

# Environment

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

Clean Room Specification

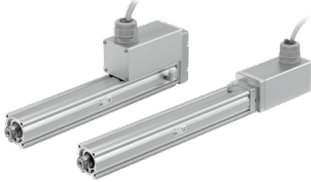
Secondary Battery Compatible

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

p. 607

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

Electric Actuator/Rod Type LEY-X5 p. 611



AC Servo Motor

Electric Actuator/Rod Type LEY-X5 Size 25, 32

p. 619, 625



Rod Type LEY Series Size 63 p. 343, 351

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

\* Option

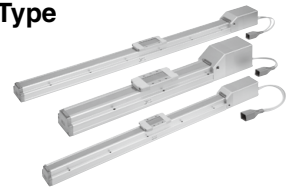


Clean Room Specification

p. 631

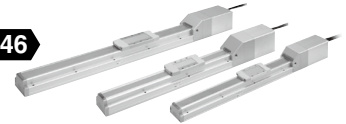
Step Motor (Servo/24 VDC) Servo Motor (24 VDC)

Electric Actuator/Slider Type  
Ball Screw Drive  
11-LEFS Series p. 635



AC Servo Motor

Electric Actuator/Slider Type  
Ball Screw Drive  
11-LEFS Series p. 644, 646

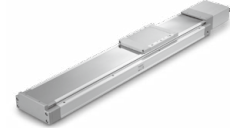


Support Guide/11-LEFG Series p. 651



AC Servo Motor

Electric Actuator/High Rigidity Slider Type  
Ball Screw Drive 11-LEJS Series p. 657, 659

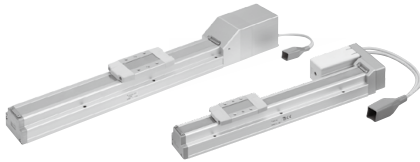


Secondary Battery Compatible

p. 664

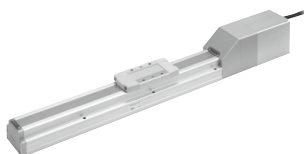
Step Motor (Servo/24 VDC) Servo Motor (24 VDC)

Electric Actuator/Slider Type  
Ball Screw Drive 25A-LEFS Series p. 665



AC Servo Motor

Electric Actuator/Slider Type  
Ball Screw Drive 25A-LEFS Series p. 668, 669



AC Servo Motor

Electric Actuator/High Rigidity Slider Type  
Ball Screw Drive 25A-LEJS Series p. 671, 672



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

Electric Actuator/Rod Type  
25A-LEY Series p. 673



AC Servo Motor

Electric Actuator/Rod Type  
25A-LEY Series p. 677, 679



LEFS  
LEFB

LEJS  
LEJB

LEL

LEM

LEY  
LEYG

LES  
LESH

LEPY  
LEPS

LER

LEH

LEY-X5

11-LEFS

11-LEJS

25A-

LEC

JXC

LECS  
LECS-T

LECY

Motorless

LAT3

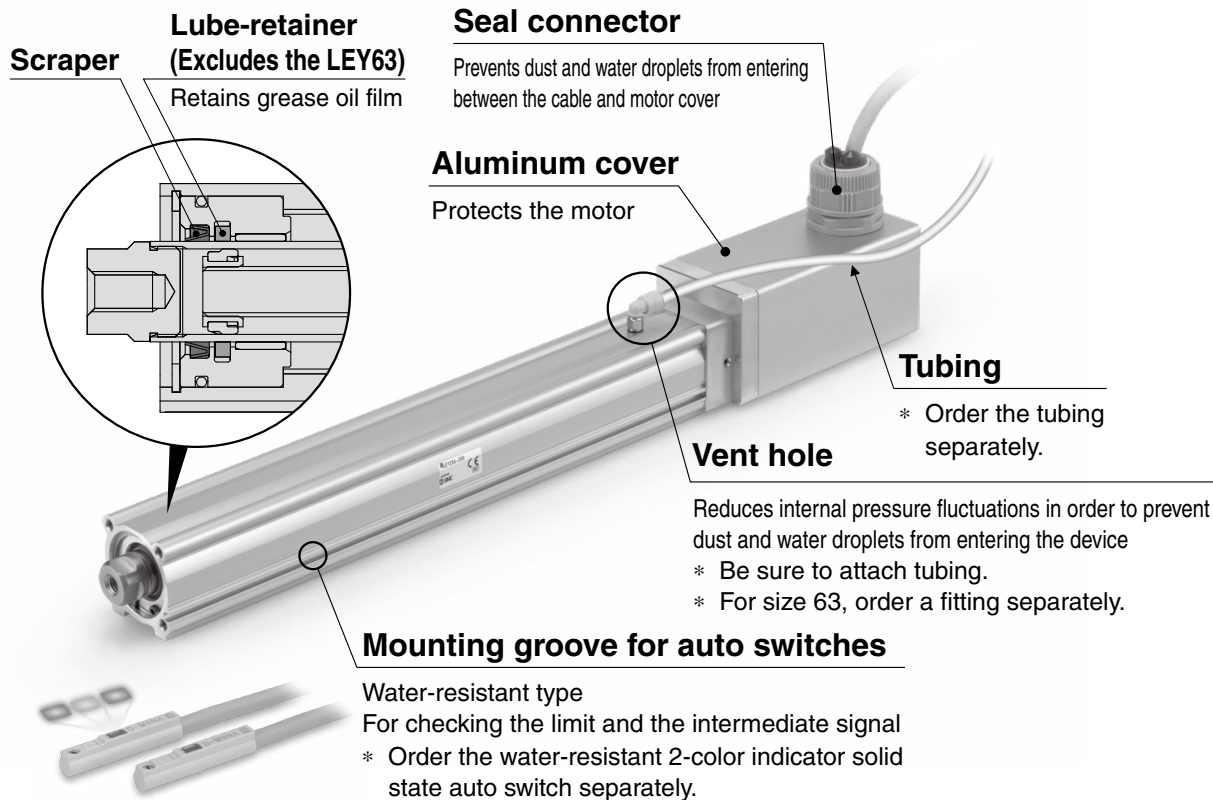
# Environment

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

● **Enclosure: IP65 equivalent**\*1

● **Max. stroke: 500 mm**\*2

\*2 For size 32



\*1 IP65 enclosure: The protection structure against solid foreign objects is dust-tight type and the protection structure against water is water-jet-proof type.

Dust-tight means that no dust can enter the inside of the equipment.

Water-jet-proof means that the product is not adversely affected by direct water jets from any direction. That is, even when direct water jets are applied to the product for 3 minutes by means of the pre-determined method, there is no water entry that hinders the correct operation inside the equipment. 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.

## LEY-X5 (Made to Order) Size 25, 32

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

p. 611



AC Servo Motor (100/200 W)

p. 619, 625



## LEY63 Size 63

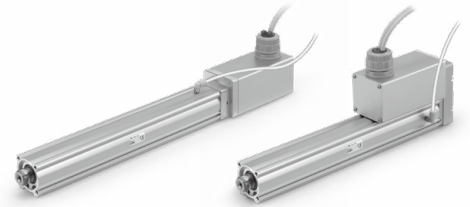
AC Servo Motor (400 W)

p. 343, 351

\* Option



# Model Selection



Refer to page 609 for the LECPA, JXC□<sub>3</sub>, and LECA6.

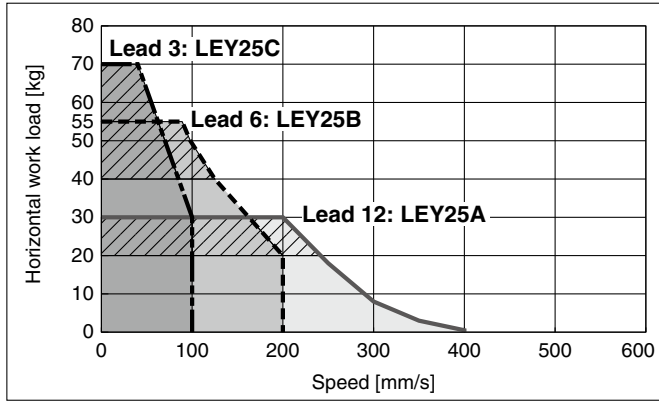
LEY-X5 Series ▶ p. 611

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

### Horizontal

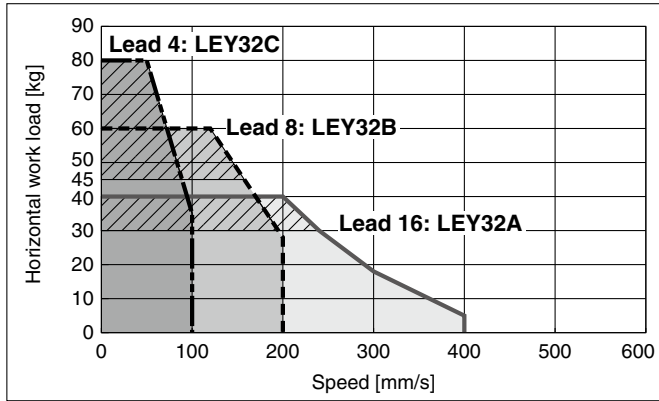
#### LEY25□-X5

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



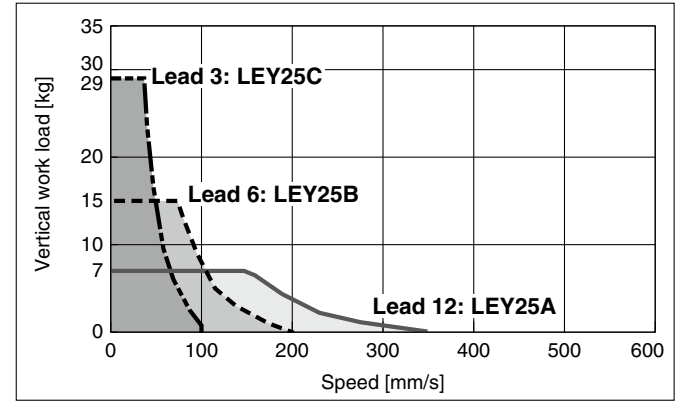
#### LEY32□-X5

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

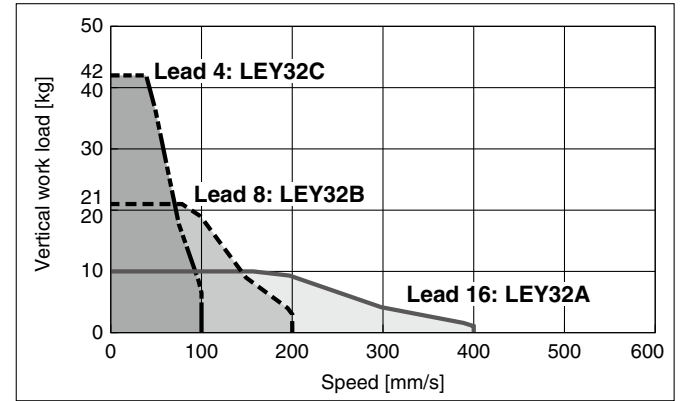


### Vertical

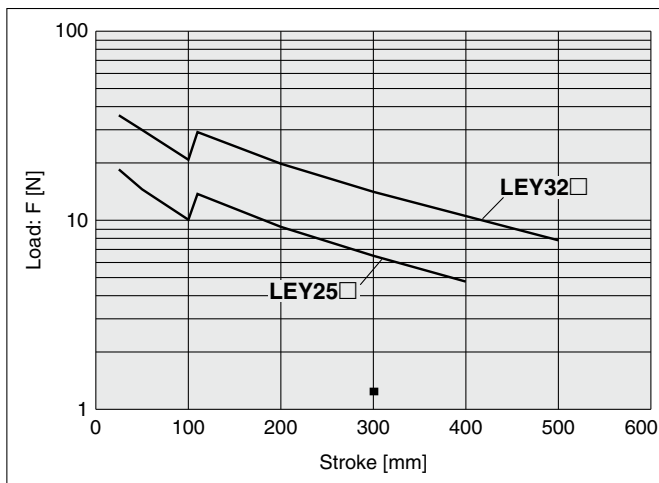
#### LEY25□-X5



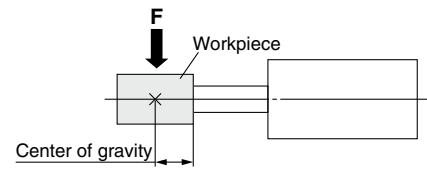
#### LEY32□-X5



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

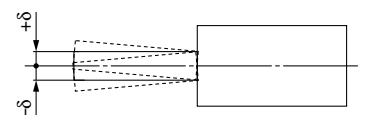


[Stroke] = [Product stroke] + [Distance from the rod end to the center of gravity of the workpiece]



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

Size \ Stroke	30	50	100	150	200	250	300	350	400	450	500
25	±0.3	±0.4	±0.7	±0.7	±0.9	±1.1	±1.3	±1.5	±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



- LEFS
- LEFB
- LEJS
- LEJB
- LEL
- LEM
- LEY
- LEYG
- LES
- LESH
- LEPY
- LEPS
- LER
- LEH
- LEH
- LEY-X5
- 11-LEFS
- 11-LEJS
- 25A-
- LEC□
- JXC□
- LECS□
- LECS□-T
- LECY□
- Motorless
- LAT3

# LEY-X5 Series

Step Motor (Servo/24 VDC)


Servo Motor (24 VDC)

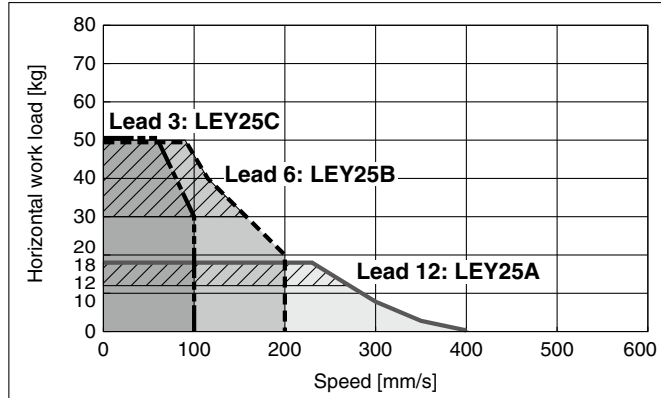
Dust-tight/Water-jet-proof (IP65 Equivalent)


Refer to page 608 for the JXC□1, LECP1 and below for the LECA6.

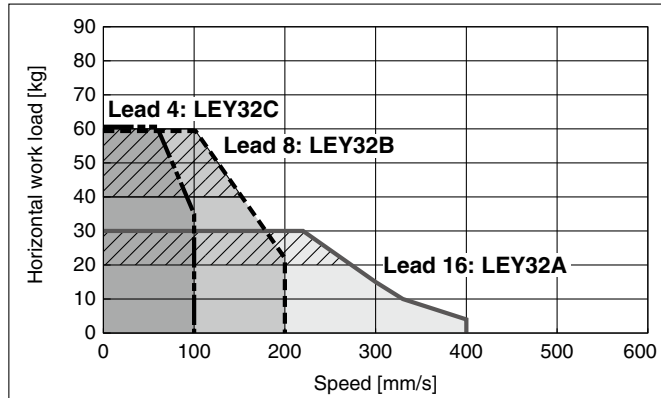
## Speed-Work Load Graph (Guide) For Step Motor (Servo/24 VDC) LECPA, JXC□<sub>2</sub><sub>3</sub>

### Horizontal

**LEY25□-X5**  for acceleration/deceleration: 2000 mm/s<sup>2</sup>

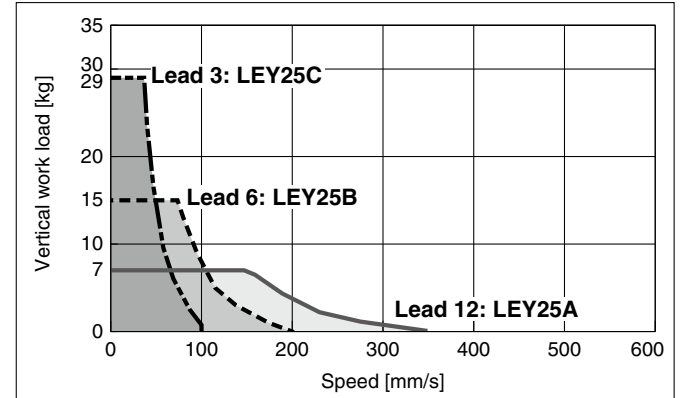


**LEY32□-X5**  for acceleration/deceleration: 2000 mm/s<sup>2</sup>

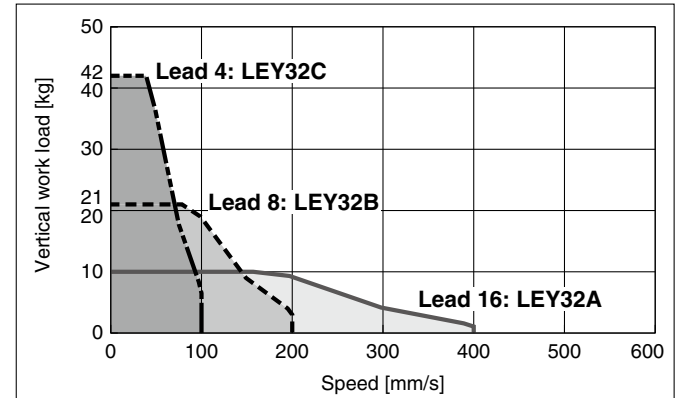


### Vertical

**LEY25□-X5**



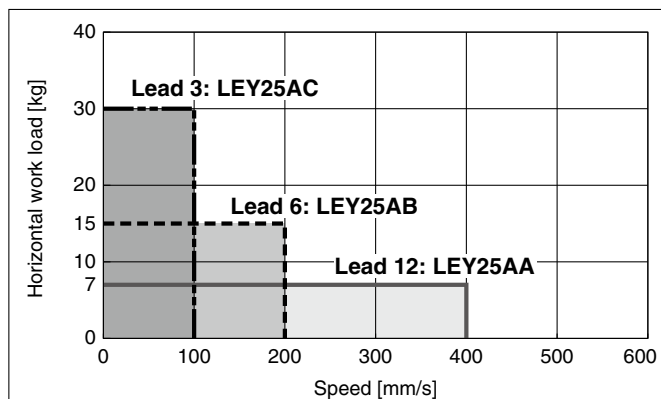
**LEY32□-X5**



## For Servo Motor (24 VDC) LECA6

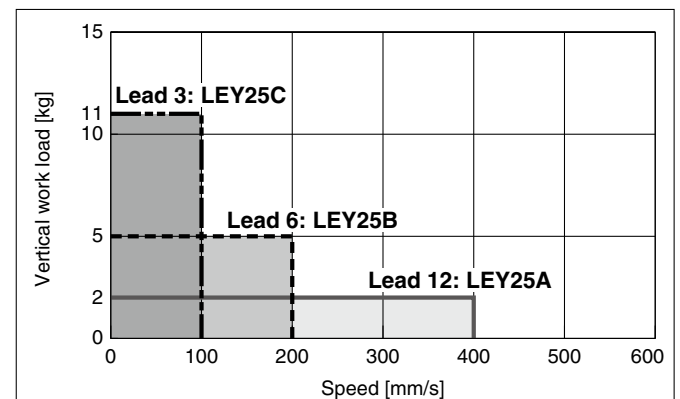
### Horizontal

**LEY25□A-X5**



### Vertical

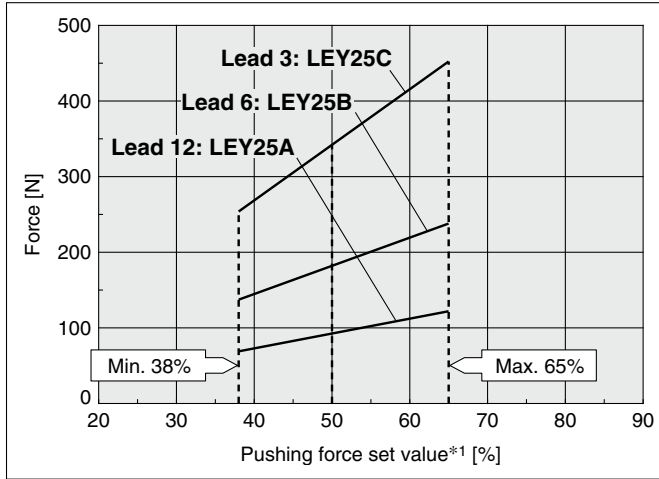
**LEY25□A-X5**



## Force Conversion Graph

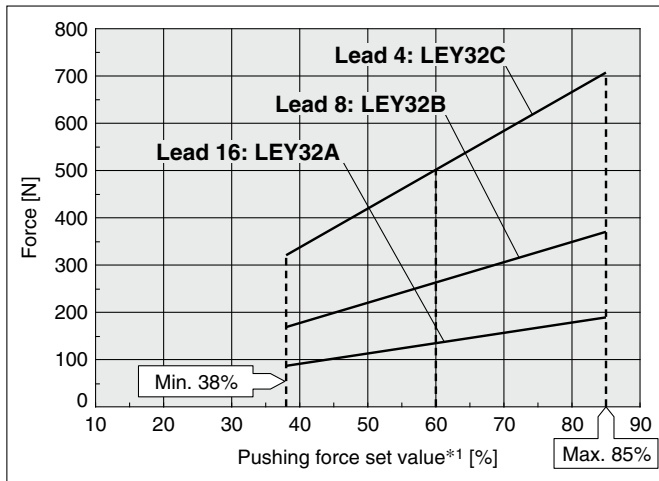
### Step Motor (Servo/24 VDC)

#### LEY25□-X5



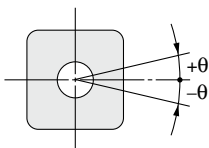
Ambient temperature	Pushing force set value*1 [%]	Duty ratio [%]	Continuous pushing time [min]
40°C or less	65 or less	100	—

#### LEY32□-X5



Ambient temperature	Pushing force set value*1 [%]	Duty ratio [%]	Continuous pushing time [min]
25°C or less	85 or less	100	—
40°C	65 or less	100	—
	85	50	15

### Non-rotating Accuracy of Rod

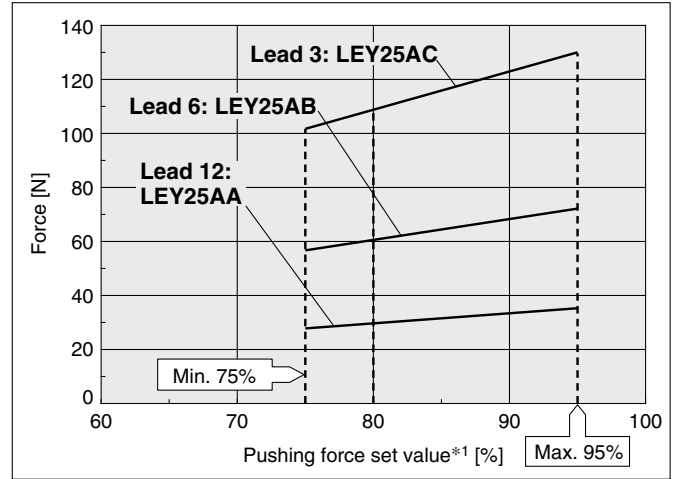


Size	Non-rotating accuracy $\theta$
25	$\pm 0.8^\circ$
32	$\pm 0.7^\circ$

\* 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.

### Servo Motor (24 VDC)

#### LEY25□A-X5



Ambient temperature	Pushing force set value*1 [%]	Duty ratio [%]	Continuous pushing time [min]
40°C or less	95 or less	100	—

### <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)
LEY25	A/B/C	21 to 35	50 to 65%	LEY25□A	A/B/C	21 to 35	80 to 95%
	A	24 to 30					
LEY32	B/C	21 to 30	60 to 85%				

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

\*1 Set values for the controller

# Electric Actuator Rod Type

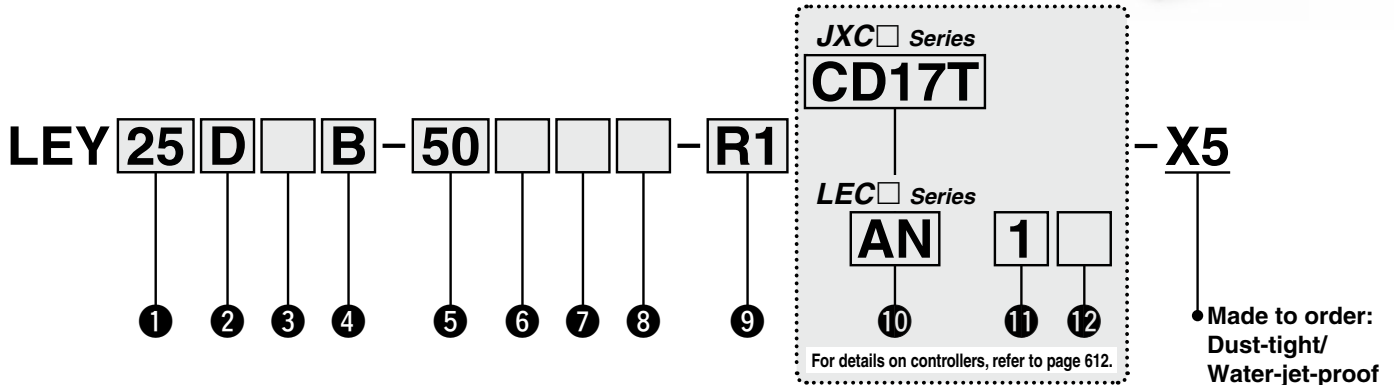
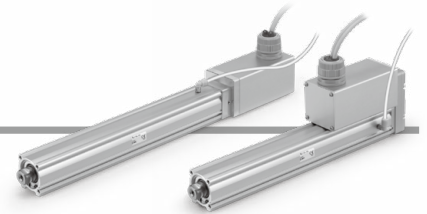
Dust-tight/Water-jet-proof (IP65 Equivalent)

## LEY-X5 (Made to Order) Series LEY25, 32



Refer to page 608 for model selection.

### How to Order



Made to order:  
Dust-tight/  
Water-jet-proof

#### 1 Size

25
32

#### 2 Motor mounting position

Nil	Top side parallel
D	In-line

#### 3 Motor type

Symbol	Type	Size		Compatible controllers/drivers
		25	32	
Nil	Step motor (Servo/24 VDC)	●	●	JXCE1 JXC91 JXCP1 JXCD1 JXCL1 JXCM1 JXC51 JXC61  LECP1 LECPA
A	Servo motor (24 VDC)	●	—	LECA6

#### 4 Lead [mm]

Symbol	LEY25	LEY32
A	12	16
B	6	8
C	3	4

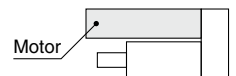
#### 5 Stroke [mm]

30	30
to	to
500	500

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

#### 6 Motor option\*2

Nil	Without option
B	With lock



#### 7 Rod end thread

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

#### 8 Mounting\*3

Symbol	Type	Motor mounting position	
		Parallel	In-line
Nil	Ends tapped/Body bottom tapped*4	●	●
L	Foot	●	—
F	Rod flange*4	●*5	●
G	Head flange*4	●*6	—

#### 9 Actuator cable type/length

Robotic cable [m]			
R1	1.5	RA	10*7
R3	3	RB	15*7
R5	5	RC	20*7
R8	8*7		

#### Applicable Stroke Table\*1

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

●: Standard

\* For auto switches, refer to page 630.  
\* "-X5" is not added to an actuator model with a controller/driver part number suffix.  
Example) "LEY25DB-100" for the LEY25DB-100BM-R1CD17T-X5

# Electric Actuator Rod Type **LEY-X5 Series**

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

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

## JXC Series (For details, refer to page 613.)

### 10 Controller

Nil	Without controller
C□1□□	With controller

**C D 1 7 T**

#### Interface

(Communication protocol/Input/Output)	
E	EtherCAT®
9	EtherNet/IP™
P	PROFINET
D	DeviceNet™
L	IO-Link
M	CC-Link Ver 1.10
5	Parallel input (NPN)
6	Parallel input (PNP)

#### Mounting

7	Screw mounting
8*13	DIN rail

For single axis



### Communication plug connector I/O cable\*14

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

## LEC Series (For details, refer to page 613.)

**AN 1**

### 10 Controller/Driver type\*8

Nil	Without controller/driver	
6N	<b>LECA6</b>	NPN
6P		(Step data input type)
1N	<b>LECP1</b> *9	NPN
1P		(Programless type)
AN	<b>LECPA</b> *9 *10	NPN
AP		(Pulse input type)

### 11 I/O cable length\*11

Nil	Without cable
1	1.5 m
3	3 m*12
5	5 m*12

### 12 Controller/Driver mounting

Nil	Screw mounting
D	DIN rail*13



- \*1 Please consult with SMC for non-standard strokes as they are produced as special orders.
- \*2 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 strokes of 50 mm or less. 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: 100 mm or less
- \*5 The rod flange type is not available for the LEY25/32 with strokes of 50 mm or less and motor option "With lock."
- \*6 The head flange type is not available for the LEY32.
- \*7 Produced upon receipt of order (Robotic cable only)
- \*8 For details on controllers/drivers and compatible motors, refer to the compatible controllers/drivers on the next page.

- \*9 Only available for the motor type "Step motor"
- \*10 When pulse signals are open collector, order the current limiting resistor (LEC-PA-R-□) on page 736 separately.
- \*11 When "Without controller/driver" is selected for controller/driver types, I/O cable cannot be selected. Refer to page 713 (For LECA6), page 724 (For LECP1), or page 736 (For LECPA) if I/O cable is required.
- \*12 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
- \*13 The DIN rail is not included. It must be ordered separately.
- \*14 Select "Nil" for anything other than DeviceNet™, CC-Link, or parallel input.  
Select "Nil," "S," or "T" for DeviceNet™ or CC-Link.  
Select "Nil," "1," "3," or "5" for parallel input.

## ⚠ Caution

### [CE-compliant products]

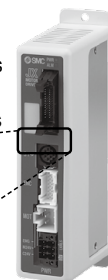
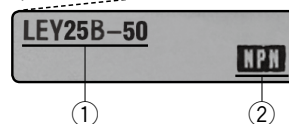
- ① EMC compliance was tested by combining the electric actuator LEY series and the controller LEC/JXC series.  
The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, compliance with the EMC directive cannot be 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 servo motor (24 VDC) specification, EMC compliance was tested by installing a noise filter set (LEC-NFA). Refer to page 713 for the noise filter set. Refer to the LECA series Operation Manual for installation.

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

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

### <Check the following before use.>

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



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







# LEY-X5 Series





Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

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

## Compatible Controllers/Drivers

Type	EtherCAT® direct input type 	EtherNet/IP™ direct input type 	PROFINET direct input type 	DeviceNet™ direct input type 	IO-Link direct input type 	CC-Link direct input type 
Series	<b>JXCE1</b>	<b>JXC91</b>	<b>JXCP1</b>	<b>JXCD1</b>	<b>JXCL1</b>	<b>JXCM1</b>
Features	EtherCAT® direct input	EtherNet/IP™ direct input	PROFINET direct input	DeviceNet™ direct input	IO-Link direct input	CC-Link direct input
Compatible motor	Step motor (Servo/24 VDC)					
Max. number of step data	64 points					
Power supply voltage	24 VDC					
Reference page	741					

Type	Step data input type 	Step data input type 	Programless type 	Pulse input type 
Series	<b>JXC51</b> <b>JXC61</b>	<b>LECA6</b>	<b>LECP1</b>	<b>LECPA</b>
Features	Parallel I/O	Value (Step data) input Standard controller	Capable of setting up operation (step data) without using a PC or teaching box	Operation by pulse signals
Compatible motor	Step motor (Servo/24 VDC)	Servo motor (24 VDC)	Step motor (Servo/24 VDC)	
Max. number of step data	64 points		14 points	—
Power supply voltage	24 VDC			
Reference page	706-1	707	719	731



## Specifications

### Step Motor (Servo/24 VDC)

Model		LEY25□-X5			LEY32□-X5				
Work load [kg]*1	Horizontal	For JXC□1 LECP1	(3000 [mm/s <sup>2</sup> ])	20	40	60	30	45	60
			(2000 [mm/s <sup>2</sup> ])	30	60	70	40	60	80
	Vertical*14	For LECPA JXC□ <sub>2</sub> <sub>3</sub>	(3000 [mm/s <sup>2</sup> ])	12	30	30	20	40	40
			(2000 [mm/s <sup>2</sup> ])	18	50	50	30	60	60
			(3000 [mm/s <sup>2</sup> ])	7	15	29	10	21	42
Pushing force [N]*2 *3 *4			63 to 122	126 to 238	232 to 452	80 to 189	156 to 370	296 to 707	
Speed [mm/s]*4			18 to 400	9 to 200	5 to 100	24 to 400	12 to 200	6 to 100	
Max. acceleration/deceleration [mm/s <sup>2</sup> ]			3000						
Pushing speed [mm/s]*5			35 or less			30 or less			
Positioning repeatability [mm]			±0.02						
Lost motion [mm]*6			0.1 or less						
Screw lead [mm]			12	6	3	16	8	4	
Impact/Vibration resistance [m/s <sup>2</sup> ]*7			50/20						
Actuation type			Ball screw + Belt (LEY□) Ball screw (LEY□D)						
Guide type			Sliding bushing (Piston rod)						
Enclosure*8			IP65 equivalent						
Operating temperature range [°C]			5 to 40						
Operating humidity range [%RH]			90 or less (No condensation)						
Motor size			□42			□56.4			
Motor type			Step motor (Servo/24 VDC)						
Encoder			Incremental A/B phase (800 pulse/rotation)						
Rated voltage [V]			24 VDC ±10%						
Power consumption [W]*9			40			50			
Standby power consumption when operating [W]*10			15			48			
Max. instantaneous power consumption [W]*11			48			104			
Type*12			Non-magnetizing lock						
Holding force [N]			78	157	294	108	216	421	
Power consumption [W]*13			5			5			
Rated voltage [V]			24 VDC ±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 608 and 609.

Vertical: Speed changes according to the work load. Check the "Model Selection" on pages 608 and 609.

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 ±20% (F.S.).

\*3 The thrust setting values for LEY25□ is 38% to 65% and for LEY32□ is 38% to 85%. The pushing force values change according to the duty ratio and pushing speed. Check the "Model Selection" on page 610.

\*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 operations. When push conveying a workpiece, operate at the vertical work load or less.

\*6 A reference value for correcting an error 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 Cannot be used in an environment where oil such as cutting oil splashes or it is constantly exposed to water

Take appropriate protective measures. For details on enclosure, refer to the "Enclosure" on page 415.

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

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

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

\*12 With lock only

\*13 For an actuator with lock, add the power consumption for the lock.

\*14 When mounting vertically and using the product facing upwards in an environment where water is present, take necessary measures to prevent water from splashing on the rod cover, because water will accumulate on the rod seal due to the structure of the product.



# LEY-X5 Series

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

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

## Specifications

### Servo Motor (24 VDC)

Model		LEY25□A-X5					
Actuator specifications	Work load [kg] <sup>*1</sup>	Horizontal	(3000 [mm/s <sup>2</sup> ])		7	15	30
		Vertical <sup>*13</sup>	(3000 [mm/s <sup>2</sup> ])		2	5	11
	Pushing force [N] <sup>*2 *3</sup>				18 to 35	37 to 72	66 to 130
	Speed [mm/s]				2 to 400	1 to 200	1 to 100
	Max. acceleration/deceleration [mm/s <sup>2</sup> ]				3000		
	Pushing speed [mm/s] <sup>*4</sup>				35 or less		
	Positioning repeatability [mm]				±0.02		
	Lost motion [mm] <sup>*5</sup>				0.1 or less		
	Screw lead [mm]		12	6	3		
	Impact/Vibration resistance [m/s <sup>2</sup> ] <sup>*6</sup>				50/20		
	Actuation type				Ball screw + Belt (LEY□) Ball screw (LEY□D)		
	Guide type				Sliding bushing (Piston rod)		
	Enclosure <sup>*7</sup>				IP65 equivalent		
Operating temperature range [°C]				5 to 40			
Operating humidity range [%RH]				90 or less (No condensation)			
Electric specifications	Motor size				□42		
	Motor type				Servo motor (24 VDC)		
	Encoder				Incremental A/B phase (800 pulse/rotation)/Z-phase		
	Rated voltage [V]				24 VDC ±10%		
	Power consumption [W] <sup>*8</sup>				86		
	Standby power consumption when operating [W] <sup>*9</sup>				4 (Horizontal)/12 (Vertical)		
Lock unit specifications	Max. instantaneous power consumption [W] <sup>*10</sup>				96		
	Type <sup>*11</sup>				Non-magnetizing lock		
	Holding force [N]		78	157	294		
	Power consumption [W] <sup>*12</sup>				5		
Rated voltage [V]				24 VDC ±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. Vertical: Speed changes according to the work load. Check the "Model Selection" on page 609. 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 ±20% (F.S.).
- \*3 The thrust setting values for LEY25A□ is 75% to 95%. The pushing force values change according to the duty ratio and pushing speed. Check the "Model Selection" on page 610.
- \*4 The allowable speed for pushing operations When push conveying a workpiece, operate at the vertical work load or less.
- \*5 A reference value for correcting an error 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 Cannot be used in an environment where oil such as cutting oil splashes or it is constantly exposed to water Take appropriate protective measures. For details on enclosure, refer to the "Enclosure" on page 415.
- \*8 The power consumption (including the controller) is for when the actuator is operating.
- \*9 The standby power consumption when operating (including the controller) is for when the actuator is stopped in the set position during the operation with the maximum work load. Except during the pushing operation
- \*10 The maximum instantaneous power consumption (including the controller) is for when the actuator is operating. This value can be used for the selection of the power supply.
- \*11 With lock only
- \*12 For an actuator with lock, add the power consumption for the lock.
- \*13 When mounting vertically and using the product facing upwards in an environment where water is present, take necessary measures to prevent water from splashing on the rod cover, because water will accumulate on the rod seal due to the structure of the product.

## Weight

### Weight: Top Side Parallel Motor Type

Model		LEY25-X5									LEY32-X5										
Stroke [mm]		30	50	100	150	200	250	300	350	400	30	50	100	150	200	250	300	350	400	450	500
Product weight [kg]	Step motor	1.45	1.52	1.69	1.95	2.13	2.30	2.48	2.65	2.83	2.48	2.59	2.88	3.35	3.64	3.91	4.21	4.49	4.76	5.04	5.32
	Servo motor	1.41	1.48	1.65	1.91	2.09	2.26	2.44	2.61	2.79	—	—	—	—	—	—	—	—	—	—	—

### Weight: In-line Motor Type

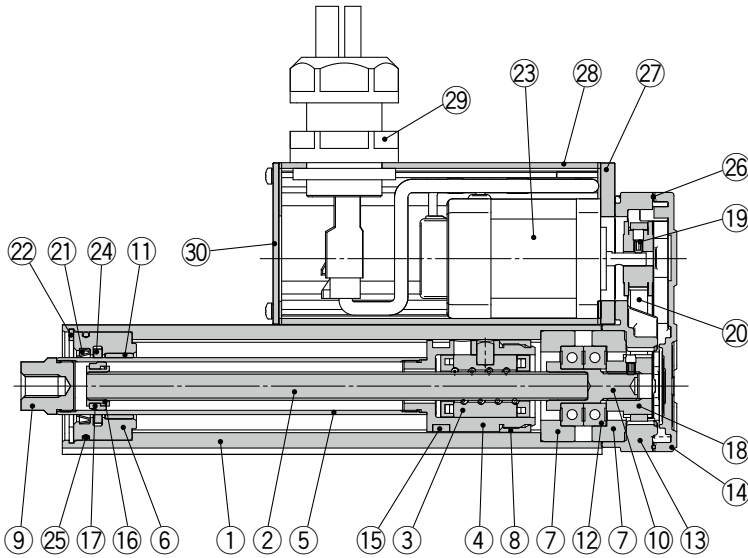
Model		LEY25D-X5								LEY32D-X5											
Stroke [mm]		30	50	100	150	200	250	300	350	400	30	50	100	150	200	250	300	350	400	450	500
Product weight [kg]	Step motor	1.46	1.53	1.70	1.96	2.14	2.31	2.49	2.66	2.84	2.49	2.60	2.89	3.36	3.65	3.92	4.22	4.50	4.77	5.05	5.33
	Servo motor	1.42	1.49	1.66	1.92	2.10	2.27	2.45	2.62	2.80	—	—	—	—	—	—	—	—	—	—	—

### Additional Weight

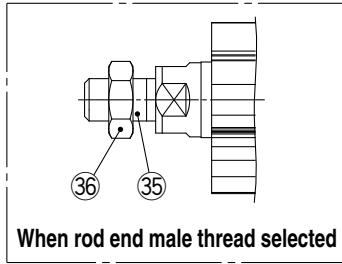
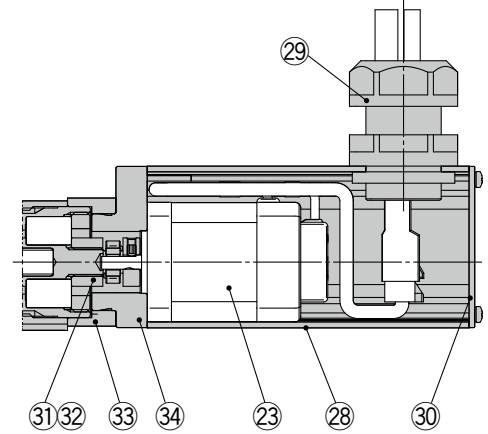
Size		25	32
Lock		0.33	0.63
Rod end male thread	Male thread	0.03	0.03
	Nut	0.02	0.02
Foot bracket (2 sets including mounting bolt)		0.08	0.14
Rod flange (including mounting bolt)		0.17	0.20
Head flange (including mounting bolt)			

## Construction

### Top side parallel motor type: LEY<sup>25</sup><sub>32</sub>



### In-line motor type: LEY<sup>25</sup><sub>32</sub>D



### 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	

No.	Description	Material	Note
20	Belt	—	
21	Scraper	Synthetic resin	
22	Retaining ring	Steel for spring	Phosphate coating
23	Motor	—	
24	Lube-retainer	Felt	
25	O-ring	NBR	
26	Gasket	NBR	
27	Motor adapter	Aluminum alloy	Anodized
28	Motor cover	Aluminum alloy	Anodized
29	Seal connector	—	
30	End cover	Aluminum alloy	Anodized
31	Hub	Aluminum alloy	
32	Spider	NBR	
33	Motor block	Aluminum alloy	Anodized
34	Motor adapter	Aluminum alloy	LEY25 only
35	Socket (Male thread)	Free cutting carbon steel	Nickel plating
36	Nut	Alloy steel	Zinc chromating

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

No.	Size	Order no.
20	25	LE-D-2-2
	32	LE-D-2-3

### Replacement Parts/Grease Pack

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

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

# LEY-X5 Series

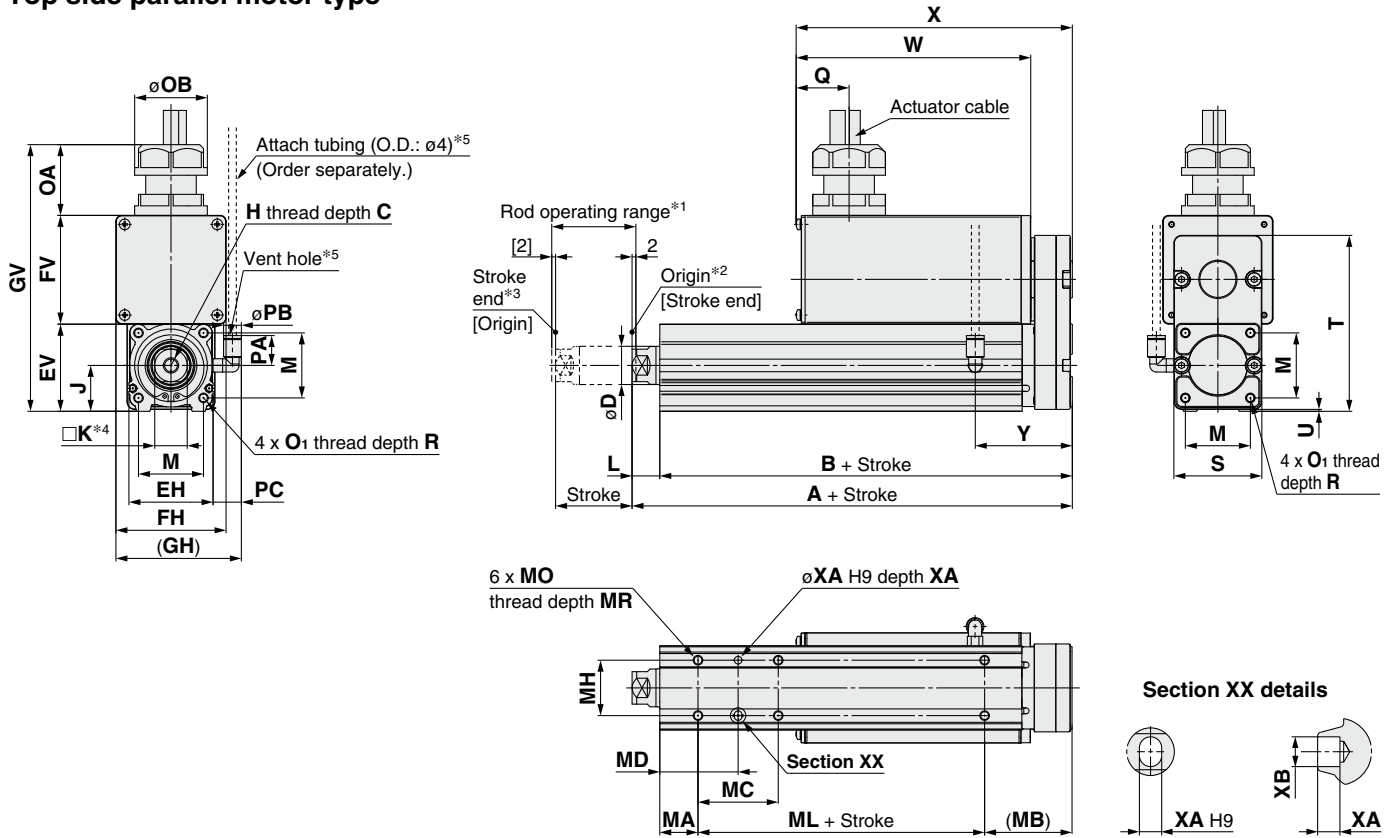
Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

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

## Dimensions

### Top side parallel motor type



[mm]

Size	Stroke range [mm]	A	B	C	D	EH	EV	FH	FV	GH	GV	H	J	K	L	M	O <sub>1</sub>
25	15 to 100	130.5	116	13	20	44	45.5	57.6	56.8	66.2	139.5	M8 x 1.25	24	17	14.5	34	M5 x 0.8
	101 to 400	155.5	141														
32	20 to 100	148.5	130	13	25	51	56.5	69.6	78.6	76.2	173.5	M8 x 1.25	31	22	18.5	40	M6 x 1.0
	101 to 500	178.5	160														

Size	Stroke range [mm]	R	OA	OB	PA	PB	Q	S	T	U	PC	W		X		Y
												Without lock	With lock	Without lock	With lock	
25	15 to 100	8	37	38	15.4	8.2	28	46	92	1	15.4	123	173	145	195	51
	101 to 400											123	173	145	195	
32	20 to 100	10	37	38	15.4	8.2	28	60	118	1	15.9	123	173	150	200	61
	101 to 500											123	173	150	200	

### Body Bottom Tapped

[mm]

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

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

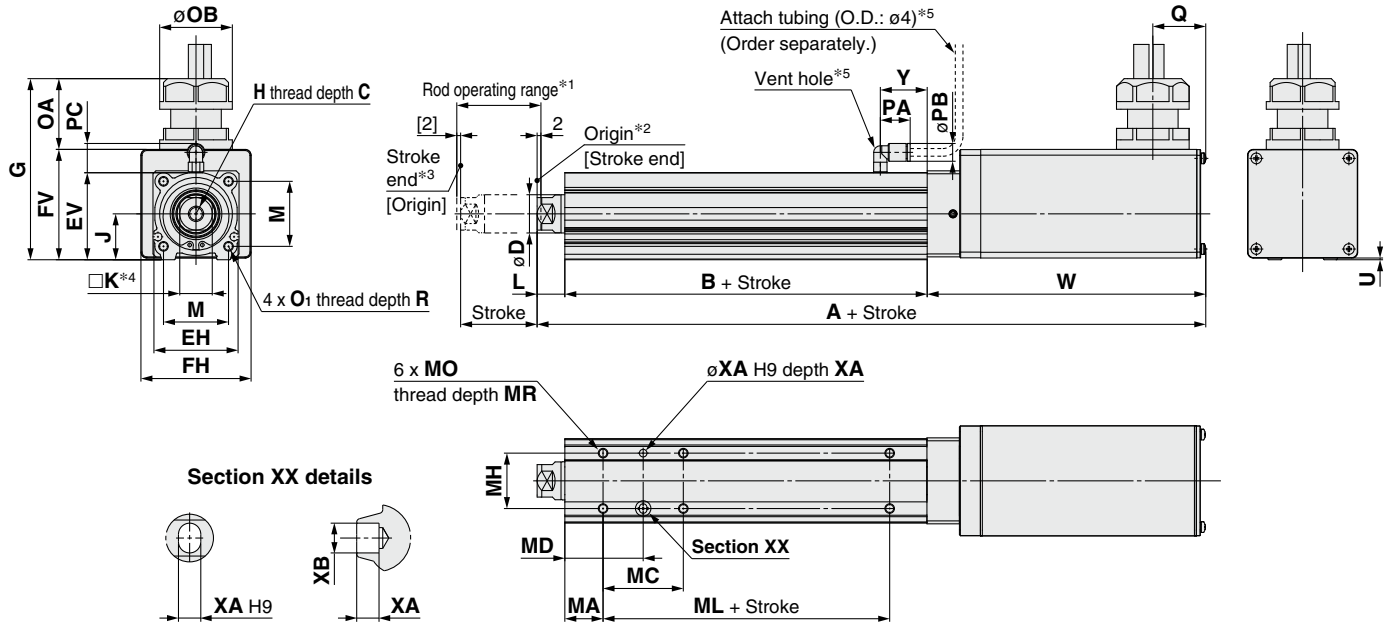
\*5 The vent hole is the port for releasing to atmosphere. Do not apply pressure to this hole.

Attach tubing to the vent hole and place the end of the tubing so it is not exposed to dust or water.

For the rod end male thread, refer to page 331. For the mounting bracket dimensions, refer to page 361.

## Dimensions

### In-line motor type



Size	Stroke range [mm]	A		B	C	D	EH	EV	FH	FV	G	H	J	K	L
		Without lock	With lock												
25	15 to 100	250	300	89.5	13	20	44	45.5	57.6	57.7	94.7	M8 x 1.25	24	17	14.5
	101 to 400	275	325	114.5											
32	20 to 100	265.5	315.5	96	13	25	51	56.5	69.6	79.6	116.6	M8 x 1.25	31	22	18.5
	101 to 500	295.5	345.5	126											

Size	Stroke range [mm]	M	O <sub>1</sub>	R	OA	OB	PA	PB	Q	U	PC	W		Y
												Without lock	With lock	
25	15 to 100	34	M5 x 0.8	8	37	38	15.4	8.2	28	0.9	15.9	146	196	24.5
	101 to 400											151	201	
32	20 to 100	40	M6 x 1.0	10	37	38	15.4	8.2	28	1	15.9	151	201	27
	101 to 500											151	201	

### Body Bottom Tapped

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

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

\*5 The vent hole is the port for releasing to atmosphere. Do not apply pressure to this hole.

Attach tubing to the vent hole and place the end of the tubing so it is not exposed to dust or water.

For the rod end male thread, refer to page 331. For the mounting bracket dimensions, refer to page 361.

- LEFS
- LEFB
- LEJS
- LEJB
- LEL
- LEM
- LEY
- LEYG
- LES
- LESH
- LEPY
- LEPS
- LER
- LEH
- LEH
- LEY-X5
- 11-LEFS
- 11-LEJS
- 25A-
- LEC
- JXC
- LECS
- LECS-T
- LECY
- Motorless
- LAT3

The LECSB-S, LECS-C, and LECS-S electric actuator drivers are to be discontinued. The LECSB-T, LECS-C-T, and LECS-S-T drivers are available as substitutes. In the product number, select T6 instead of S6, or T7 instead of S7 for the **Motor type**, and select B2 instead of B1, C2 instead of C1, or S2 instead of S1 for the **Driver type**.

# Electric Actuator

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

### LEY-X5 (Made to Order) Series LEY25, 32

Refer to page 305 for model selection.

Size 63 is available by selecting option P. Refer to page 343.

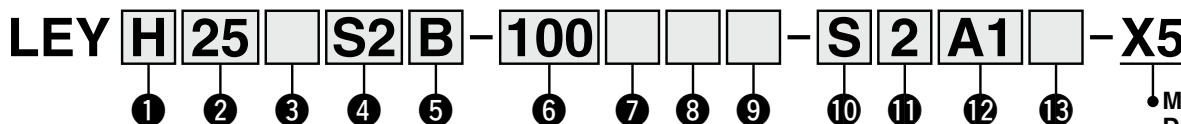


Click here for details.

**LECY** Series ▶ p. 625

**Motorless Type** ▶ p. 907

#### How to Order



• Made to order:  
Dust-tight/  
Water-jet-proof

#### 1 Accuracy

Nil	Basic type
H	High-precision type

#### 2 Size

25
32

#### 3 Motor mounting position

Nil	Top side parallel
D	In-line

#### 4 Motor type

Symbol	Type	Output [W]	Actuator size	Compatible drivers
S2*1	AC servo motor (Incremental encoder)	100	25	LECSA□-S1
S3		200	32	LECSA□-S3
S6*1	AC servo motor (Absolute encoder)	100	25	LECSB□-S5 LECS-C□-S5 LECSS□-S5
S7		200	32	LECSB□-S7 LECS-C□-S7 LECSS□-S7
T6*2	AC servo motor (Absolute encoder)	100	25	LECSB2-T5 LECS-C2-T5 LECSN2-T5-□ LECSS2-T5
T7		200	32	LECSB2-T7 LECS-C2-T7 LECSN2-T7-□ LECSS2-T7

\*1 For motor type S2 and S6, the compatible driver part number suffixes are S1 and S5 respectively.

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

#### 5 Lead [mm]

Symbol	LEY25□	LEY32□*1
A	12	16 (20)
B	6	8 (10)
C	3	4 (5)

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

#### 6 Stroke [mm]

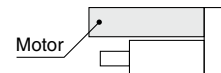
30	30
to	to
500	500

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

#### 7 Motor option

Nil	Without option
B	With lock*1

\*1 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.



#### 8 Rod end thread

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

#### 9 Mounting\*1

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

\*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

\*3 The rod flange type is not available for the LEY25 with a 30 mm stroke and motor option "With lock."

\*4 The head flange type is not available for the LEY32.

#### Applicable Stroke Table

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

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

\* For auto switches, refer to page 630.



LEFS  
LEFB

LEJS  
LEJB

LEL

LEM

LEY  
LEYG

LES  
LESH

LEPY  
LEPS

LER

LEH

LEY-X5

11-LEFS

11-LEJS

25A-

LEC□

JXC□

LECS□  
LECS□-T

LECY□

Motorless

LAT3

**10 Cable type**\*1 \*2

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

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

\*2 Standard cable entry direction is  
 • Top side parallel: (A) Axis side  
 • In-line: (B) Counter axis side  
 (Refer to page 796 for details.)

**11 Cable length [m]**\*1

Nil	Without cable
2	2
5	5
A	10

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

**12 Driver type**\*1

	Compatible drivers	Power supply voltage [V]
Nil	Without driver	—
A1	LECSA1-S□	100 to 120
A2	LECSA2-S□	200 to 230
B1	LECSB1-S□	100 to 120
B2	LECSB2-S□	200 to 230
	LECSB2-T□	200 to 240
C1	LECS1-S□	100 to 120
C2	LECS2-S□	200 to 230
	LECS2-T□	
S1	LECSS1-S□	100 to 120
S2	LECSS2-S□	200 to 230
	LECSS2-T□	200 to 240
N2	LECSN2-T□	200 to 240
92	LECSN2-T□-9	200 to 240
E2	LECSN2-T□-E	200 to 240
P2	LECSN2-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

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

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

\*1 When "Without driver" is selected for driver type, only "Nil: Without cable" can be selected. Refer to page 797 if I/O cable is required. (Options are shown on page 797.)

**Compatible Drivers**

Driver type	Pulse input type /Positioning type	Pulse input type	CC-Link direct input type	SSCNET III type	Pulse input type	CC-Link direct input type	SSCNET III/H type	Network card type
Series	LECSA	LECSB	LECS1	LECS2	LECSB-T	LECS1-T	LECSS-T	LECSN-T
Number of point tables*1	Up to 7	—	Up to 255 (2 stations occupied)	—	Up to 255	Up to 255 (2 stations occupied)	—	Up to 255
Pulse input	○	○	—	—	○	—	—	—
Applicable network	—	—	CC-Link	SSCNET III	—	CC-Link	SSCNET III/H	PROFINET EtherCAT® EtherNet/IP™
Control encoder	Incremental 17-bit encoder	Absolute 18-bit encoder	Absolute 18-bit encoder	Absolute 18-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	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	777							

\*1 The LECSN-T only supports PROFINET and EtherCAT®.

# LEY-X5 Series

AC Servo Motor

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

## Specifications: LECSA/LECSB/LECSC/LECSS

Model		LEY25S <sub>6</sub> <sup>2</sup> /T6-X5 / LEY25DS <sub>6</sub> <sup>2</sup> /T6-X5				LEY32S <sub>7</sub> <sup>3</sup> /T7-X5 (Parallel)			LEY32DS <sub>7</sub> <sup>3</sup> /T7-X5 (In-line)						
Actuator specifications	Work load [kg]	Horizontal* <sup>1</sup>		18	50	50	30	60	60	30	60	60			
		Vertical* <sup>8</sup>		8	16	30	9	19	37	12	24	46			
	Force [N]* <sup>2</sup> (Set value: 15 to 30%)* <sup>15</sup>		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]* <sup>3</sup>	Stroke range	Up to 300		900	450	225	1200	600	300	1000	500	250		
			305 to 400		600	300	150	800	400	200	640	320	160		
			405 to 500		—	—	—	—	—	—	—	—	—	—	
	Pushing speed [mm/s]* <sup>4</sup>		35 or less				30 or less			30 or less					
	Max. acceleration/deceleration [mm/s <sup>2</sup> ]		5000				5000								
	Positioning repeatability [mm]		Basic type		±0.02										
			High-precision type		±0.01										
	Lost motion [mm]* <sup>5</sup>		Basic type		0.1 or less										
			High-precision type		0.05 or less										
	Lead [mm] (including pulley ratio)		12	6	3	20	10	5	16	8	4				
	Impact/Vibration resistance [m/s <sup>2</sup> ]* <sup>6</sup>		50/20				50/20								
	Actuation type		Ball screw + Belt/Ball screw				Ball screw + Belt [1.25:1]			Ball screw					
Guide type		Sliding bushing (Piston rod)				Sliding bushing (Piston rod)									
Enclosure* <sup>7</sup>		IP65 equivalent													
Operating temperature range [°C]		5 to 40				5 to 40									
Operating humidity range [%RH]		90 or less (No condensation)				90 or less (No condensation)									
Regeneration option		May be required depending on speed and work load (Refer to pages 307 and 308.)													
Motor output/Size		100 W/□40				200 W/□60									
Motor type		AC servo motor (100/200 VAC)				AC servo motor (100/200 VAC)									
Encoder* <sup>14</sup>		Motor type S2, S3: Incremental 17-bit encoder (Resolution: 131072 p/rev) Motor type S6, S7: Absolute 18-bit encoder (Resolution: 262144 p/rev) Motor type T6, T7: Absolute 22-bit encoder (Resolution: 4194304 p/rev) (For LECSB-T□, LECSS-T□) Motor type T6, T7: Absolute 18-bit encoder (Resolution: 262144 p/rev) (For LECSC-T□)													
Electric specifications	Power consumption [W]* <sup>9</sup>	Horizontal		45				65				65			
		Vertical		145				175				175			
	Standby power consumption when operating [W]* <sup>10</sup>	Horizontal		2				2				2			
		Vertical		8				8				8			
Max. instantaneous power consumption [W]* <sup>11</sup>		445				724				724					
Lock unit specifications	Type* <sup>12</sup>		Non-magnetizing lock												
	Holding force [N]		131	255	485	157	308	588	197	385	736				
	Power consumption at 20°C [W]* <sup>13</sup>		6.3				7.9				7.9				
Rated voltage [V]		24 VDC <sub>-10%</sub> <sup>0</sup>													

- \*1 This is the maximum value of the horizontal work load. An external guide is necessary to support the load. The actual work load changes according to the condition of the external guide. 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 pages 309 and 310. When the control equivalent to the pushing operation of the JXC51/61 series controller is performed, select the LECSS-T or LECSSB2-T driver. The point table no. input method is used for the LECSSB2-T. When selecting the LECSS2-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.
- \*4 The allowable collision speed for collision with the workpiece with the torque control mode
- \*5 A reference value for correcting an error 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 Cannot be used in an environment where oil such as cutting oil splashes or it is constantly exposed to water. Take appropriate protective measures. For details on enclosure, refer to the "Enclosure" on page 415.
- \*8 When mounting vertically and using the product facing upwards in an environment where water is present, take necessary measures to prevent water from splashing on the rod cover, because water will accumulate on the rod seal due to the structure of the product.
- \*9 The power consumption (including the driver) is for when the actuator is operating.
- \*10 The standby power consumption when operating (including the driver) is for when the actuator is stopped in the set position during the operation.
- \*11 The maximum instantaneous power consumption (including the driver) is for when the actuator is operating.
- \*12 Only when motor option "With lock" is selected
- \*13 For an actuator with lock, add the power consumption for the lock.
- \*14 The resolution will change depending on the driver type.
- \*15 For motor type T6 and T7, the set value is from 12 to 24%.

## Weight

### Product Weight

[kg]

Series		LEY25S <sub>6</sub> <sup>2</sup> /T6-X5 (Motor mounting position: Parallel)									LEY32S <sub>7</sub> <sup>3</sup> /T7-X5 (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
Motor type	Incremental encoder	1.31	1.38	1.55	1.81	1.99	2.16	2.34	2.51	2.69	2.42	2.53	2.82	3.29	3.57	3.85	4.14	4.42	4.70	4.98	5.26
	Absolute encoder S6/S7	1.37	1.44	1.61	1.87	2.05	2.22	2.40	2.57	2.75	2.36	2.47	2.76	3.23	3.51	3.79	4.08	4.36	4.64	4.92	5.20
	Absolute encoder T6/T7	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		LEY25DS <sub>6</sub> <sup>2</sup> /T6-X5 (Motor mounting position: In-line)									LEY32DS <sub>7</sub> <sup>3</sup> /T7-X5 (Motor mounting position: In-line)										
Stroke [mm]		30	50	100	150	200	250	300	350	400	30	50	100	150	200	250	300	350	400	450	500
Motor type	Incremental encoder	1.34	1.41	1.58	1.84	2.02	2.19	2.37	2.54	2.72	2.44	2.55	2.84	3.31	3.59	3.87	4.16	4.44	4.72	5.00	5.28
	Absolute encoder S6/S7	1.40	1.47	1.64	1.90	2.08	2.25	2.43	2.60	2.78	2.38	2.49	2.78	3.25	3.53	3.81	4.10	4.38	4.66	4.94	5.22
	Absolute encoder T6/T7	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 Weight

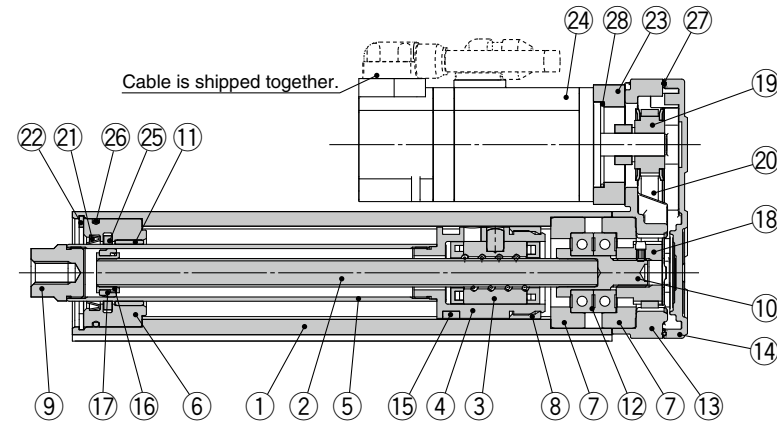
[kg]

Size		25	32
Lock	Incremental encoder	0.20	0.40
	Absolute encoder	0.30	0.66
Rod end male thread	Male thread	0.03	0.03
	Nut	0.02	0.02
Foot bracket (2 sets including mounting bolt)		0.08	0.14
Rod flange (including mounting bolt)		0.17	0.20
Head flange (including mounting bolt)			
Double clevis (including pin, retaining ring, and mounting bolt)		0.16	0.22

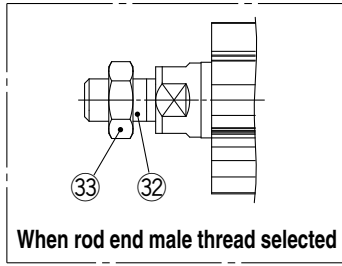
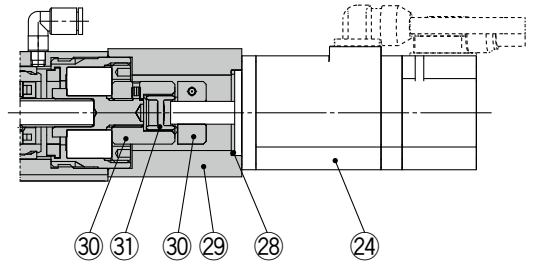


## Construction

Top side parallel motor type: LEY<sup>25</sup><sub>32</sub>



In-line motor type: LEY<sup>25</sup><sub>32</sub>D



### Component Parts

No.	Description	Material	Note
1	<b>Body</b>	Aluminum alloy	Anodized
2	<b>Ball screw shaft</b>	Alloy steel	
3	<b>Ball screw nut</b>	Synthetic resin/Alloy steel	
4	<b>Piston</b>	Aluminum alloy	
5	<b>Piston rod</b>	Stainless steel	Hard chrome plating
6	<b>Rod cover</b>	Aluminum alloy	
7	<b>Bearing holder</b>	Aluminum alloy	
8	<b>Rotation stopper</b>	Synthetic resin	
9	<b>Socket</b>	Free cutting carbon steel	Nickel plating
10	<b>Connected shaft</b>	Free cutting carbon steel	Nickel plating
11	<b>Bushing</b>	Bearing alloy	
12	<b>Bearing</b>	—	
13	<b>Return box</b>	Aluminum die-cast	Coating
14	<b>Return plate</b>	Aluminum die-cast	Coating
15	<b>Magnet</b>	—	
16	<b>Wear ring holder</b>	Stainless steel	Stroke 101 mm or more
17	<b>Wear ring</b>	Synthetic resin	Stroke 101 mm or more

No.	Description	Material	Note
18	<b>Screw shaft pulley</b>	Aluminum alloy	
19	<b>Motor pulley</b>	Aluminum alloy	
20	<b>Belt</b>	—	
21	<b>Scraper</b>	Synthetic resin	
22	<b>Retaining ring</b>	Steel for spring	Phosphate coating
23	<b>Motor adapter</b>	Aluminum alloy	Coating
24	<b>Motor</b>	—	
25	<b>Lube-retainer</b>	Felt	
26	<b>O-ring</b>	NBR	
27	<b>Gasket</b>	NBR	
28	<b>O-ring</b>	NBR	
29	<b>Motor block</b>	Aluminum alloy	Coating
30	<b>Hub</b>	Aluminum alloy	
31	<b>Spider</b>	Urethane	
32	<b>Socket (Male thread)</b>	Free cutting carbon steel	Nickel plating
33	<b>Nut</b>	Alloy steel	Trivalent chromating

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

No.	Size	Order no.
20	25	LE-D-2-2
	32	LE-D-2-4

### Replacement Parts/Grease Pack

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

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

LEFS  
LEFB

LEJS  
LEJB

LEL

LEM

LEY  
LEYG

LES  
LESH

LEPY  
LEPS

LER

LEH

LEY-X5

11-LEFS

11-LEJS

25A-

LEC

JXC

LECS  
LECS-T

LECY

Motorless

LAT3

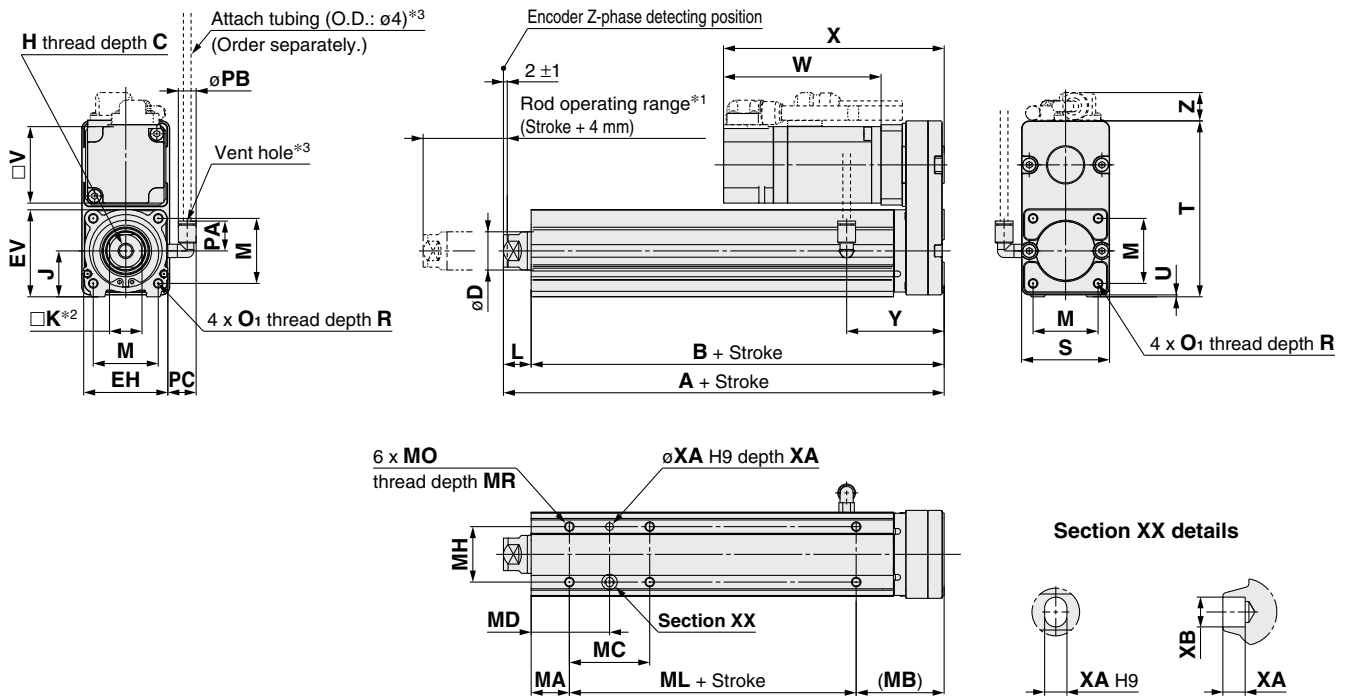
# LEY-X5 Series

AC Servo Motor

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

## Dimensions

### Top side parallel motor type: LEY<sup>25</sup><sub>32</sub>



Size	Stroke range [mm]	A	B	C	D	EH	EV	H	J	K	L	M	O <sub>1</sub>	R	PA	PB	V	S	T	U
25	15 to 100	130.5	116	13	20	44	45.5	M8 x 1.25	24	17	14.5	34	M5 x 0.8	8	15.4	8.2	40	46	92	1
	101 to 400	155.5	141																	
32	20 to 100	148.5	130	13	25	51	56.5	M8 x 1.25	31	22	18.5	40	M6 x 1.0	10	15.4	8.2	60	60	118	1
	101 to 500	178.5	160																	

Size	Stroke range [mm]	PC	Incremental encoder						Absolute encoder [S6/S7]						Absolute encoder [T6/T7]						Y
			Without lock			With lock			Without lock			With lock			Without lock			With lock			
			W	X	Z	W	X	Z	W	X	Z	W	X	Z	W	X	Z	W	X	Z	
25	15 to 100	15.4	87	120	14.1	123.9	156.9	15.8	82.4	115.4	14.1	123.5	156.5	15.8	82.4	115.4	14.1	123	156	15.8	51
	101 to 400	15.4	87	120	14.1	123.9	156.9	15.8	82.4	115.4	14.1	123.5	156.5	15.8	82.4	115.4	14.1	123	156	15.8	51
32	20 to 100	15.9	88.2	128.2	17.1	116.8	156.8	17.1	76.6	116.6	17.1	116.1	156.1	17.1	76.6	116.6	17.1	113.4	153.4	17.1	61
	101 to 500	15.9	88.2	128.2	17.1	116.8	156.8	17.1	76.6	116.6	17.1	116.1	156.1	17.1	76.6	116.6	17.1	113.4	153.4	17.1	61

### Body Bottom Tapped

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

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

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

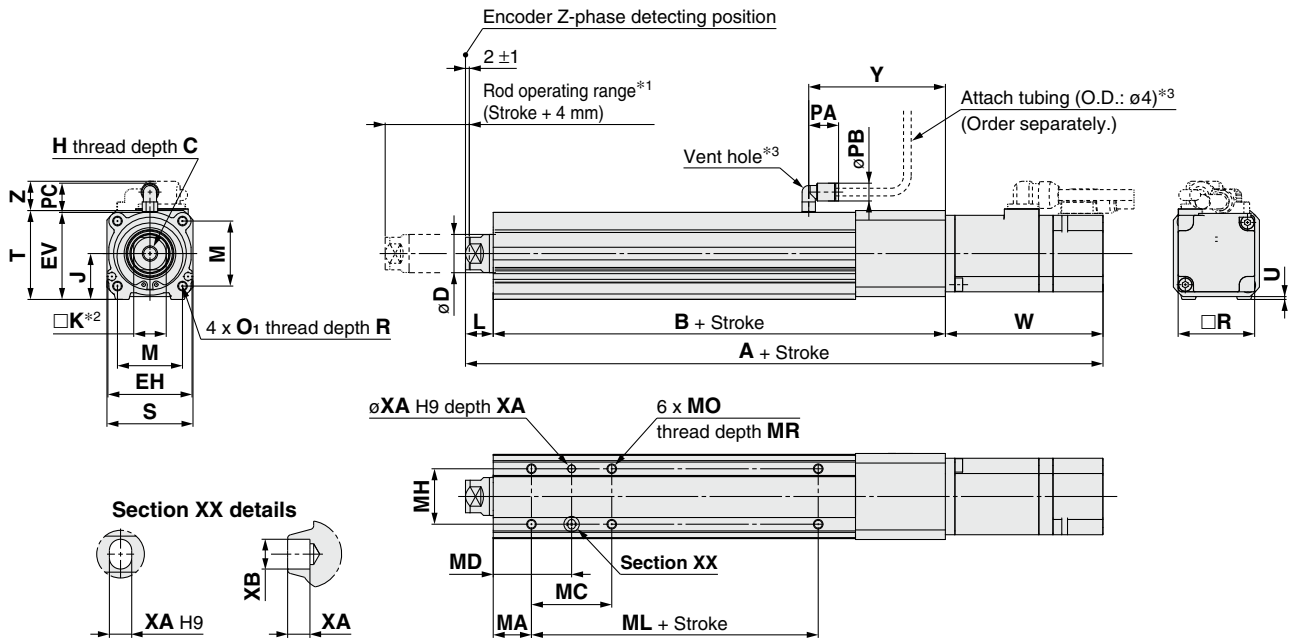
\*3 The vent hole is the port for releasing to atmosphere. Do not apply pressure to this hole.

Attach tubing to the vent hole and place the end of the tubing so it is not exposed to dust or water.

For the rod end male thread, refer to page 341. For the mounting bracket dimensions, refer to page 361.

**Dimensions**

**In-line motor type: LEY<sup>25</sup><sub>32</sub>D**



Size	Stroke range [mm]	Incremental encoder						Absolute encoder [S6/S7]						Absolute encoder [T6/T7]						B
		Without lock			With lock			Without lock			With lock			Without lock			With lock			
		A	W	Z	A	W	Z	A	W	Z	A	W	Z	A	VB	VC	A	VB	VC	
25	15 to 100	238	87	14.6	274.9	123.9	16.3	233.4	82.4	14.6	274.5	123.5	16.3	233.4	82.4	14.6	274	123	16.3	136.5
	101 to 400	263			299.9			258.4			299.5			258.4			299			161.5
32	20 to 100	262.7	88.2	17.1	291.3	116.8	17.1	251.1	76.6	17.1	290.6	116.1	17.1	251.1	76.6	17.1	287.9	113.4	17.1	156
	101 to 500	292.7			321.3			281.1			320.6			281.1			317.9			186

Size	Stroke range [mm]	C	D	EH	EV	H	J	K	L	M	O <sub>1</sub>	R	PA	PB	V	S	T	U	PC	Y
25	15 to 100	13	20	44	45.5	M8 x 1.25	24	17	14.5	34	M5 x 0.8	8	15.4	8.2	40	45	46.5	1.5	15.9	71.5
	101 to 400																			
32	20 to 100	13	25	51	56.5	M8 x 1.25	31	22	18.5	40	M6 x 1.0	10	15.4	8.2	60	60	61	1	15.9	87
	101 to 500																			

**Body Bottom Tapped**

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

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

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

\*3 The vent hole is the port for releasing to atmosphere. Do not apply pressure to this hole.

Attach tubing to the vent hole and place the end of the tubing so it is not exposed to dust or water.

For the rod end male thread, refer to page 341. For the mounting bracket dimensions, refer to page 361.

- LEFS
- LEFB
- LEJS
- LEJB
- LEL
- LEM
- LEYG
- LEYS
- LESH
- LEPY
- LEPS
- LER
- LEH
- LEY-X5
- 11-LEFS
- 11-LEJS
- 25A-
- LEC
- JXC
- LECS
- LECS-T
- LECY
- Motorless
- LAT3

# Electric Actuator Rod Type

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

## LEY-X5 (Made to Order) Series LEY25, 32

Refer to page 312 for model selection.

Size 63 is available by selecting option P. Refer to page 351.



[Click here](#) for details.

LECS Series ▶ p. 619

Motorless Type ▶ p. 907

### How to Order

LEY **H** **25** **V6** **B** - **200** **S** **3** **M2** - **X5**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬

• Made to order:  
Dust-tight/  
Water-jet-proof

#### ① Accuracy

Nil	Basic type
H	High-precision type

#### ② Size

25
32

#### ③ Motor mounting position

Nil	Top side parallel
D	In-line

#### ④ Motor type

Symbol	Type	Output [W]	Size	Compatible drivers
V6*1	AC servo motor (Absolute encoder)	100	25	LECYM2-V5 LECYU2-V5
V7		200	32	LECYM2-V7 LECYU2-V7

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

#### ⑤ Lead [mm]

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

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

#### ⑥ Stroke [mm]

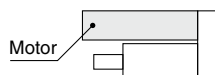
30	30
to	to
500	500

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

#### ⑦ Motor option

Nil	Without option
B	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.



#### ⑧ Rod end thread

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

#### Applicable Stroke Table

●: Standard

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

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

For auto switches, refer to page 630.



Motor mounting position: Parallel

Motor mounting position: In-line

### 9 Mounting\*1

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

\*1 The mounting bracket is shipped together with the product but does not come assembled.

\*2 For the horizontal cantilever mounting of the ends tapped, rod flange, or head flange types, use the actuator within the following stroke range.  
· LEY25: 200 mm or less · LEY32: 100 mm or less

\*3 The rod flange type is not available for the LEY25 with a 30 mm stroke and motor option "With lock."

\*4 The head flange type is not available for the LEY32.

### 10 Cable type\*1

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

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

### 11 Cable length [m]\*1

Nil	Without cable
3	3
5	5
A	10
C	20

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

### 12 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.

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

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

\*1 When "Without driver" is selected for driver type, only "Nil: Without cable" can be selected. Refer to page 808 if I/O cable is required. (Options are shown on page 808.)

### 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	801	

- LEFS
- LEFB
- LEJS
- LEJB
- LEL
- LEM
- LEY
- LEYG
- LES
- LESH
- LEPY
- LEPS
- LER
- LEH
- LEY-X5
- 11-LEFS
- 11-LEJS
- 25A-
- LEC□
- LEC
- JXC□
- LECS□
- LECS□-T
- LECY□
- Motorless
- LAT3

# LEY-X5 Series

AC Servo Motor

Size 25, 32

## Specifications: LECY

Model		LEY25V6-X5/LEY25DV6-X5				LEY32V7-X5 (Parallel)			LEY32DV7-X5 (In-line)				
Actuator specifications	Work load [kg]	Horizontal <sup>*1</sup>	18	50	50	30	60	60	30	60	60		
		Vertical <sup>*9</sup>	8	16	30	9	19	37	12	24	46		
	Force [N] <sup>*2</sup> (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]	Stroke range	Up to 300	900	450	225	1200	600	300	1000	500	250	
			305 to 400	600	300	150							
			405 to 500	—	—	—	800	400	200	640	320	160	
	Pushing speed [mm/s] <sup>*4</sup>		35 or less				30 or less			30 or less			
	Max. acceleration/deceleration [mm/s <sup>2</sup> ]		5000				5000						
	Positioning repeatability [mm]	Basic type		±0.02				±0.02					
		High-precision type		±0.01				±0.01					
	Lost motion [mm] <sup>*5</sup>	Basic type		0.1 or less				0.1 or less					
		High-precision type		0.05 or less				0.05 or less					
	Lead [mm] (including pulley ratio)		12	6	3		20 <sup>*6</sup>	10 <sup>*6</sup>	5 <sup>*6</sup>	16	8	4	
	Impact/Vibration resistance [m/s <sup>2</sup> ] <sup>*7</sup>		50/20				50/20						
Actuation type		Ball screw + Belt (LEY□)/Ball screw (LEY□)				Ball screw + Belt [1.25:1]			Ball screw				
Guide type		Sliding bushing (Piston rod)				Sliding bushing (Piston rod)							
Enclosure <sup>*8</sup>		IP65 equivalent											
Operating temperature range [°C]		5 to 40				5 to 40							
Operating humidity range [%RH]		90 or less (No condensation)				90 or less (No condensation)							
Conditions for <sup>*10</sup> "Regenerative resistor" [kg]	Horizontal		Not required				Not required						
	Vertical		6 or more				4 or more						
Motor output/Size		100 W/□40				200 W/□60							
Motor type		AC servo motor (200 VAC)				AC servo motor (200 VAC)							
Encoder		Absolute 20-bit encoder (Resolution: 1048576 p/rev)											
Power consumption [W] <sup>*11</sup>	Horizontal		45				65			65			
	Vertical		145				175			175			
Standby power consumption when operating [W] <sup>*12</sup>	Horizontal		2				2			2			
	Vertical		8				8			8			
Max. instantaneous power consumption [W] <sup>*13</sup>		445				724			724				
Type <sup>*14</sup>		Non-magnetizing lock											
Holding force [N]		131	255	485		157	308	588	197	385	736		
Power consumption at 20°C [W] <sup>*15</sup>		5.5				6			6				
Rated voltage [V]		24 VDC <sup>+10%</sup> / <sub>0</sub>											

\*1 This is the maximum value of the horizontal work load. An external guide is necessary to support the load. The actual work load changes according to the condition of the external guide. 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 316.

\*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 an error in reciprocal operation

\*6 Equivalent leads which include the pulley ratio [1.25:1]

\*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 Cannot be used in an environment where oil such as cutting oil splashes or it is constantly exposed to water. Take appropriate protective measures. For details on enclosure, refer to the "Enclosure" on page 415.

\*9 When mounting vertically and using the product facing upwards in an environment where water is present, take necessary measures to prevent water from splashing on the rod cover, because water will accumulate on the rod seal due to the structure of the product.

\*10 The work load conditions which require the "Regenerative resistor" when operating at the maximum speed (Duty ratio: 100%)

Order the regenerative resistor separately. For details, refer to the "Conditions for Regenerative Resistor (Guide)" on pages 314 and 315.

\*11 The power consumption (including the driver) is for when the actuator is operating.

\*12 The standby power consumption when operating (including the driver) is for when the actuator is stopped in the set position during the operation.

\*13 The maximum instantaneous power consumption (including the driver) is for when the actuator is operating.

\*14 Only when motor option "With lock" is selected

\*15 For an actuator with lock, add the power consumption for the lock.

## 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

Series	LEY25DV6 (Motor mounting position: In-line)										LEY32DV7 (Motor mounting position: In-line)									
Stroke [mm]	30	50	100	150	200	250	300	350	400	30	50	100	150	200	250	300	350	400	450	500
Weight [kg]	1.2	1.3	1.5	1.7	1.9	2.1	2.3	2.4	2.6	2.3	2.4	2.7	3.2	3.5	3.8	4.1	4.3	4.6	4.9	5.2

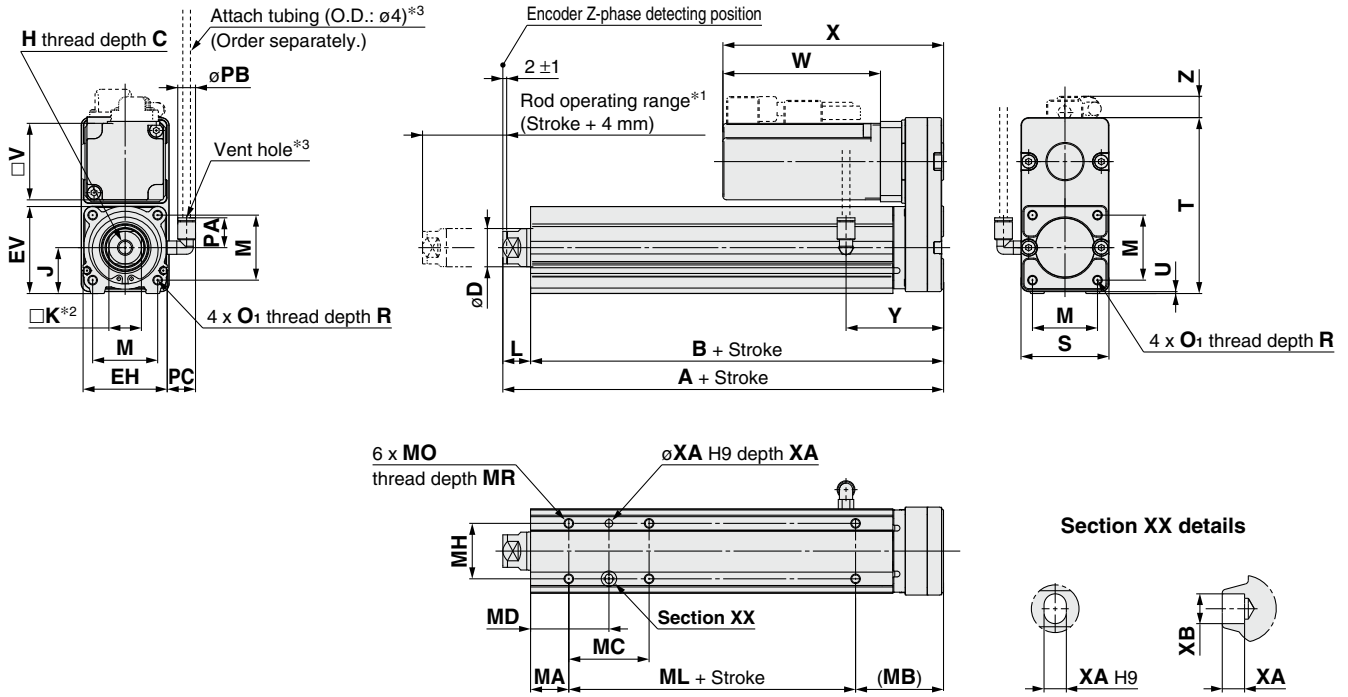
### Additional Weight

[kg]

Size		25	32
Lock		0.30	0.60
Rod end male thread	Male thread	0.03	0.03
	Nut	0.02	0.02
Foot bracket (2 sets including mounting bolt)		0.08	0.14
Rod flange (including mounting bolt)		0.17	0.20
Head flange (including mounting bolt)			

## Dimensions

### Top side parallel motor type: LEY<sub>25</sub><sup>25</sup>/<sub>32</sub>



Size	Stroke range [mm]	A	B	C	D	EH	EV	H	J	K	L	M	O <sub>1</sub>	R	PA	PB	V	[mm]						
																		S	T	U	PC	Without lock		
																		W	X	Z	W	X	Z	Y
25	15 to 100	130.5	116	13	20	44	45.5	M8 x 1.25	24	17	14.5	34	M5 x 0.8	8	15.4	8.2	40	82.5	115.5	11	127.5	160.5	11	51
	101 to 400	155.5	141															80	120	14	120	160	14	61
32	20 to 100	148.5	130	13	25	51	56.5	M8 x 1.25	31	22	18.5	40	M6 x 1.0	10	15.4	8.2	60	80	120	14	120	160	14	61
	101 to 500	178.5	160															80	120	14	120	160	14	61

### Body Bottom Tapped

Size	Stroke range [mm]	MA	MB	MC	MD	MH	ML	MO	MR	XA	XB	[mm]	
												W	X
25	15 to 39	20	46	24	32	29	50	M5 x 0.8	6.5	4	5	82.5	115.5
	40 to 100			42	41							75	
	101 to 124			59	49.5								
	125 to 200			76	58								
	201 to 400			76	58								
32	20 to 39	25	55	22	36	30	50	M6 x 1	8.5	5	6	80	120
	40 to 100			36	43							80	
	101 to 124			53	51.5								
	125 to 200			53	51.5								
	201 to 500			70	60								

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

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

\*3 The vent hole is the port for releasing to atmosphere. Do not apply pressure to this hole.

Attach tubing to the vent hole and place the end of the tubing so it is not exposed to dust or water.

For the rod end male thread, refer to page 341. For the mounting bracket dimensions, refer to page 361.

LEFS  
LEFB  
LEJS  
LEJB  
LEL  
LEM  
LEY  
LEYG  
LES  
LESH  
LEPY  
LEPS  
LER  
LEH  
LEY-X5  
11-LEFS  
11-LEJS  
25A-  
LEC  
JXC  
LECS  
LECS-T  
LECY  
Motorless  
LAT3

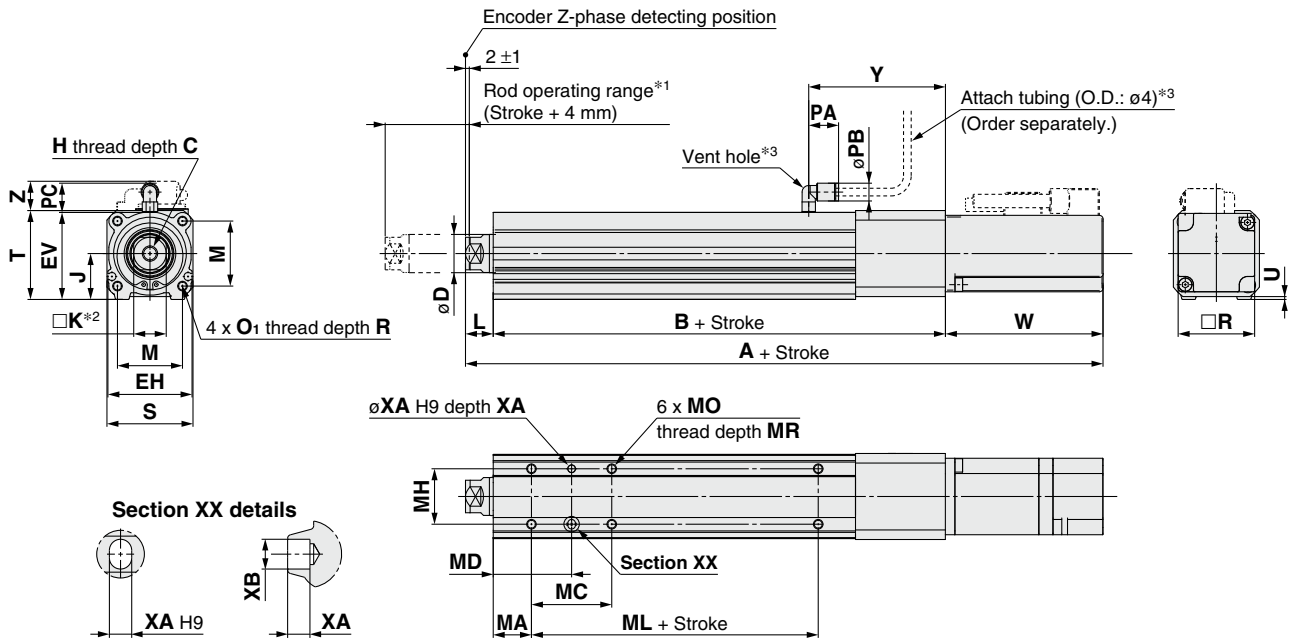
# LEY-X5 Series

AC Servo Motor

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

## Dimensions

In-line motor type: LEY<sup>25</sup><sub>32</sub>D



[mm]

Size	Stroke range [mm]	Without lock			With lock			B	C	D	EH	EV
		A	W	Z	A	W	Z					
25	15 to 100	233.5	82.5	11.5	278.5	127.5	11.5	136.5	13	20	44	45.5
	101 to 400	258.5			303.5			161.5				
32	20 to 100	254.5	80	14	294.5	120	14	156	13	25	51	56.5
	101 to 500	284.5			324.5			186				

Size	Stroke range [mm]	H	J	K	L	M	O <sub>1</sub>	R	PA	PB	V	S	T	U	PC	Y
25	15 to 100	M8 x 1.25	24	17	14.5	34	M5 x 0.8	8	15.4	8.2	40	45	46.5	1.5	15.9	71.5
	101 to 400															
32	20 to 100	M8 x 1.25	31	22	18.5	40	M6 x 1.0	10	15.4	8.2	60	60	61	1	15.9	87
	101 to 500															

### Body Bottom Tapped

[mm]

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

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

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

\*3 The vent hole is the port for releasing to atmosphere. Do not apply pressure to this hole.

Attach tubing to the vent hole and place the end of the tubing so it is not exposed to dust or water.

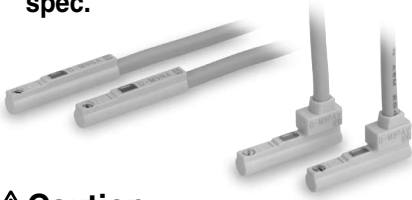
For the rod end male thread, refer to page 341. For the mounting bracket dimensions, refer to page 361.



# Water Resistant 2-Color Indicator Solid State Auto Switch: Direct Mounting Type D-M9NA(V)/D-M9PA(V)/D-M9BA(V)

## Grommet

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



## Caution

### Precautions

Fix the auto switch with the existing screw installed on the auto switch body. The auto switch may be damaged if a screw other than the one supplied is used. Please consult with SMC if using coolant liquid other than water based solution.

## Weight

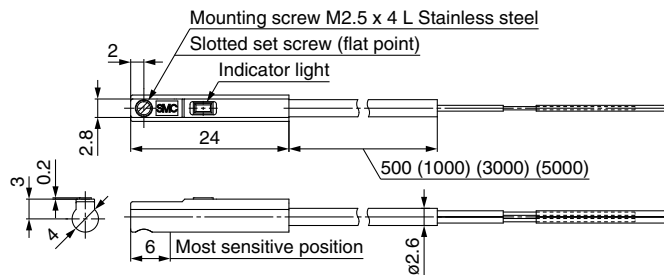
[g]

Auto switch model	D-M9NA(V)	D-M9PA(V)	D-M9BA(V)
Lead wire length			
0.5 m (Nil)	8	7	
1 m (M)	14	13	
3 m (L)	41	38	
5 m (Z)	68	63	

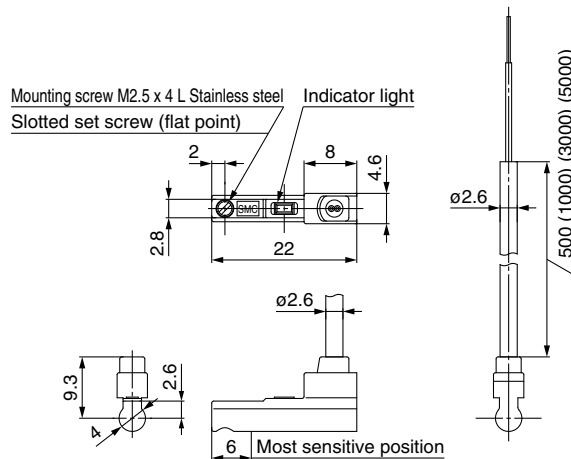
## Dimensions

[mm]

### D-M9□A



### D-M9□AV



## Auto Switch Specifications

PLC: Programmable Logic Controller

D-M9□A, D-M9□AV (With indicator light)						
Auto switch model	D-M9NA	D-M9NAV	D-M9PA	D-M9PAV	D-M9BA	D-M9BAV
Electrical entry direction	In-line	Perpendicular	In-line	Perpendicular	In-line	Perpendicular
Wiring type	3-wire				2-wire	
Output type	NPN		PNP		—	
Applicable load	IC circuit, Relay, PLC				24 VDC relay, PLC	
Power supply voltage	5, 12, 24 VDC (4.5 to 28 V)				—	
Current consumption	10 mA or less				—	
Load voltage	28 VDC or less		—		24 VDC (10 to 28 VDC)	
Load current	40 mA or less				2.5 to 40 mA	
Internal voltage drop	0.8 V or less at 10 mA (2 V or less at 40 mA)				4 V or less	
Leakage current	100 μA or less at 24 VDC				0.8 mA or less	
Indicator light	Operating range ..... Red LED illuminates. Proper operating range ..... Green LED illuminates.					
Standard	CE marking (EMC directive/RoHS directive)					

## Oilproof Flexible Heavy-duty Lead Wire Specifications

Auto switch model		D-M9NA□	D-M9NAV□	D-M9PA□	D-M9PAV□	D-M9BA□	D-M9BAV□
Sheath	Outside diameter [mm]	2.6					
Insulator	Number of cores	3 cores (Brown/Blue/Black)			2 cores (Brown/Blue)		
	Outside diameter [mm]	0.88					
Conductor	Effective area [mm <sup>2</sup> ]	0.15					
	Strand diameter [mm]	0.05					
Minimum bending radius [mm]		17					

\* Refer to page 996 for solid state auto switch common specifications.

\* Refer to page 996 for lead wire lengths.

LEFS  
LEFB  
LEJS  
LEJB  
LEL  
LEM  
LEY  
LEYG  
LES  
LESH  
LEPY  
LEPS  
LER  
LEH  
LEH  
LEY-X5  
11-LEFS  
11-LEJS  
25A-  
LEC□  
JXC□  
LECS□  
LECS□-T  
LECY□  
Motorless  
LAT3