

Electric Actuator/Rod Type In-line Motor Type Series LEY□D



In-line motor type newly added to rod type!

Height dimension shortened by up to 49%

LEY16D

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

A Dimensions (mm)

Size	In-line motor	Motor parallel
16	35.5	67.5
25	46.5	92
32	61	118



- **Speed control/Positioning: Max. 64 points**
- **Either positioning or pushing control can be selected.**
Possible to hold the actuator with the rod pushing to a workpiece, etc.
- **Auto switch can be mounted.**

Data can be set with only 2 items: position and speed.

* When a teaching box is used

Data	Axis 1
Step No.	0
Posn	50.00 mm
Speed	500 mm/s

Teaching box screen



With dedicated controller

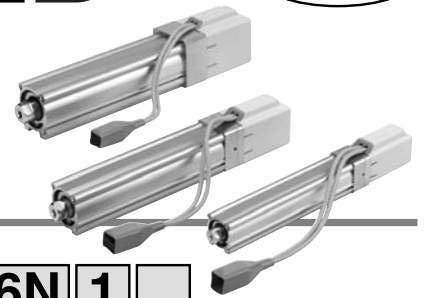
Basic operation preinstalled



Series Variations

Model	Screw lead [mm]	Pushing force [N]		Max. speed [mm/s]	Stroke [mm]
		Step motor	Servo motor		
LEY16D	10	38	30	500	50 to 300
	5	74	58	250	
	2.5	141	111	125	
LEY25D	12	122	35	500	50 to 400
	6	238	72	250	
	3	452	130	125	
LEY32D	16	189	—	500	50 to 500
	8	370		250	
	4	707		125	

Electric Actuator/Rod Type In-line Motor Type Series LEY□D LEY16D, 25D, 32D



Refer to the LEY series catalog (CAT.ES100-83) for more details about "Model Selection".

How to Order

LEY 16 D □ B - 50 □ □ □ - R 1 6N 1 □

Size

16	Motor mounting position
25	D In-line
32	

Motor type

Symbol	Type	Size		
		LEY16D	LEY25D	LEY32D
Nil	Step motor (Servo/24 VDC)	●	●	●
A	Servo motor ^{Note 1)} (24 VDC)	●	●	—

Lead

Symbol	LEY16D	LEY25D	LEY32D
A	10 mm	12 mm	16 mm
B	5 mm	6 mm	8 mm
C	2.5 mm	3 mm	4 mm

Caution

Note 1) CE-compliant products
 ① EMC compliance was tested by combining the electric actuator LEY series and the controller LEC series. The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore conformity to the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result it is necessary for the customer to verify conformity to the EMC directive for the machinery and equipment as a whole.
 ② For the servo motor (24 VDC) specification, EMC compliance was tested by installing a noise filter set (LEC-NFA). Refer to CAT.ES100-83 for the noise filter set. Refer to the LECA Operation Manual for installation.

Stroke

50	50 mm
?	?
500	500 mm

* Refer to the table below for details.

Motor option ^{Note 2)}

Nil	Without option
C	With motor cover
B	With lock ^{Note 3)}

Note 2) When [With lock] specification is selected, [With motor cover] specification cannot be selected.

Note 3) When selecting body size 16, it is not possible to select a stroke 50 or less.

Refer to CAT.ES100-83 for auto switches.

Controller mounting

Nil	Screw mounting
D	DIN rail mounting

I/O cable length

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

Controller type

Nil	Without controller
6N	With controller (NPN)
6P	With controller (PNP)

Actuator cable length

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

* Produced upon receipt of order

Actuator cable type

Nil	Without cable
R	Robotic cable (Flexible cable)

Mounting

Nil	End tapped (Standard)
U	Body bottom tapped
F	Rod flange

* Mounting bracket is shipped together, (but not assembled).
 * When mounting styles are [Rod flange] or [End tapped] with horizontal cantilever, use it within the following stroke.
 • LEY25D: 200 or less • LEY32D: 100 or less

Rod end thread

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

* Applicable stroke table

● Standard/○ Produced upon receipt of order

Model	Stroke	50	100	150	200	250	300	350	400	450	500	Manufacturable stroke range
LEY16D		●	●	○	●	○	●	—	—	—	—	10 to 300
LEY25D		●	●	○	●	○	●	○	○	—	—	15 to 400
LEY32D		●	●	○	●	○	●	○	○	○	○	20 to 500

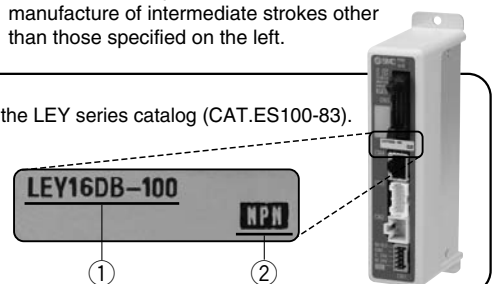
* Please consult with SMC for the lead times of made-to-order products, or the manufacture of intermediate strokes other than those specified on the left.

The actuator and controller are sold as a package. (Controller → Refer to the LEY series catalog (CAT.ES100-83).)

Confirm that the combination of the controller and the actuator is compatible.

<Be sure to check the following before use.>

- Check that actuator label for model number. This matches the controller.
- Check Parallel I/O configuration matches (NPN or PNP).



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

Specifications

Note 1) Strokes shown in () and the intermediate strokes are produced upon receipt of order.

Note 2) Horizontal: The maximum value of the work load.
(An external guide is necessary to support the load.)
The actual work load and transfer speed will depend on the condition of the external guide.

Vertical: Speed is dependent on the work load. Check "Model Selection" in the LEY series catalog (CAT.ES100-83).

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

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

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

Note 4) Setting range of "Pushing force" for LEY16D is from 35% to 85%, for LEY25D is from 35% to 65%, and for LEY32D is from 35% to 85%. It is possible that "Pushing force" and "Duty ratio" changes dependent on the set value. Check "Model Selection" in the LEY series catalog (CAT.ES100-83).

Note 5) Pushing speed is the allowable speed for the pushing operation. When pushing a workpiece for transfer of its position, do not exceed the maximum vertical work load.

Note 6) Impact resistance: No malfunction occurred when the slide table was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)

Note 7) Power consumption (including the controller) is for when the actuator is operating.

Note 8) Standby power consumption when operating (including the controller) is for when the actuator is stopped in the set position during operation, except during pushing operation.

Note 9) Momentary max. power consumption (including the controller) is for when the actuator is operating. This value can be used for the selection of the power supply.

Note 10) With lock only

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

Note 1) Strokes shown in () and the intermediate strokes are produced upon receipt of order.

Note 2) Horizontal: The maximum value of the work load.
(An external guide is necessary to support the load.)
The actual work load and transfer speed will depend on the condition of the external guide.

Vertical: Check "Model Selection" in the LEY series catalog (CAT.ES100-83).

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

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

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

Note 4) Setting range of "Pushing force" for LEY16DA is from 50% to 95% and for LEY25DA is from 50% to 95%. It is possible that "Pushing force" and "Duty ratio" changes dependent on the set value. Check "Model Selection" in the LEY series catalog (CAT.ES100-83).

Note 5) Pushing speed is the allowable speed for the pushing operation. When pushing a workpiece for transfer of its position, do not exceed the maximum vertical work load.

Note 6) Impact resistance: No malfunction occurred when the slide table was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (Test was performed with the actuator in the initial state.)

Note 7) Power consumption (including the controller) is for when the actuator is operating.

Note 8) Standby power consumption when operating (including the controller) is for when the actuator is stopped in the set position during operation, except during pushing operation.

Note 9) Momentary max. power consumption (including the controller) is for when the actuator is operating. This value can be used for the selection of the power supply.

Note 10) With lock only

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

Additional Weight

(kg)

Size	16	25	32
Lock	0.12	0.19	0.35
Motor cover	0.02	0.03	0.04
Rod end male thread	Male thread	0.01	0.03
	Nut	0.01	0.02
Rod flange (including mounting bolts)	0.13	0.17	0.20

Step Motor (Servo/24 VDC)

Model		LEY16D				LEY25D				LEY32D			
Actuator specifications	Stroke [mm] ^{Note 1)}	50, 100, 200, 300				50, 100, 200, 300, (400)				50, 100, 200, 300, (400, 500)			
	Work load [kg] ^{Note 2)}	Horizontal	(3000 [mm/s ²])	4	11	20	12	30	30	20	40	40	
			(2000 [mm/s ²])	6	17	30	18	50	50	30	60	60	
		Vertical	(3000 [mm/s ²])	2	4	8	8	16	30	11	22	43	
	Pushing force [N] ^{Note 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			
	Speed [mm/s]	15 to 500 8 to 250 4 to 125				18 to 500 9 to 250 5 to 125				24 to 500 12 to 250 6 to 125			
	Pushing speed [mm/s] ^{Note 5)}	50 or less				35 or less				30 or less			
	Positioning repeatability [mm]	±0.02											
	Screw lead [mm]	10	5	2.5	12	6	3	16	8	4			
	Impact/Vibration resistance [m/s ²] ^{Note 6)}	50/20											
Actuation type	Ball screw												
Guide type	Sliding bushing (Piston rod)												
Operating temp. range [°C]	5 to 40 (No condensation and freezing)												
Operating humidity range [%]	35 to 85 (No condensation and freezing)												
Electric specifications	Motor size	□28				□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] ^{Note 7)}	23				40				50			
	Standby power consumption when operating [W] ^{Note 8)}	16				15				48			
	Momentary max. power consumption [W] ^{Note 9)}	43				48				104			
Controller weight [kg]	0.15 (Screw mounting), 0.17 (DIN rail mounting)												
Lock unit specifications	Type ^{Note 10)}	Non-energizing operation type											
	Holding force [N]	20	39	78	78	157	294	108	216	421			
	Power consumption [W] ^{Note 11)}	3.6				5				5			
	Rated voltage [V]	24 VDC ±10%											

Servo Motor (24 VDC)

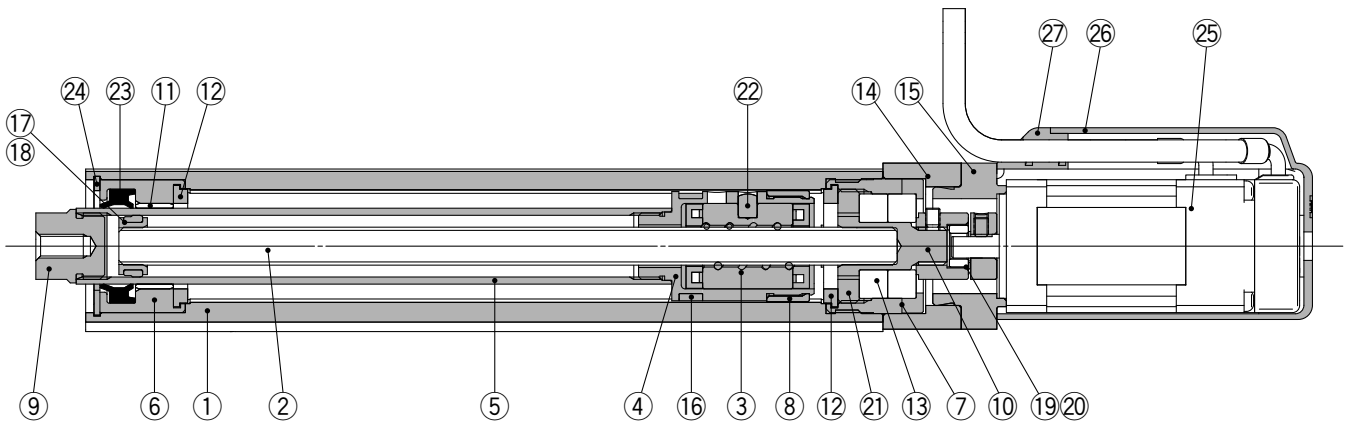
Model		LEY16DA				LEY25DA				
Actuator specifications	Stroke [mm] ^{Note 1)}	50, 100, 200, 300				50, 100, 200, 300, (400)				
	Work load [kg] ^{Note 2)}	Horizontal	(3000 [mm/s ²])	3	6	12	7	15	30	
			(3000 [mm/s ²])	2	4	8	3	6	12	
		Vertical	(3000 [mm/s ²])	2	4	8	3	6	12	
	Pushing force [N] ^{Note 3) 4)}	16 to 30 30 to 58 57 to 111				18 to 35 37 to 72 66 to 130				
	Speed [mm/s]	15 to 500 8 to 250 4 to 125				18 to 500 9 to 250 5 to 125				
	Pushing speed [mm/s] ^{Note 5)}	50 or less				35 or less				
	Positioning repeatability [mm]	±0.02								
	Screw lead [mm]	10	5	2.5	12	6	3			
	Impact/Vibration resistance [m/s ²] ^{Note 6)}	50/20								
Actuation type	Ball screw									
Guide type	Sliding bushing (Piston rod)									
Operating temp. range [°C]	5 to 40 (No condensation and freezing)									
Operating humidity range [%]	35 to 85 (No condensation and freezing)									
Electric specifications	Motor size	□28				□42				
	Motor output [W]	30				36				
	Motor type	Servo motor (24 VDC)								
	Encoder	Incremental A/B phase (800 pulse/rotation)/Z phase								
	Rated voltage [V]	24 VDC ±10%								
	Power consumption [W] ^{Note 7)}	40				86				
	Standby power consumption when operating [W] ^{Note 8)}	4 (Horizontal)/6 (Vertical)				4 (Horizontal)/12 (Vertical)				
Momentary max. power consumption [W] ^{Note 9)}	59				96					
Controller weight [kg]	0.15 (Screw mounting), 0.17 (DIN rail mounting)									
Lock unit specifications	Type ^{Note 10)}	Non-energizing operation type								
	Holding force [N]	20	39	78	78	157	294			
	Power consumption [W] ^{Note 11)}	3.6				5				
	Rated voltage [V]	24 VDC ±10%								

Weight

Model		LEY16D				LEY25D				LEY32D						
Product weight [kg]	Step motor	0.62	0.73	0.98	1.20	1.24	1.41	1.85	2.20	2.55	2.19	2.48	3.16	3.73	4.31	4.88
	Servo motor	0.62	0.73	0.98	1.20	1.20	1.37	1.51	2.16	2.51	—	—	—	—	—	—

Series LEY□D

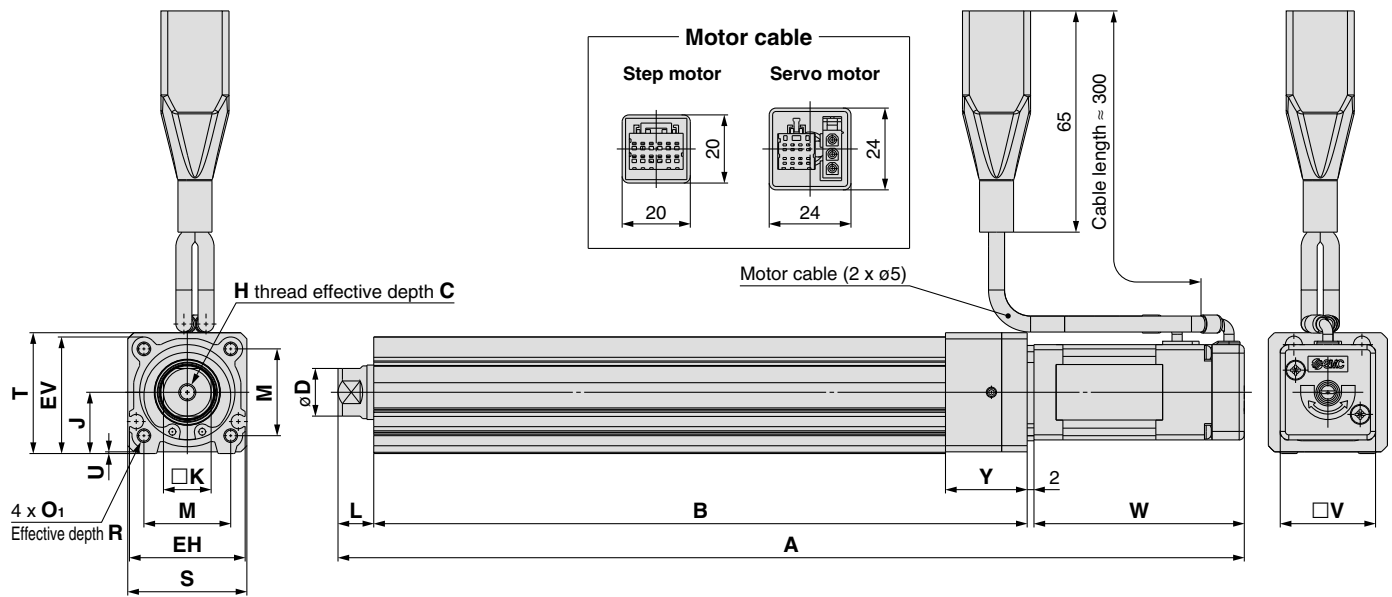
Construction



Component Parts

No.	Description	Material	Note
1	Body	Aluminum alloy	Anodized
2	Ball screw (shaft)	Alloy steel	
3	Ball screw nut	Resin/Alloy steel	
4	Piston	Aluminum alloy	
5	Piston rod	Stainless steel	Hard chrome anodized
6	Rod cover	Aluminum alloy	
7	Housing	Aluminum alloy	
8	Rotation stopper	POM	
9	Socket	Free cutting steel	Nickel plated
10	Connected shaft	Free cutting steel	Nickel plated
11	Bushing	Lead bronze casting	
12	Bumper	Urethane	
13	Bearing	—	
14	Motor block	Aluminum alloy	
15	Motor adapter	Aluminum alloy	LEY16, 25 only
16	Magnet	—	
17	Wear ring holder	Stainless steel	Stroke 105 mm or more
18	Wear ring	POM	Stroke 105 mm or more
19	Hub	NBR	
20	Spider	Aluminum alloy	
21	Bearing holder	Aluminum alloy	Nickel plated
22	Parallel pin	Carbon steel	
23	Rod seal	NBR	
24	Retaining ring	Steel for spring	
25	Motor	—	
26	Motor cover	Synthetic resin	Only "With motor cover"
27	Grommet	Synthetic resin	Only "With motor cover"

Dimensions



Size	Stroke range (mm)	Step motor	Servo motor	(mm)														
				B	C	D	EH	EV	H	J	K	L	M	O ₁	R	S	T	U
16	10 to 100	166.3	167	92	10	16	34	34.25	M5 x 0.8	18	14	10.5	25.5	M4 x 0.7	7	35	35.5	0.5
	101 to 300	186.3	187	112														
25	15 to 100	195.4	191.6	115.5	13	20	44	45.5	M8 x 1.25	24	17	14.5	34	M5 x 0.8	8	45	46.5	1.5
	101 to 400	220.4	216.6	140.5														
32	20 to 100	216.9	—	128	13	25	51	56.5	M8 x 1.25	31	22	18.5	40	M6 x 1	10	60	61	1
	101 to 500	246.9	—	158														

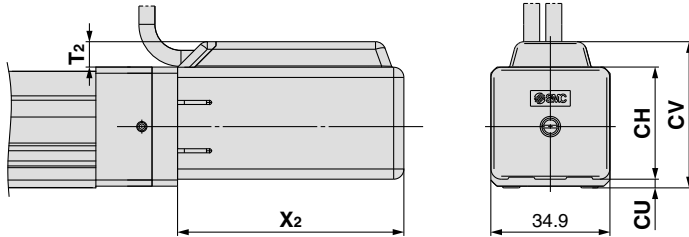
Size	Stroke range (mm)	V	Step motor	Servo motor	Y
			W		
16	10 to 100	28	61.8	62.5	24
	101 to 300				
25	15 to 100	42	63.4	59.6	26
	101 to 400				
32	20 to 100	56.4	68.4	—	32
	101 to 500				

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

Series LEY□D

Dimensions

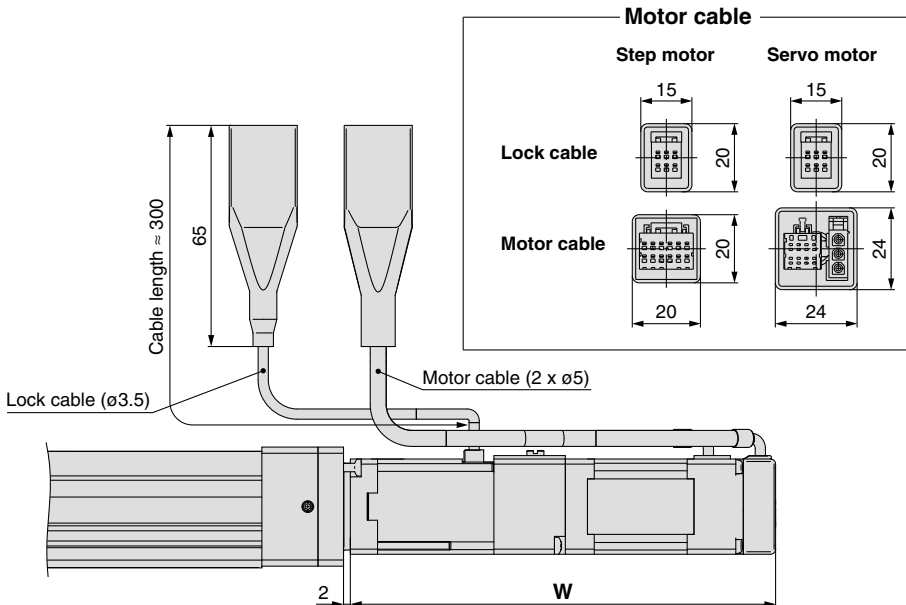
With motor cover/LEY25D□B-□C
 16 A
 32 C



Size	T ₂	X ₂	CH	CV	CU
16	7.5	66.5	32.9	42.95	2.55
25	7.5	68.5	45.9	54.54	1.05
32	7.5	73.5	59.9	68.45	1.05

Motor cover material: Synthetic resin

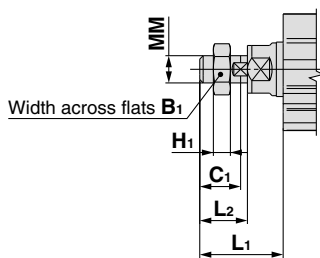
With lock/LEY25D□B-□B
 16 A
 32 C



Size	Step motor		Servo motor	
	W	W	W	W
16	125	125.7	—	—
25	103.9	100.1	—	—
32	112.4	—	—	—

End male thread/LEY25D□B-□□M
 16 A
 32 C

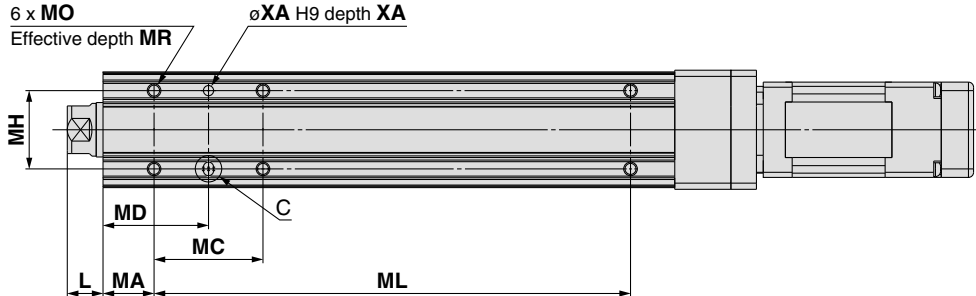
* Refer to the LEY series catalog (CAT.ES100-83) for details of the rod end nut and mounting bracket.
 (Note) Refer to Specific Product Precautions "Handling" in the LEY series catalog (CAT.ES100-83) when mounting end brackets such as knuckle joint or work pieces.



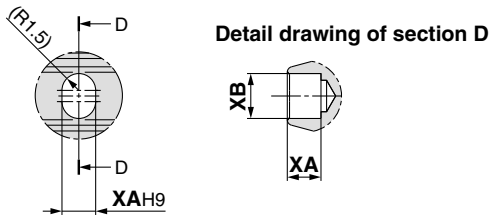
Size	B ₁	C ₁	H ₁	L ₁	L ₂	MM
16	13	12	5	24.5	14	M8 x 1.25
25	22	20.5	8	38	23.5	M14 x 1.5
32	22	20.5	8	42.0	23.5	M14 x 1.5

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

16 A
Body bottom tapped/LEY25□B-□□□U
32 C



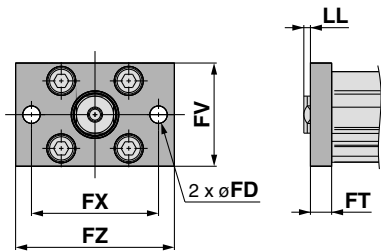
Detail drawing of section C



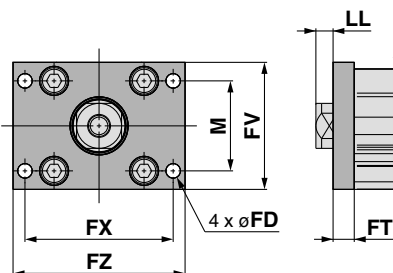
Body Bottom Tapped

		(mm)										
Size	Stroke range (mm)	L	MA	MC	MD	MH	ML	MO	MR	XA	XB	
16	10 to 39	10.5	15	17	23.5	23	40	M4 x 0.7	5.5	3	4	
	40 to 100			32	31							
	101 to 300			62	46							
25	15 to 39	14.5	20	24	32	29	50	M5 x 0.8	6.5	4	5	
	40 to 100			42	41							
	101 to 124			59	49.5		75					
	125 to 200			76	58							
32	20 to 39	18.5	25	22	36	30	50	M6 x 1	8.5	5	6	
	40 to 100			36	43							
	101 to 124			53	51.5		80					
	125 to 200			70	60							
	201 to 500			70	60							

A
Rod flange/LEY16D□B-□□□F
C



A
Rod flange/LEY25/32D□B-□□□F
C



- Enclosed parts
- Flange
 - Body mounting bolt

Rod Flange

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

Material: Carbon steel (Nickel plated)

