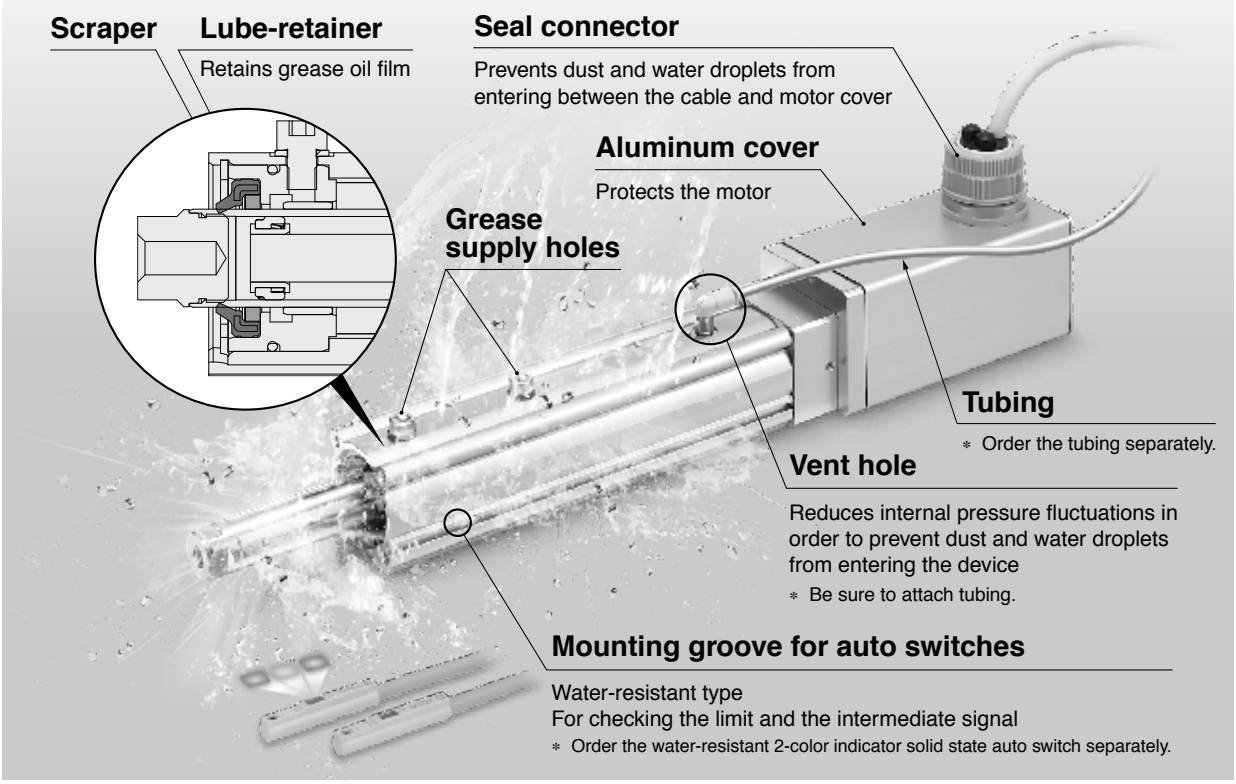
New Release

Electric Actuator/Rod Type

INFORMATION

Dust-tight/Water-jet-proof
(IP65 Equivalent/IP67 Equivalent)

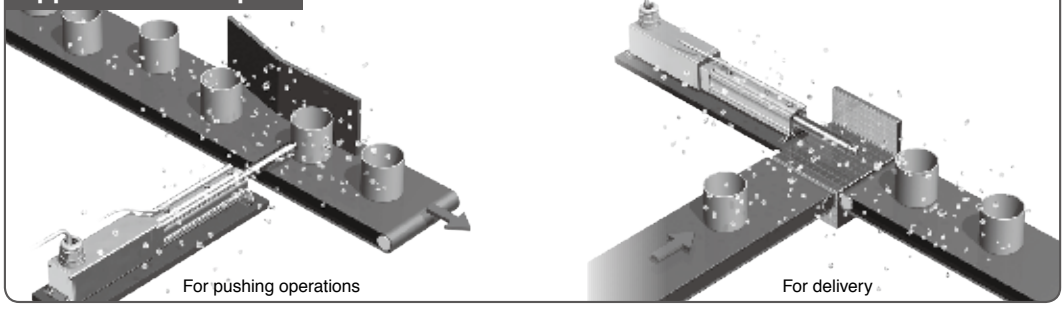
Enclosure: IP65 equivalent/IP67 equivalent



Max. stroke: 500 mm[*1]

∗1 For sizes 32 and 40

Application Examples



LEY-X7 Series

NC403-A
(19-E740)

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

Electric Actuator/Rod Type

***LEY-X7* Series** Dust-tight/Water-jet-proof (IP65 Equivalent/IP67 Equivalent)

Model Selection

LEY-X7 Series p. 7

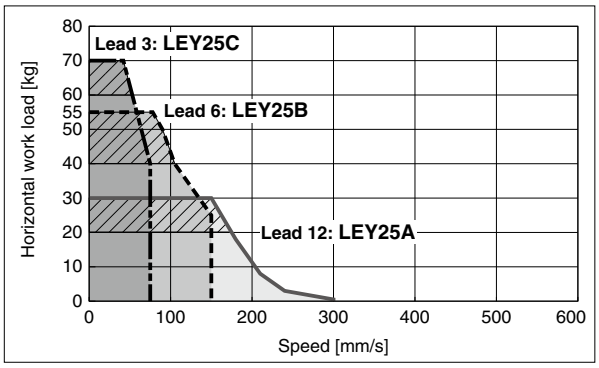
Refer to page 2 for the LECPA, JXC□$^{2}_{3}$ and page 3 for the LECA6.

Speed–Work Load Graph (Guide)

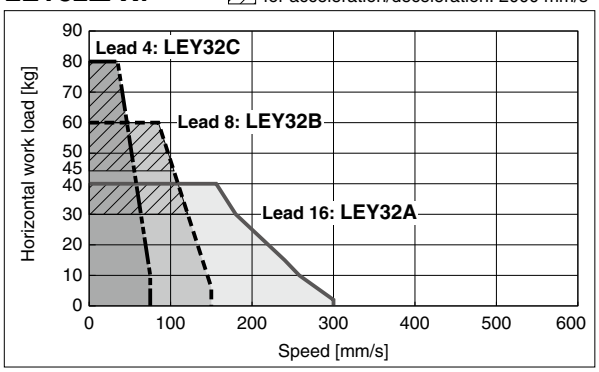
For Step Motor (Servo/24 VDC) LECP6, LECP1, LECPMJ, JXC□1

Horizontal

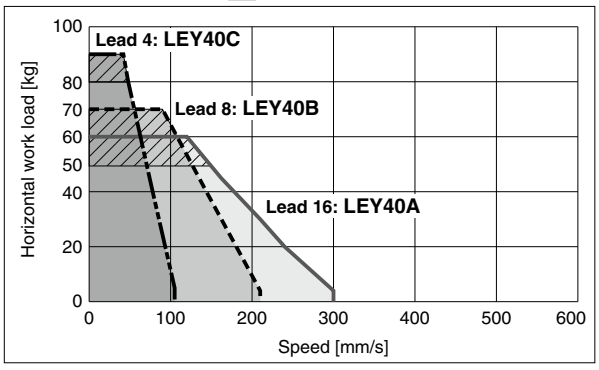
LEY25□-X7 ▨ for acceleration/deceleration: 2000 mm/s²



LEY32□-X7 ▨ for acceleration/deceleration: 2000 mm/s²

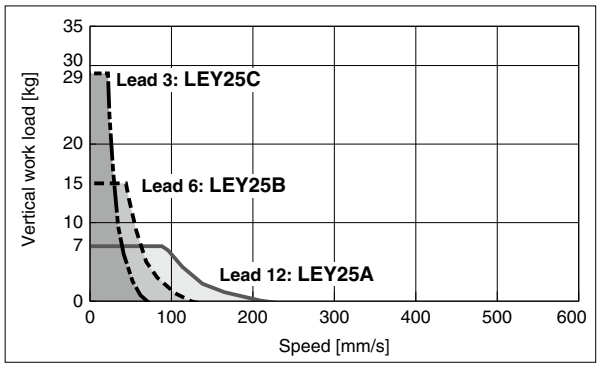


LEY40□-X7 ▨ for acceleration/deceleration: 2000 mm/s²

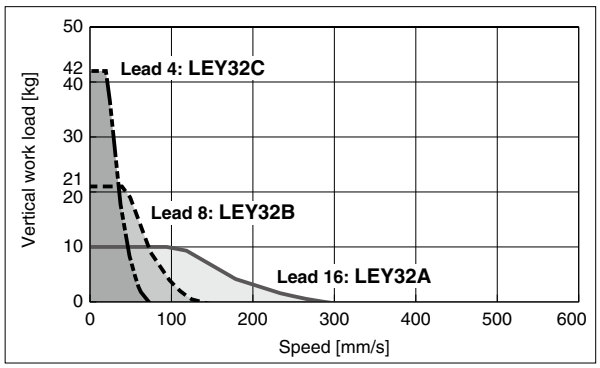


Vertical

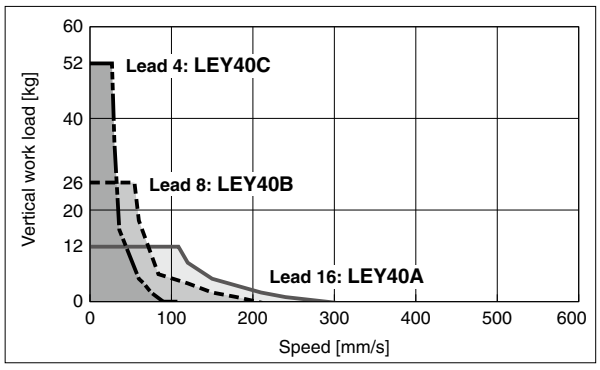
LEY25□-X7



LEY32□-X7



LEY40□-X7

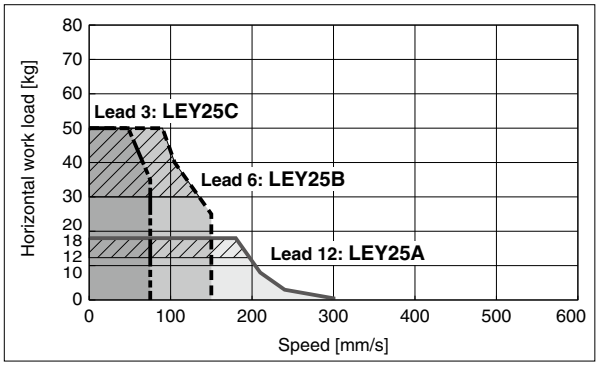


Refer to page 1 for the LECP6, LECP1, LECPMJ, JXC□1 and page 3 for the LECA6.

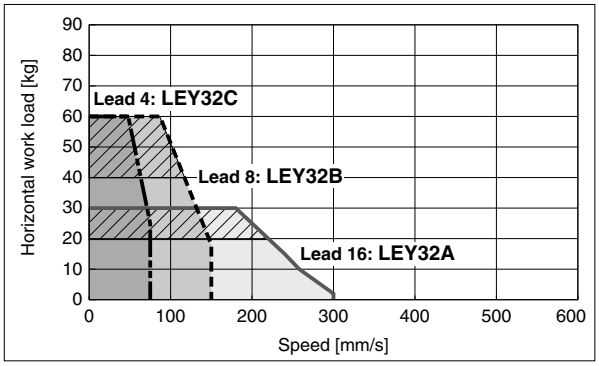
Speed–Work Load Graph (Guide)
For Step Motor (Servo/24 VDC) LECPA, JXC□$^{2}_{3}$

Horizontal

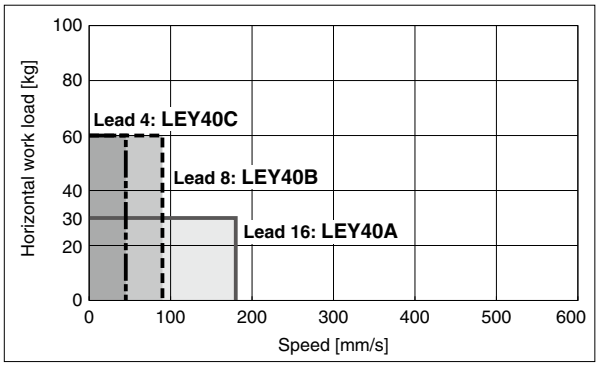
LEY25□-X7



LEY32□-X7

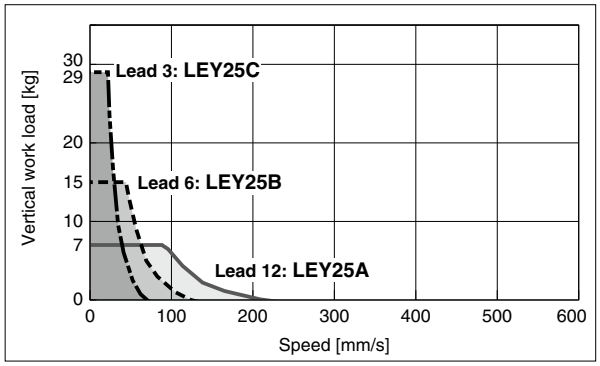


LEY40□-X7

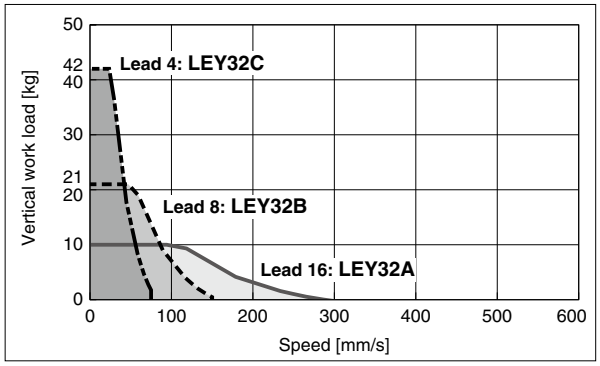


Vertical

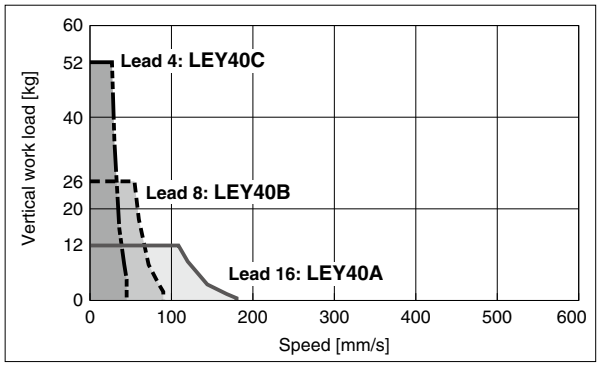
LEY25□-X7



LEY32□-X7



LEY40□-X7

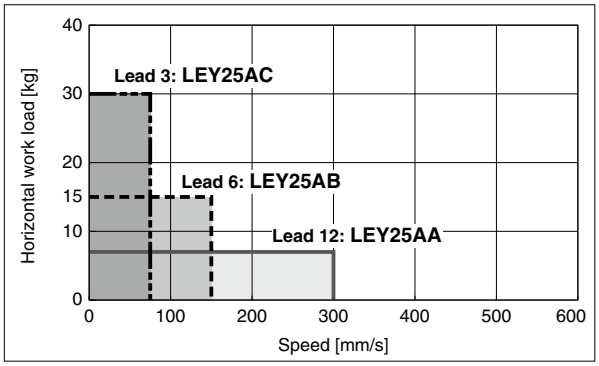


Speed–Work Load Graph (Guide)
For Servo Motor (24 VDC) LECA6

Refer to page 1 for the LECP6, LECP1, LECPMJ, JXC□1 and page 2 for the LECPA, JXC□$^{2}_{3}$.

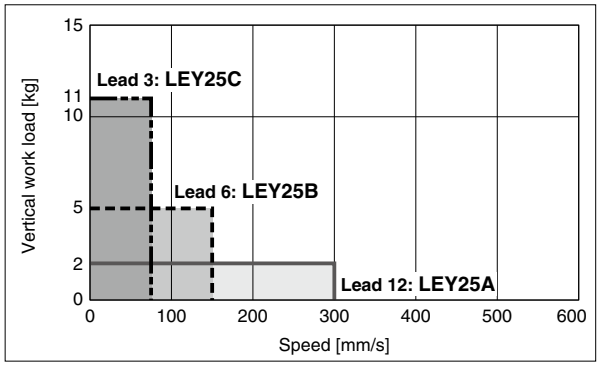
Horizontal

LEY25□A-X7



Vertical

LEY25□A-X7



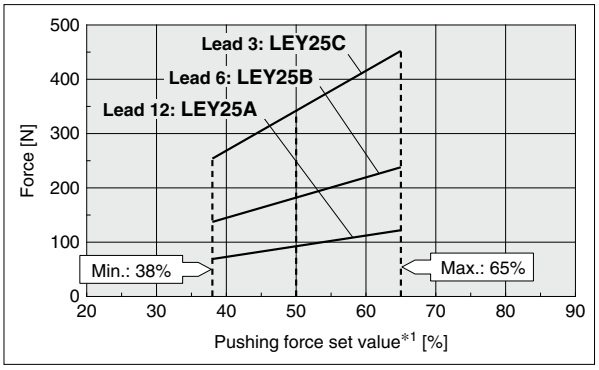
UNIT CONVERSIONS

	unit	conversion	result		unit	conversion	result
length	m	x 3.28	ft	pressure	MPa	x 145	psi
	mm	x 0.04	in		kPa	÷ 6.895	psi
mass	g	x 0.04	oz	temperature	°C	x1.8 then add 32	°F
volume	cm^3	÷ 16.387	in^3	torque	N·m	x 0.738	ft-lb
	L	x 61.024	in^3	force	N	÷ 4.448	lbf
speed	mm/s	÷ 25.4	in/s	flow	L/min	÷ 28.317	cfm

Force Conversion Graph

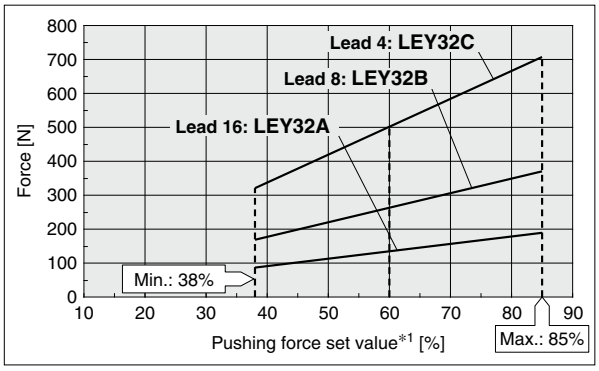
Step Motor (Servo/24 VDC)

LEY25□-X7



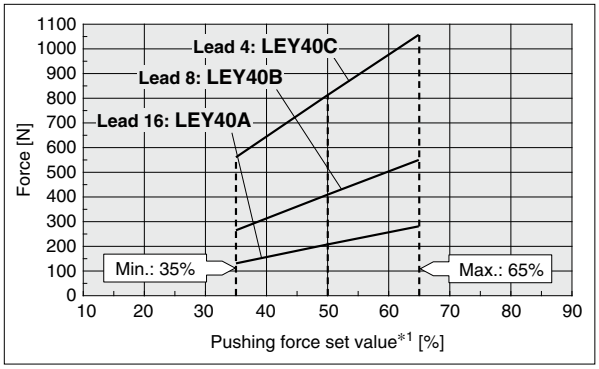
Ambient temperature	Pushing force set value*1 [%]	Duty ratio [%]	Continuous pushing time [min]
40°C or less	65 or less	100	—

LEY32□-X7



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

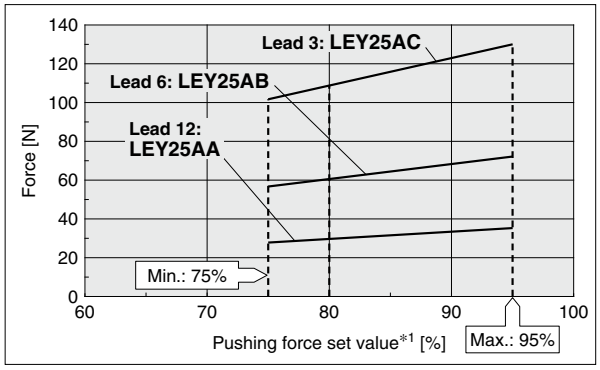
LEY40□-X7



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

Servo Motor (24 VDC)

LEY25□A-X7



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)
LEY25	A/B/C	21 to 35	50 to 65%
LEY32	A	24 to 30	60 to 85%
	B/C	21 to 30	
LEY40	A	24 to 30	50 to 65%
	B/C	21 to 30	

Model	Lead	Pushing speed [mm/s]	Pushing force (Setting input value)
LEY25□A	A/B/C	21 to 35	80 to 95%

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.

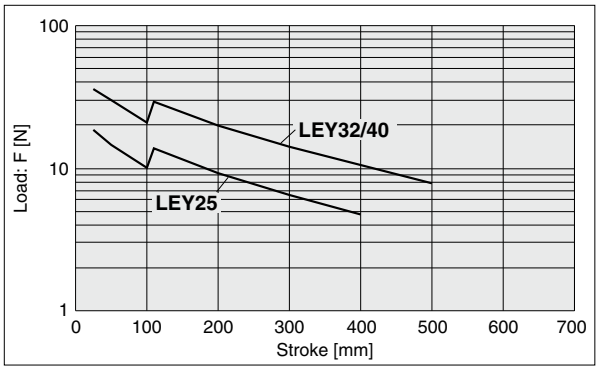
<Set Values for Vertical Upward Transfer Pushing Operations>

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

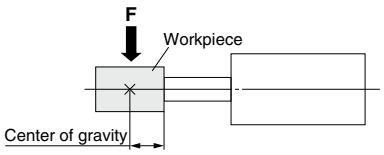
Model	LEY25□			LEY32□			LEY40□			LEY25□A		
Lead	A	B	C	A	B	C	A	B	C	A	B	C
Work load [kg]	2.5	5	10	4.5	9	18	7	14	28	1.2	2.5	5
Pushing force	65%			85%			65%			95%		

*1 Set values for the controller.

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

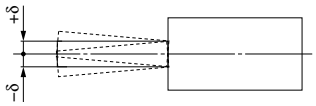


[Stroke] = [Product stroke] + [Distance from the rod end to the center of gravity of the workpiece]

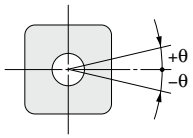


Rod Displacement: δ [mm]

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



Non-rotating Accuracy of Rod

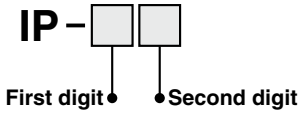


Size	Non-rotating accuracy θ
25	±0.8°
32/40	±0.7°

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

LEY-X7 Series
Enclosure

Degrees of Protection



First Digit: **Degree of protection against solid foreign objects**

0	Not protected
1	Protected against solid foreign objects of 50 mmø and larger
2	Protected against solid foreign objects of 12 mmø and larger
3	Protected against solid foreign objects of 2.5 mmø and larger
4	Protected against solid foreign objects of 1.0 mmø and larger
5	Dust protected
6	Dust-tight

Second Digit: **Degree of protection against water**

0	Not protected	—
1	Protected against vertically falling water droplets	Dripproof type 1
2	Protected against vertically falling water droplets when enclosure is tilted up to 15°	Dripproof type 2
3	Protected against rainfall when enclosure is tilted up to 60°	Rainproof type
4	Protected against splashing water	Splashproof type
5	Protected against water jets	Water-jet-proof type
6	Protected against powerful water jets	Powerful water-jet-proof type
7	Protected against the effects of temporary immersion in water	Immersible type
8	Protected against the effects of continuous immersion in water	Submersible type

Example) Degrees of protection

Degrees of protection			Details
IP65	Solid foreign objects	Dust-tight	Dust particles are prevented from entering the device.
	Entry of water	Water-jet-proof*1	The direct application of water jets to the device from any direction will not cause any damage.
IP67	Solid foreign objects	Dust-tight	Dust particles are prevented from entering the device.
	Entry of water	Immersible*1	The amount of water that enters the device when the actuator (in the stopped state) is submersed in up to 1 m of water for up to 30 mins will not cause any damage.

*1 Be sure to take appropriate protective measures if the product is to be used in an environment where it will be constantly exposed to water or fluids other than water splash.
In particular, the product cannot be used in environments where oils, such as cutting oil or cutting fluid, are present.

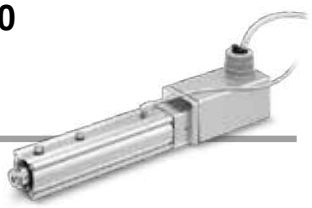
Step Motor (Servo/24 VDC) Servo Motor (24 VDC)

Dust-tight/Water-jet-proof (IP65 Equivalent/IP67 Equivalent)

Electric Actuator/Rod Type

LEY-X7 (Made to Order) *Series* LEY25, 32, 40

Refer to pages 1 to 5 for model selection.



How to Order

LEY 25 D □ B – 50 □ □ □ – R1 – X7

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

LEC□ Series 6N 1 □

JXC□ Series CD17T

❿ ⓫ ⓬

For details on controllers, refer to page 9.

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

❶ Size

25
32/40

❷ Motor mounting position

D	In-line

❸ Motor type

Symbol	Type	Size		Compatible controller/ driver	
		25	32/40		
Nil	Step motor (Servo/24 VDC)	●	●	LECP6 LECP1 LECPA LECPMJ	JXCE1 JXC91 JXCP1 JXCD1 JXCL1
A	Servo motor (24 VDC)	●	—	LECA6	

❹ Lead [mm]

Symbol	LEY25	LEY32/40
A	12	16
B	6	8
C	3	4

❺ Stroke [mm]

30	30
to	to
500	500

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

❻ Motor option

Nil	Without option
B	With lock

❼ Rod end thread

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

❽ Mounting∗2

Symbol	Type	Motor mounting position
		In-line
Nil	Ends tapped/ Body bottom tapped∗3	●
F	Rod flange∗3	●

❾ Actuator cable type/length

Robotic cable [m]

R1	1.5	RA	10∗5
R3	3	RB	15∗5
R5	5	RC	20∗5
R8	8∗5		

Applicable Stroke Table∗1

●: Standard

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

∗ For auto switches, refer to page 14.
∗ "-X7" is not added to an actuator model with a controller/driver part number suffix.
Example) "LEY25DB-100" for the LEY25DB-100BMU-P16NID-X7

LEC□ Series (For details, refer to page 9.)

6N 1 □
⑩ ⑪ ⑫

⑩ Controller/Driver type*6

Nil	Without controller/driver	
6N	**LECP6/LECA6** (Step data input type)	NPN
6P		PNP
1N	**LECP1***7 (Programless type)	NPN
1P		PNP
MJ	**LECPMJ***7 *8 (CC-Link direct input type)	—
AN	**LECPA***7 *9 (Pulse input type)	NPN
AP		PNP

⑪ I/O cable length*10, Communication plug

Nil	Without cable
1	1.5 m
3	3 m*11
5	5 m*11
S	Straight type communication plug connector*12
T	T-branch type communication plug connector*12

⑫ Controller/Driver mounting

Nil	Screw mounting
D	DIN rail*13

JXC□ Series (For details, refer to page 9.)

⑩ Controller

Nil	Without controller
C□1□□	With controller

C D 1 7 T

Communication protocol

E	EtherCAT®
9	EtherNet/IP™
P	PROFINET
D	DeviceNet™
L	IO-Link

For single axis

Mounting

7	Screw mounting
8*13	DIN rail

Communication plug connector for DeviceNet™*14

Nil	Without plug connector
S	Straight type
T	T-branch type

*1 Please consult with SMC for non-standard strokes as they are produced as special orders.
*2 The mounting bracket is shipped together with the product but does not come assembled.
*3 For the horizontal cantilever mounting of the rod flange or ends tapped types, use the actuator within the following stroke range.
·LEY25: 200 mm or less ·LEY32/40: 100 mm or less
*4 The head flange type is not available for the LEY32/40.
*5 Produced upon receipt of order (Robotic cable only)
*6 For details on controllers/drivers and compatible motors, refer to the compatible controller/driver on the next page.
*7 Only available for the motor type "Step motor"
*8 Not compliant with CE
*9 When pulse signals are open collector, order the current limiting resistor (LEC-PA-R-□) separately after referring to the **Web Catalog**.
*10 When "Without controller/driver" is selected for controller/driver types, I/O cable cannot be selected. If an I/O cable is required, refer to the **Web Catalog** of the controller/driver it is to be used with. (Cable for the LECP6/LECA6, LECP1, or LECPA)
*11 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
*12 For the LECPMJ, only "Nil," "S," and "T" are selectable since I/O cable is not included.
*13 The DIN rail is not included. Order it separately.
*14 Select "Nil" for anything other than DeviceNet™.

⚠Caution

[CE-compliant products]

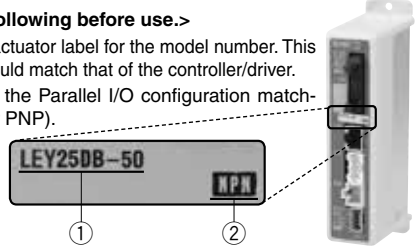
① EMC compliance was tested by combining the electric actuator LEY series and the controller LEC/JXC series.
The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, compliance with the EMC directive cannot be certified 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 the **Web Catalog** for the noise filter set. Refer to the LECA series Operation Manual for installation.
③ CC-Link direct input type (LECPMJ) is not CE-compliant.

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-X7 Series

Step Motor (Servo/24 VDC) Servo Motor (24 VDC) Dust-tight/Water-jet-proof (IP65 Equivalent/IP67 Equivalent)

Compatible Controller/Driver

LEC□ Series

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

JXC□ Series

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

Specifications

Step Motor (Servo/24 VDC)

Model					LEY25□-X7			LEY32□-X7			LEY40□-X7		
Actuator specifications	Work load*1 [kg]	Horizontal	For LECP6 LECP1 LECPMJ JXC□1	(3000 [mm/s²])	20	40	60	30	45	60	50	60	80
				(2000 [mm/s²])	30	55	70	40	60	80	60	70	90
			For LECPA JXC□$^{2}_{3}$	(3000 [mm/s²])	12	30	30	20	40	40	30	60	60
				(2000 [mm/s²])	18	50	50	30	60	60	—	—	—
		Vertical		(3000 [mm/s²])	7	15	29	10	21	42	12	26	52
	Pushing force [N]*2 *3 *4				63 to 122	126 to 238	232 to 452	80 to 189	156 to 370	296 to 707	132 to 283	266 to 553	562 to 1058
	Speed [mm/s]*4				18 to 300	9 to 150	5 to 75	24 to 300	12 to 150	6 to 75	24 to 300	12 to 210	6 to 105
	Max. acceleration/deceleration [mm/s²]				3000								
	Pushing speed [mm/s]*5				35 or less			30 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	16	8	4
	Impact/Vibration resistance [m/s²]*7				50/20								
	Actuation type				Ball screw (LEY□D)								
	Guide type				Sliding bushing (Piston rod)								
	Enclosure*8				IP65 equivalent/IP67 equivalent								
	Operating temperature range [°C]				5 to 40								
	Operating humidity range [%RH]				90 or less (No condensation)								
Electric specifications	Motor size				□42			□56.4			□56.4		
	Motor type				Step motor (Servo/24 VDC)								
	Encoder				Incremental A/B phase (800 pulse/rotation)								
	Rated voltage [V]				24 VDC ±10%								
	Power consumption [W]*9				40			50			50		
	Standby power consumption when operating [W]*10				15			48			48		
	Max. instantaneous power consumption [W]*11				48			104			106		
Lock unit specifications	Type*12				Non-magnetizing lock								
	Holding force [N]				78	157	294	108	216	421	127	265	519
	Power consumption [W]*13				5			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 "Model Selection" on pages 1 and 2.
Vertical: Speed changes according to the work load. Check "Model Selection" on pages 1 and 2.
The values shown in ( ) are the acceleration/deceleration. Set these values to be 3000 [mm/s²] or less.

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

*3 The thrust setting values for LEY25□ is 38% to 65%, for LEY32□ is 38% to 85%, and for LEY40□ is 35% to 65%. The pushing force values change according to the duty ratio and pushing speed. Check "Model Selection" on page 4.

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

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

*6 A reference value for correcting 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 "Enclosure" on page 6.

*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.

Specifications

Servo Motor (24 VDC)

	Model			LEY25□A-X7		
Actuator specifications	Work load*1 [kg]	Horizontal	(3000 [mm/s²])	7	15	30
		Vertical	(3000 [mm/s²])	2	5	11
	Pushing force [N]*2 *3			18 to 35	37 to 72	66 to 130
	Speed [mm/s]			2 to 300	1 to 150	1 to 75
	Max. acceleration/deceleration [mm/s²]			3000		
	Pushing speed [mm/s]*4			35 or less		
	Positioning repeatability [mm]			±0.02		
	Lost motion [mm]*5			0.1 or less		
	Screw lead [mm]			12	6	3
	Impact/Vibration resistance [m/s²]*6			50/20		
	Actuation type			Ball screw + Belt (LEY□) Ball screw (LEY□D)		
	Guide type			Sliding bushing (Piston rod)		
	Enclosure*7			IP65 equivalent/IP67 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 (800 pulse/rotation)/Z phase		
	Rated voltage [V]			24 VDC ±10%		
	Power consumption [W]*8			86		
	Standby power consumption when operating [W]*9			4 (Horizontal)/12 (Vertical)		
	Max. instantaneous power consumption [W]*10			96		
Lock unit specifications	Type*11			Non-magnetizing lock		
	Holding force [N]			78	157	294
	Power consumption [W]*12			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 "Model Selection" on page 3.
The values shown in ( ) are the acceleration/deceleration. Set these values to be 3000 [mm/s²] 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 "Model Selection" on page 4.

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

*5 A reference value for correcting 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 "Enclosure" on page 6.

*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.

Weight

Weight: In-line Motor Type

LEY25D											With lock
Stroke		30	50	100	150	200	250	300	350	400	
Product weight [kg]	Step motor	1.49	1.56	1.73	1.98	2.16	2.33	2.51	2.68	2.86	0.33
	Servo motor	1.45	1.52	1.69	1.94	2.12	2.29	2.47	2.64	2.82	

LEY32D													With lock
Stroke		30	50	100	150	200	250	300	350	400	450	500	
Product weight [kg]	Step motor	2.59	2.70	2.99	3.37	3.66	3.95	4.23	4.52	4.81	5.09	5.38	0.63

LEY40D													With lock
Stroke		30	50	100	150	200	250	300	350	400	450	500	
Product weight [kg]	Step motor	2.94	3.05	3.34	3.72	4.01	4.30	4.58	4.87	5.16	5.44	5.73	0.63

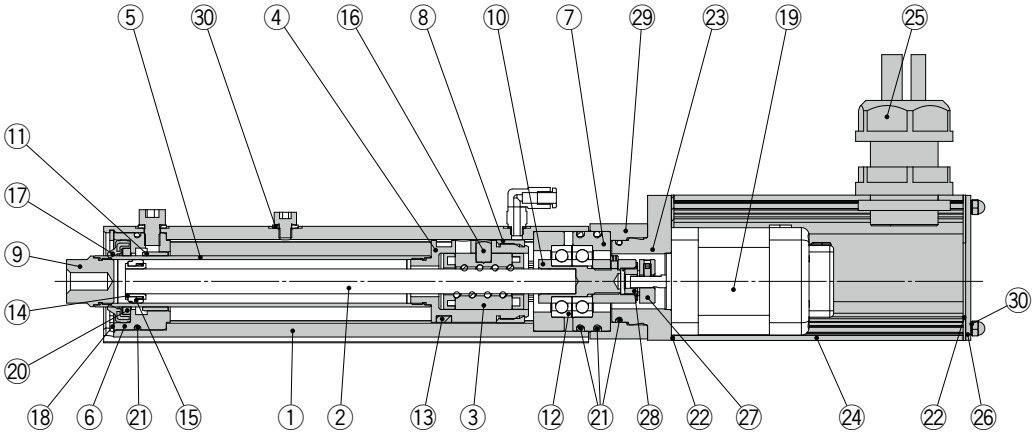
Additional Weight

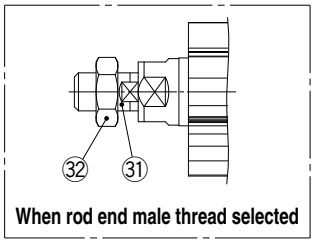
[kg]

Size		25	32	40
Lock		0.33	0.63	0.63
Rod end male thread	Male thread	0.03	0.03	0.03
	Nut	0.02	0.02	0.02
Foot (2 sets including mounting bolt)		0.08	0.14	0.14
Rod flange (including mounting bolt)		0.17	0.20	0.20
Head flange (including mounting bolt)				

Construction

In-line motor type: LEY$^{25}_{32}_{40}$D





When rod end male thread selected

Component Parts

No.	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Ball screw**	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	Anodized
7	**Bearing holder**	Aluminum alloy	
8	**Rotation stopper**	Resin	
9	**Socket**	Stainless steel	
10	**Connected shaft**	Free cutting carbon steel	Nickel plating
11	**Bushing**	Bearing alloy	
12	**Bearing**	—	
13	**Magnet**	—	
14	**Wear ring holder**	Stainless steel	Stroke 101 mm or more
15	**Wear ring**	Resin	Stroke 101 mm or more
16	**Parallel pin**	Stainless steel	

No.	Description	Material	Note
17	**Greater water resistant scraper**	Stainless steel/NBR	
18	**Retaining ring**	Stainless steel	
19	**Motor**	—	
20	**Lube-retainer**	Felt	
21	**O-ring**	NBR	
22	**Gasket**	Chloroprene	
23	**Motor adapter**	Aluminum alloy	LEY25 only
24	**Motor cover**	Aluminum alloy	Anodized
25	**Seal connector**	—	
26	**End cover**	Aluminum alloy	Anodized
27	**Hub**	Aluminum alloy	
28	**Spider**	NBR	
29	**Motor block**	Aluminum alloy	Anodized
30	**Seal washer**	Stainless steel/NBR	
31	**Socket (Male thread)**	Stainless steel	
32	**Nut**	Stainless steel	

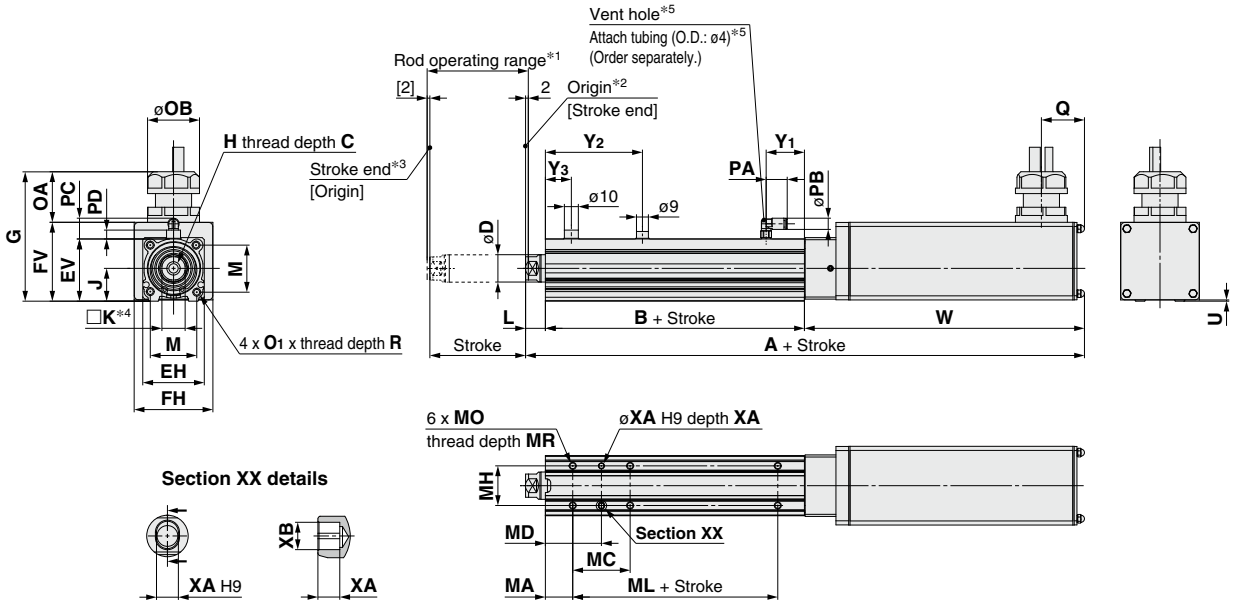
Replacement Parts/Grease Pack

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

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

Dimensions

In-line motor type



[mm]

Size	Stroke range [mm]	A		B	C	D	EH	EV	FH	FV	G	H	J	K	L	M
		Without lock	With lock													
25	20 to 100	259	309	89.5	13	20	44	45.5	57.6	57.7	94.7	M8 x 1.25	24	17	14.5	34
	105 to 400	284	334	114.5												
32	20 to 100	269.5	319.5	96	13	25	51	56.5	69.6	79.6	116.6	M8 x 1.25	31	22	18.5	40
	105 to 500	299.5	349.5	126												
40	20 to 100	291.5	341.5	96	13	25	51	56.5	69.6	79.6	116.6	M8 x 1.25	31	22	18.5	40
	105 to 500	321.5	371.5	126												

Size	Stroke range [mm]	O1	R	OA	OB	PA	PB	Q	U	PC	PD	W		Y1	Y2	Y3
												Without lock	With lock			
25	20 to 100	M5 x 0.8	8	37	38	15.4	8.2	28	0.9	15.9	6.5	155	205	28	71	19
	105 to 400														96	
32	20 to 100	M6 x 1.0	10	37	38	15.4	8.2	28	1	15.9	7.1	155	205	30	75.5	16
	105 to 500														105.5	
40	20 to 100	M6 x 1.0	10	37	38	15.4	8.2	28	1	15.9	7.1	177	227	30	75.5	16
	105 to 500														105.5	

Body Bottom Tapped

[mm]

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

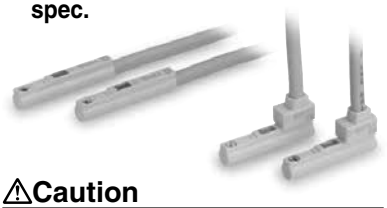
∗1 This is the range within which the rod can move when it returns to origin.
Make sure workpieces mounted on the rod do not interfere with the workpieces and facilities around the rod.
∗2 Position after return to origin
∗3 [ ] for when the direction of return to origin has changed
∗4 The direction of 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 and the mounting bracket dimensions, refer to the **Web Catalog**.

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

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	8	7
	1 m (**M**)	14	13	
	3 m (**L**)	41	38	
	5 m (**Z**)	68	63	

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

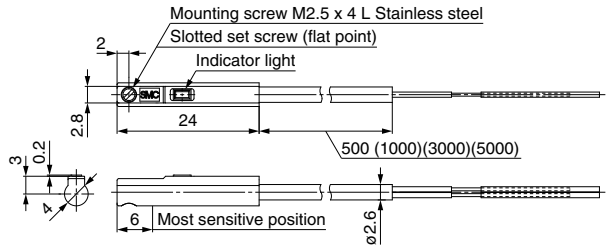
Auto switch model		D-M9NA□	D-M9NAV□	D-M9PA□	D-M9PAV□	D-M9BA□	D-M9BAV□
Sheath	Outside diameter [mm]	2.6					
Insulator	Number of cores	3 cores (Brown/Blue/Black)				2 cores (Brown/Blue)	
	Outside diameter [mm]	0.88					
Conductor	Effective area [mm²]	0.15					
	Strand diameter [mm]	0.05					
Minimum bending radius [mm]		17					

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

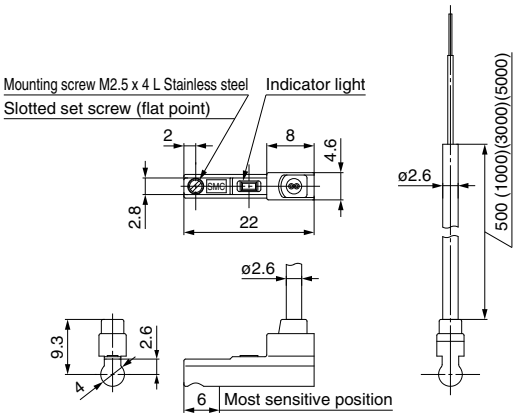
Dimensions

[mm]

D-M9□A



D-M9□AV



Global Manufacturing, Distribution and Service Network

Worldwide Subsidiaries

EUROPE

AUSTRIA
SMC Pneumatik GmbH (Austria)
BELGIUM
SMC Pneumatics N.V./S.A.
BULGARIA
SMC Industrial Automation Bulgaria EOOD
CROATIA
SMC Industrijska Automatika d.o.o.
CZECH REPUBLIC
SMC Industrial Automation CZ s.r.o.
DENMARK
SMC Pneumatik A/S
ESTONIA
SMC Pneumatics Estonia
FINLAND
SMC Pneumatics Finland OY
FRANCE
SMC Pneumatique S.A.
GERMANY
SMC Pneumatik GmbH
GREECE
SMC Hellas EPE
HUNGARY
SMC Hungary Ipari Automatizálási Kft.
IRELAND
SMC Pneumatics (Ireland) Ltd.
ITALY
SMC Italia S.p.A.
KAZAKHSTAN
LLP "SMC Kazakhstan"

LATVIA
SMC Pneumatics Latvia SIA
LITHUANIA
UAB "SMC Pneumatics"
NETHERLANDS
SMC Pneumatics B.V.
NORWAY
SMC Pneumatics Norway AS
POLAND
SMC Industrial Automation Polska Sp. z o.o.
ROMANIA
SMC Romania S.r.l.
RUSSIA
SMC Pneumatik LLC.
SLOVAKIA
SMC Priemyselná Automatizácia, Spol s.r.o.
SLOVENIA
SMC Industrijska Avtomatika d.o.o.
SPAIN / PORTUGAL
SMC España, S.A.
SWEDEN
SMC Pneumatics Sweden AB
SWITZERLAND
SMC Pneumatik AG
TURKEY
SMC Pnömatik Sanayi Ticaret ve Servis A.Ş.
UK
SMC Pneumatics (U.K.) Ltd.

ASIA / OCEANIA

AUSTRALIA
SMC Pneumatics (Australia) Pty. Ltd.
CHINA
SMC (China) Co., Ltd.
SMC Pneumatics (Guangzhou) Ltd.
HONG KONG
SMC Pneumatics (Hong kong) Ltd.
INDIA
SMC Pneumatics (India) Pvt. Ltd.
INDONESIA
PT. SMC Pneumatics Indonesia
JAPAN
SMC Corporation
MALAYSIA
SMC Pneumatics (S.E.A.) Sdn. Bhd.
NEW ZEALAND
SMC Pneumatics (N.Z.) Ltd.
PHILIPPINES
Shoketsu SMC Corporation
SINGAPORE
SMC Pneumatics (S.E.A.) Pte. Ltd.
SOUTH KOREA
SMC Pneumatics Korea Co., Ltd.
TAIWAN
SMC Pneumatics (Taiwan) Co., Ltd.
THAILAND
SMC (Thailand) Ltd.
UNITED ARAB EMIRATES
SMC Pneumatics Middle East FZE

VIETNAM
SMC Pneumatics (VN) Co., Ltd

AFRICA

SOUTH AFRICA
SMC Pneumatics (South Africa) Pty Ltd

NORTH, CENTRAL &

SOUTH AMERICA

ARGENTINA
SMC Argentina S.A.
BOLIVIA
SMC Pneumatics Bolivia S.R.L.
BRAZIL
SMC Pneumáticos do Brasil Ltda.
CANADA
SMC Pneumatics (Canada) Ltd.
CHILE
SMC Pneumatics (Chile) S.A.
COLOMBIA
SMC Colombia Sucursal de SMC Chile, S.A.
MEXICO
SMC Corporation (Mexico) S.A. de C.V.
PERU
SMC Corporation Peru S.A.C.
USA
SMC Corporation of America
VENEZUELA
SMC Neumatica Venezuela S.A.

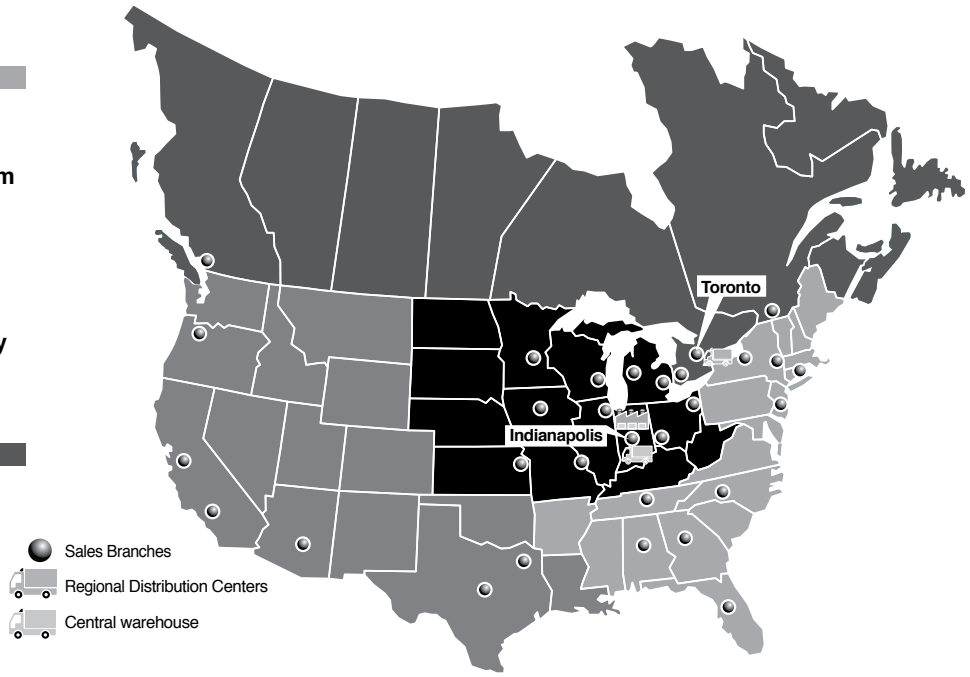
U.S. & Canadian Sales Offices

WEST
Austin
Dallas
Los Angeles
Phoenix
Portland
San Jose

CENTRAL
Chicago
Cincinnati
Cleveland
Detroit
Des Moines
Grand Rapids
Indianapolis
Kansas City
Milwaukee
Minneapolis
St. Louis

EAST
Albany
Atlanta
Birmingham
Boston
Charlotte
Knoxville
Nashville
New Jersey
Rochester
Tampa

CANADA
Vancouver
Toronto
Windsor
Montreal



SMC Corporation of America
10100 SMC Blvd., Noblesville, IN 46060
www.smcusa.com

SMC Automation (Canada) Ltd.
www.smcautomation.ca

(800) SMC.SMC1 (762-7621)
e-mail: **sales@smcusa.com**
International inquiries: **www.smcworld.com**