Electric Actuators

LEY Series

Rod Type/Guide Rod Type

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

Rod Type *LEY Series*

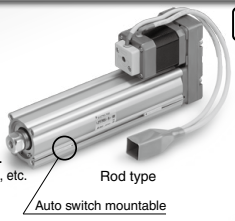
Size: 16, 25, 32, 40 ▶Page 222

Long stroke:

Max. 500 mm (LEY32, 40)

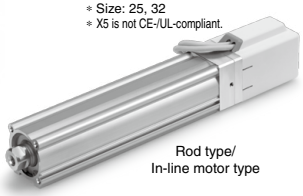
Mounting variations

- Direct mounting: 3 directions, Bracket mounting: 3 types
- Either positioning or pushing control can be selected.
  Possible to hold the actuator with the rod pushing to a workpiece, etc.



Dust-tight/Water-jet-proof (IP65 Equivalent): **-X5** ▶Page 228

∗ Size: 25, 32
∗ X5 is not CE-/UL-compliant.



Guide Rod Type *LEYG Series*

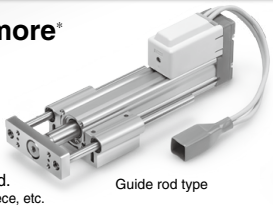
Size: 16, 25, 32, 40 ▶Page 272

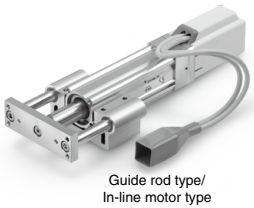
Lateral end load: 5 times more∗

∗ Compared with rod type, size 25 and 100 mm stroke

Compatible with sliding bearing and ball bushing bearing.
Compatible with moment load and stopper (sliding bearing).

- Either positioning or pushing control can be selected.
  Possible to hold the actuator with the rod pushing to a workpiece, etc.





AC Servo Motor **Type**

∗ Not applicable to UL.

▶Page 232

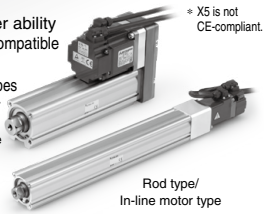
Rod Type *LEY Series*

Size: 25, 32, 63

- High output motor (100/200/400 W)
- Improved high speed transfer ability
- High acceleration/deceleration compatible (5000 mm/s²)
- Pulse input/CC-Link/SSCNET Ⅲ types
- With internal absolute encoder (For LECSB/C/S)

Dust-tight/Water-jet-proof (IP65 Equivalent): **-X5**

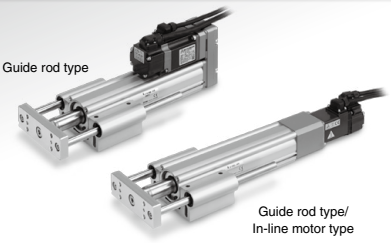
∗ X5 is not CE-compliant.



▶Page 280

Guide Rod Type *LEYG Series*

Size: 25, 32



Step Motor (Servo/24 VDC) **Servo Motor** (24 VDC) **Controller/ Driver**

▶Page 547

- ▶**Step data input type**
  LECP6/LECA6 Series (64 points positioning)
- ▶**CC-Link direct input type**
  LECPMJ Series∗
- ▶**Programless type**
  LECP1 Series (14 points positioning)
- ▶**Pulse input type**
  LECPA Series

∗ Not applicable to CE.

AC Servo Motor **Driver**

▶Pages 607, 629, 659

∗ Not applicable to UL.

▶**For absolute encoder**

- **Pulse input type**
  LECSB Series
- **CC-Link direct input type**
  LECSC Series
- **SSCNET Ⅲ type**
  LECSS Series
- **SSCNET Ⅲ/H type**
  LECSS-T Series
- **MECHATROLINK type**
  LECY□ Series

▶**For incremental encoder**

- **Pulse input type/ Positioning type**
  LECSA Series

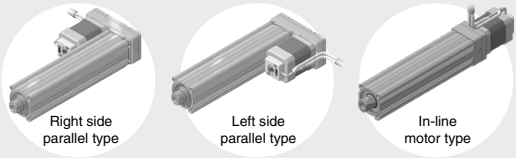
Step Motor (Servo/24 VDC) **Servo Motor** (24 VDC) **Type**

Rod Type ***LEY Series*** **/Size: 16, 25, 32, 40**

Control of intermediate positioning and pushing is possible. High precision with ball screws (Positioning repeatability: ±0.02 mm)

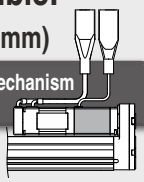
Motor mounting position selectable

Top mounting type is the standard product.



Non-magnetizing lock mechanism (Option)

Prevents a workpiece from dropping. (Holding)



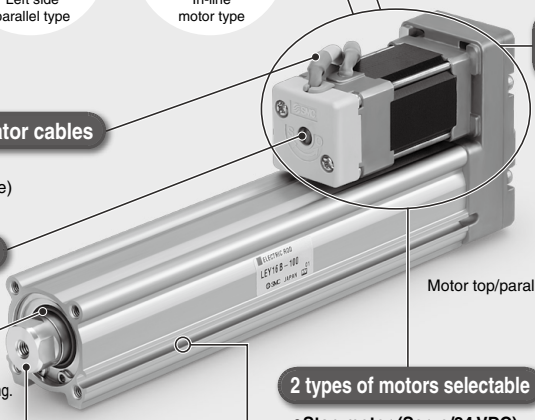
Motor cover available (Option)

Offering 2 types of actuator cables

- Standard cable
- Robotic cable (Flexible cable)

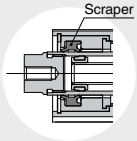
Manual override screw

For manual piston rod operation
Adjustment operation possible when power OFF



Scraper

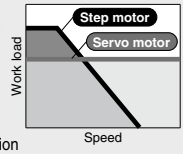
Prevents foreign matter from entering.



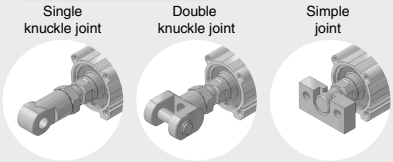
Pages 250, 251

2 types of motors selectable

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



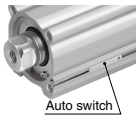
Rod end brackets



Groove for auto switch

For checking the limit and intermediate signal
Applicable to the D-M9□ and D-M9□W (2-color indicator)

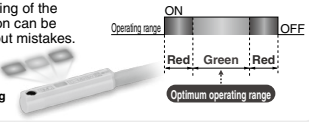
∗ The auto switches should be ordered separately. Refer to pages 252 and 253 for details.



2-color indicator solid state auto switch

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

A green light lights up at the optimum operating range.

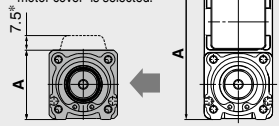


In-line motor type

Height dimension shortened by up to 49%

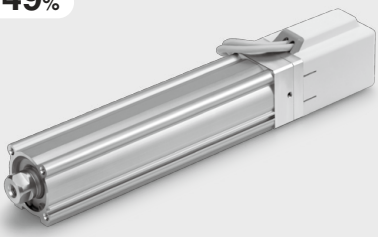
For LEY16D

∗ When "Motor option/With motor cover" is selected.



A Dimension [mm]

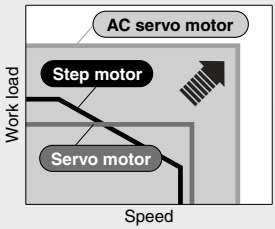
Size	In-line motor	Motor top mounting
16	35.5	67.5
25	46.5	92
32, 40	61	118



AC Servo Motor **Type**

Rod Type *LEY Series*/Size: 25, 32, 63

- High output motor (100/200/400 W)
- Improved high speed transfer ability
- High acceleration/deceleration compatible (5000 mm/s²)
- Pulse input/CC-Link direct input/SSCNET Ⅲ types
- With internal absolute encoder
  ∗ Incremental encoder can also be selected.
- Positioning repeatability ±0.01 mm (High precision type)



Rod type

Rod type/In-line motor type

Large bore size 63

Motor mounting position can be selected from 4 directions!

Top mounting

Right side parallel

Left side parallel

In-line

●Max. work load (kg)

	Top/Parallel	In-line
Horizontal	200	80
Vertical	115	72

●Max. force (N)

Top/Parallel	3343
In-line	1910

●High output motor: 400 w

●Max. speed: 1000 mm/s

∗ 500 mm stroke

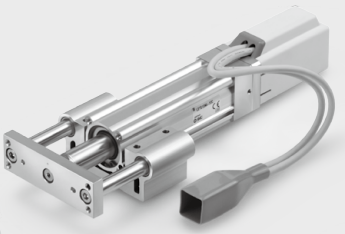
●Dust-tight/Water-jet-proof (IP65 equivalent)

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

Guide Rod Type ***LEYG Series*/Size: 16, 25, 32, 40**

Compact integrated guide rods

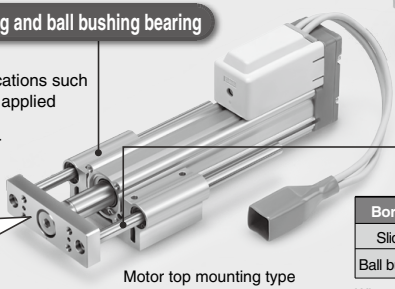
Lateral load resistance and high non-rotating accuracy



In-line motor type

Compatible with sliding bearing and ball bushing bearing

- **Sliding bearing**
  Suitable for lateral load applications such as a stopper where impact is applied
- **Ball bushing bearing**
  Smooth operation suitable for pusher and lifter



Motor top mounting type

Improved rigidity

Lateral end load: 5 times more*

* Compared with rod type, size 25 and 100 mm stroke

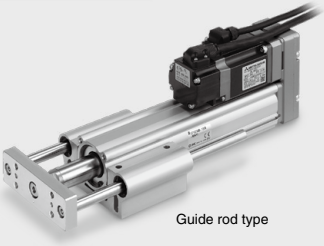
Non-rotating accuracy improved by using two guide rods

Bore size [mm]	16	25	32	40
Sliding bearing	±0.06°		±0.05°	
Ball bushing bearing	±0.05°	±0.04°		

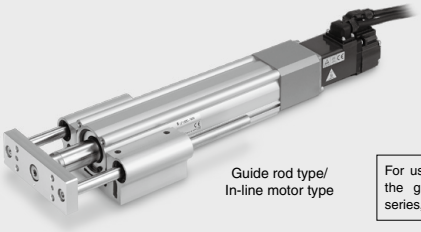
When the cylinder is retracted (initial value), the non-rotating accuracy without a load or deflection of the guide rods will be below the values shown in the table.

AC Servo Motor Type

Guide Rod Type ***LEYG Series*/Size: 25, 32**



Guide rod type

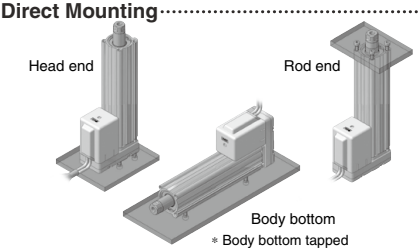


Guide rod type/
In-line motor type

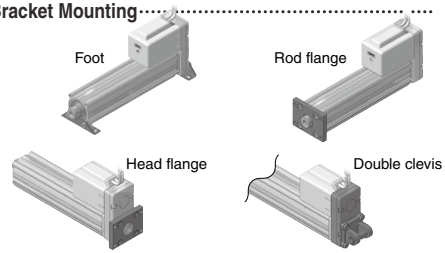
For use of auto switches for the guide rod type LEYG series, refer to page 305.

Mounting Variations

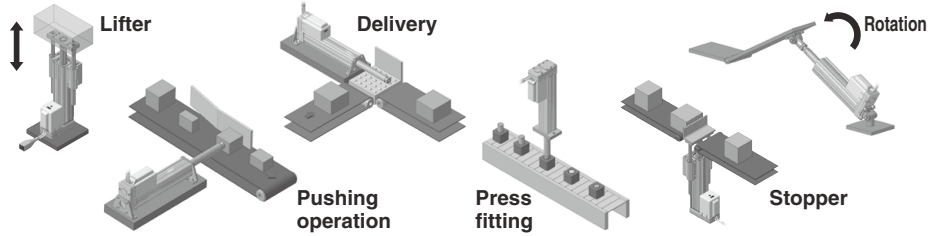
Direct Mounting



Bracket Mounting



Application Examples



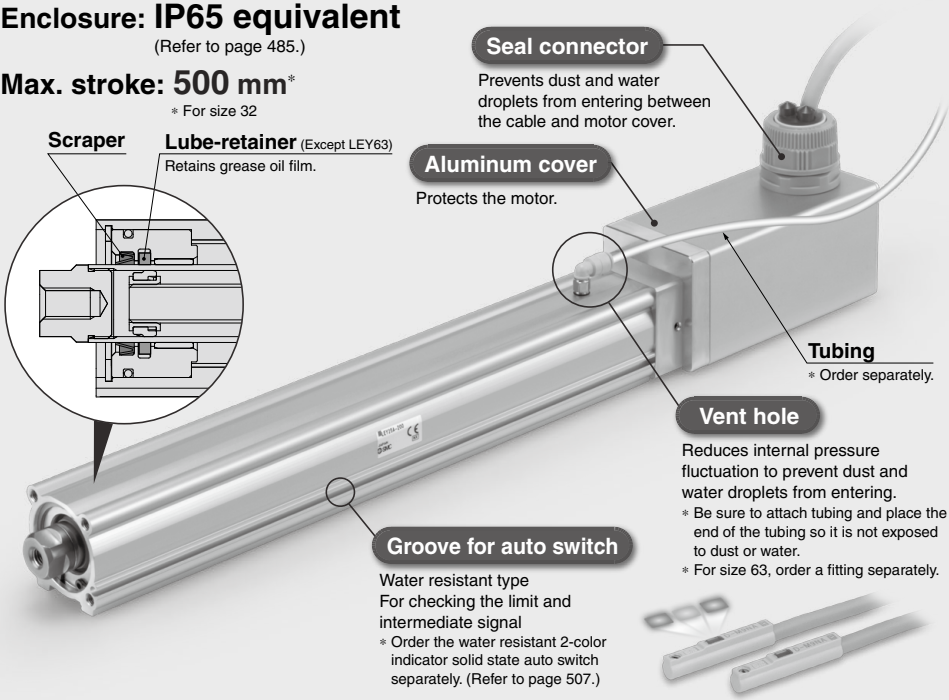
Dust-tight/Water-jet-proof (IP65 Equivalent)

●Enclosure: IP65 equivalent

(Refer to page 485.)

●Max. stroke: 500 mm*

* For size 32

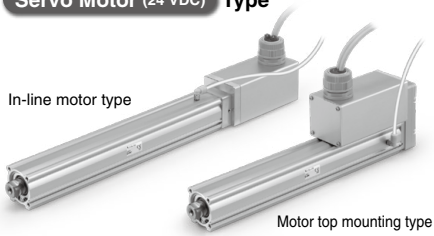


LEY-X5 (Refer to page 228.)

Size: 25, 32

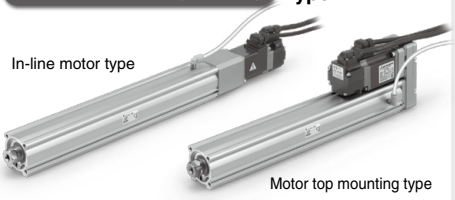
Step Motor (Servo/24 VDC) Type

Servo Motor (24 VDC) Type



LEY-X5 (Refer to page 232.)

AC Servo Motor (100/200 W) Type

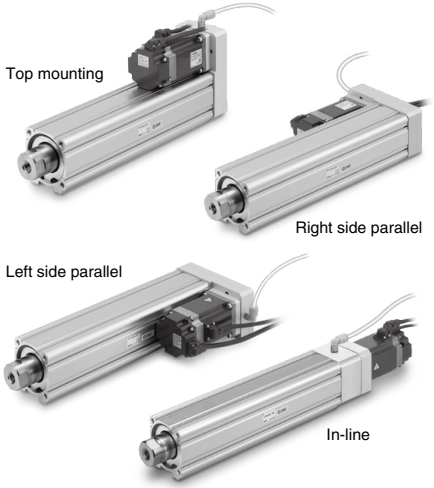


LEY63□□□-□P

(Refer to page 232./Option)

Size: 63

AC Servo Motor (400 W) Type



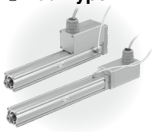
INDEX

Electric Actuator/Rod Type *LEY Series*

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

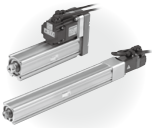
◎Rod Type *LEY Series*

◎Rod Type *LEY-X5* Dust-tight/Water-jet-proof (IP65 Equivalent)



AC Servo Motor

◎Rod Type *LEY Series* Size 25, 32



◎Rod Type *LEY Series* Size 63

Dust-tight/Water-jet-proof (IP65 Equivalent)

∗ Select options

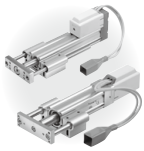
◎Rod Type *LEY-X5* (Made to Order)

Dust-tight/Water-jet-proof (IP65 Equivalent)

Electric Actuator/Guide Rod Type *LEYG Series*

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

◎Guide Rod Type *LEYG Series*



AC Servo Motor

◎Guide Rod Type *LEYG Series*

◎Step Motor (Servo/24 VDC)/ Servo Motor (24 VDC) Controller

◎AC Servo Motor Driver

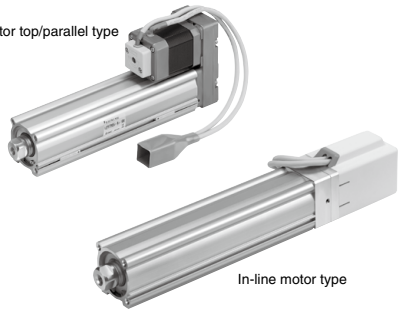
SMC

Rod Type

LEY Series

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

Motor top/parallel type

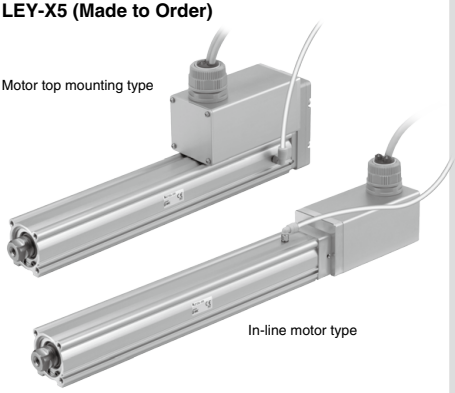


In-line motor type

Dust-tight/Water-jet-proof (IP65 Equivalent)

LEY-X5 (Made to Order)

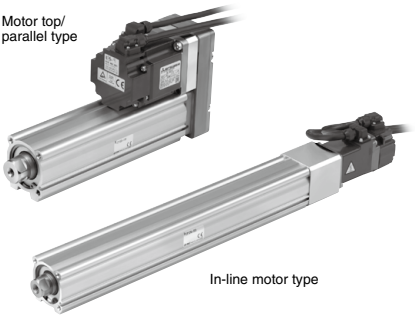
Motor top mounting type



In-line motor type

AC Servo Motor

Motor top/
parallel type

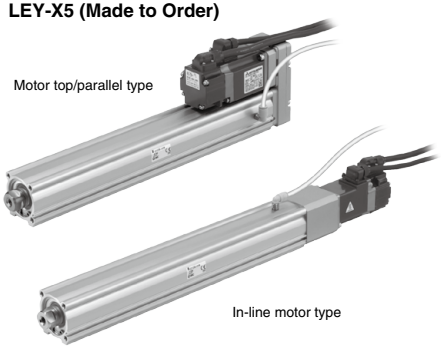


In-line motor type

Dust-tight/Water-jet-proof (IP65 Equivalent)

LEY-X5 (Made to Order)

Motor top/parallel type



In-line motor type

Electric Actuator/Rod Type

LEY Series

Model Selection

LEY Series ▶ Page 238

Selection Procedure

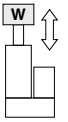
Positioning Control Selection Procedure

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

Selection Example

Operating conditions

- Workpiece mass: 4 [kg]
- Speed: 100 [mm/s]
- Acceleration/Deceleration: 3000 [mm/s^2]
- Stroke: 200 [mm]
- Workpiece mounting condition: Vertical upward downward transfer

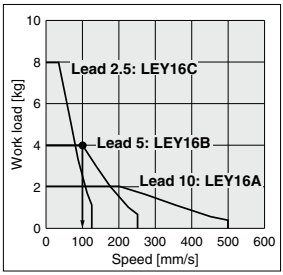


Step 1 **Check the work load–speed. <Speed–Vertical work load graph>**

Select the target model based on the workpiece mass and speed with reference to the <Speed–Vertical work load graph>.

Selection example) The **LEY16B** is temporarily selected 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 page 231 for the horizontal work load in the specifications, and page 240 for the precautions.



<Speed–Vertical work load graph> (LEY16/Step motor)

Step 2 **Check the cycle time.**

Calculate the cycle time using the following calculation method.

- Cycle time T can be found from the following equation.

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

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

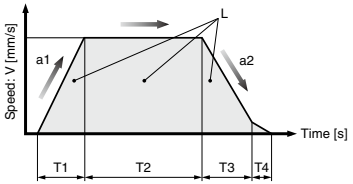
$$T1 = V/a1 \text{ [s]} \qquad T3 = V/a2 \text{ [s]}$$

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

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

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

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



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

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

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

$T1 = V/a1 = 100/3000 = 0.033$ [s], $T3 = V/a2 = 100/3000 = 0.033$ [s]

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} = \frac{200 - 0.5 \cdot 100 \cdot (0.033 + 0.033)}{100} = 1.97 \text{ [s]}$$

$T4 = 0.2$ [s]

Therefore, the cycle time can be obtained as follows.
$T = T1 + T2 + T3 + T4 = 0.033 + 1.967 + 0.033 + 0.2 =$ **2.233 [s]**

Based on the above calculation result, the LEY16B-200 is selected.

Selection Procedure

Pushing Control Selection Procedure

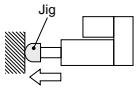
Step 1 Check the duty ratio. → **Step 2** Check the pushing force. → **Step 3** Check the lateral load on the rod end.

∗ The duty ratio is a ratio at the time that can keep being pushed.

Selection Example

Operating conditions

- Mounting condition: Horizontal (pushing)
- Jig weight: 0.2 [kg]
- Pushing force: 60 [N]
- Duty ratio: 20 [%]
- 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 with reference to the <Conversion table of pushing force–duty ratio>.

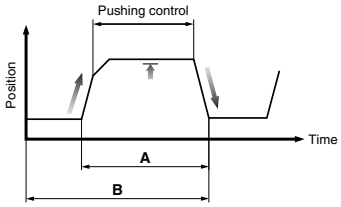
Selection example)
Based on the table below,
- Duty ratio: 20 [%]

Therefore, the set value of pushing force will be 70 [%].

<Conversion table of pushing force–duty ratio>
(LEY16/Step motor)

Set value of pushing force [%]	Duty ratio [%]	Continuous pushing time [minute]
40 or less	100	—
50	70	12
70	20	1.3
85	15	0.8

∗ [Set value of pushing force] is one of the step data input to the controller.
∗ [Continuous pushing time] is the time that the actuator can continuously keep pushing.



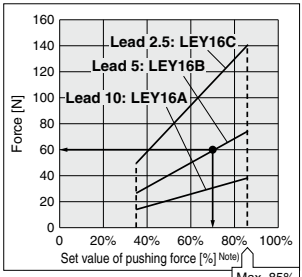
Duty ratio = A/B x 100 [%]

Step 2 **Check the pushing force. <Force conversion graph>**

Select the target model based on the set value of pushing force and force with reference to the <Force conversion graph>.

Selection example)
Based on the graph shown on the right side,
- Set value of pushing force: 70 [%]
- Pushing force: 60 [N]

Therefore, the **LEY16B** is temporarily selected.



<Force conversion graph>
(LEY16/Step motor)

Note) Set values for the controller.

Step 3 **Check the lateral load on the rod end.**

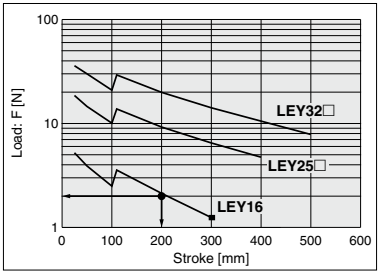
<Graph of allowable lateral load on the rod end>

Confirm the allowable lateral load on the rod end of the actuator: LEY16□, which has been selected temporarily with reference to the <Graph of allowable lateral load on the rod end>.

Selection example)
Based on the graph shown on the right side,
- Jig weight: 0.2 [kg] ≈ 2 [N]
- Product stroke: 200 [mm]

Therefore, the lateral load on the rod end is in the allowable range.

Based on the above calculation result, the LEY16B-200 is selected.



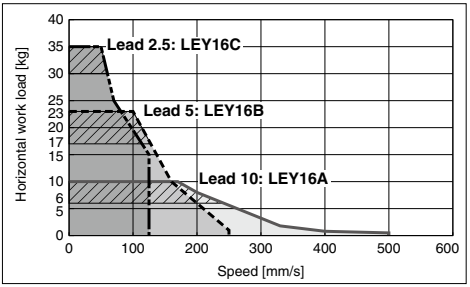
<Graph of allowable lateral load on the rod end>

Refer to page 225 for the LECPA and page 226 for the LECA6.

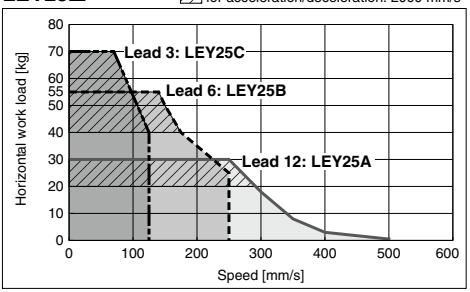
Speed–Work Load Graph (Guide)
For Step Motor (Servo/24 VDC) LECP6, LECP1, LECPMJ

Horizontal

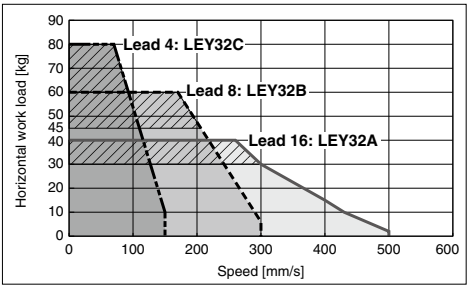
LEY16□



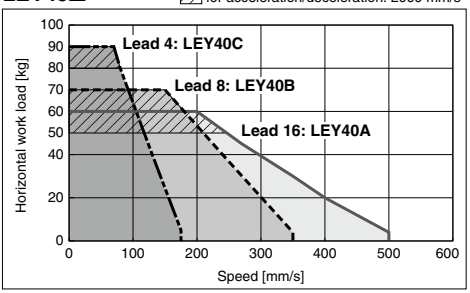
LEY25□



LEY32□

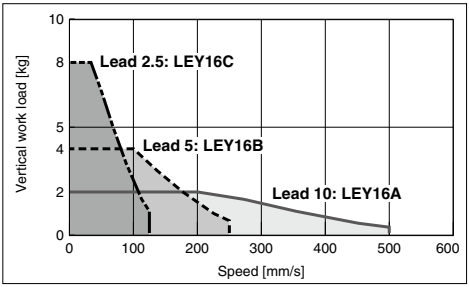


LEY40□

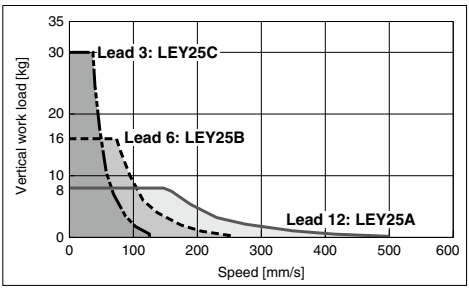


Vertical

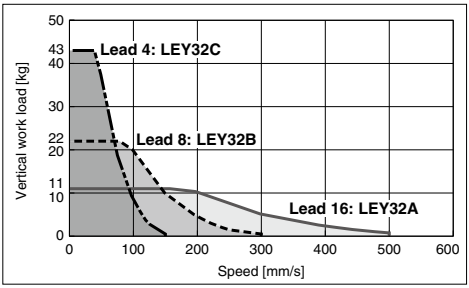
LEY16□



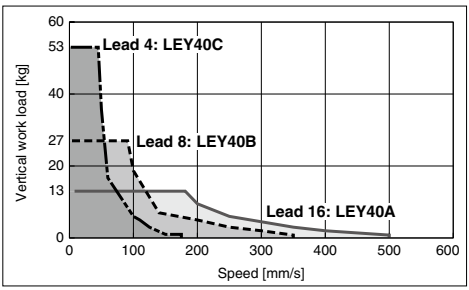
LEY25□



LEY32□



LEY40□

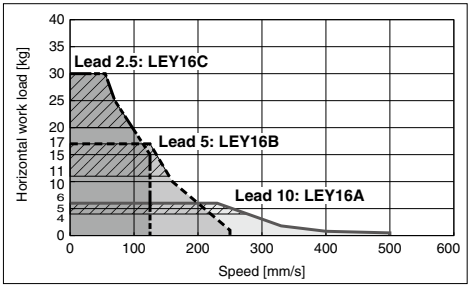


Refer to page 224 for the LECP6, LECP1, LECPMJ, and page 226 for the LECA6.

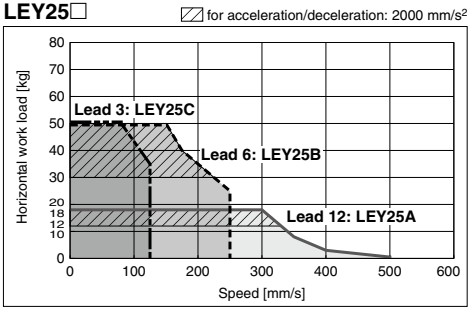
Speed–Work Load Graph (Guide)
For Step Motor (Servo/24 VDC) LECPA

Horizontal

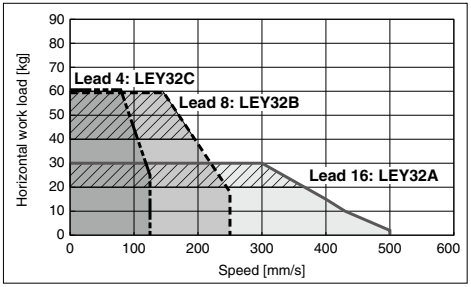
LEY16□



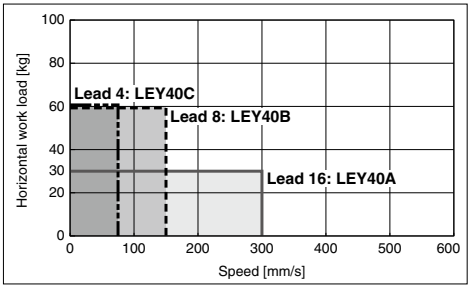
LEY25□



LEY32□

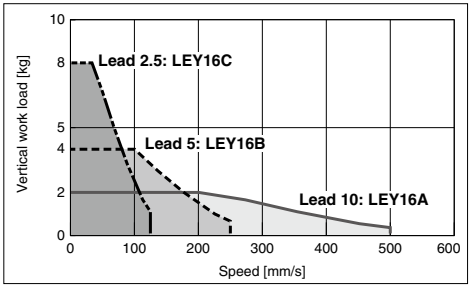


LEY40□

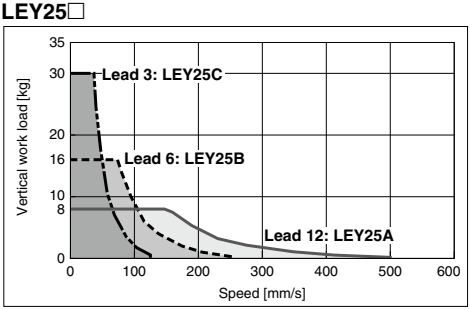


Vertical

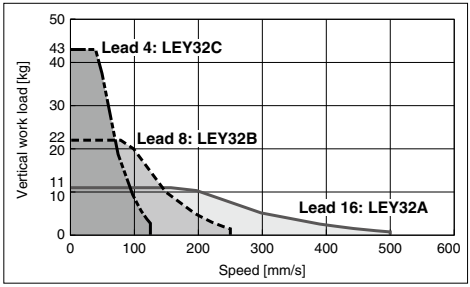
LEY16□



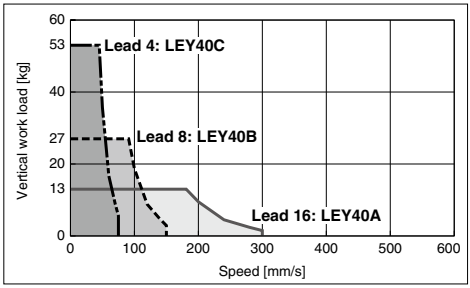
LEY25□



LEY32□



LEY40□

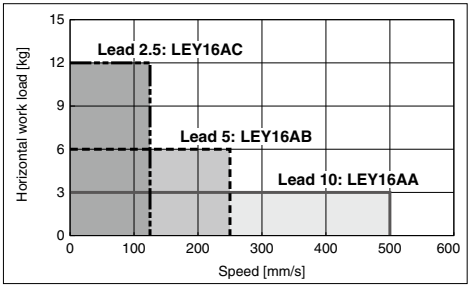


Speed–Work Load Graph (Guide) For Servo Motor (24 VDC) LECA6

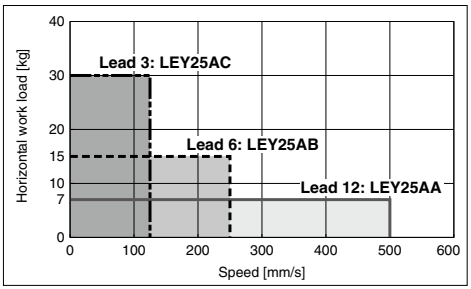
Refer to page 224 for the LECP6, LECP1, LECPMJ, and page 225 for the LECPA.

Horizontal

LEY16A□

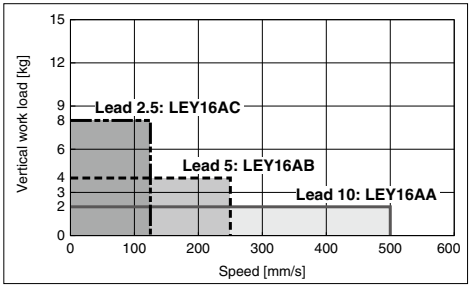


LEY25A□

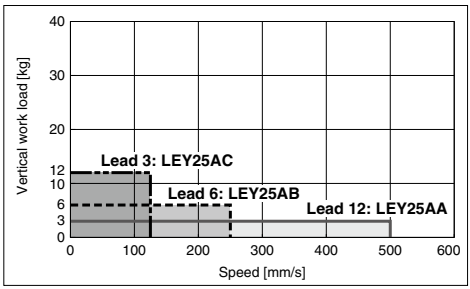


Vertical

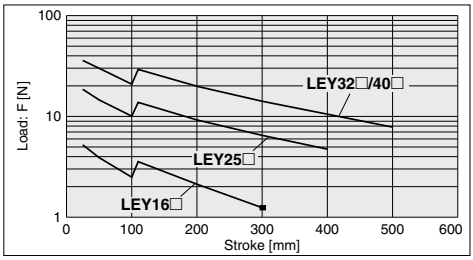
LEY16A□



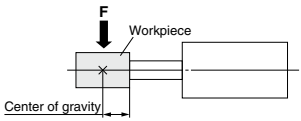
LEY25A□



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

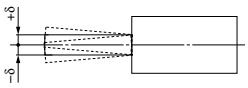


[Stroke] = [Product stroke] + [Distance from the rod end to the center of gravity of the workpiece]



Rod Displacement: δ [mm]

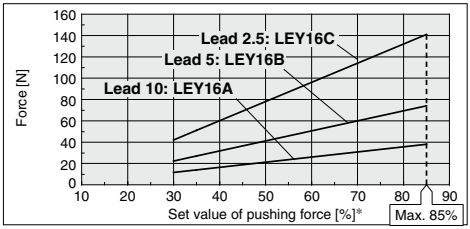
Size \ Stroke	30	50	100	150	200	250	300	350	400	450	500
16	±0.4	±0.5	±0.9	±0.8	±1.1	±1.3	±1.5	—	—	—	—
25	±0.3	±0.4	±0.7	±0.7	±0.9	±1.1	±1.3	±1.5	±0.5	—	—
32, 40	±0.3	±0.4	±0.7	±0.6	±0.8	±1.0	±1.1	±1.3	±1.5	±1.7	±1.8



Force Conversion Graph (Guide)

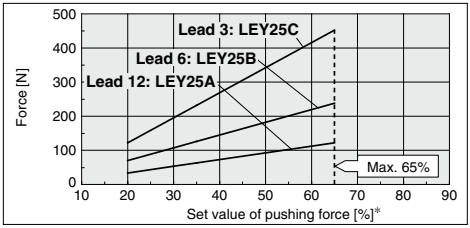
Step Motor (Servo/24 VDC)

LEY16



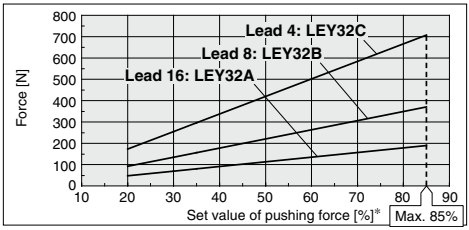
Ambient temperature	Set value of pushing force [%]	Duty ratio [%]	Continuous pushing time [minute]
25°C or less	85 or less	100	—
40°C	40 or less	100	—
	50	70	12
	70	20	1.3
	85	15	0.8

LEY25



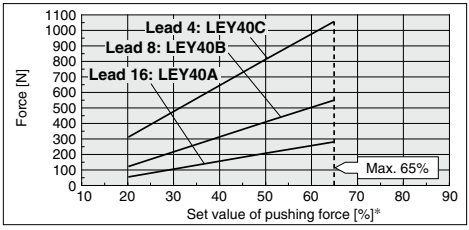
Ambient temperature	Set value of pushing force [%]	Duty ratio [%]	Continuous pushing time [minute]
40°C or less	65 or less	100	—

LEY32



Ambient temperature	Set value of pushing force [%]	Duty ratio [%]	Continuous pushing time [minute]
25°C or less	85 or less	100	—
40°C	65 or less	100	—
	85	50	15

LEY40

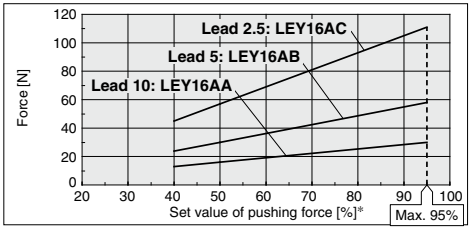


Ambient temperature	Set value of pushing force [%]	Duty ratio [%]	Continuous pushing time [minute]
40°C or less	65 or less	100	—

∗ Set values for the controller.

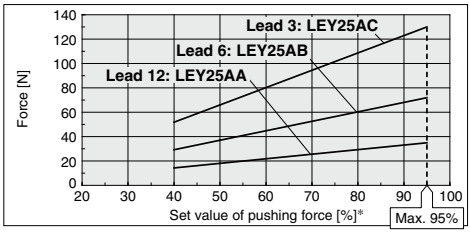
Servo Motor (24 VDC)

LEY16



Ambient temperature	Set value of pushing force [%]	Duty ratio [%]	Continuous pushing time [minute]
40°C or less	95 or less	100	—

LEY25



Ambient temperature	Set value of pushing force [%]	Duty ratio [%]	Continuous pushing time [minute]
40°C or less	95 or less	100	—

<Pushing Force and Trigger Level Range> Without Load

Model	Pushing speed [mm/s]	Pushing force (Setting input value)
LEY16□	1 to 4	30% to 85%
	5 to 20	35% to 85%
	21 to 50	60% to 85%
LEY25□	1 to 4	20% to 65%
	5 to 20	35% to 65%
	21 to 35	50% to 65%
LEY32□	1 to 4	20% to 85%
	5 to 20	35% to 85%
	21 to 30	60% to 85%
LEY40□	1 to 4	20% to 65%
	5 to 20	35% to 65%
	21 to 30	50% to 65%

Model	Pushing speed [mm/s]	Pushing force (Setting input value)
LEY16□A	1 to 4	40% to 95%
	5 to 20	60% to 95%
	21 to 50	80% to 95%
LEY25□A	1 to 4	40% to 95%
	5 to 20	60% to 95%
	21 to 35	80% to 95%

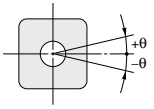
∗ The pushing force in the table shows the range within which the completion signal [INP] is normally output. If the product is operated outside this range (low pushing force), the [INP] signal may be output when the actuator is moving (before pushing).

<Set Values for Vertical Upward Transfer Pushing Operation>

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

Model	LEY16□			LEY25□			LEY32□			LEY40□			LEY16□A			LEY25□A		
Lead	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Work load [kg]	1	1.5	3	2.5	5	10	4.5	9	18	7	14	28	1	1.5	3	1.2	2.5	5
Pushing force	85%			65%			85%			65%			95%			95%		

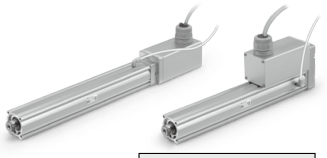
Non-rotating Accuracy of Rod



Size	Non-rotating accuracy θ
16	±1.1°
25	±0.8°
32	±0.7°
40	

∗ Avoid using the electric actuator in such a way that rotational torque would be applied to the piston rod.
This may cause deformation of the non-rotating guide, abnormal responses of the auto switch, play in the internal guide or an increase in the sliding resistance.

Model Selection



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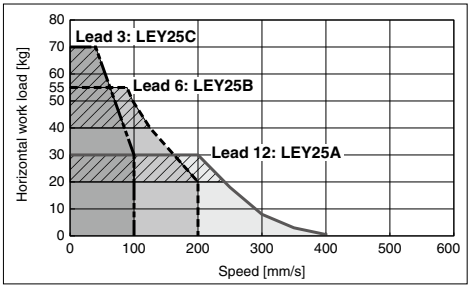
Refer to page 229 for the LECPA or LECA6.

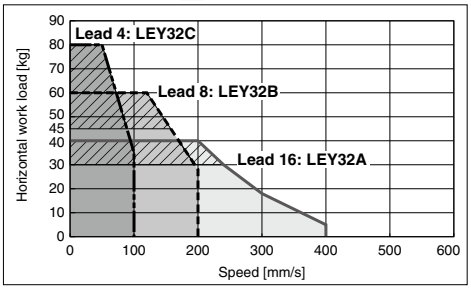
Speed–Work Load Graph (Guide) for Step Motor (Servo/24 VDC) LECP6, LECP1, LECPMJ

Horizontal

LEY25□

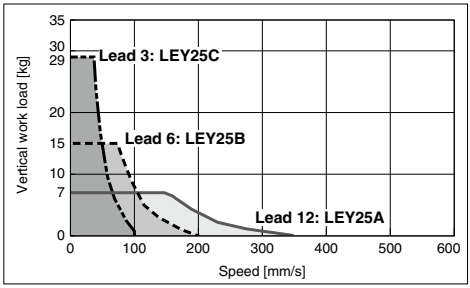


LEY32□

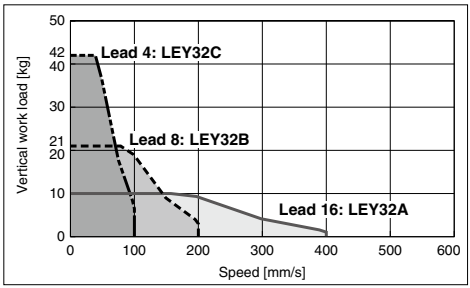


Vertical

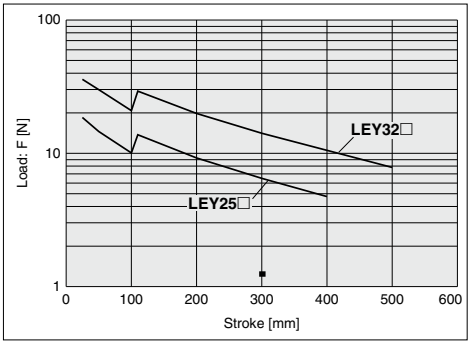
LEY25□



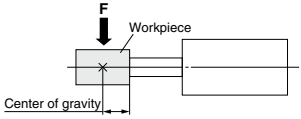
LEY32□



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

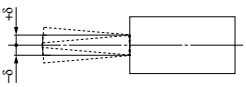


[Stroke] = [Product stroke] + [Distance from the rod end to the center of gravity of the workpiece]



Rod Displacement: δ [mm]

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

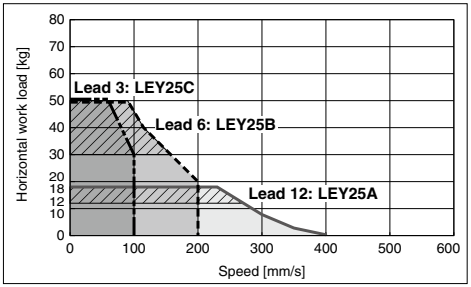


Refer to page 228 for the LECP6, LECP1, LECPMJ.

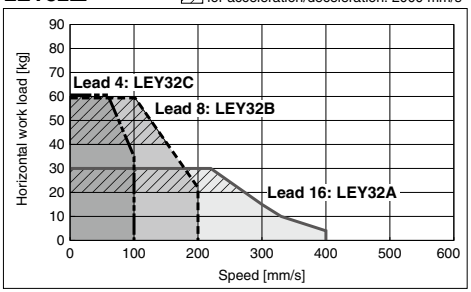
Speed–Work Load Graph (Guide)
For Step Motor (Servo/24 VDC) LECPA

Horizontal

LEY25□

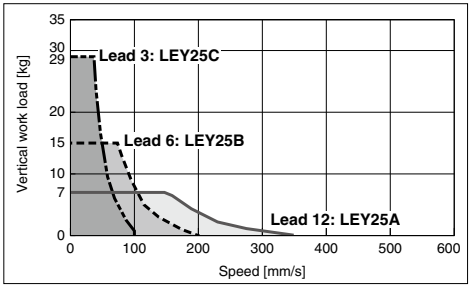


LEY32□

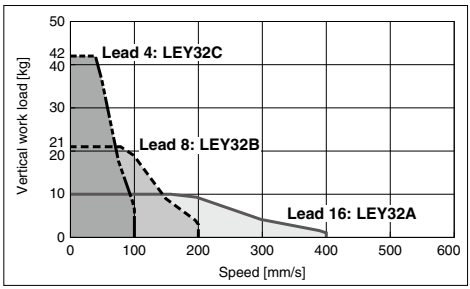


Vertical

LEY25□



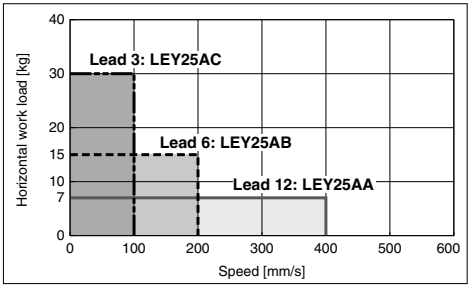
LEY32□



For Servo Motor (24 VDC) LECA6

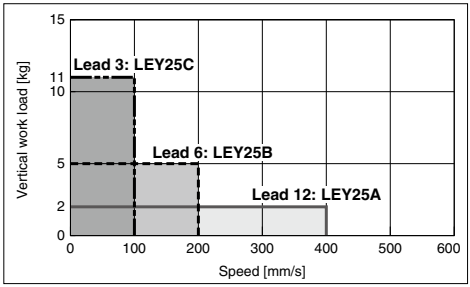
Horizontal

LEY25A□



Vertical

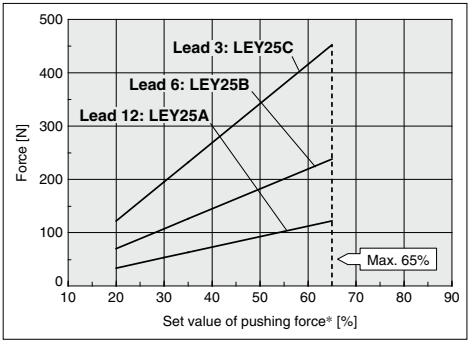
LEY25□



Force Conversion Graph

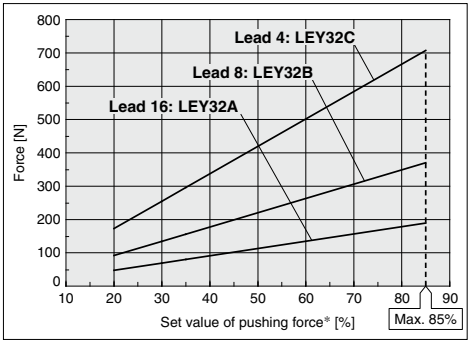
Step Motor (Servo/24 VDC)

LEY25



Ambient temperature	Set value of pushing force* [%]	Duty ratio [%]	Continuous pushing time [minute]
40°C or less	65 or less	100	—

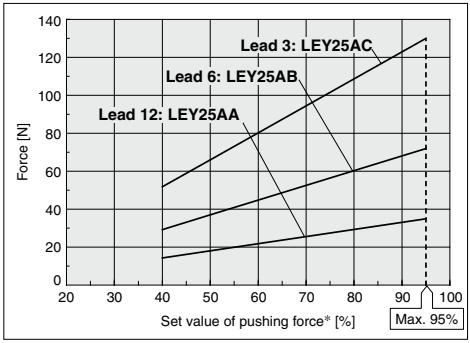
LEY32



Ambient temperature	Set value of pushing force* [%]	Duty ratio [%]	Continuous pushing time [minute]
25°C or less	85 or less	100	—
40°C	65 or less	100	—
	85	50	15

Servo Motor (24 VDC)

LEY25



Ambient temperature	Set value of pushing force* [%]	Duty ratio [%]	Continuous pushing time [minute]
40°C or less	95 or less	100	—

<Pushing Force and Trigger Level Range> Without Load

Model	Pushing speed [mm/s]	Pushing force (Setting input value)
LEY25□	1 to 4	20% to 65%
	5 to 20	35% to 65%
	21 to 35	50% to 65%
LEY32□	1 to 4	20% to 85%
	5 to 20	35% to 85%
	21 to 30	60% to 85%

Model	Pushing speed [mm/s]	Pushing force (Setting input value)
LEY25□A	1 to 4	40% to 95%
	5 to 20	60% to 95%
	21 to 35	80% to 95%

<Set Values for Vertical Upward Transfer Pushing Operation>

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

Model	LEY25□			LEY32□			LEY25□A		
Lead	**A**	**B**	**C**	**A**	**B**	**C**	**A**	**B**	**C**
Work load [kg]	2.5	5	10	4.5	9	18	1.2	2.5	5
Pushing force	65%			85%			95%		

* Set values for the controller.

Model Selection

Size 25, 32, 63

LEY Series ▶ Pages 254, 264 LEY-X5 Series ▶ Pages 494, 500

Selection Procedure

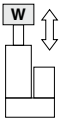
Positioning Control Selection Procedure

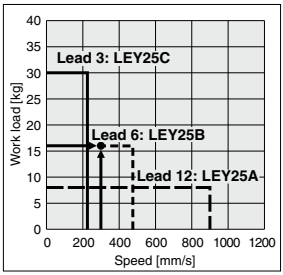
Step 1 Check the work load–speed. (Vertical transfer) → **Step 2** Check the cycle time.

Selection Example

Operating conditions

- Workpiece mass: 16 [kg]
- Speed: 300 [mm/s]
- Acceleration/Deceleration: 5000 [mm/s²]
- Stroke: 300 [mm]
- Workpiece mounting condition: Vertical upward, downward transfer





<Speed–Vertical work load graph> (LEY25)

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

Select the target model based on the workpiece mass and speed with reference to the <Speed–Vertical work load graph>.

Selection example) The **LEY25B** is temporarily selected 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 pages 256, 265, 495 and 501, and the precautions.

The regeneration option may be necessary. Refer to pages 234 and 235 for "Required Conditions for Regeneration Option".

Step 2 **Check the cycle time.**

Calculate the cycle time using the following calculation method.

- Cycle time T can be found from the following equation.

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

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

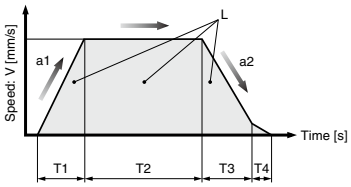
$$T1 = V/a1 \text{ [s]} \qquad T3 = V/a2 \text{ [s]}$$

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

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

- T4: Settling time varies depending on the motor type and load. The value below is recommended.

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



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

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

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

$T1 = V/a1 = 300/5000 = 0.06$ [s], $T3 = V/a2 = 300/5000 = 0.06$ [s]

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} = \frac{300 - 0.5 \cdot 300 \cdot (0.06 + 0.06)}{300} = 0.94 \text{ [s]}$$

$T4 = 0.05$ [s]

Therefore, the cycle time can be obtained as follows.
$T = T1 + T2 + T3 + T4 = 0.06 + 0.94 + 0.06 + 0.05 =$ **1.11 [s]**

Based on the above calculation result, the LEY25B-300 is selected.

Selection Procedure

Force Control Selection Procedure

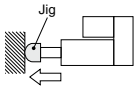
Step 1 Check the duty ratio. → **Step 2** Check the force. → **Step 3** Check the lateral load on the rod end.

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

Selection Example

Operating conditions

- Mounting condition: Horizontal (pushing)
- Jig weight: 0.5 [kg]
- Force: 255 [N]
- Duty ratio: 60 [%]
- Speed: 100 [mm/s]
- Stroke: 300 [mm]



Step 1 **Check the duty ratio.**

<Conversion table of force–duty ratio>

Select the [Force] from the duty ratio with reference to the <Conversion table of force–duty ratio>.

Selection example)
Based on the table below,
- Duty ratio: 60 [%]

Therefore, Torque limit/Command value will be 30 [%].

<Conversion table of force–duty ratio>
(LEY25/AC Servo motor)

Torque limit/ Command value [%]	Duty ratio [%]	Continuous pushing time [minute]
25 or less	100	—
30	60	1.5

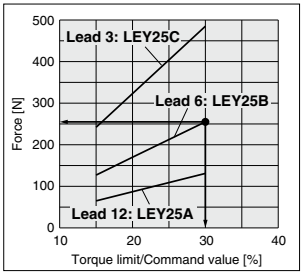
∗ [Torque limit/Command value [%]] is the set value for the driver.
∗ [Continuous pushing time] is the time that the actuator can continuously keep pushing.

Step 2 **Check the force. <Force conversion graph>**

Select the target model based on the torque limit/command value and pushing force with reference to the <Force conversion graph>.

Selection example)
Based on the graph shown on the right side,
- Torque limit/Command value: 30 [%]
- Force: 255 [N]

Therefore, the **LEY25B** is temporarily selected.



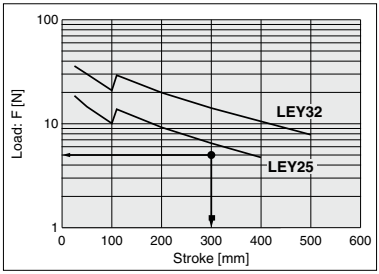
<Force conversion graph>
(LEY25)

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: LEY25B, which has been selected temporarily with reference to the <Graph of allowable lateral load on the rod end>.

Selection example)
Based on the graph shown on the right side,
- Jig weight: 0.5 [kg] ≈ 5 [N]
- Product stroke: 300 [mm]

Therefore, the lateral load on the rod end is in the allowable range.

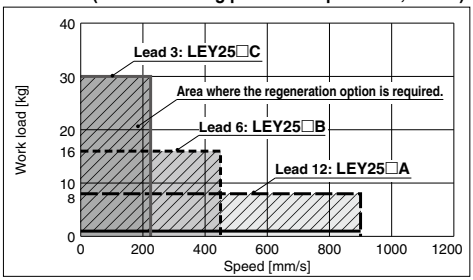


<Graph of allowable lateral load on the rod end>

Based on the above calculation result, the LEY25B-300 is selected.

Speed–Vertical Work Load Graph/Required Conditions for "Regeneration Option"

LEY25□ (Motor mounting position: Top/Parallel, In-line)



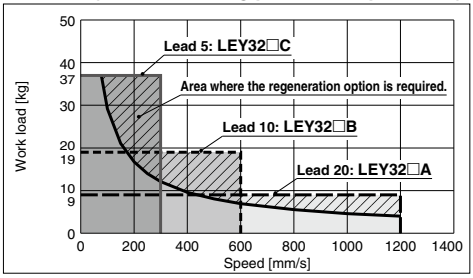
Required conditions for "Regeneration option"

∗ Regeneration option is required when using product above regeneration line in graph. (Order separately.)

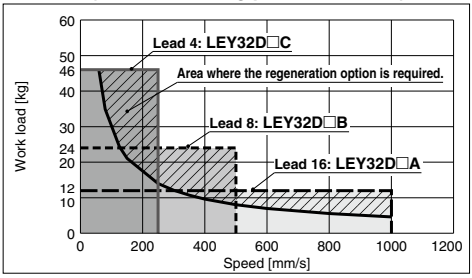
"Regeneration Option" Models

Size	Model
LEY25□	LEC-MR-RB-032
LEY32□	LEC-MR-RB-032
LEY63□	LEC-MR-RB-12

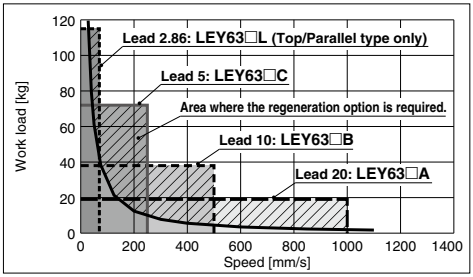
LEY32□ (Motor mounting position: Top/Parallel)



LEY32D (Motor mounting position: In-line)

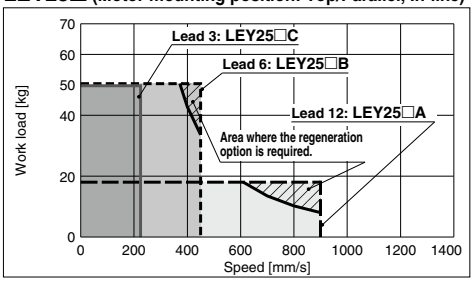


LEY63□ (Motor mounting position: Top/Parallel, In-line)

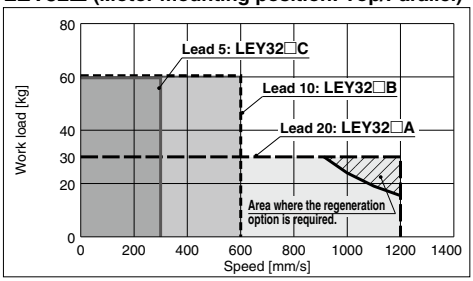


Speed–Horizontal Work Load Graph/Required Conditions for "Regeneration Option"

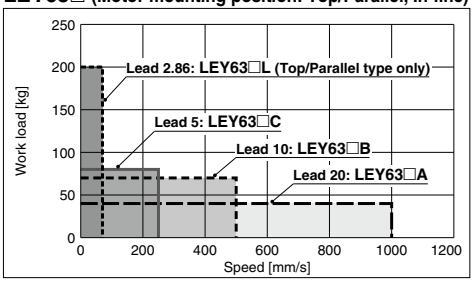
LEY25□ (Motor mounting position: Top/Parallel, In-line)



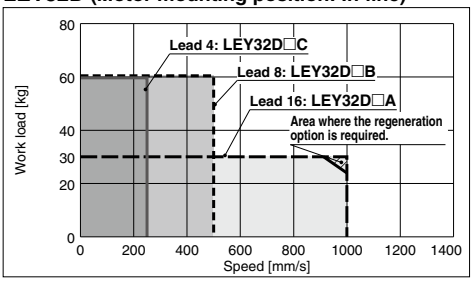
LEY32□ (Motor mounting position: Top/Parallel)



LEY63□ (Motor mounting position: Top/Parallel, In-line)



LEY32D (Motor mounting position: In-line)



Required conditions for "Regeneration option"

∗ Regeneration option is required when using product above regeneration line in graph. (Order separately.)

"Regeneration Option" Models

Size	Model
LEY25□	LEC-MR-RB-032
LEY32□	LEC-MR-RB-032
LEY63□	—

Allowable Stroke Speed

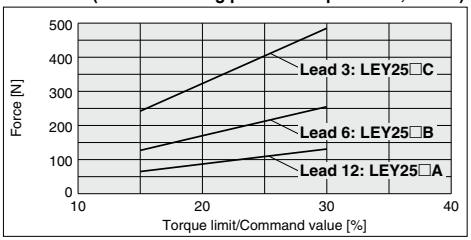
[mm/s]

Model	AC servo motor	Lead		Stroke [mm]														
		Symbol	[mm]	30	50	100	150	200	250	300	350	400	450	500	600	700	800
LEY25□ (Motor mounting position: Top/Parallel, In-line)	100 W /□40	**A**	12	900							600		—	—	—		
		B	6	450							300		—	—	—		
		C	3	225							150		—	—	—		
		(Motor rotation speed)		(4500 rpm)							(3000 rpm)		—	—	—		
LEY32□ (Motor mounting position: Top/Parallel	200 W /□60	**A**	20	1200									800		—		
		B	10	600									400		—		
		C	5	300									200		—		
		(Motor rotation speed)		(3600 rpm)									(2400 rpm)		—		
LEY32D (Motor mounting position: In-line	200 W /□60	**A**	16	1000									640		—		
		B	8	500									320		—		
		C	4	250									160		—		
		(Motor rotation speed)		(3750 rpm)									(2400 rpm)		—		
LEY63□ (Motor mounting position: Top/Parallel, In-line	400 W /□60	**A**	20	1000										800	600	500	
		B	10	500										400	300	250	
		C	5	250										200	150	125	
		(Motor rotation speed)		(3000 rpm)										(2400 rpm)	(1800 rpm)	(1500 rpm)	
		L∗	2.86	70													
		(Motor rotation speed)		(1470 rpm)													

∗ Top/Parallel type only

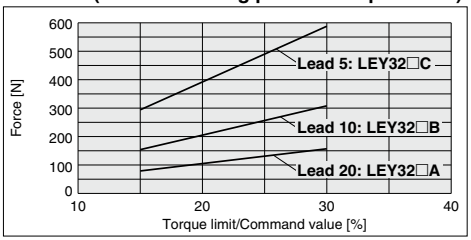
Force Conversion Graph (Guide)

LEY25□ (Motor mounting position: Top/Parallel, In-line)



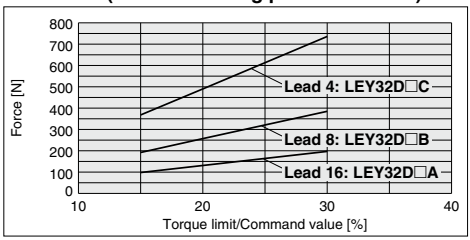
Torque limit/Command value [%]	Duty ratio [%]	Continuous pushing time [minute]
25 or less	100	—
30	60	1.5

LEY32□ (Motor mounting position: Top/Parallel)



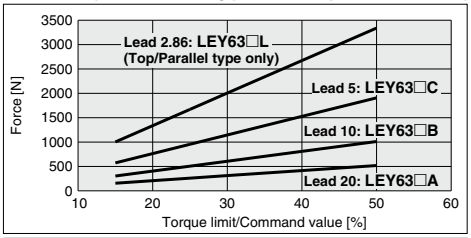
Torque limit/Command value [%]	Duty ratio [%]	Continuous pushing time [minute]
25 or less	100	—
30	60	1.5

LEY32D□ (Motor mounting position: In-line)



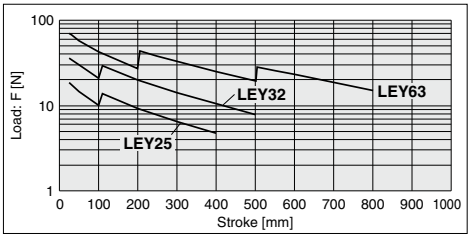
Torque limit/Command value [%]	Duty ratio [%]	Continuous pushing time [minute]
25 or less	100	—
30	60	1.5

LEY63□ (Motor mounting position: Top/Parallel, In-line)

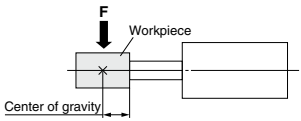


Torque limit/Command value [%]	Duty ratio [%]	Continuous pushing time [minute]
25 or less	100	—
30	60	1.5
40	30	0.5
50	20	0.16

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

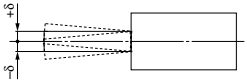


[Stroke] = [Product stroke] + [Distance from the rod end to the center of gravity of the workpiece]



Rod Displacement: δ [mm]

Size \ Stroke	30	50	100	150	200	250	300	350	400	450	500	600	700	800
25	±0.3	±0.4	±0.7	±0.7	±0.9	±1.1	±1.3	±1.5	±0.5	—	—	—	—	—
32	±0.3	±0.4	±0.7	±0.6	±0.8	±1.0	±1.1	±1.3	±1.5	±1.7	±1.8	—	—	—
63	—	—	±1.0	—	±1.7	—	±1.3	—	±1.0	—	±2.1	±1.7	±2.0	±2.2



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

Electric Actuator/ Rod Type

LEY Series LEY16, 25, 32, 40

RoHS

Dust-tight/Water-jet-proof ▶ Page 486 Secondary Battery Compatible ▶ Page 542

How to Order

LEY 16 ❶ | ☐ ❷ | ☐ ❸ | B ❹ – 30 ❺ | ☐ ❻ | ☐ ❼ | ☐ ❽ – S ❾ | 1 ❿ | 6N ⓫ | 1 ⓬ | ☐ ⓭

❶ Size

16
25
32
40

❷ Motor mounting position

Nil	Top mounting
R	Right side parallel
L	Left side parallel
D	In-line

❸ Motor type

Symbol	Type	Size			Compatible controller/driver
		LEY16	LEY25	LEY32/40	
Nil	Step motor (Servo/24 VDC)	●	●	●	LECP6 LECP1 LECPA LECPMJ
A	Servo motor (24 VDC)	●	●	—	LECA6

❹ Lead [mm]

Symbol	LEY16	LEY25	LEY32/40
A	10	12	16
B	5	6	8
C	2.5	3	4

❺ Stroke [mm]

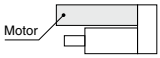
30	30
to	to
500	500

∗ Refer to the applicable stroke table.

❻ Motor option∗

Nil	Without option
C	With motor cover
B	With lock
W	With lock/motor cover

∗ When "With lock" or "With lock/motor cover" are selected for the top mounting and right/left side parallel types, the motor body will stick out of the end of the body for size 16/40 with strokes 30 mm or less. Check for interference with workpieces before selecting a model.



❼ Rod end thread

Nil	Rod end female thread
M	Rod end male thread (1 rod end nut is included.)

∗ Applicable stroke table

●: Standard

Model \ Stroke [mm]	30	50	100	150	200	250	300	350	400	450	500	Manufacturable stroke range [mm]
LEY16	●	●	●	●	●	●	●	—	—	—	—	10 to 300
LEY25	●	●	●	●	●	●	●	●	●	—	—	15 to 400
LEY32/40	●	●	●	●	●	●	●	●	●	●	●	20 to 500

∗ Please consult with SMC for non-standard strokes as they are produced as special orders.

⚠Caution

[CE-compliant products]

① EMC compliance was tested by combining the electric actuator LEY series and the controller LEC series.
The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, conformity to the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify conformity to the EMC directive for the machinery and equipment as a whole.

② For the servo motor (24 VDC) specification, EMC compliance was tested by installing a noise filter set (LEC-NFA). Refer to page 568 for the noise filter set. Refer to the LECA Operation Manual for installation.

③ CC-Link direct input type (LECPMJ) is not CE-compliant.

[UL-compliant products]

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

For auto switches, refer to pages 252 and 253.

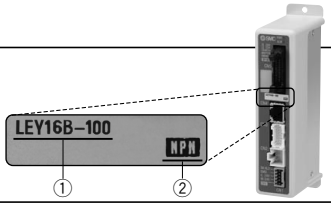
The actuator and controller/driver are sold as a package.

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

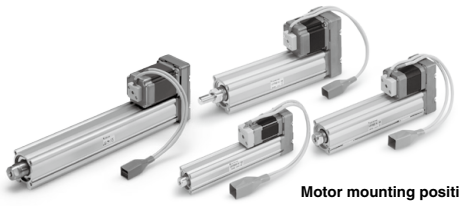
<Check the following before use.>

① Check the actuator label for model number. This matches the controller/driver.

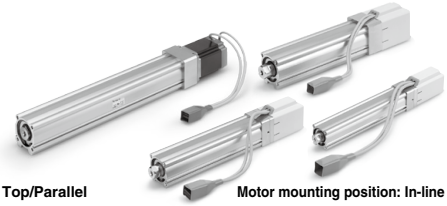
② Check Parallel I/O configuration matches (NPN or PNP)



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



Motor mounting position: Top/Parallel



Motor mounting position: In-line

❽ Mounting*1

Symbol	Type	Motor mounting position	
		Top/Parallel	In-line
Nil	Ends tapped/ Body bottom tapped*2	●	●
L	Foot	●	—
F	Rod flange*2	●*4	●
G	Head flange*2	●*5	—
D	Double clevis*3	●	—

*1 Mounting bracket is shipped together, (but not assembled).
*2 For horizontal cantilever mounting with the rod flange, head flange and ends tapped, use the actuator within the following stroke range.
・LEY25: 200 mm or less
・LEY32/40: 100 mm or less
*3 For mounting with the double clevis, use the actuator within the following stroke range.
・LEY16: 100 mm or less
・LEY25: 200 mm or less
・LEY32/40: 200 mm or less
*4 Rod flange is not available for the LEY16/40 with stroke 30 mm and motor option "With lock", "With lock/motor cover".
*5 Head flange is not available for the LEY32/40.

❾ Actuator cable type*1

Nil	Without cable
S	Standard cable*2
R	Robotic cable (Flexible cable)*3

*1 The standard cable should be used on fixed parts. For using on moving parts, select the robotic cable.
*2 Only available for the motor type "Step motor."
*3 Fix the motor cable protruding from the actuator to keep it unmovable. For details about fixing method, refer to Wiring/Cables in the Electric Actuators Precautions.

❿ Actuator cable length [m]

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

* Produced upon receipt of order (Robotic cable only) Refer to the specifications Note 5) on page 240.

⓫ Controller/Driver type*1

Nil	Without controller/driver	
6N	**LECP6/LECA6** (Step data input type)	NPN
6P		PNP
1N	**LECP1***2 (Programless type)	NPN
1P		PNP
MJ	**LECPMJ***2 *3 (CC-Link direct input type)	—
AN	**LECPA***2 *4 (Pulse input type)	NPN
AP		PNP

*1 For details about controller/driver and compatible motor, refer to the compatible controller/driver below.
*2 Only available for the motor type "Step motor."
*3 Not applicable to CE.
*4 When pulse signals are open collector, order the current limiting resistor (LEC-PA-R-□) on page 596 separately.

⓬ I/O cable length*1, Communication plug

Nil	Without cable (Without communication plug connector)*3
1	1.5 m
3	3 m*2
5	5 m*2
S	Straight type communication plug connector*3
T	T-branch type communication plug connector*3

*1 When "Without controller/driver" is selected for controller/driver types, I/O cable cannot be selected. Refer to page 568 (For LECP6/LECA6), page 582 (For LECP1) or page 596 (For LECPA) if I/O cable is required.
*2 When "Pulse input type" is selected for controller/driver types, pulse input usable only with differential. Only 1.5 m cables usable with open collector.
*3 For the LECPMJ, only "Nil", "S" and "T" are selectable since I/O cable is not included.

⓭ Controller/Driver mounting

Nil	Screw mounting
D	DIN rail mounting*1

*1 DIN rail is not included. Order it separately.

Compatible Controller/Driver

Type	**Step data input type** 	**Step data input type** 	**CC-Link direct input type** 	**Programless type** 	**Pulse input type** 
Series	**LECP6**	**LECA6**	**LECPMJ**	**LECP1**	**LECPA**
Features	Value (Step data) input Standard controller		CC-Link direct input	Capable of setting up operation (step data) without using a PC or teaching box	Operation by pulse signals
Compatible motor	Step motor (Servo/24 VDC)	Servo motor (24 VDC)	Step motor (Servo/24 VDC)		
Maximum number of step data	64 points			14 points	—
Power supply voltage	24 VDC				
Reference page	Page 560	Page 560	Page 600	Page 576	Page 590

Specifications

Step Motor (Servo/24 VDC)

	Model			LEY16			LEY25			LEY32			LEY40		
Actuator specifications	Stroke [mm] Note 1)			30, 50, 100, 150 200, 250, 300			30, 50, 100, 150, 200 250, 300, 350, 400			30, 50, 100, 150, 200, 250 300, 350, 400, 450, 500			30, 50, 100, 150, 200, 250 300, 350, 400, 450, 500		
	Work load [kg] Note 2)	Horizontal (LECP6, LECP1, LECPMJ)	(3000 [mm/s²])	6	17	30	20	40	60	30	45	60	50	60	80
			(2000 [mm/s²])	10	23	35	30	55	70	40	60	80	60	70	90
		Horizontal (LECPA)	(3000 [mm/s²])	4	11	20	12	30	30	20	40	40	30	60	60
			(2000 [mm/s²])	6	17	30	18	50	50	30	60	60	—	—	—
		Vertical	(3000 [mm/s²])	2	4	8	8	16	30	11	22	43	13	27	53
	Pushing force [N] Note 3) 4) 5)			14 to 38	27 to 74	51 to 141	63 to 122	126 to 238	232 to 452	80 to 189	156 to 370	296 to 707	132 to 283	266 to 553	562 to 1058
	Speed [mm/s] Note 5)	LECP6/LECP1/LECPMJ		15 to 500	8 to 250	4 to 125	18 to 500	9 to 250	5 to 125	24 to 500	12 to 300	6 to 150	24 to 500	12 to 350	6 to 175
		LECPA									12 to 250	6 to 125	24 to 300	12 to 150	6 to 75
	Max. acceleration/deceleration [mm/s²]			3000											
	Pushing speed [mm/s] Note 6)			50 or less			35 or less			30 or less			30 or less		
	Positioning repeatability [mm]			±0.02											
	Lost motion [mm] Note 7)			0.1 or less											
	Screw lead [mm]			10	5	2.5	12	6	3	16	8	4	16	8	4
	Impact/Vibration resistance [m/s²] Note 8)			50/20											
	Actuation type			Ball screw + Belt (LEY□)/Ball screw (LEY□D)											
	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			□56.4		
	Motor type			Step motor (Servo/24 VDC)											
	Encoder			Incremental A/B phase (800 pulse/rotation)											
	Rated voltage [V]			24 VDC ±10%											
	Power consumption [W] Note 9)			23			40			50			50		
	Standby power consumption when operating [W] Note 10)			16			15			48			48		
	Max. instantaneous power consumption [W] Note 11)			43			48			104			106		
Lock unit specifications	Type Note 12)			Non-magnetizing lock											
	Holding force [N]			20	39	78	78	157	294	108	216	421	127	265	519
	Power consumption [W] Note 13)			2.9			5			5			5		
	Rated voltage [V]			24 VDC ±10%											

Note 1) Please consult with SMC for non-standard strokes as they are produced as special orders.
Note 2) Horizontal: The maximum value of the work load. An external guide is necessary to support the load (Friction coefficient of guide: 0.1 or less). The actual work load and transfer speed change according to the condition of the external guide. Also, speed changes according to the work load. Check "Model Selection" on pages 224 and 225.
Vertical: Speed changes according to the work load. Check "Model Selection" on pages 224 and 225.
The values shown in ( ) are the acceleration/deceleration.
Set these values to be 3000 [mm/s²] or less.
Note 3) Pushing force accuracy is ±20% (F.S.).
Note 4) The pushing force values for LEY16□ is 35% to 85%, for LEY25□ is 35% to 65%, for LEY32□ is 35% to 85% and for LEY40□ is 35% to 65%.
The pushing force values change according to the duty ratio and pushing speed. Check "Model Selection" on page 227.
Note 5) The speed and force may change depending on the cable length, load and mounting conditions. Furthermore, if the cable length exceeds 5 m, then it will decrease by up to 10% for each 5 m. (At 15 m: Reduced by up to 20%)
Note 6) The allowable speed for pushing operation. When push conveying a workpiece, operate at the vertical work load or less.
Note 7) A reference value for correcting an error in reciprocal operation.
Note 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. (Test was performed with the actuator in the initial state.)
Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. Test was performed in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)
Note 9) The power consumption (including the controller) is for when the actuator is operating.
Note 10) The standby power consumption when operating (including the controller) is for when the actuator is stopped in the set position during the operation. Except during the pushing operation.
Note 11) The maximum instantaneous power consumption (including the controller) is for when the actuator is operating. This value can be used for the selection of the power supply.
Note 12) With lock only
Note 13) For an actuator with lock, add the power consumption for the lock.

Specifications

Servo Motor (24 VDC)

	Model	LEY16A			LEY25A		
Actuator specifications	Stroke [mm] Note 1)	30, 50, 100, 150 200, 250, 300			30, 50, 100, 150, 200 250, 300, 350, 400		
	Work load [kg] Note 2) Horizontal (3000 [mm/s²])	3	6	12	7	15	30
	Work load [kg] Note 2) Vertical (3000 [mm/s²])	2	4	8	3	6	12
	Pushing force [N] Note 3) 4)	16 to 30	30 to 58	57 to 111	18 to 35	37 to 72	66 to 130
	Speed [mm/s]	1 to 500	1 to 250	1 to 125	2 to 500	1 to 250	1 to 125
	Max. acceleration/deceleration [mm/s²]	3000					
	Pushing speed [mm/s] Note 5)	50 or less			35 or less		
	Positioning repeatability [mm]	±0.02					
	Lost motion [mm] Note 6)	0.1 or less					
	Screw lead [mm]	10	5	2.5	12	6	3
	Impact/Vibration resistance [m/s²] Note 7)	50/20					
	Actuation type	Ball screw + Belt (LEY□)/Ball screw (LEY□D)					
	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		
	Motor output [W]	30			36		
	Motor type	Servo motor (24 VDC)					
	Encoder	Incremental A/B phase (800 pulse/rotation)/Z phase					
	Rated voltage [V]	24 VDC ±10%					
	Power consumption [W] Note 8)	40			86		
	Standby power consumption when operating [W] Note 9)	4 (Horizontal)/6 (Vertical)			4 (Horizontal)/12 (Vertical)		
	Max. instantaneous power consumption [W] Note 10)	59			96		
Lock unit specifications	Type Note 11)	Non-magnetizing lock					
	Holding force [N]	20	39	78	78	157	294
	Power consumption [W] Note 12)	2.9			5		
	Rated voltage [V]	24 VDC ±10%					

Note 1) Please consult with SMC for non-standard strokes as they are produced as special orders.
Note 2) Horizontal: The maximum value of the work load. An external guide is necessary to support the load (Friction coefficient of guide: 0.1 or less). The actual work load and transfer speed change according to the condition of the external guide.
Vertical: Check "Model Selection" on page 226 for details.
The values shown in ( ) are the acceleration/deceleration.
Set these values to be 3000 [mm/s²] or less.
Note 3) Pushing force accuracy is ±20% (F.S.).
Note 4) The pushing force values for LEY16A□ is 50% to 95% and for LEY25A□ is 50% to 95%. The pushing force values change according to the duty ratio and pushing speed. Check "Model Selection" on page 227.
Note 5) The allowable speed for pushing operation. When push conveying a workpiece, operate at the vertical work load or less.
Note 6) A reference value for correcting an error in reciprocal operation.
Note 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. (Test was performed with the actuator in the initial state.)
Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. Test was performed in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)
Note 8) The power consumption (including the controller) is for when the actuator is operating.
Note 9) The standby power consumption when operating (including the controller) is for when the actuator is stopped in the set position during the operation. Except during the pushing operation.
Note 10) The maximum instantaneous power consumption (including the controller) is for when the actuator is operating. This value can be used for the selection of the power supply.
Note 11) With lock only
Note 12) For an actuator with lock, add the power consumption for the lock.

Weight

Weight: Motor Top/Parallel Type

Series		LEY16							LEY25								LEY32									
Stroke [mm]		30	50	100	150	200	250	300	30	50	100	150	200	250	300	350	400	30	50	100	150	200	250	300	350	400	450	500
Product weight [kg]	Step motor	0.58	0.62	0.73	0.87	0.98	1.09	1.20	1.18	1.25	1.42	1.68	1.86	2.03	2.21	2.38	2.56	2.09	2.20	2.49	2.77	3.17	3.46	3.74	4.03	4.32	4.60	4.89
	Servo motor	0.58	0.62	0.73	0.87	0.98	1.09	1.20	1.14	1.21	1.38	1.64	1.82	1.99	2.17	2.34	2.52	—	—	—	—	—	—	—	—	—	—	—

Series		LEY40										
Stroke [mm]		30	50	100	150	200	250	300	350	400	450	500
Product weight [kg]	Step motor	2.39	2.50	2.79	3.07	3.47	3.76	4.04	4.33	4.62	4.90	5.19
	Servo motor	—	—	—	—	—	—	—	—	—	—	—

Weight: In-line Motor Type

Series		LEY16D							LEY25D								LEY32D									
Stroke [mm]		30	50	100	150	200	250	300	30	50	100	150	200	250	300	350	400	30	50	100	150	200	250	300	350	400	450	500
Product weight [kg]	Step motor	0.58	0.62	0.73	0.87	0.98	1.09	1.20	1.17	1.24	1.41	1.67	1.85	2.02	2.20	2.37	2.55	2.08	2.19	2.48	2.76	3.16	3.45	3.73	4.02	4.31	4.59	4.88
	Servo motor	0.58	0.62	0.73	0.87	0.98	1.09	1.20	1.13	1.20	1.37	1.63	1.81	1.98	2.16	2.33	2.51	—	—	—	—	—	—	—	—	—	—	—

Series		LEY40D										
Stroke [mm]		30	50	100	150	200	250	300	350	400	450	500
Product weight [kg]	Step motor	2.38	2.49	2.78	3.06	3.46	3.75	4.03	4.32	4.61	4.89	5.18
	Servo motor	—	—	—	—	—	—	—	—	—	—	—

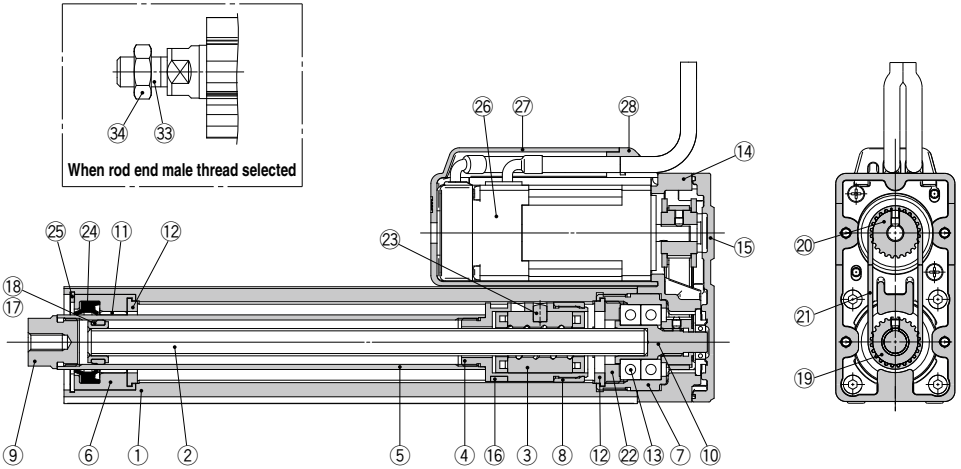
Additional Weight

[kg]

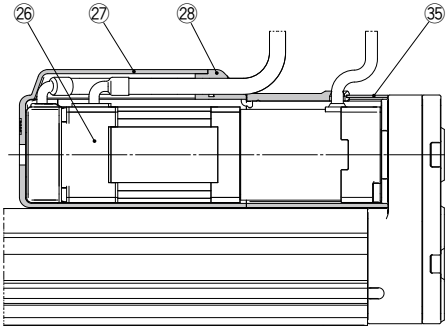
Size		16	25	32	40
Lock		0.12	0.26	0.53	0.53
Motor cover		0.02	0.03	0.04	0.05
Lock/Motor cover		0.16	0.32	0.61	0.62
Rod end male thread	Male thread	0.01	0.03	0.03	0.03
	Nut	0.01	0.02	0.02	0.02
Foot (2 sets including mounting bolt)		0.06	0.08	0.14	0.14
Rod flange (including mounting bolt)		0.13	0.17	0.20	0.20
Head flange (including mounting bolt)					
Double clevis (including pin, retaining ring and mounting bolt)		0.08	0.16	0.22	0.22

Construction

Motor top mounting type: LEY 16 25 32 40

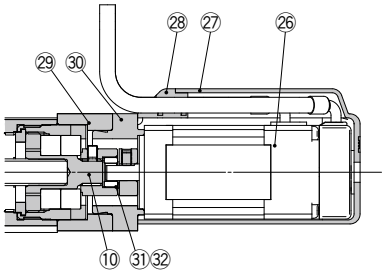


Motor top/parallel type
With lock/motor cover

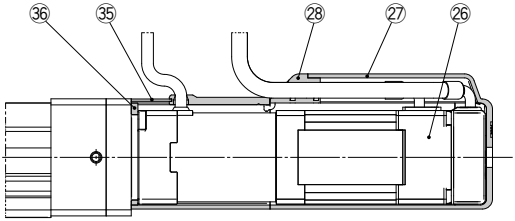


Construction

In-line motor type: LEY 16 25 32 40 D



In-line motor type: With lock/motor cover



Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Ball screw (shaft)**	Alloy steel	
3	**Ball screw nut**	Resin/Alloy steel	
4	**Piston**	Aluminum alloy	
5	**Piston rod**	Stainless steel	Hard chrome plating
6	**Rod cover**	Aluminum alloy	
7	**Housing**	Aluminum alloy	
8	**Rotation stopper**	POM	
9	**Socket**	Free cutting carbon steel	Nickel plating
10	**Connected shaft**	Free cutting carbon steel	Nickel plating
11	**Bushing**	Lead bronze cast	
12	**Bumper**	Urethane	
13	**Bearing**	—	
14	**Return box**	Aluminum die-cast	Coating
15	**Return plate**	Aluminum die-cast	Coating
16	**Magnet**	—	
17	**Wear ring holder**	Stainless steel	Stroke 101 mm or more
18	**Wear ring**	POM	Stroke 101 mm or more
19	**Screw shaft pulley**	Aluminum alloy	
20	**Motor pulley**	Aluminum alloy	
21	**Belt**	—	
22	**Bearing stopper**	Aluminum alloy	
23	**Parallel pin**	Stainless steel	
24	**Seal**	NBR	
25	**Retaining ring**	Steel for spring	Phosphate coated
26	**Motor**	—	
27	**Motor cover**	Synthetic resin	Only "With motor cover"
28	**Grommet**	Synthetic resin	Only "With motor cover"
29	**Motor block**	Aluminum alloy	Anodized
30	**Motor adapter**	Aluminum alloy	Anodized/LEY16, 25 only
31	**Hub**	Aluminum alloy	
32	**Spider**	NBR	
33	**Socket (Male thread)**	Free cutting carbon steel	Nickel plating
34	**Nut**	Alloy steel	
35	**Motor cover with lock**	Aluminum alloy	Only "With lock/motor cover"
36	**Cover support**	Aluminum alloy	Only "With lock/motor cover"

Replacement Parts (Top/Parallel only)/Belt

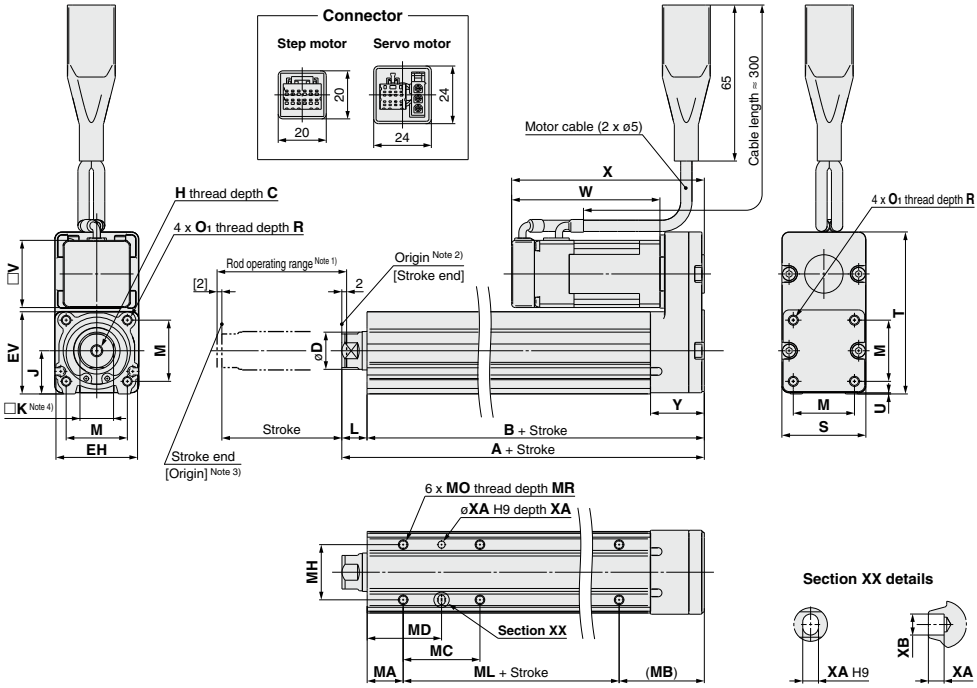
No.	Size	Order no.
21	**16**	LE-D-2-1
	25	LE-D-2-2
	32, 40	LE-D-2-3

Replacement Parts/Grease Pack

Applied portion	Order no.
Piston rod	GR-S-010 (10 g) GR-S-020 (20 g)

∗ Apply grease on the piston rod periodically.
Grease should be applied at 1 million cycles or 200 km, whichever comes first.

Dimensions: Motor Top/Parallel



Note 1) Range within which the rod can move when it returns to origin. Make sure a workpiece mounted on the rod does not interfere with the workpieces and facilities around the rod.
Note 2) Position after return to origin.
Note 3) [ ] for when the direction of return to origin has changed.
Note 4) The direction of rod end width across flats (□K) differs depending on the products.

[mm]

Size	Stroke range [mm]	A	B	C	D	EH	EV	H	J	K	L	M	O1	R	S	T	U	V	Step motor W	Step motor X	Servo motor W	Servo motor X	Y
16	10 to 100	101	90.5	10	16	34	34.3	M5 x 0.8	18	14	10.5	25.5	M4 x 0.7	7	35	67.5	0.5	28	61.8	80.3	62.5	81	22.5
	101 to 300	121	110.5																				
25	15 to 100	130.5	116	13	20	44	45.5	M8 x 1.25	24	17	14.5	34	M5 x 0.8	8	46	92	1	42	63.4	85.4	59.6	81.6	26.5
	101 to 400	155.5	141																				
32	20 to 100	148.5	130	13	25	51	56.5	M8 x 1.25	31	22	18.5	40	M6 x 1.0	10	60	118	1	56.4	68.4	95.4	—	—	34
	101 to 500	178.5	160																				
40	20 to 100	148.5	130	13	25	51	56.5	M8 x 1.25	31	22	18.5	40	M6 x 1.0	10	60	118	1	56.4	90.4	117.4	—	—	34
	101 to 500	178.5	160																				

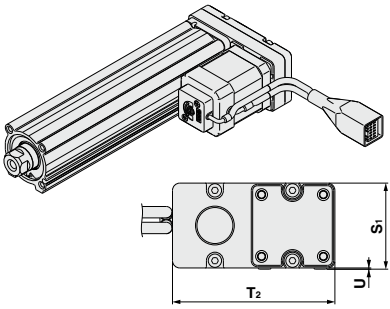
Body Bottom Tapped

[mm]

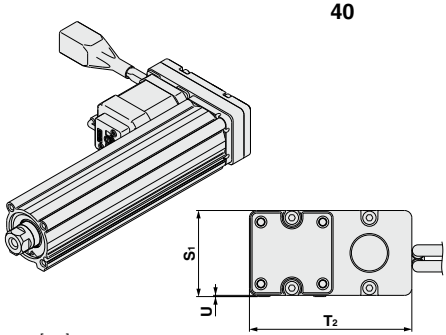
Size	Stroke range [mm]	MA	MB	MC	MD	MH	ML	MO	MR	XA	XB
16	10 to 39	15	35.5	17	23.5	23	40	M4 x 0.7	5.5	3	4
	40 to 100			32	31						
	101 to 300			62	46		60				
25	15 to 39	20	46	24	32	29	50	M5 x 0.8	6.5	4	5
	40 to 100			42	41						
	101 to 124						75				
	125 to 200			59	49.5						
	201 to 400			76	58						
32 **40**	20 to 39	25	55	22	36	30	50	M6 x 1	8.5	5	6
	40 to 100			36	43						
	101 to 124						80				
	125 to 200			53	51.5						
	201 to 500			70	60						

Dimensions: Motor Top/Parallel

Motor left side parallel type: LEY16/25/32/40L



Motor right side parallel type: LEY16/25/32/40R

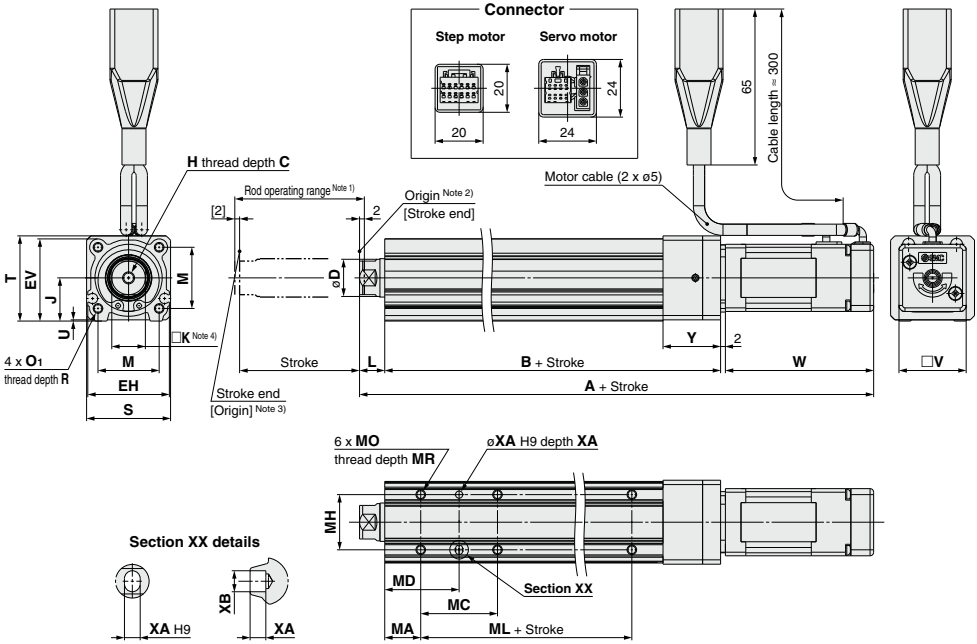


[mm]

Size	S_1	T_2	U
16	35.5	67	0.5
25	47	91	1
32, 40	61	117	1

Note) When the motor is mounted on the left or right side in parallel, the groove for auto switch on the side to which the motor is mounted is hidden.

Dimensions: In-line Motor



Note 1) Range within which the rod can move when it returns to origin. Make sure a workpiece mounted on the rod does not interfere with the workpieces and facilities around the rod.
Note 2) Position after return to origin.
Note 3) [ ] for when the direction of return to origin has changed.
Note 4) The direction of rod end width across flats (□K) differs depending on the products.

[mm]

Size	Stroke range [mm]	A		B	C	D	EH	EV	H	J	K	L	M	O_1	R	S	T	U	V	W		Y
		Step motor	Servo motor																	Step motor	Servo motor	
16	10 to 100	166.3	167	92	10	16	34	34.3	M5 x 0.8	18	14	10.5	25.5	M4 x 0.7	7	35	35.5	0.5	28	61.8	62.5	24
	101 to 300	186.3	187	112																		
25	15 to 100	195.4	191.6	115.5	13	20	44	45.5	M8 x 1.25	24	17	14.5	34	M5 x 0.8	8	45	46.5	1.5	42	63.4	59.6	26
	101 to 400	220.4	216.6	140.5																		
32	20 to 100	216.9	—	128	13	25	51	56.5	M8 x 1.25	31	22	18.5	40	M6 x 1	10	60	61	1	56.4	68.4	—	32
	101 to 500	246.9	—	158																		
40	20 to 100	238.9	—	128	13	25	51	56.5	M8 x 1.25	31	22	18.5	40	M6 x 1	10	60	61	1	56.4	90.4	—	32
	101 to 500	268.9	—	158																		

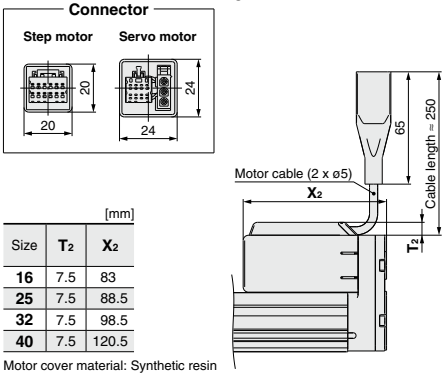
Body Bottom Tapped

[mm]

Size	Stroke range [mm]	MA	MC	MD	MH	ML	MO	MR	XA	XB
16	10 to 39	15	17	23.5	23	40	M4 x 0.7	5.5	3	4
	40 to 100		32	31						
	101 to 300		62	46		60				
25	15 to 39	20	24	32	29	50	M5 x 0.8	6.5	4	5
	40 to 100		42	41						
	101 to 124					75				
	125 to 200		59	49.5						
	201 to 400		76	58						
32 **40**	20 to 39	25	22	36	30	50	M6 x 1	8.5	5	6
	40 to 100		36	43						
	101 to 124					80				
	125 to 200		53	51.5						
	201 to 500		70	60						

Dimensions

Motor top/parallel type
With motor cover: LEY16/25/32/40□□A/B/C-□C

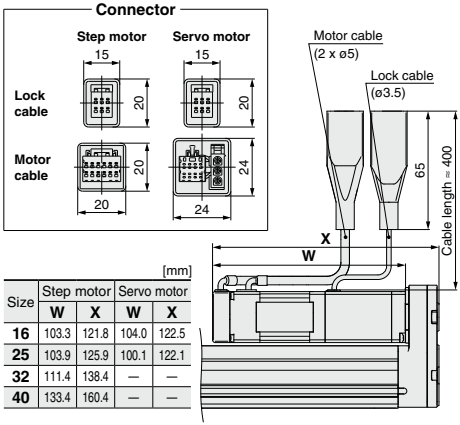


[mm]

Size	T_2	X_2
16	7.5	83
25	7.5	88.5
32	7.5	98.5
40	7.5	120.5

Motor cover material: Synthetic resin

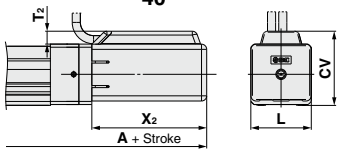
With lock: LEY16/25/32/40□□A/B/C-□B



[mm]

Size	Step motor		Servo motor	
	W	X	W	X
16	103.3	121.8	104.0	122.5
25	103.9	125.9	100.1	122.1
32	111.4	138.4	—	—
40	133.4	160.4	—	—

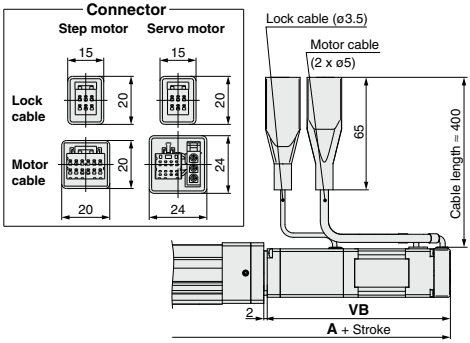
In-line motor type
With motor cover: LEY16/25/32/40D□A/B/C-□C



[mm]

Size	Stroke range	A	T_2	X_2	L	CV
16	100st or less	169	7.5	66.5	35	43
	101st or more, 200st or less	189				
25	100st or less	198.5	7.5	68.5	46	54.5
	101st or more, 400st or less	223.5				
32	100st or less	220	7.5	73.5	60	68.5
	101st or more, 500st or less	250				
40	100st or less	242	7.5	95.5	60	68.5
	101st or more, 500st or less	272				

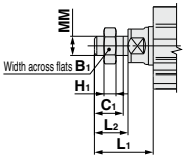
With lock: LEY16/25/32/40D□A/B/C-□B



[mm]

Size	Stroke range	Step motor	Servo motor	Step motor	Servo motor
		A		VB	
16	100st or less	207.8	208.5	103.3	104
	101st or more, 200st or less	227.8	228.5		
25	100st or less	235.9	232.1	103.9	100.1
	101st or more, 400st or less	260.9	257.1		
32	100st or less	259.9	—	111.4	—
	101st or more, 500st or less	289.9	—		
40	100st or less	281.9	—	133.4	—
	101st or more, 500st or less	311.9	—		

End male thread: LEY16/25/32/40□□A/B/C-□□M



∗ Refer to page 250 for details about the rod end nut and mounting bracket.
Note) Refer to the "Handling" precautions on pages 303 to 305 when mounting end brackets such as knuckle joint or workpieces.

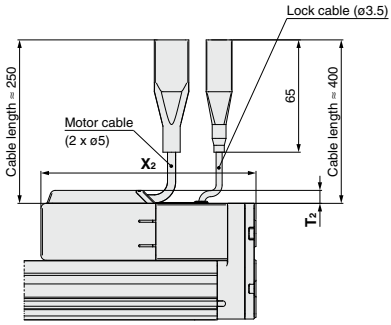
[mm]

Size	B_1	C_1	H_1	L_1	L_2	MM
16	13	12	5	24.5	14	M8 x 1.25
25	22	20.5	8	38	23.5	M14 x 1.5
32, 40	22	20.5	8	42.0	23.5	M14 x 1.5

∗ The L_1 measurement is when the unit is in the original position. At this position, 2 mm at the end.

Dimensions

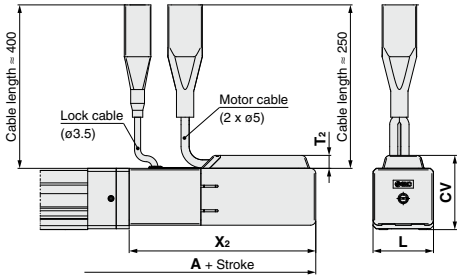
Motor top/parallel type **16 25 32 40**
With lock/motor cover: LEY□□B-□W **A C**



[mm]

Size	T_2	X_2
16	7.5	124.5
25	7.5	129
32	7.5	141.5
40	7.5	163.5

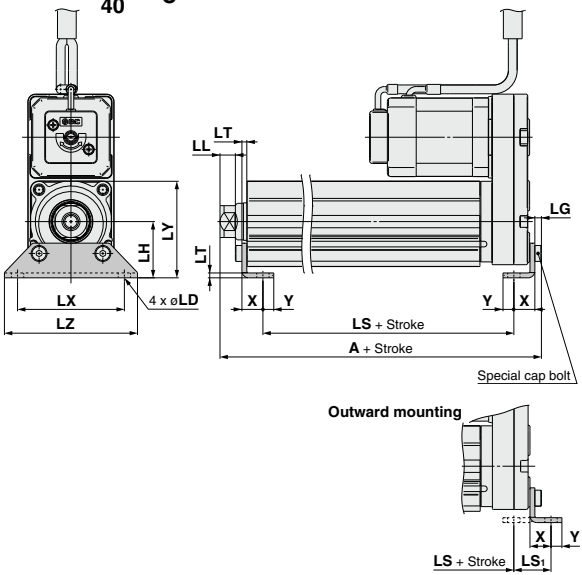
In-line motor type **16 25 32 40**
With lock/motor cover: LEY□D□B-□W **A C**



[mm]

Size	Stroke range	A	T_2	X_2	L	CV
16	100st or less	210.5	7.5	108	35	43
	101st or more, 300st or less	230.5				
25	100st or less	239	7.5	109	46	54.4
	101st or more, 400st or less	264				
32	100st or less	263	7.5	116.5	60	68.5
	101st or more, 500st or less	293				
40	100st or less	285	7.5	138.5	60	68.5
	101st or more, 500st or less	315				

Foot: LEY **16 25 32 40** **A C** **□□B-□□□L**



Included parts
- Foot
- Body mounting bolt

Foot

[mm]

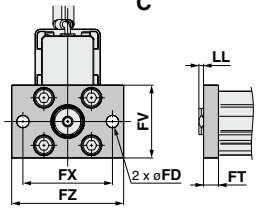
Size	Stroke range [mm]	A	LS	LS_1	LL	LD	LG
16	10 to 100	106.1	76.7	16.1	5.4	6.6	2.8
	101 to 300	126.1	96.7				
25	15 to 100	136.6	98.8	19.8	8.4	6.6	3.5
	101 to 400	161.6	123.8				
32 **40**	20 to 100	155.7	114	19.2	11.3	6.6	4
	101 to 500	185.7	144				

Size	Stroke range [mm]	LH	LT	LX	LY	LZ	X	Y
16	10 to 100	24	2.3	48	40.3	62	9.2	5.8
	101 to 300							
25	15 to 100	30	2.6	57	51.5	71	11.2	5.8
	101 to 400							
32 **40**	20 to 100	36	3.2	76	61.5	90	11.2	7
	101 to 500							

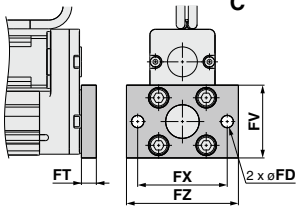
Material: Carbon steel (Chromate treated)
∗ The A measurement is when the unit is in the original position. At this position, 2 mm at the end.
Note) When the motor mounting is the right or left side parallel type, the head side foot should be mounted outwards.

Dimensions

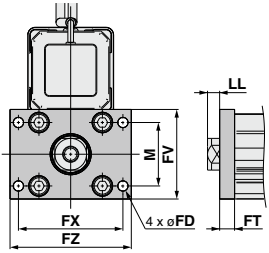
Rod flange: LEY16□□A/B/C-□□□F



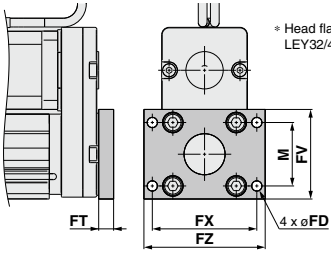
Head flange: LEY16□□A/B/C-□□□G



Rod flange: LEY32/40□□A/B/C-□□□F



Head flange: LEY25□□A/B/C-□□□G



∗ Head flange is not available for the LEY32/40.

Included parts
- Flange
- Body mounting bolt

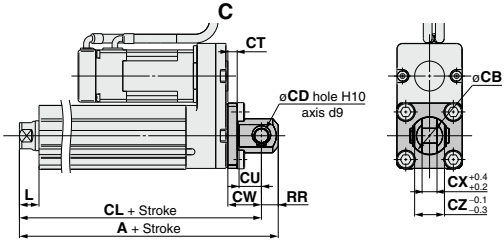
Rod/Head Flange

[mm]

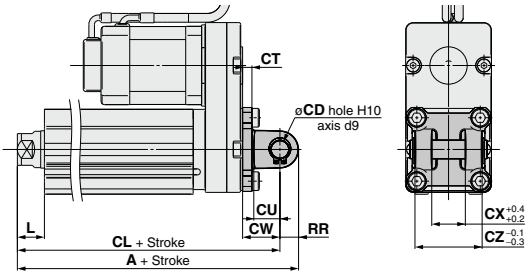
Size	FD	FT	FV	FX	FZ	LL	M
16	6.6	8	39	48	60	2.5	—
25	5.5	8	48	56	65	6.5	34
32, 40	5.5	8	54	62	72	10.5	40

Material: Carbon steel (Nickel plating)

Double clevis: LEY16□□A/B/C-□□□D



Double clevis: LEY32/40□□A/B/C-□□□D



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

∗ Refer to page 250 for details about the rod end nut and mounting bracket.

Double Clevis

[mm]

Size	Stroke range [mm]	A	CL	CB	CD	CT
16	10 to 100	128	119	20	8	5
25	15 to 100	160.5	150.5	—	10	5
	101 to 200	185.5	175.5			
32	20 to 100	180.5	170.5	—	10	6
40	101 to 200	210.5	200.5			

Size	Stroke range [mm]	CU	CW	CX	CZ	L	RR
16	10 to 100	12	18	8	16	10.5	9
25	15 to 100	14	20	18	36	14.5	10
	101 to 200						
32	20 to 100	14	22	18	36	18.5	10
40	101 to 200						

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.

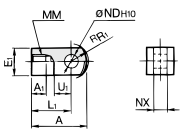
Accessory Mounting Brackets

Accessory Brackets/Support Brackets

Single Knuckle Joint

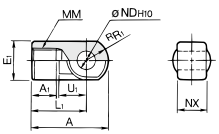
∗ If a knuckle joint is used, select the body option [end male thread].

I-G02



Material: Carbon steel
Surface treatment: Nickel plating

I-G04

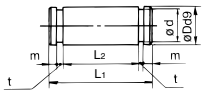


Material: Cast iron
Surface treatment: Nickel plating

[mm]

Part no.	Applicable size	A	A_1	E_1	L_1	MM	R_1	U_1	ND_{H10}	NX
I-G02	**16**	34	8.5	□16	25	M8 x 1.25	10.3	11.5	$8^{+0.058}_{0}$	$8^{-0.2}_{-0.4}$
I-G04	**25, 32, 40**	42	14	ø22	30	M14 x 1.5	12	14	$10^{+0.058}_{0}$	$18^{-0.3}_{-0.5}$
I-G05	**63**	56	18	ø28	40	M18 x 1.5	16	20	$14^{+0.070}_{0}$	$22^{-0.3}_{-0.5}$

Knuckle Pin (Common with double clevis pin)



Material: Carbon steel
[mm]

Part no.	Applicable size	Dd9	L_1	L_2	d	m	t	Retaining ring
IY-G02	**16**	$8^{-0.040}_{-0.076}$	21	16.2	7.6	1.5	0.9	Type C retaining ring 8
IY-G04	**25, 32, 40**	$10^{-0.040}_{-0.076}$	41.6	36.2	9.6	1.55	1.15	Type C retaining ring 10
IY-G05	**63**	$14^{-0.050}_{-0.093}$	50.6	44.2	13.4	2.05	1.15	Type C retaining ring 14

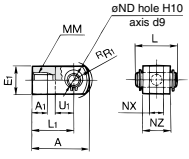
Mounting Brackets/Part No.

Applicable size	Foot	Flange	Double clevis
16	LEY-L016	LEY-F016	LEY-D016
25	LEY-L025	LEY-F025	LEY-D025
32, 40	LEY-L032	LEY-F032	LEY-D032
63	LEY-L063	LEY-F063	LEY-D063

∗ When ordering foot brackets, order 2 pieces per actuator.
∗ Parts belonging to each bracket are as follows.
Foot: Body mounting bolt
Flange: Body mounting bolt
Double clevis: Clevis pin, Type C retaining ring for axis, Body mounting bolt

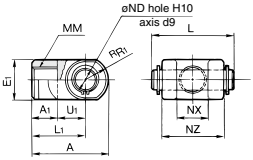
Double Knuckle Joint

Y-G02



Material: Carbon steel
Surface treatment: Nickel plating

Y-G04



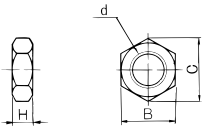
Material: Cast iron
Surface treatment: Nickel plating

∗ Knuckle pin and retaining ring are included. [mm]

Part no.	Applicable size	A	A_1	E_1	L_1	MM	R_1
Y-G02	**16**	34	8.5	□16	25	M8 x 1.25	10.3
Y-G04	**25, 32, 40**	42	16	ø22	30	M14 x 1.5	12
Y-G05	**63**	56	20	ø28	40	M18 x 1.5	16

Part no.	Applicable size	U_1	ND_{H10}	NX	NZ	L	Applicable pin part no.
Y-G02	**16**	11.5	$8^{+0.058}_{0}$	$8^{+0.4}_{+0.2}$	16	21	**IY-G02**
Y-G04	**25, 32, 40**	14	$10^{+0.058}_{0}$	$18^{+0.5}_{+0.3}$	36	41.6	**IY-G04**
Y-G05	**63**	20	$14^{+0.070}_{0}$	$22^{+0.5}_{+0.3}$	44	50.6	**IY-G05**

Rod End Nut



Material: Carbon steel (Nickel plating)
[mm]

Part no.	Applicable size	d	H	B	C
NT-02	**16**	M8 x 1.25	5	13	15.0
NT-04	**25, 32, 40**	M14 x 1.5	8	22	25.4
NT-05	**63**	M18 x 1.5	11	27	31.2

Simple Joint Brackets

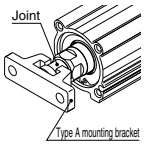
* The joint is not included in type A and type B mounting brackets. Therefore, it must be ordered separately.

Joint and Mounting Bracket (Type A/B)/Part No.

Joint **LEY-U025**

Applicable size

025	25, 32, 40



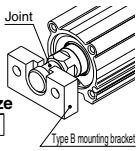
Mounting bracket **YA-03**

Mounting bracket

YA	Type A mounting bracket
YB	Type B mounting bracket

Applicable size

03	25, 32, 40



Allowable Eccentricity [mm]

Applicable size	25	32	40
Eccentricity tolerance	±1		
Backlash	0.5		

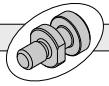
<How to Order>
- The joint is not included in type A and type B mounting brackets. Therefore, it must be ordered separately.

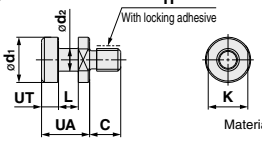
Example) Order no.
- Joint.....LEY-U025
- Type A mounting bracket.....YA-03

Joint and Mounting Bracket (Type A/B)/Part No.

Applicable size	Joint part no.	Applicable mounting bracket part no.	
		Type A mounting bracket	Type B mounting bracket
25, 32, 40	LEY-U025	YA-03	YB-03

Joint



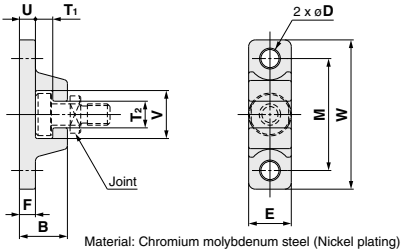


Material: Stainless steel

[mm]

Part no.	Applicable size	UA	C	d_1	d_2	H	K	L	UT	Weight [g]
LEY-U025	**25, 32, 40**	17	11	16	8	M8 x 1.25	14	7	6	22

Type A Mounting Bracket



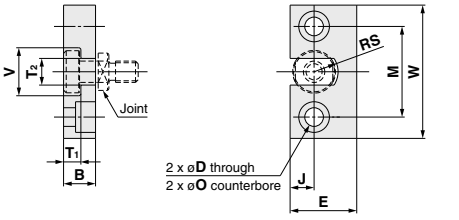
Material: Chromium molybdenum steel (Nickel plating)

[mm]

Part no.	Applicable size	B	D	E	F	M	T_1	T_2	U
YA-03	**25, 32, 40**	18	6.8	16	6	42	6.5	10	6

Part no.	Applicable size	V	W	Weight [g]
YA-03	**25, 32, 40**	18	56	55

Type B Mounting Bracket



Material: Stainless steel

[mm]

Part no.	Applicable size	B	D	E	J	M	øO
YB-03	**25, 32, 40**	12	7	25	9	34	11.5 depth 7.5

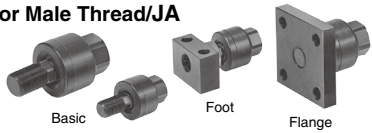
Part no.	Applicable size	T_1	T_2	V	W	RS	Weight [g]
YB-03	**25, 32, 40**	6.5	10	18	50	9	80

Floating Joints (Refer to Best Pneumatics No. 2-1 for details.)

●For Male Thread/JC (Light weight type)

- **With the aluminum case**

●For Male Thread/JA



●For Male Thread/JS (Stainless steel)

- **Stainless steel 304 (Appearance)**
- **Dust cover**

Fluororubber/Silicone rubber

Applicable size	Thread size
16	M8 x 1.25
25, 32, 40	M14 x 1.5
63	M18 x 1.5

●For Female Thread/JB

Applicable size	Thread size
16	M5 x 0.8
25, 32, 40	M8 x 1.25
63	M16 x 2

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

RoHS

Refer to SMC website for the details of the products conforming to the international standards.

Grommet

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

⚠Caution

Precautions

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

Auto Switch Specifications

PLC: Programmable Logic Controller

D-M9□, 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 μA or less at 24 VDC				0.8 mA or less	
Indicator light	Red LED illuminates when turned ON.					
Standard	CE marking, RoHS					

Oilproof Heavy-duty Lead Wire Specifications

Auto switch model		D-M9N(V)	D-M9P(V)	D-M9B(V)
Sheath	Outside diameter [mm]	2.6		
Insulator	Number of cores	3 cores (Brown/Blue/Black)		2 cores (Brown/Blue)
	Outside diameter [mm]	0.88		
Conductor	Effective area [mm²]	0.15		
	Strand diameter [mm]	0.05		
Minimum bending radius [mm] (Reference values)		17		

Note 1) Refer to Best Pneumatics No. 2-1 for solid state auto switch common specifications.
Note 2) Refer to Best Pneumatics No. 2-1 for lead wire lengths.

Weight

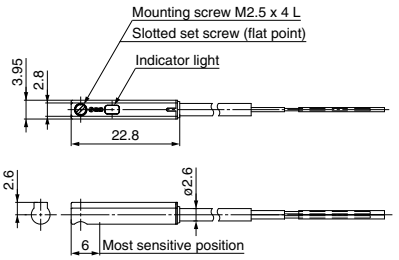
(g)

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

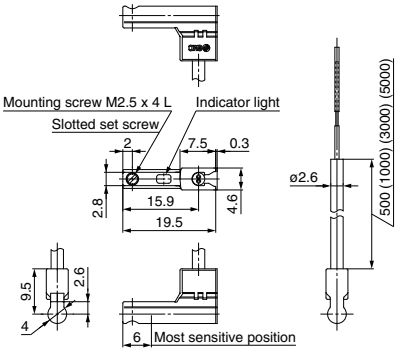
Dimensions

(mm)

D-M9□



D-M9□V



SMC

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

RoHS

Refer to SMC website for the details of the products conforming to the international standards.

Grommet

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

⚠Caution

Precautions

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

Auto Switch Specifications

PLC: Programmable Logic Controller

D-M9□W, 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 μA or less at 24 VDC				0.8 mA or less	
Indicator light	Operating range ····· Red LED illuminates. Proper operating range ····· Green LED illuminates.					
Standard	CE marking, RoHS					

Oilproof Flexible Heavy-duty Lead Wire Specifications

Auto switch model		D-M9NW(V)	D-M9PW(V)	D-M9BW(V)
Sheath	Outside diameter [mm]	2.6		
Insulator	Number of cores	3 cores (Brown/Blue/Black)		2 cores (Brown/Blue)
	Outside diameter [mm]	0.88		
Conductor	Effective area [mm²]	0.15		
	Strand diameter [mm]	0.05		
Minimum bending radius [mm] (Reference values)		17		

Note 1) Refer to Best Pneumatics No. 2-1 for solid state auto switch common specifications.
Note 2) Refer to Best Pneumatics No. 2-1 for lead wire lengths.

Weight

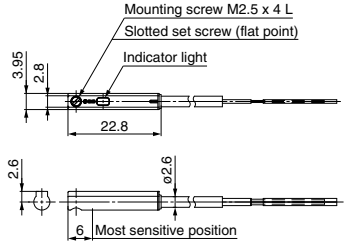
(g)

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

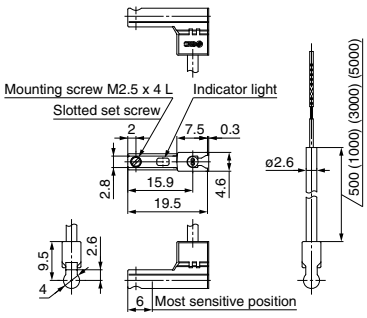
Dimensions

(mm)

D-M9□W



D-M9□WV



AC Servo Motor

Electric Actuator/ Rod Type

LEY Series LEY25, 32

Size 25, 32

CE RoHS

Dust-tight/Water-jet-proof ▶ Page 494 | Secondary Battery Compatible ▶ Page 544 | Motorless Type ▶ Page 854
SSCNETIII/H Compatible ▶ Page 636 | MECHATROLINK Compatible ▶ Page 736

How to Order

LEY H 25 □ S2 B – 100 □ □ □ – S 2 A1 □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫ ⓬ ⓭

❶ Accuracy

Nil	Basic type
H	High precision type

❷ Size

25
32

❸ Motor mounting position

Nil	Top mounting
R	Right side parallel
L	Left side parallel
D	In-line

❹ Motor type*1

Symbol	Type	Output [W]	Actuator size	Compatible drivers*2
S2	AC servo motor (Incremental encoder)	100	25	LECSA□-S1
S3	AC servo motor (Incremental encoder)	200	32	LECSA□-S3
S6	AC servo motor (Absolute encoder)	100	25	LECSB□-S5 LECSC□-S5 LECSS□-S5
S7	AC servo motor (Absolute encoder)	200	32	LECSB□-S7 LECSC□-S7 LECSS□-S7

*1 For motor type S2 and S6, the compatible driver part number suffixes are S1 and S5 respectively.
*2 For details about the driver, refer to page 607.

❺ Lead [mm]

Symbol	LEY25	LEY32*
A	12	16 (20)
B	6	8 (10)
C	3	4 (5)

* The values shown in ( ) are the lead for size 32 top mounting, right/left side parallel types. (Equivalent lead which includes the pulley ratio [1.25:1])

❻ Stroke [mm]

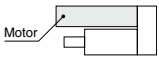
30	30
to	to
500	500

* Refer to the applicable stroke table for details.

❼ Motor option

Nil	Without option
B	With lock*

* When "With lock" is selected for the top mounting and right/left side parallel types, the motor body will stick out of the end of the body for size 25 with strokes 30 mm or less. Check for interference with workpieces before selecting a model.



❽ Rod end thread

Nil	Rod end female thread
M	Rod end male thread (1 rod end nut is included.)

❾ Mounting*1

Symbol	Type	Motor mounting position	
		Top/Parallel	In-line
Nil	Ends tapped/ Body bottom tapped *2	●	●
L	Foot	●	—
F	Rod flange*2	●*4	●
G	Head flange*2	●*5	—
D	Double clevis*3	●	—

*1 Mounting bracket is shipped together, (but not assembled).
*2 For horizontal cantilever mounting with the rod flange, head flange and ends tapped, use the actuator within the following stroke range.
・LEY25: 200 mm or less ・LEY32: 100 mm or less
*3 For mounting with the double clevis, use the actuator within the following stroke range.
・LEY25: 200 mm or less ・LEY32: 200 mm or less
*4 Rod flange is not available for the LEY25 with stroke 30 mm and motor option "With lock".
*5 Head flange is not available for the LEY32.

* Applicable stroke table ●: Standard

Model \ Stroke [mm]	30	50	100	150	200	250	300	350	400	450	500	Manufacturable stroke range
LEY25	●	●	●	●	●	●	●	●	●	—	—	15 to 400
LEY32	●	●	●	●	●	●	●	●	●	●	●	20 to 500

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

For auto switches, refer to pages 252 and 253.

Motor mounting position: Top/Parallel

Motor mounting position: In-line

⑩ Cable type*

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

* The motor and encoder cables are included. (The lock cable is also included when the motor with lock option is selected.)
* Standard cable entry direction is
  - Top/Parallel: (A) Axis side
  - In-line: (B) Counter axis side

(Refer to page 623 for details.)

⑪ Cable length* [m]

Nil	Without cable
2	2
5	5
A	10

* The length of the encoder, motor and lock cables are the same.

⑫ Driver type*

	Compatible driver	Power supply voltage [V]
Nil	Without driver	—
A1	LECSA1-S□	100 to 120
A2	LECSA2-S□	200 to 230
B1	LECSB1-S□	100 to 120
B2	LECSB2-S□	200 to 230
C1	LECSC1-S□	100 to 120
C2	LECSC2-S□	200 to 230
S1	LECSS1-S□	100 to 120
S2	LECSS2-S□	200 to 230

* When the driver type is selected, the cable is included. Select cable type and cable length.
  Example)
  S2S2: Standard cable (2 m) + Driver (LECSS2)
  S2 : Standard cable (2 m)
  Nil : Without cable and driver

⑬ I/O cable length [m]*

Nil	Without cable
H	Without cable (Connector only)
1	1.5

* When "Without driver" is selected for driver type, only "Nil: Without cable" can be selected. Refer to page 624 if I/O cable is required. (Options are shown on page 624.)

Compatible Driver

Driver type	**Pulse input type /Positioning type** 	**Pulse input type** 	**CC-Link direct input type** 	**SSCNET Ⅲ type** 
Series	**LECSA**	**LECSB**	**LECSC**	**LECSS**
Number of point tables	Up to 7	—	Up to 255 (2 stations occupied)	—
Pulse input	○	○	—	—
Applicable network	—	—	CC-Link	SSCNET Ⅲ
Control encoder	Incremental 17-bit encoder	Absolute 18-bit encoder	Absolute 18-bit encoder	Absolute 18-bit encoder
Communication function	USB communication	USB communication, RS422 communication	USB communication, RS422 communication	USB communication
Power supply voltage [V]	100 to 120 VAC (50/60 Hz) 200 to 230 VAC (50/60 Hz)			
Reference page	Page 607			

Specifications

Model			LEY25S$^{\square}_{8}$ (Top/Parallel)/LEY25DS$^{\square}_{8}$ (In-line)			LEY32S$^{\square}_{7}$ (Top/Parallel)			LEY32DS$^{\square}_{7}$ (In-line)		
Actuator specifications	Stroke [mm] Note 1)		30, 50, 100, 150, 200, 250, 300, 350, 400			30, 50, 100, 150, 200, 250, 300, 350, 400, 450, 500			30, 50, 100, 150, 200, 250, 300, 350, 400, 450, 500		
	Work load [kg]	Horizontal Note 2)	18	50	50	30	60	60	30	60	60
		Vertical	8	16	30	9	19	37	12	24	46
	Force [N] Note 3) (Set value: 15 to 30%)		65 to 131	127 to 255	242 to 485	79 to 157	154 to 308	294 to 588	98 to 197	192 to 385	368 to 736
	Max. speed [mm/s] Note 4) Stroke range	Up to 300	900	450	225	1200	600	300	1000	500	250
		305 to 400	600	300	150						
		405 to 500	—	—	—	800	400	200	640	320	160
	Pushing speed [mm/s] Note 5)		35 or less			30 or less			30 or less		
	Max. acceleration/deceleration [mm/s²]		5000			5000					
	Positioning repeatability [mm]	Basic type	±0.02								
		High precision type	±0.01								
	Lost motion Note 6) [mm]	Basic type	0.1 or less								
		High precision type	0.05 or less								
	Lead [mm] (including pulley ratio)		12	6	3	20	10	5	16	8	4
	Impact/Vibration resistance [m/s²] Note 7)		50/20			50/20					
	Actuation type		Ball screw + Belt (LEY□)/Ball screw (LEY□D)			Ball screw + Belt [1.25:1]			Ball screw		
	Guide type		Sliding bushing (Piston rod)			Sliding bushing (Piston rod)					
	Operating temperature range [°C]		5 to 40			5 to 40					
	Operating humidity range [%RH]		90 or less (No condensation)			90 or less (No condensation)					
	Regeneration option		May be required depending on speed and work load. (Refer to pages 234 and 235.)								
Electric specifications	Motor output/Size		100 W/□40			200 W/□60					
	Motor type		AC servo motor (100/200 VAC)			AC servo motor (100/200 VAC)					
	Encoder		Motor type S2, S3: Incremental 17-bit encoder (Resolution: 131072 p/rev) Motor type S6, S7: Absolute 18-bit encoder (Resolution: 262144 p/rev)								
	Power consumption [W] Note 8)	Horizontal	45			65			65		
		Vertical	145			175			175		
	Standby power consumption when operating [W] Note 9)	Horizontal	2			2			2		
		Vertical	8			8			8		
	Max. instantaneous power consumption [W] Note 10)		445			724			724		
Lock unit specifications	Type Note 11)		Non-magnetizing lock								
	Holding force [N]		131	255	485	157	308	588	197	385	736
	Power consumption [W] at 20°C Note 12)		6.3			7.9			7.9		
	Rated voltage [V]		24 VDC $^{0}_{-10\%}$								

Note 1) Please consult with SMC for non-standard strokes as they are produced as special orders.
Note 2) The maximum value of the horizontal work load. An external guide is necessary to support the load. The actual work load changes according to the condition of the external guide. Please confirm using actual device.
Note 3) The force setting range (set values for the driver) for the force control with the torque control mode. Set it with reference to "Force Conversion Graph" on page 236. When the control equivalent to the pushing operation of the controller LECP series is performed, select the LECSS driver and combine it with the Simple Motion (manufactured by Mitsubishi Electric Corporation) which has a pushing operation function.
Note 4) The allowable speed changes according to the stroke. Set the number of rotations according to speed.
Note 5) The allowable collision speed for collision with the workpiece with the torque control mode.
Note 6) A reference value for correcting an error in reciprocal operation.
Note 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. (Test was performed with the actuator in the initial state.)
Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. Test was performed in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)
Note 8) The power consumption (including the driver) is for when the actuator is operating.
Note 9) The standby power consumption when operating (including the driver) is for when the actuator is stopped in the set position during the operation.
Note 10) The maximum instantaneous power consumption (including the driver) is for when the actuator is operating.
Note 11) Only when motor option "With lock" is selected.
Note 12) For an actuator with lock, add the power consumption for the lock.

Weight

Product Weight

[kg]

Series		LEY25S□ (Motor mounting position: Top/Parallel)									LEY32S□ (Motor mounting position: Top/Parallel)										
Stroke [mm]		30	50	100	150	200	250	300	350	400	30	50	100	150	200	250	300	350	400	450	500
Motor type	Incremental encoder	1.31	1.38	1.55	1.81	1.99	2.16	2.34	2.51	2.69	2.42	2.53	2.82	3.29	3.57	3.85	4.14	4.42	4.70	4.98	5.26
	Absolute encoder	1.37	1.44	1.61	1.87	2.05	2.22	2.40	2.57	2.75	2.36	2.47	2.76	3.23	3.51	3.79	4.08	4.36	4.64	4.92	5.20

Series		LEY25DS□ (Motor mounting position: In-line)									LEY32DS□ (Motor mounting position: In-line)										
Stroke [mm]		30	50	100	150	200	250	300	350	400	30	50	100	150	200	250	300	350	400	450	500
Motor type	Incremental encoder	1.34	1.41	1.58	1.84	2.02	2.19	2.37	2.54	2.72	2.44	2.55	2.84	3.31	3.59	3.87	4.16	4.44	4.72	5.00	5.28
	Absolute encoder	1.40	1.47	1.64	1.90	2.08	2.25	2.43	2.60	2.78	2.38	2.49	2.78	3.25	3.53	3.81	4.10	4.38	4.66	4.94	5.22

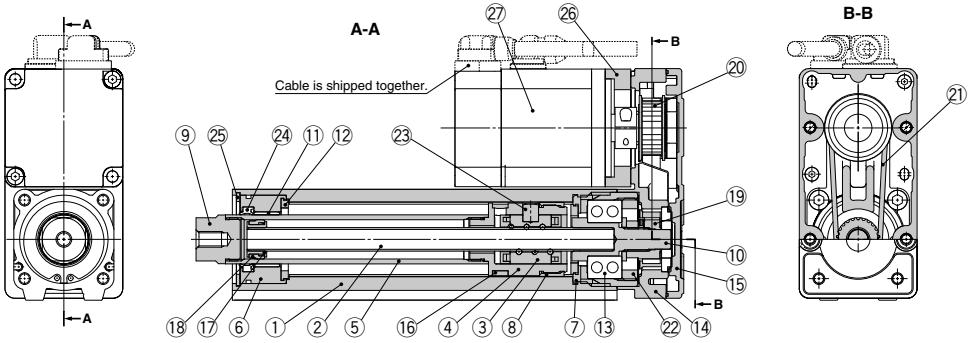
Additional Weight

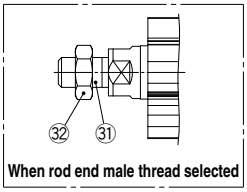
[kg]

Size		25	32
Lock	Incremental encoder	0.20	0.40
	Absolute encoder	0.30	0.66
Rod end male thread	Male thread	0.03	0.03
	Nut	0.02	0.02
Foot (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

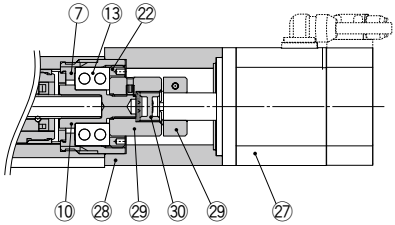
Construction

Motor top mounting type: LEY$^{25}_{32}$





In-line motor type: LEY$^{25}_{32}$D



Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Ball screw shaft**	Alloy steel	
3	**Ball screw nut**	Resin/Alloy steel	
4	**Piston**	Aluminum alloy	
5	**Piston rod**	Stainless steel	Hard chrome plating
6	**Rod cover**	Aluminum alloy	
7	**Housing**	Aluminum alloy	
8	**Rotation stopper**	POM	
9	**Socket**	Free cutting carbon steel	Nickel plating
10	**Connected shaft**	Free cutting carbon steel	Nickel plating
11	**Bushing**	Lead bronze cast	
12	**Bumper**	Urethane	
13	**Bearing**	—	
14	**Return box**	Aluminum die-cast	Coating
15	**Return plate**	Aluminum die-cast	Coating
16	**Magnet**	—	
17	**Wear ring holder**	Stainless steel	Stroke 101 mm or more
18	**Wear ring**	POM	Stroke 101 mm or more
19	**Screw shaft pulley**	Aluminum alloy	
20	**Motor pulley**	Aluminum alloy	
21	**Belt**	—	
22	**Bearing stopper**	Aluminum alloy	
23	**Parallel pin**	Stainless steel	
24	**Seal**	NBR	
25	**Retaining ring**	Steel for spring	Phosphate coated
26	**Motor adapter**	Aluminum alloy	Coating
27	**Motor**	—	
28	**Motor block**	Aluminum alloy	Coating
29	**Hub**	Aluminum alloy	
30	**Spider**	Urethane	
31	**Socket (Male thread)**	Free cutting carbon steel	Nickel plating
32	**Nut**	Alloy steel	Zinc chromated

Replacement Parts (Top/Parallel only)/Belt

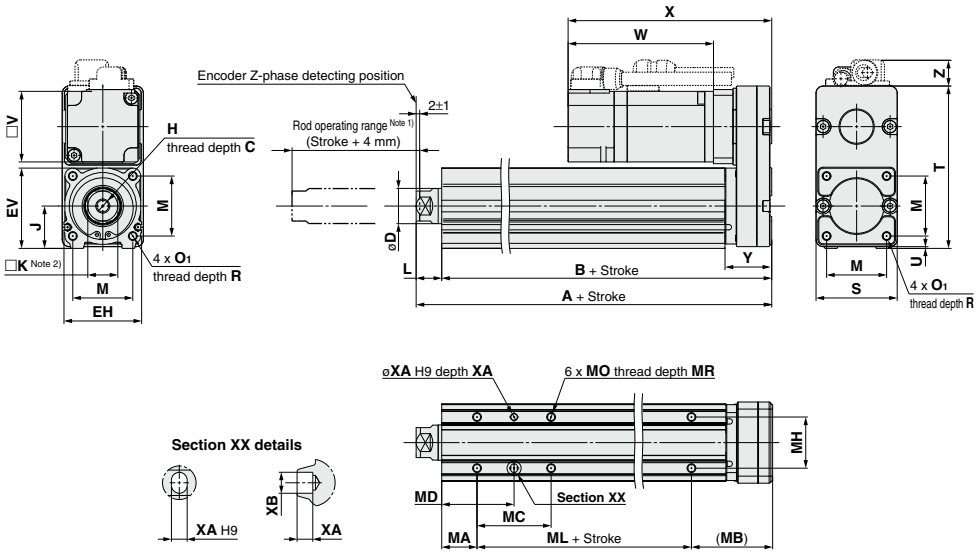
No.	Size	Order no.
21	**25**	LE-D-2-2
	32	LE-D-2-4

Replacement Parts/Grease Pack

Applied portion	Order no.
Piston rod	GR-S-010 (10 g) GR-S-020 (20 g)

∗ Apply grease on the piston rod periodically.
Grease should be applied at 1 million cycles or 200 km, whichever comes first.

Dimensions: Motor Top/Parallel



Note 1) Range within which the rod can move. Make sure a workpiece mounted on the rod does not interfere with the workpieces and facilities around the rod.
Note 2) The direction of rod end width across flats (□K) differs depending on the products.

[mm]

Size	Stroke range [mm]	A	B	C	D	EH	EV	H	J	K	L	M	O1	R	S
25	15 to 100	130.5	116	13	20	44	45.5	M8 x 1.25	24	17	14.5	34	M5 x 0.8	8	46
	105 to 400	155.5	141												
32	20 to 100	148.5	130	13	25	51	56.5	M8 x 1.25	31	22	18.5	40	M6 x 1.0	10	60
	105 to 500	178.5	160												

Size	Stroke range [mm]	T	U	Y	V	Incremental encoder						Absolute encoder					
						Without lock			With lock			Without lock			With lock		
						W	X	Z	W	X	Z	W	X	Z	W	X	Z
25	15 to 100	92	1	26.5	40	87	120	14.1	123.9	156.9	15.8	82.4	115.4	14.1	123.5	156.5	15.8
	105 to 400																
32	20 to 100	118	1	34	60	88.2	128.2	17.1	116.8	156.8	17.1	76.6	116.6	17.1	116.1	156.1	17.1
	105 to 500																

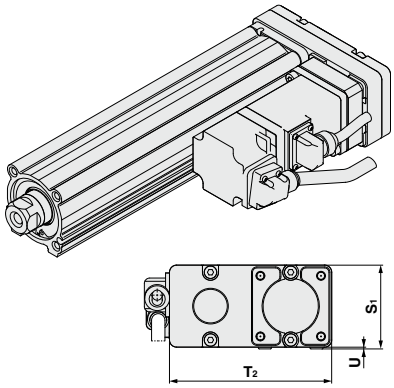
Body Bottom Tapped

[mm]

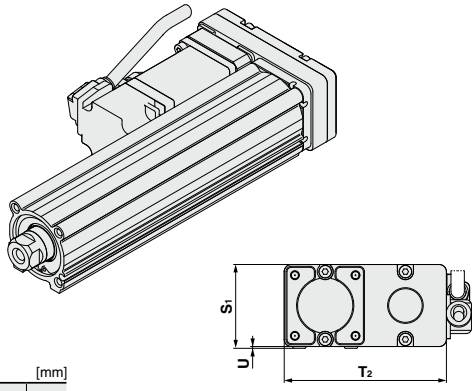
Size	Stroke range [mm]	MA	MB	MC	MD	MH	ML	MO	MR	XA	XB
25	15 to 39	20	46	24	32	29	50	M5 x 0.8	6.5	4	5
	40 to 100			42	41						
	101 to 124						75				
	125 to 200			59	49.5						
	201 to 400			76	58						
32	20 to 39	25	55	22	36	30	50	M6 x 1	8.5	5	6
	40 to 100			36	43						
	101 to 124						80				
	125 to 200			53	51.5						
	201 to 500			70	60						

Dimensions: Motor Top/Parallel

Motor left side parallel type: LEY$^{25}_{32}$L



Motor right side parallel type: LEY$^{25}_{32}$R

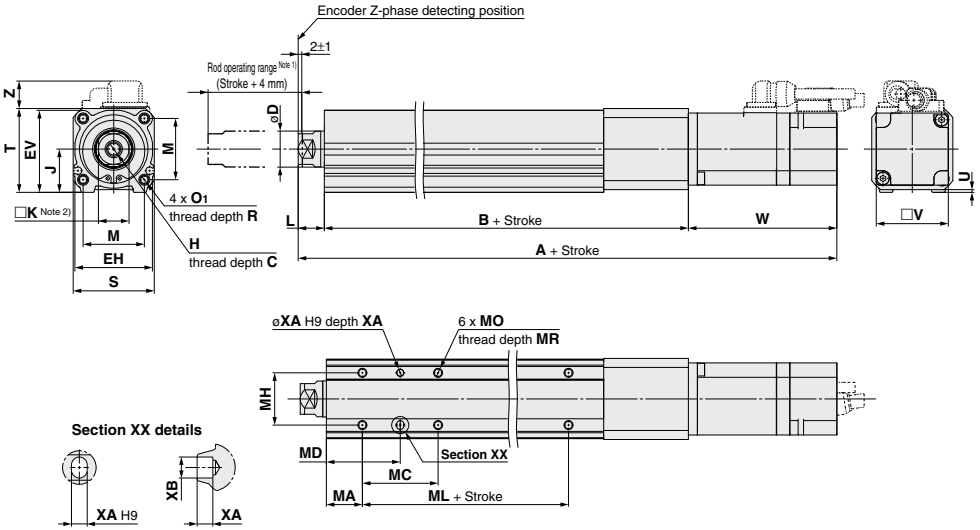


[mm]

Size	S_1	T_2	U
25	47	91	1
32	61	117	1

Note) When the motor is mounted on the left or right side in parallel, the groove for auto switch on the side to which the motor is mounted is hidden.

Dimensions: In-line Motor



Note 1) Range within which the rod can move.
Make sure a workpiece mounted on the rod does not interfere with the workpieces and facilities around the rod.
Note 2) The direction of rod end width across flats (□K) differs depending on the products.

[mm]

Size	Stroke range [mm]	C	D	EH	EV	H	J	K	L	M	O1	R	S	T	U
25	15 to 100	13	20	44	45.5	M8 x 1.25	24	17	14.5	34	M5 x 0.8	8	45	46.5	1.5
	105 to 400														
32	20 to 100	13	25	51	56.5	M8 x 1.25	31	22	18.5	40	M6 x 1.0	10	60	61	1
	105 to 500														

Size	Stroke range [mm]	B	V	Incremental encoder						Absolute encoder					
				Without lock			With lock			Without lock			With lock		
				A	W	Z	A	W	Z	A	W	Z	A	W	Z
25	15 to 100	136.5	40	238	87	14.6	274.9	123.9	16.3	233.4	82.4	14.6	274.5	123.5	16.3
	105 to 400	161.5		263			299.9			258.4			299.5		
32	20 to 100	156	60	262.7	88.2	17.1	291.3	116.8	17.1	251.1	76.6	17.1	290.6	116.1	17.1
	105 to 500	186		292.7			321.3			281.1			320.6		

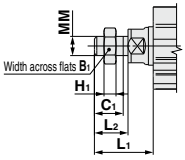
Body Bottom Tapped

[mm]

Size	Stroke range [mm]	MA	MC	MD	MH	ML	MO	MR	XA	XB
25	15 to 39	20	24	32	29	50	M5 x 0.8	6.5	4	5
	40 to 100		42	41						
	101 to 124					75				
	125 to 200		59	49.5						
	201 to 400		76	58						
32	20 to 39	25	22	36	30	50	M6 x 1	8.5	5	6
	40 to 100		36	43						
	101 to 124					80				
	125 to 200		53	51.5						
	201 to 500		70	60						

Dimensions

End male thread: LEY25/32□□A/B/C-□□M



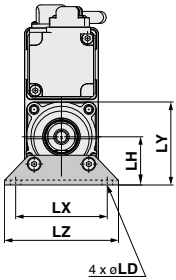
∗ Refer to page 250 for details about the rod end nut and mounting bracket.
Note) Refer to the precautions on page 305 when mounting end brackets such as knuckle joint or workpieces.

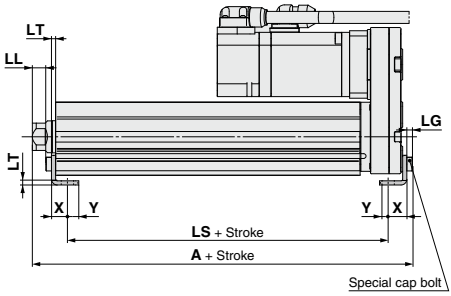
[mm]

Size	B1	C1	H1	L1	L2	MM
25	22	20.5	8	38	23.5	M14 x 1.5
32	22	20.5	8	42.0	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.

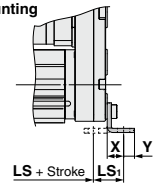
Foot: LEY25/32□□A/B/C-□□□L





Included parts
- Foot
- Body mounting bolt

Outward mounting



Foot

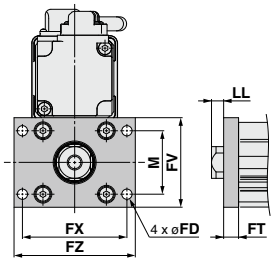
[mm]

Size	Stroke range [mm]	A	LS	LS1	LL	LD	LG	LH	LT	LX	LY	LZ	X	Y
25	15 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	20 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											

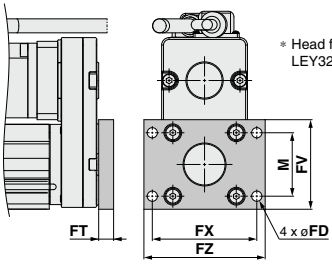
Material: Carbon steel (Chromate treated)
∗ The A measurement is when the unit is in the Z-phase first detecting position. At this position, 2 mm at the end.
Note) When the motor mounting is the right or left side parallel type, the head side foot should be mounted outwards.

Dimensions

Rod flange: LEY$^{25}_{32}$$^{A}_{B}$-□□□F$^{}_{C}$



Head flange: LEY25$^{A}_{B}$-□□□G$^{}_{C}$



∗ Head flange is not available for the LEY32.

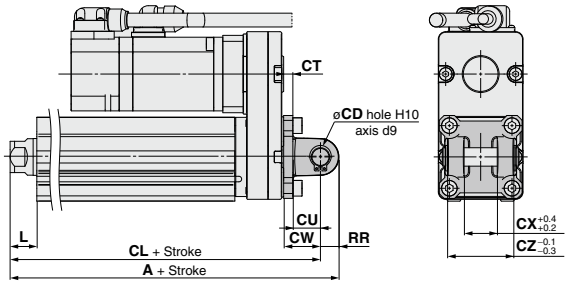
Included parts
- Flange
- Body mounting bolt

Rod/Head Flange [mm]

Size	FD	FT	FV	FX	FZ	LL	M
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)

Double clevis: LEY$^{25}_{32}$$^{A}_{B}$-□□□D$^{}_{C}$



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

∗ Refer to page 250 for details about the rod end nut and mounting bracket.

Double Clevis [mm]

Size	Stroke range [mm]	A	CL	CD	CT
25	15 to 100	160.5	150.5	10	5
	101 to 200	185.5	175.5		
32	20 to 100	180.5	170.5	10	6
	101 to 200	210.5	200.5		

Size	Stroke range [mm]	CU	CW	CX	CZ	L	RR
25	15 to 100	14	20	18	36	14.5	10
	101 to 200						
32	20 to 100	14	22	18	36	18.5	10
	101 to 200						

Material: Cast iron (Coating)

∗ The A and CL measurements are when the unit is in the Z-phase first detecting position. At this position, 2 mm at the end.

AC Servo Motor

Electric Actuator/ Rod Type

Dust-tight/Water-jet-proof (IP65 Equivalent)

∗ Select options

LEY Series LEY63 Size 63

CE RoHS

Motorless Type ▶ Page 854

SSCNETⅢ/H Compatible ▶ Page 636

MECHATROLINK Compatible ▶ Page 736

How to Order

LEY H 63 ❶❷❸ S4 B ❹❺ – 200 ❻ ❼ ❽ ❾ ❿ – S ⓫ 2 ⓬ A2 ⓭ ⓮

❶ Accuracy

Nil	Basic type
H	High precision type

❷ Size

63

❸ Motor mounting position

Nil	Top mounting
R	Right side parallel
L	Left side parallel
D	In-line

❹ Motor type

Symbol	Type	Output [W]	Actuator size	Compatible driver
S4	AC servo motor (Incremental encoder)	400	63	LECSA2-S4
S8	AC servo motor (Absolute encoder)	400	63	LECSB2-S8 LECSC2-S8 LECSS2-S8

❺ Lead [mm]

Symbol	LEY63
A	20
B	10
C	5
L	2.86∗

∗ Screw lead 5 mm, Pulley ratio [4:7] equivalent lead

∗ Only available for top mounting and right/left side parallel types.

❻ Stroke [mm]

100	100
to	to
800	800

❼ Dust-tight/Water-jet-proof

Nil	IP5x equivalent (Dust-protected)
P	IP65 equivalent (Dust-tight/Water-jet-proof)/ With vent hole tap

∗ When using the dust-tight/water-jet-proof (IP65 equivalent), correctly mount the fitting and tubing to the vent hole tap, and then place the end of the tubing in an area not exposed to dust or water.

∗ The fitting and tubing should be provided separately by the customer. Select [Applicable tubing O.D.: ø4 or more, Connection thread: Rc1/8].

∗ Cannot be used in an environment where oil such as cutting oil splashes or it is constantly exposed to water. Take suitable protective measures. For details about enclosure, refer to "Enclosure" on page 306.

❽ Motor option

Nil	Without option
B	With lock

❾ Rod end thread

Nil	Rod end female thread
M	Rod end male thread (1 rod end nut is included.)

❿ Mounting∗1

Symbol	Type	Motor mounting position	
		Top/Parallel	In-line
Nil	Ends tapped/ Body bottom tapped∗2	●	●
L	Foot	●	—
F	Rod flange∗2	●	●
D	Double clevis∗3	●	—

∗1 Mounting bracket is shipped together, (but not assembled).

∗2 For horizontal cantilever mounting with the rod flange and ends tapped, use the actuator within the following stroke range.
• LEY63: 400 mm or less

∗3 For mounting with the double clevis, use the actuator within the following stroke range.
• LEY63: 300 mm or less

⓫ Cable type Note 1)

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

Note 1) The motor and encoder cables are included. (The lock cable is also included when the motor with lock option is selected.)

∗ Standard cable entry direction is
• Top/Parallel: (A) Axis side
• In-line: (B) Counter axis side
(Refer to page 623 for details.)

⓬ Cable length Note 2) [m]

Nil	Without cable
2	2
5	5
A	10

Note 2) The length of the encoder, motor and lock cables are the same.

⓭ Driver type

	Compatible driver	Power supply voltage
Nil	Without driver	
A2	LECSA2/Pulse input (Incremental encoder)	200 V to 230 V
B2	LECSB2/Pulse input (Absolute encoder)	200 V to 230 V
C2	LECSC2/CC-Link (Absolute encoder)	200 V to 230 V
S2	LECSS2/SSCNETⅢ (Absolute encoder)	200 V to 230 V

∗ When the driver type is selected, the cable is included. Select cable type and cable length.
Example)
S2S2: Standard cable (2 m) + Driver (LECSS2)
S2 : Standard cable (2 m)
Nil : Without cable and driver

⓮ I/O cable length [m]∗

Nil	Without cable
H	Without cable (Connector only)
1	1.5

∗ When "Without driver" is selected for driver type, only "Nil: Without cable" can be selected.
Refer to page 624 if I/O cable is required.
(Options are shown on page 624.)

∗ Applicable stroke table

Model \ Stroke [mm]	100	200	300	400	500	600	700	800	Manufacturable stroke range
LEY63	●	●	●	●	●	●	●	●	50 to 800

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

SMC

Specifications

Model			LEY63S$^{4}_{8}$□ (Top/Parallel)				LEY63DS$^{4}_{8}$□ (In-line)		
Actuator specifications	Stroke [mm] Note 1)		100, 200, 300, 400, 500, 600, 700, 800						
	Work load [kg]	Horizontal Note 2)	40	70	80	200	40	70	80
		Vertical Note 14)	19	38	72	115	19	38	72
	Force [N]/Set value Note 3) : 15 to 50% Note 4)		156 to 521	304 to 1012	573 to 1910	1003 to 3343	156 to 521	304 to 1012	573 to 1910
	Max. speed [mm/s] Note 5)	Stroke range: Up to 500	1000	500	250	70	1000	500	250
		Stroke range: 505 to 600	800	400	200		800	400	200
		Stroke range: 605 to 700	600	300	150		600	300	150
		Stroke range: 705 to 800	500	250	125		500	250	125
	Pushing speed [mm/s] Note 6)		30 or less						
	Max. acceleration/deceleration [mm/s²]		5000			3000	5000		
	Positioning repeatability [mm]	Basic type	±0.02						
		High precision type	±0.01						
	Lost motion [mm] Note 7)	Basic type	0.1 or less						
		High precision type	0.05 or less						
	Screw lead [mm] (including pulley ratio)		20	10	5	5 (2.86)	20	10	5
	Impact/Vibration resistance [m/s²] Note 8)		50/20						
	Actuation type		Ball screw			Ball screw + Belt (Pulley ratio 4.7)	Ball screw		
	Guide type		Sliding bushing (Piston rod)						
	Operating temperature range [°C]		5 to 40						
	Operating humidity range [%RH]		90 or less (No condensation)						
	Regeneration option		May be required depending on speed and work load. (Refer to pages 234 and 235.)						
Electric specifications	Motor output/Size		400 W/□60						
	Motor type		AC servo motor (200 VAC)						
	Encoder		Motor type S4: Incremental 17-bit encoder (Resolution: 131072 p/rev) Motor type S8: Absolute 18-bit encoder (Resolution: 262144 p/rev)						
	Power consumption [W] Note 9)	Horizontal	210						
		Vertical	230						
	Standby power consumption when operating [W] Note 10)	Horizontal	2						
		Vertical	18						
	Max. instantaneous power consumption [W] Note 11)		1275						
Lock unit specifications	Type Note 12)		Non-magnetizing lock						
	Holding force [N]		313	607	1146	2006	313	607	1146
	Power consumption [W] at 20°C Note 13)		7.9						
	Rated voltage [V]		24 VDC$^{0}_{-10\%}$						

Note 1) Please consult with SMC for non-standard strokes as they are produced as special orders.
Note 2) The maximum value of the horizontal work load. An external guide is necessary to support the load. The actual work load changes according to the condition of the external guide. Please confirm using actual device.
Note 3) Set values for the driver.
Note 4) The force setting range (set values for the driver) for the force control with the torque control mode. The force and duty ratio change according to the set value. Set it with reference to "Force Conversion Graph" on page 236. When the control equivalent to the pushing operation of the controller LECP series is performed, select the LECSS driver and combine it with the Simple Motion (manufactured by Mitsubishi Electric Corporation) which has a pushing operation function.
Note 5) The allowable speed changes according to the stroke. Set the number of rotations according to speed.
Note 6) The allowable collision speed for collision with the workpiece with the torque control mode.
Note 7) A reference value for correcting an error in reciprocal operation.
Note 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. (Test was performed with the actuator in the initial state.)
Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. Test was performed in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)
Note 9) The power consumption (including the driver) is for when the actuator is operating.
Note 10) The standby power consumption when operating (including the driver) is for when the actuator is stopped in the set position during the operation.
Note 11) The maximum instantaneous power consumption (including the driver) is for when the actuator is operating.
Note 12) Only when motor option "With lock" is selected.
Note 13) For an actuator with lock, add the power consumption for the lock.
Note 14) When mounting vertically and using the product facing upwards in an environment where water is present, take necessary measures to prevent water from splashing on the rod cover, because water will accumulate on the rod seal due to the structure of the product.

Weight

Product Weight

[kg]

Series		LEY63S□ (Motor mounting position: Top/Parallel)							
Stroke [mm]		100	200	300	400	500	600	700	800
Motor type	Incremental encoder	5.4	6.6	8.3	9.4	10.5	12.2	13.4	14.5
	Absolute encoder	5.5	6.7	8.4	9.5	10.6	12.3	13.5	14.6

Series		LEY63DS□□ (Motor mounting position: In-line)							
Stroke [mm]		100	200	300	400	500	600	700	800
Motor type	Incremental encoder	5.6	6.7	8.4	9.6	10.7	12.4	13.5	14.7
	Absolute encoder	5.7	6.8	8.5	9.7	10.8	12.5	13.6	14.8

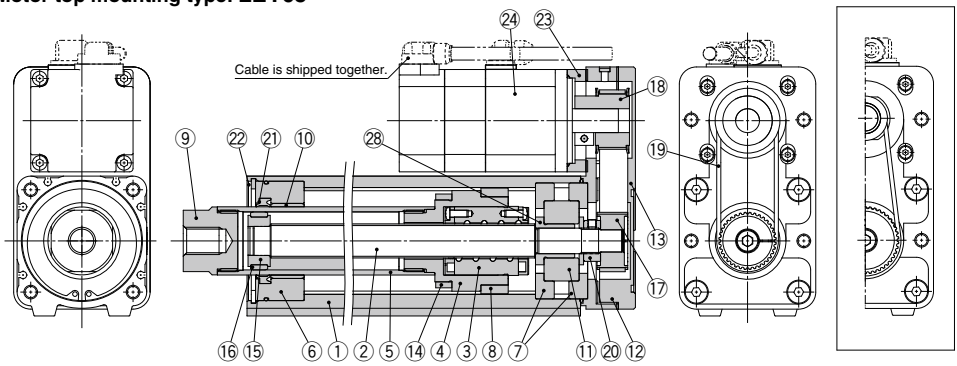
Additional Weight

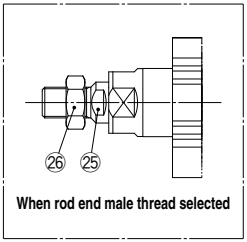
[kg]

Size		63
Lock	Incremental encoder	0.4
	Absolute encoder	0.6
Rod end male thread	Male thread	0.12
	Nut	0.04
Foot (2 sets including mounting bolt)		0.26
Rod flange (including mounting bolt)		0.51
Double clevis (including pin, retaining ring and mounting bolt)		0.58

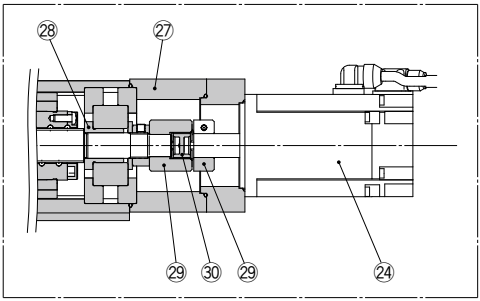
Construction

Motor top mounting type: LEY63





In-line motor type: LEY63D



Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Ball screw shaft**	Alloy steel	
3	**Ball screw nut**	Resin/Alloy steel	
4	**Piston**	Aluminum alloy	
5	**Piston rod**	Stainless steel	Hard chrome plating
6	**Rod cover**	Aluminum alloy	
7	**Bearing holder**	Aluminum alloy	
8	**Rotation stopper**	Resin	
9	**Socket**	Free cutting carbon steel	Nickel plating
10	**Bushing**	Lead bronze cast	
11	**Bearing**	—	
12	**Return box**	Aluminum alloy	Coating
13	**Return plate**	Aluminum alloy	Coating
14	**Magnet**	—	
15	**Wear ring holder**	Stainless steel	

No.	Description	Material	Note
16	**Wear ring**	Resin	
17	**Screw shaft pulley**	Aluminum alloy	
18	**Motor pulley**	Aluminum alloy	
19	**Belt**	—	
20	**Lock nut**	Alloy steel	Black dyed
21	**Seal**	NBR	
22	**Retaining ring**	Steel for spring	
23	**Motor adapter**	Aluminum alloy	Coating
24	**Motor**	—	
25	**Socket (Male thread)**	Free cutting carbon steel	Nickel plating
26	**Nut**	Alloy steel	Trivalent chromated
27	**Motor block**	Aluminum alloy	Coating
28	**Spacer A**	Stainless steel	
29	**Hub**	Aluminum alloy	
30	**Spider**	Urethane	

Replacement Parts (Top/Parallel only)/Belt

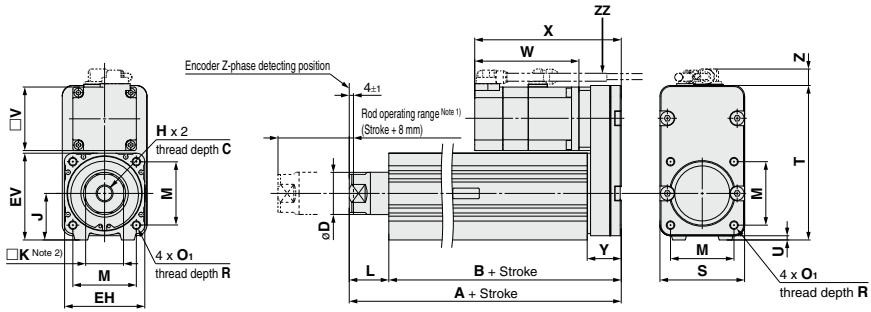
No.	Size	Lead	Order no.
19	**63**	A/B/C	LE-D-2-5
		L	LE-D-2-6

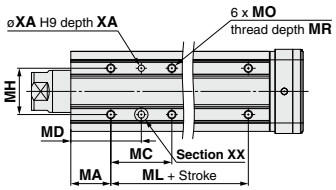
Replacement Parts/Grease Pack

Applied portion	Order no.
Piston rod	GR-S-010 (10 g) GR-S-020 (20 g)

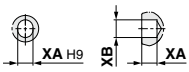
∗ Apply grease on the piston rod periodically.
Grease should be applied at 1 million cycles or 200 km, whichever comes first.

Dimensions: Motor Top/Parallel





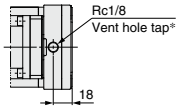
Section XX details



Note 1) Range within which the rod can move.
Make sure a workpiece mounted on the rod does not interfere with the workpieces and facilities around the rod.
Note 2) The direction of rod end width across flats (□K) differs depending on the products.

IP65 equivalent (Dust-tight/Water-jet-proof): LEY63□□□-□P

(View ZZ)



∗ When using the dust-tight/water-jet-proof (IP65 equivalent), correctly mount the fitting and tubing to the vent hole tap, and then place the end of the tubing in an area not exposed to dust or water. The fitting and tubing should be provided separately by the customer.
Select [Applicable tubing O.D.: ø4 or more, Connection thread: Rc1/8].

[mm]

Size	Stroke range [mm]	A	B	C	D	EH	EV	H	J	K	L	M	O1	R	S	Y
63	Up to 200	192.6	155.2	21	40	76	82	M16 x 2	44	36	37.4	60	M8 x 1.25	16	80	32.2
	205 to 500	227.6	190.2													
	505 to 800	262.6	225.2													

Size	Stroke range [mm]	T	U	V	Incremental encoder						Absolute encoder					
					Without lock			With lock			Without lock			With lock		
					W	X	Z	W	X	Z	W	X	Z	W	X	Z
63	Up to 200	146	4	60	110.2	150.2	15.6 (16.6)∗	138.8	178.8	15.6 (16.6)∗	98.5	138.5	15.6 (16.6)∗	138	178	15.6 (16.6)∗
	205 to 500															
	505 to 800															

∗ The values in ( ) are the dimensions when L is selected for screw lead.

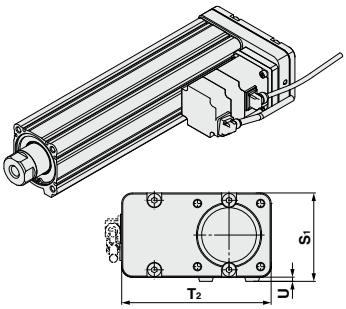
Body Bottom Tapped

[mm]

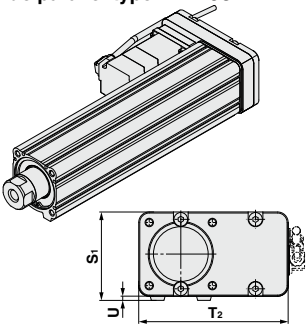
Size	Stroke range [mm]	MA	MC	MD	MH	ML	MO	MR	XA	XB
63	50 to 74	38	24	50	44	65	M8 x 1.25	10	6	7
	75 to 124		45	60.5						
	125 to 200		58	67						
	201 to 500		86	81		100				
	501 to 800					135				

Dimensions: Motor Top/Parallel

Motor left side parallel type: LEY63L



Motor right side parallel type: LEY63R



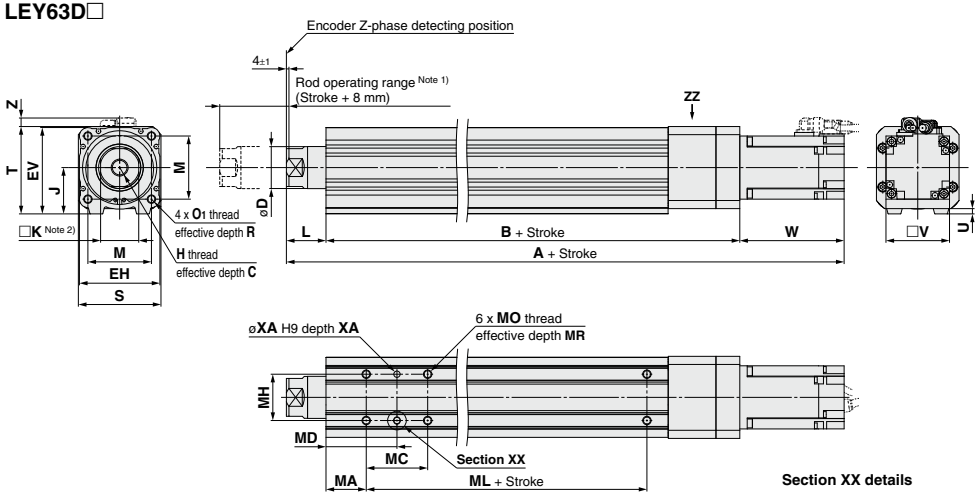
[mm]

Size	S_1	T_2	U
63	84	142	4

Note) When the motor is mounted on the left or right side in parallel, the groove for auto switch on the side to which the motor is mounted is hidden.

Dimensions: In-line Motor

LEY63D□



Note 1) Range within which the rod can move. Make sure a workpiece mounted on the rod does not interfere with the workpieces and facilities around the rod.
Note 2) The direction of rod end width across flats (□K) differs depending on the products.

[mm]

Size	Stroke range [mm]	C	D	EH	EV	H	J	K	L	M	O1	R	S	T	U
63	Up to 200	21	40	76	82	M16 x 2	44	36	37.4	60	M8 x 1.25	16	78	83	5
	205 to 500														
	505 to 800														

Size	Stroke range [mm]	B	V	Incremental encoder						Absolute encoder					
				Without lock			With lock			Without lock			With lock		
				A	W	Z	A	W	Z	A	W	Z	A	W	Z
63	Up to 200	190.7	60	338.3	110.2	8.1	366.9	138.8	8.1	326.6	98.5	8.1	366.1	138	8.1
	205 to 500	225.7		373.3			401.9			361.6			401.1		
	505 to 800	260.7		408.3			436.9			396.6			436.1		

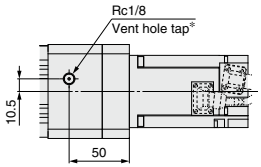
Body Bottom Tapped

[mm]

Size	Stroke range [mm]	MA	MC	MD	MH	ML	MO	MR	XA	XB
63	50 to 74	38	24	50	44	65	M8 x 1.25	10	6	7
	75 to 124		45	60.5						
	125 to 200		58	67						
	201 to 500		86	81		100				
	501 to 800					135				

IP65 equivalent (Dust-tight/Water-jet-proof): LEY63D□□-□P

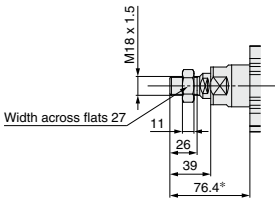
(View ZZ)



∗ When using the dust-tight/water-jet-proof (IP65 equivalent), correctly mount the fitting and tubing to the vent hole tap, and then place the end of the tubing in an area not exposed to dust or water. The fitting and tubing should be provided separately by the customer.
Select [Applicable tubing O.D.: ø4 or more, Connection thread: Rc1/8].

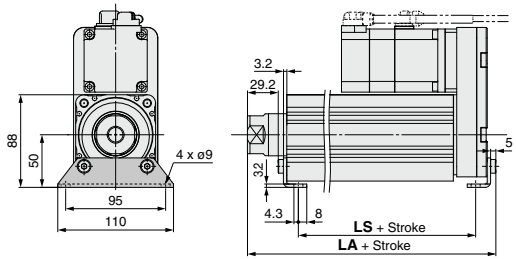
Dimensions

End male thread: LEY63□□□-□□M

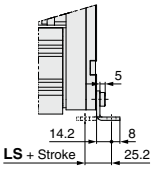


* The measurement 76.4 is when the unit is in the Z-phase detecting position. At this position, 4 mm from the end of the operating range.

Foot: LEY63□□□-□□L



Outward mounting



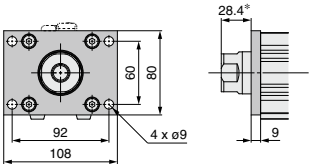
Included parts
• Foot
• Body mounting bolt

Material: Carbon steel (Chromate treated)
* The overall length is when the unit is in the Z-phase detecting position. At this position, 4 mm from the end of the operating range.
Note) When the motor mounting is the right or left side parallel type, the head side foot should be mounted outwards.

[mm]

Stroke range [mm]	LA	LS
50 to 200	200.8	133.2
201 to 500	235.8	168.2
501 to 800	270.8	203.2

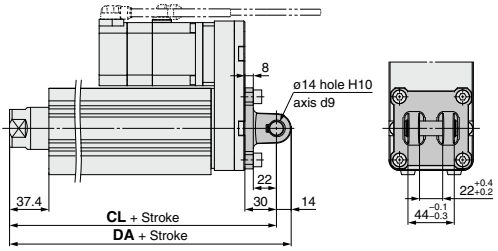
Rod flange: LEY63□□□-□□F



Included parts
• Flange
• Body mounting bolt

Material: Carbon steel (Nickel plating)
* When the unit is in the Z-phase detecting position. At this position, 4 mm from the end of the operating range.

Double clevis: LEY63□□□-□□D



Included parts
• Double clevis
• Body mounting bolt
• Clevis pin
• Retaining ring

Material: Cast iron (Coating)
* The overall length is when the unit is in the Z-phase detecting position. At this position, 4 mm from the end of the operating range.

[mm]

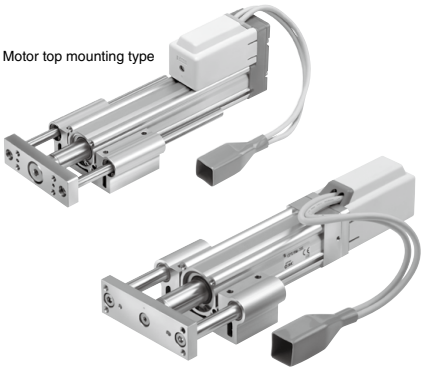
Stroke range [mm]	DA	CL
50 to 200	236.6	222.6
201 to 500	271.6	257.6
501 to 800	306.6	292.6

Guide Rod Type

LEYG Series

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

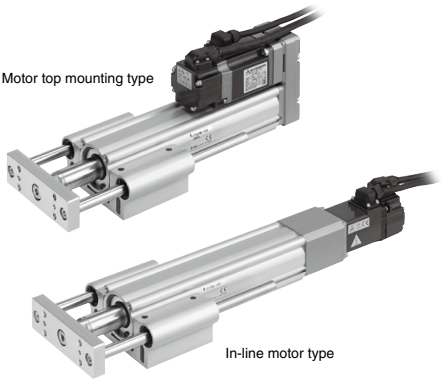
Motor top mounting type



In-line motor type

AC Servo Motor

Motor top mounting type



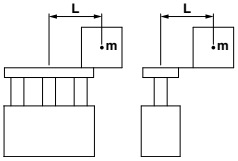
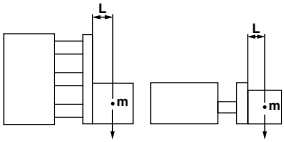
In-line motor type

Model Selection

LEYG Series ▶ Page 284

Moment Load Graph

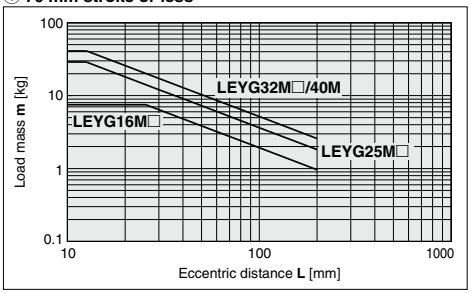
Selection conditions

	Vertical	Horizontal	
Mounting position			
Max. speed [mm/s]	"Speed–Vertical Work Load Graph"	200 or less	Over 200
Graph (Sliding bearing type)	①, ②	⑤, ⑥*	—
Graph (Ball bushing bearing type)	③, ④	⑦, ⑧	⑨, ⑩

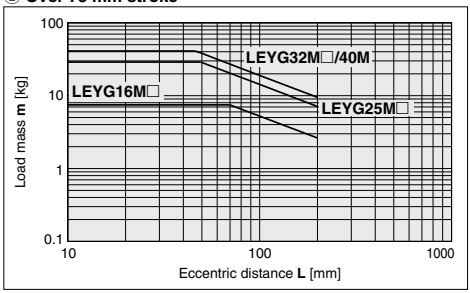
∗ For the sliding bearing type, the speed is restricted with a horizontal/moment load.

Vertical Mounting, Sliding Bearing

① **70 mm stroke or less**



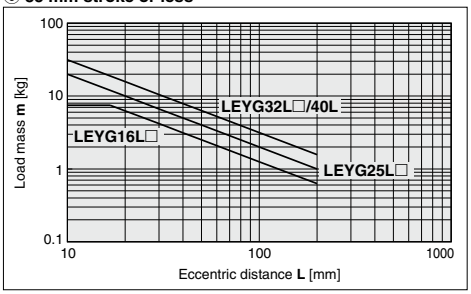
② **Over 75 mm stroke**



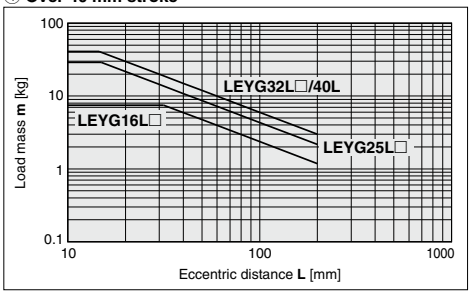
∗ The limit of vertical load mass varies depending on "lead" and "speed". Check "Speed–Vertical Work Load Graph" on pages 274 to 276.

Vertical Mounting, Ball Bushing Bearing

③ **35 mm stroke or less**



④ **Over 40 mm stroke**

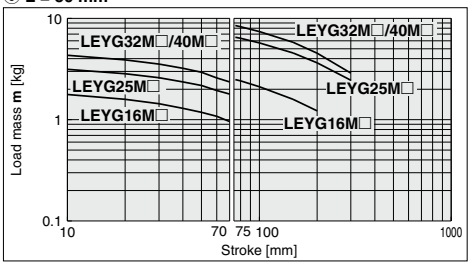


∗ The limit of vertical load mass varies depending on "lead" and "speed". Check "Speed–Vertical Work Load Graph" on pages 274 to 276.

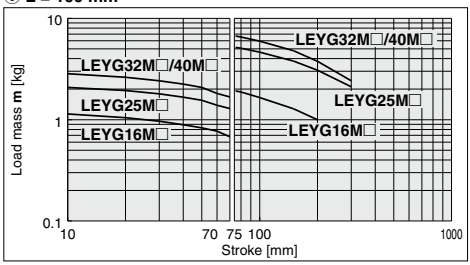
Moment Load Graph

Horizontal Mounting, Sliding Bearing

⑤ **L = 50 mm**



⑥ **L = 100 mm**



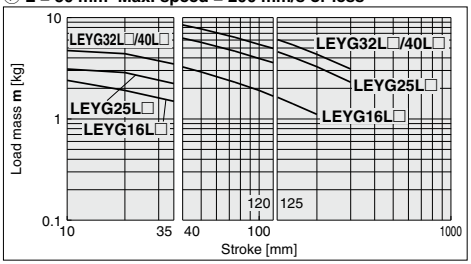
∗ Set the speed to less than or equal to the values shown below.

Motor type	LEYG□M□A	LEYG□M□B	LEYG□M□C
Step motor (Servo/24 VDC)	200 mm/s	125 mm/s	75 mm/s
Servo motor (24 VDC)	200 mm/s	200 mm/s	125 mm/s

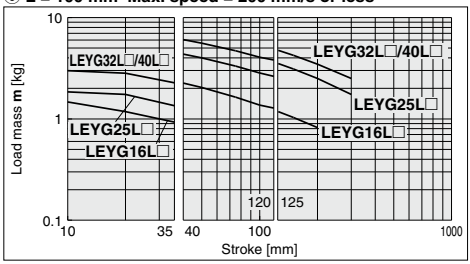
∗ For the specifications below, operate the system at the "load mass" shown in the graph x 80%.
• LEYG25MAA/Servo motor (24 VDC), Lead 12

Horizontal Mounting, Ball Bushing Bearing

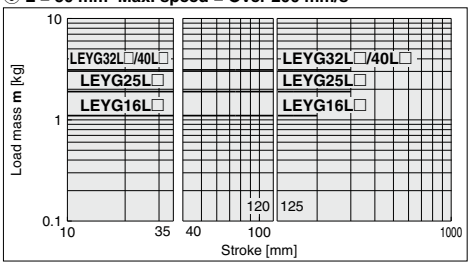
⑦ **L = 50 mm Max. speed = 200 mm/s or less**



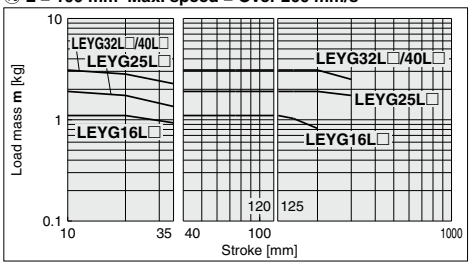
⑧ **L = 100 mm Max. speed = 200 mm/s or less**



⑨ **L = 50 mm Max. speed = Over 200 mm/s**

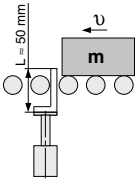


⑩ **L = 100 mm Max. speed = Over 200 mm/s**

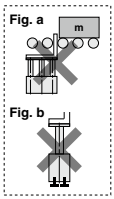


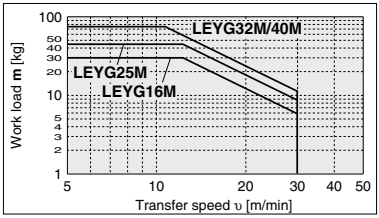
Operating Range when Used as Stopper

LEYG□M (Sliding bearing)



⚠Caution
Handling Precautions
Note 1) When used as a stopper, select a model with strokes 30 mm or less.
Note 2) LEYG□L (ball bushing bearing) cannot be used as a stopper.
Note 3) Workpiece collision in series with guide rod cannot be permitted (**Fig. a**).
Note 4) The body should not be mounted on the end. It must be mounted on the top or bottom (**Fig. b**).





Speed–Work Load Graph (Guide)

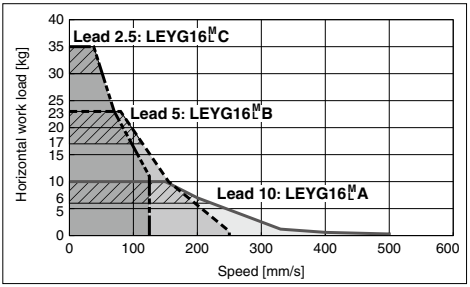
∗ These graphs show the work load when the external guide is used together. When using the LEYG alone, refer to pages 272 and 273.

Refer to page 275 for the LECPA and page 276 for the LECA6.

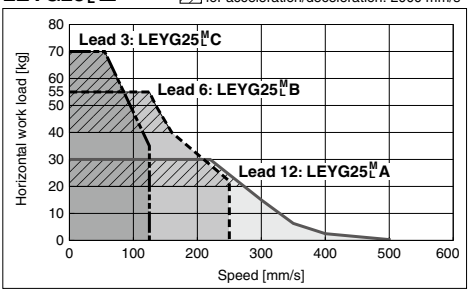
For Step Motor (Servo/24 VDC) LECP6, LECP1, LECPMJ

Horizontal

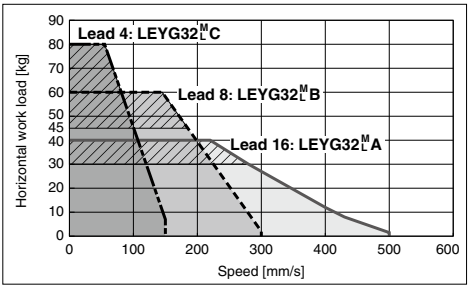
LEYG16$^{M}_{L}$□



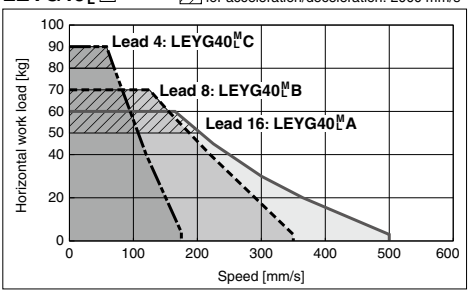
LEYG25$^{M}_{L}$□



LEYG32$^{M}_{L}$□

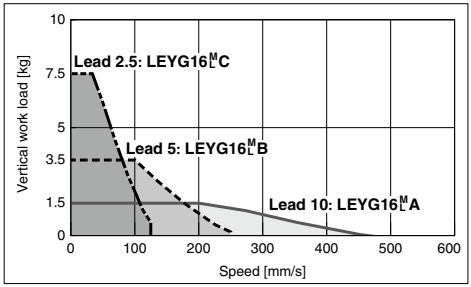


LEYG40$^{M}_{L}$□

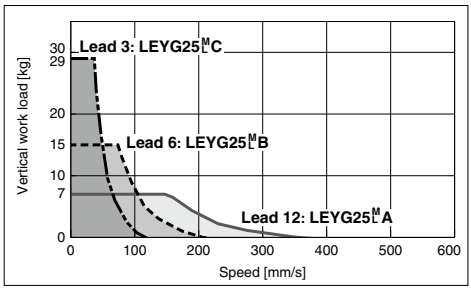


Vertical

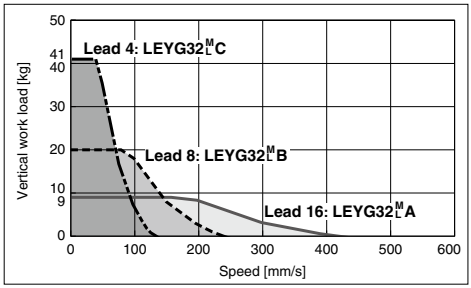
LEYG16$^{M}_{L}$□



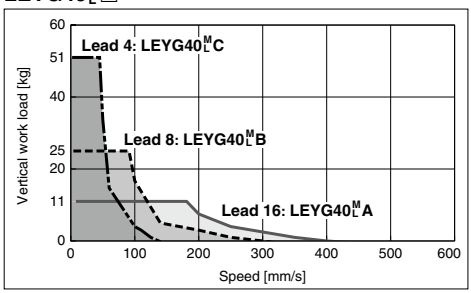
LEYG25$^{M}_{L}$□



LEYG32$^{M}_{L}$□



LEYG40$^{M}_{L}$□



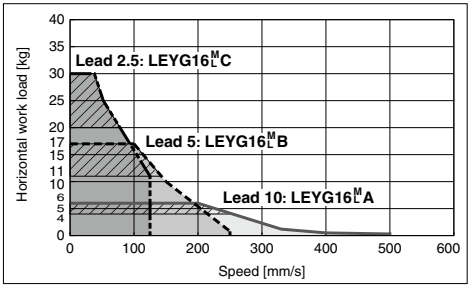
Speed–Work Load Graph (Guide) For Step Motor (Servo/24 VDC) LECPA

∗ These graphs show the work load when the external guide is used together. When using the LEYG alone, refer to pages 272 and 273.

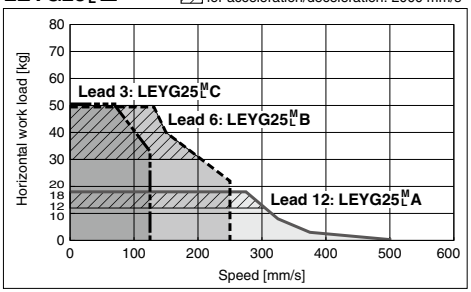
Refer to page 274 for the LECP6, LECP1, LECPMJ, and page 276 for the LECA6.

Horizontal

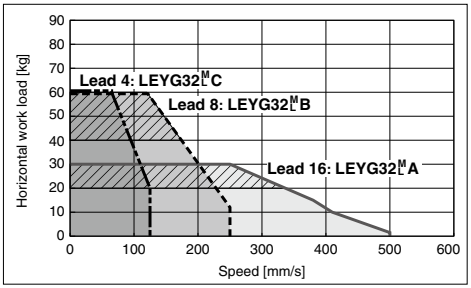
LEYG16$^{M}_{L}$□



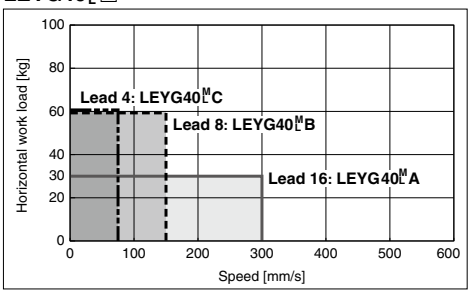
LEYG25$^{M}_{L}$□



LEYG32$^{M}_{L}$□

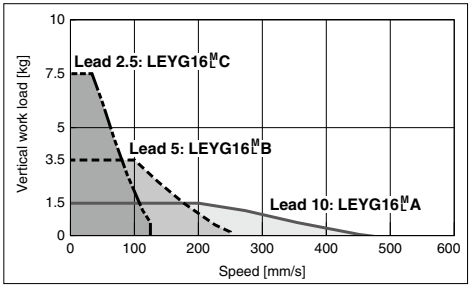


LEYG40$^{M}_{L}$□

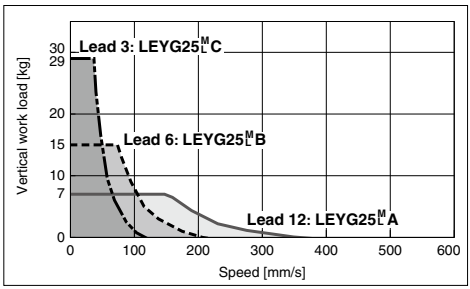


Vertical

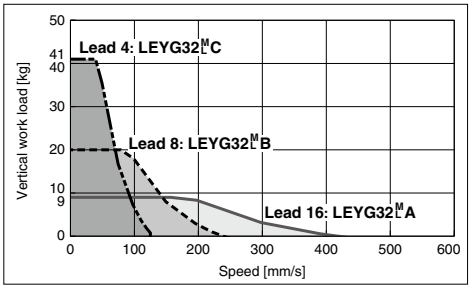
LEYG16$^{M}_{L}$□



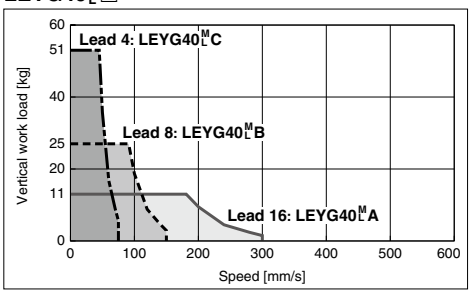
LEYG25$^{M}_{L}$□



LEYG32$^{M}_{L}$□



LEYG40$^{M}_{L}$□

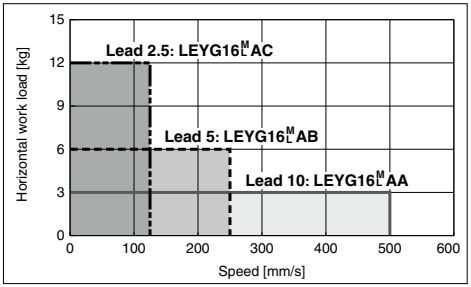


Speed–Work Load Graph (Guide)
For Servo Motor (24 VDC) LECA6

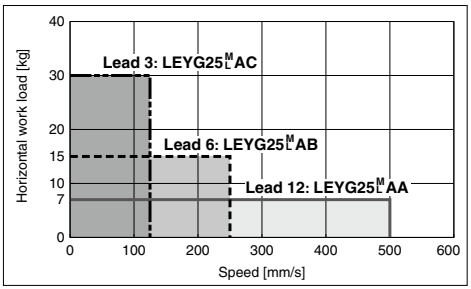
Refer to page 274 for the LECP6, LECP1, LECPMJ, and page 275 for the LECPA.

Horizontal

LEYG16$^{M}_{L}$A□

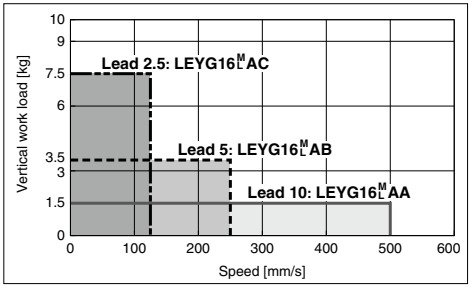


LEYG25$^{M}_{L}$A□

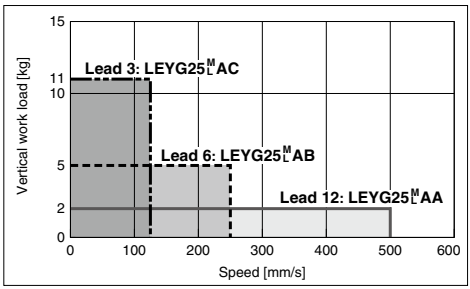


Vertical

LEYG16$^{M}_{L}$A□



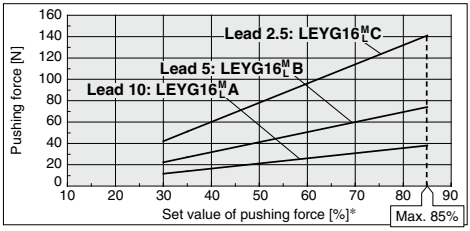
LEYG25$^{M}_{L}$A□



Force Conversion Graph (Guide)

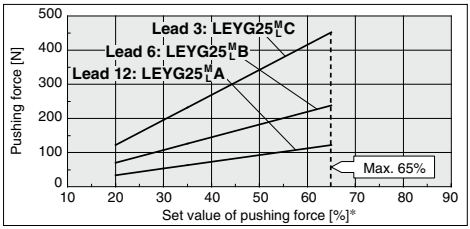
Step Motor (Servo/24 VDC)

LEYG16$^{M}_{L}$□



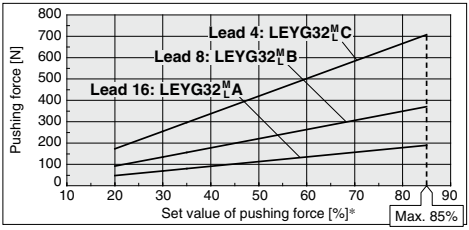
Ambient temperature	Set value of pushing force [%]	Duty ratio [%]	Continuous pushing time [minute]
25°C or less	85 or less	100	—
40°C	40 or less	100	—
	50	70	12
	70	20	1.3
	85	15	0.8

LEYG25$^{M}_{L}$□



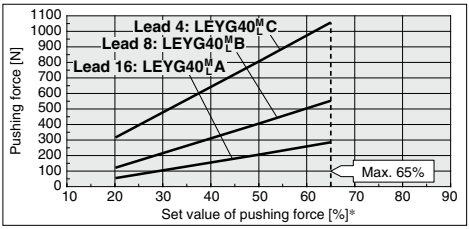
Ambient temperature	Set value of pushing force [%]	Duty ratio [%]	Continuous pushing time [minute]
40°C or less	65 or less	100	—

LEYG32$^{M}_{L}$□



Ambient temperature	Set value of pushing force [%]	Duty ratio [%]	Continuous pushing time [minute]
25°C or less	85 or less	100	—
40°C	65 or less	100	—
	85	50	15

LEYG40$^{M}_{L}$□

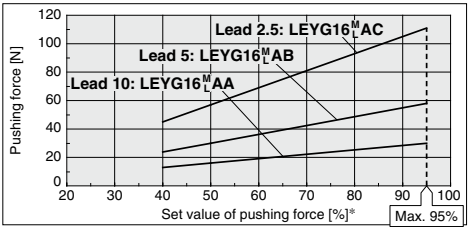


Ambient temperature	Set value of pushing force [%]	Duty ratio [%]	Continuous pushing time [minute]
40°C or less	65 or less	100	—

∗ Set values for the controller.

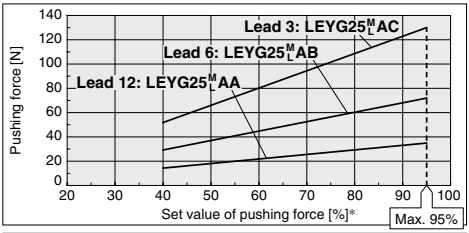
Servo Motor (24 VDC)

LEYG16$^{M}_{L}$A□



Ambient temperature	Set value of pushing force [%]	Duty ratio [%]	Continuous pushing time [minute]
40°C or less	95 or less	100	—

LEYG25$^{M}_{L}$A□



Ambient temperature	Set value of pushing force [%]	Duty ratio [%]	Continuous pushing time [minute]
40°C or less	95 or less	100	—

<Pushing Force and Trigger Level Range> Without Load

Model	Pushing speed [mm/s]	Pushing force (Setting input value)	Model	Pushing speed [mm/s]	Pushing force (Setting input value)
LEYG16$^{M}_{L}$□	1 to 4	30% to 85%	LEYG16$^{M}_{L}$□A	1 to 4	40% to 95%
	5 to 20	35% to 85%		5 to 20	60% to 95%
	21 to 50	60% to 85%		21 to 50	80% to 95%
LEYG25$^{M}_{L}$□	1 to 4	20% to 65%	LEYG25$^{M}_{L}$□A	1 to 4	40% to 95%
	5 to 20	35% to 65%		5 to 20	60% to 95%
	21 to 35	50% to 65%		21 to 35	80% to 95%
LEYG32$^{M}_{L}$□	1 to 4	20% to 85%			
	5 to 20	35% to 85%			
	21 to 30	60% to 85%			
LEYG40$^{M}_{L}$□	1 to 4	20% to 65%			
	5 to 20	35% to 65%			
	21 to 30	50% to 65%			

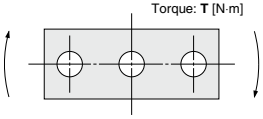
∗ The pushing force in the table shows the range within which the completion signal [INP] is normally output. If the product is operated outside this range (low pushing force), the [INP] signal may be output when the actuator is moving (before pushing).

<Set Values for Vertical Upward Transfer Pushing Operation>

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

Model	LEYG16$^{M}_{L}$□			LEYG25$^{M}_{L}$□			LEYG32$^{M}_{L}$□			LEYG40$^{M}_{L}$□			LEYG16$^{M}_{L}$□A			LEYG25$^{M}_{L}$□A		
Lead	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Work load [kg]	0.5	1	2.5	1.5	4	9	2.5	7	16	5	12	26	0.5	1	2.5	0.5	1.5	4
Pushing force	85%			65%			85%			65%			95%			95%		

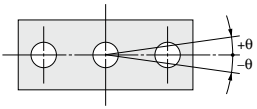
Allowable Rotational Torque of Plate



T [N·m]

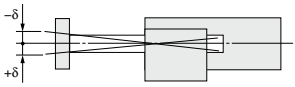
Model	Stroke [mm]				
	30	50	100	200	300
LEYG16M	0.70	0.57	1.05	0.56	—
LEYG16L	0.82	1.48	0.97	0.57	—
LEYG25M	1.56	1.29	3.50	2.18	1.36
LEYG25L	1.52	3.57	2.47	2.05	1.44
LEYG32M	2.55	2.09	5.39	3.26	1.88
LEYG32L	2.80	5.76	4.05	3.23	2.32
LEYG40M	2.55	2.09	5.39	3.26	1.88
LEYG40L	2.80	5.76	4.05	3.23	2.32

Non-rotating Accuracy of Plate



Size	Non-rotating accuracy θ	
	LEYG□M	**LEYG□L**
16	0.06°	0.05°
25		0.04°
32	0.05°	
40		

Plate Displacement: δ



[mm]

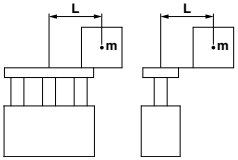
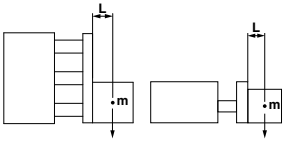
Model	Stroke [mm]				
	30	**50**	**100**	**200**	**300**
LEYG16M	±0.20	±0.25	±0.24	±0.27	—
LEYG16L	±0.13	±0.12	±0.17	±0.19	—
LEYG25M	±0.26	±0.31	±0.25	±0.38	±0.36
LEYG25L	±0.13	±0.13	±0.17	±0.20	±0.23
LEYG32M	±0.23	±0.29	±0.23	±0.36	±0.34
LEYG32L	±0.11	±0.11	±0.15	±0.19	±0.22

Model Selection

LEYG Series ▶ Page 296

Moment Load Graph

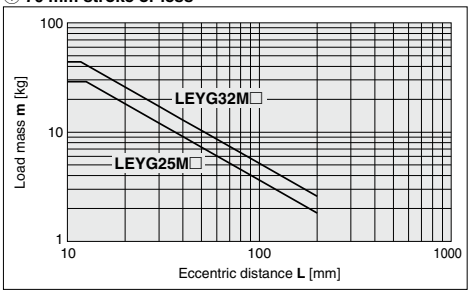
Selection conditions

	Vertical	Horizontal	
Mounting position			
Max. speed [mm/s]	"Speed–Vertical Work Load Graph"	200 or less	Over 200
Graph (Sliding bearing type)	①, ②	⑤, ⑥*	⑦, ⑧
Graph (Ball bushing bearing type)	③, ④	⑨, ⑩	⑪, ⑫

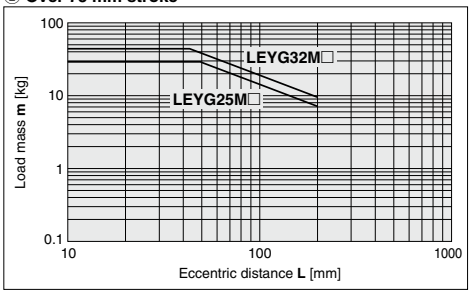
∗ For the sliding bearing type, the speed is restricted with a horizontal/moment load.

Vertical Mounting, Sliding Bearing

① **70 mm stroke or less**



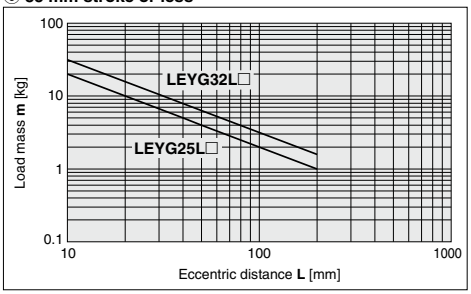
② **Over 75 mm stroke**



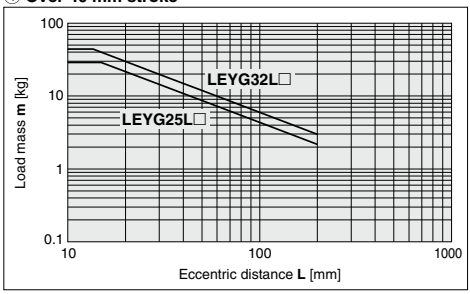
∗ The limit of vertical load mass varies depending on "lead" and "speed". Check "Speed–Vertical Work Load Graph" on page 282.

Vertical Mounting, Ball Bushing Bearing

③ **35 mm stroke or less**



④ **Over 40 mm stroke**

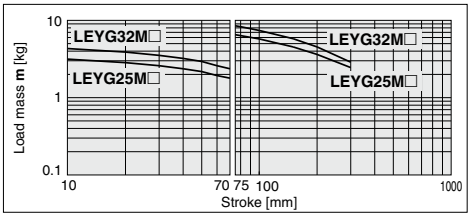


∗ The limit of vertical load mass varies depending on "lead" and "speed". Check "Speed–Vertical Work Load Graph" on page 282.

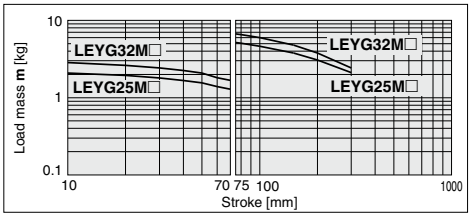
Moment Load Graph

Horizontal Mounting, Sliding Bearing

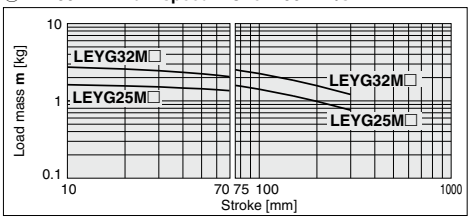
⑤ **L = 50 mm Max. speed = 200 mm/s or less**



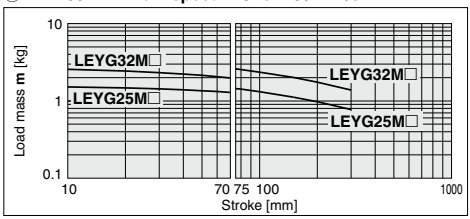
⑥ **L = 100 mm Max. speed = 200 mm/s or less**



⑦ **L = 50 mm Max. speed = Over 200 mm/s**

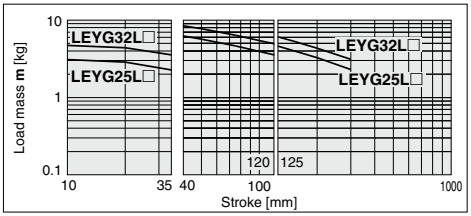


⑧ **L = 100 mm Max. speed = Over 200 mm/s**

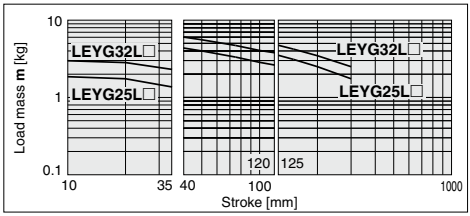


Horizontal Mounting, Ball Bushing Bearing

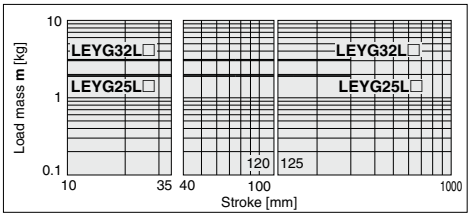
⑨ **L = 50 mm Max. speed = 200 mm/s or less**



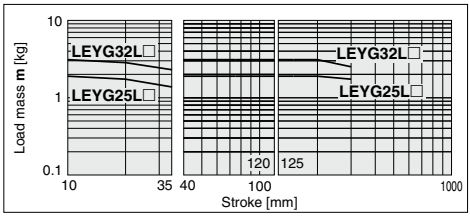
⑩ **L = 100 mm Max. speed = 200 mm/s or less**



⑪ **L = 50 mm Max. speed = Over 200 mm/s**

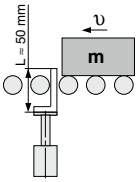


⑫ **L = 100 mm Max. speed = Over 200 mm/s**



Operating Range when Used as Stopper

LEYG□M (Sliding bearing)



⚠Caution

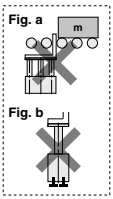
Handling Precautions

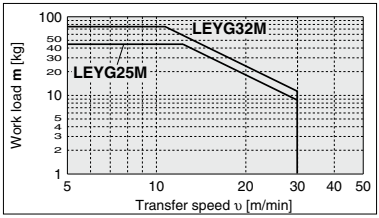
Note 1) When used as a stopper, select a model with strokes 30 mm or less.

Note 2) LEYG□L (ball bushing bearing) cannot be used as a stopper.

Note 3) Workpiece collision in series with guide rod cannot be permitted (**Fig. a**).

Note 4) The body should not be mounted on the end. It must be mounted on the top or bottom (**Fig. b**).

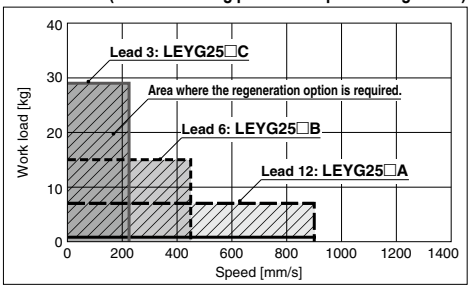




Speed–Vertical Work Load Graph/Required Conditions for "Regeneration Option"

∗ These graphs show the work load when the external guide is used together. When using the LEYG alone, refer to pages 280 and 281.

LEYG25□ (Motor mounting position: Top mounting/In-line)



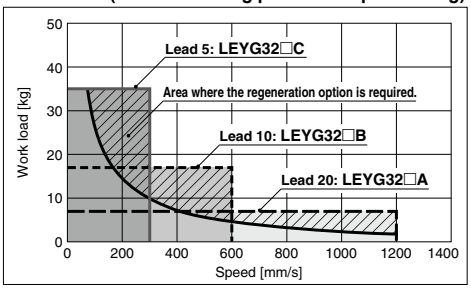
Required conditions for "Regeneration option"

∗ Regeneration option is required when using product above regeneration line in graph. (Order separately.)

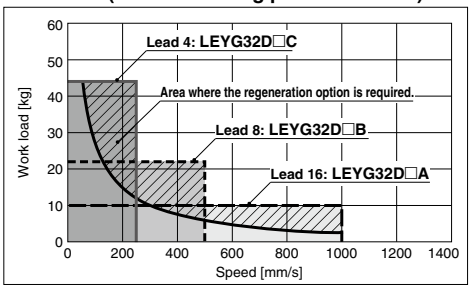
"Regeneration Option" Models

Size	Model
LEYG25□	LEC-MR-RB-032
LEYG32□	LEC-MR-RB-032

LEYG32□ (Motor mounting position: Top mounting)



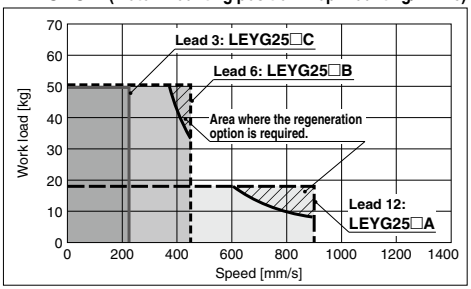
LEYG32D (Motor mounting position: In-line)



Speed–Horizontal Work Load Graph/Required Conditions for "Regeneration Option"

∗ These graphs show the work load when the external guide is used together. When using the LEYG alone, refer to pages 280 and 281.

LEYG25□ (Motor mounting position: Top mounting/In-line)



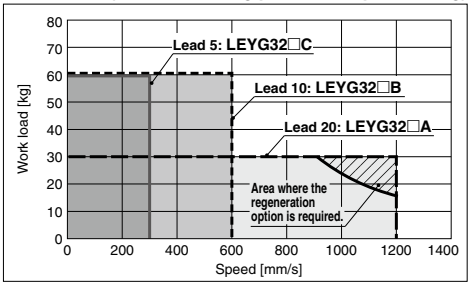
Required conditions for "Regeneration option"

∗ Regeneration option is required when using product above regeneration line in graph. (Order separately.)

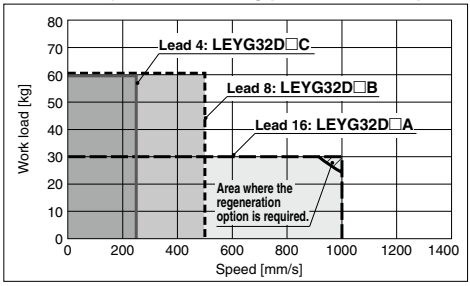
"Regeneration Option" Models

Size	Model
LEYG25□	LEC-MR-RB-032
LEYG32□	LEC-MR-RB-032

LEYG32□ (Motor mounting position: Top mounting)

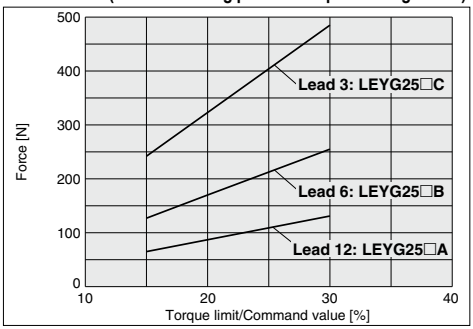


LEYG32D (Motor mounting position: In-line)



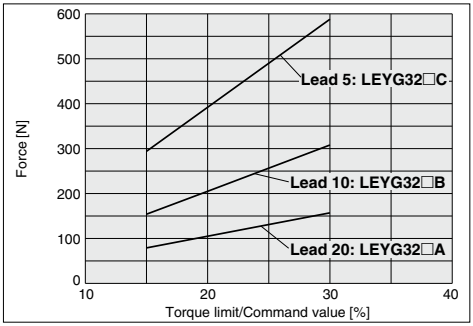
Force Conversion Graph

LEYG25□ (Motor mounting position: Top mounting/In-line)



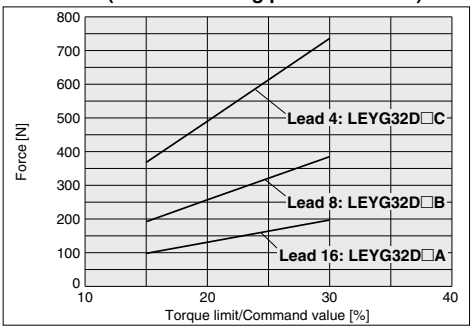
Torque limit/Command value [%]	Duty ratio [%]	Continuous pushing time [minute]
25 or less	100	—
30	60	1.5

LEYG32□ (Motor mounting position: Top mounting)



Torque limit/Command value [%]	Duty ratio [%]	Continuous pushing time [minute]
25 or less	100	—
30	60	1.5

LEYG32D (Motor mounting position: In-line)



Torque limit/Command value [%]	Duty ratio [%]	Continuous pushing time [minute]
25 or less	100	—
30	60	1.5

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

Electric Actuator/ Guide Rod Type

LEYG Series LEYG16, 25, 32, 40

RoHS

How to Order

LEYG 16 M □ □ B – 50 □ □ – S 1 6N 1 □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫ ⓬ ⓭

❶ Size

16
25
32
40

❷ Bearing type

M	Sliding bearing
L	Ball bushing bearing

∗ When [M: Sliding bearing] is selected, the maximum speed of lead [A] is 400 mm/s (at no-load, horizontal mounting). The speed is also restricted with a horizontal/moment load. Refer to "Model Selection" on page 272.

❸ Motor mounting position

Nil	Top mounting
D	In-line

❹ Motor type

Symbol	Type	Size			Compatible controller/driver
		LEYG16	LEYG25	LEYG32/40	
Nil	Step motor (Servo/24 VDC)	●	●	●	LECP6 LECP1 LECPA LECPMJ
A	Servo motor (24 VDC)	●	●	—	LECA6

❺ Lead [mm]

Symbol	LEYG16	LEYG25	LEYG32/40
A	10	12	16
B	5	6	8
C	2.5	3	4

❻ Stroke [mm]

30	30
to	to
300	300

∗ Refer to the applicable stroke table.
∗ There is a limit for mounting size 32/40 top mounting types and 50 mm stroke or less. Refer to the dimensions.

❼ Motor option∗

Nil	Without option
C	With motor cover
B	With lock
W	With lock/motor cover

∗ When "With lock" or "With lock/motor cover" are selected for the top mounting type, the motor body will stick out of the end of the body for size 16/40 with stroke 30 mm or less. Check for interference with workpieces before selecting a model.

❽ Guide option

Nil	Without option
F	With grease retaining function

∗ Only available for size 25, 32, and 40 sliding bearings. (Refer to "Construction" on page 289.)

∗ Applicable stroke table

●: Standard

Model \ Stroke [mm]	30	50	100	150	200	250	300	Manufacturable stroke range [mm]
LEYG16	●	●	●	●	●	—	—	10 to 200
LEYG25	●	●	●	●	●	●	●	15 to 300
LEYG32/40	●	●	●	●	●	●	●	20 to 300

∗ Please consult with SMC for non-standard strokes as they are produced as special orders.

⚠ Caution

[CE-compliant products]

① EMC compliance was tested by combining the electric actuator LEYG series and the controller LEC series. The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, conformity to the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify conformity to the EMC directive for the machinery and equipment as a whole.

② For the servo motor (24 VDC) specification, EMC compliance was tested by installing a noise filter set (LEC-NFA). Refer to page 568 for the noise filter set. Refer to the LECA Operation Manual for installation.

③ CC-Link direct input type (LECPMJ) is not CE-compliant.

[UL-compliant products]

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

For auto switches, refer to pages 252 and 253.

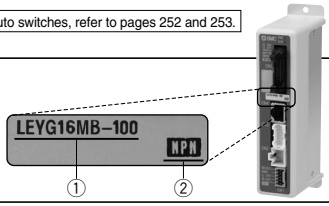
The actuator and controller/driver are sold as a package.

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

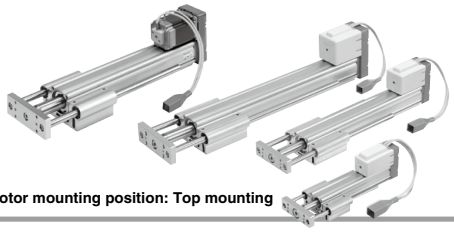
<Check the following before use.>

① Check the actuator label for model number. This matches the controller/driver.

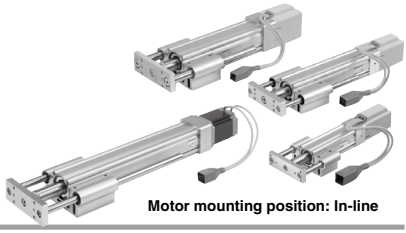
② Check Parallel I/O configuration matches (NPN or PNP).



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



Motor mounting position: Top mounting



Motor mounting position: In-line

⑨ Actuator cable type*1

Nil	Without cable
S	Standard cable*2
R	Robotic cable (Flexible cable)*3

*1 The standard cable should be used on fixed parts. For using on moving parts, select the robotic cable.
*2 Only available for the motor type "Step motor".
*3 Fix the motor cable protruding from the actuator to keep it unmovable. For details about fixing method, refer to Wiring/Cables in the Electric Actuators Precautions.

⑩ Actuator cable length [m]

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

* Produced upon receipt of order (Robotic cable only) Refer to the specifications Note 5) on page 286.

⑪ Controller/Driver type*1

Nil	Without controller/driver	
6N	**LECP6/LECA6** (Step data input type)	NPN
6P		PNP
1N	**LECP1***2 (Programless type)	NPN
1P		PNP
MJ	**LECPMJ***2 *3 (CC-Link direct input type)	—
AN	**LECPA***2 *4 (Pulse input type)	NPN
AP		PNP

*1 For details about controller/driver and compatible motor, refer to the compatible controller/driver below.
*2 Only available for the motor type "Step motor".
*3 Not applicable to CE.
*4 When pulse signals are open collector, order the current limiting resistor (LEC-PA-R-□) on page 596 separately.

⑫ I/O cable length*1, Communication plug

Nil	Without cable (Without communication plug connector)*3
1	1.5 m
3	3 m*2
5	5 m*2
S	Straight type communication plug connector*3
T	T-branch type communication plug connector*3

*1 If "Without controller/driver" is selected for controller/driver types, I/O cable cannot be selected. Refer to page 568 (For LECP6/LECA6), page 582 (For LECP1) or page 596 (For LECPA) if I/O cable is required.
*2 When "Pulse input type" is selected for controller/driver types, pulse input usable only with differential. Only 1.5 m cables usable with open collector.
*3 For the LECPMJ, only "Nil", "S" and "T" are selectable since I/O cable is not included.

⑬ Controller/Driver mounting

Nil	Screw mounting
D	DIN rail mounting*

* DIN rail is not included. Order it separately.

Use of auto switches for the guide rod type LEYG series
· Insert the auto switch from the front side with rod (plate) sticking out.
· For the parts hidden behind the guide attachment (Rod stick out side), the auto switch cannot be fixed.
· Please consult with SMC when using auto switch on the rod stick out side, as it is produced as a special order.

Compatible Controller/Driver

Type	**Step data input type** 	**Step data input type** 	**CC-Link direct input type** 	**Programless type** 	**Pulse input type** 
Series	**LECP6**	**LECA6**	**LECPMJ**	**LECP1**	**LECPA**
Features	Value (Step data) input Standard controller		CC-Link direct input	Capable of setting up operation (step data) without using a PC or teaching box	Operation by pulse signals
Compatible motor	Step motor (Servo/24 VDC)	Servo motor (24 VDC)	Step motor (Servo/24 VDC)		
Maximum number of step data	64 points			14 points	—
Power supply voltage	24 VDC				
Reference page	Page 560	Page 560	Page 600	Page 576	Page 590

Specifications

Step Motor (Servo/24 VDC)

	Model			LEYG16$^{M}_{L}$			LEYG25$^{M}_{L}$			LEYG32$^{M}_{L}$			LEYG40$^{M}_{L}$		
Actuator specifications	**Stroke [mm]** Note 1)			30, 50, 100, 150, 200			30, 50, 100, 150, 200, 250, 300			30, 50, 100, 150, 200, 250, 300			30, 50, 100, 150, 200, 250, 300		
	Work load [kg] Note 2)	Horizontal (LECP6, LECP1, LECPMJ)	Acceleration/Deceleration at 3000 [mm/s²]	6	17	30	20	40	60	30	45	60	50	60	80
			Acceleration/Deceleration at 2000 [mm/s²]	10	23	35	30	55	70	40	60	80	60	70	90
		Horizontal (LECPA)	Acceleration/Deceleration at 3000 [mm/s²]	4	11	20	12	30	30	20	40	40	30	60	60
			Acceleration/Deceleration at 2000 [mm/s²]	6	17	30	18	50	50	30	60	60	—	—	—
		Vertical	Acceleration/Deceleration at 3000 [mm/s²]	1.5	3.5	7.5	7	15	29	9	20	41	11	25	51
	Pushing force [N] Note 3) 4) 5)			14 to 38	27 to 74	51 to 141	63 to 122	126 to 238	232 to 452	80 to 189	156 to 370	296 to 707	132 to 283	266 to 553	562 to 1058
	Speed [mm/s] Note 5)	LECP6/LECP1/LECPMJ		15 to 500	8 to 250	4 to 125	18 to 500	9 to 250	5 to 125	24 to 500	12 to 300	6 to 150	24 to 500	12 to 350	6 to 175
		LECPA									12 to 250	6 to 125	24 to 300	12 to 150	6 to 75
	Max. acceleration/deceleration [mm/s²]			3000											
	Pushing speed [mm/s] Note 6)			50 or less			35 or less			30 or less			30 or less		
	Positioning repeatability [mm]			±0.02											
	Lost motion [mm] Note 7)			0.1 or less											
	Screw lead [mm]			10	5	2.5	12	6	3	16	8	4	16	8	4
	Impact/Vibration resistance [m/s²] Note 8)			50/20											
	Actuation type			Ball screw + Belt (LEYG□□), Ball screw (LEYG□□D)											
	Guide type			Sliding bearing (LEYG□M), Ball bushing bearing (LEYG□L)											
	Operating temp. range [°C]			5 to 40											
	Operating humidity range [%RH]			90 or less (No condensation)											
Electric specifications	**Motor size**			□28			□42			□56.4			□56.4		
	Motor type			Step motor (Servo/24 VDC)											
	Encoder			Incremental A/B phase (800 pulse/rotation)											
	Rated voltage [V]			24 VDC ±10%											
	Power consumption [W] Note 9)			23			40			50			50		
	Standby power consumption when operating [W] Note 10)			16			15			48			48		
	Max. instantaneous power consumption [W] Note 11)			43			48			104			106		
Lock unit specifications	**Type** Note 12)			Non-magnetizing lock											
	Holding force [N]			20	39	78	78	157	294	108	216	421	127	265	519
	Power consumption [W] Note 13)			2.9			5			5			5		
	Rated voltage [V]			24 VDC ±10%											

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

Note 2) Horizontal: An external guide is necessary to support the load (Friction coefficient of guide: 0.1 or less). The actual work load and transfer speed change according to the condition of the external guide. Also, speed changes according to the work load. Check “Model Selection” on pages 274 and 275.
Vertical: Speed changes according to the work load. Check “Model Selection” on pages 274 and 275.
Set the acceleration/deceleration values to be 3000 [mm/s²] or less.

Note 3) Pushing force accuracy is ±20% (F.S.).

Note 4) The pushing force values for LEYG16□□ is 35% to 85%, for LEYG25□□ is 35% to 65%, for LEYG32□□ is 35% to 85% and for LEYG40□□ is 35% to 65%. The pushing force values change according to the duty ratio and pushing speed. Check “Model Selection” on page 277.

Note 5) 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%)
When [M: Sliding bearing] is selected, the maximum speed of lead [A] is 400 mm/s (at no-load, horizontal mounting).
The speed is also restricted with a horizontal/moment load. Refer to “Model Selection” on page 272.

Note 6) The allowable speed for the pushing operation.

Note 7) A reference value for correcting an error in reciprocal operation.

Note 8) Impact resistance: No malfunction occurred when it was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)
Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. Test was performed in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)

Note 9) The power consumption (including the controller) is for when the actuator is operating.

Note 10) The standby power consumption when operating (including the controller) is for when the actuator is stopped in the set position during the operation. Except during the pushing operation.

Note 11) The maximum instantaneous power consumption (including the controller) is for when the actuator is operating. This value can be used for the selection of the power supply.

Note 12) With lock only

Note 13) For an actuator with lock, add the power consumption for the lock.

Specifications

Servo Motor (24 VDC)

	Model			LEYG16$^{M}_{L}$A			LEYG25$^{M}_{L}$A		
Actuator specifications	Stroke [mm] Note 1)			30, 50, 100, 150, 200			30, 50, 100, 150, 200, 250, 300		
	Work load [kg] Note 2)	Horizontal	Acceleration/Deceleration at 3000 [mm/s²]	3	6	12	7	15	30
		Vertical	Acceleration/Deceleration at 3000 [mm/s²]	1.5	3.5	7.5	2	5	11
	Pushing force [N] Note 3) 4)			16 to 30	30 to 58	57 to 111	18 to 35	37 to 72	66 to 130
	Speed [mm/s]			1 to 500	1 to 250	1 to 125	2 to 500	1 to 250	1 to 125
	Max. acceleration/deceleration [mm/s²]			3000					
	Pushing speed [mm/s] Note 5)			50 or less			35 or less		
	Positioning repeatability [mm]			±0.02					
	Lost motion [mm] Note 6)			0.1 or less					
	Screw lead [mm]			10	5	2.5	12	6	3
	Impact/Vibration resistance [m/s²] Note 7)			50/20					
	Actuation type			Ball screw + Belt (LEYG□□), Ball screw (LEYG□□D)					
	Guide type			Sliding bearing (LEYG□M), Ball bushing bearing (LEYG□L)					
	Operating temp. range [°C]			5 to 40					
	Operating humidity range [%RH]			90 or less (No condensation)					
Electric specifications	Motor size			□28			□42		
	Motor output [W]			30			36		
	Motor type			Servo motor (24 VDC)					
	Encoder			Incremental A/B (800 pulse/rotation)/Z phase					
	Rated voltage [V]			24 VDC ±10%					
	Power consumption [W] Note 8)			40			86		
	Standby power consumption when operating [W] Note 9)			4 (Horizontal)/6 (Vertical)			4 (Horizontal)/12 (Vertical)		
	Max. instantaneous power consumption [W] Note 10)			59			96		
Lock unit specifications	Type Note 11)			Non-magnetizing lock					
	Holding force [N]			20	39	78	78	157	294
	Power consumption [W] Note 12)			2.9			5		
	Rated voltage [V]			24 VDC ±10%					

Note 1) Please consult with SMC for non-standard strokes as they are produced as special orders.
Note 2) Horizontal: An external guide is necessary to support the load (Friction coefficient of guide: 0.1 or less). The actual work load and transfer speed change according to the condition of the external guide.
Vertical: Check "Model Selection" on page 276 for details. Set the acceleration/deceleration values to be 3000 [mm/s²] or less.
Note 3) Pushing force accuracy is ±20% (F.S.).
Note 4) The pushing force values for LEYG16□A□ is 50% to 95% and for LEYG25□A□ is 50% to 95%. The pushing force values change according to the duty ratio and pushing speed. Check "Model Selection" on page 277.
Note 5) The allowable speed for the pushing operation.
Note 6) A reference value for correcting an error in reciprocal operation.
Note 7) Impact resistance: No malfunction occurred when it was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)
Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. Test was performed in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)
Note 8) The power consumption (including the controller) is for when the actuator is operating.
Note 9) The standby power consumption when operating (including the controller) is for when the actuator is stopped in the set position during the operation. Except during the pushing operation.
Note 10) The maximum instantaneous power consumption (including the controller) is for when the actuator is operating. This value can be used for the selection of the power supply.
Note 11) With lock only
Note 12) For an actuator with lock, add the power consumption for the lock.

Weight

Weight: Motor Top Mounting Type

Model		LEYG16M					LEYG25M							LEYG32M						
Stroke [mm]		30	50	100	150	200	30	50	100	150	200	250	300	30	50	100	150	200	250	300
Product weight [kg]	Step motor	0.83	0.97	1.20	1.49	1.66	1.67	1.86	2.18	2.60	2.94	3.28	3.54	2.91	3.17	3.72	4.28	4.95	5.44	5.88
	Servo motor	0.83	0.97	1.20	1.49	1.66	1.63	1.82	2.14	2.56	2.90	3.24	3.50	—	—	—	—	—	—	—

Model		LEYG16L					LEYG25L							LEYG32L						
Stroke [mm]		30	50	100	150	200	30	50	100	150	200	250	300	30	50	100	150	200	250	300
Product weight [kg]	Step motor	0.84	0.97	1.14	1.43	1.58	1.68	1.89	2.13	2.56	2.82	3.14	3.38	2.91	3.18	3.57	4.12	4.66	5.17	5.56
	Servo motor	0.84	0.97	1.14	1.43	1.58	1.64	1.85	2.09	2.52	2.78	3.10	3.34	—	—	—	—	—	—	—

Model		LEYG40M							LEYG40L						
Stroke [mm]		30	50	100	150	200	250	300	30	50	100	150	200	250	300
Product weight [kg]	Step motor	3.21	3.47	4.02	4.58	5.25	5.74	6.18	3.21	3.48	3.87	4.42	4.96	5.47	5.86
	Servo motor	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Weight: In-line Motor Type

Model		LEYG16M					LEYG25M							LEYG32M						
Stroke [mm]		30	50	100	150	200	30	50	100	150	200	250	300	30	50	100	150	200	250	300
Product weight [kg]	Step motor	0.83	0.97	1.20	1.49	1.66	1.66	1.85	2.17	2.59	2.93	3.27	3.53	2.90	3.16	3.71	4.27	4.94	5.43	5.87
	Servo motor	0.83	0.97	1.20	1.49	1.66	1.62	1.81	2.13	2.55	2.89	3.23	3.49	—	—	—	—	—	—	—

Model		LEYG16L					LEYG25L							LEYG32L						
Stroke [mm]		30	50	100	150	200	30	50	100	150	200	250	300	30	50	100	150	200	250	300
Product weight [kg]	Step motor	0.84	0.97	1.14	1.43	1.58	1.67	1.88	2.12	2.55	2.81	3.13	3.37	2.90	3.17	3.56	4.11	4.65	5.16	5.55
	Servo motor	0.84	0.97	1.14	1.43	1.58	1.63	1.84	2.08	2.51	2.77	3.09	3.33	—	—	—	—	—	—	—

Model		LEYG40M							LEYG40L						
Stroke [mm]		30	50	100	150	200	250	300	30	50	100	150	200	250	300
Product weight [kg]	Step motor	3.20	3.46	4.01	4.57	5.24	5.73	6.17	3.20	3.47	3.86	4.41	4.95	5.46	5.85
	Servo motor	—	—	—	—	—	—	—	—	—	—	—	—	—	—

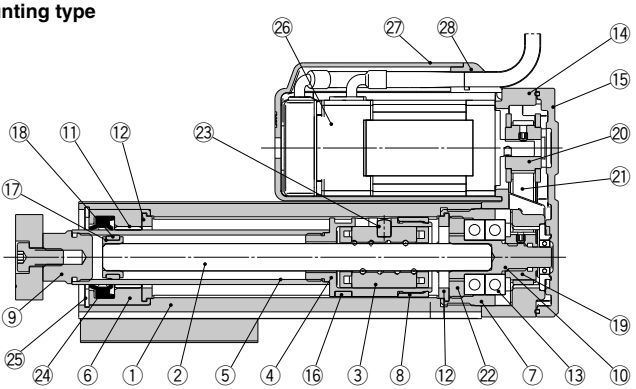
Additional Weight

[kg]

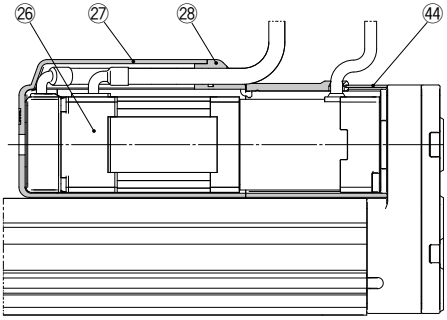
Size	16	25	32	40
Lock	0.12	0.26	0.53	0.53
Motor cover	0.02	0.03	0.04	0.05
Lock/Motor cover	0.16	0.32	0.61	0.62

Construction

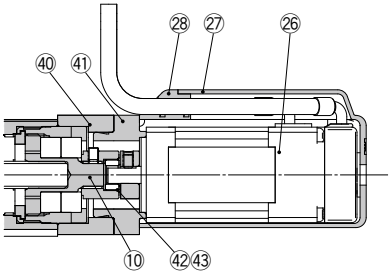
Motor top mounting type



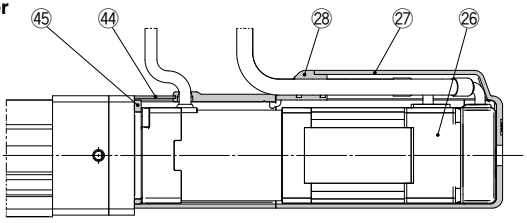
Motor top mounting type
With lock/motor cover



In-line motor type

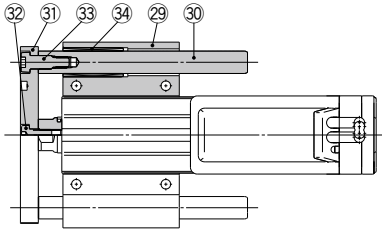


In-line motor type
With lock/motor cover

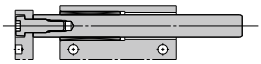


Construction

LEYG□M



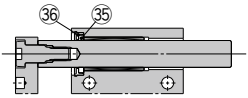
LEYG$^{16}_{25}_{32}_{40}$M: 50st or less



LEYG$^{16}_{25}_{32}_{40}$M: Over 50st

When grease retaining function selected

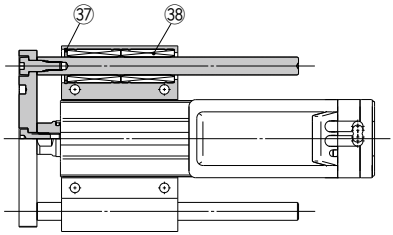
LEYG$^{25}_{32}_{40}$M□□$^{A}_{B}_{C}$-□□F: 50st or less



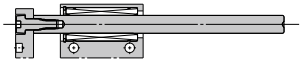
LEYG$^{25}_{32}_{40}$M□□$^{A}_{B}_{C}$-□□F: Over 50st

Note) Felt material is inserted to retain grease at the sliding part of the sliding bearing. This lengthens the life of the sliding part, but does not guarantee it permanently.

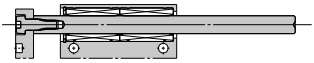
LEYG□L



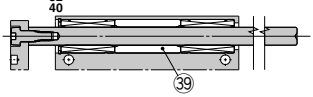
LEYG16L: 30st or less
LEYG$^{25}_{32}_{40}$L: 100st or less



LEYG16L: Over 30st, 100st or less



LEYG$^{16}_{25}_{32}_{40}$L: Over 100st



Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Ball screw (shaft)**	Alloy steel	
3	**Ball screw nut**	Resin/Alloy steel	
4	**Piston**	Aluminum alloy	
5	**Piston rod**	Stainless steel	Hard chrome plating
6	**Rod cover**	Aluminum alloy	
7	**Housing**	Aluminum alloy	
8	**Rotation stopper**	POM	
9	**Socket**	Free cutting carbon steel	Nickel plating
10	**Connected shaft**	Free cutting carbon steel	Nickel plating
11	**Bushing**	Lead bronze cast	
12	**Bumper**	Urethane	
13	**Bearing**	—	
14	**Return box**	Aluminum die-cast	Coating
15	**Return plate**	Aluminum die-cast	Coating
16	**Magnet**	—	
17	**Wear ring holder**	Stainless steel	Stroke 101 mm or more
18	**Wear ring**	POM	Stroke 101 mm or more
19	**Screw shaft pulley**	Aluminum alloy	
20	**Motor pulley**	Aluminum alloy	
21	**Belt**	—	
22	**Bearing stopper**	Aluminum alloy	
23	**Parallel pin**	Stainless steel	
24	**Seal**	NBR	
25	**Retaining ring**	Steel for spring	Phosphate coated
26	**Motor**	—	
27	**Motor cover**	Synthetic resin	Only "With motor cover"
28	**Grommet**	Synthetic resin	Only "With motor cover"

No.	Description	Material	Note
29	**Guide attachment**	Aluminum alloy	Anodized
30	**Guide rod**	Carbon steel	
31	**Plate**	Aluminum alloy	Anodized
32	**Plate mounting cap screw**	Carbon steel	Nickel plating
33	**Guide cap screw**	Carbon steel	Nickel plating
34	**Sliding bearing**	—	
35	**Lube-retainer**	Felt	
36	**Holder**	Resin	
37	**Retaining ring**	Steel for spring	Phosphate coated
38	**Ball bushing**	—	
39	**Spacer**	Aluminum alloy	Chromated
40	**Motor block**	Aluminum alloy	Anodized
41	**Motor adapter**	Aluminum alloy	Anodized/LEY16, 25 only
42	**Hub**	Aluminum alloy	
43	**Spider**	NBR	
44	**Motor cover with lock**	Aluminum alloy	Only "With lock/motor cover"
45	**Cover support**	Aluminum alloy	Only "With lock/motor cover"

Replacement Parts/Belt

No.	Size	Order no.
21	**16**	LE-D-2-1
	25	LE-D-2-2
	32, 40	LE-D-2-3

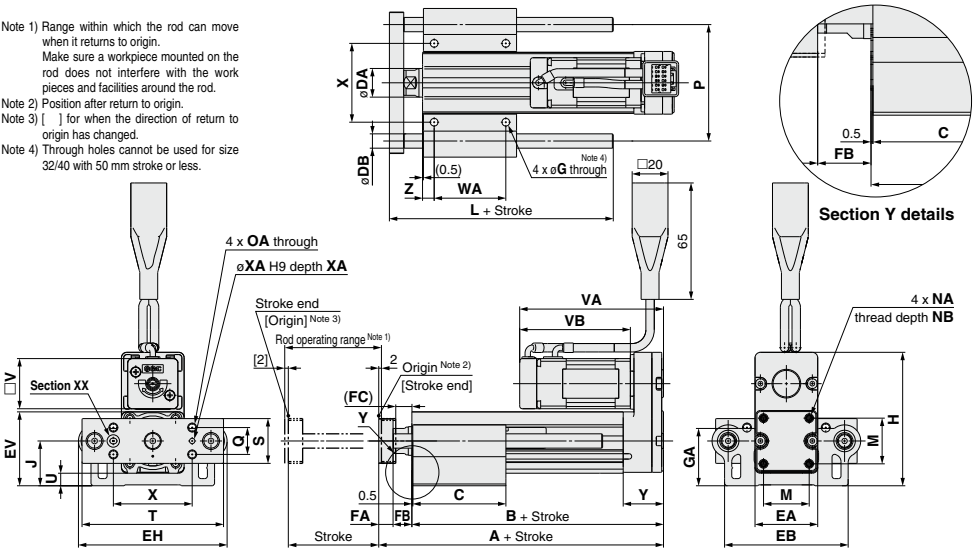
Replacement Parts/Grease Pack

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

∗ Apply grease on the piston rod periodically.
Grease should be applied at 1 million cycles or 200 km, whichever comes first.

Dimensions: Motor Top Mounting

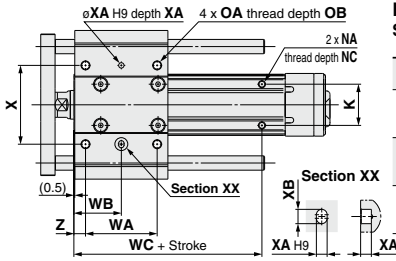
Note 1) Range within which the rod can move when it returns to origin.
Make sure a workpiece mounted on the rod does not interfere with the work pieces and facilities around the rod.
Note 2) Position after return to origin.
Note 3) [ ] for when the direction of return to origin has changed.
Note 4) Through holes cannot be used for size 32/40 with 50 mm stroke or less.



LEYG□L (Ball bushing bearing)
Standard stroke: 50, 100, 200

[mm]

Size	Stroke range	L	DB
16	90st or less	75	8
	91st or more, 200st or less	105	
25	114st or less	91	10
	115st or more, 190st or less	115	
	191st or more, 300st or less	133	
32 40	114st or less	97.5	13
	115st or more, 190st or less	116.5	
	191st or more, 300st or less	134	



LEYG□M (Sliding bearing)
Standard stroke: 30, 50, 100

[mm]

Size	Stroke range	L	DB
16	64st or less	51.5	10
	65st or more, 90st or less	74.5	
	91st or more, 200st or less	105	
25	59st or less	67.5	12
	60st or more, 185st or less	100.5	
	186st or more, 300st or less	138	
32 40	54st or less	74	16
	55st or more, 180st or less	107	
	181st or more, 300st or less	144	

LEYG□M, LEYG□L Common

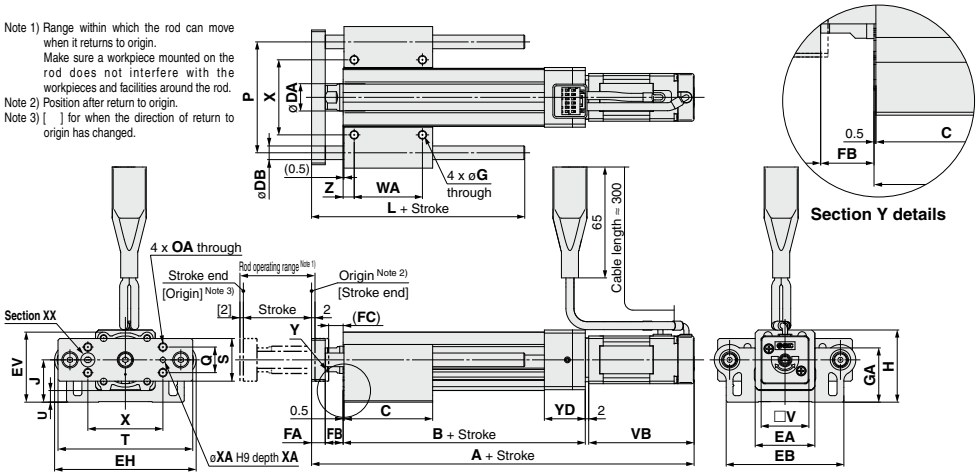
[mm]

Size	Stroke range	A	B	C	DA	EA	EB	EH	EV	FA	FB	FC	G	GA	H	J	K	M	NA	NB	NC
16	39st or less	109	90.5	37	16	35	69	83	41.1	8	10.5	8.5	4.3	31.8	74.3	24.8	23	25.5	M4 x 0.7	7	5.5
	40st or more, 100st or less			52																	
	101st or more, 200st or less	129	110.5	82																	
25	39st or less	141.5	116	50	20	46	85	103	52.3	11	14.5	12.5	5.4	40.3	98.8	30.8	29	34	M5 x 0.8	8	6.5
	40st or more, 100st or less			67.5																	
	101st or more, 124st or less																				
	125st or more, 200st or less	166.5	141	84.5																	
	201st or more, 300st or less			102																	
32 40	39st or less	160.5	130	55	25	60	101	123	63.8	12	18.5	16.5	5.4	50.3	125.3	38.3	30	40	M6 x 1.0	10	8.5
	40st or more, 100st or less			68																	
	101st or more, 124st or less																				
	125st or more, 200st or less	190.5	160	85																	
	201st or more, 300st or less			102																	

Size	Stroke range	OA	OB	P	Q	S	T	U	V	Step motor VA	Step motor VB	Servo motor VA	Servo motor VB	WA	WB	WC	X	XA	XB	Y	Z
16	39st or less	M5 x 0.8	10	65	15	25	79	6.8	28	80.3	61.8	81	62.5	25	19	55	44	3	4	22.5	6.5
	40st or more, 100st or less													40	26.5						
	101st or more, 200st or less													70	41.5	75					
25	39st or less	M6 x 1.0	12	80	18	30	95	6.8	42	85.4	63.4	81.6	59.6	35	26	70	54	4	5	26.5	8.5
	40st or more, 100st or less													50	33.5						
	101st or more, 124st or less																				
	125st or more, 200st or less													70	43.5	95					
	201st or more, 300st or less													85	51						
32	39st or less	M6 x 1.0	12	95	28	40	117	7.3	56.4	95.4	68.4	—	—	40	28.5	75	64	5	6	34	8.5
	40st or more, 100st or less													50	33.5						
	101st or more, 124st or less																				
	125st or more, 200st or less													70	43.5	105					
	201st or more, 300st or less													85	51						
40	39st or less	M6 x 1.0	12	95	28	40	117	7.3	56.4	117.4	90.4	—	—	40	28.5	75	64	5	6	34	8.5
	40st or more, 100st or less													50	33.5						
	101st or more, 124st or less																				
	125st or more, 200st or less													70	43.5	105					
	201st or more, 300st or less													85	51						

Dimensions: In-line Motor

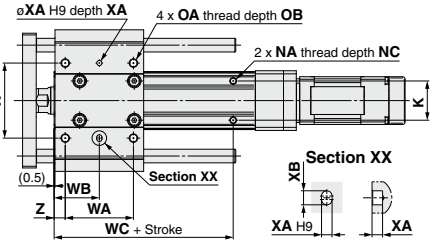
Note 1) Range within which the rod can move when it returns to origin. Make sure a workpiece mounted on the rod does not interfere with the workpieces and facilities around the rod.
Note 2) Position after return to origin.
Note 3) [ ] for when the direction of return to origin has changed.



LEYG□L (Ball bushing bearing)
Standard stroke: 50, 100, 200

[mm]

Size	Stroke range	L	DB
16	90st or less	75	8
	91st or more, 200st or less	105	
25	114st or less	91	10
	115st or more, 190st or less	115	
	191st or more, 300st or less	133	
32 40	114st or less	97.5	13
	115st or more, 190st or less	116.5	
	191st or more, 300st or less	134	



LEYG□M (Sliding bearing)
Standard stroke: 30, 50, 100

[mm]

Size	Stroke range	L	DB
16	64st or less	51.5	10
	65st or more, 90st or less	74.5	
	91st or more, 200st or less	105	
25	59st or less	67.5	12
	60st or more, 185st or less	100.5	
	186st or more, 300st or less	138	
32 40	54st or less	74	16
	55st or more, 180st or less	107	
	181st or more, 300st or less	144	

LEYG□M, LEYG□L Common

[mm]

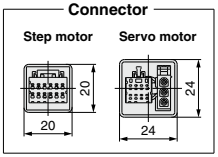
Size	Stroke range	Step motor A	Servo motor A	B	C	DA	EA	EB	EH	EV	FA	FB	FC	G	GA	H	J	K	NA	NC
16	39st or less	174.3	175	92	37	16	35	69	83	41.1	8	10.5	8.5	4.3	31.8	42.3	24.8	23	M4 x 0.7	5.5
	40st or more, 100st or less				52															
	101st or more, 200st or less	194.3	195	112	82															
25	39st or less	206.4	202.6	115.5	50	20	45	85	103	52.3	11	14.5	12.5	5.4	40.3	53.3	30.8	29	M5 x 0.8	6.5
	40st or more, 100st or less				67.5															
	101st or more, 124st or less	231.4	227.6	140.5	84.5															
	125st or more, 200st or less				102															
	201st or more, 300st or less																			
32	39st or less	228.9	—	128	55	25	60	101	123	63.8	12	18.5	16.5	5.4	50.3	68.3	38.3	30	M6 x 1.0	8.5
	40st or more, 100st or less				68															
	101st or more, 124st or less	258.9	—	158	85															
	125st or more, 200st or less				102															
	201st or more, 300st or less																			
40	39st or less	250.9	—	128	55	25	60	101	123	63.8	12	18.5	16.5	5.4	50.3	68.3	38.3	30	M6 x 1.0	8.5
	40st or more, 100st or less				68															
	101st or more, 124st or less	280.9	—	158	85															
	125st or more, 200st or less				102															
	201st or more, 300st or less																			

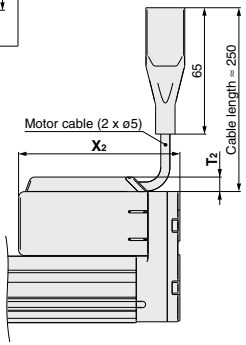
Size	Stroke range	OA	OB	P	Q	S	T	U	V	VB Step motor	VB Servo motor	WA	WB	WC	X	XA	XB	YD	Z
16	39st or less	M5 x 0.8	10	65	15	25	79	6.8	28	61.8	62.5	25	19	55	44	3	4	24	6.5
	40st or more, 100st or less											40	26.5						
	101st or more, 200st or less											70	41.5	75					
25	39st or less	M6 x 1.0	12	80	18	30	95	6.8	42	63.4	59.6	35	26	70	54	4	5	26	8.5
	40st or more, 100st or less											50	33.5						
	101st or more, 124st or less													95					
	125st or more, 200st or less											70	43.5						
	201st or more, 300st or less											85	51						
32	39st or less	M6 x 1.0	12	95	28	40	117	7.3	56.4	68.4	—	40	28.5	75	64	5	6	32	8.5
	40st or more, 100st or less											50	33.5						
	101st or more, 124st or less													105					
	125st or more, 200st or less											70	43.5						
	201st or more, 300st or less											85	51						
40	39st or less	M6 x 1.0	12	95	28	40	117	7.3	56.4	90.4	—	40	28.5	75	64	5	6	32	8.5
	40st or more, 100st or less											50	33.5						
	101st or more, 124st or less													105					
	125st or more, 200st or less											70	43.5						
	201st or more, 300st or less											85	51						

Dimensions

Motor top mounting type

With motor cover: LEYG$^{16}_{25}_{32}_{40}$□□$^{A}_{B}$-□C



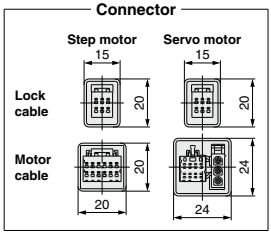


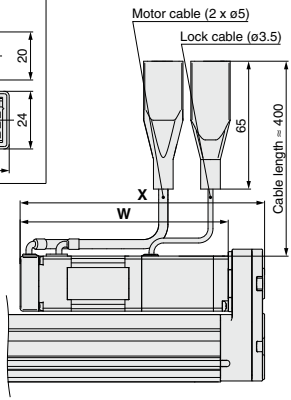
[mm]

Size	T_2	X_2
16	7.5	83
25	7.5	88.5
32	7.5	98.5
40	7.5	120.5

Motor cover material:
Synthetic resin

With lock: LEYG$^{16}_{25}_{32}_{40}$□□$^{A}_{B}$-□B



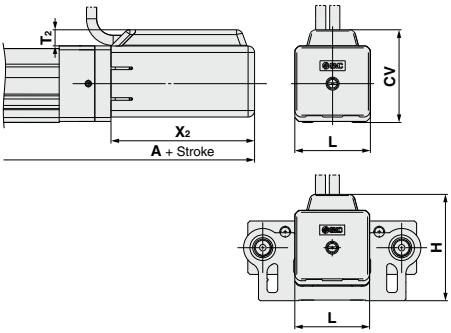


[mm]

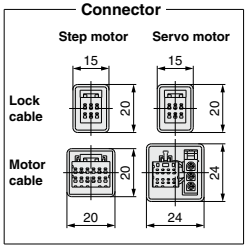
Size	Step motor		Servo motor	
	W	**X**	**W**	**X**
16	103.3	121.8	104.0	122.5
25	103.9	125.9	100.1	122.1
32	111.4	138.4	—	—
40	133.4	160.4	—	—

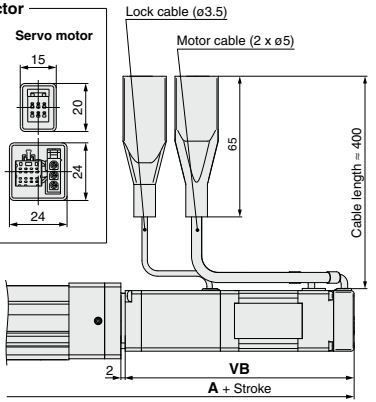
In-line motor type

With motor cover: LEYG$^{16}_{25}_{32}_{40}$□D□$^{A}_{B}$-□C



With lock: LEYG$^{16}_{25}_{32}_{40}$□D□$^{A}_{B}$-□B





[mm]

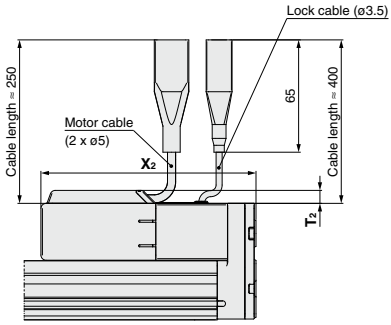
Size	Stroke range	A	T_2	X_2	L	H	CV
16	100st or less	177	7.5	66.5	35	49.8	43
	101st or more, 200st or less	197					
25	100st or less	209.5	7.5	68.5	46	61.3	54.5
	101st or more, 300st or less	234.5					
32	100st or less	232	7.5	73.5	60	75.8	68.5
	101st or more, 300st or less	262					
40	100st or less	254	7.5	95.5	60	75.8	68.5
	101st or more, 300st or less	284					

[mm]

Size	Stroke range	Step motor	Servo motor	Step motor	Servo motor
		A		**VB**	
16	100st or less	215.8	216.5	103.3	104
	101st or more, 200st or less	235.8	236.5		
25	100st or less	246.9	243.1	103.9	100.1
	101st or more, 300st or less	271.9	268.1		
32	100st or less	271.9	—	111.4	—
	101st or more, 300st or less	301.9	—		
40	100st or less	293.9	—	133.4	—
	101st or more, 300st or less	323.9	—		

Dimensions

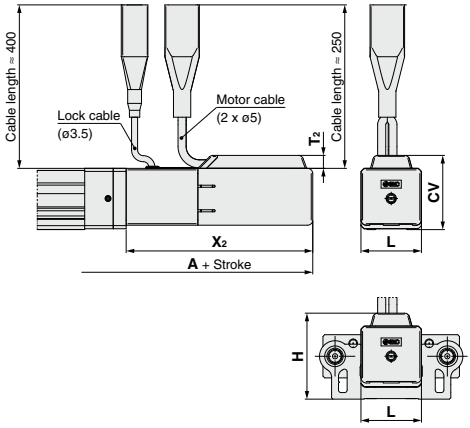
Motor top mounting type 16, 25, 32, 40
With lock/motor cover: LEYG □□ **A**, **B**, **C** -□**W**



[mm]

Size	T2	X2
16	7.5	124.5
25	7.5	129
32	7.5	141.5
40	7.5	163.5

In-line motor type 16, 25, 32, 40
With lock/motor cover: LEYG D□ **A**, **B**, **C** -□**W**



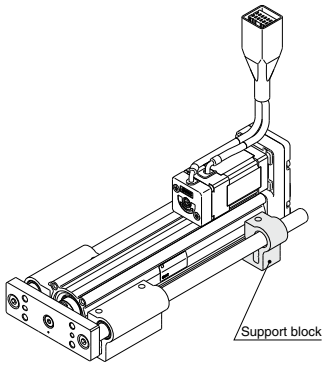
[mm]

Size	Stroke range	A	T2	X2	L	H	CV
16	100st or less	218.5	7.5	108	35	49.8	43
	101st or more, 300st or less	238.5					
25	100st or less	250	7.5	109	46	61.3	54.4
	101st or more, 300st or less	275					
32	100st or less	275	7.5	116.5	60	75.8	68.5
	101st or more, 300st or less	305					
40	100st or less	297	7.5	138.5	60	75.8	68.5
	101st or more, 300st or less	327					

Support Block

●Guide for support block application

When the stroke exceeds 100 mm and the mounting orientation is horizontal, the body will be bent. Mounting the support block is recommended. (Please order it separately from the models shown below.)

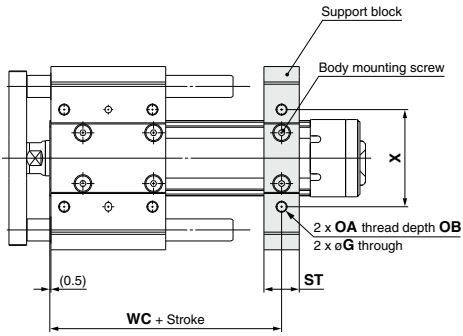


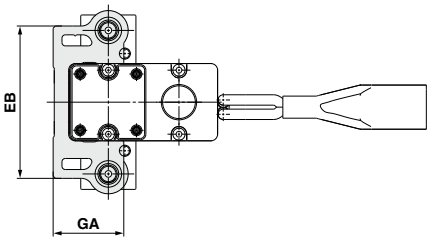
Support Block Model

LEYG-S016

●**Size**

016	For size 16
025	For size 25
032	For size 32, 40





⚠Caution

Do not install the body using only a support block.
The support block should be used only for support.

[mm]

Size	Model	Stroke range	EB	G	GA	OA	OB	ST	WC	X
16	**LEYG-S016**	100st or less	69	4.3	31.8	M5 x 0.8	10	16	55	44
		101st or more, 200st or less							75	
25	**LEYG-S025**	100st or less	85	5.4	40.3	M6 x 1.0	12	20	70	54
		101st or more, 300st or less							95	
32 **40**	**LEYG-S032**	100st or less	101	(5.4)	(50.3)	M6 x 1.0	12	22	75	64
		101st or more, 300st or less							105	

∗ Two body mounting screws are included with the support block.
∗ The through holes of the LEYG-S032 cannot be used for the top mounting type. Use taps on the bottom.

Electric Actuator/ Guide Rod Type

LEYG Series LEYG25, 32

RoHS

Motorless Type ▶ Page 868

SSCNETIII/H Compatible ▶ Page 644

MECHATROLINK Compatible ▶ Page 752

How to Order

LEY H G 25 M □ S2 B – 100 □ □ – S 2 A1 □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫ ⓬ ⓭

❶ Accuracy

Nil	Basic type
H	High precision type

❷ Size

25
32

❸ Bearing type

M	Sliding bearing
L	Ball bushing bearing

❹ Motor mounting position

Nil	Top mounting
D	In-line

❺ Motor type*1

Symbol	Type	Output [W]	Actuator size	Compatible driver*2
S2	AC servo motor (Incremental encoder)	100	25	LECSA□-S1
S3	AC servo motor (Incremental encoder)	200	32	LECSA□-S3
S6	AC servo motor (Absolute encoder)	100	25	LECSB□-S5 LECSC□-S5 LECSS□-S5
S7	AC servo motor (Absolute encoder)	200	32	LECSB□-S7 LECSC□-S7 LECSS□-S7

*1 For motor type S2 and S6, the compatible driver part number suffixes are S1 and S5 respectively.
*2 For details about the driver, refer to page 607.

❻ Lead [mm]

Symbol	LEYG25	LEYG32*
A	12	16 (20)
B	6	8 (10)
C	3	4 (5)

* The values shown in ( ) are the lead for size 32 top mounting types. (Equivalent lead which includes the pulley ratio [1.25:1])

❼ Stroke [mm]

30	30
to	to
300	300

* Refer to the applicable stroke table.
* There is a limit for mounting size 32 top mounting type and 50 mm stroke or less. Refer to the dimensions.

❽ Motor option

Nil	Without option
B	With lock

❾ Guide option

Nil	Without option
F	With grease retaining function

* Only available for size 25 and 32 sliding bearings. (Refer to "Construction" on page 299.)

❿ Cable type*

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

* The motor and encoder cables are included. (The lock cable is also included when the motor with lock option is selected.)
* Standard cable entry direction is
  - Top mounting: (A) Axis side
  - In-line: (B) Counter axis side

  (Refer to page 623 for details.)

⓫ Cable length* [m]

Nil	Without cable
2	2
5	5
A	10

* The length of the encoder, motor and lock cables are the same.

* Applicable stroke table ●: Standard

Model \ Stroke [mm]	30	50	100	150	200	250	300	Manufacturable stroke range
LEYG25	●	●	●	●	●	●	●	15 to 300
LEYG32	●	●	●	●	●	●	●	20 to 300

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

For auto switches, refer to pages 252 and 253.


Motor mounting position: Top mounting


Motor mounting position: In-line

⓬ Driver type*

	Compatible driver	Power supply voltage [V]
Nil	Without driver	—
A1	LECSA1-S□	100 to 120
A2	LECSA2-S□	200 to 230
B1	LECSB1-S□	100 to 120
B2	LECSB2-S□	200 to 230
C1	LECSC1-S□	100 to 120
C2	LECSC2-S□	200 to 230
S1	LECSS1-S□	100 to 120
S2	LECSS2-S□	200 to 230

* When the driver type is selected, the cable is included. Select cable type and cable length.
Example)
S2S2: Standard cable (2 m) + Driver (LECSS2)
S2 : Standard cable (2 m)
Nil : Without cable and driver

⓭ I/O cable length [m]*

Nil	Without cable
H	Without cable (Connector only)
1	1.5

* When "Without driver" is selected for driver type, only "Nil: Without cable" can be selected. Refer to page 624 if I/O cable is required. (Options are shown on page 624.)

Use of auto switches for the guide rod type LEYG series
· Insert the auto switch from the front side with rod (plate) sticking out.
· For the parts hidden behind the guide attachment (Rod stick out side), the auto switch cannot be fixed.
· Please consult with SMC when using auto switch on the rod stick out side, as it is produced as a special order.

Compatible Driver

Driver type	**Pulse input type /Positioning type** 	**Pulse input type** 	**CC-Link direct input type** 	**SSCNET Ⅲ type** 
Series	**LECSA**	**LECSB**	**LECSC**	**LECSS**
Number of point tables	Up to 7	—	Up to 255 (2 stations occupied)	—
Pulse input	○	○	—	—
Applicable network	—	—	CC-Link	SSCNET Ⅲ type
Control encoder	Incremental 17-bit encoder	Absolute 18-bit encoder	Absolute 18-bit encoder	Absolute 18-bit encoder
Communication function	USB communication	USB communication, RS422 communication	USB communication, RS422 communication	USB communication
Power supply voltage [V]	100 to 120 VAC (50/60 Hz) 200 to 230 VAC (50/60 Hz)			
Reference page	Page 607			

Specifications

Model			LEYG25□S$^{2}_{3}$ (Top mounting) LEYG25□DS$^{2}_{3}$ (In-line)			LEYG32□S$^{3}_{7}$ (Top mounting)			LEYG32□DS$^{3}_{7}$ (In-line)		
Actuator specifications	Stroke [mm] Note 1)		30, 50, 100, 150, 200, 250, 300			30, 50, 100, 200, 250, 300			30, 50, 100, 200, 250, 300		
	Work load [kg]	Horizontal Note 2)	18	50	50	30	60	60	30	60	60
		Vertical	7	15	29	7	17	35	10	22	44
	Force [N] Note 3) (Set value: 15 to 30%)		65 to 131	127 to 255	242 to 485	79 to 157	154 to 308	294 to 588	98 to 197	192 to 385	368 to 736
	Max. speed [mm/s]		900	450	225	1200	600	300	1000	500	250
	Pushing speed [mm/s²] Note 4)		35 or less			30 or less			30 or less		
	Max. acceleration/deceleration [mm/s²]		5000			5000					
	Positioning repeatability [mm]	Basic type	±0.02								
		High precision type	±0.01								
	Lost motion Note 5) [mm]	Basic type	0.1 or less								
		High precision type	0.05 or less								
	Lead [mm] (including pulley ratio)		12	6	3	20	10	5	16	8	4
	Impact/Vibration resistance [m/s²] Note 6)		50/20			50/20					
	Actuation type		Ball screw + Belt [1:1]/Ball screw			Ball screw + Belt [1:1.25]			Ball screw		
	Guide type		Sliding bearing (LEYG□M), Ball bushing bearing (LEYG□L)								
	Operating temperature range [°C]		5 to 40			5 to 40					
	Operating humidity range [%RH]		90 or less (No condensation)			90 or less (No condensation)					
	Regeneration option		May be required depending on speed and work load. (Refer to page 282.)								
Electric specifications	Motor output/Size		100 W/□40			200 W/□60					
	Motor type		AC servo motor (100/200 VAC)			AC servo motor (100/200 VAC)					
	Encoder		Motor type S2, S3: Incremental 17-bit encoder (Resolution: 131072 p/rev) Motor type S6, S7: Absolute 18-bit encoder (Resolution: 262144 p/rev)								
	Power consumption [W] Note 7)	Horizontal	45			65			65		
		Vertical	145			175			175		
	Standby power consumption when operating [W] Note 8)	Horizontal	2			2			2		
		Vertical	8			8			8		
	Max. instantaneous power consumption [W] Note 9)		445			724			724		
Lock unit specifications	Type Note 10)		Non-magnetizing lock			Non-magnetizing lock					
	Holding force [N]		131	255	485	157	308	588	197	385	736
	Power consumption at 20°C [W] Note 11)		6.3			7.9			7.9		
	Rated voltage [V]		24 VDC$^{0}_{-10\%}$								

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

Note 2) The maximum value of the horizontal work load. An external guide is necessary to support the load. The actual work load changes according to the condition of the external guide. Please confirm using actual device.

Note 3) The force setting range (set values for the driver) for the force control with the torque control mode. Set it with reference to "Force Conversion Graph" on page 283. When the control equivalent to the pushing operation of the controller LECP series is performed, select the LECSS driver and combine it with the Simple Motion (manufactured by Mitsubishi Electric Corporation) which has a pushing operation function.

Note 4) The allowable collision speed for collision with the workpiece with the torque control mode.

Note 5) A reference value for correcting an error in reciprocal operation.

Note 6) Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)
Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. Test was performed in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)

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

Note 8) The standby power consumption when operating (including the driver) is for when the actuator is stopped in the set position during operation.

Note 9) The maximum instantaneous power consumption (including the driver) is for when the actuator is operating.

Note 10) Only when motor option "With lock" is selected.

Note 11) For an actuator with lock, add the power consumption for the lock.

Weight

Weight: Top Mounting Type

[kg]

Series		LEYG25M							LEYG32M						
Stroke [mm]		30	50	100	150	200	250	300	30	50	100	150	200	250	300
Motor type	Incremental encoder	1.80	1.99	2.31	2.73	3.07	3.41	3.67	3.24	3.50	4.05	4.80	5.35	5.83	6.28
	Absolute encoder	1.86	2.05	2.37	2.79	3.13	3.47	3.73	3.18	3.44	3.99	4.74	5.29	5.77	6.22

Series		LEYG25L							LEYG32L						
Stroke [mm]		30	50	100	150	200	250	300	30	50	100	150	200	250	300
Motor type	Incremental encoder	1.81	2.02	2.26	2.69	2.95	3.27	3.51	3.24	3.51	3.9	4.64	5.06	5.56	5.96
	Absolute encoder	1.87	2.08	2.32	2.75	3.01	3.33	3.57	3.18	3.45	3.84	4.58	5.00	5.50	5.90

Weight: In-line Motor Type

[kg]

Series		LEYG25MD							LEYG32MD						
Stroke [mm]		30	50	100	150	200	250	300	30	50	100	150	200	250	300
Motor type	Incremental encoder	1.83	2.02	2.34	2.76	3.10	3.44	3.70	3.26	3.52	4.07	4.82	5.37	5.85	6.30
	Absolute encoder	1.89	2.08	2.40	2.82	3.16	3.50	3.76	3.20	3.46	4.01	4.76	5.31	5.79	6.24

Series		LEYG25LD							LEYG32LD						
Stroke [mm]		30	50	100	150	200	250	300	30	50	100	150	200	250	300
Motor type	Incremental encoder	1.84	2.05	2.29	2.72	2.98	3.30	3.54	3.26	3.53	3.92	4.66	5.08	5.58	5.98
	Absolute encoder	1.90	2.11	2.35	2.78	3.04	3.36	3.60	3.20	3.47	3.86	4.60	5.02	5.52	5.92

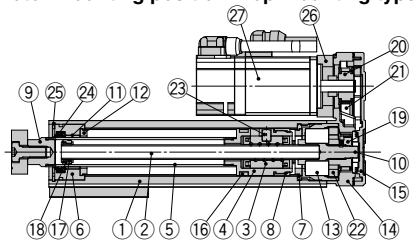
Additional Weight

[kg]

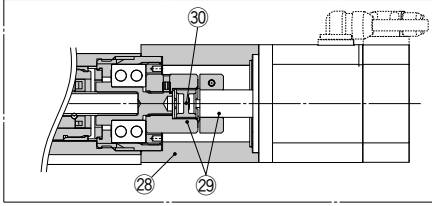
Size		25	32
Lock	Incremental encoder	0.20	0.40
	Absolute encoder	0.30	0.66

Construction

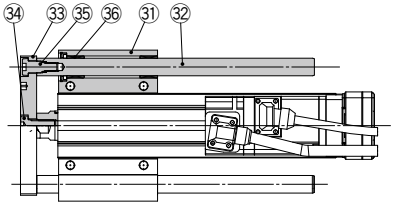
Motor mounting position: Top mounting type



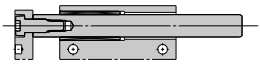
Motor mounting position: In-line type



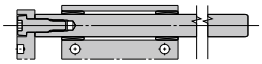
LEYG□M



LEYG25/32M: 50st or less

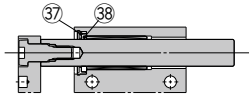


LEYG25/32M: Over 50st



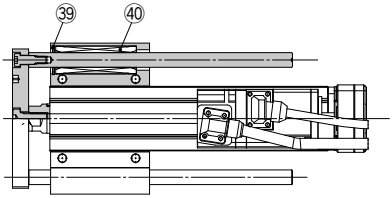
When grease retaining function selected

LEYG25/32M: 50st or less

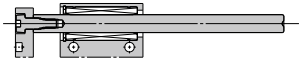


LEYG25/32M: Over 50st

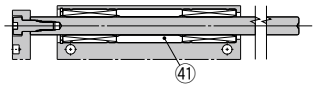
LEYG□L



LEYG25/32L: 100st or less



LEYG25/32L: Over 100st



Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Ball screw shaft**	Alloy steel	
3	**Ball screw nut**	—	
4	**Piston**	Aluminum alloy	
5	**Piston rod**	Stainless steel	Hard chrome plating
6	**Rod cover**	Aluminum alloy	
7	**Housing**	Aluminum alloy	
8	**Rotation stopper**	POM	
9	**Socket**	Free cutting carbon steel	Nickel plating
10	**Connected shaft**	Free cutting carbon steel	Nickel plating
11	**Bushing**	Lead bronze cast	
12	**Bumper**	Urethane	
13	**Bearing**	—	
14	**Return box**	Aluminum die-cast	Coating
15	**Return plate**	Aluminum die-cast	Coating
16	**Magnet**	—	
17	**Wear ring holder**	Stainless steel	Stroke 101 mm or more
18	**Wear ring**	POM	Stroke 101 mm or more
19	**Screw shaft pulley**	Aluminum alloy	
20	**Motor pulley**	Aluminum alloy	
21	**Belt**	—	
22	**Bearing stopper**	Aluminum alloy	
23	**Parallel pin**	Stainless steel	
24	**Seal**	NBR	
25	**Retaining ring**	Steel for spring	Phosphate coated
26	**Motor adapter**	Aluminum alloy	Coating
27	**Motor**	—	

No.	Description	Material	Note
28	**Motor block**	Aluminum alloy	Coating
29	**Hub**	Aluminum alloy	
30	**Spider**	Urethane	Spider
31	**Guide attachment**	Aluminum alloy	Anodized
32	**Guide rod**	Carbon steel	
33	**Plate**	Aluminum alloy	Anodized
34	**Plate mounting cap screw**	Carbon steel	Nickel plating
35	**Guide cap screw**	Carbon steel	Nickel plating
36	**Sliding bearing**	—	
37	**Felt**	Felt	
38	**Holder**	Resin	
39	**Retaining ring**	Steel for spring	Phosphate coated
40	**Ball bushing**	—	
41	**Spacer**	Aluminum alloy	Chromated

Support Block

Size	Order no.
25	LEYG-S025
32	LEYG-S032

∗ Two body mounting screws are included with the support block.

Replacement Parts /Belt

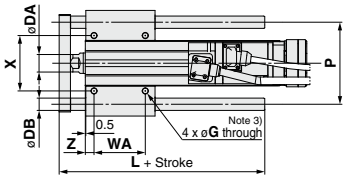
Size	Order no.
25	LE-D-2-2
32	LE-D-2-4

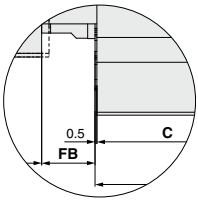
Replacement Parts/Grease Pack

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

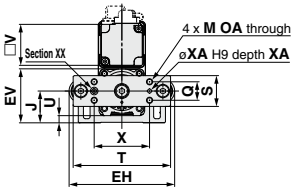
∗ Apply grease on the piston rod periodically.
Grease should be applied at 1 million cycles or 200 km, whichever comes first.

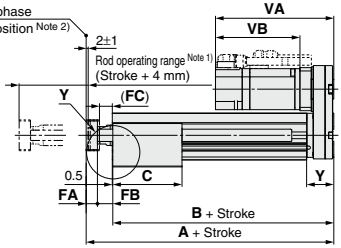
Dimensions: Top Mounting

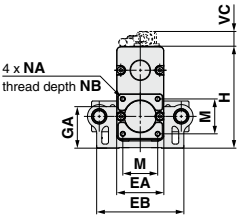




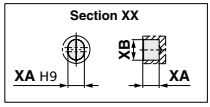
Section Y details

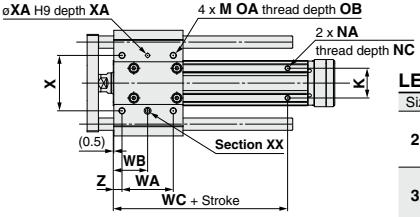






Note 1) Range within which the rod can move. Make sure a workpiece mounted on the rod does not interfere with the workpieces and facilities around the rod.
Note 2) The Z-phase first detecting position from the stroke end of the motor side.
Note 3) Through holes cannot be used for size 32 with 50 mm stroke or less.





LEYG□L (Ball bushing bearing) [mm]

Size	Stroke range [mm]	L	DB
25	Up to 114	91	10
	115 to 190	115	
	191 to 300	133	
32	Up to 114	97.5	13
	115 to 190	116.5	
	191 to 300	134	

LEYG□M (Sliding bearing) [mm]

Size	Stroke range [mm]	L	DB
25	Up to 59	67.5	12
	60 to 185	100.5	
	186 to 300	138	
32	Up to 59	74	16
	60 to 185	107	
	186 to 300	144	

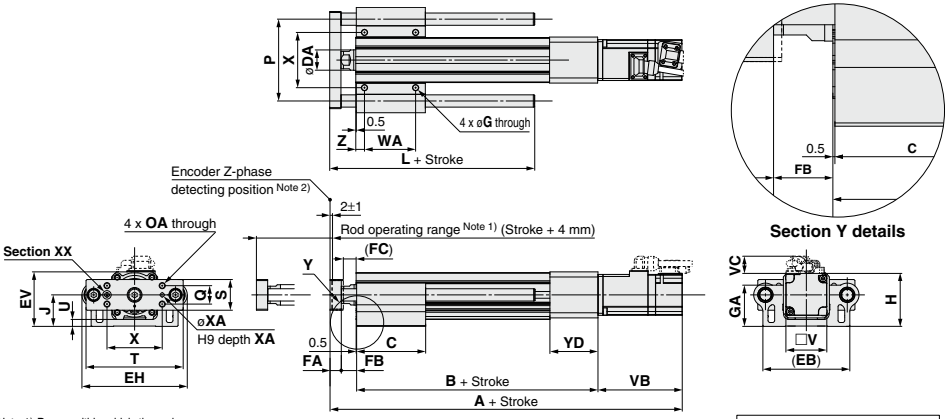
LEYG□M, LEYG□L Common [mm]

Size	Stroke range [mm]	A	B	C	DA	EA	EB	EH	EV	FA	FB	FC	G	GA	H	J	K	M	NA	NB	NC
25	Up to 39	141.5	116	50	20	46	85	103	52.3	11	14.5	12.5	5.4	40.3	98.8	30.8	29	34	M5 x 0.8	8	6.5
	40 to 100			67.5																	
	101 to 124	166.5	141																		
	125 to 200			84.5																	
	201 to 300			102																	
32	Up to 39	160.5	130	55	25	60	101	123	63.8	12	18.5	16.5	5.4	50.3	125.3	38.3	30	40	M6 x 1.0	10	8.5
	40 to 100			68																	
	101 to 124	190.5	160																		
	125 to 200			85																	
	201 to 300			102																	

Size	Stroke range [mm]	OA	OB	P	Q	S	T	U	V	WA	WB	WC	X	XA	XB	Y	Z
25	Up to 39	M6 x 1.0	12	80	18	30	95	6.8	40	35	26	70	54	4	5	26.5	8.5
	40 to 100									50	33.5						
	101 to 124											95					
	125 to 200									70	43.5						
	201 to 300									85	51						
32	Up to 39	M6 x 1.0	12	95	28	40	117	7.3	60	40	28.5	75	64	5	6	34	8.5
	40 to 100									50	33.5						
	101 to 124											105					
	125 to 200									70	43.5						
	201 to 300									85	51						

Size	Incremental encoder						Absolute encoder					
	Without lock			With lock			Without lock			With lock		
	VA	VB	VC	VA	VB	VC	VA	VB	VC	VA	VB	VC
25	120	87	14.1	156.9	123.9	15.8	115.4	82.4	14.1	156.5	123.5	15.8
32	128.2	88.2	17.1	156.8	116.8	17.1	116.6	76.6	17.1	156.1	116.1	17.1

Dimensions: In-line Motor



Note 1) Range within which the rod can move. Make sure a workpiece mounted on the rod does not interfere with the workpieces and facilities around the rod.
Note 2) The Z-phase first detecting position from the stroke end of the motor side.

LEYG□L (Ball bushing bearing) [mm]

Size	Stroke range [mm]	L	DB
25	Up to 114	91	10
	115 to 190	115	
	191 to 300	133	
32	Up to 114	97.5	13
	115 to 190	116.5	
	191 to 300	134	

LEYG□M (Sliding bearing) [mm]

Size	Stroke range [mm]	L	DB
25	Up to 59	67.5	12
	60 to 185	100.5	
	186 to 300	138	
32	Up to 59	74	16
	60 to 185	107	
	186 to 300	144	

LEYG□M, LEYG□L Common [mm]

Size	Stroke range [mm]	B	C	DA	EB	EH	EV	FA	FB	FC	G	GA	H	J	K	NA	NC
25	Up to 39	136.5	50	20	85	103	52.3	11	14.5	12.5	5.4	40.3	53.3	30.8	29	M5 x 0.8	6.5
	40 to 100		67.5														
	101 to 124																
	125 to 200	161.5	84.5														
	201 to 300		102														
32	Up to 39	156	55	25	101	123	63.8	12	18.5	16.5	5.4	50.3	68.3	38.3	30	M6 x 1.0	8.5
	40 to 100		68														
	101 to 124																
	125 to 200	186	85														
	201 to 300		102														

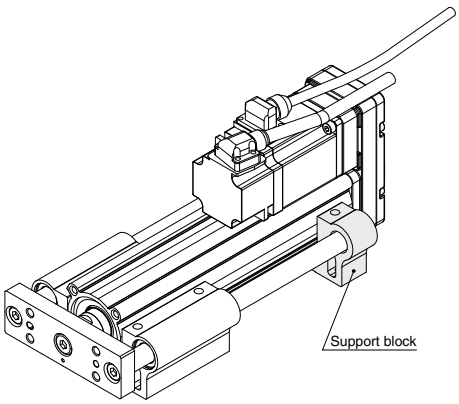
Size	Stroke range [mm]	OA	OB	P	Q	S	T	U	V	WA	WB	WC	X	XA	XB	YD	Z
25	Up to 39	M6 x 1.0	12	80	18	30	95	6.8	40	35	26	70	54	4	5	47	8.5
	40 to 100									50	33.5						
	101 to 124											95					
	125 to 200									70	43.5						
	201 to 300									85	51						
32	Up to 39	M6 x 1.0	12	95	28	40	117	7.3	60	40	28.5	75	64	5	6	60	8.5
	40 to 100									50	33.5						
	101 to 124											105					
	125 to 200									70	43.5						
	201 to 300									85	51						

Size	Stroke range [mm]	Incremental encoder						Absolute encoder					
		Without lock			With lock			Without lock			With lock		
		A	VB	VC	A	VB	VC	A	VB	VC	A	VB	VC
25	15 to 100	249	87	14.6	285.9	123.9	16.3	244.4	82.4	14.6	285.5	123.5	16.3
	105 to 300	274			310.9			269.4			315.5		
32	15 to 100	274.7	88.2	17.1	303.3	116.8	17.1	263.1	76.6	17.1	302.6	116.1	17.1
	105 to 300	304.7			333.3			293.1			332.6		

Support Block

●Guide for support block application

When the stroke exceeds 100 mm and the mounting orientation is horizontal, the body will be bent. Mounting the support block is recommended. (Please order it separately from the models shown below.)

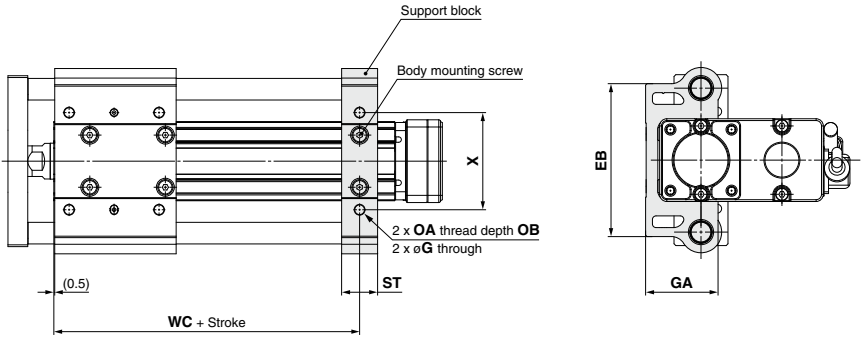


Support Block Model

LEYG-S025

●**Size**

025	For size 25
032	For size 32



⚠Caution

Do not install the body using only a support block.
The support block should be used only for support.

[mm]

Size	Model	Stroke range	EB	G	GA	OA	OB	ST	WC	X
25	**LEYG-S025**	100st or less	85	5.4	40.3	M6 x 1.0	12	20	70	54
		101st or more, 300st or less							95	
32	**LEYG-S032**	100st or less	101	(5.4)	(50.3)	M6 x 1.0	12	22	75	64
		101st or more, 300st or less							105	

∗ Two body mounting screws are included with the support block.
∗ The through holes of the LEYG-S032 cannot be used for the top mounting type. Use taps on the bottom.

LEY/LEYG Series
Electric Actuators/ Specific Product Precautions 1

Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions and pages 3 to 8 for Electric Actuator Precautions.

Design/Selection

⚠Warning

1. Do not apply a load in excess of the specification limits.

Select a suitable actuator by work load and allowable lateral load on the rod end. If the product is used outside of the specification limits, the eccentric load applied to the piston rod will be excessive and have adverse effects such as creating play on the sliding parts of the piston rod, degrading accuracy and shortening the life of the product.

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

This can cause failure.

3. When used as a stopper, select the LEYG series "Sliding bearing" for a stroke of 30 mm or less.

4. When used as a stopper, fix the main body with a guide attachment ("Top mounting" or "Bottom mounting").

If the end of the actuator is used to fix the main body (end mounting), the excessive load acts on the actuator, which adversely affects the operation and life of the product.

Handling

⚠Caution

1. INP output signal

1) Positioning operation
When the product comes within the set range by step data [In position], the INP output signal will turn on.
Initial value: Set to [0.50] or higher.

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

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

b) When the [Pushing force] and [Trigger LV] are set less than the specified range, the INP output signal will turn on from the pushing start position.

<Pushing Force and Trigger Level Range> Without load/With lateral load on rod end

Model	Pushing speed [mm/s]	Pushing force (Setting input value)
LEY□16□	1 to 4	30% to 85%
	5 to 20	35% to 85%
	21 to 50	60% to 85%
LEY□25□	1 to 4	20% to 65%
	5 to 20	35% to 65%
	21 to 35	50% to 65%
LEY□32□	1 to 4	20% to 85%
	5 to 20	35% to 85%
	21 to 30	60% to 85%
LEY□40□	1 to 4	20% to 65%
	5 to 20	35% to 65%
	21 to 30	50% to 65%

Model	Pushing speed [mm/s]	Pushing force (Setting input value)
LEY□16□A	1 to 4	40% to 95%
	5 to 20	60% to 95%
	21 to 50	80% to 95%
LEY□25□A	1 to 4	40% to 95%
	5 to 20	60% to 95%
	21 to 35	80% to 95%

∗ The pushing force in the table shows the range within which the completion signal [INP] is normally output. If the product is operated outside this range (low pushing force), the [INP] signal may be output when the actuator is moving (before pushing).

Handling

⚠Caution

<Set Values for Vertical Upward Transfer Pushing Operation>

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

Model	LEY16□			LEY25□			LEY32□			LEY40□		
Lead	A	B	C	A	B	C	A	B	C	A	B	C
Work load [kg]	1	1.5	3	2.5	5	10	4.5	9	18	7	14	28
Pushing force	85%			65%			85%			65%		

Model	LEY16□A			LEY25□A		
Lead	A	B	C	A	B	C
Work load [kg]	1	1.5	3	1.2	2.5	5
Pushing force	95%			95%		

Model	LEYG16$^{M}_{L}$□			LEYG25$^{M}_{L}$□			LEYG32$^{M}_{L}$□			LEYG40$^{M}_{L}$□		
Lead	A	B	C	A	B	C	A	B	C	A	B	C
Work load [kg]	0.5	1	2.5	1.5	4	9	2.5	7	16	5	12	26
Pushing force	85%			65%			85%			65%		

Model	LEYG16$^{M}_{L}$□A			LEYG25$^{M}_{L}$□A		
Lead	A	B	C	A	B	C
Work load [kg]	0.5	1	2.5	0.5	1.5	4
Pushing force	95%			95%		

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

Also, do not hit the workpiece in positioning operation or in the range of positioning operation. It may malfunction.

3. Use the product within the specified pushing speed range for the pushing operation.

It may lead to damage and malfunction.

4. The moving force should be the initial value (LEY16□/25□/32□/40□: 100%, LEY16A□: 150%, LEY25A□: 200%).

If the moving force is set below the initial value, it may cause an alarm.

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

Check the model selection section of the catalog.

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

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

7. In pushing operation, set the product to a position of at least 2 mm away from a workpiece. (This position is referred to as a pushing start position.)

The following alarms may be generated and operation may become unstable.

a. "Posn failed" alarm is generated.
The product cannot reach a pushing start position due to variation in the target position.

b. "Pushing ALM" alarm is generated.
The product is pushed back from a pushing start position after starting to push.

Handling

⚠Caution

8. Do not scratch or dent the sliding parts of the piston rod, by striking or attaching objects.

The piston rod and guide rod are manufactured to precise tolerances, even a slight deformation may cause malfunction.

9. When an external guide is used, connect it in such a way that no impact or load is applied to it.

Use a freely moving connector (such as a floating joint).

10. Do not operate by fixing the piston rod and moving the actuator body.

Excessive load will be applied to the piston rod, leading to damage to the actuator and reduced the life of the product.

11. When an actuator is operated with one end fixed and the other free (ends tapped or flange type), a bending moment may act on the actuator due to vibration generated at the stroke end, which can damage the actuator. In such a case, install a mounting bracket to suppress the vibration of the actuator body or reduce the speed so that the actuator does not vibrate at the stroke end.

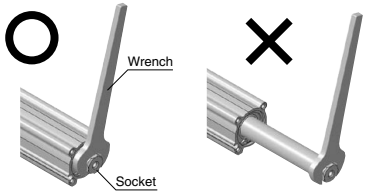
Also, use a mounting bracket when moving the actuator body or when a long stroke actuator is mounted horizontally and fixed at one end.

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

This may cause deformation of the non-rotating guide, abnormal responses of the auto switch, play in the internal guide or an increase in the sliding resistance.
Refer to the table below for the approximate values of the allowable range of rotational torque.

Allowable rotational torque [N·m] or less	LEY16□□	LEY25□□	LEY32/40□□	LEY63
	0.8	1.1	1.4	2.8

When screwing in a bracket or nut to the end of the piston rod, hold the flats of the rod end with a wrench (the piston rod should be fully retracted). Do not apply tightening torque to the non-rotating mechanism.



13. When rotational torque is applied to the end of the plate, use it within the allowable range. [LEYG series]

This may cause deformation of the guide rod and bushing, play in the guide or an increase in the sliding resistance.

14. For the pushing operation, use the product within the duty ratio range below.

The duty ratio is a ratio at the time that can keep being pushed.

• Step motor (Servo/24 VDC)

LEY16□

Pushing force [%]	Ambient temperature: 25°C or less		Ambient temperature: 40°C	
	Duty ratio [%]	Continuous pushing time [minute]	Duty ratio [%]	Continuous pushing time [minute]
40 or less	100	—	100	—
50			70	12
70			20	1.3
85			15	0.8

LEY25□

Pushing force [%]	Ambient temperature: 25°C or less		Ambient temperature: 40°C	
	Duty ratio [%]	Continuous pushing time [minute]	Duty ratio [%]	Continuous pushing time [minute]
65 or less	100	—	100	—

LEY32□/40□

Pushing force [%]	Ambient temperature: 25°C or less		Ambient temperature: 40°C	
	Duty ratio [%]	Continuous pushing time [minute]	Duty ratio [%]	Continuous pushing time [minute]
65 or less	100	—	100	—
85			50	15

• Servo motor (24 VDC)

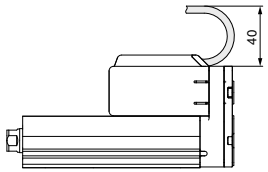
LEY16A□

Pushing force [%]	Ambient temperature: 25°C or less		Ambient temperature: 40°C	
	Duty ratio [%]	Continuous pushing time [minute]	Duty ratio [%]	Continuous pushing time [minute]
95 or less	100	—	100	—

LEY25A□

Pushing force [%]	Ambient temperature: 25°C or less		Ambient temperature: 40°C	
	Duty ratio [%]	Continuous pushing time [minute]	Duty ratio [%]	Continuous pushing time [minute]
95 or less	100	—	100	—

15. When mounting the product, keep a 40 mm or longer diameter for bends in the cable.



16. When mounting a bolt, workpiece or jig, hold the flats of the piston rod end with a wrench so that the piston rod does not rotate. The bolt should be tightened within the specified torque range.

This may cause abnormal responses of the auto switch, play in the internal guide or an increase in the sliding resistance.

Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions and pages 3 to 8 for Electric Actuator Precautions.

Handling

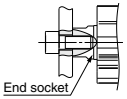
⚠Caution

17. When mounting the product and/or a workpiece, tighten the mounting screws within the specified torque range.

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

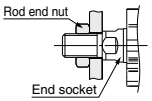
<LEY series>

Workpiece fixed/Rod end female thread

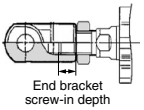


Model	Screw size	Max. tightening torque [N·m]	Max. screw-in depth [mm]	End socket width across flats [mm]
LEY16	M5 x 0.8	3.0	10	14
LEY25	M8 x 1.25	12.5	13	17
LEY32/40	M8 x 1.25	12.5	13	22
LEY63	M16 x 2	106	21	36

Workpiece fixed/Rod end male thread (When "Rod end male thread" is selected.)



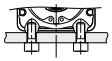
Model	Thread size	Max. tightening torque [N·m]	Effective thread length [mm]	End socket width across flats [mm]
LEY16	M8 x 1.25	12.5	12	14
LEY25	M14 x 1.5	65.0	20.5	17
LEY32/40	M14 x 1.5	65.0	20.5	22
LEY63	M18 x 1.5	97.0	26	36



Model	Rod end nut		End bracket
	Width across flats [mm]	Length [mm]	screw-in depth [mm]
LEY16	13	5	5 or more
LEY25	22	8	8 or more
LEY32/40	22	8	8 or more
LEY63	27	11	18

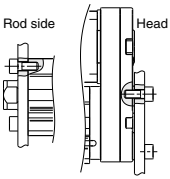
∗ Rod end nut is an accessory.

Body fixed/Body bottom tapped type (When "Body bottom tapped" is selected.)



Model	Screw size	Max. tightening torque [N·m]	Max. screw-in depth [mm]
LEY16	M4 x 0.7	1.5	5.5
LEY25	M5 x 0.8	3.0	6.5
LEY32/40	M6 x 1.0	5.2	8.8
LEY63	M8 x 1.25	12.5	10

Body fixed/Rod side/Head side tapped type

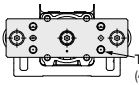


Model	Screw size	Max. tightening torque [N·m]	Max. screw-in depth [mm]
LEY16	M4 x 0.7	1.5	7
LEY25	M5 x 0.8	3.0	8
LEY32/40	M6 x 1.0	5.2	10
LEY63	M8 x 1.25	12.5	16

∗ Except the LEY□D.

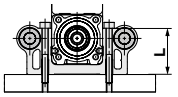
<LEYG series>

Workpiece fixed/Plate tapped type



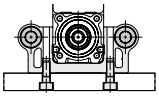
Model	Screw size	Max. tightening torque [N·m]	Max. screw-in depth [mm]
LEYG16$^{M}_{L}$	M5 x 0.8	3.0	8
LEYG25$^{M}_{L}$	M6 x 1.0	5.2	11
LEYG$^{32M}_{40L}$	M6 x 1.0	5.2	12

Body fixed/Top mounting



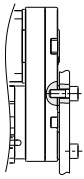
Model	Screw size	Max. tightening torque [N·m]	Length: L [mm]
LEYG16$^{M}_{L}$	M4 x 0.7	1.5	32
LEYG25$^{M}_{L}$	M5 x 0.8	3.0	40.3
LEYG$^{32M}_{40L}$	M5 x 0.8	3.0	50.3

Body fixed/Bottom mounting



Model	Screw size	Max. tightening torque [N·m]	Max. screw-in depth [mm]
LEYG16$^{M}_{L}$	M5 x 0.8	3.0	10
LEYG25$^{M}_{L}$	M6 x 1.0	5.2	12
LEYG$^{32M}_{40L}$	M6 x 1.0	5.2	12

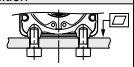
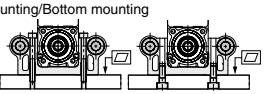
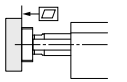
Body fixed/Head side tapped type



Model	Screw size	Max. tightening torque [N·m]	Max. screw-in depth [mm]
LEYG16$^{M}_{L}$	M4 x 0.7	1.5	7
LEYG25$^{M}_{L}$	M5 x 0.8	3.0	8
LEYG$^{32M}_{40L}$	M6 x 1.0	5.2	10

18. Keep the flatness of the mounting surface within the following ranges when mounting the actuator body and workpiece.

Unevenness of a workpiece or base mounted on the body of the product may cause an increase in the sliding resistance.

Model	Mounting position	Flatness
LEY□	Body/Body bottom 	0.1 mm or less
LEYG□	Top mounting/Bottom mounting 	0.02 mm or less
	Workpiece/Plate mounting 	0.02 mm or less

19. When using auto switch with the guide rod type LEYG series, the following limits will be in effect. Please select the product while paying attention to this.

- Insert the auto switch from the front side with rod (plate) sticking out.
- The auto switches with perpendicular electrical entry cannot be used.
- For the parts hidden behind the guide attachment (Rod stick out side), the auto switch cannot be fixed.
- Please consult with SMC when using auto switch on the rod stick out side.

Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions and pages 3 to 8 for Electric Actuator Precautions.

Handling

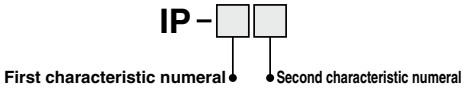
⚠Caution

20. When using the product with the IP65 or equivalent specifications, be sure to mount the tubing to the vent hole, and then place the end of the tubing in an area where it is not exposed to dust or water. When the actuator is used without mounting the fitting and tubing to the vent hole, water or dust may enter the inside of the actuator, causing a malfunction.

21. When the fluctuation of load is caused during operation, malfunction/noise/alarm may occur. (In case of AC servo motor)

The tuning of gain may not suit for fluctuation load. Adjust the gain properly by following the manual of driver.

Enclosure



• First Characteristics:
Degrees of protection against solid foreign objects

0	Non-protected
1	Protected against solid foreign objects of 50 mmø and greater
2	Protected against solid foreign objects of 12 mmø and greater
3	Protected against solid foreign objects of 2.5 mmø and greater
4	Protected against solid foreign objects of 1.0 mmø and greater
5	Dust-protected
6	Dust-tight

• Second Characteristics:
Degrees of protection against water

0	Non-protected	—
1	Protected against vertically falling water drops	Dripproof type 1
2	Protected against vertically falling water drops when enclosure tilted up to 15°	Dripproof type 2
3	Protected against rainfall when enclosure tilted up to 60°	Rainproof type
4	Protected against splashing water	Splashproof type
5	Protected against water jets	Water-jet-proof type
6	Protected against powerful water jets	Powerful water-jet-proof type
7	Protected against the effects of temporary immersion in water	Immersible type
8	Protected against the effects of continuous immersion in water	Submersible type

Example) IP65: Dust-tight, Water-jet-proof type
"Water-jet-proof type" means that no water intrudes inside an equipment that could hinder from operating normally by means of applying water for 3 minutes in the prescribed manner. Take appropriate protection measures, since a device is not usable in an environment where a droplet of water is splashed constantly.

Maintenance

⚠Warning

1. Ensure that the power supply is stopped and the workpiece is removed before starting maintenance work or replacement of the product.

• Maintenance frequency
Perform maintenance according to the table below.

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

* Select whichever comes first.

• Items for visual appearance check
1. Loose set screws, Abnormal dirt
2. Check of flaw and cable joint
3. Vibration, Noise

• Items for belt check
Stop operation immediately and replace the belt when belt appear to be below. Further, ensure your operating environment and conditions satisfy the requirements specified for the product.

a. Tooth shape canvas is worn out
Canvas fiber becomes fuzzy. Rubber is removed and the fiber becomes whitish. Lines of fibers become unclear.

b. Peeling off or wearing of the side of the belt
Belt corner becomes round and frayed thread sticks out.

c. Belt partially cut
Belt is partially cut. Foreign matter caught in teeth other than cut part causes flaw.

d. Vertical line of belt teeth
Flaw which is made when the belt runs on the flange.

e. Rubber back of the belt is softened and sticky

f. Crack on the back of the belt