_z$$

- Confirm the total of α_x , α_y , and α_z is 1 or less.

$$\alpha_x + \alpha_y + \alpha_z \leq 1$$

When 1 is exceeded, please consider a reduction of acceleration and work load, or a change of the work load centre position and series.

Mounting orientation



Example

- Operating conditions

Model: LE2FS40H

Size: 40

Mounting orientation: Horizontal

Acceleration [mm/s²]: 3000

Work load [kg]: 20

Work load centre position [mm]: Xc = 0, Yc = 50, Zc = 200

- Select the graphs for horizontal of the LE2FS40H on page 12.

- Lx = 350 mm, Ly = 250 mm, Lz = 1000 mm

- The load factor for each direction can be found as follows.

$$\alpha_x = 0/350 = 0$$

$$\alpha_y = 50/250 = 0.2$$

$$\alpha_z = 200/1000 = 0.2$$

- $\alpha_x + \alpha_y + \alpha_z = 0.4 \leq 1$

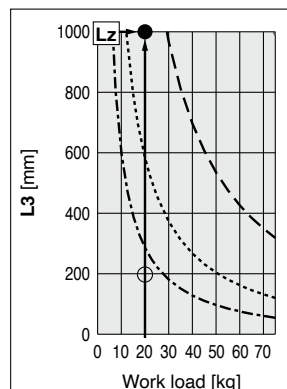
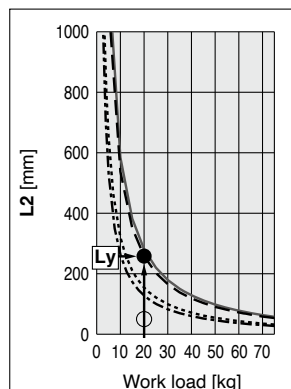
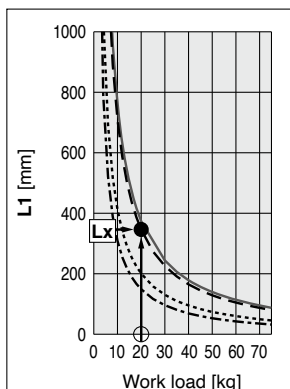
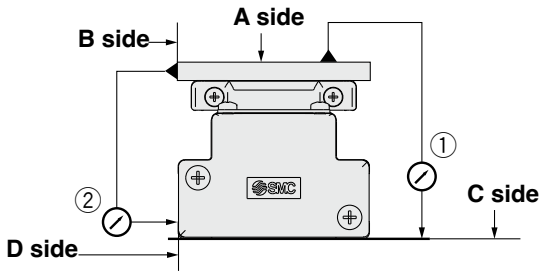


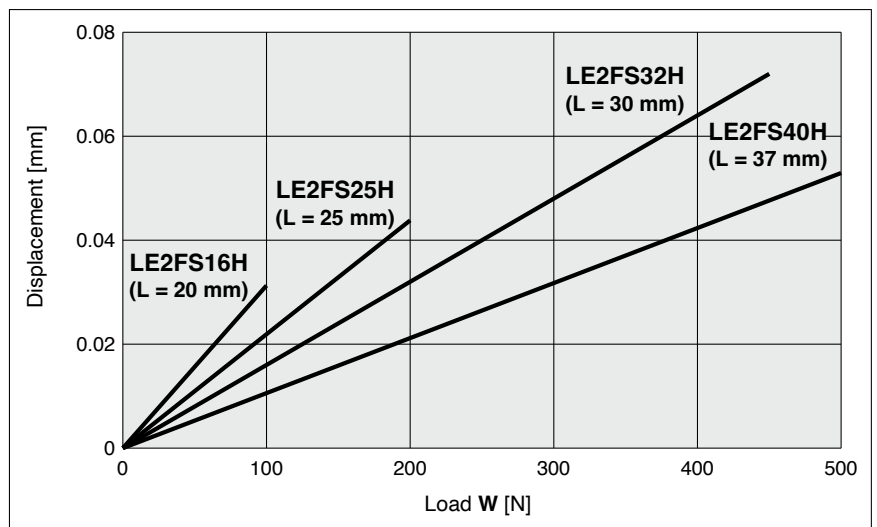
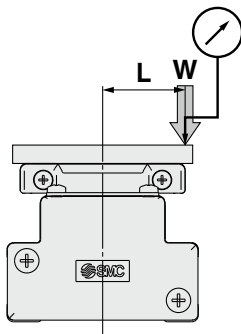
Table Accuracy (Reference Value)



| Model | Traveling parallelism [mm] (Every 300 mm) | |
|----------|---|--|
| | ① C side traveling parallelism to A side | ② D side traveling parallelism to B side |
| LE2FS16H | 0.05 | 0.03 |
| LE2FS25H | 0.05 | 0.03 |
| LE2FS32H | 0.05 | 0.03 |
| LE2FS40H | 0.05 | 0.03 |

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

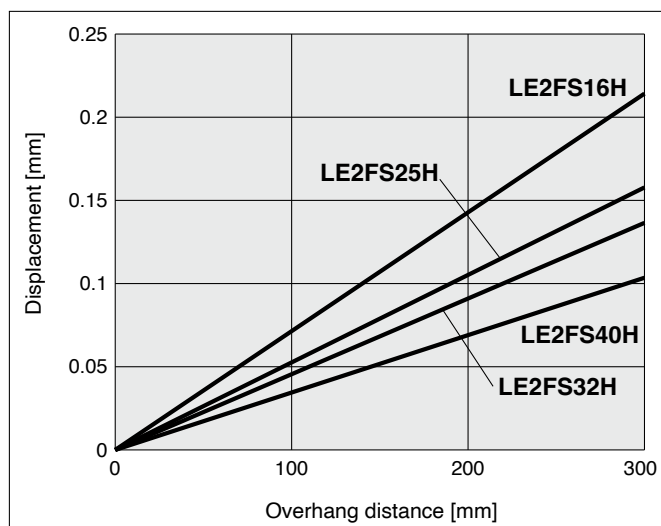
Table Displacement (Reference Value)



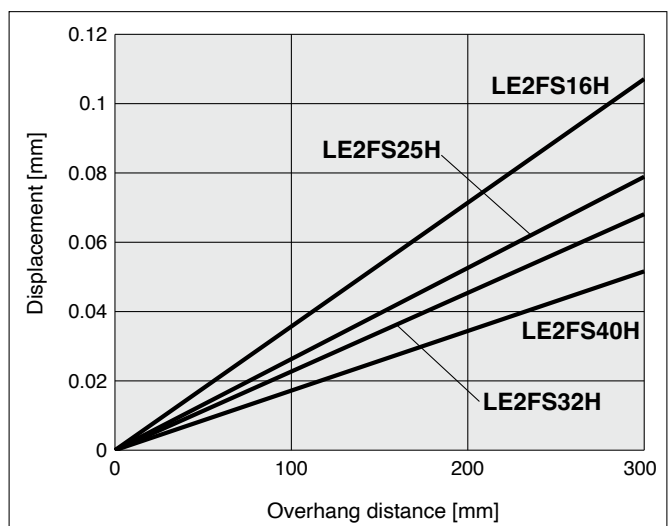
* This displacement is measured when a 15 mm aluminium plate is mounted and fixed on the table.
* Check the clearance and play of the guide separately.

Overhang Displacement Due to Table Clearance (Initial Reference Value)

Basic type



High-precision type

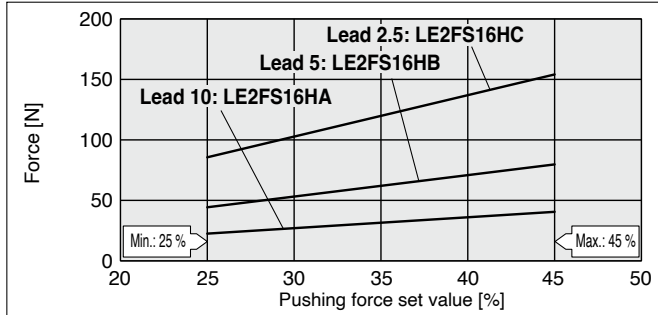


LE2FS□H Series

Battery-less Absolute (Step Motor 24 VDC)

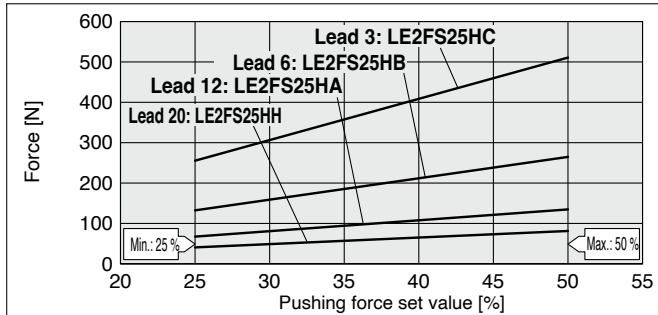
Force Conversion Graph (Guide)

LE2FS16□H



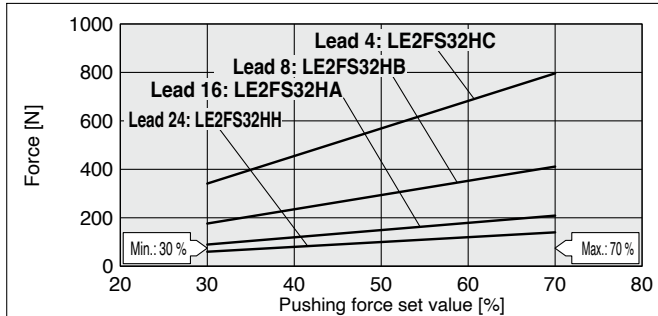
| | | | |
|---------------------|-----------------------------|----------------|-------------------------------|
| Ambient temperature | Pushing force set value [%] | Duty ratio [%] | Continuous pushing time [min] |
| 40 °C or less | 45 or less | 100 | No restriction |

LE2FS25□H



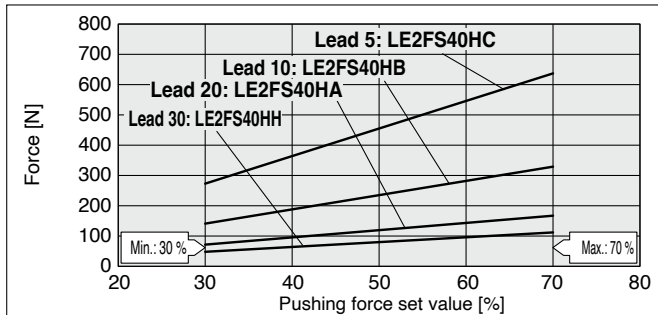
| | | | |
|---------------------|-----------------------------|----------------|-------------------------------|
| Ambient temperature | Pushing force set value [%] | Duty ratio [%] | Continuous pushing time [min] |
| 40 °C or less | 50 or less | 100 | No restriction |

LE2FS32□H



| | | | |
|---------------------|-----------------------------|----------------|-------------------------------|
| Ambient temperature | Pushing force set value [%] | Duty ratio [%] | Continuous pushing time [min] |
| 40 °C or less | 70 or less | 100 | No restriction |

LE2FS40□H



| | | | |
|---------------------|-----------------------------|----------------|-------------------------------|
| Ambient temperature | Pushing force set value [%] | Duty ratio [%] | Continuous pushing time [min] |
| 40 °C or less | 70 or less | 100 | No restriction |

<Limit Values for Pushing Force and Trigger Level in Relation to Pushing Speed>

| Model | Lead | Pushing speed [mm/s] | Pushing force (Setting input value) |
|-----------|---------|----------------------|-------------------------------------|
| LE2FS16□H | A/B/C | 1 to 50 | 25 to 45 % |
| LE2FS25□H | H/A/B/C | 1 to 35 | 25 to 50 % |
| LE2FS32□H | H/A/B/C | 1 to 30 | 30 to 70 % |
| LE2FS40□H | H/A/B/C | 1 to 30 | 30 to 70 % |

There is a limit to the pushing force in relation to the pushing speed. If the product is operated outside of the range (low pushing force), the completion signal [INP] may be output before the pushing operation has been completed (during the moving operation).

If operating with the pushing speed below the min. speed, please check for operating problems before using the product.

<Set Values for Vertical Upward Transfer Pushing Operations>

For vertical loads (upward), set the pushing force to the max. value shown below and operate at the work load or less.

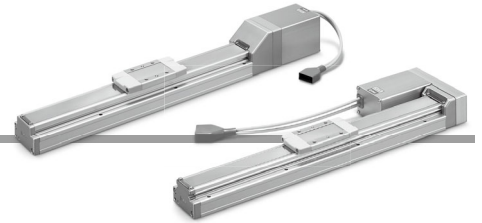
| Model | LE2FS16□H | | | LE2FS25□H | | | LE2FS32□H | | | LE2FS40□H | | | | | |
|----------------|-----------|-----|---|-----------|-----|---|-----------|---|-----|-----------|----|-----|---|---|----|
| | Lead | A | B | C | H | A | B | C | H | A | B | C | | | |
| Work load [kg] | 1 | 1.5 | 3 | 1 | 2.5 | 5 | 10 | 2 | 4.5 | 9 | 18 | 1.5 | 3 | 7 | 14 |
| Pushing force | 45 % | | | 50 % | | | 70 % | | | 70 % | | | | | |

Battery-less Absolute (Step Motor 24 VDC)

Compatible with Manifold Controller

Slider Type

LE2FS□H Series LE2FS16, 25, 32, 40



How to Order

LE2FS **32** **R** **1** **H** **A** - **300** **A** **G**

①
②
③
④
⑤
⑥
⑦
⑧

① Size

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

② Motor mounting position

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

③ Motor cable entry direction

| | |
|---|--------|
| 1 | Axial |
| 2 | Right |
| 3 | Left |
| 4 | Top |
| 5 | Bottom |

④ Motor type

| Symbol | Type | Compatible controller |
|--------|---|-----------------------|
| H | Battery-less absolute (Step motor 24 VDC) | JXD1 |

⑤ Lead [mm]

| Symbol | LE2FS16 | LE2FS25 | LE2FS32 | LE2FS40 |
|--------|---------|---------|---------|---------|
| H | — | 20 | 24 | 30 |
| A | 10 | 12 | 16 | 20 |
| B | 5 | 6 | 8 | 10 |
| C | 2.5 | 3 | 4 | 5 |

⑥ Stroke

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

* For details, refer to the applicable stroke table below.

⑦ Motor option

| | |
|---|----------------|
| A | Without option |
| B | With lock |

⑧ Grease application (Seal band part)

| | |
|---|--------------------------------|
| G | With |
| N | Without (Roller specification) |

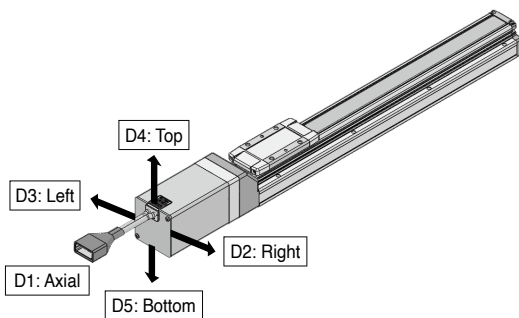
The auto switches should be ordered separately. For details, refer to pages 27 and 48 to 50.

Applicable Stroke Table

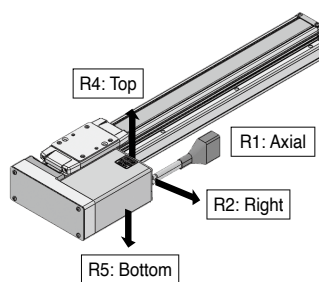
| Size | Stroke | | | | | | | | | | | | | | | | | | | | | |
|------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 | 1100 | 1200 |
| 16 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | — | — | — | — | — | — | — | — | — | — | — | — |
| 25 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | — | — | — | — | — | — |
| 32 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | — | — |
| 40 | — | — | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

Motor Mounting Position

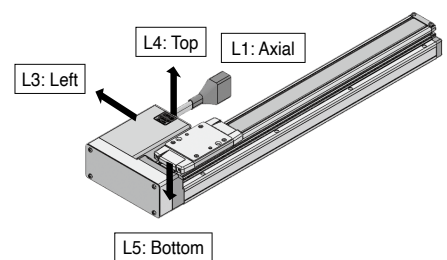
D: In-line



R: Right side parallel
→R3 is not selectable.



L: Left side parallel
→L2 is not selectable.



LE2FS□H Series

Battery-less Absolute (Step Motor 24 VDC)

Specifications

| Model | | LE2FS16□H | | | LE2FS25□H | | | | LE2FS32□H | | | | LE2FS40□H | | | | |
|---|--------------------------|--|-----------|-----------|---------------|------------|------------|------------|---------------|------------|------------|------------|---------------|------------|------------|------------|----------|
| Stroke [mm]*1 | | 50 to 500 | | | 50 to 800 | | | | 50 to 1000 | | | | 150 to 1200 | | | | |
| Work load [kg]*6 | Horizontal | 10 | 15 | 18 | 15 | 26 | 40 | 40 | 39.5 | 50 | 68 | 68 | 26 | 60 | 75 | 80 | |
| | Vertical | 3 | 6 | 12 | 2 | 6 | 12.5 | 15 | 4 | 10 | 16 | 20 | 4.5 | 4.5 | 25 | 40 | |
| Pushing force [N]*2 *3 *4 | | 23 to 41 | 44 to 80 | 86 to 154 | 41 to 81 | 67 to 135 | 132 to 265 | 255 to 511 | 60 to 140 | 90 to 209 | 176 to 411 | 341 to 796 | 48 to 112 | 72 to 167 | 141 to 329 | 273 to 637 | |
| Speed [mm/s] | Stroke range | Up to 400 | 10 to 800 | 5 to 400 | 3 to 195 | 20 to 1200 | 12 to 850 | 6 to 450 | 3 to 225 | 24 to 1100 | 16 to 750 | 8 to 450 | 4 to 125 | 30 to 1200 | 20 to 1000 | 10 to 500 | 5 to 225 |
| | | 401 to 450 | 10 to 700 | 5 to 360 | 3 to 170 | 20 to 1100 | 12 to 750 | 6 to 400 | 3 to 225 | 24 to 1100 | 16 to 750 | 8 to 450 | 4 to 125 | 30 to 1200 | 20 to 1000 | 10 to 500 | 5 to 225 |
| | | 401 to 500 | 10 to 600 | 5 to 300 | 3 to 140 | 20 to 1100 | 12 to 750 | 6 to 400 | 3 to 225 | 24 to 1100 | 16 to 750 | 8 to 450 | 4 to 125 | 30 to 1200 | 20 to 1000 | 10 to 500 | 5 to 225 |
| | | 501 to 600 | — | — | — | 20 to 900 | 12 to 540 | 6 to 270 | 3 to 135 | 24 to 1100 | 16 to 750 | 8 to 400 | 4 to 125 | 30 to 1200 | 20 to 1000 | 10 to 500 | 5 to 225 |
| | | 601 to 700 | — | — | — | 20 to 630 | 12 to 420 | 6 to 230 | 3 to 115 | 24 to 930 | 16 to 620 | 8 to 310 | 4 to 125 | 30 to 1200 | 20 to 900 | 10 to 440 | 5 to 220 |
| | | 701 to 800 | — | — | — | 20 to 550 | 12 to 330 | 6 to 180 | 3 to 90 | 24 to 750 | 16 to 500 | 8 to 250 | 4 to 125 | 30 to 1140 | 20 to 760 | 10 to 350 | 5 to 175 |
| | | 801 to 900 | — | — | — | — | — | — | — | 24 to 610 | 16 to 410 | 8 to 200 | 4 to 100 | 30 to 930 | 20 to 620 | 10 to 280 | 5 to 140 |
| | | 901 to 1000 | — | — | — | — | — | — | — | 24 to 500 | 16 to 340 | 8 to 170 | 4 to 85 | 30 to 780 | 20 to 520 | 10 to 250 | 5 to 125 |
| | | 1001 to 1100 | — | — | — | — | — | — | — | — | — | — | — | 30 to 660 | 20 to 440 | 10 to 220 | 5 to 110 |
| | | 1101 to 1200 | — | — | — | — | — | — | — | — | — | — | — | 30 to 570 | 20 to 380 | 10 to 190 | 5 to 95 |
| Max. acceleration/deceleration [mm/s ²] | Horizontal | 10000 | | | | | | | | | | | | | | | |
| | Vertical | 5000 | | | | | | | | | | | | | | | |
| Pushing speed [mm/s]*5 | | 1 to 50 | | | 1 to 35 | | | | 1 to 30 | | | | 1 to 30 | | | | |
| Positioning repeatability [mm] | | ±0.015 (Lead H: ±0.02) | | | | | | | | | | | | | | | |
| Lost motion [mm]*7 | | 0.1 or less | | | | | | | | | | | | | | | |
| Lead [mm] | | 10 | 5 | 2.5 | 20 | 12 | 6 | 3 | 24 | 16 | 8 | 4 | 30 | 20 | 10 | 5 | |
| Impact/Vibration resistance [m/s ²]*8 | | 50/20 | | | | | | | | | | | | | | | |
| Actuation type | | Ball screw (LE2FS□H), Ball screw + Belt (LE2FS□□H) | | | | | | | | | | | | | | | |
| Guide type | | Linear guide | | | | | | | | | | | | | | | |
| Operating temperature range [°C] | | 5 to 40 | | | | | | | | | | | | | | | |
| Operating humidity range [%RH] | | 90 or less (No condensation) | | | | | | | | | | | | | | | |
| Motor 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 % | | | | | | | | | | | | | | | |
| Lock unit specifications | Power [W]*9 *11 | Max. power 58 | | | Max. power 72 | | | | Max. power 93 | | | | Max. power 93 | | | | |
| | Type*10 | Non-magnetizing lock | | | | | | | | | | | | | | | |
| | Holding force [N] | 29 | 59 | 118 | 47 | 78 | 157 | 294 | 72 | 108 | 216 | 421 | 75 | 113 | 225 | 421 | |
| | Power [W]*11 | 4 | | | 8 | | | | 8 | | | | 8 | | | | |
| Power supply voltage [V] | | 24 VDC ±10 % | | | | | | | | | | | | | | | |

- *1 Please contact SMC for non-standard strokes as they are produced as special orders.
- *2 Pushing force accuracy is ±20 % (F.S.).
- *3 The pushing force set values for LE2FS16□H are 25 % to 45 %, for LE2FS25□H are 25 % to 50 %, for LE2FS32□H are 30 % to 70 %, and for LE2FS40□H are 30 % to 70 %. The pushing force values change according to the duty ratio and pushing speed. Check the "Force Conversion Graph" in the catalogue.
- *4 The speed and force may change depending on the cable length, load, and mounting conditions. Furthermore, if the cable length exceeds 5 m, then it will decrease by up to 10 % for each 5 m. (At 15 m: Reduced by up to 20 %)
- *5 The allowable speed for pushing operation. When push conveying a workpiece, operate at the vertical work load or less.
- *6 The max. work load at 3000 mm/s² acceleration and deceleration speed
Work load varies depending on the speed and acceleration. Check the "Speed-Work Load Graph" in the catalogue.
Furthermore, if the cable length exceeds 5 m, the speed and work load specified in the "Speed-Work Load Graph" may decrease by up to 10 % for each 5 m increase.
- *7 A reference value for correcting errors in reciprocal operation
- *8 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.)
- *9 Indicates the max. power during operation (excluding the controller). This value can be used for the selection of the power supply.
- *10 With lock only
- *11 For an actuator with lock, add the power for the lock.

Weight

In-line Motor

| Series | LE2FS16 | | | | | | | | | |
|----------------------------------|---------|------|------|------|------|------|------|------|------|------|
| 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] | 0.16 | | | | | | | | | |

| Series | LE2FS25 | | | | | | | | | | | | | | | |
|----------------------------------|---------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Stroke [mm] | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 |
| Product weight [kg] | 1.77 | 1.91 | 2.05 | 2.19 | 2.33 | 2.47 | 2.61 | 2.75 | 2.89 | 3.03 | 3.17 | 3.31 | 3.45 | 3.59 | 3.73 | 3.87 |
| Additional weight with lock [kg] | 0.31 | | | | | | | | | | | | | | | |

| Series | LE2FS32 | | | | | | | | | | | | | | | | | | | |
|----------------------------------|---------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 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] | 3.12 | 3.32 | 3.52 | 3.72 | 3.92 | 4.12 | 4.32 | 4.52 | 4.72 | 4.92 | 5.12 | 5.32 | 5.52 | 5.72 | 5.92 | 6.12 | 6.32 | 6.52 | 6.72 | 6.92 |
| Additional weight with lock [kg] | 0.58 | | | | | | | | | | | | | | | | | | | |

| Series | LE2FS40 | | | | | | | | | | | | | | | | | | | |
|----------------------------------|---------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|
| 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] | 4.99 | 5.27 | 5.55 | 5.83 | 6.11 | 6.39 | 6.77 | 6.95 | 7.23 | 7.51 | 7.79 | 8.07 | 8.35 | 8.63 | 8.91 | 9.19 | 9.47 | 9.75 | 10.31 | 10.87 |
| Additional weight with lock [kg] | 0.60 | | | | | | | | | | | | | | | | | | | |

Right/Left Side Parallel Motor

| Series | LE2FS16 ^R | | | | | | | | | |
|----------------------------------|----------------------|------|------|------|------|------|------|------|------|------|
| 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] | 0.16 | | | | | | | | | |

| Series | LE2FS25 ^R | | | | | | | | | | | | | | | |
|----------------------------------|----------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Stroke [mm] | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 |
| Product weight [kg] | 1.75 | 1.89 | 2.03 | 2.17 | 2.31 | 2.45 | 2.59 | 2.73 | 2.87 | 3.01 | 3.15 | 3.29 | 3.43 | 3.57 | 3.71 | 3.85 |
| Additional weight with lock [kg] | 0.31 | | | | | | | | | | | | | | | |

| Series | LE2FS32 ^R | | | | | | | | | | | | | | | | | | | |
|----------------------------------|----------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 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] | 3.09 | 3.29 | 3.49 | 3.69 | 3.89 | 4.09 | 4.29 | 4.49 | 4.69 | 4.89 | 5.09 | 5.29 | 5.49 | 5.69 | 5.89 | 6.09 | 6.29 | 6.49 | 6.69 | 6.89 |
| Additional weight with lock [kg] | 0.58 | | | | | | | | | | | | | | | | | | | |

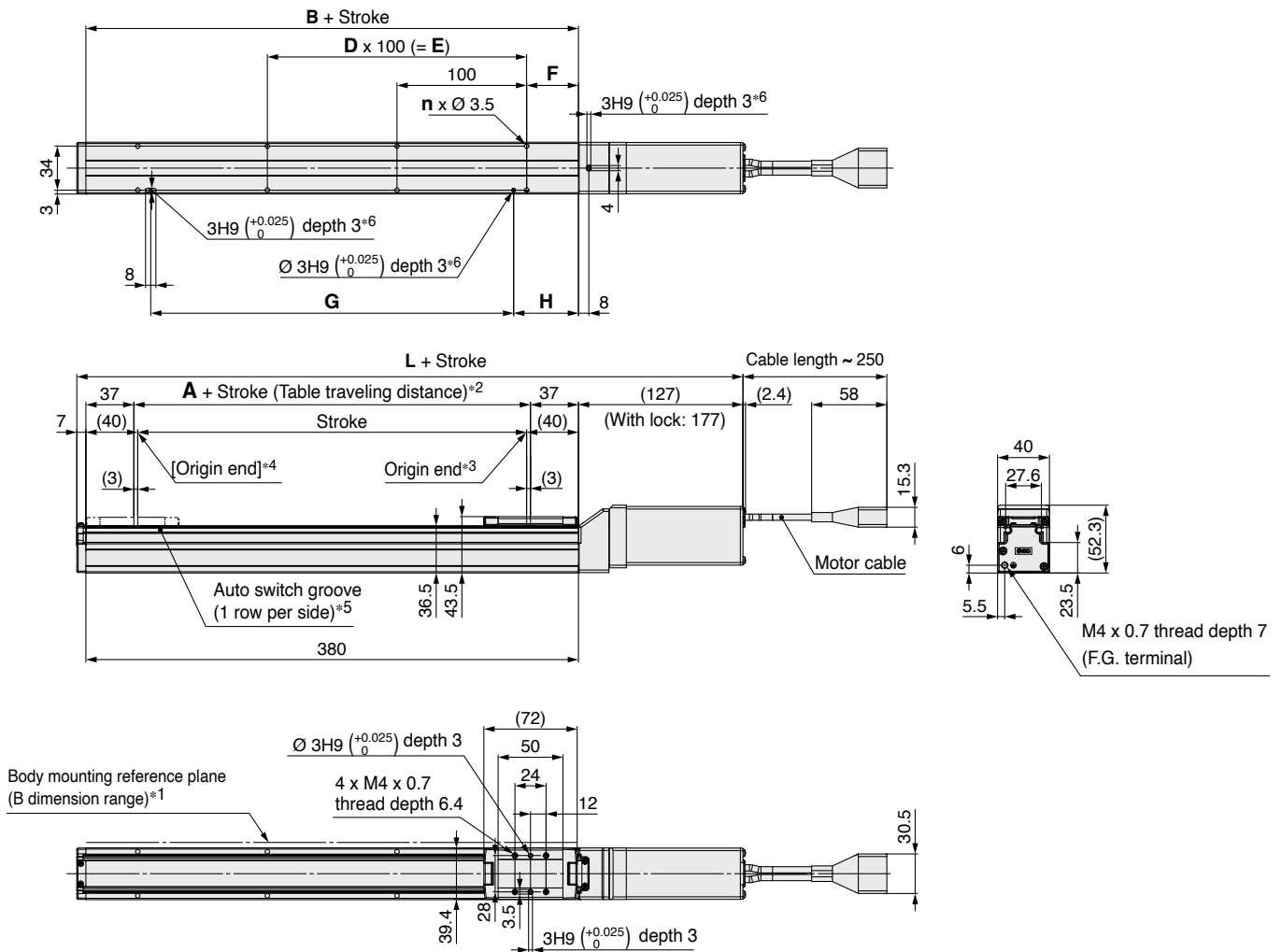
| Series | LE2FS40 ^R | | | | | | | | | | | | | | | | | | | |
|----------------------------------|----------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|
| Stroke [mm] | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 650 | 700 | 750 | 800 | 850 | 900 | 950 | 1000 | 1100 | 1200 |
| Product weight [kg] | 5.15 | 5.43 | 5.71 | 5.99 | 6.27 | 6.55 | 6.93 | 7.11 | 7.39 | 7.67 | 7.95 | 8.23 | 8.51 | 8.79 | 9.07 | 9.35 | 9.63 | 9.91 | 10.47 | 11.03 |
| Additional weight with lock [kg] | 0.60 | | | | | | | | | | | | | | | | | | | |

LE2FS□H Series

Battery-less Absolute (Step Motor 24 VDC)

Dimensions: In-line Motor

LE2FS16H



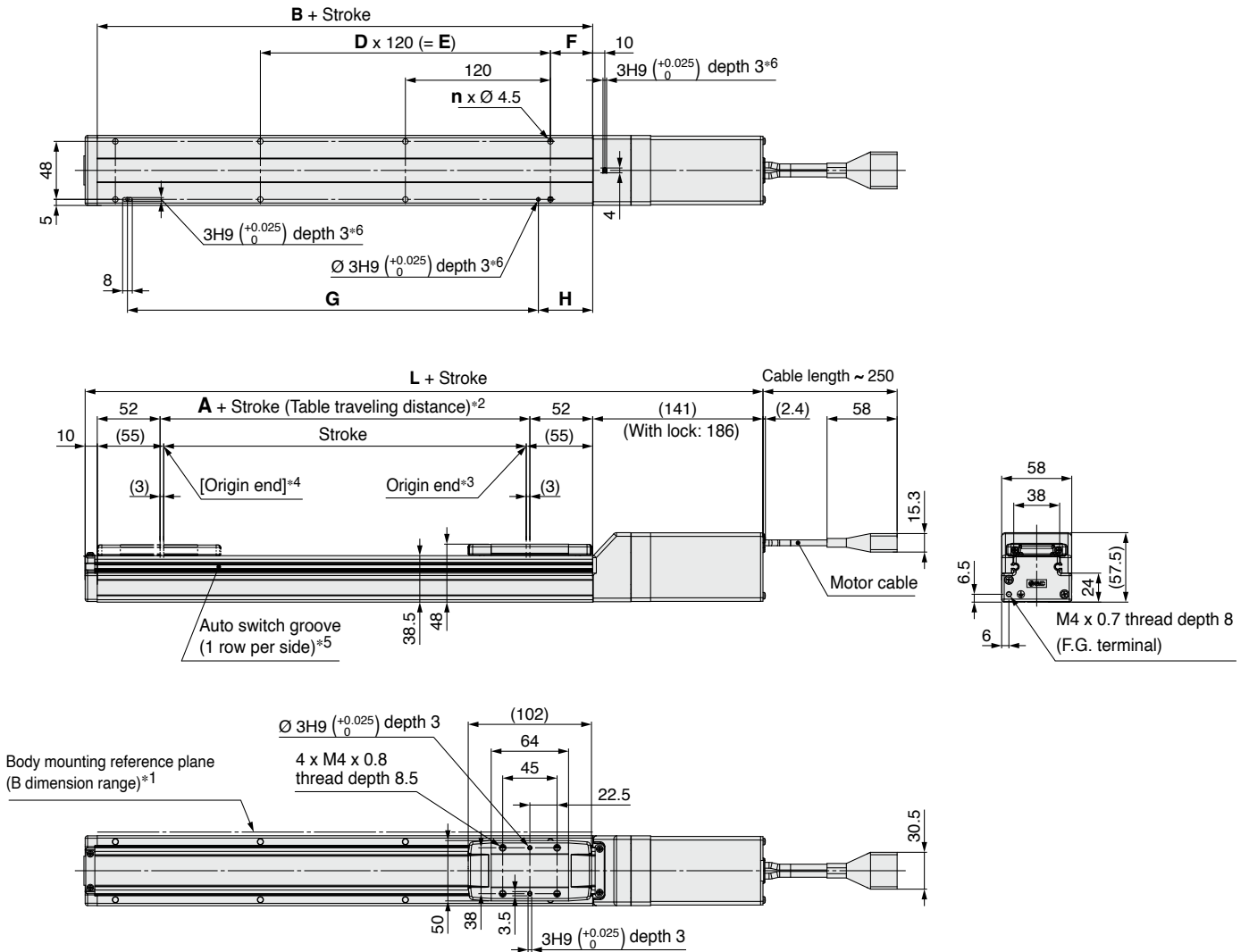
- *1 When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more. (Recommended height: 5 mm)
In addition, be aware that surfaces other than the body mounting reference plane (B dimension range) may slightly protrude from the body mounting reference plane. Be sure to provide a clearance of 1 mm or more to avoid interference with workpieces, facilities, etc.
- *2 The distance the table moves according to movement instructions
Make sure that workpieces mounted on the table do not interfere with other workpieces or the facilities around the table.
- *3 Indicates the factory default origin position (0 mm)
- *4 [] refers to when the rotation direction reference is changed.
- *5 The applicable auto switch (D-M9□) should be ordered separately.
- *6 When using the positioning pin holes on the bottom, use either the one on the body side or the one on the housing side.
- * The axial cable entry direction is shown.

Dimensions

| Stroke | L | | A | B | n | D | E | F | G | H |
|----------|--------------|-----------|---|----|----|---|-----|-----|-----|----|
| | Without lock | With lock | | | | | | | | |
| 50 | 214 | 264 | 6 | 80 | 4 | — | — | 15 | 80 | 25 |
| 100, 150 | | | | | 6 | 2 | 200 | | | |
| 200, 250 | | | | | 8 | 3 | 300 | 40 | 180 | |
| 300, 350 | | | | | 10 | 4 | 400 | | 280 | |
| 400, 450 | | | | | 12 | 5 | 500 | | 380 | |
| 500 | | | | | | | | 480 | | |

Dimensions: In-line Motor

LE2FS25H



- *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 The distance the table moves according to movement instructions
Make sure that workpieces mounted on the table do not interfere with other workpieces or the facilities around the table.
- *3 Indicates the factory default origin position (0 mm)
- *4 [] refers to when the rotation direction reference is changed.
- *5 The applicable auto switch (D-M9□) should be ordered separately.
- *6 When using the positioning pin holes on the bottom, use either the one on the body side or the one on the housing side.
- * The axial cable entry direction is shown.

Dimensions

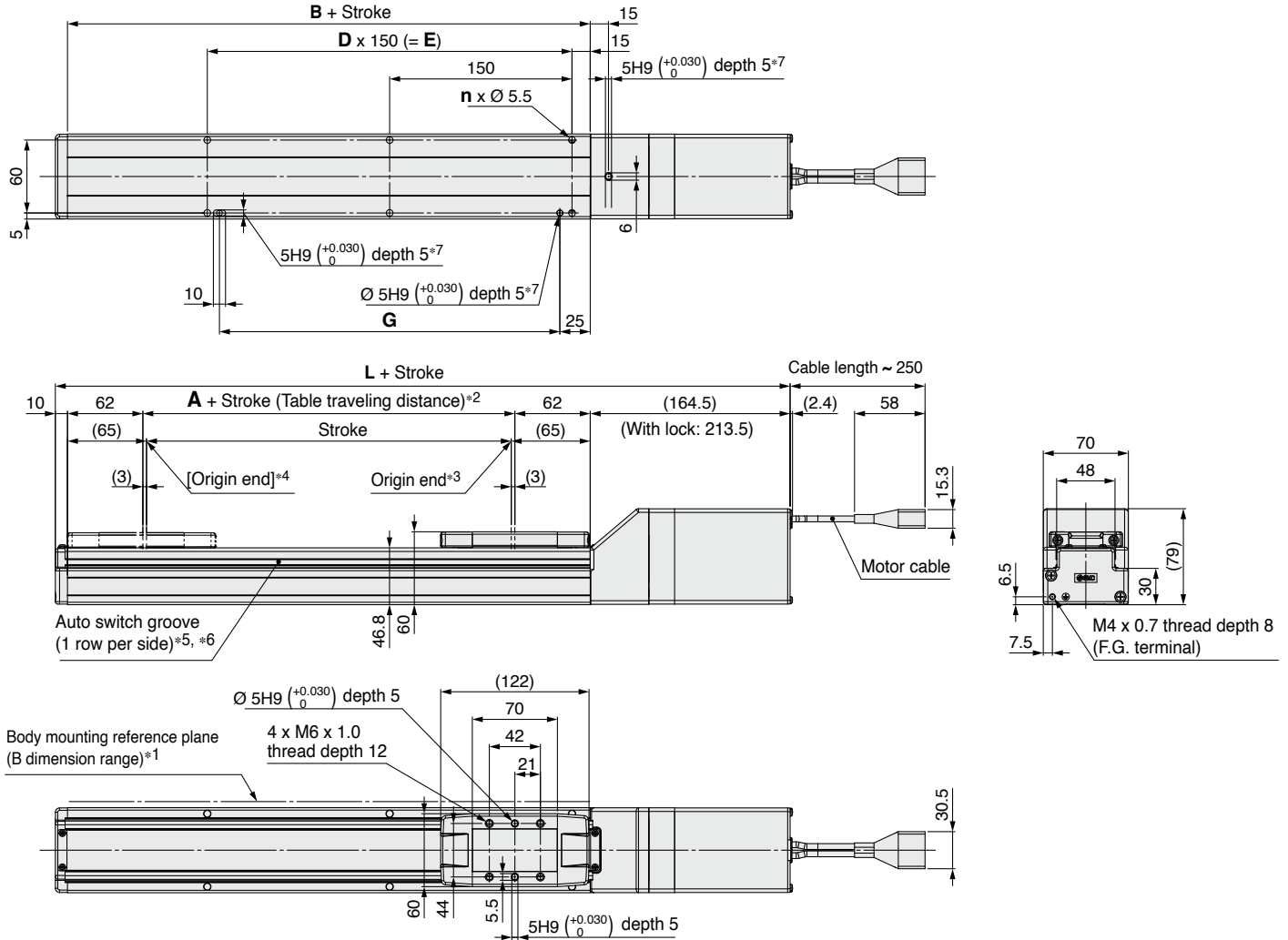
| Stroke | L | | A | B | n | D | E | F | G | H | |
|---------------|--------------|-----------|---|-----|----|---|-----|----|-----|----|-----|
| | Without lock | With lock | | | | | | | | | |
| 50 | 261 | 306 | 6 | 110 | 4 | — | — | 35 | 100 | 30 | |
| 100, 150 | | | | | 6 | 2 | 240 | | | | 220 |
| 200, 250 | | | | | 8 | 3 | 360 | | | | 340 |
| 300, 350, 400 | | | | | 10 | 4 | 480 | | | | 460 |
| 450, 500 | | | | | 12 | 5 | 600 | | | | 580 |
| 550, 600, 650 | | | | | 14 | 6 | 720 | | | | 700 |
| 700, 750 | | | | | 16 | 7 | 840 | | | | 820 |
| 800 | | | | | | | | | | | |

LE2FS□H Series

Battery-less Absolute (Step Motor 24 VDC)

Dimensions: In-line Motor

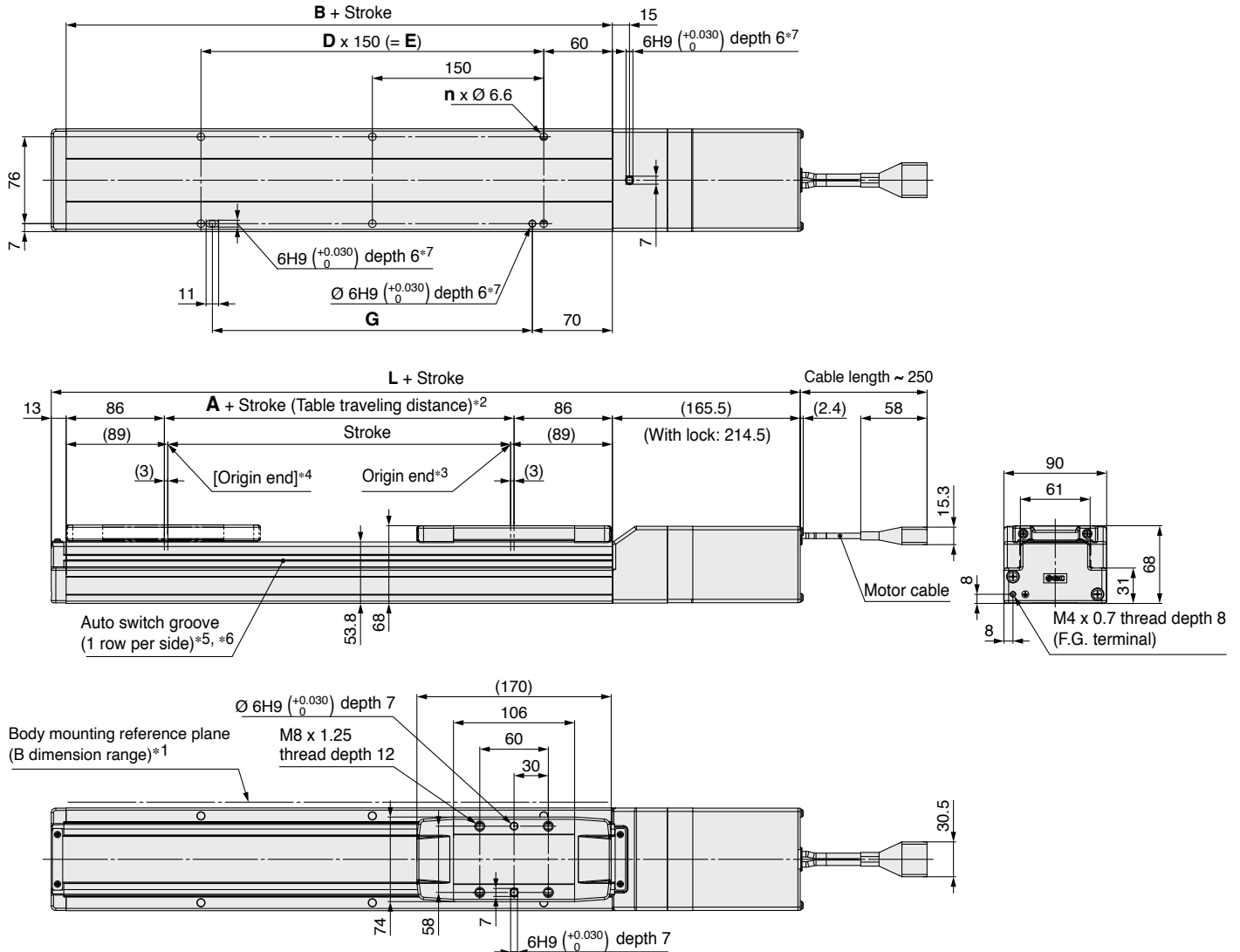
LE2FS32H



- *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 The distance the table moves according to movement instructions
Make sure that workpieces mounted on the table do not interfere with other workpieces or the facilities around the table.
- *3 Indicates the factory default origin position (0 mm)
- *4 [] refers to when the rotation direction reference is changed.
- *5 The applicable auto switch (D-M9□) should be ordered separately.
- *6 A switch spacer (BMY 3 - 0 1 6) is required to secure auto switches. Please order it separately.
- *7 When using the positioning pin holes on the bottom, use either the one on the body side or the one on the housing side.
- * The axial cable entry direction is shown.

Dimensions

| Stroke | L | | A | B | n | D | E | G |
|---------------|--------------|-----------|---|-----|----|---|------|------|
| | Without lock | With lock | | | | | | |
| 50, 100, 150 | 304.5 | 353.5 | 6 | 130 | 4 | — | — | 130 |
| 200, 250, 300 | | | | | 6 | 2 | 300 | 280 |
| 350, 400, 450 | | | | | 8 | 3 | 450 | 430 |
| 500, 550, 600 | | | | | 10 | 4 | 600 | 580 |
| 650, 700, 750 | | | | | 12 | 5 | 750 | 730 |
| 800, 850, 900 | | | | | 14 | 6 | 900 | 880 |
| 950, 1000 | | | | | 16 | 7 | 1050 | 1030 |

Dimensions: In-line Motor**LE2FS40H**

*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 The distance the table moves according to movement instructions. Make sure that workpieces mounted on the table do not interfere with other workpieces or the facilities around the table.

*3 Indicates the factory default origin position (0 mm)

*4 [] refers to when the rotation direction reference is changed.

*5 The applicable auto switch (D-M9□) should be ordered separately.

*6 A switch spacer (BMY 3 - 0 1 6) is required to secure auto switches. Please order it separately.

*7 When using the positioning pin holes on the bottom, use either the one on the body side or the one on the housing side.

* The axial cable entry direction is shown.

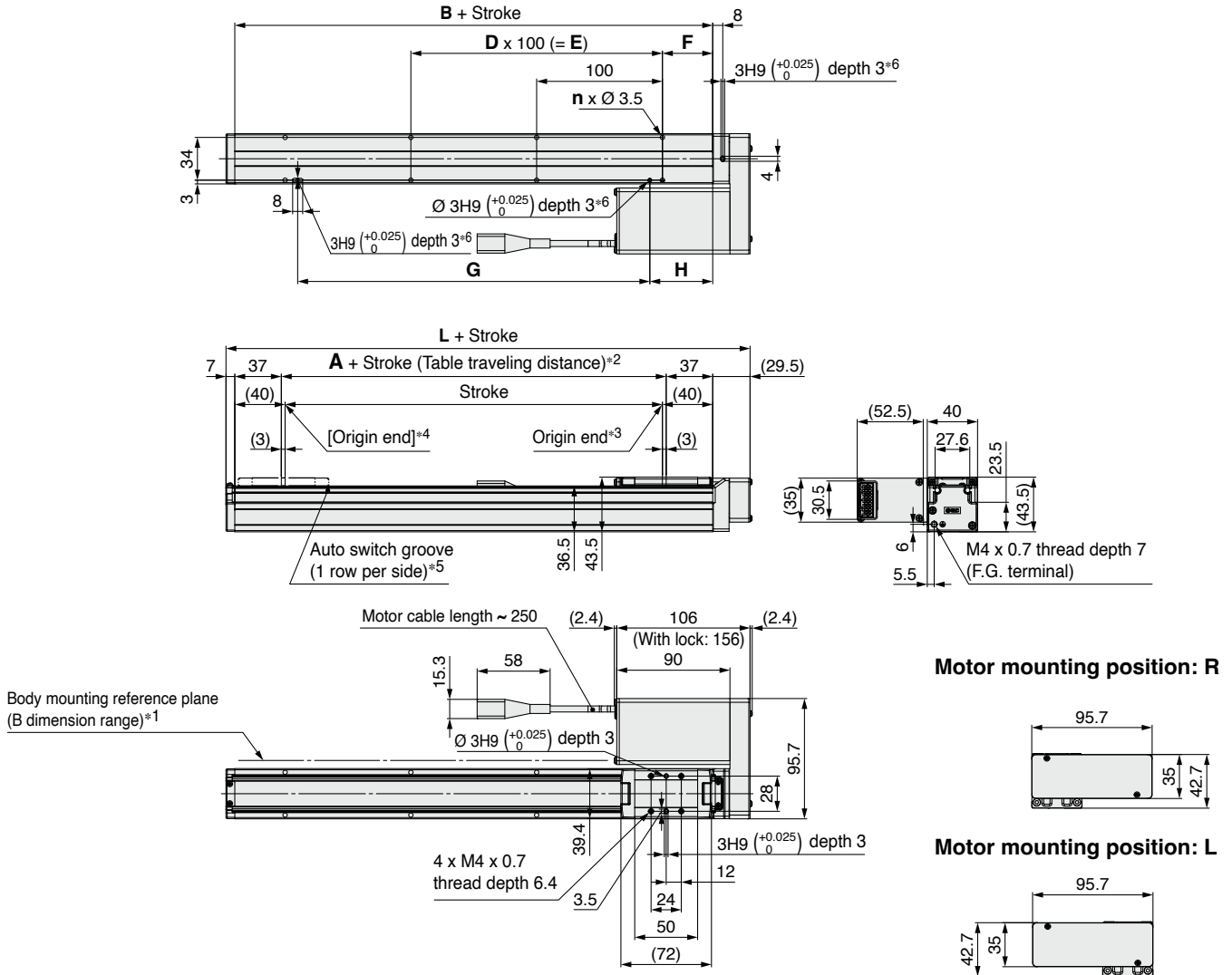
Dimensions

[mm]

| Stroke | L | | A | B | n | D | E | G |
|---------------|--------------|-----------|---|-----|----|---|------|------|
| | Without lock | With lock | | | | | | |
| 150 | | | | | 4 | — | — | 130 |
| 200, 250, 300 | | | | | 6 | 2 | 300 | 280 |
| 350, 400, 450 | | | | | 8 | 3 | 450 | 430 |
| 500, 550, 600 | 356.5 | 405.5 | 6 | 178 | 10 | 4 | 600 | 580 |
| 650, 700, 750 | | | | | 12 | 5 | 750 | 730 |
| 800, 850, 900 | | | | | 14 | 6 | 900 | 880 |
| 950, 1000 | | | | | 16 | 7 | 1050 | 1030 |
| 1100, 1200 | | | | | 18 | 8 | 1200 | 1180 |

Dimensions: Right/Left Side Parallel Motor

LE2FS16(L/R)H



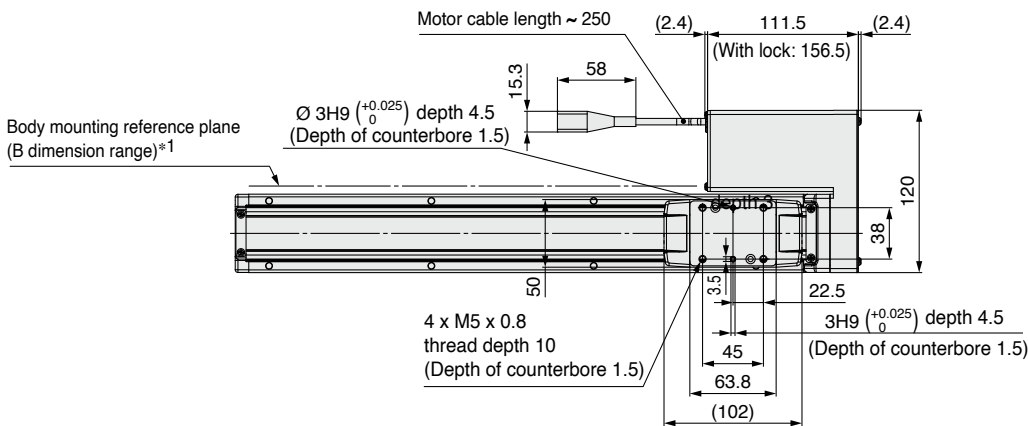
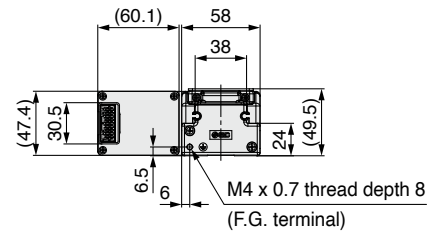
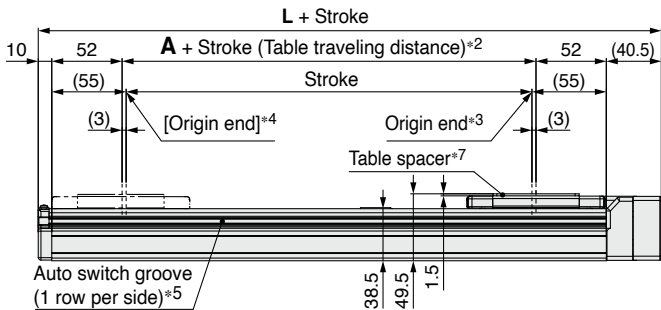
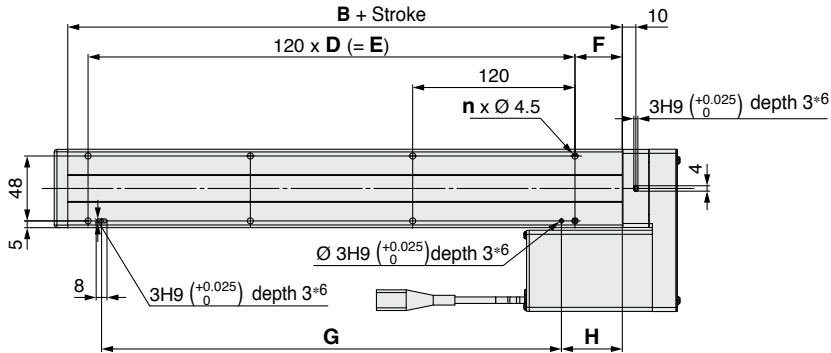
- *1 When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more. (Recommended height: 5 mm)
In addition, be aware that surfaces other than the body mounting reference plane (B dimension range) may slightly protrude from the body mounting reference plane. Be sure to provide a clearance of 1 mm or more to avoid interference with workpieces, facilities, etc.
- *2 The distance the table moves according to movement instructions
Make sure that workpieces mounted on the table do not interfere with other workpieces or the facilities around the table.
- *3 Indicates the factory default origin position (0 mm)
- *4 [] refers to when the rotation direction reference is changed.
- *5 The applicable auto switch (D-M9□) should be ordered separately.
- *6 When using the positioning pin holes on the bottom, use either the one on the body side or the one on the housing side.
- * This illustration shows the motor mounting position for the right side parallel type. Refer to the catalogue for detailed dimensions of the left side parallel type.
- * The axial cable entry direction is shown.

Dimensions

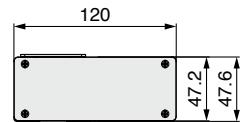
| Stroke | L | A | B | n | D | E | F | G | H |
|----------|-------|---|----|----|---|-----|-----|-----|----|
| 50 | 116.5 | 6 | 80 | 4 | — | — | 15 | 80 | 25 |
| 100, 150 | | | | 6 | 2 | 200 | 40 | 180 | 50 |
| 200, 250 | | | | 8 | 3 | 300 | | 280 | |
| 300, 350 | | | | 10 | 4 | 400 | | 380 | |
| 400, 450 | | | | 12 | 5 | 500 | 480 | | |

Dimensions: Right/Left Side Parallel Motor

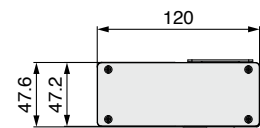
LE2FS25(L/R)H



Motor mounting position: R



Motor mounting position: L



- *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 The distance the table moves according to movement instructions
Make sure that workpieces mounted on the table do not interfere with other workpieces or the facilities around the table.
- *3 Indicates the factory default origin position (0 mm)
- *4 [] refers to when the rotation direction reference is changed.
- *5 The applicable auto switch (D-M9□) should be ordered separately.
- *6 When using the positioning pin holes on the bottom, use either the one on the body side or the one on the housing side.
- *7 The table spacer is shipped together with the product but does not come assembled.
- * This illustration shows the motor mounting position for the right side parallel type. Refer to the catalogue for detailed dimensions of the left side parallel type.
- * The axial cable entry direction is shown.

Dimensions

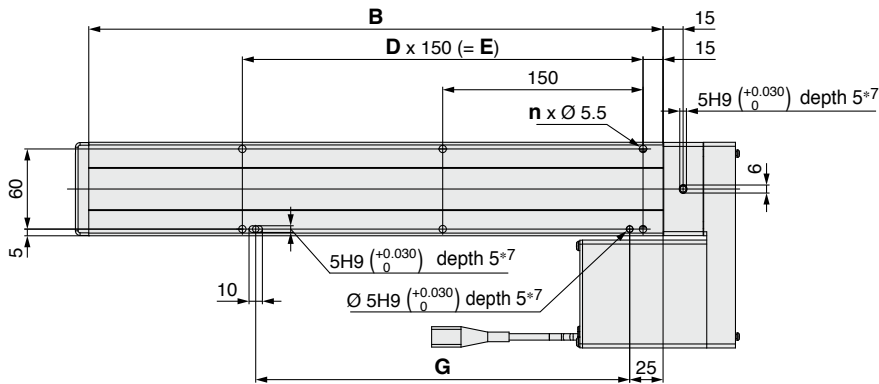
| Stroke | L | A | B | n | D | E | F | G | H |
|---------------|-------|---|-----|----|---|-----|-----|-----|----|
| 50 | 160.5 | 6 | 110 | 4 | — | — | 20 | 100 | 30 |
| 100, 150 | | | | 6 | 2 | 240 | 220 | | |
| 200, 250 | | | | 8 | 3 | 360 | 340 | | |
| 300, 350, 400 | | | | 10 | 4 | 480 | 460 | | |
| 450, 500 | | | | 12 | 5 | 600 | 580 | | |
| 550, 600, 650 | | | | 14 | 6 | 720 | 700 | | |
| 700, 750 | | | | 16 | 7 | 840 | 820 | | |

LE2FS□H Series

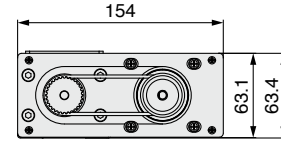
Battery-less Absolute (Step Motor 24 VDC)

Dimensions: Right/Left Side Parallel Motor

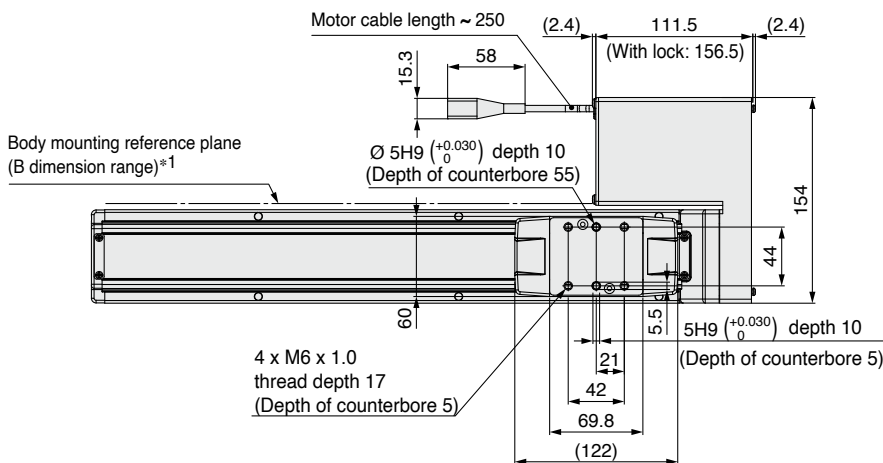
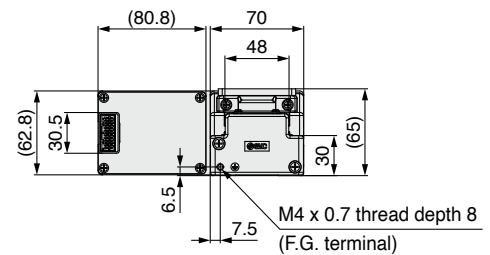
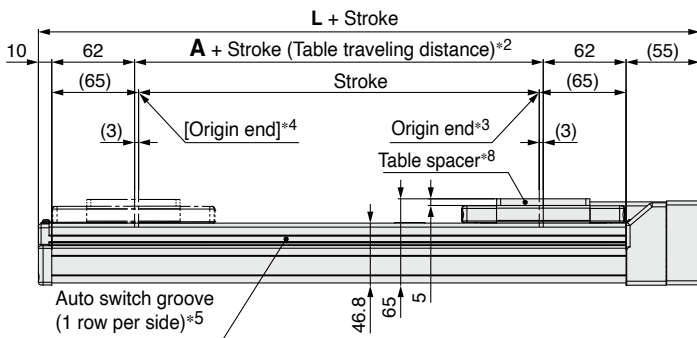
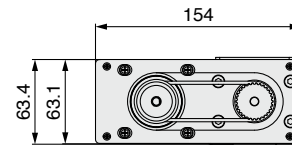
LE2FS32(L/R)H



Motor mounting position: R



Motor mounting position: L



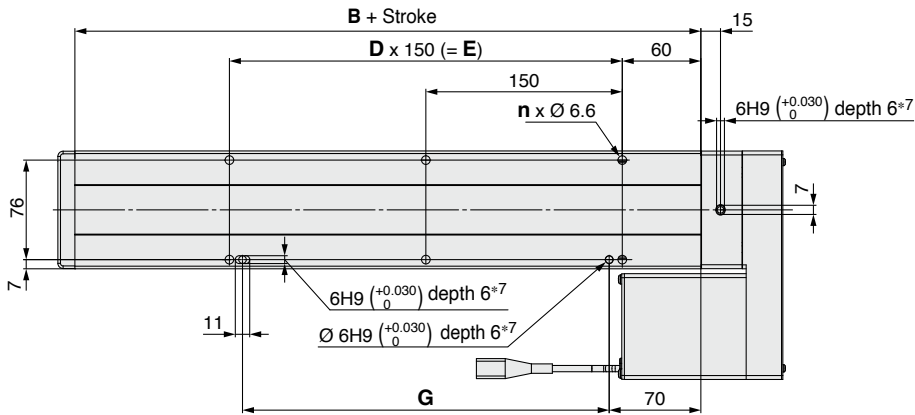
- *1 When mounting the actuator using the body mounting reference plane, set the height of the opposite surface or pin to be 3 mm or more. (Recommended height: 5 mm)
In addition, be aware that surfaces other than the body mounting reference plane (B dimension range) may slightly protrude from the body mounting reference plane. Be sure to provide a clearance of 1 mm or more to avoid interference with workpieces, facilities, etc.
- *2 The distance the table moves according to movement instructions
Make sure that workpieces mounted on the table do not interfere with other workpieces or the facilities around the table.
- *3 Indicates the factory default origin position (0 mm)
- *4 [] refers to when the rotation direction reference is changed.
- *5 The applicable auto switch (D-M9□) should be ordered separately.
- *6 A switch spacer (BMY3-016) is required to secure auto switches. Please order it separately.
- *7 When using the positioning pin holes on the bottom, use either the one on the body side or the one on the housing side.
- *8 The table spacer is shipped together with the product but does not come assembled.
- * This illustration shows the motor mounting position for the right side parallel type. Refer to the catalogue for detailed dimensions of the left side parallel type.
- * The axial cable entry direction is shown.

Dimensions

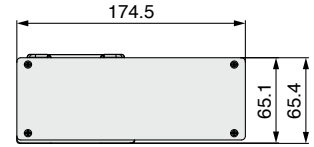
| Stroke | L | A | B | n | D | E | G |
|---------------|-----|---|-----|----|---|------|------|
| 50, 100, 150 | 195 | 6 | 130 | 4 | — | — | 130 |
| 200, 250, 300 | | | | 6 | 2 | 300 | 280 |
| 350, 400, 450 | | | | 8 | 3 | 450 | 430 |
| 500, 550, 600 | | | | 10 | 4 | 600 | 580 |
| 650, 700, 750 | | | | 12 | 5 | 750 | 730 |
| 800, 850, 900 | | | | 14 | 6 | 900 | 880 |
| 950, 1000 | | | | 16 | 7 | 1050 | 1030 |

Dimensions: Right/Left Side Parallel Motor

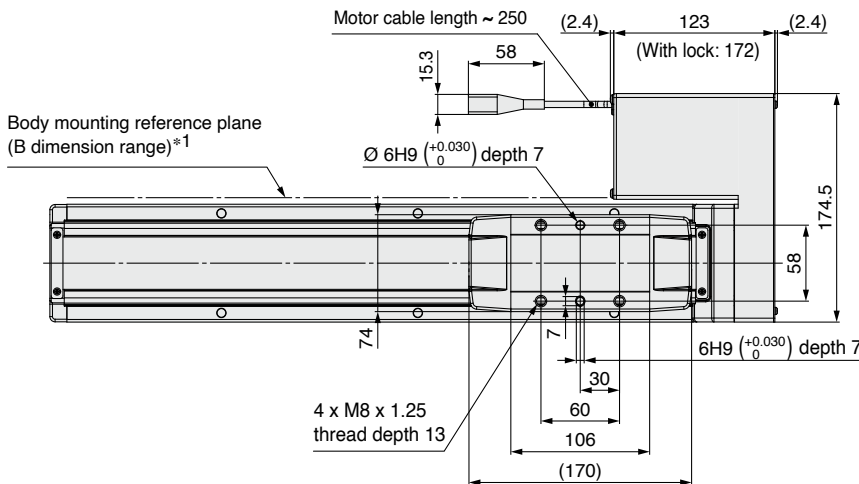
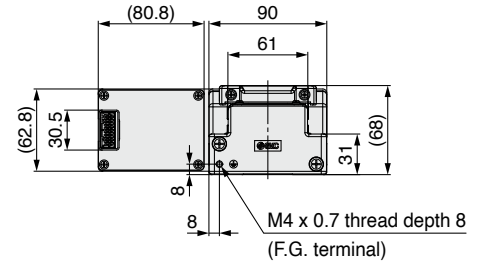
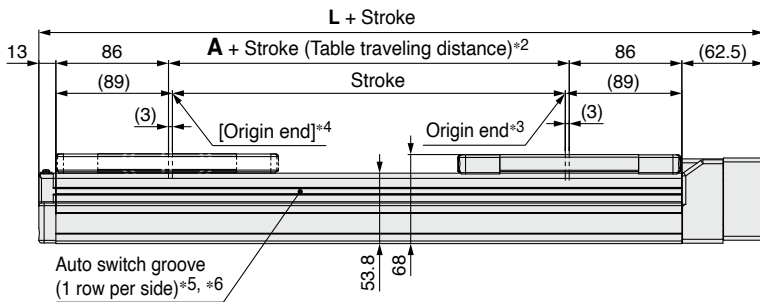
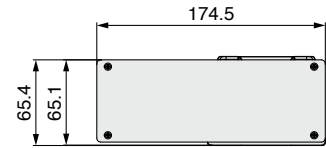
LE2FS40(L/R)H



Motor mounting position: R



Motor mounting position: L



- *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 The distance the table moves according to movement instructions
Make sure that workpieces mounted on the table do not interfere with other workpieces or the facilities around the table.
- *3 Indicates the factory default origin position (0 mm)
- *4 [] refers to when the rotation direction reference is changed.
- *5 The applicable auto switch (D-M9□) should be ordered separately.
- *6 A switch spacer (BMY3-016) is required to secure auto switches. Please order it separately.
- *7 When using the positioning pin holes on the bottom, use either the one on the body side or the one on the housing side.
- * This illustration shows the motor mounting position for the right side parallel type. Refer to the catalogue for detailed dimensions of the left side parallel type.
- * The axial cable entry direction is shown.

Dimensions

| Stroke | L | A | B | n | D | E | G |
|---------------|-------|---|-----|----|---|------|------|
| 150 | 253.5 | 6 | 178 | 4 | — | — | 130 |
| 200, 250, 300 | | | | 6 | 2 | 300 | 280 |
| 350, 400, 450 | | | | 8 | 3 | 450 | 430 |
| 500, 550, 600 | | | | 10 | 4 | 600 | 580 |
| 650, 700, 750 | | | | 12 | 5 | 750 | 730 |
| 800, 850, 900 | | | | 14 | 6 | 900 | 880 |
| 950, 1000 | | | | 16 | 7 | 1050 | 1030 |
| 1100, 1200 | | | | 18 | 8 | 1200 | 1180 |

LE2FS□H Series Auto Switch Mounting

Detailed specifications: From p. 48

Auto Switch Mounting Position

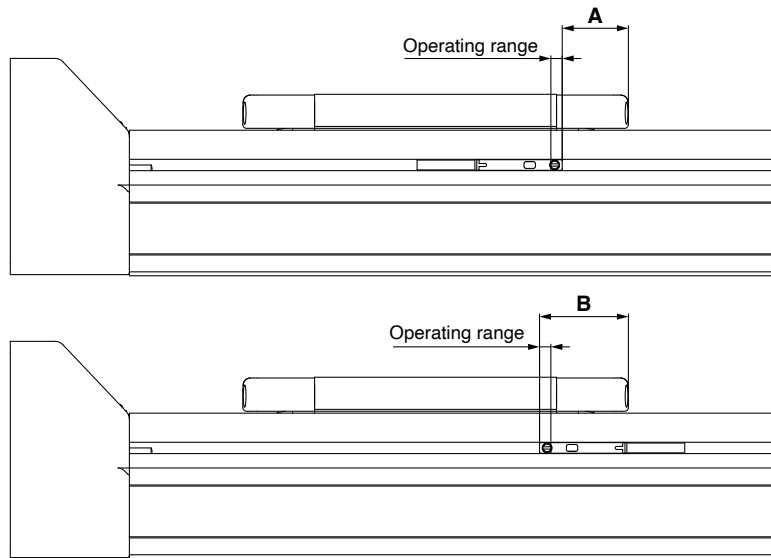


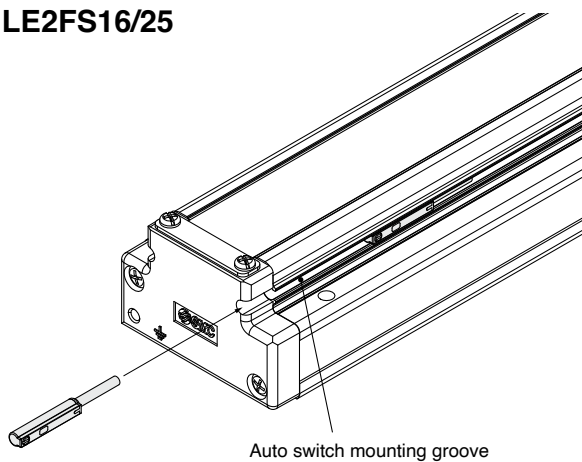
Table 1 Auto Switch Mounting Dimensions [mm]

| Model | Size | A | B | Operating range |
|-------|------|------|------|-----------------|
| LE2FS | 16 | 12.5 | 24.5 | 3.0 |
| | 25 | 17.5 | 29.5 | 3.0 |
| | 32 | 26.3 | 39.1 | 3.4 |
| | 40 | 32.2 | 45.4 | 3.6 |

- * 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

LE2FS16/25

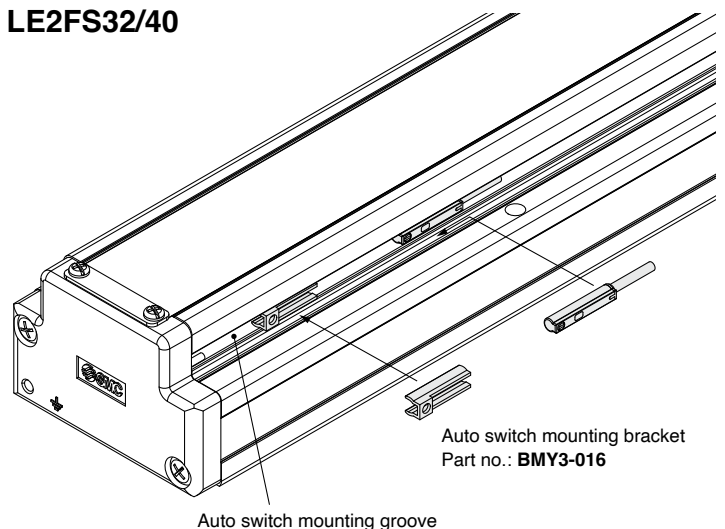


Auto switch mounting groove

Auto Switch Mounting Screw

| Tightening torque [N·m] |
|-------------------------|
| 0.1 to 0.15 |

LE2FS32/40



Auto switch mounting bracket
Part no.: **BMY3-016**

Auto switch mounting groove

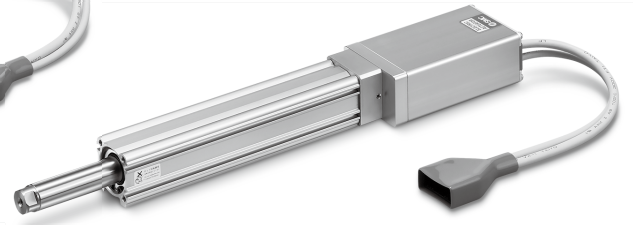
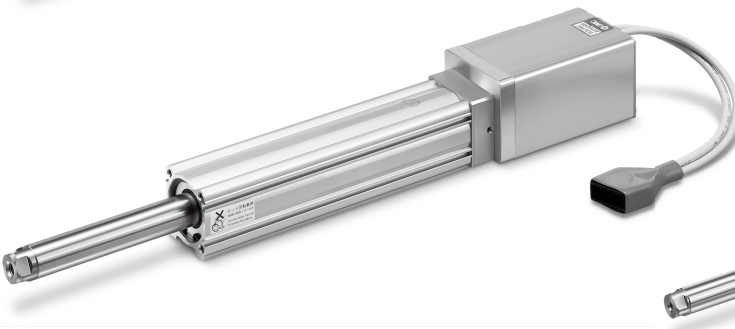
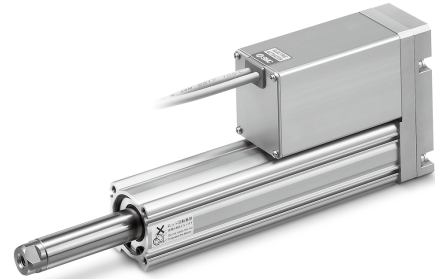
- * The applicable auto switch is D-M9 (N/P/B) (W) (M/L/Z).
- * When tightening the auto switch mounting screw (included with the auto switch), use a watchmaker's screwdriver with a handle diameter of 5 to 6 mm.
- * Prepare an auto switch mounting bracket (BMY3-016) when mounting the auto switch on to the LE2FS32/40.

Rod Type

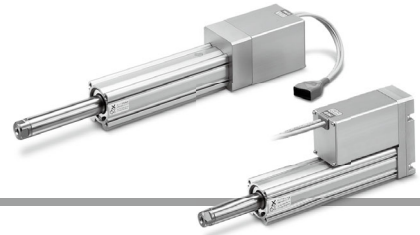
LE2Y□H Series

p. 29

Battery-less Absolute (Step Motor 24 VDC)



Model Selection



Selection Procedure

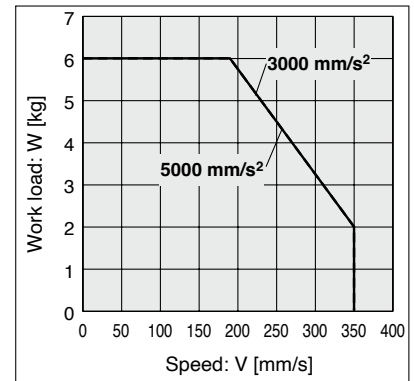
Positioning Control Selection Procedure

- Step 1** Check the work load–speed. (Vertical transfer) → **Step 2** Check the cycle time.

Selection Example

Operating conditions

- Workpiece mass: 2 [kg]
- Speed: 100 [mm/s]
- Acceleration/Deceleration: 5000 [mm/s²]
- Stroke: 200 [mm]
- Workpiece mounting condition: Vertical upward
downward transfer



<Speed-Vertical work load graph>
(LE2Y16□HB/Step motor)

Step 1 Check the work load–speed. <Speed-Vertical work load graph>

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

Selection example) The LE2Y16THB-200 can be temporarily selected as a possible candidate based on the graph shown on the right side.

* It is necessary to mount a guide outside the actuator when used for horizontal transfer. When selecting the target model, refer to the horizontal work load in the specifications on page 37 and the precautions.

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.

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

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

- 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 actuator types, load, and in position of the step data.
Reference value for settling time: 0.15 s or less
The following value is used for this calculation.

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

Calculation example)

T1 to T4 can be calculated as follows.

$$T1 = V/a1 = 100/5000 = 0.02 \text{ [s]}, T3 = V/a2 = 100/5000 = 0.02 \text{ [s]}$$

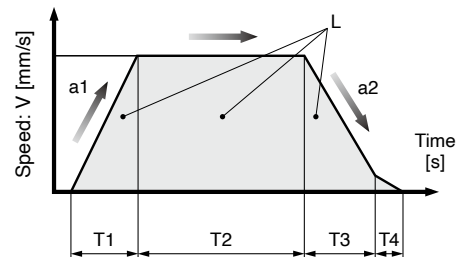
$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} = \frac{200 - 0.5 \cdot 100 \cdot (0.02 + 0.02)}{100} = 1.98 \text{ [s]}$$

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

The cycle time can be found as follows.

$$T = T1 + T2 + T3 + T4 = 0.02 + 1.98 + 0.02 + 0.15 = 2.17 \text{ [s]}$$

Based on the above calculation result, the LE2Y16THB-200 should be selected.



- L : Stroke [mm] ... (Operating condition)
- V : Speed [mm/s] ... (Operating condition)
- a1: Acceleration [mm/s²] ... (Operating condition)
- a2: Deceleration [mm/s²] ... (Operating condition)

T1: Acceleration time [s] ... Time until reaching the set speed

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

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

T4: Settling time [s] ... Time until positioning is completed

Selection Procedure

Pushing Control Selection Procedure

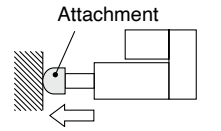


* The duty ratio is a ratio of the operation time in one cycle.

Selection Example

Operating conditions

- Mounting condition: Horizontal (pushing)
- Attachment weight: 0.2 [kg]
- Pushing force: 40 [N]
- Duty ratio: 15 [%]
- Speed: 100 [mm/s]
- Stroke: 200 [mm]



Step 1 Check the duty ratio.

<Conversion table of pushing force–duty ratio>

Select the [Pushing force] from the duty ratio while referencing the conversion table of pushing force–duty ratio.

Selection example)

Based on the table below,

- Duty ratio: 15 [%]

The pushing force set value will be 45 [%].

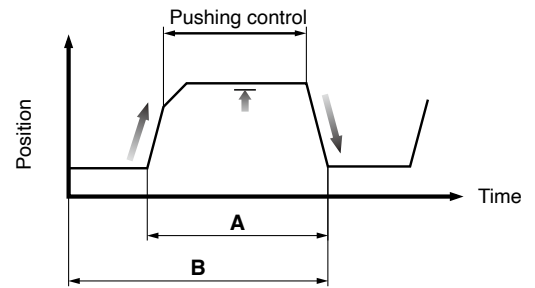
<Conversion table of pushing force–duty ratio>

(LE2Y16□H/Battery-less absolute)

| Ambient temperature | Pushing force set value [%] | Duty ratio [%] | Continuous pushing time [min] |
|---------------------|-----------------------------|----------------|-------------------------------|
| 40 °C or less | 45 or less | 100 | No restriction |

* [Pushing force set value] is one of the step data input to the controller.

* [Continuous pushing time] is the time that the actuator can continuously keep pushing.



$$\text{Duty ratio} = A/B \times 100 [\%]$$

Step 2 Check the pushing force.

<Force conversion graph>

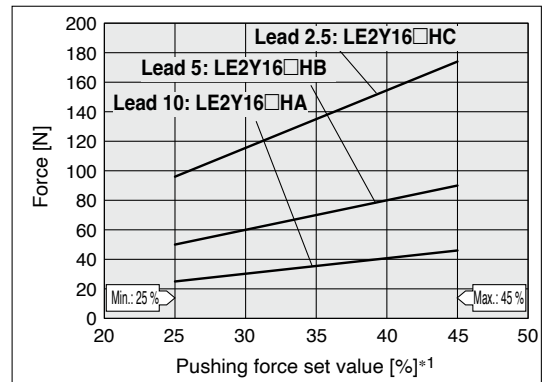
Select a model based on the pushing force set value and force while referencing the force conversion graph.

Selection example)

Based on the graph shown on the right side,

- Pushing force: 40 [N]
- Pushing force set value: 33 [%]

The LE2Y16□HB can be temporarily selected as a possible candidate.



<Force conversion graph> (LE2Y16□H/Step motor)

*1 Set values for the controller

Step 3 Check the lateral load on the rod end.

<Graph of allowable lateral load on the rod end>

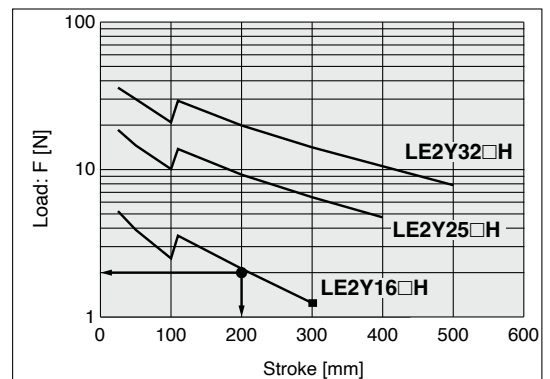
Confirm the allowable lateral load on the rod end of the actuator: LEY16□, which has been selected temporarily while referencing the graph of allowable lateral load on the rod end.

Selection example)

Based on the graph shown on the right side,

- Attachment weight: 0.2 [kg] ≈ 2 [N]
- Product stroke: 200 [mm]

The lateral load on the rod end is in the allowable range.



<Graph of allowable lateral load on the rod end>

Based on the above calculation result, the LE2Y16□HB-200 should be selected.

LE2Y□H Series

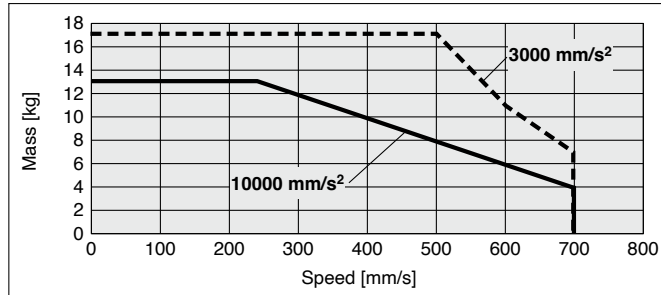
Battery-less Absolute (Step Motor 24 VDC)

Speed-Work Load Graph (Guide)

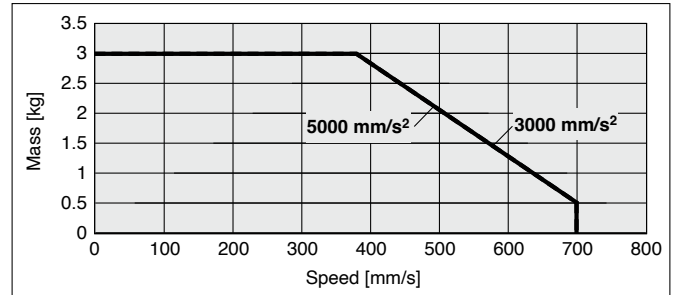
* The following graphs show the values when the external guide is used together.

LE2Y16□HA

Horizontal/Lead 10

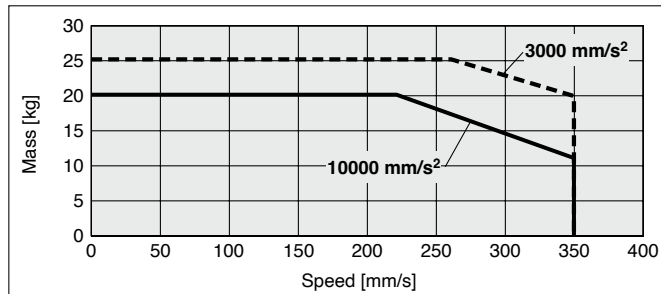


Vertical/Lead 10

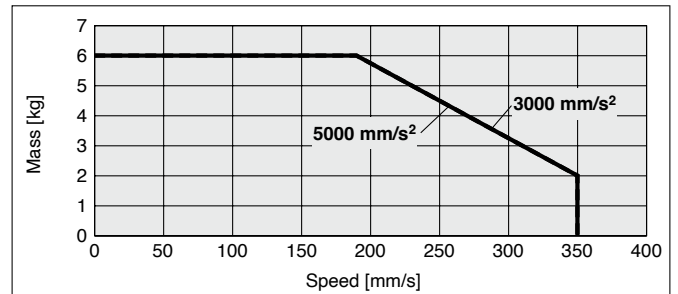


LE2Y16□HB

Horizontal/Lead 5

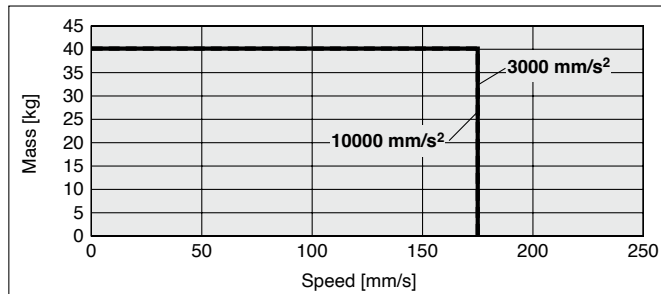


Vertical/Lead 5

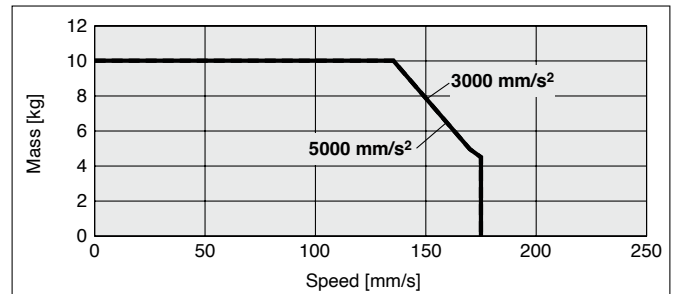


LE2Y16□HC

Horizontal/Lead 2.5



Vertical/Lead 2.5

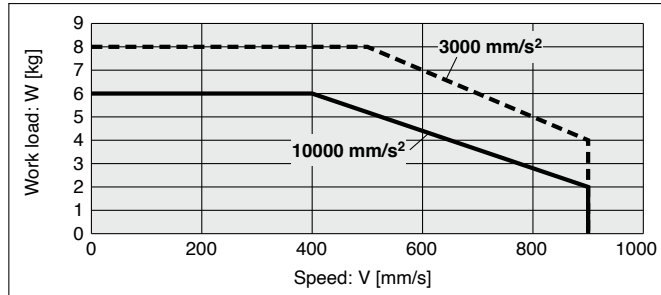


Speed-Work Load Graph (Guide)

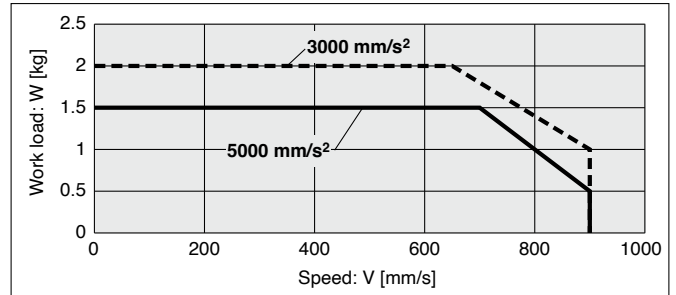
* The following graphs show the values when the external guide is used together.

LE2Y25□HH

Horizontal/Lead 20

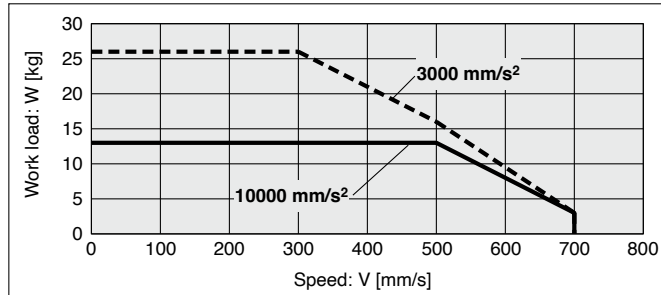


Vertical/Lead 20

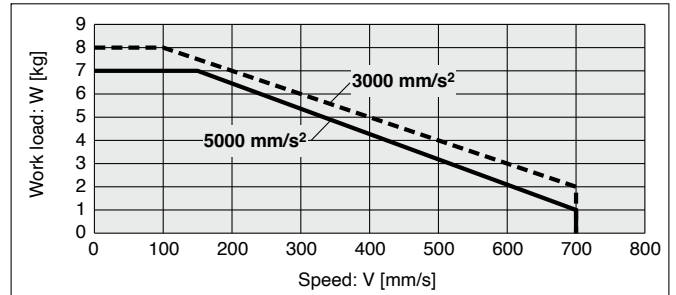


LE2Y25□HA

Horizontal/Lead 12

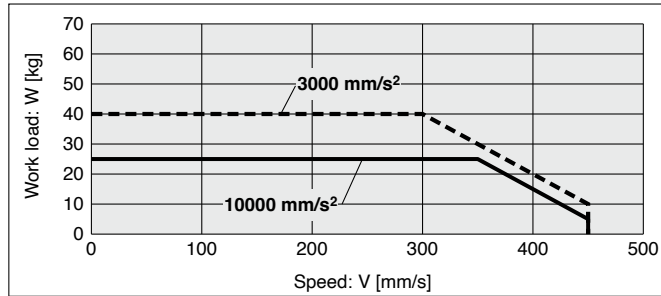


Vertical/Lead 12

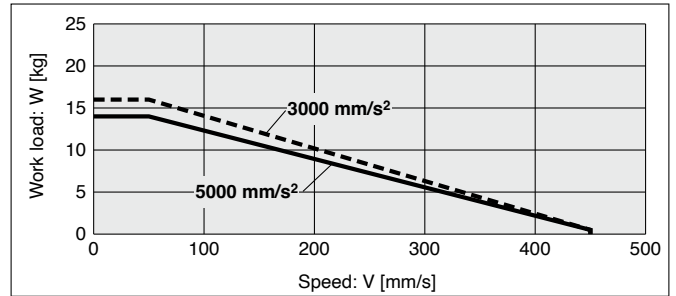


LE2Y25□HB

Horizontal/Lead 6

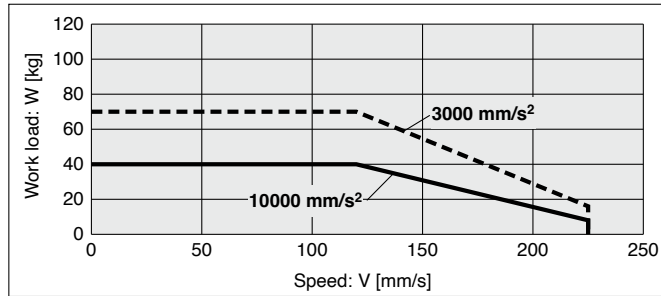


Vertical/Lead 6

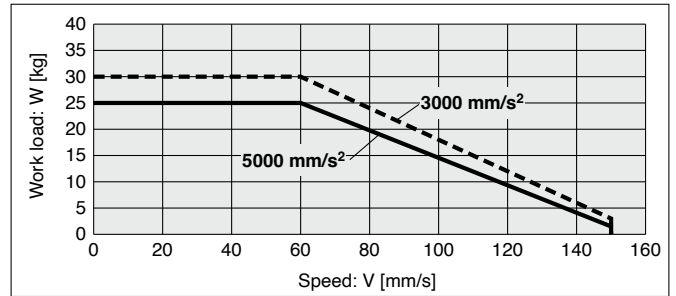


LE2Y25□HC

Horizontal/Lead 3



Vertical/Lead 3



LE2Y□H Series

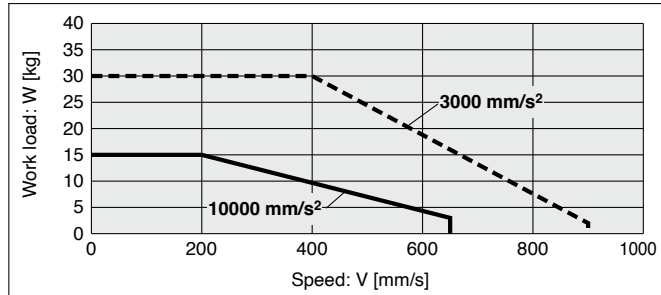
Battery-less Absolute (Step Motor 24 VDC)

Speed-Work Load Graph (Guide)

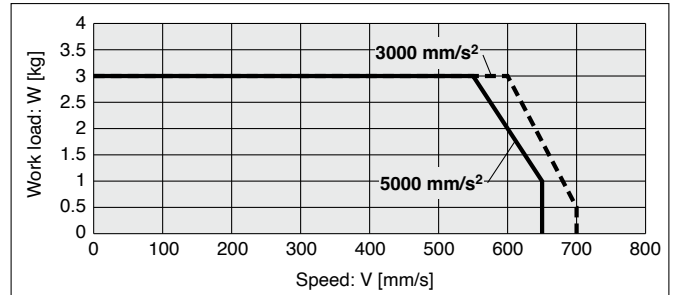
* The following graphs show the values when the external guide is used together.

LE2Y32□HH

Horizontal/Lead 24

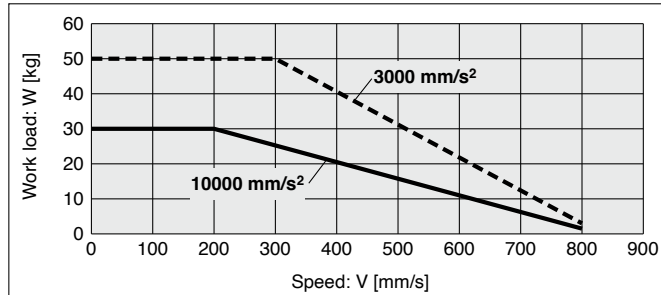


Vertical/Lead 24

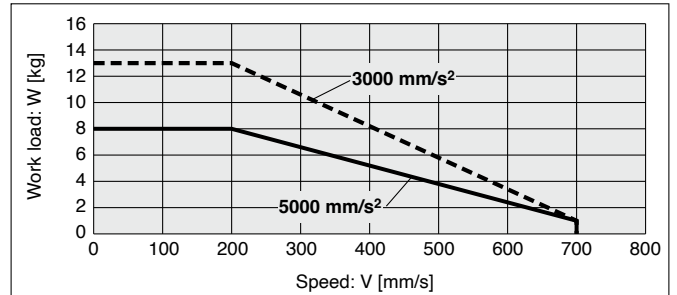


LE2Y32□HA

Horizontal/Lead 16

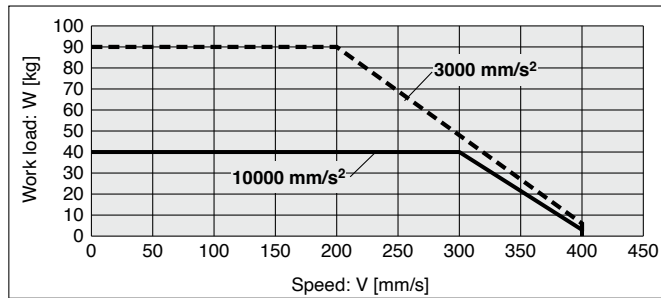


Vertical/Lead 16

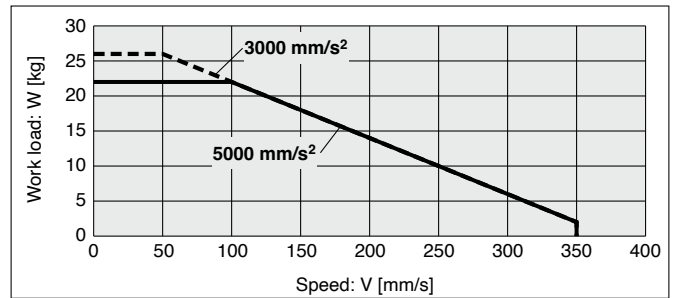


LE2Y32□HB

Horizontal/Lead 8

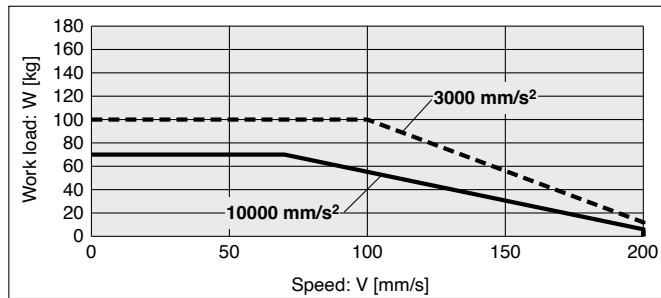


Vertical/Lead 8

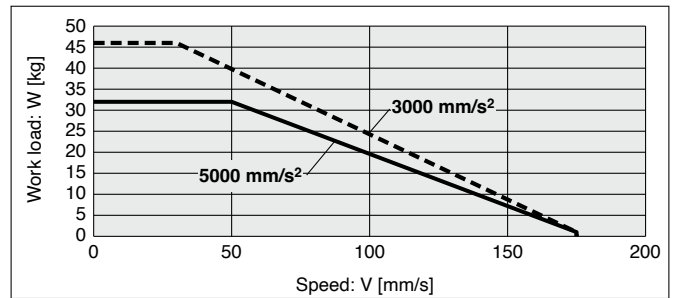


LE2Y32□HC

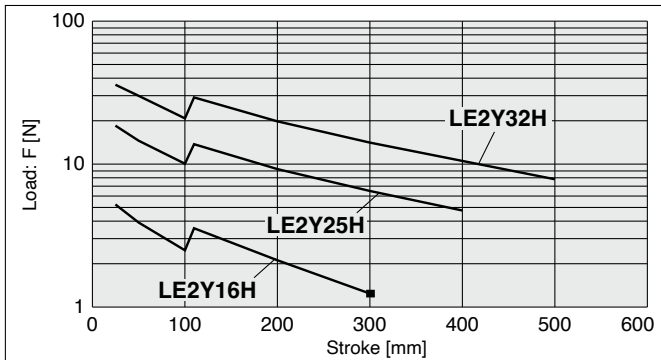
Horizontal/Lead 4



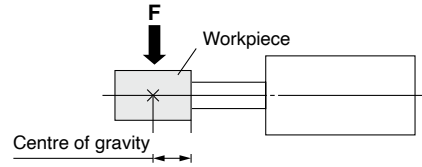
Vertical/Lead 4



Graph of Allowable Lateral Load on the Rod End (Guide)

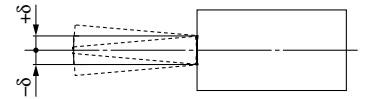


[Stroke] = [Product stroke] + [Distance from the rod end to the centre of gravity of the workpiece]



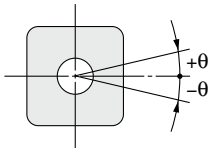
Rod Displacement: δ [mm]

| Stroke | 30 | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 |
|---------|------|------|------|------|------|------|------|------|------|------|------|
| Size 16 | ±0.4 | ±0.5 | ±0.9 | ±0.8 | ±1.1 | ±1.3 | ±1.5 | — | — | — | — |
| Size 25 | ±0.3 | ±0.4 | ±0.7 | ±0.7 | ±0.9 | ±1.1 | ±1.3 | ±1.5 | ±1.7 | — | — |
| Size 32 | ±0.3 | ±0.4 | ±0.7 | ±0.6 | ±0.8 | ±1.0 | ±1.1 | ±1.3 | ±1.5 | ±1.7 | ±1.8 |



* The values without a load are shown.

Non-rotating Accuracy of Rod



| Size | Non-rotating accuracy θ |
|------|--------------------------------|
| 16 | ±1.1° |
| 25 | ±0.8° |
| 32 | ±0.7° |

* Avoid using the electric actuator in such a way that rotational torque would be applied to the piston rod.

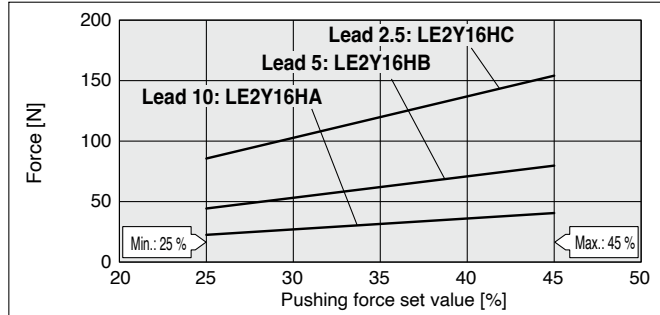
Failure to do so may result in the deformation of the non-rotating guide, abnormal auto switch responses, play in the internal guide, or an increase in the sliding resistance.

LE2Y□H Series

Battery-less Absolute (Step Motor 24 VDC)

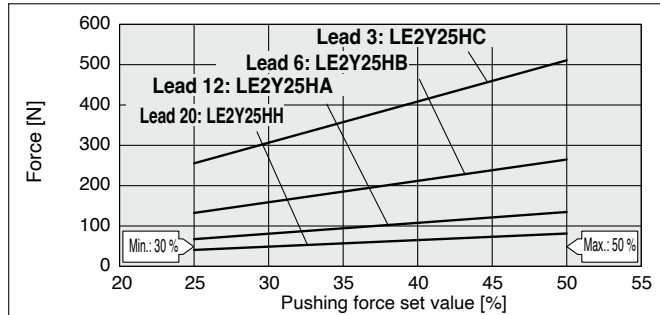
Force Conversion Graph (Guide)

LE2Y16□H



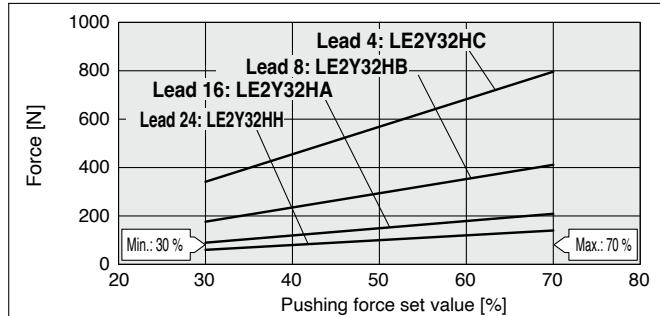
| | | | |
|---------------------|-----------------------------|----------------|-------------------------------|
| Ambient temperature | Pushing force set value [%] | Duty ratio [%] | Continuous pushing time [min] |
| 40 °C or less | 45 or less | 100 | No restriction |

LE2Y25□H



| | | | |
|---------------------|-----------------------------|----------------|-------------------------------|
| Ambient temperature | Pushing force set value [%] | Duty ratio [%] | Continuous pushing time [min] |
| 40 °C or less | 50 or less | 100 | No restriction |

LE2Y32□H



| | | | |
|---------------------|-----------------------------|----------------|-------------------------------|
| Ambient temperature | Pushing force set value [%] | Duty ratio [%] | Continuous pushing time [min] |
| 40 °C or less | 70 or less | 100 | No restriction |

<Limit Values for Pushing Force and Trigger Level in Relation to Pushing Speed>

| Model | Lead | Pushing speed [mm/s] | Pushing force (Setting input value) |
|----------|---------|----------------------|-------------------------------------|
| LE2Y16□H | A/B/C | 1 to 50 | 25 to 45 % |
| LE2Y25□H | H/A/B/C | 1 to 35 | 25 to 50 % |
| LE2Y32□H | H/A/B/C | 1 to 30 | 30 to 70 % |

There is a limit to the pushing force in relation to the pushing speed. If the product is operated outside of the range (low pushing force), the completion signal [INP] may be output before the pushing operation has been completed (during the moving operation).

If operating with the pushing speed below the min. speed, please check for operating problems before using the product.

<Set Values for Vertical Upward Transfer Pushing Operations>

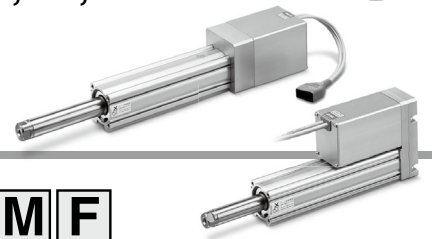
For vertical loads (upward), set the pushing force to the max. value shown below and operate at the work load or less.

| Model | LE2Y16□H | | | LE2Y25□H | | | LE2Y32□H | | | | | |
|----------------|----------|-----|---|----------|-----|---|----------|---|-----|---|----|---|
| | Lead | A | B | C | H | A | B | C | H | A | B | C |
| Work load [kg] | 1 | 1.5 | 3 | 1 | 2.5 | 5 | 10 | 2 | 4.5 | 9 | 18 | |
| Pushing force | 45 % | | | 50 % | | | 70 % | | | | | |

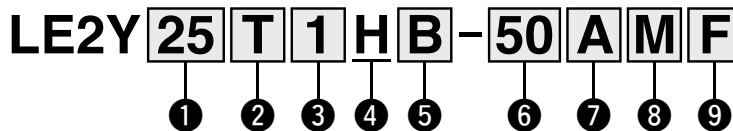
Compatible with Manifold Controller

Rod Type

LE2Y□H Series LE2Y16, 25, 32



How to Order



1 Size

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

2 Motor mounting position

| | |
|---|---------------------|
| T | Top side parallel |
| R | Right side parallel |
| L | Left side parallel |
| D | In-line |

3 Motor cable entry direction

| | |
|---|--------|
| 1 | Axial |
| 2 | Right |
| 3 | Left |
| 4 | Top |
| 5 | Bottom |

4 Motor type

| Symbol | Type | Compatible controller |
|--------|---|-----------------------|
| H | Battery-less absolute (Step motor 24 VDC) | JXD1 |

5 Lead [mm]

| Symbol | LE2Y16 | LE2Y25 | LE2Y32 |
|--------|--------|--------|--------|
| H | — | 20 | 24 |
| A | 10 | 12 | 16 |
| B | 5 | 6 | 8 |
| C | 2.5 | 3 | 4 |

6 Stroke [mm]

| | |
|-----|-----|
| 30 | 30 |
| to | to |
| 500 | 500 |

7 Motor option

| | |
|---|----------------|
| A | Without option |
| B | With lock |

8 Rod end thread

| | |
|---|--|
| F | Rod end female thread |
| M | Rod end male thread (1 rod end nut is included.) |

9 Mounting

| Symbol | Type | Motor mounting position | |
|--------|-----------------------------------|-------------------------|---------|
| | | Parallel | In-line |
| S | Ends tapped Body bottom tapped | ●*1 | ● |
| L | Foot bracket | ● | — |
| F | Rod flange | ●*1, *3 | ● |
| G | Head flange | ●*4 | — |
| D | Double clevis | ●*2 | — |

Applicable Stroke Table

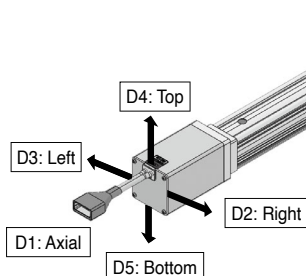
| Size | Stroke [mm] | | | | | | | | | | | Manufacturable stroke range |
|------|-------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------------------|
| | 30 | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | |
| 16 | ● | ● | ● | ● | ● | ● | ● | — | — | — | — | 15 to 300 |
| 25 | ● | ● | ● | ● | ● | ● | ● | ● | ● | — | — | 15 to 400 |
| 32 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | 20 to 500 |

The auto switches should be ordered separately. For details, refer to pages 47 to 50.

- *1 For the horizontal cantilever mounting of the rod flange or ends tapped types, use the actuator within the following stroke range.
- *2 For the mounting of the double clevis type, use the actuator within the following stroke range.
 - LE2Y16: 50 mm or less · LE2Y25: 150 mm or less · LE2Y32: 200 mm or less
- *3 The rod flange type is not available for the LE2Y16 when the stroke is 50 mm or less and the "With lock" motor option is selected. It is also not available for the LE2Y25/32 when the stroke is 30 mm or less and the "With lock" motor option is selected.
- *4 The head flange type is not available for the LE2Y32.
- * The mounting bracket is shipped together with the product but does not come assembled.

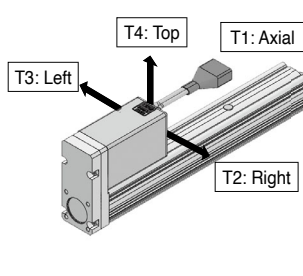
Motor Mounting Position

D: In-line



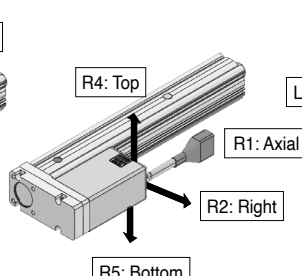
T: Top side parallel

→T5 is not selectable.



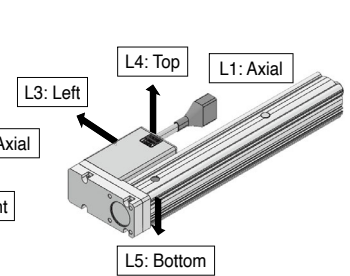
R: Right side parallel

→R3 is not selectable.



L: Left side parallel

→L2 is not selectable.



LE2Y□H Series

Battery-less Absolute (Step Motor 24 VDC)

Specifications

| Model | | LE2Y16□H | | | LE2Y25□H | | | | LE2Y32□H | | | | | |
|----------------------------------|--|--|-------------|-----------|---------------|----------|-----------|------------|---------------|-----------|-----------|------------|------------|----------|
| Actuator specifications | Stroke [mm] | 30 to 300 | | | 30 to 400 | | | | 30 to 500 | | | | | |
| | Work load [kg]*1 | Horizontal | 17 | 25 | 40 | 8 | 26 | 40 | 70 | 30 | 50 | 90 | 100 | |
| | | Vertical | 3 | 6 | 10 | 2 | 8 | 16 | 30 | 3 | 13 | 26 | 46 | |
| | Pushing force [N]*2 *3 *4 | | 23 to 41 | 44 to 80 | 86 to 154 | 41 to 81 | 67 to 135 | 132 to 265 | 255 to 511 | 60 to 140 | 90 to 209 | 176 to 411 | 341 to 796 | |
| | Speed [mm/s] | Stroke range | Up to 300 | 15 to 700 | 8 to 350 | 4 to 175 | 30 to 900 | 18 to 700 | 9 to 450 | 5 to 225 | 30 to 900 | 24 to 800 | 12 to 400 | 6 to 200 |
| | | | 350 to 400 | — | — | — | 30 to 900 | 18 to 600 | 9 to 300 | 5 to 150 | 30 to 900 | 24 to 640 | 12 to 320 | 6 to 160 |
| | | | 450 to 500 | — | — | — | — | — | — | — | 30 to 900 | 24 to 640 | 12 to 320 | 6 to 160 |
| | Max. acceleration/ deceleration [mm/s ²] | Horizontal | 10000 | | | | | | | | | | | |
| | | Vertical | 5000 | | | | | | | | | | | |
| | Pushing speed [mm/s]*5 | | 1 to 50 | | | 1 to 35 | | | | 1 to 30 | | | | |
| | Positioning repeatability [mm] | | ±0.02 | | | | | | | | | | | |
| | Lost motion [mm]*6 | | 0.1 or less | | | | | | | | | | | |
| | Lead [mm] | | 10 | 5 | 2.5 | 20 | 12 | 6 | 3 | 24 | 16 | 8 | 4 | |
| | Impact/Vibration resistance [m/s ²]*7 | | 50/20 | | | | | | | | | | | |
| Actuation type | | Ball screw + Belt (LE2Y□ (T/L/R), /Ball screw (LE2Y□D□H) | | | | | | | | | | | | |
| Guide type | | Sliding bushing (Piston rod) | | | | | | | | | | | | |
| Operating temperature range [°C] | | 5 to 40 | | | | | | | | | | | | |
| Operating humidity range [%RH] | | 90 or less (No condensation) | | | | | | | | | | | | |
| Electric specifications | Motor size | □28 | | | □42 | | | | □56.4 | | | | | |
| | Motor type | Battery-less absolute (Step motor 24 VDC) | | | | | | | | | | | | |
| | Encoder | Battery-less absolute | | | | | | | | | | | | |
| | Power supply voltage [V] | 24 VDC ±10 % | | | | | | | | | | | | |
| Lock unit specifications | Power [W]*8 *9 | Max. power 74 | | | Max. power 71 | | | | Max. power 93 | | | | | |
| | Type*10 | Non-magnetizing lock | | | | | | | | | | | | |
| | Holding force [N] | 29 | 59 | 118 | 47 | 78 | 157 | 294 | 75 | 108 | 216 | 421 | | |
| | Power [W]*9 | 4 | | | 8 | | | | 8 | | | | | |
| Power supply voltage [V] | | 24 VDC ±10 % | | | | | | | | | | | | |

*1 Horizontal: Please use an external guide (friction coefficient: 0.1 or less). The work load shows the maximum value. The actual work load and transfer speed change according to the condition of the external guide.

For the speed, acceleration, and duty ratio according to the work load, check the "Speed-Work Load Graph" in the catalogue.

Vertical: If the rod orientation is vertical or radial load is applied to the rod, please use an external guide (friction coefficient: 0.1 or less). The work load represents the maximum value. The actual work load and transfer speed change according to the condition of the external guide.

For the speed, acceleration, and duty ratio according to the work load, check the "Speed-Work Load Graph" in the catalogue.

The values shown in () are the max. acceleration/deceleration.

Set the acceleration/deceleration speed to 10000 [mm/s²] or less for the horizontal direction and 5000 [mm/s²] or less for the vertical direction.

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

*3 The pushing force set values for LE2Y16□H are 25 % to 45 %, for LE2Y25□H are 25 % to 50 %, and for LE2Y32□H are 30 % to 70 %.

The pushing force values change according to the duty ratio and pushing speed. Check the "Force Conversion Graph" in the catalogue.

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

*5 The allowable speed for pushing operation. When push conveying a workpiece, operate at the vertical work load or less.

*6 A reference value for correcting errors in reciprocal operation

*7 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.)

*8 Indicates the max. power during operation (excluding the controller). This value can be used for the selection of the power supply.

*9 For an actuator with lock, add the power for the lock.

*10 With lock only

Weight

Top/Right/Left Side Parallel Motor

| Series | LE2Y16 | | | | | | |
|---------------------|--------|------|------|------|------|------|------|
| Stroke [mm] | 30 | 50 | 100 | 150 | 200 | 250 | 300 |
| Product weight [kg] | 0.75 | 0.79 | 0.90 | 1.04 | 1.15 | 1.26 | 1.37 |

| Series | LE2Y25 | | | | | | | | | | LE2Y32 | | | | | | | | | |
|---------------------|--------|------|------|------|------|------|------|------|------|------|--------|------|------|------|------|------|------|------|------|------|
| Stroke [mm] | 30 | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 30 | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 |
| Product weight [kg] | 1.74 | 1.81 | 1.98 | 2.24 | 2.42 | 2.59 | 2.77 | 2.94 | 3.12 | 2.74 | 2.85 | 3.14 | 3.42 | 3.82 | 4.11 | 4.39 | 4.68 | 4.97 | 5.25 | 5.54 |

In-line Motor

| Series | LE2Y16D | | | | | | |
|---------------------|---------|------|------|------|------|------|------|
| Stroke [mm] | 30 | 50 | 100 | 150 | 200 | 250 | 300 |
| Product weight [kg] | 0.72 | 0.76 | 0.87 | 1.01 | 1.12 | 1.23 | 1.34 |

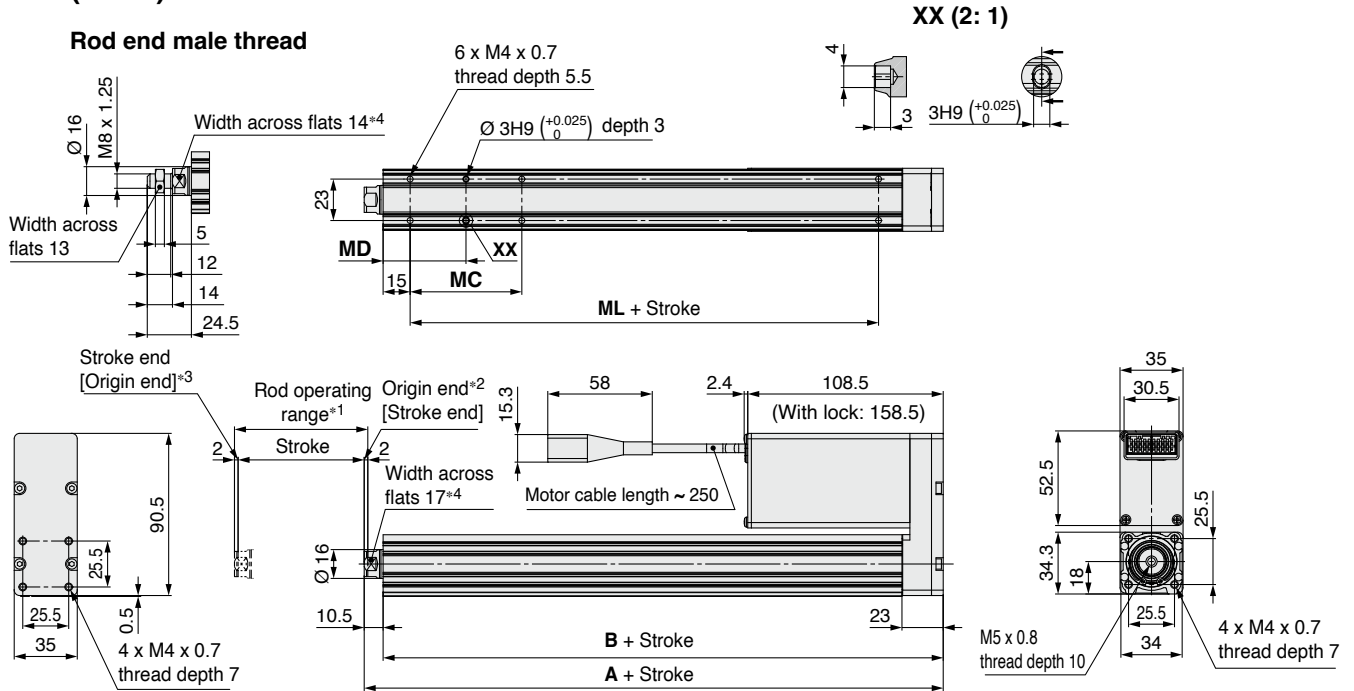
| Series | LE2Y25D | | | | | | | | | | LE2Y32D | | | | | | | | | |
|---------------------|---------|------|------|------|------|------|------|------|------|------|---------|------|------|------|------|------|------|------|------|------|
| Stroke [mm] | 30 | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 30 | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 |
| Product weight [kg] | 1.60 | 1.67 | 1.84 | 2.10 | 2.28 | 2.45 | 2.63 | 2.80 | 2.98 | 2.55 | 2.66 | 2.95 | 3.23 | 3.63 | 3.92 | 4.20 | 4.49 | 4.78 | 5.06 | 5.35 |

Additional Weight

| Size | 25 | 32 |
|--|-------------|------|
| Lock/Motor cover | 0.33 | 0.65 |
| Rod end male thread | Male thread | 0.03 |
| | Nut | 0.02 |
| Foot bracket (2 sets including mounting bolt) | 0.08 | 0.14 |
| Rod flange (including mounting bolt) | 0.17 | 0.20 |
| Head flange (including mounting bolt) | | |
| Double clevis (including pin, retaining ring, and mounting bolt) | 0.16 | 0.22 |

Dimensions: Top Side Parallel Motor

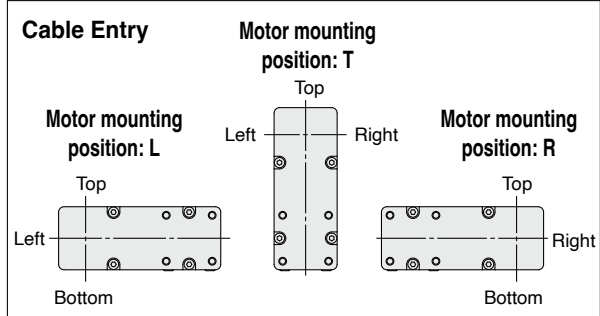
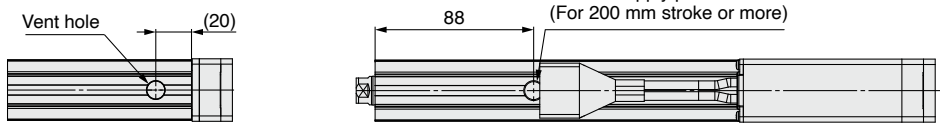
LE2Y16(T/R/L)H



<Rod operating range>

- *1 The range of movement of the rod according to the movement instructions.
Make sure that workpieces mounted on the rod do not interfere with other workpieces or the facilities around the rod.
- *2 Indicates the factory default origin position (0 mm)
- *3 [] refers to when the rotation direction reference is changed.

Vent hole location

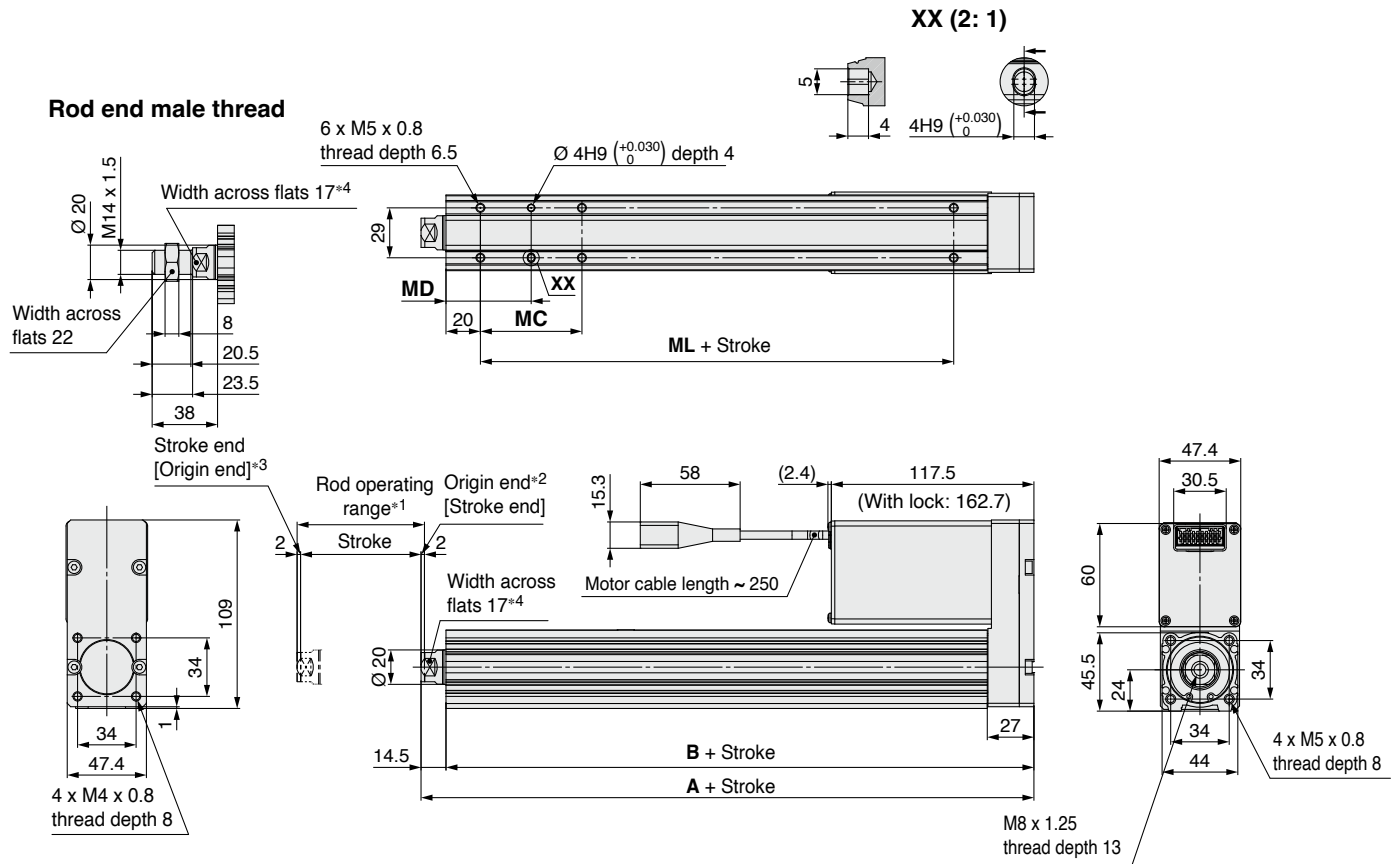


- *4 The direction of the rod end width across flats is different for each single unit, so it is not always the same as the direction in the drawing.
- * For details on the mounting bracket dimensions, refer to the catalogue.
- * This illustration shows the motor mounting position for the top side parallel type. Refer to the catalogue for detailed dimensions of the right/left side parallel type.
- * The axial cable entry direction is shown.

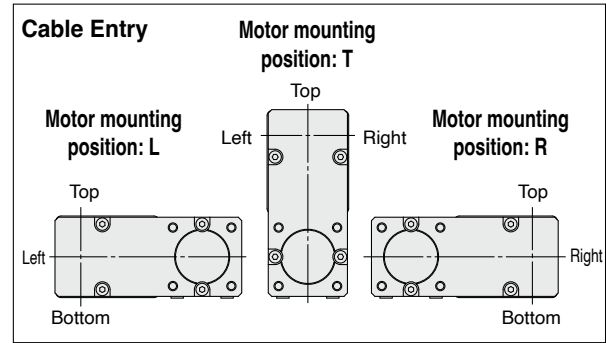
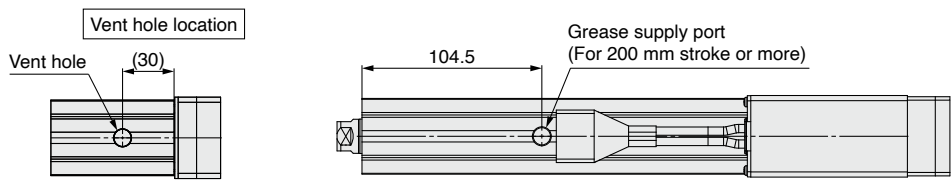
| Dimensions [mm] | | | | | |
|--------------------|-------|-----|----|------|----|
| Stroke | A | B | MC | MD | ML |
| 30 | 101.5 | 91 | 17 | 23.5 | 40 |
| 50, 100 | | | 32 | 31 | |
| 150, 200, 250, 300 | 121.4 | 111 | 62 | 46 | 60 |

Dimensions: Top Side Parallel Motor

LE2Y25(T/R/L)H



<Rod operating range>
 *1 The range of movement of the rod according to the movement instructions.
 Make sure that workpieces mounted on the rod do not interfere with other workpieces or the facilities around the rod.
 *2 Indicates the factory default origin position (0 mm)
 *3 [] refers to when the rotation direction reference is changed.



*4 The direction of the rod end width across flats is different for each single unit, so it is not always the same as the direction in the drawing.
 * For details on the mounting bracket dimensions, refer to the catalogue.
 * This illustration shows the motor mounting position for the top side parallel type. Refer to the catalogue for detailed dimensions of the right/left side parallel type.
 * The axial cable entry direction is shown.

Dimensions [mm]

| Stroke | A | B | MC | MD | ML |
|--------------------|-----|-------|----|------|----|
| 30 | 131 | 116.5 | 24 | 32 | 50 |
| 50, 100 | | | 42 | 41 | |
| 150, 200 | 156 | 141.5 | 59 | 49.5 | 75 |
| 250, 300, 350, 400 | | | 76 | 58 | |

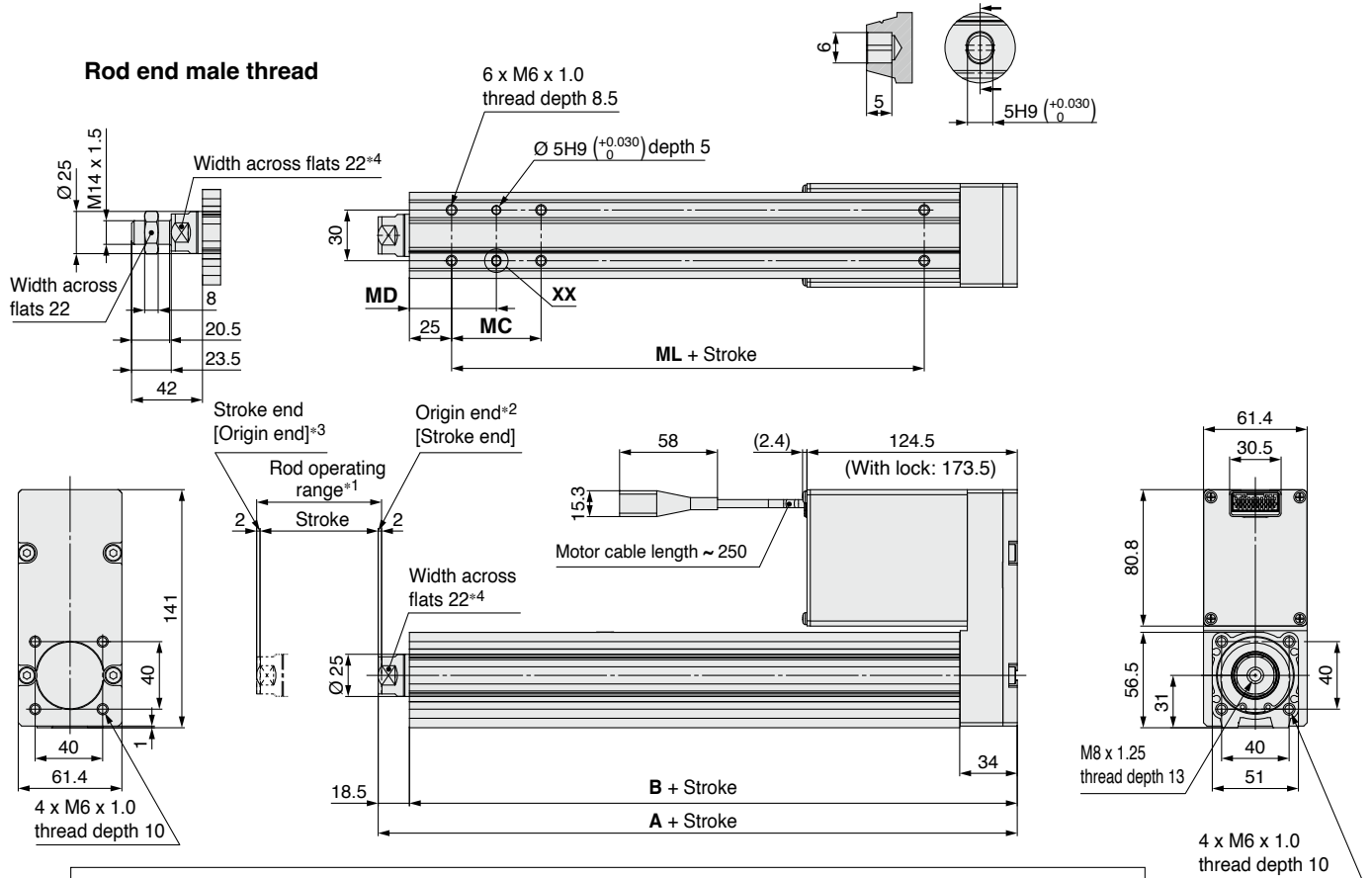
LE2Y□H Series

Battery-less Absolute (Step Motor 24 VDC)

Dimensions: Top Side Parallel Motor

LE2Y32(T/R/L)H

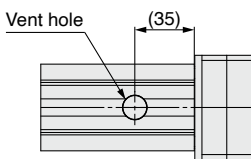
XX (2: 1)



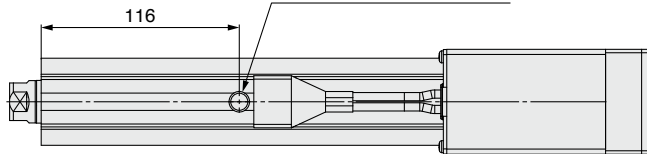
<Rod operating range>

- *1 The range of movement of the rod according to the movement instructions.
Make sure that workpieces mounted on the rod do not interfere with other workpieces or the facilities around the rod.
- *2 Indicates the factory default origin position (0 mm)
- *3 [] refers to when the rotation direction reference is changed.

Vent hole location



Grease supply port
(For 200 mm stroke or more)

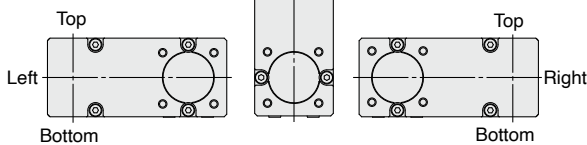


Cable Entry

Motor mounting position: T

Motor mounting position: L

Motor mounting position: R



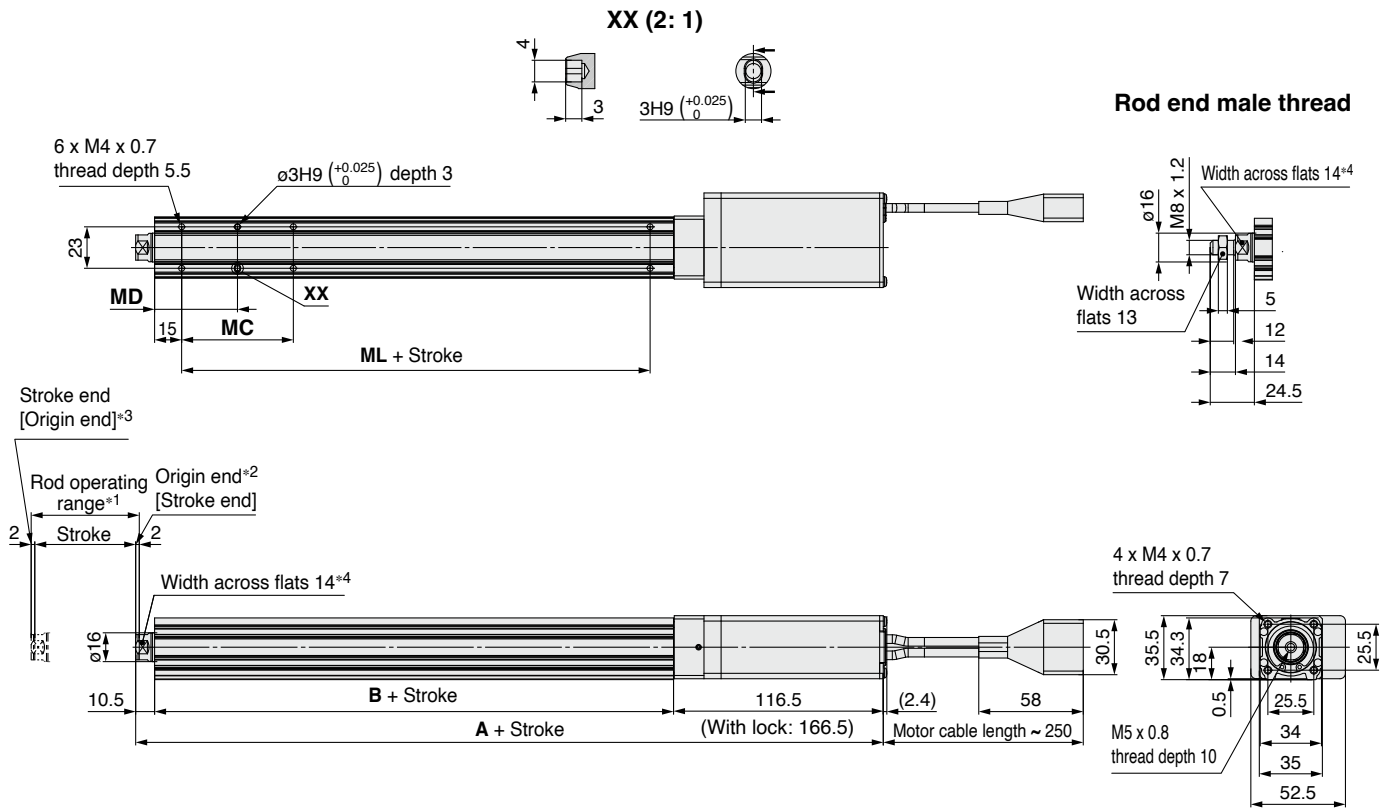
- *4 The direction of the rod end width across flats is different for each single unit, so it is not always the same as the direction in the drawing.
- * For details on the mounting bracket dimensions, refer to the catalogue.
- * This illustration shows the motor mounting position for the top side parallel type. Refer to the catalogue for detailed dimensions of the right/left side parallel type.
- * The axial cable entry direction is shown.

Dimensions

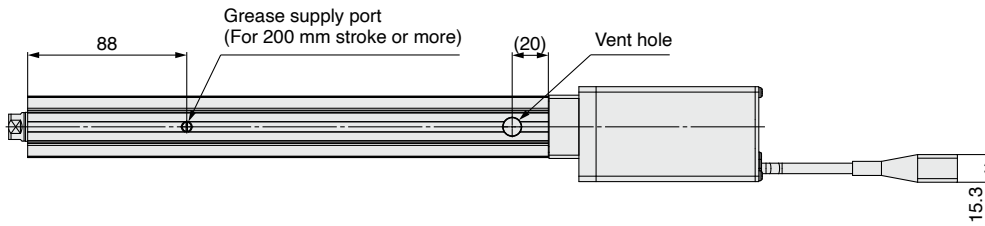
| | [mm] | | | | |
|--------------------|-------|-----|----|------|----|
| Stroke | A | B | MC | MD | ML |
| 30 | 148.5 | 130 | 22 | 36 | 50 |
| 50, 100 | | | 36 | 43 | |
| 150, 200 | 178.5 | 160 | 53 | 51.5 | 80 |
| 250, 300, 350, 400 | | | 70 | 60 | |

Dimensions: In-line Motor

LE2Y16DH



<Rod operating range>
 *1 The range of movement of the rod according to the movement instructions.
 Make sure that workpieces mounted on the rod do not interfere with other workpieces or the facilities around the rod.
 *2 Indicates the factory default origin position (0 mm)
 *3 [] refers to when the rotation direction reference is changed.



*4 The direction of the rod end width across flats is different for each single unit, so it is not always the same as the direction in the drawing.
 * For details on the mounting bracket dimensions, refer to the catalogue.
 * The axial cable entry direction is shown.

Dimensions [mm]

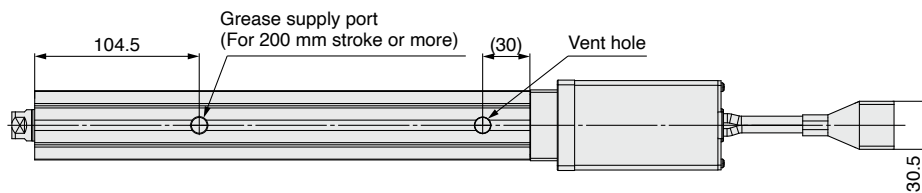
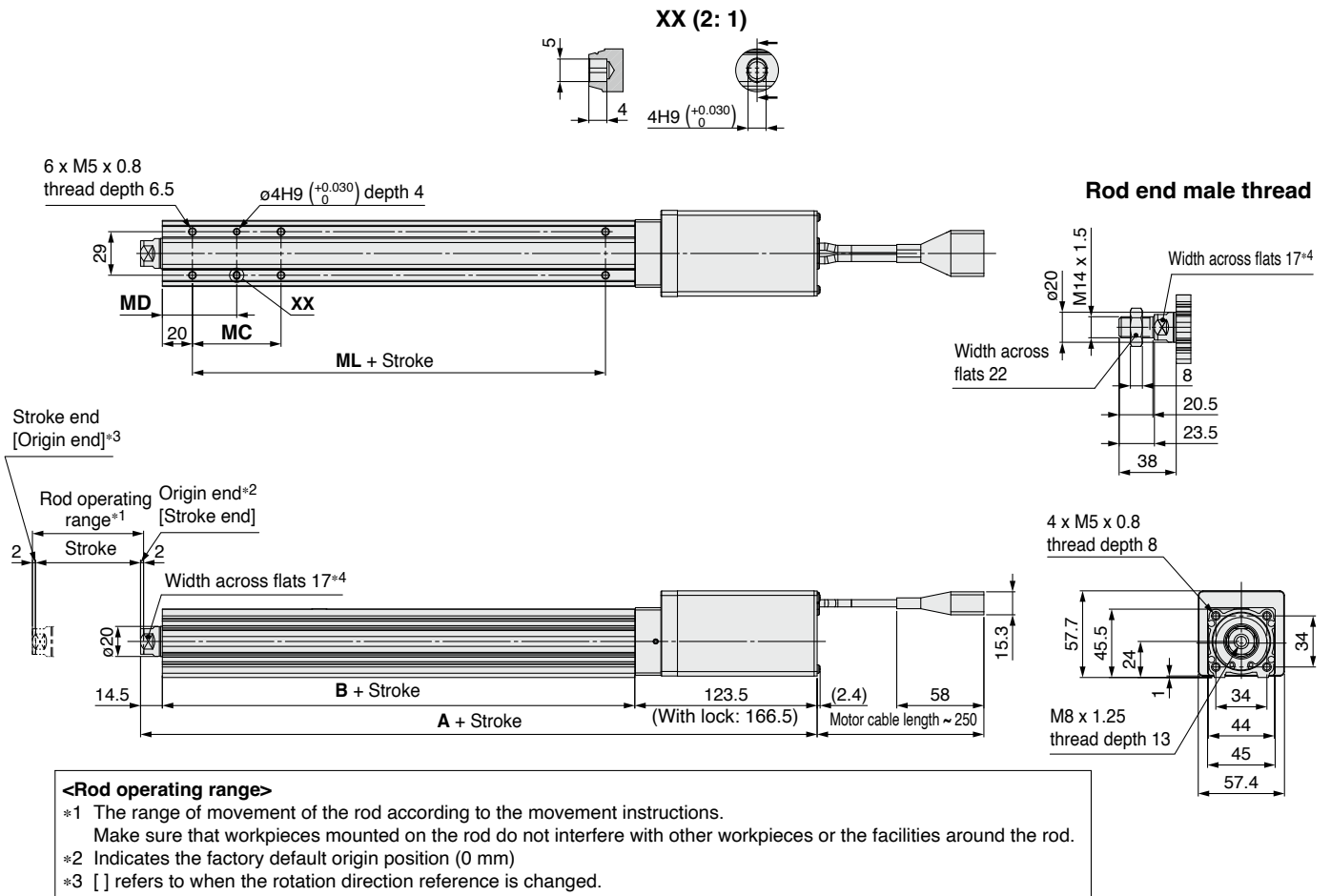
| Stroke | A | | B | MC | MD | ML |
|--------------------|--------------|-----------|----|----|------|----|
| | Without lock | With lock | | | | |
| 30 | 195 | 245 | 68 | 17 | 23.5 | 40 |
| 50, 100 | | | | 32 | 31 | |
| 150, 200, 250, 300 | 215 | 265 | 88 | 62 | 46 | 60 |

LE2Y□H Series

Battery-less Absolute (Step Motor 24 VDC)

Dimensions: In-line Motor

LE2Y25DH



- *4 The direction of the rod end width across flats is different for each single unit, so it is not always the same as the direction in the drawing.
- * For details on the mounting bracket dimensions, refer to the catalogue.
- * The axial cable entry direction is shown.

Dimensions

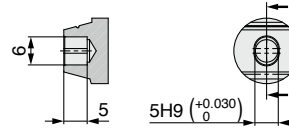
[mm]

| Stroke | A | | B | MC | MD | ML |
|--------------------|--------------|-----------|-------|----|------|----|
| | Without lock | With lock | | | | |
| 30 | 225.5 | 270.5 | 89.5 | 24 | 32 | 50 |
| 50, 100 | | | | | | |
| 150, 200 | 250.5 | 295.5 | 114.5 | 59 | 49.5 | 75 |
| 250, 300, 350, 400 | | | | | | |

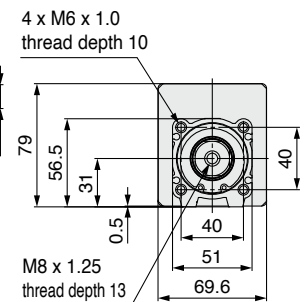
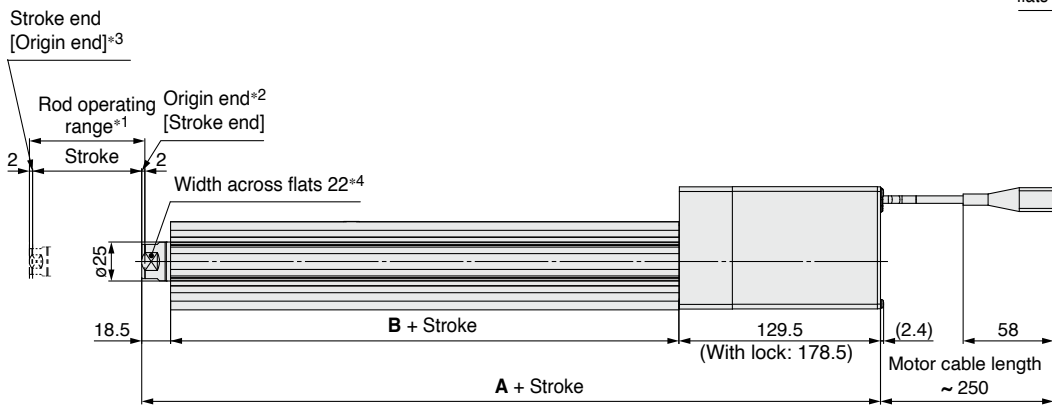
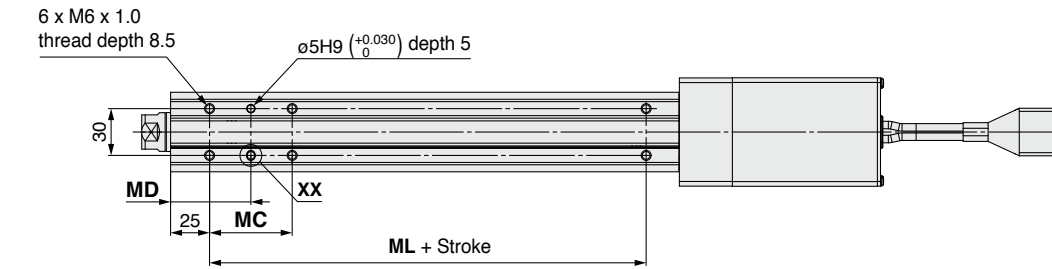
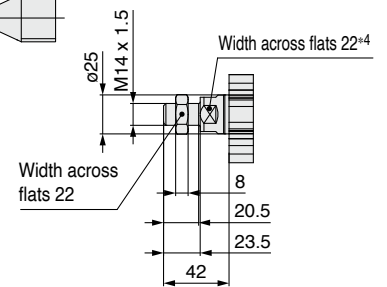
Dimensions: In-line Motor

LE2Y32DH

XX (2: 1)

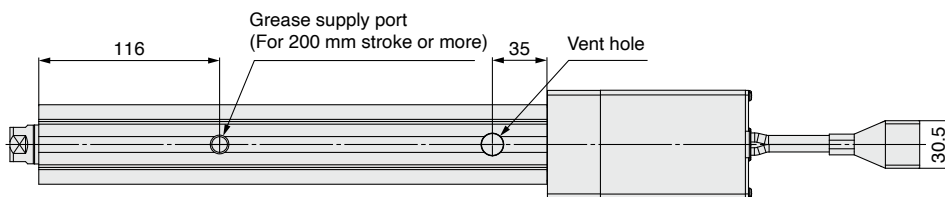


Rod end male thread



<Rod operating range>

- *1 The range of movement of the rod according to the movement instructions.
Make sure that workpieces mounted on the rod do not interfere with other workpieces or the facilities around the rod.
- *2 Indicates the factory default origin position (0 mm)
- *3 [] refers to when the rotation direction reference is changed.



- *4 The direction of the rod end width across flats is different for each single unit, so it is not always the same as the direction in the drawing.
- * For details on the mounting bracket dimensions, refer to the catalogue.
- * The axial cable entry direction is shown.

Dimensions

[mm]

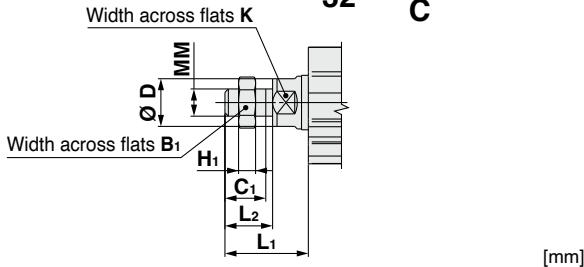
| Stroke | A | | B | MC | MD | ML |
|--------------------|--------------|-----------|-----|----|------|----|
| | Without lock | With lock | | | | |
| 30 | 244 | 293 | 96 | 22 | 36 | 50 |
| 50, 100 | | | | 36 | 43 | |
| 150, 200 | 274 | 323 | 126 | 53 | 51.5 | 80 |
| 250, 300, 350, 400 | | | | 70 | 60 | |

LE2Y□H Series

Battery-less Absolute (Step Motor 24 VDC)

Dimensions

End male thread: LE2Y25□H□A□□M□
 16 H
 32 A
 B
 C

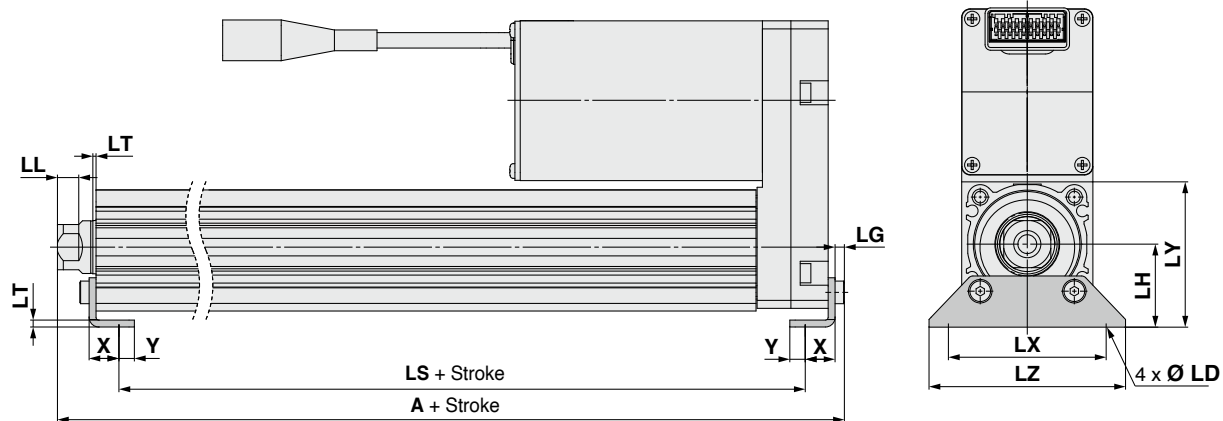


| Size | B ₁ | C ₁ | Ø D | H ₁ | K | L ₁ | L ₂ | MM |
|------|----------------|----------------|-----|----------------|----|----------------|----------------|-----------|
| 16 | 13 | 12 | 16 | 5 | 14 | 24.5 | 14 | M8 x 1.25 |
| 25 | 22 | 20.5 | 20 | 8 | 17 | 38 | 23.5 | M14 x 1.5 |
| 32 | 22 | 20.5 | 25 | 8 | 22 | 42 | 23.5 | M14 x 1.5 |

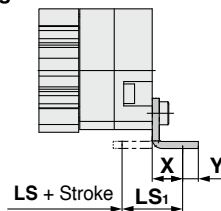
* The L₁ measurement is when the unit is in the original position. At this position, 2 mm at the end.

- * Refer to the **Web Catalogue** for details on the rod end nut and mounting bracket.
- * Refer to the specific product precautions ("Handling") in the **Web Catalogue** when mounting end brackets such as knuckle joint or workpieces.

Foot bracket: LE2Y25□H□A□□□L
 16 H
 32 A
 B
 C



Outward mounting



Included parts
 · Foot bracket
 · Body mounting bolt

Foot Bracket

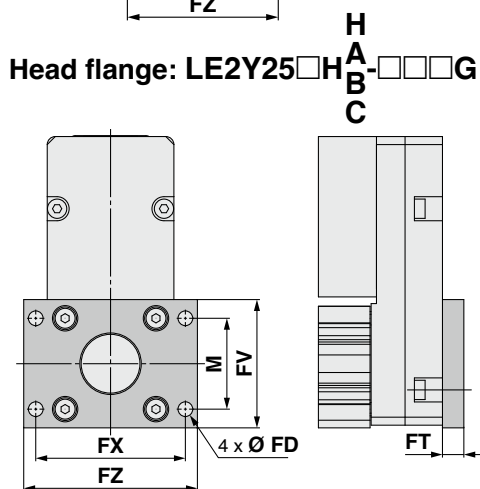
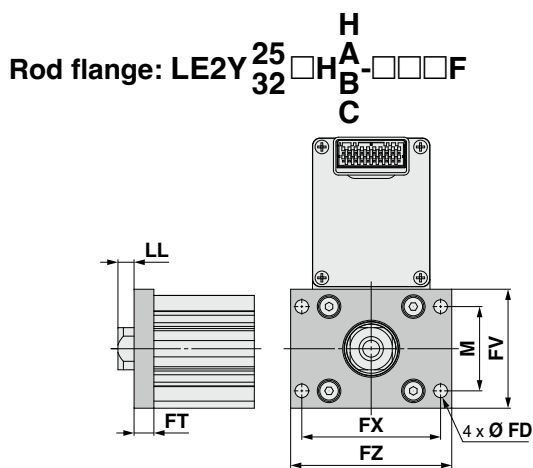
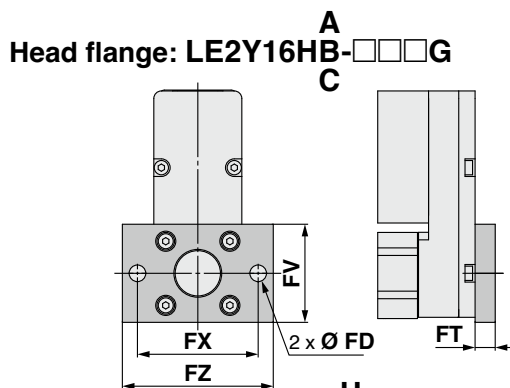
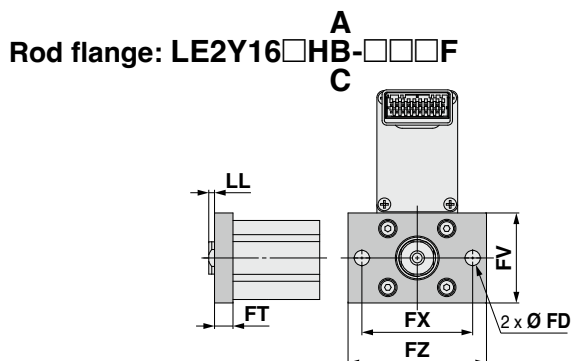
| Size | Stroke range [mm] | A | LS | LS ₁ | LL | LD | LG | LH | LT | LX | LY | LZ | X | Y |
|------|-------------------|-------|-------|-----------------|------|-----|-----|----|-----|----|------|----|------|-----|
| 16 | 30 to 100 | 106.1 | 76.7 | 16.1 | 5.4 | 6.6 | 2.8 | 24 | 2.3 | 48 | 40.3 | 62 | 9.2 | 5.8 |
| | 101 to 300 | 126.1 | 96.7 | | | | | | | | | | | |
| 25 | 30 to 100 | 136.6 | 98.8 | 19.8 | 8.4 | 6.6 | 3.5 | 30 | 2.6 | 57 | 51.5 | 71 | 11.2 | 5.8 |
| | 101 to 400 | 161.6 | 123.8 | | | | | | | | | | | |
| 32 | 30 to 100 | 155.7 | 114 | 19.2 | 11.3 | 6.6 | 4 | 36 | 3.2 | 76 | 61.5 | 90 | 11.2 | 7 |
| | 101 to 500 | 185.7 | 144 | | | | | | | | | | | |

Material: Carbon steel (Chromating)

* The A measurement is when the unit is in the original position. At this position, 2 mm at the end.

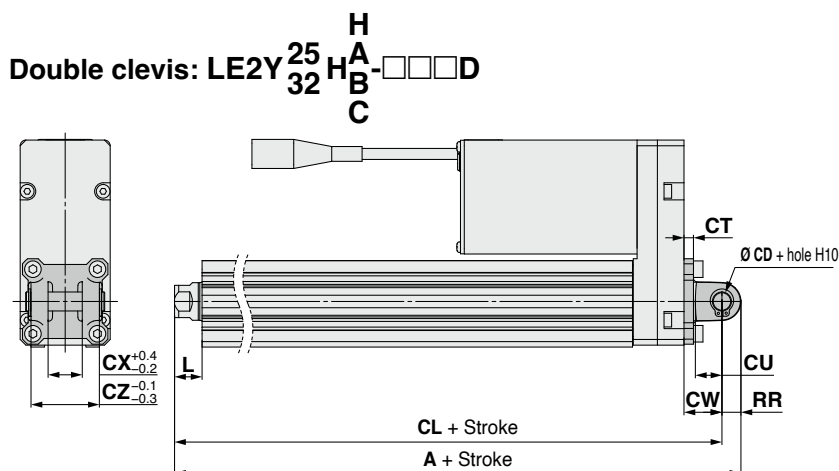
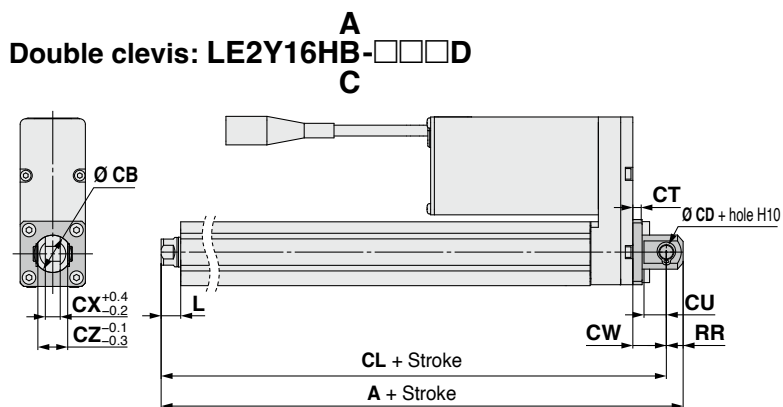
* When the motor mounting is the right or left side parallel type, the head side foot bracket should be mounted outward.

Dimensions



* The head flange type is not available for the LE2Y32.

- Included parts
 · Flange
 · Body mounting bolt



Rod/Head Flange [mm]

| Size | FD | FT | FV | FX | FZ | LL | M |
|------|-----|----|----|----|----|------|----|
| 16 | 6.6 | 8 | 39 | 48 | 60 | 2.5 | — |
| 25 | 5.5 | 8 | 48 | 56 | 65 | 6.5 | 34 |
| 32 | 5.5 | 8 | 54 | 62 | 72 | 10.5 | 40 |

Material: Carbon steel (Nickel plating)

- Included parts
 · Double clevis
 · Clevis pin
 · Body mounting bolt
 · Retaining ring

* Refer to the **Web Catalogue** for details on the rod end nut and mounting bracket.

Double Clevis [mm]

| Size | Stroke range [mm] | A | CL | CB | CD | CT |
|------|-------------------|-------|-------|----|----|----|
| 16 | 30 to 100 | 128 | 119 | 20 | 8 | 5 |
| | 101 to 200 | 160.5 | 150.5 | — | 10 | 5 |
| 25 | 30 to 100 | 185.5 | 175.5 | — | 10 | 6 |
| | 101 to 200 | 210.5 | 200.5 | — | 10 | 6 |

| Size | Stroke range [mm] | CU | CW | CX | CZ | L | RR |
|------|-------------------|----|----|----|----|------|----|
| 16 | 30 to 100 | 12 | 18 | 8 | 16 | 10.5 | 9 |
| | 101 to 200 | 14 | 20 | 18 | 36 | 14.5 | 10 |
| 25 | 30 to 100 | 14 | 22 | 18 | 36 | 18.5 | 10 |
| | 101 to 200 | 14 | 22 | 18 | 36 | 18.5 | 10 |

Material: Cast iron (Coating)

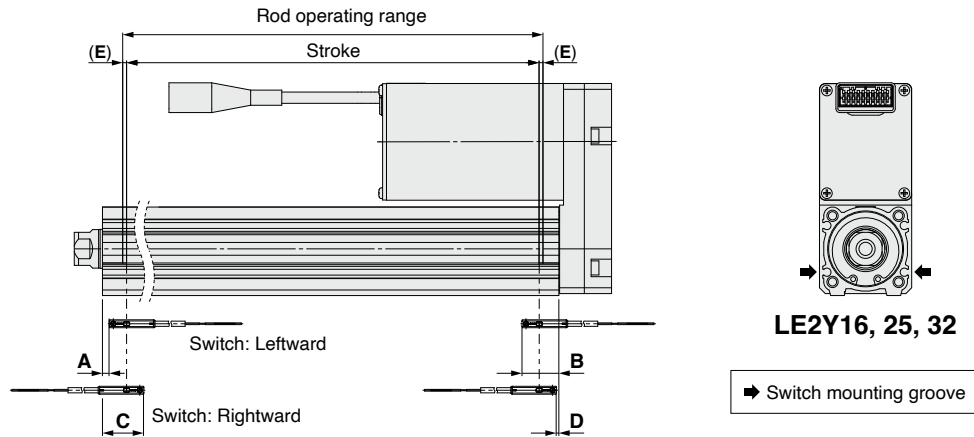
* The A and CL measurements are when the unit is in the original position. At this position, 2 mm at the end.

For the models and dimensions of the mounting bracket and simple joint bracket, refer to the **Web Catalogue** for the LEY series.

LE2Y□H Series Auto Switch Mounting

Auto Switch Proper Mounting Position

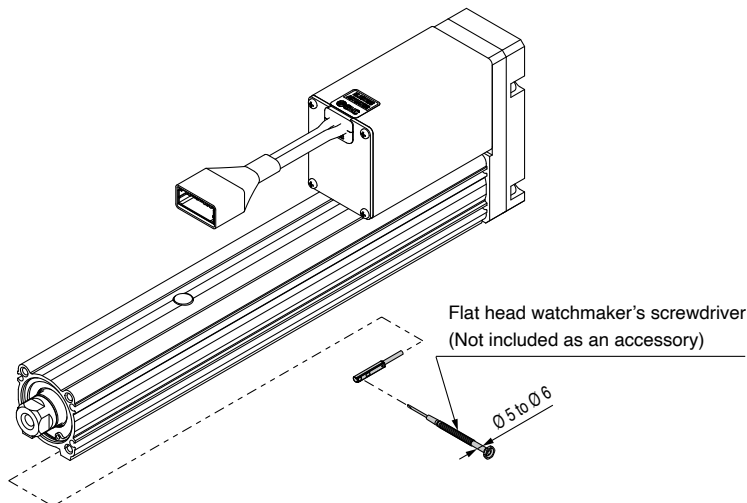
Applicable auto switch: D-M9□(V), D-M9□E(V), D-M9□W(V), D-M9□A(V)



| Size | Stroke range | Auto switch position | | | | Return to origin distance | Operating range |
|------|--------------|----------------------|------|--------------------|------|---------------------------|-----------------|
| | | Leftward mounting | | Rightward mounting | | | |
| | | A | B | C | D | | |
| 16 | 30 to 100 | 21.5 | 46.5 | 33.5 | 34.5 | (2) | 2.9 |
| | 105 to 300 | 41.5 | | 53.5 | | | |
| 25 | 30 to 100 | 27 | 62.5 | 39 | 50.5 | (2) | 4.2 |
| | 105 to 400 | 52 | | 64 | | | |
| 32 | 30 to 100 | 30.5 | 65.5 | 42.5 | 53.5 | (2) | 4.9 |
| | 105 to 500 | 60.5 | | 72.5 | | | |

- * The values in the table above are to be used as a reference when mounting auto switches for stroke end detection. Adjust the auto switch after confirming the operating conditions in the actual setting.
- * An auto switch cannot be mounted on the same side as a motor.
- * For LEYG series models (with a guide), an auto switch cannot be mounted on the guide attachment side (rod side).
- * Since the operating range is provided as a guideline including hysteresis, it cannot be guaranteed (assuming approx. $\pm 30\%$ dispersion). It may change substantially depending on the ambient environment.

Auto Switch Mounting



Tightening Torque for Auto Switch Mounting Screw [N·m]

| Auto switch model | Tightening torque |
|------------------------------------|-------------------|
| D-M9□(V) D-M9□E(V) D-M9□W(V) | 0.05 to 0.15 |
| D-M9□A(V) | 0.05 to 0.10 |

- * When tightening the auto switch mounting screw (included with the auto switch), use a watchmaker's screwdriver with a handle diameter of 5 to 6 mm.

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



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

Auto Switch Specifications

PLC: Programmable Logic Controller

| D-M9□, D-M9□V (With indicator light) | | | | | | |
|--------------------------------------|---|---------------|---------|---------------|-----------------------|---------------|
| Auto switch model | D-M9N | D-M9NV | D-M9P | D-M9PV | D-M9B | D-M9BV |
| 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 μ A or less at 24 VDC | | | | 0.8 mA or less | |
| Indicator light | Red LED illuminates when turned ON. | | | | | |
| Standards | CE/UKCA marking | | | | | |

Grommet

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



Oilproof Flexible Heavy-duty Lead Wire Specifications

| Auto switch model | D-M9N(V) | D-M9P(V) | D-M9B(V) |
|--|--|----------|----------------------|
| Sheath | Outside diameter [mm] \varnothing 2.6 | | |
| Insulator | Number of cores | | 2 cores (Brown/Blue) |
| | Outside diameter [mm] \varnothing 0.88 | | |
| Conductor | Effective area [mm ²] 0.15 | | |
| | Strand diameter [mm] \varnothing 0.05 | | |
| Min. bending radius [mm] (Reference values) 17 | | | |

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.

- * Refer to the **Web Catalogue** for solid state auto switch common specifications.
- * Refer to the **Web Catalogue** for lead wire lengths.

Weight

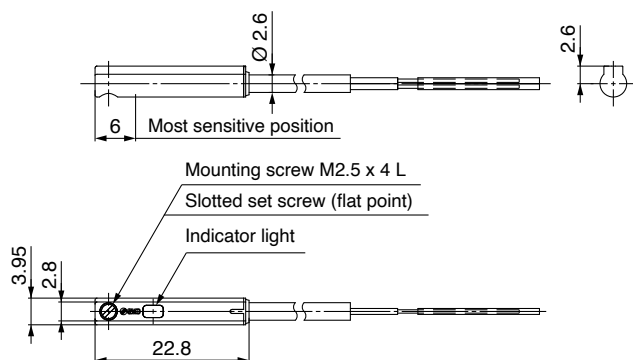
[g]

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

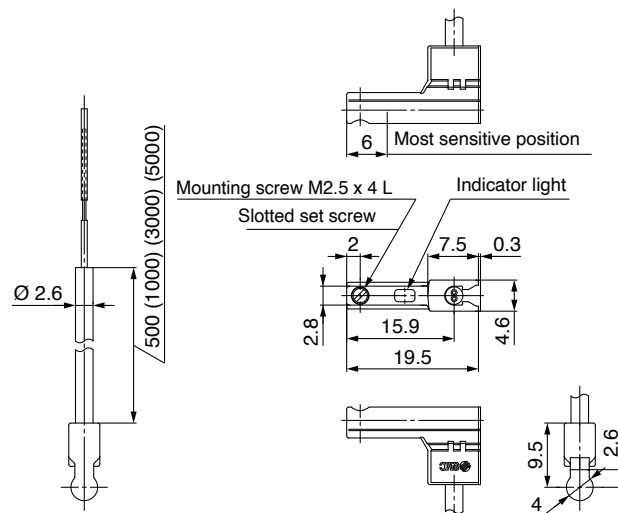
Dimensions

[mm]

D-M9□



D-M9□V



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.

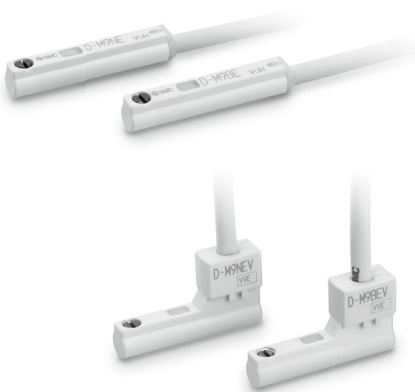
Auto Switch Specifications

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 μ A or less at 24 VDC | | | | 0.8 mA or less | |
| Indicator light | Red LED illuminates when turned ON. | | | | | |
| Standards | CE/UKCA marking | | | | | |

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)



Oilproof Flexible Heavy-duty Lead Wire Specifications

| Auto switch model | D-M9NE(V) | D-M9PE(V) | D-M9BE(V) |
|--|--|-----------|----------------------|
| Sheath | Outside diameter [mm] \varnothing 2.6 | | |
| Insulator | Number of cores | | 2 cores (Brown/Blue) |
| | Outside diameter [mm] \varnothing 0.88 | | |
| Conductor | Effective area [mm ²] 0.15 | | |
| | Strand diameter [mm] \varnothing 0.05 | | |
| Min. bending radius [mm] (Reference values) 17 | | | |

- * Refer to the **Web Catalogue** for solid state auto switch common specifications.
- * Refer to the **Web Catalogue** for lead wire lengths.

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.

Weight

[g]

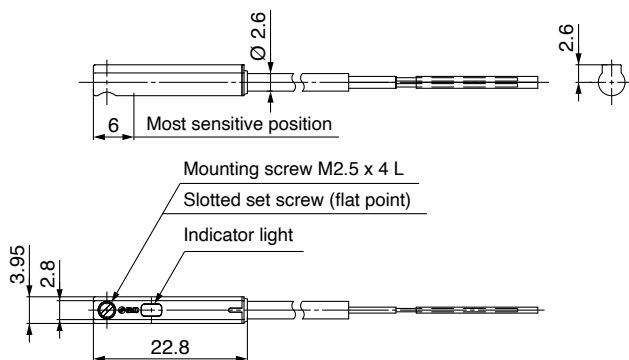
| Auto switch model | D-M9NE(V) | D-M9PE(V) | D-M9BE(V) |
|-------------------|-----------|-----------|-----------|
| Lead wire length | 0.5 m (—) | 8 | 7 |
| | 1 m (M)*1 | 14 | 13 |
| | 3 m (L) | 41 | 38 |
| | 5 m (Z)*1 | 68 | 63 |

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

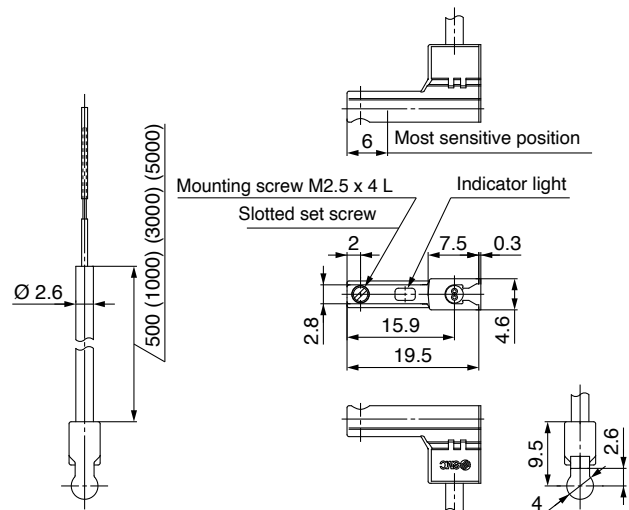
Dimensions

[mm]

D-M9□E



D-M9□EV



2-Colour Indicator Solid State Auto Switch Direct Mounting Type D-M9NW(V)/D-M9PW(V)/D-M9BW(V)



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

Auto Switch Specifications

PLC: Programmable Logic Controller

| D-M9□W, D-M9□WV (With indicator light) | | | | | | |
|--|---|---------------|---------|---------------|-----------------------|---------------|
| Auto switch model | D-M9NW | D-M9NWV | D-M9PW | D-M9PWV | D-M9BW | D-M9BWV |
| 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 □A or less at 24 VDC | | | | 0.8 mA or less | |
| Indicator light | Operating range Red LED illuminates. Proper operating range Green LED illuminates. | | | | | |
| Standards | CE/UKCA marking | | | | | |

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 colour 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.

Oilproof Flexible Heavy-duty Lead Wire Specifications

| Auto switch model | | D-M9NW(V) | D-M9PW(V) | D-M9BW(V) |
|---|-----------------------------------|----------------------------|-----------|----------------------|
| Sheath | Outside diameter [mm] | Ø 2.6 | | |
| Insulator | Number of cores | 3 cores (Brown/Blue/Black) | | 2 cores (Brown/Blue) |
| | Outside diameter [mm] | Ø 0.88 | | |
| Conductor | Effective area [mm ²] | 0.15 | | |
| | Strand diameter [mm] | Ø 0.05 | | |
| Min. bending radius [mm] (Reference values) | | 17 | | |

- * Refer to the **Web Catalogue** for solid state auto switch common specifications.
- * Refer to the **Web Catalogue** for lead wire lengths.

Weight

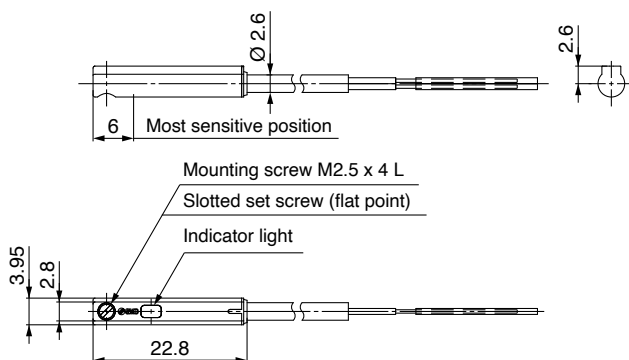
[g]

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

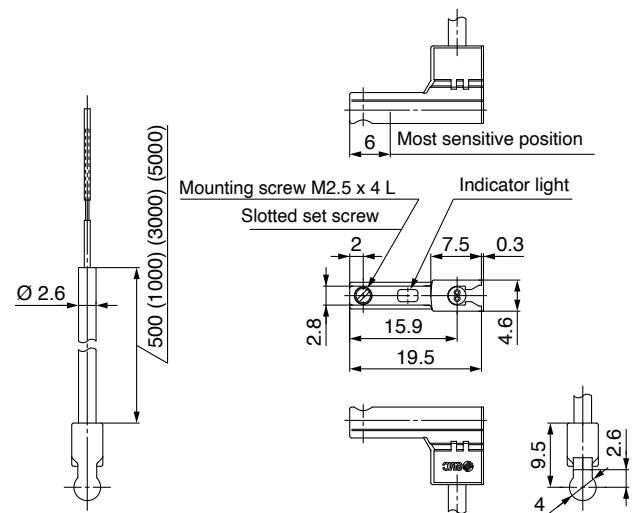
Dimensions

[mm]

D-M9□W



D-M9□WV



Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of “Caution,” “Warning” or “Danger.” They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)¹⁾, and other safety regulations.

Danger:

Danger indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

Warning:

Warning indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

Caution:

Caution indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

- 1) ISO 4414: Pneumatic fluid power – General rules and safety requirements for systems and their components.
ISO 4413: Hydraulic fluid power – General rules and safety requirements for systems and their components.
IEC 60204-1: Safety of machinery – Electrical equipment of machines. (Part 1: General requirements)
ISO 10218-1: Robots and robotic devices - Safety requirements for industrial robots - Part 1: Robots.
etc.

Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalogue information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.

1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Our products cannot be used beyond their specifications. Our products are not developed, designed, and manufactured to be used under the following conditions or environments. Use under such conditions or environments is not covered.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Use for nuclear power, railways, aviation, space equipment, ships, vehicles, military application, equipment affecting human life, body, and property, fuel equipment, entertainment equipment, emergency shut-off circuits, press clutches, brake circuits, safety equipment, etc., and use for applications that do not conform to standard specifications such as catalogues and operation manuals.
3. Use for interlock circuits, except for use with double interlock such as installing a mechanical protection function in case of failure. Please periodically inspect the product to confirm that the product is operating properly.

Caution

We develop, design, and manufacture our products to be used for automatic control equipment, and provide them for peaceful use in manufacturing industries. Use in non-manufacturing industries is not covered.

Products we manufacture and sell cannot be used for the purpose of transactions or certification specified in the Measurement Act.

The new Measurement Act prohibits use of any unit other than SI units in Japan.

Limited warranty and Disclaimer/Compliance Requirements

The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”. Read and accept them before using the product.

Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.²⁾ Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided. This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalogue for the particular products.
- 2) Vacuum pads are excluded from this 1 year warranty.
A vacuum pad is a consumable part, so it is warranted for a year after it is delivered. Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

Safety Instructions

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

SMC Corporation (Europe)

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