



# Rod Type LEY Series/Guide Rod Type LEYG Series



• High-output motor: 400 w (Size 63)/750 w (Size 100)

Max. work load [kg]

Size	63		100
Mounting position	Parallel	In-line	In-line
Horizontal	200	80	1200
Vertical	115	72	200

<ul> <li>Max. force [N]</li> </ul>			
Size Motor mounting position	63	100	
Parallel	3343	12000	
In-line	1910	12000	

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- Max. Spece		
Size	Speed [mm/s]	
63	1000*1	
100	500* <sup>1</sup>	

\*1 500 mm stroke or less

The flange mounting pitch is based on ISO 15552. (Size 100)

• The ISO cylinder (C96 ø80) and flange mounting bracket are now standardized. (Size 100)







# Max. stroke: 500 mm<sup>\*1</sup>

\*1 For sizes 32 and 40



# Variations

			Size		Motor mounting
Series	Enclosure	Battery-less Absolute (Step Motor 24 VDC)	Incremental (Step Motor 24 VDC) Incremental (Servo Motor 24 VDC)	AC Servo Motor	position
LEY-X8 p. 883	IP65 equivalent/ IP67 equivalent	25 32 40	_	_	In-line
LEY-X7 p. 897	IP65 equivalent/ IP67 ⁄/ equivalent	_	25 32 40	_	In-line
LEY-X5 p. 913) LEY63-DP p. 473, 489	IP65 equivalent	_	25 32	25 32 63	Top side parallel, Right side parallel*1, Left side parallel*1, In-line



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# Guide Rod Type LEYG Series





Battery-less Absolute	(Step Motor 24 VDC)
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### Incremental (Step Motor 24 VDC) Incremental (Servo Motor 24 VDC)

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#### **○**Guide Rod Type *LEYG* Series

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# Environment











#### AC Servo Motor

#### LECS Series

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#### Battery-less Absolute (Step Motor 24 VDC)

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Model Selection	
How to Order	
Specifications	
Construction	
Dimensions	
Option: Actuator Cable	
Auto Switch Mounting	
0	

#### (Incremental (Step Motor 24 VDC) (Incremental (Servo Motor 24 VDC)

○ Rod Type LEY-X7 (Made to Order)	Dust-tight/Water-jet-proof (IP65 Equivalent/IP67 Equivalent)
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Specifications	
Construction	
Dimensions	
Auto Switch Mounting	

#### ◎ Rod Type *LEY-X5* (Made to Order)

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

#### AC Servo Motor

Rod Type <i>LEY-X5</i> (Made to Order)	Dust-tight/Water-jet-proof (IP65 Equivalent)
Model Selection	p
How to Order	
Specifications	p
Construction	p
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#### ◎ Rod Type *LEY-X5* (Made to Order)

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Incremental (Step Motor 24 VDC)

Incremental (Servo Motor 24 VDC) AC Servo Motor

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#### **◎3-Axis Step Motor Controller**



### ◎4-Axis Step Motor (Servo/24 VDC) Controller

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#### **○AC Servo Motor Drivers**

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..............................

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LECSB-T/LECSC-T/LECSN□-T/LECSS-T Series		
LECYM/LECYU Series	p. 1131	



# **Rod Type**

# LEY Series





T4 = 0.2 [s]

The cycle time can be found 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 LEY16EB-200 should be selected.

**SMC** 

# Model Selection LEY Series Battery-less Absolute (Step Motor 24 VDC)

#### Selection Procedure



# Based on the above calculation result, the LEY16EB-200 should be selected.

<Graph of allowable lateral load on the rod end>

300

Stroke [mm]

400

500

200

0

100



600

# LEY Series Battery-less Absolute (Step Motor 24 VDC)

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



**SMC** 

# Force Conversion Graph (Guide)

#### Battery-less Absolute (Step Motor 24 VDC)



#### LEY25 E



#### LEY32 E



#### LEY40 E



#### <Limit Values for Pushing Force and Trigger Level in Relation to Pushing Speed> Without Load

Model	Lead	Pushing speed [mm/s]	Pushing force (Setting input value)						
LEY16⊟E	A/B/C	21 to 50	45 to 65%						
LEY25 E	A/B/C	21 to 35	40 to 50%						
	A	24 to 30	E0 to 70%						
	B/C	21 to 30	50 10 70%						
	A	24 to 30	EQ to GE%						
	B/C	21 to 30	1 50 10 65%						

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

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

#### <Set Values for Vertical Upward Transfer Pushing Operations> For vertical loads (upward), set the pushing force to the max. value shown

below and operate at the work load of less.												
Model	LE	Y16	E	LE	<b>Y25</b>	E	LE	<b>Y32</b>	∃E	LE	<b>Y40</b>	E
Lead	Α	В	С	Α	В	С	Α	В	С	Α	В	С
Work load [kg]	1	1.5	3	2.5	5	10	4.5	9	18	7	14	28

50%

70%

65%

65%

Pushing force



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



\* The changes in the graph waveforms are due to the difference in components of different product strokes.

# Rod Displacement: $\delta$ [mm]

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



Stroke Size	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	±1.7	—	—
32, 40	±0.3	±0.4	±0.7	±0.6	±0.8	±1.0	±1.1	±1.3	±1.5	±1.7	±1.8

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2	
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\* The values without a load are shown.

# Non-rotating Accuracy of Rod

	+0	
$\square$		

Size	Non-rotating accuracy $\theta$	*
16	±1.1°	
25	±0.8°	
32	10.70	
40	±0.7*	

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

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





The cycle time can be found 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 should be selected.

**SMC** 

# Model Selection LEY/25A-LEY Series

Incremental (Step Motor 24 VDC) Incremental (Servo Motor 24 VDC) Secondary Battery Compatible

#### **Selection Procedure**



# Based on the above calculation result, the LEY16B-200 should be selected.

<Graph of allowable lateral load on the rod end>



# LEY/25A-LEY Series

Incremental (Step Motor 24 VDC) Incremental (Servo Motor 24 VDC) Secondary Battery Compatible

### Speed–Work Load Graph (Guide) For Step Motor (Servo/24 VDC) JXC□1, LECP1

#### Horizontal





for acceleration/deceleration: 2000 mm/s<sup>2</sup>





for acceleration/deceleration: 2000 mm/s<sup>2</sup>





 $\swarrow$  for acceleration/deceleration: 2000 mm/s^2



Befer to page 430 for the

Refer to page 430 for the LECPA,  $JXC\square_3^2$  and page 431 for the LECA6.

# 







#### LEY32





Incremental (Step Motor 24 VDC) Incremental (Servo Motor 24 VDC) Secondary Battery Compatible

# Speed–Work Load Graph (Guide) For Step Motor (Servo/24 VDC) LECPA, JXC $\Box_3^2$

Refer to page 429 for the JXC□1, LECP1 and page 431 for the LECA6.







// for acceleration/deceleration: 2000 mm/s<sup>2</sup>













#### LEY32



LEY40

**SMC** 



# LEY/25A-LEY Series

Incremental (Step Motor 24 VDC) Incremental (Servo Motor 24 VDC) Secondary Battery Compatible

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

Shdary Battery Compatible

Refer to page 429 for the JXC $\Box$ 1, LECP1 and page 430 for the LECPA, JXC $\Box$ 3.



# 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]



\* The changes in the graph waveforms are due to the difference in components of different product strokes.

#### Rod Displacement: $\delta$ [mm]

Stroke Size	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	±1.7	_	_
32, 40	±0.3	±0.4	±0.7	±0.6	±0.8	±1.0	±1.1	±1.3	±1.5	±1.7	±1.8
32,40	±0.3	±0.4	±0.7	±0.6	±0.8	±1.0	±1.1	±1.3	±1.5	±1.7	±1.8



\* The values without a load are shown.

#### Non-rotating Accuracy of Rod



Size	Non-rotating accuracy $\theta$	*
16	±1.1°	
25	±0.8°	
32	10 70	
40	±0.7°	

**SMC** 

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

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

# Force Conversion Graph (Guide)

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





#### LEY25



#### <Limit Values for Pushing Force and Trigger Level in Relation to Pushing Speed> Without Load

Model	Lead	Pushing speed [mm/s]	Pushing force (Setting input value)	Model	Lead	Pushing speed [mm/s]	Pushing force (Setting input value)
LEY16	A/B/C	21 to 50	60 to 85%	LEY16 A	A/B/C	21 to 50	80 to 95%
LEY25	A/B/C	21 to 35	50 to 65%	LEY25 A	A/B/C	21 to 35	80 to 95%
	Α	24 to 30	60 to 95%				
LETJZ	B/C	21 to 30	00 10 00 %				
	Α	24 to 30	EQ to CEV				
LEY40	B/C	21 to 30	50 10 65%				

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

#### <Set Values for Vertical Upward Transfer Pushing Operations>

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

Model	LEY16		LEY25			LEY32			LEY40			LE	Y16	A	LEY25 A			
Lead	A B C		Α	В	С	Α	В	С	Α	В	С	Α	В	С	Α	В	С	
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%			9	95%	<b>,</b>	95%		<b>,</b>	



The cycle time can be found 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 LEY25S2B-300 should be selected.

SMC

#### Selection Procedure



AC Servo Motor Size 25, 32, 63, 100 Dust-tight/Water-jet-proof (IP65 Equivalent) Secondary Battery Compatible

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

#### LEY25 S<sub>6</sub><sup>2</sup>/T6 (Motor mounting position: Parallel/In-line)



#### LEY32 S<sub>7</sub>/T7 (Motor mounting position: Parallel)



#### LEY63 S<sup>4</sup>/T8 (Motor mounting position: Parallel/In-line)



#### LEY100 T9 (Motor mounting position: Parallel/In-line)



#### Required conditions for the regeneration option

\* The regeneration option is required when using the product above the regeneration line in the graph. (It must be ordered separately.)

#### **Regeneration Option Models**

Size	Model	Note
LEY25	LEC-MR-RB-032	—
LEY32	LEC-MR-RB-032	—
LEY63	LEC-MR-RB-12	—
	LEC-MR-RB-032	A area
LEY100		🖪 area
	LEC-IVIN-ND-12	🖸 area



#### LEY32DS<sup>3</sup>/T7 (Motor mounting position: In-line)

Operating condition	Regenerative condition Duty ratio
A area	100%
🖪 area	100%
C area	90%

AC Servo Motor Size 25, 32, 63, 100 Dust-tight/Water-jet-proof (IP65 Equivalent) Secondary Battery Compatible

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

#### LEY25 S<sub>6</sub><sup>2</sup>/T6 (Motor mounting position: Parallel/In-line)



#### LEY32 S<sub>7</sub><sup>3</sup>/T7 (Motor mounting position: Parallel)



#### LEY63 S<sup>4</sup>/T8 (Motor mounting position: Parallel/In-line)



#### Allowable Stroke Speed

#### Required conditions for the regeneration option

\* The regeneration option is required when using the product above the regeneration line in the graph. (It must be ordered separately.)

#### **Regeneration Option Models**

Size	Model	Note
LEY25	LEC-MR-RB-032	—
LEY32	LEC-MR-RB-032	—
LEY63	—	—
LEY100	LEC-MR-RB-032	A area

#### LEY32DS<sub>7</sub>/T7 (Motor mounting position: In-line)



#### LEY100 T9 (Motor mounting position: Parallel/In-line)



[mm/s]

	AC servo	L	ead								Stroke	[mm]							
Model	motor	Symbol	[mm]	30	50	100	150	200	250	300	350	400	450	500	600	700	800	900	1000
		Α	12				900				60	0	—	—					
Motor mounting position	100 W	В	6				450				300 — —		—						
Parallol/In line	/□40	С	3				225				15	0	—	_					
		(Motor r	otation speed)			(4	500 rp	m)			(3000	rpm)	—	_			_		
I EV32⊡S <sup>3</sup> /T7		Α	20					1200					80	00			_		
(Motor mounting position:)	200 W	B	10					600					40	00		—			
Parallol	/□60	_ C	5					300					20	00		—			
		(Motor r	otation speed)		(3600 rpm)								(2400 rpm)						
		Α	16		1000 640 -									—					
(Motor mounting position:)	200 W	B	8		500 320									_					
In-line	/□60	C	4		250 160										_				
		(Motor r	otation speed)			(3750 rpm)						(2400	rpm)		,				
		A	20	—	— 1000									800 600 500			-	-	
I EV63⊡S <sup>4</sup> /T8		В	10	—					5	00					400	300	250	-	-
(Motor mounting position:)	400 W	С	5	—					2	50					200	150	125	-	-
Parallel/In-line	/□60	(Motor r	otation speed)	—					(3000	) rpm)					(2400 rpm)	(1800 rpm)	(1500 rpm)	-	-
		L*1	2.86	_							70							-	-
		(Motor r	otation speed)	—		·				(1	470 rpm	ı)				·			
		B	10		_				-	500					371	285	225	183	151
[Motor mounting position:]	750 W	D	3.3		_					167					124	95	75	61	50
Parallel/In-line	/□80	L	2		_					100					74	57	45	37	30
		(Motor n	otation speed)	-	_				(3	8000 rpi	n)				(2225 rpm)	(1708 rpm)	(1353 rpm)	(1098 rpm)	(908 rpm)



# LEY/LEY-X5/25A-LEY Series

AC Servo Motor Size 25, 32, 63, 100 Dust-tight/Water-jet-proof (IP65 Equivalent) Secondary Battery Compatible

# Force Conversion Graph (Guide) For the LECSA

#### LEY25 S2 (Motor mounting position: Parallel/In-line)



LEY32 S3 (Motor mounting position: Parallel)



LEY63 S4 (Motor mounting position: Parallel/In-line)



#### LEY32DS3 (Motor mounting position: In-line)



 Model Selection
 LEY/LEY-X5/25A-LEY Series

 AC Servo Motor
 Size
 25, 32, 63, 100

Dust-tight/Water-jet-proof (IP65 Equivalent)
Secondary Battery Compatible

#### Force Conversion Graph (Guide) For the LECS -T

#### LEY25 T6 (Motor mounting position: Parallel/In-line)



#### LEY32 T7 (Motor mounting position: Parallel)



#### LEY63 T8 (Motor mounting position: Parallel/In-line)



#### LEY100 T9 (Motor mounting position: Parallel/In-line)



#### LEY32DT7 (Motor mounting position: In-line)



### Load–Acceleration/Deceleration Graph

#### Max. Acceleration/Deceleration (Horizontal)

\* The values shown below are allowable values of the actuator body. Do not use the actuator so that it exceeds these specification ranges.

#### Max. Acceleration/Deceleration (Vertical)



# Force–Stroke Graph

**Force and Stroke** 

14000 LEY100 12000 10000 8000 Force [N] 6000 4000 2000 0 <sup>∟</sup>0 100 200 300 400 500 600 700 800 900 1000 Stroke [mm]



The values shown below are allowable values of the actuator body.
 Do not use the actuator so that it exceeds these specification ranges.

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



\* The changes in the graph waveforms are due to the difference in components of different product strokes.

# Rod Displacement: $\delta$ [mm]

Stroke 30 50 100 150 200 250 300 350 400 450 500 600 700 800 900 1000 Size 25 ±0.3 ±0.4 ±0.7 ±0.7 ±0.9 ±1.1 ±1.3 ±1.5 ±1.7 \_ \_ \_ 32 ±0.3 ±0.4 ±0.7 ±0.6 ±0.8 ±1.0 ±1.1 ±1.3 ±1.5 ±1.7 ±1.8 \_ \_ 63 ±0.5 ±0.7 ±0.9 ±1.2 ±1.1 ±1.3 ±1.5 ±1.7 ±1.9 ±2.1 ±1.7 ±2.0  $\pm 2.2$ 100 ±0.8 ±1.3 ±1.9 <u>+</u>2.4 ±2.9 ±3.5  $\pm 4.0$ ±4.5 ±5.1 ±5.6 \_

\* The values without a load are shown.



# Non-rotating Accuracy of Rod

	Size	Non-rotating accuracy $\theta$
τθ	25	±0.8°
	32	±0.7°
	63	±0.6°
	100	±0.6°

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

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

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





T4 = 0.05 [s]

The cycle time can be found 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 LEY25V6B-300 should be selected.

SMC

# Model Selection LEY/LEY-X5/25A-LEY Series AC Servo Motor Size 25, 32, 63 Dust-tight/Water-jet-proof (IP65 Equivalent) Secondary Battery Compatible

#### Selection Procedure

#### **Control Selection Procedure** Check the lateral load Step 2 Check the force. Step 1 Check the duty ratio. 3 Step on the rod end. \* The duty ratio is a ratio of the operation time in one cycle. Selection Example Operating • Duty ratio: 60 [%] Attachment Mounting condition: Horizontal (pushing) conditions •Attachment weight: 0.5 [kg] • Pushing speed: 35 [mm/s] •Force: 255 [N] • Stroke: 300 [mm] Step 1 Check the duty ratio. <Conversion table of force-duty ratio> Select the [force] from the duty ratio while referencing the conversion table of force-duty ratio. Selection example)

Based on the table below,

• Duty ratio: 60 [%]

Torque limit/command value will be 90 [%].

#### <Conversion table of force-duty ratio>

#### (LEY25/AC Servo motor)

Torque limit/ Command value [%]	Duty ratio [%]	Continuous pushing time [min]	
75 or less	100	No restriction	
90	60	1.5 or less	

\* [Force set value] is one of the data input to the driver.

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

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

Select a model based on the torque limit/command value and pushing force while referencing the force conversion graph.

#### Selection example)

Based on the graph shown on the right side,

- •Torque limit/Command value: 90 [%]
- Force: 255 [N]

The **LEY25B** can be temporarily selected as a possible candidate.

#### 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 while referencing the graph of allowable lateral load on the rod end.

Selection example)

Based on the graph shown on the right side,

- ●Attachment weight: 0.5 [kg] ≈ 5 [N]
- Product stroke: 300 [mm]

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

#### Based on the above calculation result, the LEY25V6B-300 should be selected.



(LEY25)



<Graph of allowable lateral load on the rod end>

# Speed–Work Load Graph/Required Conditions for the Regenerative Resistor (Guide)

Vertical 40

# LEY25 V6 (Motor mounting position: Parallel/In-line)



### LEY32 V7 (Motor mounting position: Parallel)





#### LEY32DV7 (Motor mounting position: In-line)



# 20



Lead 3: LEY25 C





#### **Regenerative resistor area**

- \* When using the actuator in the regenerative resistor area, download the "AC servo drive capacity selection program/SigmaJunmaSize+" from the SMC website. Then, calculate the necessary regenerative resistor capacity to prepare an appropriate external regenerative resistor.
- \* The regenerative resistor should be provided by the customer.

# Applicable Motors/Drivers

Madal	Applicable model				
woder	Motor	Servopack (SMC driver)			
LEY25	SGMJV-01A3A	SGDV-R90A11□ (LECYM2-V5) SGDV-R90A21□ (LECYU2-V5)			
LEY32	SGMJV-02A3A	SGDV-1R6A11□ (LECYM2-V7) SGDV-1R6A21□ (LECYU2-V7)			



# Speed–Work Load Graph/Required Conditions for the Regenerative Resistor (Guide)

### LEY63 V8 (Motor mounting position: Parallel/In-line)





#### **Regenerative resistor area**

- \* When using the actuator in the regenerative resistor area, download the "AC servo drive capacity selection program/SigmaJunmaSize+" from the SMC website. Then, calculate the necessary regenerative resistor capacity to prepare an appropriate external regenerative resistor.
- \* The regenerative resistor should be provided by the customer.

#### **Applicable Motors/Drivers**

Broduct po	Applicable model					
Product no.	Motor	Servopack (SMC driver)				
LEY63	SGMJV-04A3A	SGDV-2R8A11□ (LECYM2-V8) SGDV-2R8A21□ (LECYU2-V8)				

#### Allowable Stroke Speed

Allowable Stro	oke Spe	ed											[mm/s]				
Model	AC servo	L	ead		Stroke [mm]												
Woder	motor	Symbol	[mm]	Up to 30	Up to 50 Up to 100 Up to 150 Up	to 200 Up to 250 Up	p to 300	Up to 350 Up to 400	Up to 450	Up to 500	Up to 600	Up to 700	Up to 800				
LEY25⊡V6		Α	12		900			600	_	_	—						
( Motor mounting )	100 W	В	6		450			300	—	—	_	—	-				
position:	/□40	С	3		225			150	_	_	_	_	_				
Parallel/In-line		(Motor ro	tation speed)		(4500 rpm)			(3000 rpm)									
LEY32□V7		Α	20		1	200			80	00	—	—	—				
(Motor mounting)	(Motor mounting) 200 W B					600			400								
position:	/□60	С	5	300				200		_	—	—					
(Parallel )		(Motor ro	tation speed)		(3600 rpm)				(2400 rpm)								
LEY32DV7		Α	16		1	000			64	40		—	_				
(Motor mounting)	200 W	В	8		500					500 320				20			_
position:	/□60	/□60 <b>C</b> 4		250				160			_	_					
In-line		(Motor ro	tation speed)		(3750 rpm)				(2400	rpm)	—						
		Α	20			1000	)				800	600	500				
LEY63□V8		В	10			500					400	300	250				
( Motor mounting )	400 W	С	5		- 250					200	150	125					
position:	/□60	(Motor ro	tation speed)	—		(3000 rj	pm)		(2400 rpm) (1800 rpm) (1500 rpm)								
C Parallel/In-line		L	2.86	—				70									
		(Motor ro	tation speed)	—				(1470 rpm)									

### Force Conversion Graph (Guide)

#### LEY25 V6 (Motor mounting position: Parallel/In-line)



#### LEY32 V7 (Motor mounting position: Parallel)



#### LEY63 V8 (Motor mounting position: Parallel/In-line)

	3500										
	3000		(F	ead Para	2.86: I llel type	LEY63⊡ e only)	L_		/		
	2500					$\mapsto$	$\leq$	-			
Ξ	2000					$\sim$		_Lead	5:	LEY63	C_
orce	1500							$\square$			
Щ	1000		$\triangleleft$		/			Lead 1	10:	LEY63	□B
	1000				_		_	/			
	500			~			-		_	1	
							$\sim$		<u>م</u>	I EVCO	
	0							Lead 2	20:	LEY63	
	0 3	0	60	0	9	0	12	Lead 2	20: 1	<b>LEY63</b> 50	□ <b>A</b> 180
	0 3	0	60	0 Tor	9 que limit	0 t/Commar	12 12 10 v	Lead 2 20 value [%]	2 <b>0:</b> 1!	<b>LEY63</b> 50	□ <b>A</b> 180
Torq	0 3 ue limit/(	0 Comman	60 d value	0 Tor [%]	9 que limit Duty	0 t/Commar ratio [%]	12 nd v	Lead 2 20 value [%] Continuou	2 <b>0:</b> 1! ] Is pu	LEY63	□A 180
Torq	0 3 ue limit/( 75	0 Comman	60 d value s	0 Tor [%]	9 que limit Duty	0 t/Commar ratio [%] 100	12 nd v	Lead 2 20 value [%] Continuou	20: 1: ] is pu o res	LEY63 50 Ishing tim striction	<b>A</b> 180
Torq	0 3 ue limit/( 75	0 Comman or less 90	60 d value s	0 Tor [%]	9 que limit Duty	0 t/Commar ratio [%] 100 60	12 nd v	Lead 2 20 value [%] Continuou No	20: 1!   	LEY63	<b>A</b> 180
Torq	0 3 ue limit/( 75	Comman or less 90 120	60 d value s	0 Tor [%]	9 que limit Duty	0 t/Commar ratio [%] 100 60 30	12 nd v	Lead 2 20 value [%] Continuou No 1	20: 1!     	LEY63 50 Ishing tim striction or less or less	<b>A</b> 180

#### LEY32DV7 (Motor mounting position: In-line)



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



 The changes in the graph waveforms are due to the difference in components of different product strokes. [Stroke] = [Product stroke] + [Distance from the rod end to the center of gravity of the workpiece]



#### Rod Displacement: $\delta$ [mm]

Stroke Size	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	±1.7	—	—	—	—	—
32	±0.3	±0.4	±0.7	±0.6	±0.8	±1.0	±1.1	±1.3	±1.5	±1.7	±1.8	—	_	—
63	—	±0.5	±0.7	±0.9	±1.2	±1.1	±1.3	±1.5	±1.7	±1.9	±2.1	±1.7	±2.0	±2.2

\* The values without a load are shown.



# Non-rotating Accuracy of Rod

	Size	Non-rotating accuracy $\theta$
t+θ	25	±0.8°
	32	±0.7°
	63	±0.6°

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

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

Battery-less Absolute (Step Motor 24 VDC)

# **Rod Type** *LEY Series* LEY16, 25, 32, 40

How to Order

Motor mounting position: Parallel

1

Motor mounting position: In-line

RoHS





#### 2 Motor mounting position/Motor cover direction

Symbol	Motor mounting position	Motor cover direction				
Nil	Top side parallel	—				
D		*1				
D1		Left*2				
D2	In-line	Right <sup>*2</sup>				
D3		Top*2				
D4		Bottom*2				

#### **3** Motor type

Е

Battery-less absolute

Battery-less absolute (Step motor 24 VDC)

bsolute Sym

4 Lead [mm]									
Symbol	LEY16	LEY25	LEY32/40						
Α	10	12	16						
В	5	6	8						
С	2.5	3	4						

 For details, refer to page 1343 and onward.

2

# **5** Stroke<sup>\*3</sup> [mm]

Stroko	Note						
Slicke	Size	Applicable stroke					
30 to 300	16	30, 50, 100, 150, 200, 250, 300					
30 to 400	25	30, 50, 100, 150, 200, 250, 300, 350, 400					
30 to 500	32/40	30, 50, 100, 150, 200, 250, 300, 350, 400, 450, 500					

# 8 Mounting<sup>\*5</sup>

Symbol	Turne	Motor mounting position					
Symbol	туре	Parallel	In-line				
Nil	Ends tapped/ Body bottom tapped*6	•	•				
L	Foot	•	_				
F	Rod flange*6	●*8					
G	Head flange*6	●*9	—				
D	Double clevis*7		_				

# Motor option\*4 C With motor cover W With lock/motor cover

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

# 9 Actuator cable type/length

Robotic cable				
Nil	None	<b>R8</b>	8* <sup>10</sup>	
R1	1.5	RA	10* <sup>10</sup>	
R3	3	RB	15* <sup>10</sup>	
R5	5	RC	20*10	
### Controller



- \*1 Sizes 25, 32, and 40 only
- Size 16 only
- \*3 Please contact SMC for non-standard strokes as they are produced as special orders
- \*4 When "With lock/motor cover" is selected for the top side parallel motor type, the motor body will stick out from the end of the body for size 16 with strokes of 50 mm or less and size 40 with strokes of 30 mm or less. Check for interference with workpieces before selecting a model.
- \*5 The mounting bracket is shipped together with the product but does not come assembled.
- \*6 For the horizontal cantilever mounting of the rod flange, head flange, or ends tapped types, use the actuator within the following stroke range. LEY25: 200 or less LEY32/40: 100 or less

### ▲Caution

### [CE/UKCA-compliant products]

EMC compliance was tested by combining the electric actuator LEY series and the controller JXC series.

The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, compliance with the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify compliance with the EMC directive for the machinery and equipment as a whole.

### [Precautions relating to differences in controller versions]

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

#### [UL certification]

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

- For the mounting of the double clevis type, use the actuator within the \*7 following stroke range.
- · LEY16: 100 or less · LEY25: 200 or less · LEY32/40: 200 or less The rod flange type is not available for the LEY16 with strokes of 50 mm or less and LEY40 with strokes of 30 mm or less, and motor option \*8 With lock/motor cover.
- \*9 The head flange type is not available for the LEY32/40.
- \*10 Produced upon receipt of order
  \*11 The DIN rail is not included. It must be ordered separately.
  \*12 Select "Nil" for anything other than DeviceNet<sup>®</sup>, CC-Link, or parallel input.
  - Select "Nil," "S," or "T" for DeviceNet<sup>®</sup> or CC-Link. Select "Nil," "1," "3," or "5" for parallel input.

The actuator and controller are sold as a package. Confirm that the combination of the controller and actuator is correct.

#### <Check the following before use.>

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

LEY25EB-100 NPN 1 (2)

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

	Step data input type	EtherCAT direct input type	EtherCAT direct input type with STO sub-function	EtherNet/IP™ direct input type	EtherNet/IP™ direct input type with STO sub-function	PROFINET direct input type	PROFINET direct input type with STO sub-function	DeviceNet <sup>®</sup> direct input type	IO-Link direct input type	IO-Link direct input type with STO sub-function	CC-Link direct input type
Туре											
Series	JXC51 JXC61	JXCE1	JXCEF	JXC91	JXC9F	JXCP1	JXCPF	JXCD1	JXCL1	JXCLF	JXCM1
Features	Parallel I/O	EtherCAT direct input	EtherCAT direct input with STO sub-function	EtherNet/IP™ direct input	EtherNet/IP™ direct input with STO sub-function	PROFINET direct input	PROFINET direct input with STO sub-function	DeviceNet <sup>®</sup> direct input	IO-Link direct input	IO-Link direct input with STO sub-function	CC-Link direct input
Compatible motor				Bat	tery-less ab	solute (Step	motor 24 VI	DC)			
Max. number of						61 nointe					
step data											
Power supply voltage						24 VDC					
Reference page	1017					10	63				



### Specifications

### Battery-less Absolute (Step Motor 24 VDC)

		Mod	el	L	EY16	E	L	EY25	Ε	L	EY32	E	L	EY40	E
			(3000 [mm/s <sup>2</sup> ])	6	17	30	20	40	60	30	45	60	50	60	80
	Work load	Horizontai	(2000 [mm/s <sup>2</sup> ])	10	23	35	30	55	70	40	60	80	60	70	90
	[KG]	Vertical	(3000 [mm/s <sup>2</sup> ])	2	4	8	8	16	30	11	22	43	13	27	53
	Pushing	force [N]	*2 *3 *4	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
G	Speed [r	nm/s]*4		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 300	6 to 150
ü	Max. acc	eleration/d	eceleration [mm/s <sup>2</sup> ]						30	00					
Cati	Pushing	speed [	<b>mm/s]</b> *5		50 or less	;		35 or less		:	30 or less	6		30 or less	6
ciți	Positior	ning repe	atability [mm]						±0.	.02					
be	Lost mo	otion [mn	n]* <sup>6</sup>						0.1 o	r less					
S S	Screw lo	ead [mm]		10	5	2.5	12	6	3	16	8	4	16	8	4
lato	Impact/V	ibration i	resistance [m/s <sup>2</sup> ]*7						50/	/20					
ctr	Actuatio	on type					Ball	screw + E	Belt (LEY	)/Ball sc	rew (LEY	′□D)			
◄	Guide ty	уре						Slidi	ng bushin	g (Piston	rod)				
	Operatin	ng tempe	rature range [°C]						5 to	40					
	Operation	ng humic	lity range [%RH]					90 or	less (No	condensa	ation)				
	Englagy			IP40 (E	cludes th	e operati	on hole fo	or the mar	nual overr	ide screw	on the m	notor cove	er when m	notor optic	on "C" or
	Enclosu	lie						"W" is se	elected fo	r motor ty	pe "Nil")				
ons	Motor s	ize			□28			□42			□56.4			□56.4	
ficati	Motor ty	/pe					Ba	ttery-less	absolute	(Step mo	tor 24 VD	DC)			
speci	Encode	r						B	attery-les	s absolut	е				
tric	Power s	upply vo	oltage [V]						24 VD0	C±10%					
Elec	Power [	<b>W]</b> *8 *10		Ma	ax. power	43	Ma	ax. power	48	Ma	x. power	104	Ma	x. power	106
t ons	Type*9							N	on-magn	etizing loc	k				
atio	Holding	force [N	]	20	39	78	78	157	294	108	216	421	127	265	519
ock Cific	Power [	<b>W]</b> *10			2.9			5			5			5	
spe [	Rated v	oltage [V	]						24 VD0	C±10%					

\*1 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 the "Model Selection" on pages 422 and 423.

Vertical: Speed changes according to the work load. Check the "Model Selection" on pages 421 and 423.

The values shown in  $\ensuremath{\check{}}$  ) are the acceleration/deceleration.

Set these values to be 3000 [mm/s<sup>2</sup>] or less.

\*2 Pushing force accuracy is  $\pm 20\%$  (F.S.).

\*3 The pushing force values for LEY16 = É are 20% to 65%, for LEY25 = E are 30% to 50%, for LEY32 = E are 30% to 70%, and for LEY40 = E are 35% to 65%. The pushing force values change according to the duty ratio and pushing speed. Check the "Model Selection" on page 424.

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

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

\*6 A reference value for correcting errors in reciprocal operation

\*7 Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

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

\*9 With lock only

\*10 For an actuator with lock, add the power for the lock.

### Weight

### Weight: Top Side Parallel Motor Type

Series	Series         LEY16E           troke [mm]         30         50         100         150         200         250           oduct weight [kg]         0.75         0.79         0.9         1.04         1.15         1.26										L	EY2	5E								L	EY32	2E				
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]	0.75	0.79	0.9	1.04	1.15	1.26	1.37	1.21	1.28	1.45	1.71	1.89	2.06	2.24	2.41	2.59	2.13	2.24	2.53	2.81	3.21	3.5	3.78	4.07	4.36	4.64	4.93
Series					L	EY40	)E					1															
Stroke [mm]	30	50	100	150	200	250	300	350	400	450	500	1															
Product weight [kg]	2.44	2.55	2.84	3.12	3.52	3.81	4.09	4.38	4.67	4.95	5.24	1															

### Weight: In-line Motor Type

Series	LEY16DE										LE	Y25	DE								LE	Y32	DE				
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]	0.72	0.76	0.87	1.01	1.12	1.23	1.34	1.2	1.27	1.44	1.7	1.88	2.05	2.23	2.4	2.58	2.12	2.23	2.52	2.8	3.2	3.49	3.77	4.06	4.35	4.63	4.92

Series					LE	Y40	DE				
Stroke [mm]	30	50	100	150	200	250	300	350	400	450	500
Product weight [kg]	2.43	2.54	2.83	3.11	3.51	3.8	4.08	4.37	4.66	4.94	5.24

### **Additional Weight**

Additional Weig	ght				[kg]
	Size	16	25	32	40
Lock/Motor cover		0.16	0.29	0.57	0.57
Bod and male thread	Male thread	0.01	0.03	0.03	0.03
nou enu maie urreau	Nut	0.01	0.02	0.02	0.02
Foot bracket (2 sets in	cluding mounting bolt)	0.06	0.08	0.14	0.14
Rod flange (including	mounting bolt)	0.12	0.17	0.20	0.20
Head flange (including	g mounting bolt)	0.13	0.17	0.20	0.20
Double clevis (including pin,	retaining ring, and mounting bolt)	0.08	0.16	0.22	0.22

LEY Series Battery-less Absolute (Step Motor 24 VDC)

### Construction



### Top side parallel motor type, With lock/motor cover



Top side parallel motor type: LEY16E

**SMC** 



### Construction



### In-line motor type, With lock/motor cover



### In-line motor type: LEY16DE



### **Component Parts**

No.	Description	Material	Note
1	Body	Aluminum alloy	Anodized
2	Ball screw shaft	Alloy steel	
3	Ball screw nut	Synthetic 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	Synthetic resin	
9	Socket	Free cutting carbon steel	Nickel plating
10	Connected shaft	Free cutting carbon steel	Nickel plating
11	Bushing	Bearing alloy	
12	Bearing	—	
13	Return box	Aluminum die-cast	Coating
14	Return plate	Aluminum die-cast	Coating
15	Magnet	—	
16	Wear ring holder	Stainless steel	Stroke 101 mm or more
17	Wear ring	Synthetic resin	Stroke 101 mm or more
18	Screw shaft pulley	Aluminum alloy	
19	Motor pulley	Aluminum alloy	
20	Belt	_	
21	Seal	NBR	
22	Retaining ring	Steel for spring	Phosphate coating
23	Motor	_	
24	Motor cover	Aluminum alloy	Anodized/LEY16 only
24		Synthetic resin	
25	Grommet	Synthetic resin	Only "With motor cover"

No.	Description	Material	Note
26	Motor block	Aluminum alloy	Anodized
27	Motor adapter	Aluminum alloy	Anodized/LEY16, 25 only
28	Hub	Aluminum alloy	
29	Spider	NBR	
30	Motor cover with lock	Aluminum alloy	Only "With lock/motor cover"/LEY25, 32, 40
31	Cover support	Aluminum alloy	Only "With lock/motor cover"/LEY25, 32, 40
32	Socket (Male thread)	Free cutting carbon steel	Nickel plating
33	Nut	Alloy steel	Zinc chromating
34	End cover	Aluminum alloy	Anodized/LEY16 only
35	Rubber bushing	NBR	LEY16 only

### Replacement Parts (Top side parallel only)/Belt

No.	Size	Order no.
	16	LE-D-2-7
20	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)

### **Dimensions: Top Side Parallel Motor**



\*1 This is the range within which the rod can move when it returns to origin. Make sure that workpieces mounted on the rod do not interfere with other workpieces or the facilities around the rod.

\*2 Position after returning to origin
\*3 [ ] for when the direction of return to origin has changed

\*4 The direction of rod end width across flats (□K) differs depending on the products.

																						[mm]
Size	Stroke range [mm]	Α	в	С	D	EH	EV	н	J	к	L	м	<b>O</b> 1	R	s	т	T2	U	v	X Without lock	2 With lock	Y
16	30 to 100	101	90.5	10	16	24	212		10	11	10.5	25.5	M4 × 0 7	7	25	00 5		0.5	20	100 5	1/5 5	22.5
10	105 to 300	121	110.5	10		34	34.3	IVIS X 0.0	10	14	10.5	25.5	IVI4 X U.7	'	35	90.5	_	0.5	20	100.5	145.5	22.5
05	30 to 100	130.5	116	10	20	44	1E E	M0 v 1 05	04	17	145	24			46	00	7 5	4	40	00 E	100	06 F
25	105 to 400	155.5	141	13	20	44	45.5	IVIO X 1.25	24	11	14.5	34	IVIS X 0.0	0	40	92	1.5	1	42	00.0	129	20.5
20	30 to 100	148.5	130	10	3 25	E 1	E 6 E	M0 v 1 05	01	00	10 5	10	MG v 1 O	10	60	110	0 E	4	EC 4	00 5	141 5	24
32	105 to 500	178.5	160	13		51	50.5	IVIO X 1.20	31	22	10.5	40	IVIO X 1.0	10	60	110	0.5	1	50.4	90.5	141.5	34
40	30 to 100	148.5	130	10	3 25 5	E 1	EC E	M0 v 1 05	01	00	10 5	10	MG v 1 O	10	60	110	0 5	4	EC A	100 5	160 F	24
40	105 to 500	178.5	160	13		51	50.5	IVIO X 1.25	31	22	10.5	40		10	00	118	0.5	I	56.4	120.5	103.5	34

### **Body Bottom Tapped**

Body	y Botton	ו Ta	pped								[mm]
Size	Stroke range [mm]	MA	MB	мс	MD	мн	ML	МО	MR	XA	ХВ
	30 to 35			17	23.5		10				
16	40 to 100	15	35.5	32	31	23	40	M4 x 0.7	5.5	3	4
	105 to 300			62	46		60				
	30 to 35			24	32		50				
25	40 to 100			10	11		50				
	105 to 120	20	46	42	41	29		M5 x 0.8	6.5	4	5
	125 to 200			59	49.5		75				
	205 to 400			76	58						
	30 to 35			22	36		50				
22	40 to 100			26	12		50				
32 40	105 to 120	25	55	30	43	30		M6 x 1	8.5	5	6
	125 to 200			53	51.5		80				
	205 to 500			70	60						





20

2

### **Dimensions: Top Side Parallel Motor**



### **Dimensions: In-line Motor**



\*1 This is the range within which the rod can move when it returns to origin. Make sure that workpieces mounted on the rod do not interfere with other workpieces or the facilities around the rod.

[mm]

- \*2 Position after returning to origin
- \*3 [] for when the direction of return to origin has changed
- \*4 The direction of rod end width across flats (□K) differs depending on the products.
- \*5 Refer to page 456 for motor cover dimensions of the LEY16.

Size	Stroke range	Without lock	<b>\</b> With lock	в	С	CL	cv	D	EH	EV	н	J	к	L	м	01	R	s	т	T2	U	Without lock	2 With lock	Y
10	30 to 100	186.5	231.5	94	10	10 —		*6	10	04	04.0	MENOO	10	- 4	10.5	0F F	M4 × 0 7	-	*5	0F F		0 F		00
10	105 to 300	206.5	251.5	114	10		-	10 34	34.3	0.0 X CIVI	10	14	10.5	20.0	IVI4 X U.7	1	35	35.5	_	0.5	02	127	20	
25	30 to 100	198.5	239	115.5	13 4	46	EAE	5 00	0 44 45.5	1 E E	6 M8 x 1.25	04	17	145	24	M5 v 0.8	0	45	46 E	7.5	15	69.5 1	100	26
	105 to 400	223.5	264	140.5		40	54.5	20		45.5		24	17	14.5	34	IVID X U.O	0	45	40.5	7.5	1.5	00.5	109	20
22	30 to 100	220	263	128	12	60	60 F	5 25 5	<b>51 56 5</b>	56 5	.5 M8 x 1.25	18 x 1.25 31	31 22	2 18.5 4	10	M6 x 1	10	60	61	85	1	73.5	116 5	30
52	105 to 500	250	293	158	13	00	09.5		51	51 50.5					40			00	01	0.5		75.5	110.5	52
40	30 to 100	242	285	128	12	60	69.5 25		51	56 5	Mg v 1 25	21	00	19.5	10	MOVE	10	60	61	85	1	05.5	128 5	30
	105 to 500	272	315	158	13	00		20	25 51	50.5	IVIO X 1.25	51	22	10.5	40		10	00	01	0.5	1	90.0	100.0	52

\*6 Refer to page 456.

### **Body Bottom Tapped**

Body	y Botton	n Ta	ppe	d						[mm]
Size	Stroke range [mm]	MA	мс	MD	мн	ML	МО	MR	XA	ХВ
	30 to 35		17	23.5		40				4
16	40 to 100	15	32	31	23	40	M4 x 0.7	5.5	3	
	105 to 300		62	46		60				
25	30 to 35		24	32		50				
	40 to 100		42 41		50					
	105 to 120	20			29		M5 x 0.8	6.5	4	5
	125 to 200		59	49.5		75				
	205 to 400		76	58						
	30 to 35		22	36		50				
22	40 to 100		26	12		50				6
32	105 to 120	25	30	43	30		M6 x 1	8.5	5	
40	125 to 200		53	51.5	1	80				
	205 to 500		70	60						



### **Dimensions: In-line Motor**



LEY Series Battery-less Absolute (Step Motor 24 VDC)

### Dimensions



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





Included parts

- · Foot bracket
- $\cdot$  Body mounting bolt

Foot														[mm]
Size	Stroke range [mm]	Α	LS	LS1	LL	LD	LG	LH	LT	LX	LY	LZ	x	Y
16	30 to 100	106.1	76.7	16 1	5.4	6.6	2.8	24	2.3	48	40.3	62	9.2	5.8
	105 to 300	126.1	96.7	10.1										
25	30 to 100	136.6	98.8	10.0	8.4	6.6	3.5	30	2.6	57	51.5	71	11.2	5.8
25	105 to 400	161.6	123.8	19.0										
32 40	30 to 100	155.7	114	10.0	11.3	66	4	36	3.2	76	61.5	90	11.2	7
	105 to 500	185.7	144	19.2		0.0								

Material: Carbon steel (Chromating)

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

457

 Refer to pages 499 and 500 for details on the rod end nut and mounting bracket.
 Refer to the "Handling" precautions on pages 574 to 577 when mounting end brackets such as knuckle joint or workpieces.

**SMC** 







SMC



🚺 Siz	е
16	
25	
32	
40	

2 Mot	<b>W</b> Motor mounting position								
Nil	Top side parallel								
R	Right side parallel								
L	Left side parallel								
D	In-line								

### A Motor type

<b>O</b> motor type											
Cumhal	Turne		Compatible								
Symbol	туре	LEY16	LEY32/40	controllers/drivers							
Nil	Step motor (Servo/24 VDC)	•	•	•	JXC51 JXC61 JXC91 JXC91 JXCP1 JXCD1 JXCL1 JXCL1	JXCEF JXC9F JXCPF JXCLF LECP1 LECPA					
Α	Servo motor (24 VDC)	•	•	_	LEC	CA6					

### 4 Lead [mm]

Symbol	LEY16	LEY25	LEY32/40
Α	10	12	16
В	5	6	8
С	2.5	3	4

### Rod end thread

Nil	Rod end female thread
N/I	Rod end male thread
IVI	(1 rod end nut is included.)

### **5** Stroke [mm]

_			-	
	30		30	
	to		to	
	500		500	
	Eor de	ataile r	ofor to the	applicable

or details, refer to the applicable stroke table below.



Symbol	Tupo	Motor mounting position				
Symbol	туре	Parallel	In-line			
Nil	Ends tapped/Body bottom tapped*4	•	•			
L	Foot bracket		—			
F	Rod flange*4	●*6	•			
G	G Head flange*4		—			
D	Double clevis*5		_			

**SMC** 

### 6 Motor option\*2

	-
Nil	Without option
С	With motor cover
В	With lock
W	With lock/motor cover

## Motor

### **9** Actuator cable type/length\*9

Standard	cable [m]	Ro	boti		[m]		
Nil	None	R	1	1.5	RA	10* <sup>8</sup>	
S1	1.5*11	R	13	3	RB	15* <sup>8</sup>	
S3	3*11	R	25	5	RC	20* <sup>8</sup>	
S5	5* <sup>11</sup>	R	8	8* <sup>8</sup>			

Applicable Stroke Table\*1

Applicable Stroke Table*1 •: Standa											Standard	
Stroke Model	30	50	100	150	200	250	300	350	400	450	500	Manufacturable stroke range
LEY16								—	—	—	—	10 to 300
LEY25										—	—	15 to 400
LEY32/40												20 to 500

For auto switches, refer to pages 502 to 505.

### Rod Type LEY Series

Incremental (Step Motor 24 VDC) Incremental (Servo Motor 24 VDC)



- Check for interference with workpieces before selecting a model. \*3 The mounting bracket is shipped together with the product but does not come assembled.
   \*4 For the horizontal cantilever mounting of the rod flange, head flange, or ends tapped types, use the actuator within the following stroke range.
- LEY25: 200 mm or less ·LEY32/40: 100 mm or less
- S For the mounting of the double clevis type, use the actuator within the following stroke range.
  LEY16: 100 mm or less · LEY25: 200 mm or less · LEY32/40: 200 mm or less
  \*6 The rod flange type is not available for the LEY16/40 with a 30 mm stroke and motor option "With lock," "With lock/motor cover."
  \*7 The head flange type is not available for the LEY32/40.
  \*8 Produced uppe traceit of order. (Debatia eable only.)

- \*8 Produced upon receipt of order (Robotic cable only)
   \*9 The standard cable should only be used on fixed parts. For use on moving parts, select the robotic cable. Refer to the Web Catalog if only the actuator cable is required.

### ▲Caution

#### [CE/UKCA-compliant products]

- ① EMC compliance was tested by combining the electric actuator LEY series and the controller LEC/JXC series.
- The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, compliance with the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify compliance with the EMC directive for the machinery and equipment as a whole.
- 2 For the incremental (servo motor 24 VDC) specification, EMC compliance was tested by installing a noise filter set (LEC-NFA). Refer to page 1037 for the noise filter set. Refer to the LECA series Operation Manual for installation. [UL-compliant products (For the LEC series)]

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

- \*12 When puse signals are open contector, order the current minining resistor (LEC-PA-R-□) on page 1062 separately.
  \*13 When "Without controller/driver" is selected for controller/driver types, I/O cable cannot be selected. If an I/O cable is required, refer to the cable for the LECA6 (Web Catalog), LECP1 (Web Catalog), or
- \*14 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
  \*15 The DIN rail is not included. It must be ordered separately.
- Select "Nil" for anything other than DeviceNet®, CC-Link, or parallel \*16
  - input. Select "Nil," "S," or "T" for DeviceNet<sup>®</sup> or CC-Link. Select "Nil," "1," "3," or "5" for parallel input.



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

Incremental (Step Motor 24 VDC) Incremental (Servo Motor 24 VDC)

### Compatible Controllers/Drivers

LEY Series

	Step data input type	Step data input type	Programless type	Pulse input type
Туре				
Series	JXC51 JXC61	LECA6	LECP1	LECPA
Features	Parallel I/O	Parallel I/O	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 (Servo/2	motor 24 VDC)
Max. number of step data	64 p	oints	14 points	_
Power supply voltage		24 \	/DC	
Beference				

	EtherCAT direct input type	EtherCAT direct input type with STO sub-function	EtherNet/IP™ direct input type	EtherNet/IP™ direct input type with STO sub-function	PROFINET direct input type	PROFINET direct input type with STO sub-function	DeviceNet® direct input type	IO-Link direct input type	IO-Link direct input type with STO sub-function	CC-Link direct input type			
Туре													
Series	JXCE1	JXCE1 JXCEF JXC91 JXC9F JXCP1 JXCPF JXCD1 JXCL1 JXCLF JXCM1											
Features	EtherCAT direct input	EtherCAT direct input with STO sub-function	EtherNet/IP™ direct input	EtherNet/IP™ direct input with STO sub-function	PROFINET direct input	PROFINET direct input with STO sub-function	DeviceNet <sup>®</sup> direct input	IO-Link direct input	IO-Link direct input with STO sub-function	CC-Link direct input			
Compatible motor	Step motor (Servo/24 VDC)												
Max. number of step data	r 64 points												
Power supply voltage					24 \	/DC							
Reference page	1063												



Incremental (Step Motor 24 VDC) Incremental (Servo Motor 24 VDC)

### Specifications

### Step Motor (Servo/24 VDC)

		Model			LEY16			LEY25			LEY32			LEY40	
		Horizontal (JXC□1,	(3000 [mm/s²])	6	17	30	20	40	60	30	45	60	50	60	80
		JXC⊡F, LECP1)	(2000 [mm/s²])	10	23	35	30	55	70	40	60	80	60	70	90
	Work load [kg] <sup>*1</sup>	Horizontal	(3000 [mm/s²])	4	11	20	12	30	30	20	40	40	30	60	60
		(LECPA, JXC⊡₃)	(2000 [mm/s²])	6	17	30	18	50	50	30	60	60	_	_	_
ations		Vertical	(3000 [mm/s²])	2	4	8	8	16	30	11	22	43	13	27	53
ific	Pushing	orce [N	*2 *3 *4	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
ec	Speed	JXC□1/	LECP1	15 to 500	9 to 250	4 to 105	19 to 500	0 to 250	E to 105	24 to 500	12 to 300	6 to 150	24 to 500	12 to 350	6 to 175
ŝ	[mm/s]*4	LECPA	/JXC□3	15 10 500	010250	410125	10 10 500	910250	5 10 125	24 10 500	12 to 250	6 to 125	24 to 300	12 to 150	6 to 75
atoi	Max. accelera	tion/decele	eration [mm/s <sup>2</sup> ]						30	00					
žu	Pushing	speed [r	nm/s]*5		50 or less	3	;	35 or less	;		30 or less	3		30 or less	3
¥	Positionin	g repeata	ability [mm]						±0.	.02					
	Lost motion [mm]*6								0.1 o	r less					
	Screw lea	crew lead [mm]			5	2.5	12	6	3	16	8	4	16	8	4
	Impact/Vibra	tion resis	tance [m/s <sup>2</sup> ]*7						50/	/20					
	Actuation	type		Ball screw + Belt (LEY□)/Ball screw (LEY□D)											
	Guide typ	e		Sliding bushing (Piston rod)											
	Operating t	emperatu	re range [°C]						5 to	o 40					
	Operating I	numidity	range [%RH]					90 or	less (No	condens	ation)				
	Enclosur	e		IP40 (Excludes the operation hole for the manual override screw on the moto "W" is selected for motor type "Nil")						notor cov	er when n	notor opti	on "C" or		
ons	Motor siz	e			□28			□42			□56.4			□56.4	
ficat	Motor typ	е		Step motor (Servo/24 VDC)											
speci	Encoder			Incremental											
tric	Power su	pply vo	tage [V]	24 VDC ±10%											
Elec	Power [W	]*8 *10		Ма	x. power	43	Ma	x. power	48	Ma	x. power	104	Ma	x. power	106
t ons	Type*9							N	on-magne	etizing loo	k				
c uni catic	Holding f	orce [N]		20	39	78	78	157	294	108	216	421	127	265	519
-ock	Power [W	]*10			2.9			5			5			5	
- g	Rated vol	tage [V]							24 VDC	2 + 10%					

\*1 Horizontal: The max. 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 the "Model Selection" on pages 429 and 430.

Vertical: Speed changes according to the work load. Check the "Model Selection" on pages 429 and 430.

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

Set these values to be 3000 [mm/s2] or less.

\*2 Pushing force accuracy is  $\pm 20\%$  (F.S.).

\*3 The pushing force values for LEY16 are 35% to 85%, for LEY25 are 35% to 65%, for LEY32 are 35% to 85%, and for LEY40 are 35% to 65%.

The pushing force values change according to the duty ratio and pushing speed. Check the "Model Selection" on page 432.

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

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

\*6 A reference value for correcting errors in reciprocal operation

\*7 Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

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

\*9 With lock only

\*10 For an actuator with lock, add the power for the lock.



### Specifications

### Servo Motor (24 VDC)

	Μ	lodel			LEY16⊟A			LEY25□A					
	Work load	Horizontal	(3000 [mm/s <sup>2</sup> ])	3	6	12	7	15	30				
	[ <b>kg]</b> *1	Vertical	(3000 [mm/s <sup>2</sup> ])	2	4	8	3	6	12				
	Pushing	g for	<b>ce [N]</b> *2 *3	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				
su	Max. accelera	tion/deo	celeration [mm/s <sup>2</sup> ]			30	00						
atic	Pushing	spee	d [mm/s]*4		50 or less			35 or less					
fice	Positioning	g repe	atability [mm]			±0.	.02						
eci	Lost mo	otion	[ <b>mm]</b> *5			0.1 o	r less						
g	Screw I	ead	[mm]	10	5	2.5	12	6	3				
tor	Impact/Vibra	tion res	istance [m/s <sup>2</sup> ]*6			50/	/20						
tua	Actuati	on ty	/pe		Ball screw -	+ Belt (LEY	□)/Ball scre	w (LEY□D)					
Ac	Guide t	уре			SI	iding bushin	ig (Piston ro	od)					
	Operating te	empera	ture range [°C]			5 to	40						
	Operating h	numidi	ty range [%RH]		90	or less (No	condensati	on)					
	Enclose			IP40 (Excludes the operation hole for the manual override screw on the									
	Elicios	lie		motor cover when motor option "C" or "W" is selected for motor type "N									
suo	Motor s	ize			□28			□42					
cati	Motor o	outpu	ut [W]		30			36					
ecifi	Motor type Servo motor (24 VDC)												
sp	Encode	r		Incremental									
ctric	Power su	ipply	voltage [V]	24 VDC ±10%									
Еe	Power	<b>W]</b> *	7 *9	Max. power 59 Max. power 96									
it	Type*8					Non-magne	etizing lock						
catic	Holding	for	ce [N]	20	39	78	78 157 294						
ock	Power	<b>W]</b> *	9	2.9 5									
l spe	Rated v	olta	ge [V]			24 VDC	C ±10%						

- \*1 Horizontal: The max. 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 the "Model Selection" on page 431 for details. The values shown in ( ) are the acceleration/ deceleration.
- Set these values to be 3000 [mm/s<sup>2</sup>] or less.
- \*2 Pushing force accuracy is  $\pm 20\%$  (F.S.).
- \*3 The thrust setting values for LEY16A<sup>□</sup> are 60% to 95% and for LEY25A<sup>□</sup> are 70% to 95%. The pushing force values change according to the duty ratio and pushing speed. Check the "Model Selection" on page 432.
- \*4 The allowable speed for pushing operation. When push conveying a workpiece, operate at the vertical work load or less.
- \*5 A reference value for correcting errors in reciprocal operation
- \*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. (The test was performed with the actuator in the initial state.) Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)
- \*7 Indicates the max. power during operation (including the controller). This value can be used for the selection of the power supply.
- \*8 With lock only
- \*9 For an actuator with lock, add the power for the lock.

### Weight

### Weight: Top/Right/Left Side Parallel Motor Type

U																												
	Series			L	EY1	6						L	EY2	5								L	EY3	2				
Stro	oke [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	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
weight [kg]	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	I	—	-	—	_	-	—	—	—	—	—
	Carias						EV/	~				-	1															
	Series						. 🗆 1 4	U																				
Stro	oke [mm]	30	50	100	150	200	250	300	350	400	450	500	]															
Product	Step motor	2.39	2.50	2.79	3.07	3.47	3.76	4.04	4.33	4.62	4.90	5.19																
weight [kg]	Servo motor	_	_	-	_	-	_	_	_	_	_	-	]															

### Weight: In-line Motor Type

	Series			LI	EY16	5D						LE	EY25	5D								LE	EY32	2D				
Stre	oke [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	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
weight [kg]	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					LI	EY40	D																				

[kg]

	Jenes	LLIHOD											
Stro	oke [mm]	30	50	100	150	200	250	300	350	400	450	500	
Product	Step motor	2.38	2.49	2.78	3.06	3.46	3.75	4.03	4.32	4.61	4.89	5.18	
weight [kg]	Servo motor	—	-	-	-	-	-	-	—	-	_	-	

### Additional Weight

	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
Pod and male thread	Male thread	0.01	0.03	0.03	0.03
nou enu maie umeau	Nut	0.01	0.02	0.02	0.02
Foot bracket (2 sets	including mounting bolt)	0.06	0.08	0.14	0.14
Rod flange (includi	ng mounting bolt)	0.12	0.17	0.20	0.20
Head flange (includ	ling mounting bolt)	0.13	0.17	0.20	0.20
Double clevis (including pin,	retaining ring, and mounting bolt)	0.08	0.16	0.22	0.22



LEY Series

Incremental (Step Motor 24 VDC) Incremental (Servo Motor 24 VDC)

### Construction



Top/Right/Left side parallel motor type With lock/motor cover



### Construction



### 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	Synthetic 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	Synthetic resin	
9	Socket	Free cutting carbon steel	Nickel plating
10	Connected shaft	Free cutting carbon steel	Nickel plating [Sizes 32 and 40 only]
11	Bushing	Bearing alloy	
12	Bearing	—	
13	Return box	Aluminum die-cast	Coating
14	Return plate	Aluminum die-cast	Coating
15	Magnet	—	
16	Wear ring holder	Stainless steel	Stroke 101 mm or more
17	Wear ring	Synthetic resin	Stroke 101 mm or more
18	Screw shaft pulley	Aluminum alloy	
19	Motor pulley	Aluminum alloy	
20	Belt	_	
21	Seal	NBR	
22	Retaining ring	Steel for spring	Phosphate coating
23	Motor	—	

No.	Description	Material	Note
24	Motor cover	Synthetic resin	Only "With motor cover"
25	Grommet	Synthetic resin	Only "With motor cover"
26	Motor block	Aluminum alloy	Anodized
27	Motor adapter	Aluminum alloy	Anodized/LEY16, 25 only
28	Hub	Aluminum alloy	
29	Spider	NBR	
30	Motor cover with lock	Aluminum alloy	Only "With lock/motor cover"
31	Cover support	Aluminum alloy	Only "With lock/motor cover"
32	Socket (Male thread)	Free cutting carbon steel	Nickel plating
33	Nut	Alloy steel	Zinc chromating

### Replacement Parts (Top/Right/Left side parallel only)/Belt

No.	Size	Order no.
	16	LE-D-2-1
20	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)

### Dimensions: Top/Right/Left Side Parallel Motor



\*1 This is the range within which the rod can move when it returns to origin. Make sure that workpieces mounted on the rod do not interfere with other workpieces or the facilities around the rod. \*2 Position after returning to origin

\*3 [ ] for when the direction of return to origin has changed

\*4 The direction of rod end width across flats (CK) differs depending on the products.

													,	,		•	0						[mm]	
Sizo	Stroke	۸	в	C	п	EH	ΕV	н		ĸ	1	м	0,	R	s	т	ш	v	Step	motor	Servo	motor	v	
Oize	range [mm]	~							U		-			<b>''</b>	3	•	U	v	W	Х	W	X	•	
16	30 to 100	101	90.5	10	16	24	04.0	MEVOO	10	4.4	10 5	0E E	M4 v 0 7	7	25	67 5	0 F	00	61.0	00.0	60 F	01	00 E	
10	105 to 300	121	110.5			34	34.3	0.0 X CIVI	10	0 14	4 10.5	25.5	WI4 X U.7	'	35	07.5	0.5	20	01.0	00.5	02.5	01	22.5	
05	30 to 100	130.5	116	10	20	44	45.5 M8	15 5	M0 v 1 05	24	17	145	24	MEVOO		16	00	4	40	60.4	0E 4	50.6	01.6	06 F
25	105 to 400	155.5	141	13	20	44 45		W8 X 1.25	X 1.25 24	24   17		7 14.5	34	IVID X U.O	0	40	92	1	42	03.4	00.4	59.0	01.0	20.5
20	30 to 100	148.5	130	10	05	E 1		M0 v 1 05	01		10 5	10	140	10	0 00	20 440	4	EG 4	60.4	0E 4			24	
32	105 to 500	178.5	160	160 13 25 5	51	50.5	IVIO X 1.20	M8 x 1.25 31	22	10.5	40	M6 x 1.0		00	110	1	50.4	00.4	95.4		_	34		
40	30 to 100	148.5	130	10	05	51 56.5	M04.05	21	22	10 5	10	MG v 1 0	10	60	110	4	EG 4	00.4	117 /			24		
40	105 to 500	178.5	160	13	25		56.5	IVIO X 1.20	51	22	10.5	40			00	110	1	50.4	90.4	117.4	-	_	34	

### **Body Bottom Tapped**

Body Bottom Tapped [mm]												
Size	Stroke range [mm]	MA	MB	мс	MD	мн	ML	МО	MR	XA	ХВ	
	30 to 35			17	23.5		10					
16	40 to 100	15	35.5	32	31	23	40	M4 x 0.7	5.5	3	4	
	105 to 300			62	46		60					
	30 to 35			24	32		50					
25	40 to 100	20	46	42	11		50	M5 x 0.8	6.5			
	105 to 120					29	75			4	5	
	125 to 200			59	49.5	]						
	205 to 400			76	58							
	30 to 35			22	36		50					
22	40 to 100			26	10	30	50					
32 40	105 to 120	25	55	30	43			M6 x 1	8.5	5	6	
40	125 to 200			53	51.5		80	o				
	205 to 500			70	60							



### Rod Type **LEY Series**

Incremental (Step Motor 24 VDC) Incremental (Servo Motor 24 VDC)

### Dimensions: Top/Right/Left Side Parallel Motor



\* 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.





Lock cable

Cable length ≈ 400

32

(ø3.5)

Incremental (Step Motor 24 VDC) Incremental (Servo Motor 24 VDC)

### **Dimensions: In-line Motor**



\*1 This is the range within which the rod can move when it returns to origin. Make sure that workpieces mounted on the rod do not interfere with other workpieces or the facilities around the rod.

\*2 Position after returning to origin

\*3 [ ] for when the direction of return to origin has changed
\*4 The direction of rod end width across flats (□K) differs depending on the products.

																						[mm]		
Size	Stroke range [mm]	Step motor	Servo motor	в	с	D	ЕН	EV	н	J	к	L	м	<b>O</b> 1	R	s	т	U	v	Step motor	Servo motor	Y		
		ŀ	1																	<u> </u>	V			
16	30 to 100	166.3	167	92	10	16	24	212	MEVOR	10	14	10.5	25 5	M4 v 0 7	7	25	25 5	05	20	61 0	60 F	24		
10	105 to 300	186.3	187	112		10	34	34.3		10	14	10.5	25.5	IVI4 X U.7	'	35	55.5	0.5	20	01.0	02.5	24		
05	30 to 100	195.4	191.6	115.5	10	20		45.5		04	17	145	04	MEVOO	0	45	46 E	4 5	40	60.4	50.6	06		
25	105 to 400	220.4	216.6	140.5	13	20	44		IVIO X 1.20	24	17	14.5	34	WD X 0.0	0	45	40.5	1.5	42	03.4	59.0	20		
20	30 to 100	216.9	-	128	10	05	<b>F</b> 4		M0 v 1 05	01	00	10 5	40	1404	10	~~	<b>C1</b>	4	FC 4	<u> </u>		00		
32	105 to 500	246.9		158	13	25	51	50.5	IVIO X 1.20	31	22	10.5	40		10	00		1	50.4	00.4	_	32		
40	30 to 100	238.9	_	128	10	0E	<b>E1</b>				22	10 E	10 5 40	- 10 - 140 1	Mo	10 00	60	61	4	EG A	00.4		20	
40	105 to 500	268.9		158	13	25	51	50.5	5 M8 x 1.25		M8 x 1.25 3		22	10.5	40		10	60	01	1	50.4	90.4	_	32

### **Body Bottom Tapped**

Body Bottom Tapped [mm]													
Size	Stroke range [mm]	MA	МС	MD	мн	ML	МО	MR	XA	ХВ			
	30 to 35		17	23.5		40		5.5	3				
16	40 to 100	15	32	31	23	40	M4 x 0.7			4			
	105 to 300		62	46		60							
	30 to 35		24	32		50							
25	40 to 100	20	10	12 11		50		6.5	4				
	105 to 120		42	41	29		M5 x 0.8			5			
	125 to 200		59	49.5	]	75							
	205 to 400		76	58									
	30 to 35		22	36		50							
22	40 to 100		26	12		50							
32	105 to 120	25	30	43	30		M6 x 1	8.5	5	6			
40	125 to 200		53	51.5		80							
	205 to 500		70	60									

### Rod Type LEY Series Incremental (Step Motor 24 VDC) Incremental (Servo Motor 24 VDC)

### **Dimensions: In-line Motor**





20

						[mm]	
Size	Stroke range	Α	T2	<b>X</b> 2	L	CV	
16	Up to 100	169	7.5	66 5	25	12	
	105 to 300	189	7.5	00.5	35	43	
25	Up to 100	198.5	7.5	69 5	46	545	
25	105 to 400	223.5	1.5	00.5	40	54.5	
20	Up to 100	220	7.5	70 5	60	60 F	
32	105 to 500	250	1.5	/3.5	60	00.0	
40	Up to 100	242	7.5	05.5	60	69 5	
40	105 to 500	272	7.5	95.5	00	00.5	





					[[[[[[	
Sizo	Stroko rongo	Step motor	Servo motor	Step motor	Servo motor	
Size	Slioke range		4	W		
16	Up to 100	207.8	208.5	102.2	104	
10	105 to 300	227.8	228.5	103.5	104	
95	Up to 100	235.9	232.1	102.0	100.1	
25	105 to 400	260.9	257.1	103.9	100.1	
20	Up to 100	259.9	—	111 /		
32	105 to 500	289.9	—	111.4	_	
40	Up to 100	281.9	—	122.4		
40	105 to 500	311.9	—	133.4		



						[mm]	
Size	Stroke range	Α	T2	<b>X</b> 2	L	CV	
16	Up to 100	210.5	7 5	109	05	40	
10	105 to 300	230.5	7.5	106	35	43	
25	Up to 100	239	7 5	100	40	- 4 4	
25	105 to 400	264	7.5	109	40	54.4	
20	Up to 100	263	7 5	116 5	60	60 F	
32	105 to 500	293	7.5	110.5	00	00.5	
40	Up to 100	285	7 5	100 5	60	60 F	
40	105 to 500	315	7.5	138.5	00	00.5	

**SMC** 

Incremental (Step Motor 24 VDC) Incremental (Servo Motor 24 VDC)

### **Dimensions**



 The L<sub>1</sub> measurement is when the unit is in the original position. At this position, 2 mm at the end.



Included parts
<ul> <li>Foot bracket</li> </ul>
Body mounting bolt



\* Refer to pages 499 and 500 for details on the rod end nut and mounting bracket.

[mm]

such as knuckle joint or workpieces.

\* Refer to the "Handling" precautions on pages 574 to 577 when mounting end brackets

### **Foot Bracket**

Size	Stroke range [mm]	Α	LS	LS1	LL	LD	LG	LH	LT	LX	LY	LZ	x	Y
16	30 to 100	106.1	76.7	16.1	54	6.6	28	24	23	18	10.3	62	0.0	E 0
10	105 to 300	126.1	96.7	16.1	5.4		2.0	27	2.0	40	40.5	02	9.2	5.0
<b>0</b> E	30 to 100	136.6	98.8	19.8	8.4	6.6	25	20	26	57	51.5	71	11.2	5.8
23	105 to 400	161.6	123.8				3.5	30	2.0			71		
32	30 to 100	155.7	114	10.2	11.0	66	4	26	2.2	76	61 5	00	11.0	7
40	105 to 500	185.7	144	19.2	11.3	0.0	4	30	3.2	70	01.5	90	11.2	/

Material: Carbon steel (Chromating)

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

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



### Dimensions



SMC

AC Servo Motor LECS Series

\* Option

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

LEY 25, 32, 63 Size

LECY⊡ series ▶p. 489 Dust-tight/Water-jet-proof ▶p. 925 Secondary Battery Compatible ▶p. 987

### How to Order



	curacy
Nil	Basic type
н	High-precision type



<b>3</b> Motor mounting position								
Nil		Top side parallel						
R		Right side parallel						
L		Left side parallel						
D		In-line						

U Motor type									
Symbol	Туре	Output [W]	Actuator size	Compatible drivers*3					
S2*1	AC servo motor	100	25	LECSA□-S1					
S3	(Incremental	200	32	LECSAD-S3					
S4	encoder)	400	63	LECSA2-S4					
<b>T6</b> *2	AC servo motor (Absolute encoder)	100	25	LECSB2-T5 LECSC2-T5 LECSS2-T5 LECSN2-T5-□					
T7		200	32	LECSB2-T7 LECSC2-T7 LECSS2-T7 LECSND2-T7-□					
тв		400	63	LECSB2-T8 LECSC2-T8 LECSS2-T8 LECSND2-T8-□					

\*1 For motor type S2, the compatible driver part number suffix is S1.

\*2 For motor type T6, the compatible driver part number is LECS 2-T5.

\*3 For details on the driver, refer to page 1110.

### Dust-tight/Water-jet-proof (Only available for LEY63)

Symbol	LEY25/32	LEY63
Nil	IP4x equivalent	IP5x equivalent (Dust-protected)
Ρ	—	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: Rc1/81.
- \* Cannot be used in environments exposed to cutting oil, etc. Take appropriate protective measures. For details on enclosure, refer to the "Enclosure" on page 577.

8	Мо	tor	option

Nil Without option With lock\*1 В \*1 When "With lock" is selected for the top/right/left side parallel motor types, the

motor body will stick out from the end of the body for size 25 with strokes of 30 mm or less.

Check for interference with workpieces before selecting a model.



**6** Lead [mm]

• [·····]							
Symbol	LEY25	LEY32*1	LEY63				
Α	12	16 (20)	20				
В	6	8 (10)	10				
С	3	4 (5)	5				
L	—	_	2.86* <sup>2</sup>				

UK CA

C,

(RoHS)

C E

25, 32, 63

\*1 The values shown in ( ) are the leads for the size 32 top/right/left side parallel motor types. (Equivalent leads which include the pulley ratio [1.25:1])

\*2 Only available for top/right/left side parallel motor types (Equivalent leads which include the pulley ratio [4:7])

### 6 Stroke [mm]

_	<u> </u>	
	30	30
Γ	to	to
	800	800

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

### Rod end thread

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

Applicable Stroke Table •: Standa															
Stroke [mm]	30	50	100	150	200	250	300	350	400	450	500	600	700	800	Manufacturable stroke range
LEY25										—	—	-	—	—	15 to 400
LEY32						•						—	—	—	20 to 500
LEY63	_					•									50 to 800
Please contact SMC for non-standard strokes as they are produced as special orders.															

SMC







Motor mounting position: Parallel

Motor mounting position: In-line

### 

Sumbol	Tuno	Motor mounting position			
Symbol	туре	Parallel	In-line		
NII	Ends tapped/				
	Body bottom tapped*2	•	•		
L	Foot bracket		—		
F	Rod flange*2	●*4	•		
G	Head flange*2	●*5	—		
D	Double clevis*2		_		

- \*1 The mounting bracket is shipped together with the product but does not come assembled.
- \*2 For the horizontal cantilever mounting of the rod flange, head flange, or ends tapped types, use the actuator within the following stroke range.
  - · LEY25: 200 mm or less · LEY32: 100 mm or less
  - · LEY63: 400 mm or less
- \*3 For the mounting of the double clevis type, use the actuator within the following stroke range.
   LEY25: 200 mm or less
   LEY32: 200 mm or less
- \*4 The rod flange type is not available for the LEY25 with a 30 mm stroke and motor option "With lock."
- \*5 The head flange type is not available for the LEY32/63.

#### **Compatible Drivers**

### Cable type\*1 \*2

-	<b>/</b> 1
Nil	Without cable
S	Standard cable
R	Robotic cable

- \*1 A motor cable and encoder cable are included with the product. (A lock cable is also included if motor option "B: With lock" is selected.)
- \*2 Standard cable entry direction is • Parallel: (A) Axis side • In-line: (B) Counter axis side
- (Refer to page 1123 for details.)

### Cable length\*1 [m]

Nil	Without cable					
2	2					
5	5					
Α	10					

\*1 The length of the motor, encoder, and lock cables are the same.

### I/O cable length [m]\*1

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

. .

### B Driver type\*1

	Compatible drivers	Power supply voltage [V]
Nil	Without driver	_
A1	LECSA1-S	100 to 120
A2	LECSA2-S	200 to 230
B2	LECSB2-T	200 to 240
C2	LECSC2-T	200 to 230
S2	LECSS2-T	200 to 240
N2	LECSN2-T5	200 to 240
E2	LECSN2-T5-E	200 to 240
92	LECSN2-T5-9	200 to 240
P2	LECSN2-T5-P	200 to 240
ND2	LECSND2-T	200 to 240
ED2	LECSND2-T□-E	200 to 240
9D2	LECSND2-TD-9	200 to 240
PD2	LECSND2-T□-P	200 to 240

\*1 When a driver type is selected, a cable is included. Select the cable type and cable length. Example)

- S2S2: Standard cable (2 m) + Driver (LECSS2) S2: Standard cable (2 m)
  - Nil: Without cable and driver
- \* When selecting "T6" for the motor type, select one of the following LECSN□-T series drivers: "N2," "E2," "92," or "P2."

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. .

\*1 When "Nil: Without driver" is selected for the driver type, only "Nil: Without cable" can be selected. Refer to page 1124 if an I/O cable is required. (Options are shown on page 1124.)

-

Driver type	Positioning type/ Positioning type	Pulse input type	CC-Link direct input type	<u>sscertul</u> type	Network card type
Series	LECSA	LECSB-T	LECSC-T	LECSS-T	LECSN□-T
Number of point tables*1	Up to 7	Up to 255	Up to 255 (2 stations occupied)	—	Up to 255
Pulse input	0	0	—	—	—
Applicable network	—	_	CC-Link	SSCNET Ⅲ/H	PROFINET EtherCAT EtherNet/IP™
Control encoder	Incremental 17-bit encoder	Absolute 22-bit encoder	Absolute 18-bit encoder	Absolute 22-bit encoder	Absolute 22-bit encoder
Communication function	USB communication	USB communication, RS422 communication	USB communication, RS422 communication	USB communication	USB communication
Power supply voltage [V]	100 to 120 VAC (50/60 Hz) 200 to 230 VAC (50/60 Hz)	200 to 240 VAC (50/60 Hz)	200 to 230 VAC (50/60 Hz)	200 to 240 VAC (50/60 Hz)	200 to 240 VAC (50/60 Hz)
Reference page		·	1109		

\*1 The LECSN -T point table mode is only available for PROFINET and EtherCAT.

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### AC Servo Motor Size 25, 32, 63

### Specifications: LECSA

#### \* Refer to the next page for the LECSS-T.

		Model		LEY25S2 (P	arallel)/LEY2	5DS2 (In-line)	LEY	/32S3 (Para	allel)	LEY	32DS3 (In-	line)		
			Horizontal*1	18	50	50	30	60	60	30	60	60		
	Work loa	ad [kg]	Vertical	8	16	30	9	19	37	12	24	46		
	Force [N]	*2 (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.*3	Otraka	Up to 300	900	450	225	1000	600	200	1000	500	050		
	speed	Stroke	305 to 400	600	300	150	1200	600	300	1000	500	250		
ŝ	[mm/s]	range	405 to 500	_	—	—	800	400	200	640	320	160		
<u>o</u>	Pushing	speed [mm	/s]*4		35 or less			30 or less			30 or less			
ät	Max. accel	eration/deceler	ation [mm/s <sup>2</sup> ]		5000				50	00				
ij	Position	ing	Basic type					±0.02						
e Se	repeatab	oility [mm]	High-precision type					±0.01						
g	Lost mo	tion [mm]*5	Basic type					0.1 or less						
p	Lost mo		High-precision type		0.05 or less									
uat	Lead [mm	n] (including	pulley ratio)	12	6	3	20	10	5	16	8	4		
ct	Impact/Vit	pration resista	nce [m/s <sup>2</sup> ]*6		50/20		50/20							
◄	Actuatio	n type		Ball screw + Belt (LEY[])/Ball screw (LEY[]])       Ball screw + Belt [1.25:1]       Ball screw + Belt [1.25:1]							Ball screw			
	Guide ty	ре		Sliding bushing (Piston rod) Sliding bushing							ng (Piston rod)			
	Operating	g temperature	e range [°C]		5 to 40				5 to	o 40				
	Operating	g humidity ra	ange [%RH]	90 or les	ss (No conde	ensation)		90	or less (No	condensatio	on)			
	Enclosu	re	-					IP40			-			
	Regener	ation option	ו		May be req	uired depen	ding on spe	ed and work	load (Refer	to pages 43	5 and 436.)			
suo	Motor ou	utput/Size			100 W/⊔40				200 V	V/⊟60				
icati icati	Motor ty	ре		AC servo motor (100/200 VAC) AC servo motor (100/200 VAC)										
ê E	Encoder				Motor	type S2, S3:	Incrementa	l 17-bit enco	der (Resolu	tion: 131072	2 p/rev)			
g	Power [V	<b>V]</b> *7		Max. power 445 Max. power 724 Max. power 7						ax. power 72	24			
hit	Type*8						Non-	magnetizing	lock					
k ur icati	Holding	torce [N]		131	255	485	157	308	588	197	385	736		
Loc ecif	Power [V	V] at 20°C		6.3 7.9 7.9										
ds	Rated vo	oltage [V]						24 VDC _0						

\*1 This is the max. value of the horizontal work load. An external guide is necessary to support the load (Friction coefficient of guide: 0.1 or less). The actual work load changes according to the condition of the external guide. Confirm the load using the actual device.

\*2 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 while referencing the "Force Conversion Graph" on page 437.

When the control equivalent to the pushing operation of the JXC51/61 series controller is performed, select the LECSS-T or LECSB2-T driver. The point table no. input method is used for the LECSB2-T. When selecting the LECS2-T, combine it with a Simple Motion module (manufactured by Mitsubishi Electric Corporation) which has a pushing operation function.

\*3 The allowable speed changes according to the stroke. Set the number of rotations according to speed.

- $\ast 4~$  The allowable collision speed for collision with the workpiece with the torque control mode
- \*5 A reference value for correcting errors in reciprocal operation

\*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. (The test was performed with the actuator in the initial state.) Vibration resistance: No malfunction occurred in a test ranging

between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

- \*7 Indicates the max. power during operation (including the driver) When selecting the power supply capacity, refer to the power supply capacity in the operation manual of each driver.
- \*8 Only when motor option "With lock" is selected

### Weight

Product	Weight																				[kg]
	Series	LE)	(25S)	2 (Mo	tor m	ountir	ng po	sition	: Para	illel)		LE	(32S	3 (Mo	tor m	ountir	ng po	sition	: Para	llel)	
S	stroke [mm]	30	50	100	150	200	250	300	350	400	30	50	100	150	200	250	300	350	400	450	500
Motor type	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																				
	Series	LE	25D	S2 (M	otor r	nount	ting p	ositio	n: In-	line)		LE	/32D	S3 (M	otor r	noun	ting p	ositio	n: In-	line)	
S	stroke [mm]	30	50	100	150	200	250	300	350	400	30	50	100	150	200	250	300	350	400	450	500
Motor type	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																				

[ka]

**Additional Weight** 

0			[···9]				
	Size	25	32				
Lock	Incremental encoder	0.20	0.40				
Bod and male thread	Male thread	0.03	0.03				
	Nut	0.02	0.02				
Foot bracket (2 se	ts including mounting bolt)	0.08	0.14				
Rod flange (includ	ing mounting bolt)	0.17	0.00				
Head flange (including mounting bolt) 0.17 0.20							
Double clevis (including	0.16	0.22					

### Specifications: LECS -T

		Model		LEY25T6 (Pa	arallel)/LEY25	5DT6 (In-line)	LE	(32T7 (Para	allel)	LEY	32DT7 (In-	line)	
	Work log	d [ka]	Horizontal*1	18	50	50	30	60	60	30	60	60	
	WUIKIUA	iu [kg]	Vertical	8	16	30	9	19	37	12	24	46	
	Force [N]	<sup>*2</sup> (Set value:	12 to 24%)	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.*3	Chroke	Up to 300	900	450	225	1000	600	200	1000	500	250	
	speed	Stroke	305 to 400	600	300	150	1200	000	300	1000	500	250	
S	[mm/s]	lange	405 to 500	—	—	—	800	400	200	640	320	160	
o	Pushing	speed [mm/	<b>/s]</b> *4		35 or less			30 or less			30 or less		
ati	Max. accele	eration/deceleration/deceleration/deceleration/deceleration/deceleration/deceleration/deceleration/deceleration/	ation [mm/s <sup>2</sup> ]		5000				50	00			
ific	Position	ing	Basic type		±0.02				±0.	02			
ec	repeatab	ility [mm]	High-precision type		±0.01				±0.	01			
sp	Lost mot	tion*5	Basic type					0.1 or less					
P	[mm]		High-precision type					0.05 or less					
lat	Lead [mm	] (including p	oulley ratio)	12	12 6 3			20 10 5 16 8					
Ctr	Impact/Vib	pration resista	nce [m/s <sup>2</sup> ]*6		50/20		50/20						
∢	Actuatio	n type		Ball screw + Be	elt (LEY⊡)/Ball s	screw (LEY⊡D)	Ball screw + Belt [1.25:1] Ball screw						
	Guide ty	ре		Sliding	bushing (Pis	ton rod)	Sliding bushing (Piston rod)						
	Operating	temperature	e range [°C]		5 to 40				5 to	40			
	Operating	g humidity ra	inge [%RH]	90 or les	s (No conde	ensation)		90	or less (No	condensatio	on)		
	Enclosu	re						IP40					
	Regener	ation option	1		May be req	uired depen	ding on spe	ed and work	load (Refer	to pages 43	5 and 436.)		
ions	Motor ou	tput/Size			100 W/□40				200 W	//□60			
ificat	Motor ty	ре		AC serv	/o motor (20	0 VAC)		ΑΑ	C servo mot	or (200 VA0	C)		
spec	Encoder	*9		Motor type T	6, T7: Absolu	te 22-bit enco	der (Resoluti	on: 4194304 ן	o/rev) (For LE	CSB2-T⊡, LE	ECSS2-T□, L	ECSN□-T□)	
ctric	Linooder			Mo	otor type T6,	T7: Absolut	e 18-bit enc	oder (Resolu	ution: 26214	4 p/rev) (Fo	r LECSC2-T	□)	
E	Power [V	V]* <sup>7</sup>		M	ax. power 44	45	М	ax. power 72	24	М	ax. power 72	24	
it ons	Type*8						Non-	magnetizing	lock				
k un cati	Holding	force [N]		131 255 485 157 308 588 197 385						736			
Loc	Power [V	V] at 20°C			6.3			7.9			7.9		
g	Rated vo	ltage [V]						24 VDC _10%					

\*1 This is the max. value of the horizontal work load. An external guide is necessary to support the load (Friction coefficient of guide: 0.1 or less). The actual work load changes according to the condition of the external guide. Confirm the load using the actual device.

\*2 The force setting range (set values for the driver) for the force control with the torque control mode. Set it while referencing the "Force Conversion Graph (Guide)" on page 438.

The torque control mode is not available for the LECSC-T.

The drivers applicable to the pushing operation are "LECSB-T" and "LECSS-T."

The LECSB2-T is only applicable when the control method is positioning. The point table is used to set the pushing operation settings. To set the pushing operation settings, an additional dedicated file (pushing operation extension file) must be downloaded separately to be used with the setup software (MR Configurator2™: LEC-MRC2⊡). Please download this dedicated file from the SMC website: https://www.smcworld.com When selecting the LECSS2-T, combine it with upper level equipment (such as the Simple Motion module manufactured by Mitsubishi Electric Corporation) which has a pushing operation function. \*\* For customer-provided PLC and motion controller setting and

usage instructions, confirm with the retailer or manufacturer.

\*3 The allowable speed changes according to the stroke.

\*4 The allowable collision speed for collision with the workpiece with the torque control mode

- A reference value for correcting errors in reciprocal operation \*5
- \*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. (The test was performed with the actuator in the initial state.)

Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

- Indicates the max. power during operation (including the driver) \*7 When selecting the power supply capacity, refer to the power supply capacity in the operation manual of each driver. \*8 Only when motor option "With lock" is selected
- \*9 The resolution will change depending on the driver type.

### Weight

Product Weight																				[kg]
Series	LE	Y25T	6 (Mo	tor m	ountir	ng pos	sition:	Para	llel)		LE	Y32T	7 (Mo	tor m	ountir	ng pos	sition:	Para	lel)	
Stroke [mm]	30	50	100	150	200	250	300	350	400	30	50	100	150	200	250	300	350	400	450	500
Absolute encoder	1.4	1.5	1.6	1.9	2.0	2.2	2.4	2.6	2.7	2.3	2.4	2.7	3.2	3.5	3.8	4.1	4.3	4.6	4.9	5.2
Series	LE	Y25D	<b>T6</b> (M	lotor r	nount	ting p	ositio	n: In-l	ine)		LE	Y32D	T7 (M	lotor r	nount	ting po	ositio	n: In-li	ne)	

Jenes		1230	<b>10 (IV</b>		noun	ing p	USILIUI		iiie)			1320	<b>I</b> 7 (IV		noun	ing p	Jailioi		iie)	
Stroke [mm]	30	50	100	150	200	250	300	350	400	30	50	100	150	200	250	300	350	400	450	500
Absolute encode	<b>r</b> 1.4	1.5	1.6	1.9	2.1	2.2	2.4	2.6	2.8	2.4	2.5	2.8	3.2	3.5	3.8	4.1	4.4	4.6	4.9	5.2

Additional Weigh	t		[kg
	Size	25	32
Lock	Absolute encoder [T6/T7]	0.3	0.4
Dod and male thread	Male thread	0.03	0.03
Rou enu male unreau	Nut	0.02	0.02
Foot bracket (2 set	ts including mounting bolt)	0.08	0.14
Rod flange (includ	ing mounting bolt)	0.17	0.20
Head flange (inclu	ding mounting bolt)	0.17	0.20
Double clevis (including	pin, retaining ring, and mounting bolt)	0.16	0.22

### LEY Series

AC Servo Motor Size 25, 32, 63 Dust-tight/Water-jet-proof (IP65 Equivalent)

\* Option

### Specifications

		Model			LEY63S4/	<b>F8</b> (Parallel)		LEY	63DS4/T8 (In-	-line)			
	Wark load fle	~1	Horizontal*1	40	70	80	200	40	70	80			
	work load [k	91	Vertical*11	19	38	72	115	19	38	72			
	Force [N]/Set	value*2: 15 to	<b>50%</b> * <sup>3, 4</sup>	156 to 521	304 to 1012	573 to 1910	1003 to 3343	156 to 521	304 to 1012	573 to 1910			
	*5		Up to 500	1000	500	250		1000	500	250			
	Max. speed	Stroke	505 to 600	800	400	200	70	800	400	200			
	[mm/s]	range	605 to 700	600	300	150	/0	600	300	150			
us Su			705 to 800	500	250	125		500	250	125			
ţi	Pushing spe	ed [mm/s]*6					30 or less						
ica	Max. acceler	ation/decelera	ation [mm/s <sup>2</sup> ]		5000		3000		5000				
cif	Positioning r	epeatability	Basic type				±0.02						
be l	[mm]		High-precision type				±0.01						
S	Lost motion [mm]*7 Basic type 0.1 or less												
ato	B Lost motion [mm]** High-precision type 0.05 or less												
Ĕ	Screw lead [	nm] (includin	g pulley ratio)	20	10	5	5 (2.86)	20	10	5			
Å	Impact/Vibra	tion resistand	e [m/s²]*8				50/20						
	Actuation type	De		E	Ball screw + Bel	t	Ball screw + Belt [Pulley ratio 4:7]		Ball screw				
	Guide type			Sliding bushing (Piston rod)									
	Operating ter	mperature rar	nge [°C]				5 to 40						
	Operating hu	midity range	[%RH]			90 or le	ess (No conden	sation)					
	Enclosure						IP40						
	Regeneration	n option		Ma	y be required d	epending on sp	eed and work lo	ad (Refer to pa	iges 435 and 43	86.)			
s	Motor output	/Size					400 W/□60						
<u>ة</u> ي	Motor type					AC se	ervo motor (200	VAC)					
Electri	Big Encoder*12       Motor type S4: Incremental 17-bit encoder (Resolution: 131072 p/rev)         Motor type T8: Absolute 22-bit encoder (Resolution: 4194304 p/rev) (For LECSB2-T8, LECSND2-T8)         Motor type T8: Absolute 18-bit encoder (Resolution: 262144 p/rev) (For LECSC2-T8)												
	Power [W]*9					Ν	Max. power 1275	5					
it	Type*10					No	n-magnetizing lo	ock					
catio	Holding force	e [N]		313	607	1146	2006	313	607	1146			
octili oct	Power [W] at	20°C					7.9						
spe	Bated voltage [V]         24 VDC_10%												
*1	This is the max.	value of the ho	orizontal work lo	ad. An external c	uide is nec-	*5 The allow	vable speed cha	inges according	a to the stroke.	Set the number			

\*1 This is the max. value of the horizontal work load. An external guide is necessary to support the load (Friction coefficient of guide: 0.1 or less). The actual work load changes according to the condition of the external guide. Confirm the load using the actual device.

Set values for the driver
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 while referencing the "Force Conversion Graph" on pages 437 and 438.

The torque control mode is not available for the LECSC-T.

The drivers applicable to the pushing operation are "LECSB-T" and "I FCSS-T

The LECSB2-T is only applicable when the control method is position-ing. The point table is used to set the pushing operation settings.

To set the pushing operation settings, an additional dedicated file (pushing operation extension file) must be downloaded separately to be used with the setup software (MR Configurator2™: LEC-MRC2́□). Please download this dedicated file from the SMC website: https:// www.smcworld.com

When selecting the LECSS2-T, combine it with upper level equipment (such as the Simple Motion module manufactured by Mitsubishi Electric Corporation) which has a pushing operation function.

For customer-provided PLC and motion controller setting and usage instructions, confirm with the retailer or manufacturer.

\*4 For the motor type T8, the set value is from 12 to 40%.

#### (The test was performed with the actuator in the initial state.) Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direc-tion to the lead screw. (The test was performed

\*7 A reference value for correcting errors in reciprocal operation \*8 Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction

The allowable collision speed for collision with the workpiece with the

with the actuator in the initial state.)

and a perpendicular direction to the lead screw.

- \*9 Indicates the max. power during operation (including the driver)
- \*\* Indicates the max, power during operation (including the driver) When selecting the power supply capacity, refer to the power supply capacity in the operation manual of each driver.
  \*10 Only when motor option "With lock" is selected
  \*11 When mounting vertically and using the product facing upwards in an environment where water is present, take necessary measures to

of rotations according to speed.

torque control mode

- prevent water from splashing on the rod cover, because water will accumulate on the rod seal due to the structure of the product.
- \*12 For motor type T8, the resolution will change depending on the driver type.

### Weight

Pr	odu	ct V	Vei	ight	t

. . . . . . .

Pr	oduct Weight													[kg]
	Series		L	EY63	S4/T8	3 (Mo	tor m	ount	ing p	ositi	on: P	aralle	el)	
	Stroke [mm]	50	100	150	200	250	300	350	400	450	500	600	700	800
type	Incremental encoder	4.9	5.4	6.0	6.6	7.8	8.3	8.9	9.4	10.0	10.5	12.2	13.4	14.5
Moto	Absolute encoder (Motor type T8)	4.9	5.4	6.0	6.6	7.8	8.3	8.9	9.4	10.0	10.5	12.2	13.4	14.5
	Sorios		1 6	EVESI	DG//7	FQ (M	otor	mour	ntina	noei	tion	In_lin	וסו	
	Series		LE	EY63	DS4/	Г8 (М	otor	mour	nting	posi	tion:	In-lin	e)	
	Series Stroke [mm]	50	LE 100	EY63 150	DS4/ 200	Г8 (M 250	otor 300	mour 350	400	posi 450	tion: 500	In-lin 600	ie) 700	800
· type	Series Stroke [mm] Incremental encoder	<b>50</b> 5.1	LE 100 5.6	<b>150</b> 6.2	DS4/ 200 6.7	<b>7.9 7</b> .9	otor 300 8.4	<b>mour</b> 350 9.0	400 9.6	<b>posi</b> 450 10.2	tion: 500 10.7	In-lin 600 12.4	<b>e)</b> 700 13.5	<b>800</b> 14.7

Additiona	al Weight	[kg]
	Size	63
	Incremental encoder	0.4
Lock	Absolute encoder (Motor type T8)	0.4
Rod end	Male thread	0.12
male thread	Nut	0.04
Foot bracket (2	sets including mounting bolt)	0.26
Rod flange (	including mounting bolt)	0.51
Double clev retaining rin	0.58	



### Construction



# male thread is selected

When the rod end

	26 D	26	
No.	Description	Material	Note
23	Motor adapter	Aluminum alloy	Coatin
24	Motor	_	

0

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### **Component Parts**

No.	Description	Material	Note
1	Body	Aluminum alloy	Anodized
2	Ball screw shaft	Alloy steel	
3	Ball screw nut	Synthetic 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	Synthetic resin	
9	Socket	Free cutting carbon steel	Nickel plating
10	Connected shaft	Free cutting carbon steel	Nickel plating
11	Bushing	Bearing alloy	
12	Bearing		
13	Return box	Aluminum die-cast	Coating
14	Return plate	Aluminum die-cast	Coating
15	Magnet	—	
16	Wear ring holder	Stainless steel	Stroke 101 mm or more
17	Wear ring	Synthetic resin	Stroke 101 mm or more
18	Screw shaft pulley	Aluminum alloy	
19	Motor pulley	Aluminum alloy	
20	Belt	—	
21	Seal	NBR	
22	Retaining ring	Steel for spring	

No.	Description	Material	Note
23	Motor adapter	Aluminum alloy	Coating
24	Motor	—	
25	Motor block	Aluminum alloy	Coating
26	Hub	Aluminum alloy	
27	Spider	Urethane	
28	Socket (Male thread)	Free cutting carbon steel	Nickel plating
29	Nut	Alloy steel	Zinc chromating

### Replacement Parts (Top/Right/Left side parallel only)/Belt

No.	Size	Order no.	No.	Size	Lead	Order no.
20	25	LE-D-2-2	- 00	<u></u>	A/B/C	LE-D-2-5
	32	LE-D-2-4	20	63	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)

# AC Servo Motor Size 25, 32, 63

### Dimensions: Top/Right/Left Side Parallel Motor



\*1 This is the range within which the rod can move. Make sure that workpieces mounted on the rod do not interfere with other workpieces or the facilities around the rod.

\*2 The direction of rod end width across flats ( $\Box K$ ) differs depending on the products.

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



\*1 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].

### Rod Type LEY Series AC Servo Motor Size 25, 32, 63

### Dimensions: Top/Right/Left Side Parallel Motor

																			[mm]
Size	Stroke range [mm]	Α	В	С	D	EH	EV	Н	J	к	L	м	<b>O</b> 1	R	S	т	U	Y	۷
25	30 to 100	130.5	116	10	20	44	45 5	M9 v 1 05	04	17	145	24	MEXOR	0	46	00	-	06 F	40
25	105 to 400	155.5	141	13	20	44	45.5	IVIO X 1.25	24	17	14.5	34	IVIS X U.O	0	40	92	I	20.5	40
20	30 to 100	148.5	130	10	25	51	56 5	M9 v 1 05	21	22	105	40	Me v 1 0	10	60	110	-	24	60
32	105 to 500	178.5	160	13	25	51	50.5	10 X 1.25	31	22	10.5	40		10	00	110	I	34	00
	50 to 200	192.6	155.2																
63	205 to 500	227.6	190.2	21	40	76	82	M16 x 2	44	36	37.4	60	M8 x 1.25	16	80	146	4	32.2	60
	505 to 800	262.6	225.2																

	Chucke vonce	Incremental encoder [S2/S3/S4]							Absolute encoder [T6/T7/T8]						
Size	Stroke range	٧	Vithout loc	xk	With lock			Without lock				F	G		
	[11111]	W	X	Z	W	X	Z	W	X	Z	W	X	Z		
25	30 to 100	07	120	1/1	102.0	156.0	15.0	00 /	115 /	1/1	100	156	15.0	0	4
25	105 to 400	07	120	14.1	123.9	156.9	15.0	02.4	115.4	14.1	123	150	15.0	2	4
20	30 to 100	00.0	100.0	17.1	110.0	150.0	171	76.6	110.0	171	110.4	150 4	171	0	4
32	105 to 500	00.2	120.2	17.1	110.0	100.0	17.1	70.0	110.0	17.1	113.4	155.4	17.1	2	4
	50 to 200			15.0			15.0			15.0			15.0		
63	205 to 500	110.2	150.2	15.0	138.8	178.8	15.0	98.3	138.3	15.0	135.1	175.1	15.0	4	8
	505 to 800			(10.0)			(10.0)			(10.0)			(10.0)		

### $\ast 1\,$ The values in ( ) are the dimensions when L is selected for screw lead.

Body Bottom Tapped [mm													
Size	Stroke range [mm]	MA	MB	мс	MD	мн	ML	МО	MR	ХА	ХВ		
	30 to 35			24	32		50						
	40 to 100			12	11								
25	105 to 120	20	46	42	41	29		M5 x 0.8	6.5	4	5		
	125 to 200			59	49.5		75						
	205 to 400			76	58								
30 to 3 40 to 1	30 to 35		55	22	36		50	M6 x 1	8.5				
	40 to 100	25		36	13								
32	105 to 120			30	40	30				5	6		
	125 to 200			53	51.5		80						
	205 to 500			70	60								
	50 to 70			24	50								
	75 to 120			45	60.5		65						
63	125 to 200	38	—	58	67	44		M8 x 1.25	10	6	7		
	205 to 500			86	81		100						
	505 to 800			- 50			135						



\* 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.

**SMC** 

### AC Servo Motor Size 25, 32, 63

### **Dimensions: In-line Motor**



\*1 This is the range within which the rod can move. Make sure that workpieces mounted on the rod do not interfere with other workpieces or the facilities around the rod.

\*2 The direction of rod end width across flats ( $\Box K$ ) differs depending on the products.

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



\*1 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: In-line Motor**

																	[mm]
Size	Stroke range [mm]	С	D	EH	EV	н	J	к	L	М	01	R	S	т	U	В	v
25	30 to 100	10	20	44	45 5		04	17	145	24	MEYOR	0	45	46 F	1 5	136.5	40
25	105 to 400	13	20	44	45.5	IVIO X 1.25	24	17	14.5	34	IVID X U.O	0	45	40.5	1.5	161.5	40
20	30 to 100	10	05	E1	EC E	M9 v 1 05	01	00	10 5	40	MG v 1 0	10	60	61	4	156	60
32	105 to 500	13	25	51	50.5	IVIO X 1.20	31	22	10.5	40		10	60	01		186	00
-	50 to 200															190.7	
63	205 to 500	21	40	76	82	M16 x 2	44	36	37.4	60	M8 x 1.25	16	78	83	5	225.7	60
	505 to 800	1														260.7	1
																l l	

			Increi	mental enc	oder [S2/S	S3/S4]		Absolute encoder [T6/T7/T8]							
Size [Stroke range [mm]		١	Nithout loc	k	With lock			Without lock			With lock			F	G
	[ [iiiii]	Α	W	Z	Α	W	Z	Α	W	Z	Α	W	Ζ		
25	30 to 100	238	07	14.6	274.9	102.0	16.0	233.4	00.4	14.6	274	100	16.0		4
25	105 to 400	263	0/	14.0	299.9	123.9	10.3	258.4	02.4	14.0	299	123	10.5	2	4
20	30 to 100	262.7	00 0	171	291.3	110.0	17 1	251.1	76.6	17.1	287.9	110 /	171	0	4
32	105 to 500	292.7	00.2	17.1	321.3	110.0	17.1	281.1	/0.0	17.1	317.9	113.4	17.1	2	4
	50 to 200	338.3			366.9			326.4			363.2				
63	205 to 500	373.3	110.2	8.1	401.9	138.8	8.1	361.4	98.3	8.1	398.2	135.1	8.1	4	8
	505 to 800	408.3			436.9			396.4			433.2				

Body Bottom Tapped [mm]													
Size	Stroke range [mm]	MA	МС	MD	мн	ML	МО	MR	ХА	ХВ			
	30 to 35		24	32		50							
	40 to 100		10	41		50							
25	105 to 120	20	42	41	29		M5 x 0.8	6.5	4	5			
	125 to 200		59	49.5		75							
	205 to 400		76	58									
	30 to 35	25			22	36		50					
	40 to 100		36	13		50			5				
32	105 to 120		- 50	43	30		M6 x 1	8.5		6			
	125 to 200		53	51.5		80							
	205 to 500		70	60									
	50 to 70		24	50									
	75 to 120		45	60.5		65							
63	125 to 200	38	58	67	44		M8 x 1.25	10	6	7			
	205 to 500		86	Q1		100	]						
	505 to 800		00			135							

LEY Series

AC Servo Motor Size 25, 32, 63

### Dimensions





Refer to pages 499 and 500 for details on the rod end nut and mounting bracket.
Refer to the "Handling" precautions on pages

 Refer to the "Handling" precautions on pages 574 to 577 when mounting end brackets such as knuckle joint or workpieces.

								[mm]
Size	Bı	<b>C</b> 1	D	Ηı	к	L1	L2	ММ
25	22	20.5	20	8	17	38	23.5	M14 x 1.5
32	22	20.5	25	8	22	42.0	23.5	M14 x 1.5
63	27	26	40	11	36	76.4	39	M18 x 1.5

 The L<sub>1</sub> measurement is when the unit is in the Z-phase first detecting position. At this position, 2 mm at the end (size 25, 32) and 4 mm at the end (size 63).







### 



Foot	Bracket	t												[mm]
Size	Stroke range [mm]	Α	LS	LS₁	LL	LD	LG	LH	LT	LX	LY	LZ	x	Y
25	30 to 100	136.6	98.8	19.8	8.4	6.6	3.5	30	2.6	57	51.5	71	11.2	5.8
	105 to 400	161.6	123.8											
32	30 to 100	155.7	114	19.2	11.3	6.6	4	36	3.2	76	61.5	90	11.2	7
	105 to 500	185.7	144											
63	50 to 200	200.8	133.2	25.2	29.2	8.6	5	50	3.2	95	88	110	14.2	8
	205 to 500	235.8	168.2											
	505 to 800	270.8	203.2											

Material: Carbon steel (Chromating)

\* The A measurement is when the unit is in the Z-phase first detecting position. At this position, 2 mm at the end (size 25, 32) and 4 mm at the end (size 63).

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




#### Dimensions





\*

#### **Rod/Head Flange**

[mm] FD FT FV FX FΖ М Size LL 25 34 5.5 8 48 56 65 6.5 32 5.5 8 62 72 10.5 40 54 63 9 9 80 92 108 28.4 60

Material: Carbon steel (Nickel plating)

\* Refer to pages 499 and 500 for details on the rod end

Included parts

Double clevis

Retaining ring

Clevis pin

Body mounting bolt

The LL measurement is when the unit is in the Z-phase first detecting position. At this position, 2 mm at the end (size 25, 32) and 4 mm at the end (size 63).







#### Clauda

Joub	le Clevis										[mm]
Size	Stroke range [mm]	Α	CL	CD	ст	CU	cw	сх	cz	L	RR
25	30 to 100	160.5	150.5	10	F	4.4	20	10	26	145	10
25	105 to 200	185.5	175.5	10	5	14	20	10	30	14.5	10
20	30 to 100	180.5	170.5	10	6	14	22	10	26	105	10
32	105 to 200	210.5	200.5	10	0	14	22	10	30	10.5	10
	50 to 200	236.6	222.6	14	8						
63	205 to 500	271.6	257.6	—	—	22	30	22	44	37.4	14
	505 to 800	306.6	292.6								

nut and mounting bracket.

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 (size 25, 32) and 4 mm at the end (size 63).



**SMC** 



#### Applicable Stroke Table

勿SMC

	Cizo		Stroke [mm]										
	Size	5ize 100 2		0 300 400		500	600 700		800	900 100		Manufacturable stroke range	
	100											100 to 1000	
,	* Please contact SMC for non-standard strokes as they are produced as special												

 Please contact SMC for non-standard strokes as they are produced as special orders.

# Specifications

		Madal									
	Chucks [mm]*										
	Stroke [mm]		11	100, 20	100, 300, 400, 500, 600, 700, 800, 900	0.10					
	Work load [kg	al	Horizontal	1200	1200	240					
	Dete d ferre a f			200	185	80					
	Rated force [	NJ/Set value		5500	3300	1100					
	Max. force [N	J/Set value**	55%* <sup>3</sup> **	12000	/200	2600					
			Up to 500	100	167	500					
			600	74	123	370					
S	Max. speed	Stroke	700	57	95	285					
ö	[mm/s]*5	range	800	45	75	225					
ät	cat		900	36	60	180					
ij			1000	30	50	150					
õ	Pushing spee	ed [mm/s]*6			20 or less						
sp	Max. accelera	tion/deceleration/deceleration/deceleration/	ation [mm/s <sup>2</sup> ]*7	2000	30	00					
ğ	Positioning r	epeatability	[mm]	0.02							
ua;	Lost motion	[ <b>mm]</b> *8			0.10						
ţ	Screw lead [n	nm]			10						
1	Reduction rat	tio		1/5	1/3	—					
	Lead [mm]			2	3.3	10					
	Impact/Vibrat	ion resistan	ce [m/s²]*9	Motor mounting position: In-line 50/20, Motor mounting position: Parallel 50/15							
	Actuation typ	e		Motor mounting position: In-line/Ball screw, Motor mounting position: Parallel/Ball screw + Belt							
	Guide type			Sliding bushing (Piston rod)							
	Operating ter	nperature ra	nge [°C]	5 to 40							
	Operating hu	midity range	e [%RH]	90 or less (No condensation)							
	Enclosure				IP40						
ons	Motor output	[W]/Size [m	m]		750/🗆80						
ficati	Motor type				AC servo motor (200 VAC)						
peci	Encodor			Absolute	e 22-bit encoder (Resolution: 419430	04 p/rev)					
tric 8	Encoder			Absolute 18-bit end	coder (Resolution: 262144 p/rev) (Fo	or LECSC-T□ only)					
Elec	Power [W]*10				Max. power 1100						
tions	Type*11				Non-magnetizing lock						
ecifica	Holding force	e [N]		5700	3400	1200					
unit sp	Power [W] at	20°C			10						
Lock	Rated voltage	∍[V]			24 VDC0						

\*1 This is the max. value of the horizontal work load. An external guide is necessary to support the load (Friction coefficient of guide: 0.1 or less). The actual work load changes according to the condition of the external guide. Confirm the load using the actual device.

\*2 Set values for the driver

\*3 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 while referencing the "Force Conversion Graph" on page 438 and the "Load-Acceleration/Deceleration Graph" on page 439. The torque control mode is not available for the LECSC-T.

The drivers applicable to the pushing operation are "LECSB-T" and "LECSS-T." The LECSB2-T is only applicable when the control method is positioning. The point table is used to set the pushing operation settings. To set the pushing operation settings, an additional dedicated file (pushing operation extension file) must be downloaded separately to be used with the setup software (MR Configurator2™: LEC-MRC2□). Please download this dedicated file from the SMC website: https://www.smcworld.com When selecting the LECSS2-T, combine it with upper level equipment (such as the Simple Motion module manufactured by Mitsubishi Electric Corporation) which has a pushing operation function.

For customer-provided PLC and motion controller setting and usage instructions, confirm with the retailer or manufacturer.

# Weight

#### Product Weight

												1.19	
Series				LEY100DT8 (Motor mounting position: In-line)									
Stroke [mm]			100	200	300	400	500	600	700	800	900	1000	
ad	LEY100DT9B	With motor, Without reducer	12.7	14.4	16.0	17.7	19.3	21.0	22.6	24.2	25.9	27.5	
Le	LEY100DT9(D/L)	With motor, With reducer	15.1	16.8	18.4	20.1	21.7	23.4	25.0	26.6	28.3	29.9	

												[kg]
	Series			LEY100T8 (Motor mounting position: Parallel)								
Stroke [mm]			100	200	300	400	500	600	700	800	900	1000
ad	LEY100T9B	With motor, Without reducer	14.5	16.1	17.8	19.4	21.1	22.7	24.4	26.0	27.7	29.3
Ľ	LEY100T9(D/L)	With motor, With reducer	16.9	18.5	20.2	21.8	23.5	25.1	26.8	28.4	30.1	31.7

**SMC** 

\*4 The max. force changes according to the stroke. Check the "Force-Stroke Graph" on page 439.

For "double clevis type": Maximum thrust limited to 6000 or less

- \*5 The allowable speed changes according to the stroke. Set the number of rotations according to speed.
- \*6 The allowable collision speed for collision with the workpiece with the torque control mode
- The max. acceleration/deceleration changes according to the work load. Check the "Load–Acceleration/Deceleration Graph" on page 439. \*7

- \*8 A reference value for correcting errors in reciprocal operation
   \*9 Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.) Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)
- \*10 Indicates the max. power during operation (including the driver) When selecting the power supply capacity, refer to the power supply capacity in the operation manual of each driver.
- \*11 Only when motor option "With lock" is selected

[ka]

\*12 For "double clevis type": Stroke limited to 400 or less.

Additional Weight         [kg]           Size         100           Motor option         With lock         1.0           Rod end thread         Male thread         0.1           Foot bracket         0.8				
Siz	e	100		
Motor option	With lock	1.0		
Dod and throad	Male thread	0.1		
nou enu thread	Nut	0.1		
	Foot bracket (in-line)	0.8		
Mounting	Foot bracket	1.4		
	Flange	1.1		
	Double clevis	1.3		

# AC Servo Motor Size 100

# Construction

# In-line motor type: LEY100



#### **Component Parts**

No.	Description	Material	Note
1	Body	Aluminum alloy	Anodized
2	Screw shaft	Alloy steel	
3	Ball screw nut	Alloy steel	
4	Piston	Aluminum alloy	
5	Piston rod	Alloy steel	Hard chrome plating
6	Rod cover	Aluminum alloy	Anodized
7	Bearing holder	Aluminum alloy	
8	Rotation stopper	Synthetic resin	
9	Socket (Male thread)	Alloy steel	Nickel plating
10	Bushing	Bearing alloy	
11	Bearing	—	
12	Magnet	—	
13	Wear ring holder	Aluminum alloy	
14	Wear ring	Synthetic resin	
15	Lock nut	Alloy steel	
16	Motor block	Aluminum alloy	Anodized

No.	Description	Material	Note
17	Motor flange	Aluminum alloy	Anodized
18	Bumper	Urethane	
19	Coupling	—	
20	Scraper	NBR	
21	Sintered element	Stainless steel	
22	Motor adapter	Aluminum alloy	Anodized
23	Nut	Alloy steel	Zinc chromating
24	Reducer	—	
25	Motor	—	
26	Socket (Female thread)	Alloy steel	Nickel plating
27	Return box	Aluminum die-cast	Coating
28	Return plate	Aluminum alloy	Anodized
29	Screw shaft pulley	Alloy steel	
30	Motor pulley	Alloy steel	
31	Belt	—	
32	Motor adapter	Aluminum alloy	Anodized

#### Replacement Parts/Grease Pack

riopiacomont i arto, di caco i acti							
Applied portion	Order no.						
Distance and	GR-S-010 (10 g)						
FISION TOU	GR-S-020 (20 g)						



#### **Dimensions: In-line Motor**



157.1 + Stroke

15

#### 

#### With reducer: LEY100DT9(D/L)-

Ð

F

**N**H





Foot bracket: LEY100DT9 -----L

[mm]

Size Stroke range [mm]	<u>.</u>	LEY100DT9B					LEY100DT9(D/L) [With reducer]						
	Without lock		With lock			Without lock			With lock				
		Α	Y	W	Α	Y	W	Α	Y	W	Α	Y	W
100	100 to 1000	472.7	49	112	513	49	152.3	580.5	61.3	207.5	620.8	61.3	247.8

#### Rod flange: LEY100DT9 -----F



\*1 The dimension in the figure is the first Z-phase detecting position.

\*2 The orientation of the square-width width across flats at the end of the rod differs for each product.



# Dimensions: Top/Right/Left Side Parallel Motor



#### 



# With reducer: LEY100T9(D/L)-



Motor mounting position Left side parallel Right side parallel



# Dimensions: Top/Right/Left Side Parallel Motor





#### 



#### 



AC Servo Motor LECY Series

Rod Type Dust-tight/Water-jet-proof (IP65 Equivalent) \* Option

**LEY Series** LEY25, 32, 63

LECS⊡ series ▶p. 473, 485 Dust-tight/Water-jet-proof ▶p. 931 Secondary Battery Compatible ▶p. 989

How to Order



 Accuracy

 Nil
 Basic type

Н	High-precision type

	<b>3</b> Motor mounting position								
ſ	Nil	Top side parallel							
ſ	R	Right side parallel							
ſ	L	Left side parallel							
ſ	D	In-line							

4) Mo	tor type				
Symbol	Туре	Output [W]	2 Size	B Driver type	Compatible drivers
VE*1		100	25	M2	LECYM2-V5
VO	VO	100	25	U2	LECYU2-V5
1/7	AC servo motor	200	20	M2	LECYM2-V7
V7	encoder)		32	U2	LECYU2-V7
1/0	011000001)	400	60	M2	LECYM2-V8
vo		400	63	112	LECY112-V8

\*1 For motor type V6, the compatible driver part number suffix is V5.

#### **5** Lead [mm]

• [·····]									
Symbol	LEY25	LEY32*1	LEY63						
Α	12	16 (20)	20						
В	6	8 (10)	10						
С	3	4 (5)	5						
L	_	_	2.86* <sup>2</sup>						

2 Size

25

32 63

\*1 The values shown in () are the leads for the top/ right/left side parallel motor types. (Equivalent leads which include the pulley ratio [1.25:1])

\*2 Only available for top/right/left side parallel motor types (Equivalent leads which include the pulley ratio [4:7])

#### 8 Motor option

Nil	Without option
В	With lock

\* When "With lock" is selected for the top/right/ left side parallel motor types, the motor body will stick out from the end of the body for size 25 with strokes of 30 mm or less.

Check for interference with workpieces before selecting a model.



## 6 Stroke [mm]

30	30				
to	to				
800	800				
* For details, refer to the					

applicable stroke table below.

#### Dust-tight/Water-jet-proof (Only available for LEY63)

Symbol	LEY25/32	LEY63
Nil	IP4x equivalent	IP5x equivalent (Dust-protected)
Р	_	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 environments exposed to cutting oil, etc. Take appropriate protective measures. For details on enclosure, refer to the "Enclosure" on page 577.

#### **9** Rod end thread

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

A	Applicable Stroke	e Ta	ble													Standard
1	Stroke [mm]	30	50	100	150	200	250	300	350	400	450	500	600	700	800	Manufacturable stroke range
	LEY25	•			•	•					-	-	-	—	—	15 to 400
	LEY32	٠		•	•	•	•						—	—	—	20 to 500
	LEY63	—		•	•	•	•	•					•	•	•	50 to 800
_																

For auto switches, refer to pages 502 to 505.

\* Please contact SMC for non-standard strokes as they are produced as special orders.









Motor mounting position: Parallel

Motor mounting position: In-line

#### **D** Mounting\*1

Symbol	Туре	Motor mounting position		*1 The mounting bracket is shipped together with the product but does not
Symbol		Parallel	In-line	Come assembled.
Nil	Ends tapped/ Body bottom tapped <sup>*2</sup>	•	•	<ul> <li>LEY25: 200 mm or less</li> <li>LEY25: 200 mm or less</li> <li>LEY32: 100 mm or less</li> </ul>
L	Foot bracket		—	*3 For the mounting of the double clevis type, use the actuator within the
F	Rod flange*2	●*4	•	1 following stroke range.
G	Head flange <sup>*2</sup>	●* <sup>5</sup>	_	*4 The rod flange type is not available for the LEY25 with a 30 mm stroke and
D	Double clevis*3	•	_	motor option "With lock."
	×	~		*5 The head flange type is not available for the LEY32/LEY63.

A

Nil	Without cable							
S	Standard cable							
R	Robotic cable							

*1	A motor cable and encoder cable are
	included with the product.
	The motor cable for lock option is included
	when the motor with lock option is selected.

# Nil

3	3
5	5
Α	10
С	20

Without cable

Cable length [m]\*1

\*1 The length of the motor and encoder cables are the same. (For with lock)

#### B Driver type

$\backslash$	Compatible drivers	Power supply voltage [V]
Nil	Without driver	—
M2	LECYM2-V□	200 to 230
U2	LECYU2-V	200 to 230

\* When a driver type is selected, a cable is included. Select the cable type and cable length.

#### I/O cable length [m]\*1

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

\*1 When "Nil: Without driver" is selected for the driver type, only "Nil: Without cable" can be selected. Refer to page 1135 if an I/O cable is required. (Options are shown on page 1135.)

#### **Compatible Drivers**

Driver type	MECHATROLINK-II type	MECHATROLINK-III type							
Series	LECYM	LECYU							
Applicable network	MECHATROLINK-II	MECHATROLINK-II							
Control encoder	Abs 20-bit e	olute encoder							
Communication device	USB communication, I	RS-422 communication							
Power supply voltage [V]	200 to 230 V	AC (50/60 Hz)							
Reference page	11	128							
		400							



LEY Series AC Servo Motor Size 25, 32, 63

# Specifications

Work load [kg]         Horizontal*1         18         50         50         30         60         60         30         60           Force [N]*2 (Set value: 45 to 90%)         450         127 to 255         242 to 485         79 to 157         154 to 308         294 to 588         98 to 197         192 to 385         36           Max.*3 speed         Stroke range         Up to 300         900         450         225         1200         600         300         1000         500	60 46 68 to 736 250							
Work load [kg]         Horizontal*1         18         50         50         30         60         60         30         60           Force [N]*2 (Set value: 45 to 90%)         65 to 131         127 to 255         242 to 485         79 to 157         154 to 308         294 to 588         98 to 197         192 to 385         36           Max.*3 speed speed         Stroke range         Up to 300         900         450         225         1200         600         300         1000         500	60 46 68 to 736 250							
Work load [kg]         Vertical         8         16         30         9         19         37         12         24           Force [N]*2 (Set value: 45 to 90%)         65 to 131         127 to 255         242 to 485         79 to 157         154 to 308         294 to 588         98 to 197         192 to 385         36           Max.*3 speed         Stroke range         Up to 300         900         450         225         1200         600         300         1000         500	46 68 to 736 250							
Force [N]*2 (Set value: 45 to 90%)       65 to 131       127 to 255       242 to 485       79 to 157       154 to 308       294 to 588       98 to 197       192 to 385       36         Max.*3 speed (mm /a)       Stroke range       Up to 300       900       450       225       1200       600       3000       1000       500       500	68 to 736							
Max.*3 speed range         Stroke range         Up to 300         900         450         225         1200         600         300         1000         500	250							
speed range         305 to 400         600         300         150         1200         600         500         1000         500	160							
	160							
σ [Immys] ~ 405 to 500 — — — 800 400 200 640 320	100							
Fushing speed [mm/s]*4         35 or less         30 or less         30 or less								
Max. acceleration/deceleration [mm/s <sup>2</sup> ]   5000								
Positioning         Basic type         ±0.02         ±0.02								
B         repeatability [mm]         High-precision type         ±0.01								
Basic type         0.1 or less         0.1 or less								
[mm]         High-precision type         0.05 or less         0.05 or less								
Image: Second system         Image: Se	4							
Impact/Vibration resistance [m/s <sup>2</sup> ]*6         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)	90 or less (No condensation) 90 or less (No condensation)							
Enclosure IP40								
Required conditions for the Horizontal Not required Not required								
regenerative resistor* <sup>7</sup> [kg] Vertical 6 or more 4 or more	4 or more							
물통 Motor type AC servo motor (200 VAC) AC servo motor (200 VAC)								
훕툴 Encoder Absolute 20-bit encoder (Resolution: 1048576 p/rev)								
Bower [W]*8         Max. power 445         Max. power 724         Max. power 724								
g Type*9 Non-magnetizing lock								
58         Holding force [N]         131         255         485         157         308         588         197         385	736							
हुङ्ग Power [W] at 20°C 5.5 6 6								
B Rated voltage [V]         24 VDC 0								

\*1 This is the max. value of the horizontal work load. An external guide is necessary to support the load (Friction coefficient of guide: 0.1 or less). The actual work load changes according to the condition of the external guide. Confirm the load using the actual device.

\*2 The force setting range (set values for the driver) for the force control with the torque control mode. Set it while referencing the "Force Conversion Graph (Guide)" on page 445.

\*3 The allowable speed changes according to the stroke.

\*4 The allowable collision speed for collision with the workpiece with the torque control mode

\*5 A reference value for correcting errors in reciprocal operation

\*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. (The test was performed with the actuator in the initial state.)

Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

\*7 The work load conditions which require the regenerative resistor when operating at the max. speed (Duty ratio: 100%). Order the regenerative resistor separately. For details, refer to the "Required Conditions for the Regenerative Resistor (Guide)" on pages 443 and 444.

\*8 Indicates the max. power during operation (including the driver) When selecting the power supply capacity, refer to the power supply capacity in the operation manual of each driver.

\*9 Only when motor option "With lock" is selected

#### Weight

Product Weight																				[kg]
Series	LEY25V6 (Motor mounting position: Parallel) LEY32V7 (Motor mounting position: Parallel)																			
Stroke [mm]	30	50	100	150	200	250	300	350	400	30	50	100	150	200	250	300	350	400	450	500
Weight [kg]	1.2	1.3	1.6	1.7	1.9	2.1	2.2	2.4	2.6	2.3	2.4	2.7	3.2	3.5	3.8	4.0	4.3	4.6	4.9	5.2
	EEXECUTE: LEY25DV6 (Motor mounting position: In-line) LEY32DV7 (Motor mounting position: In-line)																			
Series	LE	Y25D	V6 (N	lotor i	mount	ting p	ositio	n: In-I	ine)		LE	Y32D	V7 (N	otor r	mount	ting p	ositio	n: In-I	ine)	
Series Stroke [mm]	LE <sup>*</sup> 30	<b>Y25D</b> 50	<b>V6 (N</b> 100	<b>lotor i</b> 150	<b>noun</b> 200	t <b>ing p</b> 250	ositio 300	n: In-I 350	<b>ine)</b> 400	30	<b>LE</b> ` 50	<b>Y32D</b> 100	<b>V7 (N</b> 150	<b>otor r</b> 200	<b>noun</b> 250	ting p 300	ositio 350	<b>n: In-I</b> 400	i <b>ne)</b> 450	500
Series Stroke [mm] Weight [kg]	LE 30 1.2	<b>Y25D</b> 50 1.3	<b>V6 (N</b> 100 1.5	<b>lotor i</b> 150 1.7	<b>noun</b> 200 1.9	t <b>ing p</b> 250 2.1	<b>ositio</b> 300 2.3	<b>n: In-I</b> 350 2.4	<b>ine)</b> 400 2.6	30 2.3	<b>LE</b> 50 2.4	<b>Y32D</b> 100 2.7	<b>V7 (№</b> 150 3.2	<b>otor r</b> 200 3.5	<b>noun</b> 250 3.8	t <b>ing p</b> 300 4.1	<b>ositio</b> 350 4.3	<b>n: In-I</b> 400 4.6	<b>ine)</b> 450 4.9	500 5.2

Additional	Weight

	Size	25	32
Lock		0.30	0.60
Dod and male thread	Male thread	0.03	0.03
Rou enu maie unreau	Nut	0.02	0.02
Foot bracket (2 se	ts including mounting bolt)	0.08	0.14
Rod flange (includ	ing mounting bolt)	0.17	0.20
Head flange (inclu	0.17	0.20	
Double clevis (including	pin, retaining ring, and mounting bolt)	0.16	0.22

# Specifications

	Model				L EV63V8	(Parallol)		L EY63DV8 (In-line)				
		Woder	Horizontal*1	40	70	80	200	40	70	80		
	Work load [k	g]	Vertical	10	38	72	115	10	38	72		
	Force [N]/Set value*2: 45 t		0 150%*3	156 to 521	304 to 1012	573 to 1910	1003 to 33/3	156 to 521	304 to 1012	573 to 1910		
	Force [N]/Set value - : 45		Up to 500	10010 021	500	250	1000 10 0040	1000	500	250		
	Max. speed Stroke	505 to 600	800	400	200		800	400	200			
		605 to 700	600	300	150	70	600	300	150			
	[1111/3]	lange	705 to 800	500	250	125		500	250	130		
S	Puching ene	od [mm/c]*5	703 10 800	500	230	125	30 or loss	500	230	125		
ti o	Max acceler	eu [iiiii/s] ation/deceler	ation [mm/s2]		5000		3000		5000			
ca	Bositioning	anon/deceler	Basic type		3000		+0.02		3000			
cifi	[mm]	epeatability	High-precision type				+0.02					
g	[]		Basic type									
r.	Lost motion	[mm]* <sup>6</sup>	High-precision type	0.1 01 less								
atc	Screw lead [	mm] (includir	ngi-precision type	20	10	5	5 (2.86)	20	10	5		
ctr	Impact/Vibra	tion resistant	re [m/s <sup>2</sup> ]* <sup>7</sup>	20	10	5	50/20	20	10	5		
◄	Actuation ty	he		Ball screw Ballscrew Ball screw								
	Guide type			Sliding bushing (Piston rod)								
	Operating te	mperature ra	nge [°C]	5 to 40								
	Operating h	midity range	[%BH]	90 or less (No condensation)								
	Enclosure		[/•]									
	Bequired con	ditions for the	Horizontal	Not required								
	regenerative	resistor <sup>*8</sup> [kg]	Vertical	2.5 or more								
SIO	Motor output	/Size		400 W/□60								
Sflicati	Motor type					AC se	ervo motor (200	VAC)				
c spec	Encoder				Ab	solute 20-bit en	coder (Resolutio	on: 1048576 p/r	ev)			
Electri	Power [W]*9					N	Max. power 1275	5				
Suo	Type <sup>*10</sup>					No	n-magnetizing lo	ock				
ecificat	Holding forc	e [N]		313	607	1146	2006	313	607	1146		
nit spe	Power [W] at	20°C				1	6					
Lock u	Rated voltag	e [V]					24 VDC +10%					

\*1 This is the max. value of the horizontal work load. An external guide is necessary to support the load (Friction coefficient of guide: 0.1 or less). The actual work load changes according to the condition of the external guide. Confirm the load using the actual device.

\*2 Set values for the driver

\*3 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 while referencing the "Force Conversion Graph (Guide)" on page 445.

\*4 The allowable speed changes according to the stroke.

\*5 The allowable collision speed for collision with the workpiece with the torque control mode

\*6 A reference value for correcting errors in reciprocal operation

\*7 Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a

perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

\*8 The work load conditions which require the regenerative resistor when operating at the max. speed (Duty ratio: 100%)

\*9 Indicates the max. power during operation (including the driver)

When selecting the power supply capacity, refer to the power supply capacity in the operation manual of each driver. \*10 Only when motor option "With lock" is selected

#### Weight

#### **Product Weight**

Product Weight													[kg]
Series			LEY	63V8	(Mot	tor m	ountii	ng po	sitior	n: Par	allel)		
Stroke [mm]	50	100	150	200	250	300	350	400	450	500	600	700	800
Weight [kg]	4.8	5.3	6.0	6.5	7.7	8.2	8.8	9.3	9.9	10.4	12.1	13.3	14.4
Series			LEY	63D\	/8 (M	otor r	noun	ting p	ositio	on: In	-line)		
Stroke [mm]	50	100	150	200	250	300	350	400	450	500	600	700	800
Weight [kg]	5.0	5.5	6.1	6.6	7.8	8.3	9.0	9.5	10.1	10.6	12.3	13.4	14.6

Additional	[kg]					
Size						
Lock		0.6				
Rod end	Male thread	0.12				
male thread Nut						
Foot bracket (2	sets including mounting bolt)	0.26				
Rod flange (including mounting bolt)						
Double clev retaining rin	is (including pin, g, and mounting bolt)	0.58				

# LEY Series AC Servo Motor Size 25, 32, 63

#### Construction



 $\overline{\mathcal{I}}$ (7)

**SMC** 

#### **Component Parts**

No.	Description	Material	Note
1	Body	Aluminum alloy	Anodized
2	Ball screw shaft	Alloy steel	
3	Ball screw nut	Synthetic 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	Synthetic resin	
9	Socket	Free cutting carbon steel	Nickel plating
10	Connected shaft	Free cutting carbon steel	Nickel plating
11	Bushing	Bearing alloy	
12	Bearing	—	
13	Return box	Aluminum die-cast	Coating
14	Return plate	Aluminum die-cast	Coating
15	Magnet	—	
16	Wear ring holder	Stainless steel	Stroke 101 mm or more
17	Wear ring	Synthetic resin	Stroke 101 mm or more
18	Screw shaft pulley	Aluminum alloy	
19	Motor pulley	Aluminum alloy	
20	Belt		

No.	Description	Material	Note
21	Seal	NBR	
22	Retaining ring	Steel for spring	Phosphate coating
23	Motor adapter	Aluminum alloy	Coating
24	Motor	—	
25	Motor block	Aluminum alloy	Coating
26	Hub	Aluminum alloy	
27	Spider	Urethane	
28	Socket (Male thread)	Free cutting carbon steel	Nickel plating
29	Nut	Alloy steel	Zinc chromating

#### Replacement Parts (Top/Right/Left side parallel only)/Belt

No.	Size	Order no.	No.	Size	Lead	Order no.
	25	LE-D-2-2	00	<u></u>	A/B/C	LE-D-2-5
20	32	LE-D-2-4	20	63	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)

# Rod Type LEY Series AC Servo Motor Size 25, 32, 63

# Dimensions: Top/Right/Left Side Parallel Motor



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



\*1 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]	Α	В	С	D	EH	EV		н	J	К	L	М	<b>O</b> 1	R	s	Т	U	Y	v
25	30 to 100	130.5	116	12	20	11	45.5	May	v 1 25	24	17	14.5	34	M5 v 0 8	Q	16	02	1	26.5	40
25	105 to 400	155.5	141	13	20	44	45.5		IVI8 x 1.25		17	14.5	34	NIS X 0.6	0	40	92	I	20.5	40
22	30 to 100	148.5	130	10	25	51	56 5	1 100	v 1 05	21	22	10 5	10	Mey 10	10	60	110	-	24	60
32	105 to 500	178.5	160	13	25	51 50.		50.5 MOX 1.25		51	22	10.5	40		10	00	110	1	34	00
	50 to 200	192.6	155.2																	
63	205 to 500	227.6	190.2	21	40	76	82	M1	6 x 2	44	36	37.4	60	M8 x 1.25	16	80	146	4	32.2	60
00	505 to 800	262.6	225.2																	
Size	Stroke range	With	out lock		W	ith lock	Body Bottom Tapped							[mm]						
012e	[mm]	W )	( Z		w	X	Z	•   '	ч -		Stroke	range	Ī .					_		

[mm]	W	X	Z	W	Х	Z	-	
30 to 100	00 5	1155	11	107 5	160 5	11	0	4
105 to 400	02.5	115.5	11	127.5	100.5	11	2	4
30 to 100	00	100	14	100	160	14	0	4
105 to 500	00	120	14	120	160	14	2	4
50 to 200			10.5			10.5		
205 to 500	98.5	138.5	12.5	138.5	178.5	12.5	4	8
505 to 800			(13.5)			(13.3)		
	[mm] 30 to 100 105 to 400 30 to 100 105 to 500 50 to 200 205 to 500 505 to 800	[mm]         W           30 to 100         82.5           105 to 400         80           30 to 100         80           105 to 500         50 to 200           205 to 500         98.5           505 to 800         98.5	Imm         W         X           30 to 100         82.5         115.5           105 to 400         80         120           30 to 100         80         120           105 to 500         98.5         138.5           505 to 800         98.5         138.5	$\begin{array}{ c c c c c c c c c } \hline [mm] & W & X & Z \\ \hline 30 \ to \ 100 \\ \hline 105 \ to \ 400 \\ \hline 30 \ to \ 100 \\ \hline 105 \ to \ 500 \\ \hline 50 \ to \ 200 \\ \hline 205 \ to \ 500 \\ \hline 505 \ to \ 800 \\ \hline \end{array} \begin{array}{ c c c c c c c c c c } \hline & & & & & & & & \\ \hline 100 \ to \ 100 \ to \ 100 \\ \hline 110 \ to \ 100 \ to \ 100 \\ \hline 110 \ to \ 100 \ to \ 100 \\ \hline 110 \ to \ 100 \ to \ 100$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$

\*1 L lead

Body Bottom Tapped [mm												
Size	Stroke range [mm]	МА	МВ	мс	MD	мн	ML	МО	MR	XA	хв	
	30 to 35			24	32	32 41 29	50					
	40 to 100		46	12	11		50					
25	105 to 120	20		42	41			M5 x 0.8	6.5	4	5	
	125 to 200			59	49.5		75					
	205 to 400			76	58							
	30 to 35		55	22	36		50		8.5			
	40 to 100			36	13		50			5	6	
32	105 to 120	25		30	-5	30		M6 x 1				
	125 to 200			53	51.5		80					
	205 to 500			70	60							
	50 to 70			24	50							
	75 to 120			45	60.5		65					
63	125 to 200	38	52.2	58	67	44		M8 x 1.25	10	6	7	
	205 to 500			00	0.1		100					
	505 to 800			00	01		135					



LEY Series AC Servo Motor Size 25, 32, 63

## Dimensions: Top/Right/Left Side Parallel Motor



\* 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**



25

32

63

105 to 120

125 to 200

205 to 400

30 to 35

40 to 100

105 to 120

125 to 200

205 to 500

50 to 70

75 to 120

125 to 200

205 to 500

505 to 800

	1
IP65 equivalent (Dust-tight/Water-iet-proof): LEY63D□□-□P	
////	-

324.5

366.6

401.6

436.6

138.5

5

4 8

(View ZZ)

63

105 to 500

50 to 200

205 to 500

505 to 800

284.5

326.6

361.6

396.6

98.5

5



\*1 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].

42 41

76 58

22 36

36 43

70 60

24 50

86 81

59 49.5

53 51.5

45 60.5

58 67

20

25

38

29

30

44

75

50

80

65

100

135

M5 x 0.8

M6 x 1

M8 x 1.25

6.5 4

8.5 5 6

10

6 7

5

LEY Series

AC Servo Motor Size 25, 32, 63

#### Dimensions



- \* Refer to pages 499 and 500 for details on the rod end nut and mounting bracket.
- Refer to the "Handling" precautions on pages 574 to 577 when mounting end brackets such as knuckle joint or workpieces.

								[mm]
Size	B1	<b>C</b> 1	D	H1	Κ	L1*1	L2	MM
25	22	20.5	20	8	17	38	23.5	M14 x 1.5
32	22	20.5	25	8	22	42.0	23.5	M14 x 1.5
63	27	26	40	11	36	76.4	39	M18 x 1.5

\*1 The L1 measurement is when the unit is in the Z-phase first detecting position. At this position, 2 mm at the end (size 25, 32) and 4 mm at the end (size 63).



	range [mm]		_	-			-							
25	30 to 100	136.6	98.8	10.0	0 /	66	25	30	2.6	57	51.5	71	11.2	<b>Б</b> 0
25	105 to 400	161.6	123.8	19.0	0.4	0.0	3.5							5.0
22	30 to 100	155.7	114	10.2	11 2	66	4	26	3.2	76	61.5	90	11.2	7
32	105 to 500	185.7	144	19.2	11.5	0.0	4	30						1
	50 to 200	200.8	133.2											
63	205 to 500	235.8	168.2	25.2	2 29.2	8.6	5	50	3.2	95	88	110	14.2	8
	505 to 800	270.8	203.2											

Material: Carbon steel (Chromating)

\* The A measurement is when the unit is in the Z-phase first detecting position. At this position, 2 mm at the end (size 25, 32) and 4 mm at the end (size 63).

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

# Rod Type LEY Series AC Servo Motor Size 25, 32, 63

#### Dimensions



Included parts
<ul> <li>Double clevis</li> </ul>
· Body mounting bolt
· Clevis pin
<ul> <li>Retaining ring</li> </ul>

. .

#### **Double Clevis**

CX +0.4 +0.2

CZ -0.1 -0.3

ÇŲ

ćw

CL + Stroke A + Stroke RR

Doub	le Clevis										[mm
Size	Stroke range [mm]	Α	CL	CD	СТ	CU	cw	сх	cz	L	RR
25	30 to 100	160.5	150.5	10	5	14	20	18	36	14.5	10
	105 to 200	185.5	175.5	10	5	14					10
22	30 to 100	180.5	170.5	10	6	14	00	10	26	105	10
32	105 to 200	210.5	200.5	10	0	14	22	10	30	10.5	10
	50 to 200	236.6	222.6	14	8						
63	205 to 500	271.6	257.6	—	—	22	30	22	44	37.4	14
	505 to 800	306.6	292.6	—	—						

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 (size 25, 32) and 4 mm at the end (size 63).

# LEY Series **Accessory Mounting Brackets 1**

# Accessory Brackets/Support Brackets







										[mm]
Part no.	Applicable size	Α	<b>A</b> 1	E1	L1	ММ	R1	U1	ND <sub>H10</sub>	NX
I-G02	16	34	8.5	□16	25	M8 x 1.25	10.3	11.5	8 +0.058	8 -0.2
I-G04	25, 32, 40	42	14	ø22	30	M14 x 1.5	12	14	10 +0.058	$18 \ ^{-0.3}_{-0.5}$
I-G05	63	56	18	ø28	40	M18 x 1.5	16	20	14 <sup>+0.070</sup>	22 -0.3

Knuckle Pin							
<ul> <li>Common with double clevis pin</li> </ul>							



Material: Carbon steel [mm]

								[IIIII]
Part no.	Applicable size	Dd9	Lı	L2	d	m	t	Retaining ring
IY-G02	16	8 -0.040	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 Bracket Part Nos.

Mounting	Order		Ар	olicable s		Contonto	
bracket	qty.	16	25	32, 40	63	100	Contents
Foot bracket	2* <sup>1</sup>	LEY-L016	LEY-L025	LEY-L032	LEY-L063	LEY-L100	Foot bracket x 2 Mounting bolt x 4
Flange	1	LEY-F016	LEY-F025	LEY-F032	LEY-F063	LEY-F100	Flange x 1 Mounting bolt x 4
Double clevis	1	LEY-D016	LEY-D025	LEY-D032	LEY-D063	D5080	Clevis x 1 Mounting bolt x 4 Clevis pin x 1 Type C retaining ring for axis x 2

\*1 When ordering foot brackets, order 2 pieces per actuator.

<ul> <li>Knuckle pin and retaining ring are included.</li> </ul>									
Part no.	Applicable size	A	<b>A</b> 1	E1	L	.1	ММ		R1
Y-G02	16	34	8.5	□16	; 2	5	M8 x 1	.25	10.3
Y-G04	25, 32, 40	42	16	ø22	ø22 30		M14 x	1.5	12
Y-G05	63	56	20	ø28 40		0	M18 x	1.5	16
Part no.	Applicable size	U1	ND <sub>H1</sub>	10 <b>I</b>	٧X	NZ	L	Appl pin p	icable art no.
Y-G02	16	11.5	8 +0.0	58	B +0.4 +0.2	16	21	IY-	G02
Y-G04	25, 32, 40	14	10 +0.0	58 1	B +0.5 +0.3	36	41.6	IY-	G04
Y-G05	63	20	14 <sup>+0.0</sup>	70 2	2 +0.5	44	50.6	IY-	G05

#### **Rod End Nut**



Material: Carbon steel [mm]

				[IIIII]
Applicable size	d	н	В	С
16	M8 x 1.25	5	13	15.0
25, 32, 40	M14 x 1.5	8	22	25.4
63	M18 x 1.5	11	27	31.2
100	M20 x 1.5	12	30	34.6
	Applicable size 16 25, 32, 40 63 100	Applicable size         d           16         M8 x 1.25           25, 32, 40         M14 x 1.5           63         M18 x 1.5           100         M20 x 1.5	Applicable size         d         H           16         M8 x 1.25         5           25, 32, 40         M14 x 1.5         8           63         M18 x 1.5         11           100         M20 x 1.5         12	Applicable size         d         H         B           16         M8 x 1.25         5         13           25, 32, 40         M14 x 1.5         8         22           63         M18 x 1.5         11         27           100         M20 x 1.5         12         30

# Accessory Mounting Brackets LEY Series

The joint is not included for type A and type B mounting brackets. Therefore, it must be ordered separately. Simple Joint Brackets \* Use with a force of 7800 N or less.



Allowable Eccentricity [mm]							
Applicable size	25	32	40				
Eccentricity tolerance		±1					
Backlash		0.5					

<how order="" to=""></how>
. The joint is not included for type A and
type B mounting brackets. Therefore, it
must be ordered separately.
Example) Order no.

Dint.....LEY-U025

Type A mounting bracket ...... YA-03

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

Applicable	ize	Joint		A	pplic	able mounti	ng b	rack	et pa	rt no.			
Applicable s	Ty	Type A mounting bracket Type B mou					bracket						
25, 32, 4	YA-03		Y	B-03									
Joint													
(O)	Н												
With locking adhesive													
UA C Material: Stainless steel [mm]													
Part no.	Applicable size	UA	с	<b>d</b> 1	d2	н	к	L	UT	Weight [g]			
LEY-U025	25 32 40	17	11	16	8	M8 x 1.25	14	7	6	22			

Floating Joints (Refer to the Web Catalog for details.)

# ●For Male Thread/JC

- (Light weight type)
- With an aluminum case



# •For Male Thread/JS (Stainless steel)

- Stainless steel 304 (Exterior)
- Dust cover Fluororubber/Silicone rubber

	_	
2	Applicable size	Thread size
	16	M8 x 1.25
	25, 32, 40	M14 x 1.5
	63	M18 x 1.5
		<b>SMC</b>



Part no.	Applicable size	v	w	Weight [g]	
YA-03	25, 32, 40	18	56	55	

в

YB-03

# Type B Mounting Bracket RS ≥|≥



Material: Stainless steel

80

[mm]

Part no.	Applicable size	в	D	Е	J	М	øO	
YB-03	25, 32, 40	12	7	25	9	34	11.5 depth 7.5	
Part no.	Applicable size	<b>T</b> 1	T <sub>2</sub>	v	w	RS	Weight [g]	

10 18 50 9



# For Female Thread/JB

**25, 32, 40** 6.5



Applicable size	Thread size
16	M5 x 0.8
25, 32, 40	M8 x 1.25
63	M16 x 2
100	M20 x 1.5

# LEY Series Accessory Mounting Brackets 2

## **Dimensions: Piston Rod Accessories**





Rod clevis: GKM (ISO 8140)



									լՠՠյ
Size	Part no.	е	b	d	ø <b>f</b> h11 (Shaft)	ø <b>f</b> нэ (Hole)	l1	<b>c</b> (Min.)	<b>a</b> (Max.)
100	GKM20-40	M20 x 1.5	20 <sup>+0.5</sup> +0.15	80	20	20	105	40	40

\* Supplied with clevis pin and clevis pin bracket

#### Rod end: KJ (ISO 8139)



[mm]

# LEY Series Auto Switch Mounting

# Auto Switch Proper Mounting Position

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



							[]
			Auto swite	ch position		Return to	Operating
Size	Stroke range	Leftward	mounting	Rightward	l mounting	origin distance	range
		Α	B C		D	E	_
16	10 to 100	21.5	16 F	33.5	04 F	(0)	2.0
10	105 to 300	41.5	40.5	53.5	34.5	(2)	2.9
25	15 to 100	27	60 F	39	50 F	(0)	4.0
25	105 to 400	52	02.5	64	50.5	(2)	4.2
20/40	20 to 100	30.5	CE E	42.5	E0 E	(0)	4.0
32/40	105 to 500	60.5	05.5	72.5	55.5	(2)	4.9
	50 to 200	37		49			
63	205 to 500	72	86	84	74	(4)	9.8
	505 to 800	107		119			

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

# Auto Switch Mounting



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

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

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

#### Size: 100

A switch spacer is required in order to mount an auto switch. When mounting an auto switch, first, hold a switch spacer between your fingers and press it into the slot. When doing this, confirm that it is set in the correct mounting orientation, or reinsert it if necessary. Next, insert the auto switch into the slot and slide it until it is positioned under the switch spacer. After confirming the mounting position, use a flat head watchmaker's



BMY3-016

### Switch Spacer Part No.

Switch spacer

Tablening Torgers for Auto Curitab Mounting Core							
Inditioning Torallo for Allin Switch Mounting Sero	a Scrov	Mountin	Switch	Auto	raus for	Tiahtonina To	Tic

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

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



[g]

[mm]

#### Grommet

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



# 

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**

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

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-v	/ire		2-v	vire	
Output type	N	NPN PNP —				_	
Applicable load		IC circuit, Relay, PLC				24 VDC relay, PLC	
Power supply voltage	Ę	5, 12, 24 VDC (4.5 to 28 V)			—		
Current consumption		10 mA or less			—		
Load voltage	28 VDC	cor 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 l	0.8 V or less at 10 mA (2 V or less at 40 mA)				r less	
Leakage current	100 μA or less at 24 VDC 0.8 mA or less				or less		
Indicator light	Red LED illuminates when turned ON.						
Standard			CE/UKC/	A marking			

#### **Oilproof Flexible Heavy-duty Lead Wire Specifications**

Auto swi	tch model	D-M9N(V) D-M9P(V) D-M9B(V)			
Sheath	Outside diameter [mm]	ø2.6			
Insulator Outsid	Number of cores	3 cores (Brow	2 cores (Brown/Blue)		
	Outside diameter [mm]	ø0.88			
Conductor	Effective area [mm <sup>2</sup> ]	0.15			
Conductor	Strand diameter [mm]				
Min. bending radius [n	nm] (Reference values)	) 17			

Refer to page 1363 for solid state auto switch common specifications.

Refer to page 1363 for lead wire lengths.

# Weight

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

#### Dimensions



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



#### Grommet

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





# 

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**

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

PLC: Programmable Logic Controller

D-M9 E, D-M9 EV (With indicator light)							
Auto switch model	D-M9NE	D-M9NEV	D-M9PE	D-M9PEV	D-M9BE	D-M9BEV	
Electrical entry direction	In-line	Perpendicular	In-line	Perpendicular	In-line	Perpendicular	
Wiring type		3-v	vire		2-v	vire	
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	cor 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 l	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/UKC/	A marking			

#### **Oilproof Flexible Heavy-duty Lead Wire Specifications**

Auto swi	tch model	D-M9NE(V)	D-M9BE(V)		
Sheath	Outside diameter [mm]	ø2.6			
Inculator	Number of cores	3 cores (Brow	2 cores (Brown/Blue)		
Insulator	Outside diameter [mm]	ø0.88			
Conductor	Effective area [mm <sup>2</sup> ]		0.15		
Conductor	Strand diameter [mm]	ø0.05			
Min. bending radius [n	nm] (Reference values)	i) 17			

Refer to page 1363 for solid state auto switch common specifications.

Refer to page 1363 for lead wire lengths.

# Weight

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

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

# Dimensions





**SMC** 

[g]

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

CEUK RoHS

#### 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)



# **A**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**

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

Ы

C.	Programmable		Controller
с.	riogrammabic	Logio	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-w	/ire		2-v	vire	
Output type	N	NPN PNP					
Applicable load		IC circuit, Relay, PLC				elay, PLC	
Power supply voltage	Ę	5, 12, 24 VDC (4.5 to 28 V)				_	
Current consumption		10 mA	or less		—		
Load voltage	28 VDC	c 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 l	ess at 10 mA	(2 V or less	at 40 mA)	4 V c	r less	
Leakage current		100 μA or less at 24 VDC			0.8 mA	or less	
Indicator light	Operating range Red LED illuminates.						
indicator light	Proper operating range Green LED illuminates.					s.	
Standard			CE/UKC/	A marking			

#### **Oilproof Flexible Heavy-duty Lead Wire Specifications**

Auto swi	tch model	D-M9NW(V)	D-M9PW(V)	D-M9BW(V)	
Sheath	Outside diameter [mm]	ø2.6			
Inculator	Number of cores	3 cores (Brow	n/Blue/Black)	2 cores (Brown/Blue)	
Insulator	Outside diameter [mm]				
Canduatan	Effective area [mm <sup>2</sup> ]	0.15			
Conductor	Strand diameter [mm]				
Min. bending radius [n	nm] (Reference values)		17		

Refer to page 1363 for solid state auto switch common specifications.

\* Refer to page 1363 for lead wire lengths.

# Weight

[g]

[mm]

Auto switch model		D-M9NW(V)	D-M9PW(V)	D-M9BW(V)
	0.5 m ( <b>Nil</b> )		7	
Lead wire length	1 m ( <b>M</b> )	1	13	
	3 m ( <b>L</b> )	4	41 38	
	5 m ( <b>Z</b> )	6	63	

#### Dimensions



# **Guide Rod Type**

# LEYG Series



# Controllers/Drivers p. 994

# AC Servo Motor Drivers p. 1100





#### **Moment Load Graph**



#### Selection conditions



\*1 For the sliding bearing type, the speed is restricted with a horizontal/moment load.

#### Vertical Mounting, Sliding Bearing





The limit of vertical load mass varies depending on "lead" and "speed." Check the "Speed–Work Load Graph" on page 509.





 The limit of vertical load mass varies depending on "lead" and "speed." Check the "Speed–Work Load Graph" on page 509.





### Moment Load Graph





#### Horizontal Mounting, Ball Bushing Bearing



# Operating Range when Used as a Stopper

### LEYG M (Sliding bearing)

50 mm

#### Caution



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

Fig. a

Fig. b

SMC



10

5 4 3

2

1 5



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





20

Transfer speed υ [m/min]

30 40 50

# LEYG Series Battery-less Absolute (Step Motor 24 VDC)

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



**SMC** 

# Force Conversion Graph (Guide)

#### Battery-less Absolute (Step Motor 24 VDC)



# LEYG25<sup>M</sup>□E



#### LEYG32<sup>M</sup>



#### LEYG40<sup>M</sup>□E



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

			• •
Model	Lead	Pushing speed [mm/s]	Pushing force (Setting input value)
LEYG16 <sup>M</sup> □E	A/B/C	21 to 50	45 to 65%
LEYG25 <sup>M</sup> □E	A/B/C	21 to 35	40 to 50%
LEYG32 <sup>™</sup> ⊟E	А	24 to 30	E0 to 70%
	B/C	21 to 30	50 10 70%
LEYG40 <sup>M</sup> □E	А	24 to 30	EQ to GE%
	B/C	21 to 30	50 10 65%

#### <Set Values for Vertical Upward Transfer Pushing Operations>

Model	LEYG16 <sup>M</sup> □E			LEYG25 <sup>M</sup> □E		LEYG32 <sup>M</sup> □E			LEYG40 <sup>M</sup> □E			
Lead	Α	В	С	Α	В	С	Α	В	С	Α	В	С
Work load [kg]	0.5	1	2.5	1.5	4	9	2.5	7	16	5	12	26
Pushing force	65%		50%		70%		65%					



LEYG Series Battery-less Absolute (Step Motor 24 VDC)

# Allowable Rotational Torque of Plate: T



					<b>T</b> [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: $\boldsymbol{\theta}$



Size	Non-rotating accuracy $\theta$					
	LEYG□M□E	LEYG□L□E				
16	0.06%	0.05°				
25	0.00					
32	0.05%	0.04°				
40	0.05					

# Plate Displacement: $\delta$



					[mm]			
Madal	Stroke [mm]							
Model	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			
LEYG40M	±0.23	±0.29	±0.23	±0.36	±0.34			
LEYG40L	±0.11	±0.11	±0.15	±0.19	±0.22			

\* The values without a load are shown.





# Moment Load Graph

#### Selection conditions



\*1 For the sliding bearing type, the speed is restricted with a horizontal/moment load.

#### Vertical Mounting, Sliding Bearing





The limit of vertical load mass varies depending on "lead" and "speed." Check the "Speed–Work Load Graph" on pages 515 to 517.





 The limit of vertical load mass varies depending on "lead" and "speed." Check the "Speed–Work Load Graph" on pages 515 to 517.





#### Moment Load Graph

#### Horizontal Mounting, Sliding Bearing



1000

Fig. a

Fig. I

SMC

#### Horizontal Mounting, Ball Bushing Bearing



#### 10 EYG321 🗍/40 LEYG32L /40L Load mass **m** [kg] LEYG25L 1 LEYG25L LEYG16L LEYG16L 125 120 0.1 L 10 T 35 40 100 1000 Stroke [mm] 10 L = 100 mm Max. speed = Over 200 mm/s 10 LEYG32L /40L LEYG32L□/40L LEYG25L LEYG25L 1



#### Operating Range when Used as a Stopper

100

Stroke [mm]

### LEYG M (Sliding bearing)

50 mm

35 40

#### Caution



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



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



# LEYG Series

Incremental (Step Motor 24 VDC) Incremental (Servo Motor 24 VDC)

\* These graphs show the work load when the external guide is used together. When using the LEYG alone, refer to pages 513 and 514. Refer to page 516 for the LECPA,  $JXC\square_3^2$  and page 517 for the LECA6.

#### Speed–Work Load Graph (Guide) guide is used togethe to pages 513 and 514 For Step Motor (Servo/24 VDC) JXC□1, LECP1





mm/s<sup>2</sup> for acceleration/deceleration: 2000 mm/s<sup>2</sup>





million for acceleration/deceleration: 2000 mm/s<sup>2</sup>



# LEYG40<sup>M</sup>□

for acceleration/deceleration: 2000 mm/s<sup>2</sup>





# LEYG25<sup>M</sup>□



# LEYG32<sup>M</sup>□





**SMC** 



# Model Selection LEYG Series

\* These graphs show the work load when the external guide is used together. When using the LEYG alone, refer to pages 513 and 514.

Refer to page 515 for the JXC $\Box$ 1, LECP1 and page 517 for the LECA6.

#### Speed–Work Load Graph (Guide) guide is used together refer to pages 513 and For Step Motor (Servo/24 VDC) LECPA, JXC





C for acceleration/deceleration: 2000 mm/s<sup>2</sup>





million for acceleration/deceleration: 2000 mm/s<sup>2</sup>









#### LEYG25<sup>M</sup>□



#### LEYG32<sup>™</sup>□





**SMC** 



Incremental (Step Motor 24 VDC) Incremental (Servo Motor 24 VDC)

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

Horizontal



## LEYG25<sup>M</sup>□A



Refer to page 515 for the JXC $\Box$ 1, LECP1 and page 516 for the LECPA, JXC $\Box$ <sup>3</sup>.

#### Vertical LEYG16<sup>M</sup>□A 10 9 Lead 2.5: LEYG16<sup>M</sup>AC Vertical work load [kg] 7.5 6 Lead 5: LEYG16<sup>M</sup>AB 3.5 3 Lead 10: LEYG16LAA 1.5 0 ٥ 100 200 300 400 500 600 Speed [mm/s]

### LEYG25<sup>M</sup>□A


### Force Conversion Graph (Guide)

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







#### <Limit Values for Pushing Force and Trigger Level in **Relation to Pushing Speed>** Without Load

Model	Lead	Pushing speed [mm/s]	Pushing force (Setting input value)	Model	Lead	Pushing speed [mm/s]	Pushing force (Setting input value)
LEYG16 <sup>™</sup>	A/B/C	21 to 50	60 to 85%	LEYG16 <sup>M</sup> □A	A/B/C	21 to 50	80 to 95%
LEYG25 <sup>™</sup>	A/B/C	21 to 35	50 to 65%	LEYG25 <sup>M</sup> □A	A/B/C	21 to 35	80 to 95%
	A	24 to 30	60 to 95%				
LEYG32	B/C	21 to 30	60 10 85%				
	Α	24 to 30	50 to 65%				
	B/C	21 to 30	50 10 05 %				

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

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

# <Set Values for Vertical Upward Transfer Pushing Operations>

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

Model	LEYG16 <sup>M</sup>				LEYG32 <sup>M</sup> □		LEYG40 <sup>M</sup>		LEYG16 <sup>M</sup>		LEY	G25	<sup>I</sup> □A					
Lead	Α	В	С	Α	В	С	Α	В	С	Α	В	С	Α	В	С	Α	В	С
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	1	85%	þ	(	65%	5	1	85%	,	(	65%	, ,		95%	5	9	95%	,

LEYG Series

Incremental (Step Motor 24 VDC) Incremental (Servo Motor 24 VDC)

## Allowable Rotational Torque of Plate



					T [N·m				
Madal		Stroke [mm]							
woder	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 $\theta$					
Size	LEYG□M	LEYG□L				
16	0.06°	0.05°				
25	0.06					
32	0.05%	0.04°				
40	0.05*					

### Plate Displacement: $\delta$



					[mm]				
Madal		Stroke [mm]							
Model	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				
LEYG40M	±0.23	±0.29	±0.23	±0.36	±0.34				
LEYG40L	±0.11	±0.11	±0.15	±0.19	±0.22				

\* The values without a load are shown.







### Moment Load Graph

#### Selection conditions



\*1 For the sliding bearing type, the speed is restricted with a horizontal/moment load.

### Vertical Mounting, Sliding Bearing



The limit of vertical load mass varies depending on "lead" and "speed." Check the "Speed–Vertical Work Load Graph" on page 523.

### Vertical Mounting, Ball Bushing Bearing



\* The limit of vertical load mass varies depending on "lead" and "speed." Check the "Speed–Vertical Work Load Graph" on page 523.







### **Moment Load Graph**



Fig. a

Fig.

SMC

### LEYG M (Sliding bearing)

50 mm

#### Caution Handling Precautions



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



522

# **LEYG** Series C. Servo Motor

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

These graphs show the work load when the external guide is used together. When using the LEYG alone, refer to pages 521 and 522.

### LEYG25 S2/T6 (Motor mounting position: Parallel/In-line)



#### LEYG32S3/T7 (Motor mounting position: Parallel)



#### Required conditions for the regeneration option

\* The regeneration option is required when using the product above the regeneration line in the graph. (It must be ordered separately.)

#### **Regeneration Option Models**

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

#### LEYG32DS3/T7 (Motor mounting position: In-line)



# LEYG25 S2/T6 (Motor mounting position: Parallel/In-line)



### LEYG32S3/T7 (Motor mounting position: Parallel)



#### Required conditions for the regeneration option

\* The regeneration option is required when using the product above the regeneration line in the graph. (It must be ordered separately.)

#### **Regeneration Option Models**

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

#### LEYG32DS3/T7 (Motor mounting position: In-line)







### Force Conversion Graph: LECSA

### LEYG25 S2 (Motor mounting position: Parallel/In-line)



#### LEYG32S3 (Motor mounting position: Parallel)



### Force Conversion Graph: LECSS-T



LEYG25 T6 (Motor mounting position: Parallel/In-line)

### LEYG32T7 (Motor mounting position: Parallel)







### LEYG32DT7 (Motor mounting position: In-line)





### **Allowable Rotational Torque of Plate**



					T [N⋅m]				
Model		Stroke [mm]							
	30	50	100	200	300				
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				

# Non-rotating Accuracy of Plate



Sizo	Non-rotating accuracy $\theta$				
5120	LEYG□M	LEYG□L			
25	0.06°	0.04%			
32	0.05°	0.04			

## Plate Displacement: $\boldsymbol{\delta}$



					[mm]				
Model		Stroke [mm]							
	30	50	100	200	300				
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				

\* The values without a load are shown.







### Moment Load Graph

#### Selection conditions



\*1 For the sliding bearing type, the speed is restricted with a horizontal/moment load.

### Vertical Mounting, Sliding Bearing



The limit of vertical load mass varies depending on "lead" and "speed." Check the "Speed–Work Load Graph" on page 529.

### Vertical Mounting, Ball Bushing Bearing



\* The limit of vertical load mass varies depending on "lead" and "speed." Check the "Speed–Work Load Graph" on page 529.







### Moment Load Graph



Fig. a

Fig.

SMC

### LEYG M (Sliding bearing)

50 mm

### 



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



# **LEYG** Series C Servo Motor

### Speed–Work Load Graph/Required Conditions for the Regenerative Resistor (Guide)

\* These graphs show the work load when the external guide is used together. When using the LEYG alone, refer to pages 527 and 528.

### LEYG25 V6 (Motor mounting position: Parallel/In-line)



### LEYG32V7 (Motor mounting position: Parallel)



### LEYG32DV7 (Motor mounting position: In-line)









#### **Regenerative resistor area**

- \* When using the actuator in the regenerative resistor area, download the "AC servo drive capacity selection program/SigmaJunmaSize+" from the SMC website. Then, calculate the necessary regenerative resistor capacity to prepare an appropriate external regenerative resistor.
- \* The regenerative resistor should be provided by the customer.

### Applicable Motors/Drivers

Madal	Applicable model					
Model	Motor	Servopack (SMC driver)				
LEYG25	SGMJV-01A3A	SGDV-R90A11□ (LECYM2-V5) SGDV-R90A21□ (LECYU2-V5)				
LEYG32	SGMJV-02A3A	SGDV-1R6A11 (LECYM2-V7) SGDV-1R6A21 (LECYU2-V7)				





### **Force Conversion Graph**

### LEYG25 V6 (Motor mounting position: Parallel/In-line)



LEYG32 V7 (Motor mounting position: Parallel)









### Allowable Rotational Torque of Plate: T



					T [N⋅m]				
Model		Stroke [mm]							
	30	50	100	200	300				
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				

# Non-rotating Accuracy of Plate: $\boldsymbol{\theta}$



Size	Non-rotating accuracy $\theta$								
3120	LEYG□M	LEYG□L							
25	0.06°	0.040							
32	0.05°	0.04*							

# Plate Displacement: $\delta$



					[mm]
Madal			Stroke [mm]		
Model	30	50	100	200	300
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

\* The values without a load are shown.



Battery-less Absolute (Step Motor 24 VDC)

# **Guide Rod Type** LEYG 16, 25, 32, 40 ( € CA RoHS \* For details, refer to page

1343 and onward.

How to Order

LEYG 25 M E B R1 CD1 50 C 00 6

D For details on controllers, refer to the next page.



### Bearing type<sup>\*1</sup>

М Sliding bearing Ball bushing bearing н

S Motor mounting position/Motor cover direction
---

Symbol	Motor mounting position	Motor cover direction
Nil	Top side parallel	—
D		<u></u> *2
D1		Left*3
D2	In-line	Right* <sup>3</sup>
D3		Top*3
D4		Bottom*3

### 4 Motor type

Е

9

Battery-less absolute (Step motor 24 VDC)

5 Lead [mm]											
Symbol	LEYG16	LEYG25	LEYG32/40								
Α	10	12	16								
В	5	6	8								
С	2.5	3	4								

### 6 Stroke<sup>\*4 \*5</sup> [mm]

-						
Stroko		Note				
Stroke	Size	Applicable stroke				
30 to 200	16	30, 50, 100, 150, 200				
30 to 300	25/32/40	30, 50, 100, 150, 200, 250, 300				

### Motor option\*6

С With motor cover w With lock/motor cover

#### 8 Guide option\*7

Nil	Without option
F	With grease retaining function

#### **9** Actuator cable type/length

Robotic cable										
Nil	None	R8	8* <sup>8</sup>							
R1	1.5	RA	10* <sup>8</sup>							
R3	3	RB	15* <sup>8</sup>							
R5	5	RC	20* <sup>8</sup>							

For details on auto switches, refer to pages 503 to 505.

Use of auto switches for the guide rod type LEYG series

• Auto switches must be inserted from the front side with the rod (plate) sticking out.

• Auto switches cannot be fixed with the parts hidden behind the guide attachment (the side of the rod that sticks out). • Please consult with SMC when using auto switches on the side of the rod that sticks out, as it is produced as a special order.

**SMC** 

#### Controller



- \*1 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 the "Model Selection" on page 507
- \*2 Sizes 25, 32, and 40 only
- \*3 Size 16 only
- Please contact SMC for non-standard strokes as they are produced as \*4 special orders.
- \*5 There is a limit for mounting size 16/32/40 top side parallel motor types and strokes of 50 mm or less. Refer to the dimensions. \*6 When "With lock/motor cover" is selected for the top side parallel motor

### ▲Caution

#### [CE/UKCA-compliant products]

EMC compliance was tested by combining the electric actuator LEY series and the controller JXC series.

The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, compliance with the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify compliance with the EMC directive for the machinery and equipment as a whole.

#### [Precautions relating to differences in controller versions]

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

#### [UL certification]

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

Communication plug connector, I/O cable<sup>\*10</sup>

Symbol	Туре	Applicable interface			
Nil	Without accessory	—			
S	Straight type communication plug connector	DeviceNet <sup>®</sup>			
Т	T-branch type communication plug connector	CC-Link Ver. 1.10			
1	I/O cable (1.5 m)	Parallal input (NIPN)			
3	I/O cable (3 m)	Parallel input (NPN)			
5	I/O cable (5 m)	Faraller Input (FINF)			

type, the motor body will stick out from the end of the body for size 16 with strokes of 50 mm or less and size 40 with strokes of 30 mm or less. Check for interference with workpieces before selecting a model.

- \*7 Only available for size 25, 32, and 40 sliding bearings (Refer to the "Construction" on page 538.)
- \*8
- Produced upon receipt of order The DIN rail is not included. It must be ordered separately \*9
- Select "Nil" for anything other than DeviceNet®, CC-Link, or parallel \*10 input.

Select "Nil," "S," or "T" for DeviceNet<sup>®</sup> or CC-Link. Select "Nil," "1," "3," or "5" for parallel input.

#### The actuator and controller are sold as a package. Confirm that the combination of the controller and actuator is correct.

NPN

0

#### <Check the following before use.>

- Check the actuator label for the model number. 1 This number should match that of the controller.
  - Check that the Parallel I/O configuration matches (NPN or PNP). LEYG25MEB-100

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

	Step data input type	EtherCAT direct input type	EtherCAT direct input type with STO sub-function	EtherNet/IP™ direct input type	EtherNet/IP™ direct input type with STO sub-function	PROFINET direct input type	PROFINET direct input type with STO sub-function	DeviceNet <sup>®</sup> direct input type	IO-Link direct input type	IO-Link direct input type with STO sub-function	CC-Link direct input type
Туре											Ċ'n -
Series	JXC51 JXC61	JXCE1	JXCEF	JXC91	JXC9F	JXCP1	JXCPF	JXCD1	JXCL1	JXCLF	JXCM1
Features	Parallel I/O	EtherCAT direct input	EtherCAT direct input with STO sub-function	EtherNet/IP™ direct input	EtherNet/IP™ direct input with STO sub-function	PROFINET direct input	PROFINET direct input with STO sub-function	DeviceNet <sup>®</sup> direct input	IO-Link direct input	IO-Link direct input with STO sub-function	CC-Link direct input
Compatible motor				Bat	tery-less ab	solute (Step	motor 24 VI	DC)			
Max. number of						C.4 mainte					
step data						64 points					
Power supply voltage						24 VDC					
Reference page	1017					10	63				

# LEYG Series Battery-less Absolute (Step Motor 24 VDC)

### Specifications

### Battery-less Absolute (Step Motor 24 VDC)

		Mod	el	LE	YG16 <sup>™</sup>	<u>,</u> ∃E	LE	YG25 <sup>M</sup> □	E	LE	YG32 <sup>™</sup>	E	LEYG40 <sup>M</sup> □E		
		Havinantal	Acceleration/Deceleration at 3000 [mm/s <sup>2</sup> ]	6	17	30	20	40	60	30	45	60	50	60	80
	Work load [ka]*1	norizontai	Acceleration/Deceleration at 2000 [mm/s <sup>2</sup> ]	10	23	35	30	55	70	40	60	80	60	70	90
s	[	Vertical	Acceleration/Deceleration at 3000 [mm/s <sup>2</sup> ]	1.5	3.5	7.5	7	15	29	9	20	41	11	25	51
ion	Pushing	force [N]	*2 *3 *4	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
cat	Speed [n	n <b>m/s]</b> *4		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 300	6 to 150
cifi	Max. acceleration/deceleration [mm/s <sup>2</sup> ]								30	00					
be	Pushing	speed [	<b>mm/s]</b> *5		50 or less			35 or less	5	:	30 or less	6	30 or less		
or S	Positioning repeatability [mm]				±0.02										
lato					0.1 or less										
\ctr	Screw le	ad [mm]		10	5	2.5	12	6	3	16	8	4	16	8	4
4	Impact/V	ibration	resistance [m/s <sup>2</sup> ]*7	50/20											
	Actuatio	n type		Ball screw + Belt (LEYG□□), Ball screw (LEYG□□D)											
	Guide ty	ре		Sliding bearing (LEYG M), Ball bushing bearing (LEYG L)											
	Operatir	ng temp.	range [°C]	5 to 40											
	Operatir	ng humio	lity range [%RH]	90 or less (No condensation)											
	Enclosu	re					r		IP	40		-			
s	Motor si	ze			□28			□42			□56.4			□56.4	
ric atior	Motor ty	ре		Battery-less absolute (Step motor 24 VDC)											
ifica	Encoder							E	lattery-les	s absolut	е				
Bec	Power s	upply vo	ltage [V]						24 VDC	C±10%					
	Power [	<b>V]</b> *8 *10		Ma	ax. power	43	Ma	ax. power	48	Ma	k. power	104	Ma	x. power	106
it ons	Type*9					[		N	on-magn	etizing loc	k				
k un cati	Holding	force [N	]	20	39	78	78	157	294	108	216	421	127	265	519
Locl	Power [\	<b>8]</b> * <sup>10</sup>			2.9			5			5			5	
_ g	Rated vo	oltage [V	1	24 VDC ±10%											

\*1 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 the "Model Selection" on pages 507 to 509. Vertical: Speed changes according to the work load. Check the "Model Selection" on pages 507 to 509. Set the acceleration/deceleration values to be 3000 [mm/s<sup>2</sup>] or less.

\*2 Pushing force accuracy is  $\pm 20\%$  (F.S.).

\*3 The pushing force values for LEYG16 E are 20% to 65%, for LEYG25 E are 30% to 50%, for LEYG32 E are 30% to 70%, and for LEYG40 E are 35% to 65%.

The pushing force values change according to the duty ratio and pushing speed. Check the "Model Selection" on page 510.

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

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. For details, refer to the "Model Selection" on page 508.

\*5 The allowable speed for the pushing operation

\*6 A reference value for correcting errors in reciprocal operation

\*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. (The test was performed with the actuator in the initial state.) Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a

perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

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

\*9 With lock only

\*10 For an actuator with lock, add the power for the lock.

# Weight

### Weight: Top Side Parallel Motor Type

Series		LE	YG16M	E		LEYG25M□E							LEYG32M□E							
Stroke [mm]	30	50	100	150	200	30	50	100	150	200	250	300	30	50	100	150	200	250	300	
Product weight [kg]	1	1.14	1.37	1.66	1.83	1.7	1.89	2.21	2.63	2.97	3.31	3.57	2.95	3.21	3.76	4.32	4.99	5.48	5.92	
Series	eries LEYG16L E								I EYG25I □E					LEYG32L E						
Stroke [mm]	30	50	100	150	200	30	50	100	150	200	250	300	30	50	100	150	200	250	300	
Product weight [kg]	1.01	1.14	1.31	1.6	1.75	1.71	1.92	2.16	2.59	2.85	3.17	3.41	2.95	3.22	3.61	4.16	4.7	5.21	5.6	
															-					
Series			LE	/G40M	E					LE	YG40L	□E								
Stroke [mm]	30	50	100	150	200	250	300	30	50	100	150	200	250	300	]					
Product weight [kg]	3.26	3.52	4.07	4.63	5.3	5.79	6.23	3.26	3.53	3.92	4.47	5.01	5.52	5.91	1					

### Weight: In-line Motor Type

Series	es LEYG16M E				LEYG25M□E			LEYG32M□E											
Stroke [mm]	30	50	100	150	200	30	50	100	150	200	250	300	30	50	100	150	200	250	300
Product weight [kg]	0.97	1.11	1.34	1.68	1.8	1.09	1.88	2.20	2.62	2.96	3.30	3.56	2.96	3.20	3.75	4.81	4.98	5.47	5.91
Series LEYG16L□E						LE	YG25L	□E					LE	YG32L	E				
Stroke [mm]	30	50	100	150	200	30	50	100	150	200	250	300	30	50	100	150	200	250	300
				4	4 =0	4 70	1.01	0.15	0.50	0.04	0.10	0.40	0.54	0.01	0.00	4.45	4.00	F 00	E E0

Series	Series LEYG40M_E LEYG40L_E					LEYG40M□E								
Stroke [mm]	30	50	100	150	200	250	300	30	50	100	150	200	250	300
Product weight [kg]	3.25	3.51	4.06	4.62	5.25	5.78	6.22	3.25	3.52	3.91	4.46	5.00	5.51	5.90

#### Additional Weight

Additional Weig	Additional Weight (kg)								
Size	16	25	32	40					
Lock/Motor cover	0.16	0.29	0.57	0.57					

# **LEYG** Series

Battery-less Absolute (Step Motor 24 VDC)

### Construction



### In-line motor type





In-line motor type: LEYG16E



### Construction



LEYG<sup>16</sup> 32 40 40 50st or less





LEYG<sup>25</sup><sub>40</sub>MODE -OF: Over 50st

<b>īī</b> ₽		
$\oplus$	 $\oplus$	

\* 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.



LEYG16L: 30st or less LEYG<sup>25</sup><sub>22</sub>L: 100st or less

### 



(36)

#### **Component Parts**

No.	Description	Material	Note
1	Body	Aluminum alloy	Anodized
2	Ball screw shaft	Alloy steel	
3	Ball screw nut	Synthetic 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	Synthetic resin	
9	Socket	Free cutting carbon steel	Nickel plating
10	Connected shaft	Free cutting carbon steel	Nickel plating
11	Bushing	Bearing alloy	
12	Bearing	—	
13	Return box	Aluminum die-cast	Coating
14	Return plate	Aluminum die-cast	Coating
15	Magnet	—	
16	Wear ring holder	Stainless steel	Stroke 101 mm or more
17	Wear ring	Synthetic resin	Stroke 101 mm or more
18	Screw shaft pulley	Aluminum alloy	
19	Motor pulley	Aluminum alloy	
20	Belt		
21	Seal	NBR	
22	Retaining ring	Steel for spring	Phosphate coating
23	Motor	—	
24	Motor cover	Aluminum alloy	Anodized/LEY16 only
		Synthetic resin	
25	Grommet	Synthetic resin	Only "With motor cover"
26	Guide attachment	Aluminum alloy	Anodized
27	Guide rod	Carbon steel	

No.	Description	Material	Note
28	Plate	Aluminum alloy	Anodized
29	Plate mounting cap screw	Carbon steel	Nickel plating
30	Guide cap screw	Carbon steel	Nickel plating
31	Sliding bearing	Bearing alloy	
32	Lube-retainer	Felt	
33	Holder	Synthetic resin	
34	Retaining ring	Steel for spring	Phosphate coating
35	Ball bushing	—	
36	Spacer	Aluminum alloy	Chromating
37	Motor block	Aluminum alloy	Anodized
38	Motor adapter	Aluminum alloy	Anodized/LEY16, 25 only
39	Hub	Aluminum alloy	
40	Spider	NBR	
41	Motor cover with lock	Aluminum alloy	Only "With lock/motor cover"/LEY25, 32, 40
42	Cover support	Aluminum alloy	Only "With lock/motor cover"/LEY25, 32, 40
43	End cover	Aluminum alloy	Anodized/LEY16 only
44	Rubber bushing	NBR	LEY16 only

#### Replacement Parts/Belt

No.	Size	Order no.
	16	LE-D-2-7
20	25	LE-D-2-2
	32, 40	LE-D-2-3

 Applied portion
 Order no.

 Piston rod
 GR-S-010 (10 g)

 Guide rod
 GR-S-020 (20 g)



Battery-less Absolute (Step Motor 24 VDC)

LEYG Series

### **Dimensions: Top Side Parallel Motor**



**SMC** 



20

24

### **Dimensions: Top Side Parallel Motor**



Battery-less Absolute (Step Motor 24 VDC)

LEYG Series

### Dimensions: In-line Motor



541



### **Dimensions: In-line Motor**



	- 1
<del>■ 15</del>	
Lock cable	
Motor cable	

						[mm]	
Size	Stroke range	T2	<b>X</b> 2	L	Н	CV	
16	Up to 100	7 5	100	25	*1	_	
10	105 to 200	7.5	100	35	42.3		
25	Up to 100	7.5	100	46	61 3	54.4	
	105 to 300	7.5	109	40	01.5		
22	Up to 100	7.5	116 5	60	75.0	C0 F	
32	105 to 300	7.5	110.5	00	75.6	00.5	
40	Up to 100	7.5	120 5	60	75.0	68.5	
	105 to 300	7.5	130.5	00	75.6		

\*1 Refer to the table below.





### H Dimensions (Size 16)

Motor cover direction	н
<b>D</b> 1	42.3
<b>D</b> 2	42.3
D3	55.1
<b>D</b> 4	47





#### **Motor Cover Direction**



LEYG Series Battery-less Absolute (Step Motor 24 VDC)

## 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**









### **≜**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	ОВ	ST	wc	Х
16 LEY	LEVC SO16	Up to 100	60	4.3	31.8	MEXOR	10	16	55	44
	LE1G-3010	105 to 200	09			W5 X 0.0			75	
25	LEYG-S025	Up to 100	05	5.4	40.3	MC v 1 0	12	20	70	54
25		105 to 300	65						95	
32	LEYG-S032	Up to 100	101	(5.4)	(50.0)	M6 v 1 0	10	22	75	64
40		105 to 300	101	(5.4)	(50.5)		12		105	

\* Two body mounting screws are included with the support block.

\* The through holes of the LEYG-S032 cannot be used for the top side parallel motor type. Use taps on the bottom.





### 4 Motor type

		A	Applicable siz	Compatible controllers/			
Symbol	Symbol		LEYG25	LEYG32/40			
Nil	Step motor (Servo/24 VDC)	•	•	•	JXC51 JXC61 JXCE1 JXC91 JXCP1	JXCD1 JXCL1 JXCM1 JXCEF JXC9F	JXCPF JXCLF LECP1 LECPA
Α	Servo motor (24 VDC)	•	•	_		LECA6	

A

<b>5</b> Lea	ad [mm]		
Symbol	LEYG16	LEYG25	LEYG32/40
Α	10	12	16
В	5	6	8
С	2.5	3	4

### 6 Stroke<sup>\*2 \*3</sup> [mm]

<b>•</b> • •	
30	30
to	to
300	300

Nil	Without option										
С	With motor cover										
В	With lock										
W	With lock/motor cover										

#### 8 Guide option\*5

Nil	Without option
F	With grease retaining function

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

### Sectuator cable type/length\*7

Standard	cable [m]	Robotic	Robotic cable							
Nil	None	R1	1.5	RA	10* <sup>6</sup>					
S1	1.5* <sup>9</sup>	R3	3	RB	15* <sup>6</sup>					
<b>S</b> 3	3* <sup>9</sup>	R5	5	RC	20*6					
S5	5 <sup>*9</sup>	<b>R8</b>	8*6							

Applicable St	roke	Tab	<b>e</b> *2					<ul> <li>Standard</li> </ul>
Stroke [mm] Model	30	50	100	150	200	250	300	Manufacturable stroke range [mm]
LEYG16	$\bullet$					—	—	10 to 200
LEYG25								15 to 300
LEYG32/40	$\bullet$							20 to 300

For auto switches, refer to pages 503 to 505.

#### Use of auto switches for the guide rod type LEYG series

- · Auto switches must be inserted from the front side with the rod (plate) sticking out.
- · Auto switches cannot be fixed with the parts hidden behind the guide attachment (the side of the rod that sticks out).
  - · Please contact SMC when using auto switches on the side of the rod that sticks out, as it is produced as a special order.

# Guide Rod Type LEYG Series

Incremental (Step Motor 24 VDC) Incremental (Servo Motor 24 VDC)



- \*6 Produced upon receipt of order (Robotic cable only)
- The standard cable should only be used on fixed parts. For use on moving parts, select the robotic cable.
- Refer to the Web Catalog if only the actuator cable is required. \*8 For details on controllers/drivers and compatible motors, refer to the compatible controllers/drivers on the next page.

# ▲Caution

#### [CE/UKCA-compliant products]

- ① EMC compliance was tested by combining the electric actuator LEY series and the controller LEC/JXC series.
- The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, compliance with the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify compliance with the EMC directive for the machinery and equipment as a whole.
- 2 For the incremental (servo motor 24 VDC) specification, EMC compliance was tested by installing a noise filter set (LEC-NFA). Refer to page 1037 for the noise filter set. Refer to the LECA series Operation Manual for installation. [UL-compliant products (For the LEC series)]

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

The DIN rail is not included. It must be ordered separately. Select "Nil" for anything other than DeviceNet®, CC-Link, or parallel \*14 input.

Select "Nil," "S," or "T" for DeviceNet<sup>®</sup> or CC-Link. Select "Nil," "1," "3," or "5" for parallel input.



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

LEYG Series Incremental (Step Motor 24 VDC) Incremental (Servo Motor 24 VDC)

#### Compatible Controllers/Drivers

	Step data input type	Step data input type	Programless type	Pulse input type
Туре				
Series	JXC51 JXC61	LECA6	LECP1	LECPA
Features	Parallel I/O	Parallel I/O	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 (Servo/2	motor 24 VDC)
Max. number of step data	64 p	oints	14 points	_
Power supply voltage		24 \	/DC	
Reference page	1017	1031	1042	1057

	EtherCAT direct input type	EtherCAT direct input type with STO sub-function	EtherNet/IP™ direct input type	EtherNet/IP™ direct input type with STO sub-function	PROFINET direct input type	PROFINET direct input type with STO sub-function	DeviceNet® direct input type	IO-Link direct input type	IO-Link direct input type with STO sub-function	CC-Link direct input type
Туре										
Series	JXCE1	JXCEF	JXC91	JXC9F	JXCP1	JXCPF	JXCD1	JXCL1	JXCLF	JXCM1
Features	EtherCAT direct input	EtherCAT direct input with STO sub-function	EtherNet/IP™ direct input	EtherNet/IP™ direct input with STO sub-function	PROFINET direct input	PROFINET direct input with STO sub-function	DeviceNet <sup>®</sup> direct input	IO-Link direct input	IO-Link direct input with STO sub-function	CC-Link direct input
Compatible motor					Step (Servo/2	motor 24 VDC)				
Max. number of step data					64 p	oints				
Power supply voltage					24 \	/DC				
Reference page					10	63				



# **LEYG** Series

Incremental (Step Motor 24 VDC) Incremental (Servo Motor 24 VDC)

### Specifications

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

		Mode			LEYG16	M		LEYG25	M		LEYG32	M		LEYG40 <sup>™</sup>		
		Horizontal (JXC⊡1,	Acceleration/Deceleration at 3000 [mm/s <sup>2</sup> ]	6	17	30	20	40	60	30	45	60	50	60	80	
		JXC⊡F, LECP1)	Acceleration/Deceleration at 2000 [mm/s <sup>2</sup> ]	10	23	35	30	55	70	40	60	80	60	70	90	
	Work load [kg ] <sup>*1</sup>	Horizontal	Acceleration/Deceleration at 3000 [mm/s <sup>2</sup> ]	4	11	20	12	30	30	20	40	40	30	60	60	
ions		(LECPA, JXC⊡3)	Acceleration/Deceleration at 2000 [mm/s <sup>2</sup> ]	6	17	30	18	50	50	30	60	60	_	_	_	
cificat		Vertical	Acceleration/Deceleration at 3000 [mm/s <sup>2</sup> ]	1.5	3.5	7.5	7	15	29	9	20	41	11	25	51	
e e	Pushing force [N]*2 *3 *4		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		
ors	Speed JXC□1/LECP1		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		
uat											12 to 250	6 to 125	24 to 300	12 to 150	6 to 75	
Act	Max. accelera	ation/de	celeration [mm/s <sup>2</sup> ]		50			05	30	00	00			00		
ŀ	Pushing speed [mm/s]*5			-	50 or less	;		35 or less	5	00	30 or less	;		30 or less	6	
	Lost moti	g repe	m1*6													
·	Screw lea	d [mr	n]	10	5	25	12	6	3	16	8	4	16	8	4	
	Impact/Vibra	tion re	sistance [m/s <sup>2</sup> ]*7	10	50/20											
	Actuation	type					Ball scre	w + Belt		$\square$ ). Ball so	rew (LE)	′G□□D)				
	Guide typ	e				SI	iding bear	ring (LEY	G⊡M), Ba	all bushin	g bearing	(LEYG	]L)			
	Operating	j temp	o. range [°C]						5 to	40						
	Operating I	numidi	ty range [%RH]					90 or	less (No	condensa	ation)					
	Enclosur	e							IP	40						
ions	Motor siz	е			□28			□42			□56.4			□56.4		
ificat	Motor typ	е						Step	motor (S	ervo/24 V	/DC)					
spec	Encoder								Incren	nental						
ctric	Power su	pply ۱	voltage [V]				1		24 VDC	C ±10%			1			
В	Power [W	]*8 *10	)	Max. power 43Max. power 48Max. power 104Max. power 106										106		
ons	Type*9			Non-magnetizing lock												
k un icati	Holding f	orce [	N]	20	39	78	78	157	294	108	216	421	127	265	519	
Loc	Power [W	]*10			2.9			5			5			5		
ŝ	Rated vol	tage	[V]						24 VDC	C ±10%						

\*1 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 the "Model Selection" on pages 515 and 516.

Vertical: Speed changes according to the work load. Check the "Model Selection" on pages 515 and 516.

Set the acceleration/deceleration values to be 3000 [mm/s<sup>2</sup>] or less.

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

\*3 The pushing force values for LEYG16 are 35% to 85%, for LEYG25 are 35% to 65%, for LEYG32 are 35% to 85%, and for LEYG40 are 35% to 65%. The pushing force values change according to the duty ratio and pushing speed. Check the "Model Selection" on page 518.

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

When [M: Sliding bearing] is selected, the max. 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 the "Model Selection" on page 514.

\*5 The allowable speed for the pushing operation

\*6 A reference value for correcting errors in reciprocal operation

\*7 Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.) Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

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

\*9 With lock only

\*10 For an actuator with lock, add the power for the lock.

### Specifications

### Servo Motor (24 VDC)

		Mod	lel	L	EYG16 <sup>™</sup>	□A	L	EYG25 <sup>™</sup>	□A					
	Work load	Horizontal	Acceleration/Deceleration at 3000 [mm/s <sup>2</sup> ]	3	6	12	7	15	30					
	<b>[kg]</b> *1	Vertical	Acceleration/Deceleration at 3000 [mm/s <sup>2</sup> ]	1.5	3.5	7.5	2	5	11					
s	Pushin	g for	ce [N] <sup>*2 *3</sup>	16 to 30	30 to 58	57 to 111	18 to 35	37 to 72	66 to 130					
ou	Speed [mm/s]			1 to 500	1 to 125									
cati	Max. accele	eration/	deceleration [mm/s <sup>2</sup> ]	3000										
cifi	Pushin	g spe	eed [mm/s]*4		50 or less			35 or less						
be	Positioni	ng re	peatability [mm]	±0.02										
or s	Lost me	otion	[ <b>mm]</b> *5			0.1 o	r less							
lato	Screw I	ead	[mm]	10	5	2.5	12	6	3					
ctr	Impact/Vib	ration	resistance [m/s <sup>2</sup> ]*6			50/	20							
◄	Actuati	on ty	/pe	Ball s	crew + Bel	t (LEYG⊡⊡	]), Ball scr	ew (LEYG	□□D)					
	Guide t	уре		Sliding b	earing (LE	YG⊟M), Ba	all bushing	bearing (L	.EYG□L)					
	Operation	ng te	mp. range [°C]	5 to 40										
	Operating	g humi	idity range [%RH]	90 or less (No condensation)										
	Enclose	ure				IP	40							
ons	Motor s	ize			□28			□42						
cati	Motor o	outpu	ıt [W]		30			36						
ecifi	Motor t	уре				Servo moto	or (24 VDC	)						
spe	Encode	r				Incren	nental							
ctric	Power s	supp	ly voltage [V]			24 VDC	C±10%							
Ele	Power [	<b>[W]</b> *7	7 *9	Μ	ax. power	59	М	ax. power	96					
t ons	Type*8					Non-magne	etizing lock	1						
catic	Holding	y foro	ce [N]	20	39	78	78	157	294					
-ock	Power [	[ <b>W</b> ]* <sup>9</sup>	)		2.9			5						
l spe	Rated v	olta	ge [V]	24 VDC ±10%										

- \*1 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 the "Model Selection" on page 517 for details.
  - Set the acceleration/deceleration values to be 3000 [mm/s<sup>2</sup>] or less.
- \*2 Pushing force accuracy is ±20% (F.S.).
- \*3 The thrust setting values for LEYG16□A□ are 60% to 95% and for LEYG25□A□ are 70% to 95%. The pushing force values change according to the duty ratio and pushing speed. Check the "Model Selection" on page 518.
- \*4 The allowable speed for the pushing operation \*5 A reference value for correcting errors in
- reciprocal operation \*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. (The test was performed with the actuator in the initial state.)

Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

- \*7 Indicates the max. power during operation (including the controller). This value can be used for the selection of the power supply.
  \*8 With lock only
- \*9 For an actuator with lock, add the power for the lock.

### Weight

### Weight: Top Side Parallel Motor Type

M	odel		LE	EYG16	M			LEYG25M							LEYG32M					
Stroke [mm]		30	50	100	150	200	30	50	100	150	200	250	300	30	50	100	150	200	250	300
Product	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
weight [kg]	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	—	—	_	—	—	—	—
M	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	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
weight [kg]	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	—	—	—	—	—	—	_
M	odel	LEYG40M						LEYG40L												
Stroke [mm]		30	50	100	150	200	250	300	30	50	100	150	200	250	300					
Product	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					
weight [kg]	Servo motor	—	—	_	—	—	—	—	—	—	_	—	—	—	—					

#### Weight: In-line Motor Type

M	odel	-	LE	EYG16	SМ		LEYG25M						LEYG32M							
Stroke [mm]		30	50	100	150	200	30	50	100	150	200	250	300	30	50	100	150	200	250	300
Product	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
weight [kg]	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	—	—	—	—	—	—	—
M	LEYG16L				LI	EYG2	5L			LEYG32L										
Stroke [mm]		30	50	100	150	200	30	50	100	150	200	250	300	30	50	100	150	200	250	300
Product	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
weight [kg]	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	—	—	—	—	—	—	—
M	odel	LEYG40M						LEYG40L												
Stroke [mm]		30	50	100	150	200	250	300	30	50	100	150	200	250	300					
Product	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					
weight [kg]	Servo motor	_	_	_	_	_	_	—	_	_	_	—	_	_	_					

#### **Additional Weight**

				[rg]
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

[ka]

# LEYG Series

Incremental (Step Motor 24 VDC) Incremental (Servo Motor 24 VDC)

### Construction



### Construction



LEYG<sup>16</sup> 32 40 50st or less





LEYG<sup>25</sup><sub>40</sub>MODE -OF: Over 50st

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\* 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.



LEYG16L: 30st or less LEYG<sup>25</sup><sub>40</sub>L: 100st or less

Ō

# LEYG16L: Over 30st, 100st or less

Ō



#### **Component Parts**

0011			
No.	Description	Material	Note
1	Body	Aluminum alloy	Anodized
2	Ball screw shaft	Alloy steel	
3	Ball screw nut	Synthetic resin/Alloy steel	
4	Piston	Aluminum alloy	
5	Piston rod	Stainless steel Hard chrome pla	
6	Rod cover	Aluminum alloy	
7	Bearing holder	Aluminum alloy	
8	Rotation stopper	Synthetic resin	
9	Socket	Free cutting carbon steel	Nickel plating
10	Connected shaft	Free cutting carbon steel	Nickel plating
11	Bushing	Bearing alloy	
12	Bearing	—	
13	Return box	Aluminum die-cast	Coating
14	Return plate	Aluminum die-cast	Coating
15	Magnet	—	
16	Wear ring holder	Stainless steel	Stroke 101 mm or more
17	Wear ring	Synthetic resin	Stroke 101 mm or more
18	Screw shaft pulley	Aluminum alloy	
19	Motor pulley	Aluminum alloy	
20	Belt	—	
21	Seal	NBR	
22	Retaining ring	Steel for spring	Phosphate coated
23	Motor	—	
24	Motor cover	Synthetic resin	Only "With motor cover"
25	Grommet	Synthetic resin	Only "With motor cover"
26	Guide attachment	Aluminum alloy	Anodized
27	Guide rod	Carbon steel	

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

#### Replacement Parts/Belt

No.	Size	Order no.
	16	LE-D-2-1
20	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)
Guide rod	GR-S-020 (20 g)



LEYG Series

Incremental (Step Motor 24 VDC) Incremental (Servo Motor 24 VDC)

### **Dimensions: Top Side Parallel Motor**


Guide Rod Type LEYG Series Incremental (Step Motor 24 VDC) Incremental (Servo Motor 24 VDC)

# **Dimensions: Top Side Parallel Motor**



		[mm]			
Size	T2	<b>X</b> 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

[mm]

Cino	Step	motor	Servo motor		
Size	W	Х	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	—	—	



		[mm]
Size	T2	<b>X</b> 2
16	7.5	124.5
25	7.5	129
32	7.5	141.5
40	7.5	163.5

# **LEYG** Series

Incremental (Step Motor 24 VDC) Incremental (Servo Motor 24 VDC)

# Dimensions: In-line Motor





# Guide Rod Type LEYG Series Incremental (Step Motor 24 VDC) Incremental (Servo Motor 24 VDC)

# **Dimensions: In-line Motor**



							լՠՠյ
Size	Stroke range	Α	T2	<b>X</b> 2	L	Н	CV
16	Up to 100	177	75	66 5	25	40.0	10
10	105 to 200	197	7.5	00.5	35	49.0	43
25	Up to 100	209.5	7 5	60 E	46	61.0	EAE
25	105 to 300	234.5	7.5	00.5	40	01.5	54.5
22	Up to 100	232	75	72 5	60	75.0	69 5
32	105 to 300	262	7.5	73.5	60	/5.8	08.5
40	Up to 100	254	7 5	05.5	60	75.0	60 E
40	105 to 300	284	7.5	.5 95.5	60	/5.8	00.5





Size	Chucka vonce		Servo motor	Step motor	Servo motor
Size	Stroke range	ļ	4	v	В
16	Up to 100	215.8	216.5	102.2	104
10	105 to 200	235.8	236.5	103.3	104
25	Up to 100	246.9	243.1	102.0	100.1
25	105 to 300	271.9	268.1	103.9	
22	Up to 100	271.9	—	111 /	
32	105 to 300	301.9	—	111.4	
10	Up to 100	293.9	—	100 /	
40	105 to 300	323.9	—	133.4	



							[mm]
Size	Stroke range	Α	T2	<b>X</b> 2	L	Н	CV
16	Up to 100	218.5	7.5	109	25	10.0	12
10	105 to 200	238.5	1.5	106	35	49.8	43
25	Up to 100	250	7 5	100	46	61.0	E 4 4
25	105 to 300	275	7.5	109	40	01.5	54.4
20	Up to 100	275	7.5	116 5	60	75.0	60 E
32	105 to 300	305	1.5	110.5	60	/5.8	00.5
40	Up to 100	297	7.5	138.5	60	75.0	68.5
40	105 to 300	327	1.5			/5.8	

**SMC** 

Incremental (Step Motor 24 VDC) Incremental (Servo Motor 24 VDC)

# 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**









# **≜**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	ОВ	ST	wc	Х
16	LEVC SO16	Up to 100	60	12	21.0	MEVOR	10	16	55	11
10	LETG-5010	105 to 200	69	4.3	51.0	WD X 0.0	10	10	75	44
25		Up to 100	05	E 4	40.2	M6 x 1 0	10	20	70	E A
25	LETG-5025	105 to 300	65	J.4 4	40.5		12	20	95	54
32	LEVC S022	Up to 100	101	(5.4)	(50.2)	M6 v 1 0	10	22	75	64
40	LE1G-3032	105 to 300	101	(5.4)	(50.5)		12	22	105	04

\* Two body mounting screws are included with the support block.

\* The through holes of the LEYG-S032 cannot be used for the top side parallel motor type. Use taps on the bottom.



AC Servo Motor LECS Series

# **Guide Rod Type** LEYG Series LEYG25, 32



LECY□ Series ▶ p. 567

How to Order



🛈 Ac	curacy	2 Size
Nil	Basic type	25
Н	High-precision type	32

О Ве	Bearing type				
М	Sliding bearing				
L	Ball bushing bearing				

Without option

With lock

Without cable

2

5

10

Standard

\*1 The length of the motor, encoder, and lock

# 4 Motor mounting position

Nil Top side parallel D In-line

## **5** Motor type<sup>\*1</sup>

Symbol	Туре	Output [W]	Actuator size	Compatible drivers*3
S2*1	AC servo motor	100	25	LECSA□-S1
S3	(Incremental encoder)	200	32	LECSAD-S3
<b>T6</b> *2	AC servo motor	100	25	LECSB2-T5 LECSC2-T5 LECSS2-T5 LECSN2-T5-□
Т7	(Absolute encoder)	200	32	LECSB2-T7 LECSC2-T7 LECSS2-T7 LECSSD2-T7-□

8 Motor option

Cable length<sup>\*1</sup> [m]

cables are the same.

Nil

В

Nil

2

5

Α

# 6 Lead [mm]

9 Guide option

Nil

F

562.)

Symbol	LEYG25	LEYG32*1
Α	12	16 (20)
<b>B</b> 6		8 (10)
С	3	4 (5)

\*1 The values shown in ( ) are the leads for the size 32 top side parallel motor type. (Equivalent leads which include the pulley ratio [1.25:1])

Without option

With grease retaining function Only available for size 25 and 32 sliding bearings (Refer to the "Construction" on page

\*1 For motor type S2, the compatible driver part number suffix is S1.

\*2 For motor type T6, the compatible driver part number is LECS 2-T5.

\*3 For details on the driver, refer to page 1100.

# Stroke [mm]

30	30				
to	to				
300	300				

\* For details, refer to the applicable stroke table below. \* There is a limit for mounting the size 32 top side parallel motor type and strokes of 50 mm

or less. Refer to the dimensions.

# Cable type\*1 \*2

Nil	Without cable
S	Standard cable
R	Robotic cable

- \*1 A motor cable and encoder cable are included with the product. (A lock cable is also included if motor option "B: With lock" is selected.)
- \*2 Standard cable entry direction is Top side parallel: (A) Axis side • In-line: (B) Counter axis side
  - (Refer to page 1123 for details.)

### Applicable Stroke Table

		-						•. Otaridare
Stroke [mm]	30	50	100	150	200	250	300	Manufacturable stroke range
LEYG25	•							15 to 300
LEYG32	•							20 to 300

\* Please contact SMC for non-standard strokes as they are produced as special orders.

SMC

### For auto switches, refer to pages 503 to 505.







Motor mounting position: Parallel

Motor mounting position: In-line

## Driver type\*1

/	Compatible drivers	Power supply voltage [V]
Nil	Without driver	—
A1	LECSA1-S	100 to 120
A2	LECSA2-S	200 to 230
B2	LECSB2-T	200 to 240
C2	LECSC2-T	200 to 230
S2	LECSS2-T	200 to 240
N2	LECSN2-T5	200 to 240
E2	LECSN2-T5-E	200 to 240
92	LECSN2-T5-9	200 to 240
P2	LECSN2-T5-P	200 to 240
ND2	LECSND2-T	200 to 240
ED2	LECSND2-T□-E	200 to 240
9D2	LECSND2-T□-9	200 to 240
PD2	LECSND2-T□-P	200 to 240

\*1 When a driver type is selected, a cable is included. Select the cable type and cable length. Example)

S2S2: Standard cable (2 m) + Driver (LECSS2) S2: Standard cable (2 m)

Nil: Without cable and driver

\* When selecting "T6" for the motor type, select one of the following LECSN□-T series drivers: "N2," "E2," "92," or "P2."

#### **Compatible Drivers**

#### Pulse input type/ Pulse input type CC-Link direct input type ETIII/H type Network card type Positioning type Driver type LECSB-T Series LECSA LECSC-T LECSS-T Up to 255 Number of point tables\*1 Up to 7 Up to 255 Up to 255 (2 stations occupied) **Pulse input** Ο Ο PROFINET Applicable network CC-Link SSCNET Ⅲ/H EtherCAT EtherNet/IP™ Incremental Absolute Absolute Absolute Absolute **Control encoder** 22-bit encoder 17-bit encoder 22-bit encoder 18-bit encoder 22-bit encoder Communication USB communication, USB communication, USB communication **USB** communication **USB** communication RS422 communication RS422 communication function Power supply voltage 100 to 120 VAC (50/60 Hz) 200 to 240 VAC (50/60 Hz) 200 to 230 VAC (50/60 Hz) 200 to 240 VAC (50/60 Hz) 200 to 240 VAC (50/60 Hz) 200 to 230 VAC (50/60 Hz) [V] Reference page 1109

\*1 The LECSN -T point table mode is only available for PROFINET and EtherCAT.

I/O cable length [m]\*1

Nil

<u>н</u> 1

#### Use of auto switches for the guide rod type LEYG series

Without cable Without cable (Connector only)

 1
 1.5

 \*1
 When "Nil: Without driver" is selected for the driver type, only "Nil: Without cable" can be selected. Refer to page 1124 if an I/O cable is required. (Options are shown on page 1124.)

Auto switches must be inserted from the front side with the rod (plate) sticking out.
Auto switches cannot be fixed with the parts hidden behind the guide attachment (the side of the rod that sticks out).

Please contact SMC when using auto switches on the side of the rod that sticks out, as it is produced as a special order.

# LEYG Series AC Servo Motor

# Specifications

	Model		LEYG2	5⊟S2/T6 ( 5⊟DS2/T6	Parallel) (In-line)	LEYG3	2⊡S3/T7 (	Parallel)	LEYG3	2□DS3/T7	(In-line)
	Work load [ka]	Horizontal*1	18	50	50	30	60	60	30	60	60
	work load [kg]	Vertical	7	15	29	7	17	35	10	22	44
	Force [N]*2 (Set value: 1	5 to 30%)*8	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
S	Pushing speed [mm	<b>/s]</b> *3		35 or less			30 or less			30 or less	
<u>.</u>	Max. acceleration/deceler	ration [mm/s <sup>2</sup> ]		5000				50	00		
cat	Positioning	Basic type					±0.02				
Ē	repeatability [mm]	High-precision type					±0.01				
e e	Lost_motion*4	Basic type					0.1 or less				
g	[mm]	High-precision type					0.05 or less				
P	Lead [mm] (including	pulley ratio)	12	6	3	20	10	5	16	8	4
lat	Impact/Vibration resista		50/20			50/20					
ਤੋਂ	Actuation type		Ball screw	+ Belt [1:1]/	Ball screw	Ball sc	rew + Belt [	1.25:1]		Ball screw	
4	Guide type		Sliding bearing (LEYGLM), Ball bushing bearing (LEYGLL)								
	Operating temperature	e range [°C]	5 to 40 5 to 40								
	Operating humidity ra	ange [%RH]	90 or less (No condensation) 90 or less (No condensation)								
	Enclosure		IP40								
	Regeneration option	<u>ו</u>	May be required depending on speed and work load (Refer to page 523.)								
s o	Motor output/Size			100 W/□40				200 V	V/□60		
<u>و</u> . د	Motor type		AC servo	motor (100/	200 VAC)		AC	servo motor	(100/200 V	AC)	
Encoder <sup>*9</sup>			Motor type T Mo	Motor 6, T7: Absolu otor type T6	type S2, S3: te 22-bit enco , T7: Absolut	Incrementa der (Resoluti e 18-bit enc	l 17-bit enco on: 4194304   oder (Resol	oder (Resolu o/rev) (For LE ution: 26214	tion: 131072 CSB2-T⊡, LE 4 p/rev) (For	2 p/rev) ECSS2-T⊡, LI 1 LECSC2-TI	ECSN□-T□) □)
Power [W]*6			M	ax. power 4	45	М	ax. power 7	24	M	ax. power 72	24
t Dus	Type*7		Non-	magnetizing	lock			Non-magne	etizing lock		
catic	Holding force [N]		131	255	485	157	308	588	197	385	736
ecifi	Power at 20°C [W]			6.3			7.9			7.9	
_ g	Rated voltage [V]				-		24 VDC_0				

\*1 This is the max. value of the horizontal work load. An external guide is necessary to support the load (Friction coefficient of guide: 0.1 or less). The

necessary to support the load (Friction coefficient of guide: 0.1 or less). The actual work load changes according to the condition of the external guide. Confirm the load using the actual device. The force setting range (set values for the driver) for the force control with the torque control mode. Set it while referencing the "Force Conversion Graph" on page 524. The torque control mode is not available for the LECSC-T. The drivers applicable to the pushing operation are "LECSB-T" and "LECSB-T." The LECSB2-T is only applicable when the control method is positioning. The point table is used to set the pushing operation settings. To set the pushing operation settings, an additional dedicated file (pushing operation extension file) must be downloaded separately to be used with the setup software (MR Configurator2<sup>TM</sup>: LEC-MRC2□). Please download this dedicated file from the SMC website: https://www.smcworld.com When selecting the LECSS2-T, combine it with upper level equipment (such as the Simple Motion module manufactured by Mitsubishi Electric Corporation) which has a pushing operation function. \*\* For customer-provided PLC and motion controller setting and usage instructions, confirm with the retailer or manufacturer. \*2

usage instructions, confirm with the retailer or manufacturer.

\*3 The allowable collision speed for collision with the workpiece with the torque control mode

- \*4
- A reference value for correcting errors in reciprocal operation Impact resistance: No malfunction occurred when the actuator was tested \*5 with a drop tester in both an axial direction and a perpendicular direction to with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)
  Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)
  \*6 Indicates the max. power during operation (including the driver) When selecting the power supply capacity, refer to the power supply capacity in the operation manual of each driver.
  \*7 Only when motor option "With lock" is selected
  \*8 For motor types T6 and T7, the resolution will change depending on the driver type.

- the driver type.

[ka]

# Weight

#### Weight: Top Side Parallel Motor Type

	Series			LEY	G25MS	2/T6					LEY	G32MS	3/T7		
	Stroke [mm]	30	50	100	150	200	250	300	30	50	100	150	200	250	300
e to	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 [T <sup>6</sup> <sub>7</sub> ]	1.8	2.0	2.4	2.8	3.1	3.5	3.7	3.2	3.4	4.0	4.7	5.3	5.7	6.2
	Series			LEYG25LS2/T6 LEYG32LS3/T7											
	Stroke [mm]	30	50	100	150	200	250	300	30	50	100	150	200	250	300
e o	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

#### Weight: In-line Motor Type

Weig	ht: In-line Motor Type														[kg]
	Series			LEYC	G25MD	S2/T6			LEYG32MDS3/T7						
	Stroke [mm]	30	50	100	150	200	250	300	30	50	100	150	200	250	300
e to	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 [T <sup>6</sup> <sub>7</sub> ]	1.9	2.1	2.4	2.8	3.1	3.5	3.7	3.2	3.4	4.0	4.7	5.3	5.8	6.2
	Series			LEY	G25LDS	62/T6			LEYG32LDS3/T7						
	Stroke [mm]	30	50	100	150	200	250	300	30	50	100	150	200	250	300
be to	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 [T <sup>6</sup> <sub>7</sub> ]	1.9	2.1	2.3	2.8	3.0	3.3	3.6	3.2	3.4	3.8	4.6	5.0	5.5	5.9

多SMC

[ka]

#### Additional Weight

Ŭ,			1 01
	25	32	
Look	Incremental encoder	0.20	0.40
LOCK	Absolute encoder [T <sup>6</sup> <sub>7</sub> ]	0.3	0.7



# Construction





# **LEYG**



# LEYG25/32M: 50st or less



## LEYG25/32M: Over 50st

		4	2
· · · · · · · · · · · · · · · · · · ·	•		

## When grease retaining function selected LEYG25/32M: 50st or less



# LEYG25/32M: Over 50st



# LEYG



## LEYG25/32L: 100st or less



(38)

### **Component Parts**

No.	Description	Material	Note
1	Body	Aluminum alloy	Anodized
2	Ball screw shaft	Alloy steel	
3	Ball screw nut	Synthetic 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	Synthetic resin	
9	Socket	Free cutting carbon steel	Nickel plating
10	Connected shaft	Free cutting carbon steel	Nickel plating
11	Bushing	Bearing alloy	
12	Bearing	—	
13	Return box	Aluminum die-cast	Coating
14	Return plate	Aluminum die-cast	Coating
15	Magnet	—	
16	Wear ring holder	Stainless steel	Stroke 101 mm or more
17	Wear ring	Synthetic resin	Stroke 101 mm or more
18	Screw shaft pulley	Aluminum alloy	
19	Motor pulley	Aluminum alloy	
20	Belt		
21	Seal	NBR	
22	Retaining ring	Steel for spring	Phosphate coating
23	Motor adapter	Aluminum alloy	Coating
24	Motor	_	
25	Motor block	Aluminum alloy	Coating
26	Hub	Aluminum alloy	

No.	Description	Material	Note
27	Spider	Urethane	
28	Guide attachment	Aluminum alloy	Anodized
29	Guide rod	Carbon steel	
30	Plate	Aluminum alloy	Anodized
31	Plate mounting cap screw	Carbon steel	Nickel plating
32	Guide cap screw	Carbon steel	Nickel plating
33	Sliding bearing	Bearing alloy	
34	Felt	Felt	
35	Holder	Synthetic resin	
36	Retaining ring	Steel for spring	Phosphate coating
37	Ball bushing	—	
38	Spacer	Aluminum alloy	Chromating

# Support Block

Size

25

32

## Order no. LEYG-S025 LEYG-S032

Two body mounting screws are included with the support block.

# **Replacement Parts/Grease Pack**

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

## **Replacement Parts/Belt**

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

# Dimensions: Top Side Parallel Motor

**LEYG** Series

AC Servo Motor



25 120 87 14.1 156.9 123.9 15.8 115.4 82.4 14.1 156 123 128.2 32 88.2 17.1 156.8 116.8 17.1 116.6 76.6 17.1 153.4 | 113.4 | 17.1





# **Dimensions: In-line Motor**



# LEYG Series

# 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**







# **≜**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	ОВ	ST	wc	Х
25	LEYG-S025	Up to 100	85	5.4	40.3	M6 x 1.0	12	20	70	E A
		105 to 300							95	54
20		Up to 100	101	(5.4)	(50.3)	M6 x 1.0	12	22	75	64
32	LETG-5032	105 to 300	101						105	04

\* Two body mounting screws are included with the support block.

\* The through holes of the LEYG-S032 cannot be used for the top side parallel motor type. Use taps on the bottom.



AC Servo Motor LECY Series

# **Guide Rod Type** LEYG Series LEYG25, 32





LECS□ Series ▶ p. 559

How to Order



	curacy	2	Size	Ве	aring type
Nil	Basic type	2	25	М	Sliding bearing
Н	High-precision type	3	32	L	Ball bushing bearing

4 Motor mounting position		
Nil	Top side parallel	
D	In-line	

# **5** Motor type

	Symbol	Туре	Output [W]	2 Size	Driver type	Compatible drivers
	VE*1		100	25	M2	LECYM2-V5
VO	AC servo motor	100	25	U2	LECYU2-V5	
	V7	(Absolute encoder)	200	20	M2	LECYM2-V7
	•7			32	U2	LECYU2-V7

\*1 For motor type V6, the compatible driver part number suffix is V5.

# 6 Lead [mm]

Symbol	LEYG25	LEYG32*1
Α	12	16 (20)
В	6	8 (10)
С	3	4 (5)

\*1 The values shown in () are the leads for the top side parallel motor type. (Equivalent leads which include the pulley ratio [1.25:1])

Stroke [mm]		
30	30	
to	to	
300	300	

For details, refer to the applicable stroke table below.

\* There is a limit for mounting the size 32 top side parallel motor type and strokes of 50 mm or less. Refer to the dimensions.

# Motor option

Nil	Without option
В	With lock

When "With lock" is selected for the top side parallel motor type, the motor body will stick out from the end of the body for size 25 with strokes of 30 mm or less. Check for interference with workpieces before selecting a model.

×	
Motor	

🥑 Gu	ide option
Nil	Without o

Nil	Without option	
F	With grease retaining function	

\* Only available for the sliding bearing

### Cable type\*1

-		
Nil	Without cable	
S Standard cable		
R	Robotic cable	

\*1 A motor cable and encoder cable are included with the product.

The motor cable for lock option is included when the motor with lock option is selected.

### Applicable Stroke Table

Applicable Stroke Table •: Standard												
Stroke Model [mm]	30	50	100	150	200	250	300	Manufacturable stroke range				
LEYG25	•	•	•	•	•	•	•	15 to 300				
LEYG32	•							20 to 300				

\* Please contact SMC for non-standard strokes as they are produced as special orders.

#### Cable length [m]\*1

• • • • • • • • • • • • • • • • • • •								
Nil	Without cable							
3	3							
5	5							
Α	10							
С	20							

\*1 The length of the motor and encoder cables are the same. (For with lock)









Motor mounting position: Parallel

Motor mounting position: In-line

# Driver type

	Compatible drivers	Power supply voltage [V]				
Nil	Without driver	—				
M2	LECYM2-V□	200 to 230				
U2	LECYU2-V	200 to 230				

\* When a driver type is selected, a cable is included. Select the cable type and cable length.

# **B** I/O cable length [m]\*1

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

\*1 When "Nil: Without driver" is selected for the driver type, only "Nil: Without cable" can be selected. Refer to page 1135 if an I/O cable is required. (Options are shown on page 1135.)

Use of auto switches for the guide rod type LEYG series

 $\cdot$  Auto switches must be inserted from the front side with the rod (plate) sticking out.

Auto switches cannot be fixed with the parts hidden behind the guide attachment (the side of the rod that sticks out). Please contact SMC when using auto switches on the side of the rod that sticks out, as it is produced as a special order.

### Compatible Drivers

Driver type	MECHATROLINK-II type	MECHATROLINK-III type						
Series	LECYM	LECYU						
Applicable network	MECHATROLINK-II	MECHATROLINK-III						
Control encoder	Absolute 20-bit encoder							
Communication device USB communication, RS-422 communication								
Power supply voltage [V]	200 to 230 VAC (50/60 Hz)							
Reference page	1.	128						



# **LEYG** Series AC Servo Motor

# Specifications

	Model		LEYO	325ĽV6 (Pa 325ĽDV6 (I	rallel) n-line)	LEYC	332 <sup>™</sup> V7 (Pa	rallel)	LEYG32 <sup>™</sup> DV7 (In-line)		
	Westelle est fless	Horizontal*1	18	50	50	30	60	60	30	60	60
	work load [kg]	Vertical	7	15	29	7	17	35	10	22	44
	Force [N]*2 (Set value:	45 to 90%)	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
s	Pushing speed [mm/	/s]* <sup>3</sup>		35 or less			30 or less			30 or less	
Ŝ	Max. acceleration/deceler	ation [mm/s <sup>2</sup> ]		5000				50	00		
ati	Positioning	Basic type		±0.02				±0.	02		
ific	repeatability [mm]	High-precision type		±0.01				±0.	01		
eci	Lost motion [mm]	Basic type	0.1 or less					0.1 o	r less		
sp	Lost motion [mm]	0.05 or less				0.05 or less					
P	Lead [mm] (including p	oulley ratio)	12	6	3	20	10	5	16	8	4
lat	Impact/Vibration resista		50/20				50/	20			
Ctr	Actuation type		Ball screw + Belt [1:1]/Ball screw			Ball sc	rew + Belt [	1:1.25]		Ball screw	
◄	Guide type				Sliding bear	ring (LEYG M), Ball bushing bearing (LEYG L)					
	Operating temperature	e range [°C]		5 to 40		5 to 40					
	Operating humidity ra	inge [%RH]	90 or les	90 or less (No condensation) 90 or less (No condensation)							
	Enclosure					IP40					
	Required conditions for the	Horizontal		Not required	ł	Not required					
	regenerative resistor*5 [kg]	Vertical		5 or more		2 or more					
us	Motor output/Size			100 W/□40		200 W/□60					
ctric	Motor type		AC serv	vo motor (20	00 VAC)		A	C servo mot	or (200 VA0	C)	
Ele	Encoder			Absolute	e 20-bit enco	oder (Resolu	ition: 104857	'6 p/rev)			
ds	Power [W]*6		М	ax. power 4	45	М	ax. power 7	24	М	ax. power 72	24
it	Type*7		Non-	magnetizing	j lock			Non-magn	etizing lock		
catio	Holding force [N]		131	255	485	157	308	588	197	385	736
ecifi	Power at 20°C [W]			5.5			6			6	
_ g	Rated voltage [V]			24 VDC +10%							

\*1 This is the max. value of the horizontal work load. An external guide is necessary to support the load (Friction coefficient of guide: 0.1 or less). The actual work load changes according to the condition of the external guide. Confirm the load using the actual device.

- \*2 The force setting range (set values for the driver) for the force control with the torque control mode
- Set it while referencing the "Force Conversion Graph" on page 530.

\*3 The allowable collision speed for collision with the workpiece with the torque control mode

\*4 Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

\*5 The work load conditions which require the regenerative resistor when operating at the max. speed (Duty ratio: 100%).

Order the regenerative resistor separately. For details, refer to the "Required Conditions for the Regenerative Resistor (Guide)" on page 529. \*6 Indicates the max. power during operation (including the driver)

When selecting the power supply capacity, refer to the power supply capacity in the operation manual of each driver.
\*7 Only when motor option "With lock" is selected

[ka]

# Weight

Product Weight: Top Side Parallel Motor Type [kg]														
Series			LE	YG25M	V6					LE	YG32M	IV7		
Stroke [mm]	30	50	100	150	200	250	300	30	50	100	150	200	250	300
Weight [kg]	1.7	1.9	2.2	2.6	3.0	3.3	3.6	3.1	3.4	4.0	4.7	5.3	5.7	6.2
Series			LE	YG25L	V6					LE	YG32L	V7		
Stroke [mm]	30	50	100	150	200	250	300	30	50	100	150	200	250	300
Weight [kg]	1.7	1.9	2.2	2.6	2.9	3.2	3.4	3.1	3.4	3.8	4.5	5.0	5.5	5.9

## Product Weight: In-line Motor Type

[ka]

									[1,9]					
Series			LEY	(G25MI	DV6					LE	/G32MI	<b>DV7</b>		
Stroke [mm]	30	50	100	150	200	250	300	30	50	100	150	200	250	300
Weight [kg]	1.7	1.9	2.2	2.6	3.0	3.3	3.6	3.2	3.4	4.0	4.7	5.3	5.8	6.2
Series			LE	YG25LD	DV6			LEYG32LDV7						
Stroke [mm]	30	50	100	150	200	250	300	30	50	100	150	200	250	300
Weight [kg]	1.7	2.0	2.2	2.6	2.9	3.2	3.4	3.2	3.4	3.8	4.6	5.0	5.5	5.9

### **Additional Weight**

	-	
Size	25	32
Lock	0.3	0.6



# Construction

# Motor mounting position: Top side parallel motor type





# LEYG⊡M



LEYG□L



# **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	Bearing holder	Aluminum alloy	
8	Rotation stopper	Synthetic resin	
9	Socket	Free cutting carbon steel	Nickel plating
10	Connected shaft	Free cutting carbon steel	Nickel plating
11	Bushing	Bearing alloy	
12	Bearing	—	
13	Return box	Aluminum die-cast	Coating
14	Return plate	Aluminum die-cast	Coating
15	Magnet	—	
16	Wear ring holder	Stainless steel	Stroke 101 mm or more
17	Wear ring	Synthetic resin	Stroke 101 mm or more
18	Screw shaft pulley	Aluminum alloy	

## **Support Block**

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

Two body mounting screws are included with the support block.

No.	Description	Material	Note
19	Motor pulley	Aluminum alloy	
20	Belt	—	
21	Seal	NBR	
22	Retaining ring	Steel for spring	Phosphate coating
23	Motor adapter	Aluminum alloy	Coating
24	Motor	—	
25	Motor block	Aluminum alloy	Coating
26	Hub	Aluminum alloy	
27	Spider	Urethane	Spider
28	Guide attachment	Aluminum alloy	Anodized
29	Guide rod	Carbon steel	
30	Plate	Aluminum alloy	Anodized
31	Plate mounting cap screw	Carbon steel	Nickel plating
32	Guide cap screw	Carbon steel	Nickel plating
33	Sliding bearing	Bearing alloy	
34	Retaining ring	Steel for spring	Phosphate coating
35	Ball bushing		

#### Replacement Parts/Belt Size Order no.

# Replacement Parts/Grease Pack

Order no.	Applied
LE-D-2-2	Pisto
LE-D-2-4	Guid

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



25 32

# LEYG Series

# **Dimensions: Top Side Parallel Motor**







# **Dimensions: In-line Motor**





# 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**







# ▲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	ОВ	ST	wc	Х
		30 to 100	05	E A	40.3	M6 x 1.0	12	20	70	<b>F</b> 4
25	LEYG-S025	105 to 300	60	5.4					95	34
20		30 to 100	101	E A	50.2	Me v 1 0	10		75	64
32	LEYG-S032	105 to 300	101	5.4	50.5		12	22	105	04

\* Two body mounting screws are included with the support block.

\* The through holes of the LEYG-S032 cannot be used for the top side parallel motor type. Use taps on the bottom.



Be sure to read this before handling the products. Refer to page 1351 for safety instructions, pages 1352 to 1357 for electric actuator precautions, and pages 1358 to 1367 for auto switch precautions.

**Design / Selection** 

# **M**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 a load in excess of the specification limits is applied to the piston rod, the generation of play in the piston rod sliding parts, reduced accuracy, etc., may occur and adversely affect the operation and service life of the product.
- 2. Do not use the product in applications where excessive external force or impact force is applied to it.

Failure to do so may result in a malfunction.

- 3. When used as a stopper, select the LEYG series "Sliding bearing" for strokes 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 may adversely affect the operation and service life of the product.

Handling

# **▲**Caution

# 1. INP output signal

1) Positioning operation

When the product comes within the set range of the 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 the step data [Trigger LV], the INP output signal will turn ON.

Use the product within the specified range of the [Pushing force] and [Trigger LV].

- a) To ensure that the actuator pushes the workpieces 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 the [Trigger LV] are set below the specified range, the INP output signal will turn ON from the pushing start position.

## <Limit Values for Pushing Force and Trigger Level in Relation to Pushing Speed> Without Load

Model	Lead	Pushing speed [mm/s]	Pushing force (Setting input value)
LEY16⊟E	A/B/C	21 to 50	45 to 65%
LEY25 E	LEY25 E A/B/C		40 to 50%
	А	24 to 30	50 to 70%
	B/C	21 to 30	50 10 70%
	A	24 to 30	50 to 65%
	B/C	21 to 30	50 10 05 %

Handling

# **▲**Caution

<Limit Values for Pushing Force and Trigger Level in Relation to Pushing Speed> Without Load

Model	Lead	Pushing speed [mm/s]	Pushing force (Setting input value)	Model	Lead	Pushing speed [mm/s]	Pushing force (Setting input value
LEY 16	A/B/C	21 to 50	60 to 85%	LEY 16 A	A/B/C	21 to 50	80 to 95%
LEY 25	A/B/C	21 to 35	50 to 65%	LEY 25 A	A/B/C	21 to 35	80 to 95%
	A	24 to 30	60 to 95%				
	B/C	21 to 30	00 10 05 %				
	A	24 to 30					
	B/C	21 to 30	50 10 65 %				

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

<set for="" operations="" pushing="" transfer="" upward="" values="" vertical=""></set>
For vertical loads (upward), set the pushing force to the max. value shown
below and operate at the work load or less

Model	LEY16		LEY25		LEY32 E			LEY40 E				
Lead	Α	В	С	Α	В	С	Α	В	С	Α	В	С
Work load [kg]	1	1.5	3	2.5	5	10	4.5	9	18	7	14	28
Pushing force		65%			50%			70%			65%	



Model	LE	YG1	6⊾□	LE	YG2	5Ľ□	LE	YG3	2∐	LE	YG4(	D⊾□
Lead	Α	в	С	Α	В	С	Α	В	С	Α	В	С
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	LEY	′G16¦	<sup>I</sup> □A	LEY	'G25¦	<sup>⊿</sup> □A						
Model Lead	LEY A	G16 B	<sup>I</sup> ⊡A C	LEY A	G25 B	<sup>I</sup> ⊡A C						
Model Lead Work load [kg]	<b>LEY</b> <b>A</b> 0.5	<b>'G16</b> B	<sup>4</sup> ⊡A C 2.5	<b>LEY</b> <b>A</b> 0.5	<b>G25</b> B	<sup>4</sup> ⊡A C 4						

# 2. To conduct a pushing operation, be sure to set the product to [Pushing operation].

Also, refrain from bumping the workpiece during a positioning operation or when in the range of the positioning operation. Failure to do so may result in a malfunction.

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

Failure to do so may result in damage or malfunction.

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

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



Be sure to read this before handling the products. Refer to page 1351 for safety instructions, pages 1352 to 1357 for electric actuator precautions, and pages 1358 to 1367 for auto switch precautions.

# Handling

# **A**Caution

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 the detected motor torque.

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

The following alarms may be generated and operation may become unstable if setting is not done correctly.

a. "Posn failed"

The product cannot reach the pushing start position due to variations in the target positions.

b. "Pushing ALM"

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

8. Do not scratch or dent the sliding parts of the piston rod by bumping them or placing objects on them.

The piston rod and guide rod are manufactured to precise tolerances, so even a slight deformation may result in a 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, resulting in damage to the actuator and a reduced service life of the product.

11. When an actuator is operated with one end fixed and the other free (ends tapped or flange), a bending moment may act on the actuator due to vibration generated at the stroke end, which can damage the actuator. In such cases, 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.

Failure to do so may result in the deformation of the nonrotating guide, abnormal auto switch responses, 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	LEY16	LEY25	LEY32/40	LEY63	LEY100
torque [N·m] or less	0.8	1.1	1.4	2.8	4.6

When screwing a bracket or nut into the piston rod end, hold the flats of the end of the "socket" 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]

Failure to do so may result in the deformation of the guide rod and bushing, play in the guide, or an increase in the sliding resistance.

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

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

# Battery-less absolute (Step motor 24 VDC)

LEY16DE			
Ambient	Pushing force set value	Duty ratio	Continuous pushing
temperature	[%]	[%]	time [min]
30°C or less	65 or less	100	No restriction
	40 or less	100	No restriction
40°C	50	30	45 or less
40°C	60	18	15 or less
	65	15	10 or less

LEY25 E

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

#### LEY32□E

Ambient	Pushing force set value	Duty ratio	Continuous pushing
temperature	[%]	[%]	time [min]
40°C or less	<b>°C or less</b> 70 or less		No restriction

## LEY40 E

SMC

Ambient	Pushing force set value	Duty ratio	Continuous pushing
temperature	[%]	[%]	time [min]
40°C or less	65 or less	100	No restriction



Handling

Be sure to read this before handling the products. Refer to page 1351 for safety instructions, pages 1352 to 1357 for electric actuator precautions, and pages 1358 to 1367 for auto switch precautions.

# **A**Caution

## Incremental (Step motor 24 VDC)

#### LEY16

	Ambient temperature: 25°C or less       Duty ratio       [%]         time [min]		Ambient temperature: 40°C		
Pushing force [%]			Duty ratio [%]	Continuous pushing time [min]	
40 or less			100	No restriction	
50	100		70	12 or less	
70	100	_	20	1.3 or less	
85			15	0.8 or less	

### LEY25□/40

Duching	Ambient temperature: 25°C or less		Ambient temperature: 40°C	
force [9/]	Duty ratio	Continuous pushing	Duty ratio	Continuous pushing
Iorce [%]	[%]	time [min]	[%]	time [min]
65 or less	100	—	100	No restriction

### LEY32

Duching	Ambient tempera	ture: 25°C or less	Ambient temp	erature: 40°C
force [%]	Duty ratio [%]	Continuous pushing time [min]	Duty ratio [%]	Continuous pushing time [min]
65 or less	100		100	No restriction
85	100		50	15 or less

# Incremental (Servo motor 24 VDC)

#### LEY16A

Ambient tempera		ture: 25°C or less	Ambient temp	erature: 40°C
force [9/1	Duty ratio	Continuous pushing	Duty ratio	Continuous pushing
force [%]	[%]	time [min]	[%]	time [min]
95 or less	100	_	100	No restriction

### LEY25A

Duching	Ambient temperature: 25°C or less		Ambient temperature: 40°C	
force [9/]	Duty ratio	Continuous pushing	Duty ratio	Continuous pushing
	[%]	time [min]	[%]	time [min]
95 or less	100	_	100	No restriction

# 15. When mounting the product, secure a space of 40 mm or more to allow for bends in the cable.



16. When mounting a bolt, workpiece, or attachment, 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.

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

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 result in a malfunction, while tightening with a lower torque can result in 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
End socket /	LEY32/40	M8 x 1.25	12.5	13	22
	LEY63	M16 x 2	106	21	36
	LEY100	M20 x 2.5	204	27	27

### 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
	Madal	Rod e	nd nut	End bracket	
-	Model	Rod e Width across flats [mm]	nd nut Length [mm]	End bracket screw-in depth [mm]	
-	Model	Rod e Width across flats [mm] 13	nd nut Length [mm] 5	End bracket screw-in depth [mm] 5 or more	
-	Model LEY16 LEY25	Rod e Width across flats [mm] 13 22	nd nut Length [mm] 5 8	End bracket screw-in depth [mm] 5 or more 8 or more	
-	Model LEY16 LEY25 LEY32/40	Rod e Width across flats [mm] 13 22 22	nd nut Length [mm] 5 8 8	End bracket screw-in depth [mm] 5 or more 8 or more 8 or more	

\* The rod end nut is an accessary.

### 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
LEY100	M10 x 1.5	24.5	17

# Body fixed/Rod side/Head side tapped type



ad side*1	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
1	LEY32/40	M6 x 1.0	5.2	10
1	LEY63	M8 x 1.25	12.5	16

} ∗1 Excludes the LEY□D

### <LEYG series>

#### Workpiece fixed/Plate tapped type







Be sure to read this before handling the products. Refer to page 1351 for safety instructions, pages 1352 to 1357 for electric actuator precautions, and pages 1358 to 1367 for auto switch precautions.

Handling

# **≜**Caution

# Body fixed/Top mounting

	Model	Screw size	Max. tightening torque [N·m]	Length: L [mm]
	LEYG16 <sup>™</sup>	M4 x 0.7	1.5	32
	LEYG25 <sup>™</sup>	M5 x 0.8	3.0	40.3
1 H H I	LEYG <sup>32M</sup>	M5 x 0.8	3.0	50.3

## Body fixed/Bottom mounting

<u>H</u>	Ш

Model	Screw size	Max. tightening torque [N·m]	Max. screw-in depth [mm]
LEYG16 <sup>™</sup>	M5 x 0.8	3.0	10
LEYG25 <sup>™</sup>	M6 x 1.0	5.2	12
LEYG <sup>32M</sup>	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 <sup>™</sup>	M4 x 0.7	1.5	7	
LEYG25 <sup>™</sup>	M5 x 0.8	3.0	8	
LEYG <sub>40L</sub>	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.

Mounting the product on an uneven workpiece or base may result in an increase in the sliding resistance.



# 19. When using auto switches with the guide rod type LEYG series, the following limits apply. Please consider the following before selecting the product.

- Auto switches must be inserted from the front side with the rod (plate) sticking out.
- Auto switches with perpendicular electrical entries cannot be used.
- Auto switches cannot be fixed with the parts hidden behind the guide attachment (the side of the rod that sticks out).
- Please contact SMC when using auto switches on the side of the rod that sticks out.

## 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, resulting in a malfunction.
- 21. When fluctuations in the load are caused during operation, malfunction, noise, or alarm generation may occur. (In the case of the AC servo motor)

The gain tuning may not be suitable for fluctuating loads.

Adjust the gain properly by following the instructions in the driver manual.



# 0 Not protected

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

### Second Digit: Degree of protection against water

0	Not protected	—
1	Protected against vertically falling water droplets	Dripproof type 1
2	Protected against vertically falling water droplets when enclosure is tilted up to 15°	Dripproof type 2
3 Protected against rainfall when enclosure is 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) Degrees of protection

Degrees of protection			otection	Details		
		Solid foreign objects	Dust-tight	Dust particles are prevented from entering the device.		
	IP65	Entry of Water-jet- water proof*1		The direct application of water jets to the device from any direction will not cause any damage.		
I		Solid foreign objects	Dust-tight	Dust particles are prevented from entering the device.		
	IP67	Entry of water	Immersible*1	The amount of water that enters the device when the actuator (in the stopped state) is submersed in up to 1 m of water for up to 30 mins will not cause any damage.		

\*1 Be sure to take appropriate protective measures if the product is to be used in an environment where it will be constantly exposed to water or fluids other than water splash.

In particular, the product cannot be used in environments where oils, such as cutting oil or cutting fluid, are present.





Be sure to read this before handling the products. Refer to page 1351 for safety instructions, pages 1352 to 1357 for electric actuator precautions, and pages 1358 to 1367 for auto switch precautions.

Maintenance

# **M**Warning

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

# Maintenance frequency

Perform maintenance according to the table below.

Frequency	Appearance check	Belt check
Inspection before daily operation	0	—
Inspection every 6 months/ 250 km/5 million cycles*1	0	0

\*1 Select whichever comes first.

## Items for visual appearance check

- 1. Loose set screws, Abnormal amount of dirt, etc.
- 2. Check for visible damage, Check of cable joint
- 3. Vibration, Noise

### Items for belt check

Stop operation immediately and replace the belt when any of the following occur. In addition, 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 coming off and the fiber has become whitish, Lines of fibers have become unclear

b. Peeling off or wearing of the side of the belt Belt corner has become rounded and frayed threads stick out

### c. Belt is partially cut

Belt is partially cut, Foreign matter caught in the teeth of other parts is causing damage

- d. A vertical line on belt teeth is visible Damage which is made when the belt runs on the flange
- e. Rubber back of the belt is softened and sticky
- f. Cracks on the back of the belt are visible

# LEY Series / Double Clevis Type Corresponding Stroke (Swinging Angle)

• When using the LEY series / double clevis type exceeding the recommended stroke, check the table below and order a double clevis bracket separately.

O: Available

Swingin	Swinging angle						
Swingin	Stroke	0° to 30°	31º to 50º	51º to 60º	61º to 70º	71º to 80º	81º to 00º
Model	[mm]	0 10 30	31 10 30	51 10 00	01 10 70	71 10 60	01 10 90
	50	0	0	0	0	0	0
	100	0	0	0	0	0	0
	150	×	×	0	0	0	0
LETIO	200	×	×	×	0	0	0
	250	×	×	×	×	0	0
	300	×	×	×	×	×	0
	50	0	0	0	0	0	0
	100	0	0	0	0	0	0
	150	0	0	0	0	0	0
	200	0	0	0	0	0	0
LE123	250	×	×	0	0	0	0
	300	×	×	0	0	0	0
	350	×	×	×	0	0	0
	400	×	×	×	×	0	0
	50	0	0	0	0	0	0
	100	0	0	0	0	0	0
	150	0	0	0	0	0	0
	200	0	0	0	0	0	0
LEY32	250	×	0	0	0	0	0
/LEY40	300	×	0	0	0	0	0
	350	×	×	0	0	0	0
	400	×	×	×	0	0	0
	450	×	×	×	0	0	0
	500	×	×	×	×	0	0
	100	0	0	0	0	0	0
	200	0	0	0	0	0	0
	300	0	0	0	0	0	0
LEV63	400	×	×	0	0	0	0
	500	×	×	×	0	0	0
	600	×	×	×	0	0	0
	700	×	×	×	×	0	0
	800	×	×	×	×	0	0
	100	0	0	0	0	0	0
	200	0	0	0	0	0	0
	300	0	0	0	0	0	0
	400	0	0	0	0	0	0
LEY100	500	×	0	0	0	0	0
	600	×	×	0	0	0	0
	700	×	×	×	0	0	0
	800	×	×	×	×	0	0
	900	×	×	×	×	0	0
	1000	×	×	×	×	×	0

Size	Double clevis order no.	Double clevis pivot bracket order no.
16	LEY-D016	CQ-C020
25	LEY-D025	CQ-C032
32/40	LEY-D032	CQ-C040
63	LEY-D063	CQ-C063
100	D5080	E5080

- Material: Cast iron (painted)
   / Cannot be used in environments where liquid splashes may cause rust.
- \* Double clevis pivot bracket are the same as the CQ series for sizes 16 to 63 and the C96 series for size 100.





# LEY/LEYG Series Battery-less Absolute Encoder Type Specific Product Precautions

Handling

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

# **▲**Caution

# 1. Absolute encoder ID mismatch error at the first connection

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

- When an electric actuator is connected and the power is turned ON for the first time after purchase\*1
- · When the actuator or motor is replaced
- · When the controller is replaced
- \*1 If you have purchased an electric actuator and controller with the set part number, the pairing may have already been completed and the alarm may not be generated.

### "ID mismatch error"

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

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



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

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

A magnetic sensor is used in the encoder. Therefore, if the actuator motor is used in an environment where strong magnetic fields are present, malfunction or failure may occur. Do not expose the actuator motor to magnetic fields with a magnetic flux density of 1 mT or more.

When installing an electric actuator and an air cylinder with an

auto switch (ex. CDQ2 series) or multiple electric actuators side by side, maintain a space of 40 mm or more around the motor. Refer to the construction drawing of the actuator motor.



SMC

# When lining up actuators

SMC actuators can be used with their motors adjacent to each other. However, for actuators with a built-in auto switch magnet, maintain a space of 40 mm or more between the motors and the position where the magnet passes.

For the LEY series, the magnet is in the piston portion. (Refer to the construction drawings in the catalog for details.)



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

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



Battery-less absolute encoder connector cover dimensions