AC Servo Motor | Motorless Type

Electric Actuator
Rod Type

CE RoHS

- Max. force: 12000 N, Work load: 1200 kg, Max. stroke: 1000 mm
- Can be mounted in accordance with ISO 15552
- Modify the force/speed specifications
  (Change specifications by changing or removing the reducer)
- Motorless type
- An auto switch can be mounted

Motorless Type

Can be used with your current motor and driver!

Manufacturers of compatible motors: 7 companies

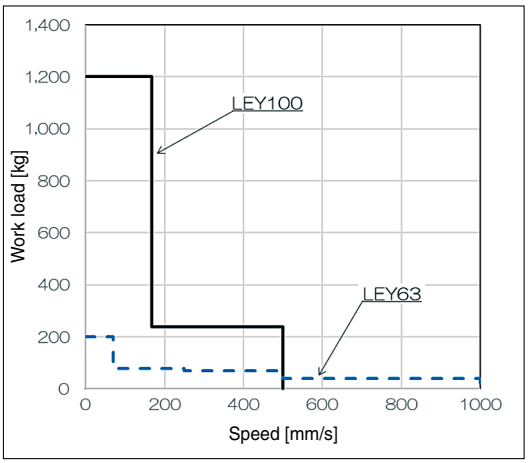
- Mitsubishi Electric Corporation
- YASKAWA Electric Corporation
- SANYO DENKI CO., LTD.
- NIDEC SANKYO CORPORATION
- KEYENCE CORPORATION
- FUJI ELECTRIC CO., LTD.
- Delta Electronics, Inc.

LEY100 Series

SMC

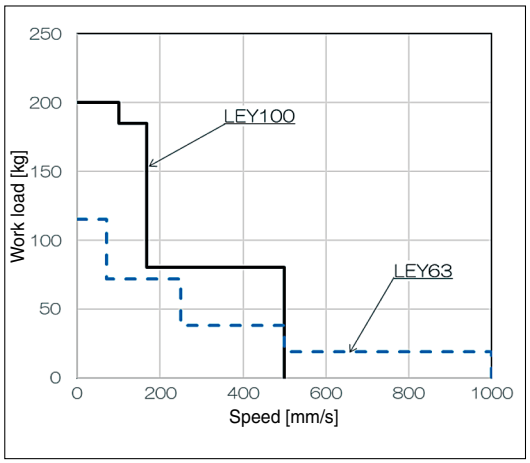
Work load

Max. work load (Horizontal)
LEY100DT9L (Lead 2) **1200 kg (6 times)**



Compared with the existing model LEY63□L
(Max. horizontal work load 200 kg)

Max. work load (Vertical)
LEY100DT9L (Lead 2) **200 kg (1.7 times)**



Compared with the existing model LEY63□L
(Max. vertical work load 115 kg)

Max. force

LEY100DT9L (Lead 2) **12000 N (3.5 times)**
Compared with the existing model LEY63□L (Max. 3343 N)

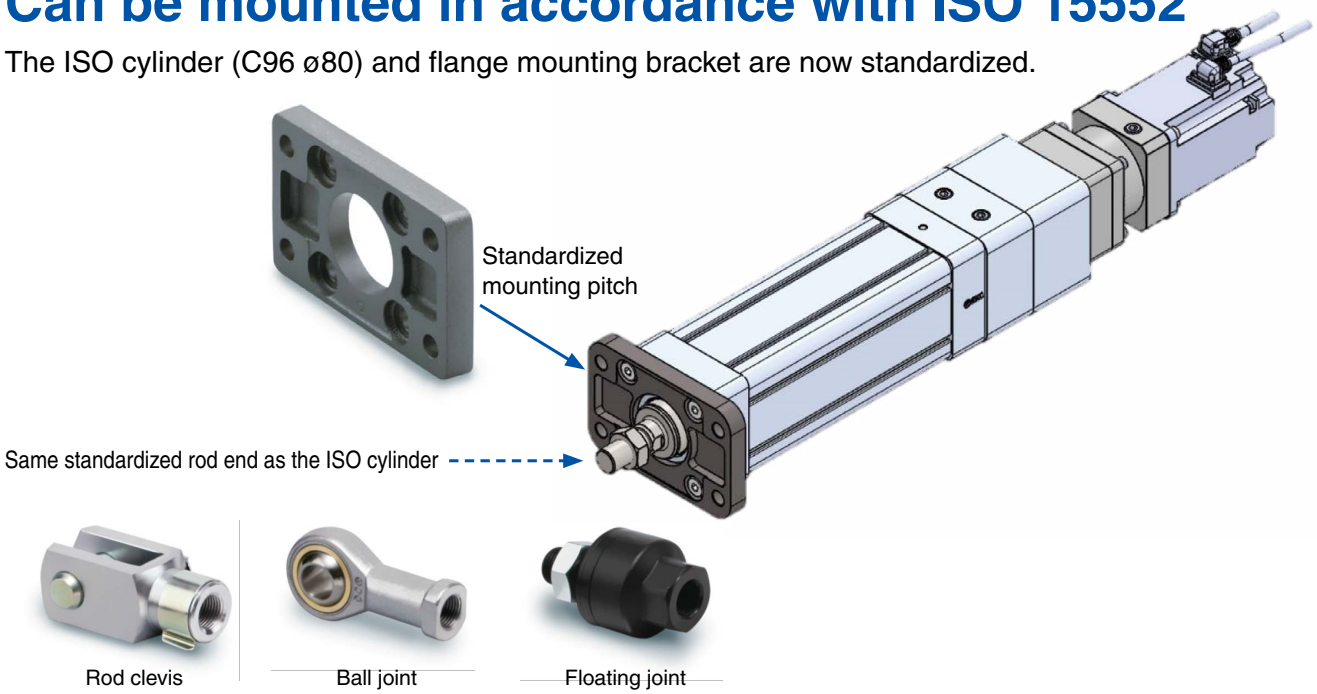
Applicable stroke

LEY100D **100 to 1000 mm (1.2 times)**
Compared with the existing model LEY63□ (Stroke 100 to 800 mm)

AC Servo Motor Rod Type Series Variations

Can be mounted in accordance with ISO 15552

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

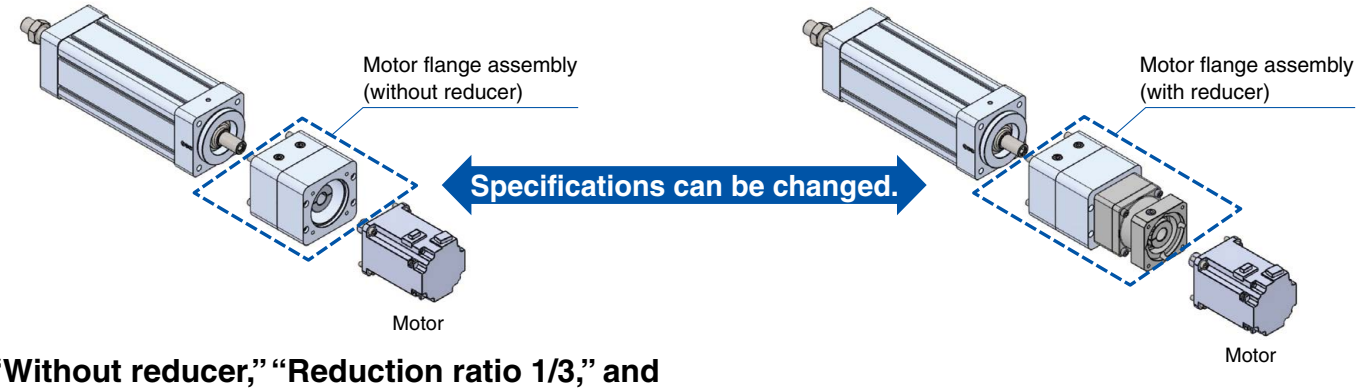


Modify the force/speed specifications

The max. force and max. speed settings can be changed by changing the reducer.

Max. force 2600 N **Max. speed 500 mm/s**

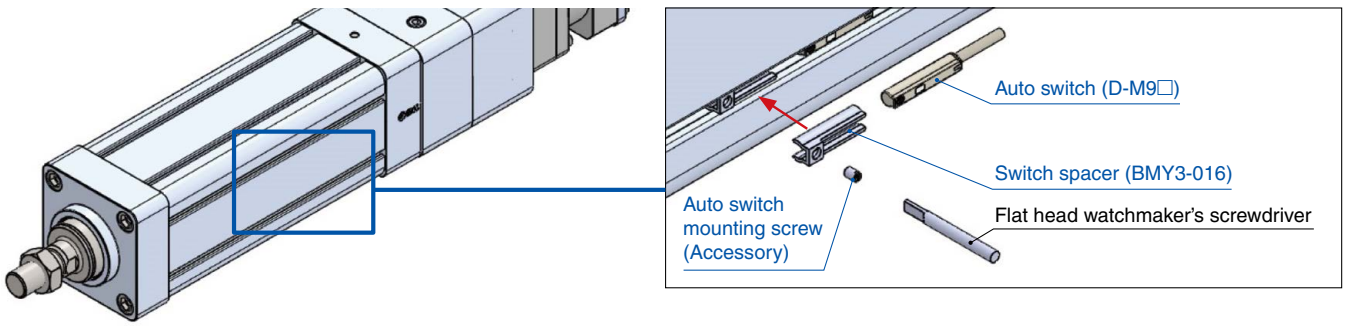
Max. force 12000 N **Max. speed 100 mm/s**



"Without reducer," "Reduction ratio 1/3," and "Reduction ratio 1/5" can be selected.

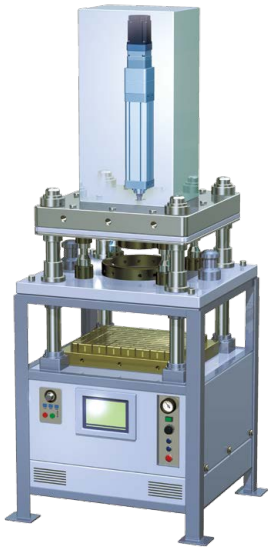
An auto switch can be mounted

An auto switch can be mounted from the front of the groove.

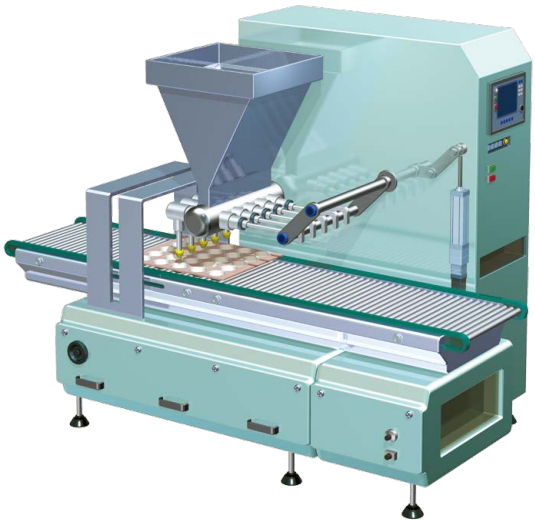


Application examples

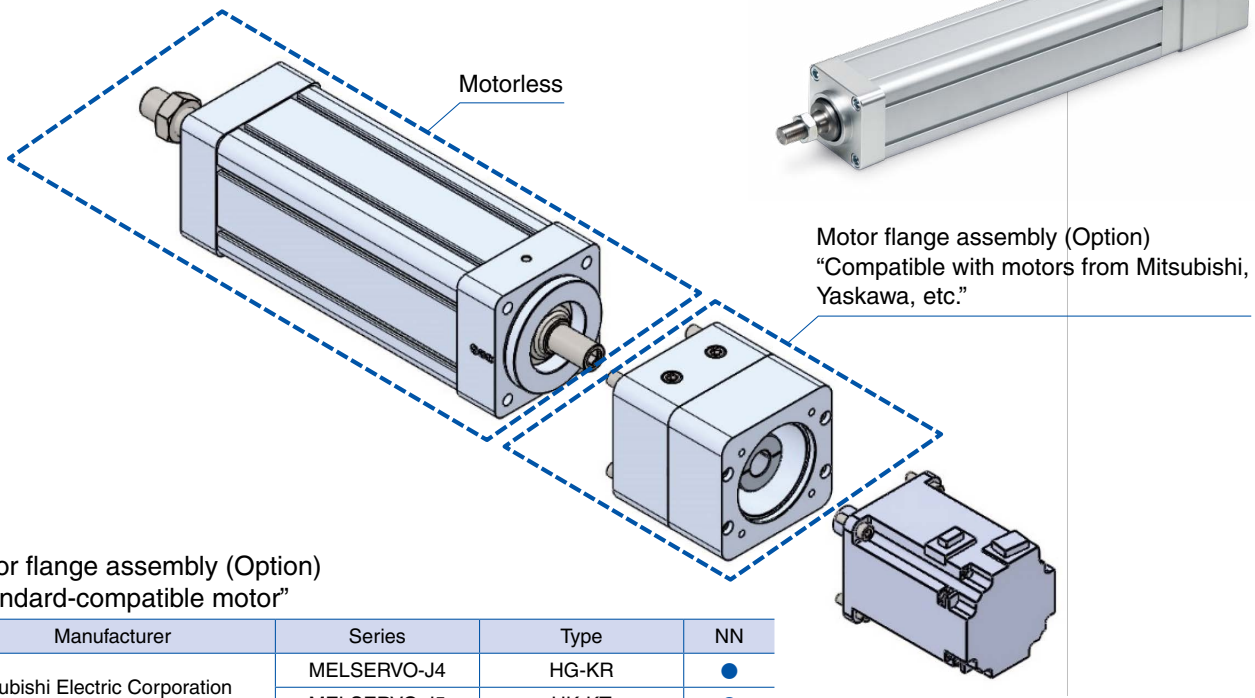
Servo-driven press machine



Replenishment unit (spring extended piston control)



Motorless Type



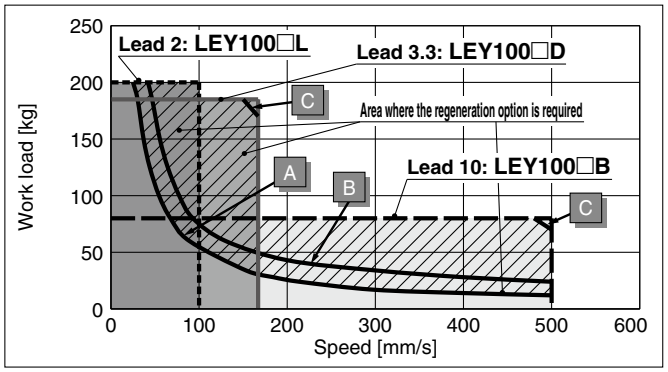
Motor flange assembly (Option)
“Standard-compatible motor”

Manufacturer	Series	Type	NN
Mitsubishi Electric Corporation	MELSERVO-J4	HG-KR	●
	MELSERVO-J5	HK-KT	●
YASKAWA Electric Corporation	Σ-V	SGMJV	●
	Σ-7	SGM7J	●
SANYO DENKI CO., LTD.	SANMOTION R	R2	●
NIDEC SANKYO CORPORATION	S-FLAG	MX	●
KEYENCE CORPORATION	SV	SV-M/SV-B	●
FUJI ELECTRIC CO., LTD.	ALPHA5/7	GYS/GYB/GYG	●
Delta Electronics, Inc.	ASDA-A2	ECMA	●

Model Selection

∗ Motorless specification is lead 10 only

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



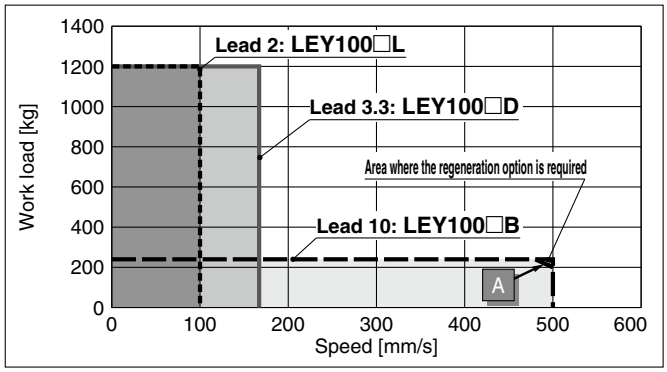
Required conditions for the regeneration option

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

Regeneration Option Models

Size	Model	Note
LEY100□	LEC-MR-RB-032	A area
	LEC-MR-RB-12	B area
		C area

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



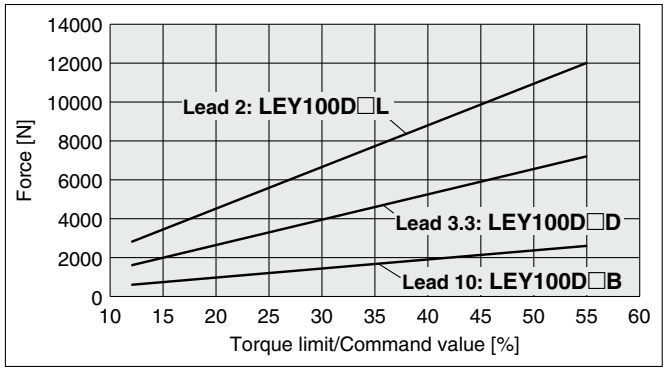
Required conditions for the regeneration option

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

Regeneration Option Models

Size	Model	Note
LEY100□	LEC-MR-RB-032	A area

Force Conversion Graph (Guide) For the LECSS-T



Torque limit/Command value [%]	Duty ratio [%]	Continuous pushing time [min]
25 or less	100	—
30	90	6.00 or less
40	50	1.23 or less
50	30	0.57 or less
55	20	0.25 or less

Load–Acceleration/Deceleration Chart

Max. acceleration/deceleration (Horizontal)

[mm/s²]

Lead		Work load [kg]											
Symbol	[mm]	100	200	300	400	500	600	700	800	900	1000	1100	1200
B	10	3000	2000∗1	—									
D	3.3	2370	2250	2120	2000	1870	1750	1620	1500	1370	1250	1120	1000
L	2	1900	1800	1700	1600	1500	1420	1350	1280	1210	1140	1070	1000

∗1 The max. work load can be set to any weight up to 240 kilograms.

Max. acceleration/deceleration (Vertical)

[mm/s²]

Lead		Work load [kg]									
Symbol	[mm]	20	40	60	80	100	120	140	160	180	200
B	10	2500	2000	1500	1000	—					
D	3.3	2370	2200	2020	1850	1680	1510	1340	1170	1000∗2	—
L	2	1880	1770	1660	1550	1450	1360	1270	1180	1090	1000

∗2 The max. work load can be set to any weight up to 185 kilograms.

Force–Stroke Table

	Stroke [mm]										
	0	100	200	300	400	500	600	700	800	900	1000
Force [N]	12000	12000	12000	12000	12000	12000	11000	8900	6900	5600	4600

Electric Actuator/ Rod Type

LEY100 Series Size 100

CE RoHS

How to Order

Driver LECS□ Series

LEY 100 D T9 B – 200 □ □ □ – S 2 B2 □

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫ ⓬

❶ Size

100

❷ Motor mounting position

D	In-line

❸ Motor type

Symbol	Type	Output [W]	Actuator size	Compatible drivers
T9	AC servo motor (Absolute encoder)	750	100	LECSB2-T9 LECSC2-T9 LECSS2-T9 LECSN2-T9(-□)

❹ Lead [mm]

Symbol	LEY100
B	10
D	3.33*1
L	2*2

*1 Screw lead 10 mm, reducer ratio [1:3]
*2 Screw lead 10 mm, reducer ratio [1:5]

❺ Stroke [mm]

100	100
to	to
1000	1000

* 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*3 *4

Symbol	Type	Motor mounting position
		In-line
Nil	Ends tapped	●
L	Foot	●
F	Flange	●

*3 The mounting bracket is shipped together with the product but does not come assembled.
*4 Do not mount using the "flange" or "ends tapped" options for the horizontal type with one end secured.

❾ Cable type*5

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

*5 A motor cable and encoder cable are included with the product. (A lock cable is also included if motor option "B: With lock" is selected.)

❿ Cable length [m]*6

Nil	Without cable
2	2
5	5
A	10

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

⓫ Driver type

	Compatible drivers	Power supply voltage [V]
Nil	Without driver	
B2	**LECSB2-T9**/Pulse input (Absolute encoder)	200 to 240
C2	**LECSC2-T9**/CC-Link (Absolute encoder)	200 to 230
S2	**LECSS2-T9**/SSCNET/H (Absolute encoder)	200 to 230
92	**LECSN2-T9-9**/EtherNet/IP (Absolute encoder)	200 to 240
E2	**LECSN2-T9-E**/EtherCAT (Absolute encoder)	200 to 240
P2	**LECSN2-T9-P**/PROFINET (Absolute encoder)	200 to 240
N2	**LECSN2-T9**/Without network card (Absolute encoder)	200 to 240

⓬ I/O cable length [m]*7

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

*7 When "Nil: Without driver" is selected for the driver type, only "Nil: Without cable" can be selected.
Refer to the **Web Catalog** if an I/O cable is required.

Applicable Stroke Table

Size	Stroke [mm]										
	100	200	300	400	500	600	700	800	900	1000	Manufacturable stroke range
100	●	●	●	●	●	●	●	●	●	●	100 to 1000

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

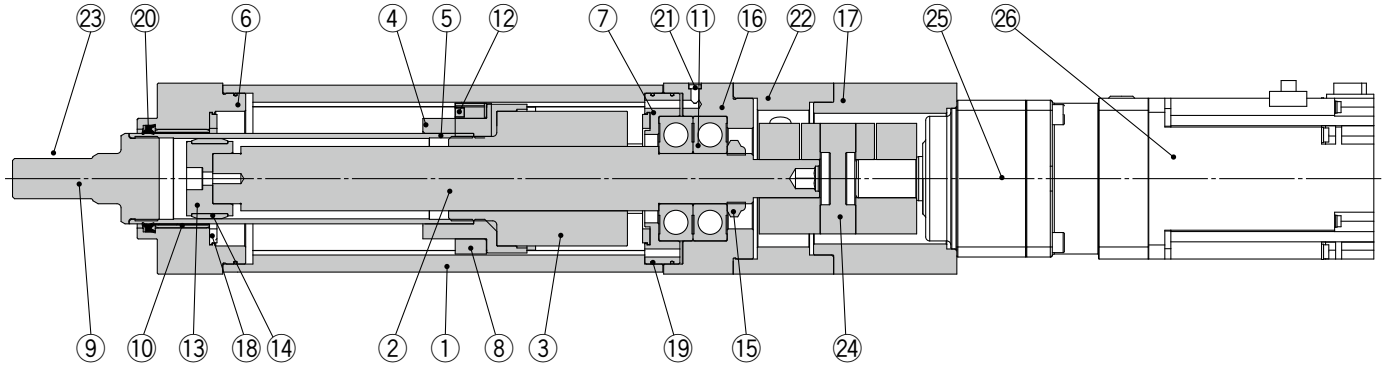
Specifications

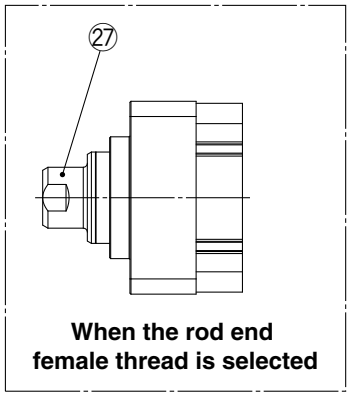
	Model		LEY100D□L	LEY100D□D	LEY100D□B
Actuator specifications	Stroke [mm]		100, 200, 300, 400, 500, 600, 700, 800, 900, 1000		
	Work load [kg]	Horizontal*1	1200	1200	240
		Vertical	200	185	80
	Rated force [N]/Set value*2: 25%*3		5500	3300	1100
	Max. force [N]/Set value*2: 55%*3		12000	7200	2600
	Max. speed [mm/s]*4	Up to 500	100	167	500
		600	74	123	370
		700	57	95	285
		800	45	75	225
		900	36	60	180
		1000	30	50	150
	Pushing speed [mm/s]*5		20 or less		
	Max. acceleration/deceleration [mm/s²]		2000	3000	
	Positioning repeatability [mm]		0.02		
	Lost motion [mm]*6		0.10		
	Screw lead [mm]		10		
	Reduction ratio		1/5	1/3	—
	Lead [mm]		2	3.3	10
	Impact/Vibration resistance [m/s²]*7		50/20		
	Actuation type		Ball screw		
	Guide type		Sliding bushing (Piston rod)		
	Operating temperature range [°C]		5 to 40		
	Operating humidity range [%RH]		90 or less (No condensation)		
Electric specifications	Motor output [W]/Size [mm]		750/□80		
	Motor type		AC servo motor (200 VAC)		
	Power consumption [W]*8	Horizontal	250		
		Vertical	450		
	Standby power consumption when operating [W]*9	Horizontal	20		
		Vertical	30		
	Max. instantaneous power consumption [W]*10		1100		
Lock unit specifications	Type*11		Non-magnetizing lock		
	Holding force [N]		4860	2925	1080
	Power consumption [W] at 20°C*12		10		
	Rated voltage [V]		24 VDC $^{0}_{-10\%}$		

*1 This is the max. 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 Set values for the driver
*3 The force setting range (set values for the driver) for the force control with the torque control mode. The force and duty ratio change according to the set value. Set it while referencing the "Force Conversion Graph" on page 4.
When the control equivalent to the pushing operation of the LECP6 series controller is performed, select the LECSS2-T or LECSB2-T driver.
The point table no. input method is used for the LECSB2-T.
When selecting the LECSS2-T, combine it with a Simple Motion module (manufactured by Mitsubishi Electric Corporation) which has a pushing operation function.
*4 The allowable speed changes according to the stroke. Set the number of rotations according to speed.
*5 The allowable collision speed for collision with the workpiece with the torque control mode
*6 A reference value for correcting errors in reciprocal operation
*7 Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)
Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)
*8 The power consumption (including the driver) is for when the actuator is operating.
*9 The standby power consumption when operating (including the driver) is for when the actuator is stopped in the set position during the operation.
*10 The max. instantaneous power consumption (including the driver) is for when the actuator is operating.
*11 Only when motor option "With lock" is selected
*12 For an actuator with lock, add the power consumption for the lock.

Construction

In-line motor type: LEY100





When the rod end female thread is selected

Component Parts

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

No.	Description	Material	Note
15	**Anti-loosening nut**	Alloy steel	
16	**Motor block**	Aluminum alloy	Anodized
17	**Motor flange**	Aluminum alloy	Anodized
18	**Bumper**	Urethane	
19	**O-ring**	NBR	
20	**Scraper**	NBR	
21	**Sintered element**	Stainless steel	
22	**Motor adapter**	Aluminum alloy	Anodized
23	**Nut**	Alloy steel	Zinc chromating
24	**Coupling**	—	
25	**Reducer**	—	
26	**Motor**	—	
27	**Socket (Female thread)**	Alloy steel	Nickel plating

Replacement Parts/Grease Pack

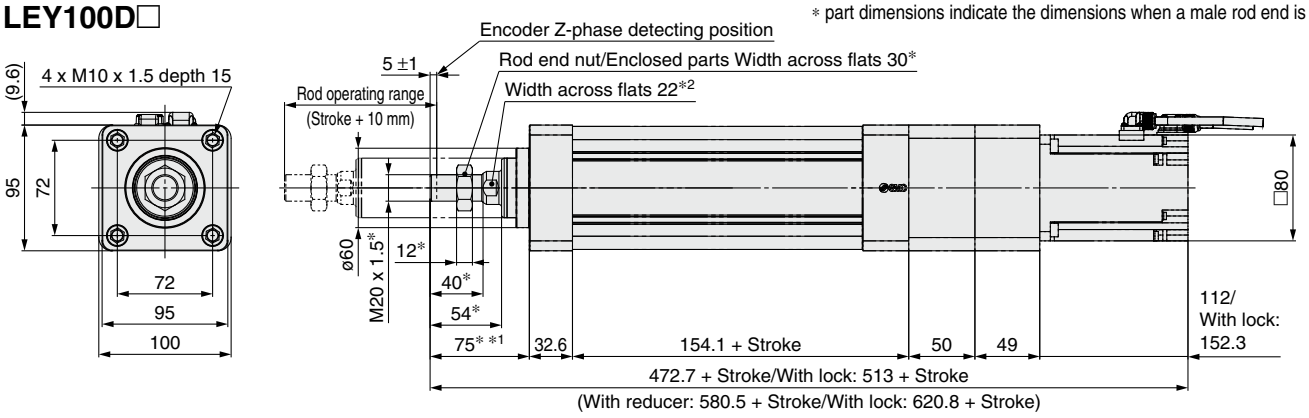
Applied portion	Order no.
Piston rod	GR-S-010 (10 g)
	GR-S-020 (20 g)

∗ Apply grease to the piston rod periodically.
Grease should be applied when 1 million cycles or 200 km have been reached, whichever comes first.

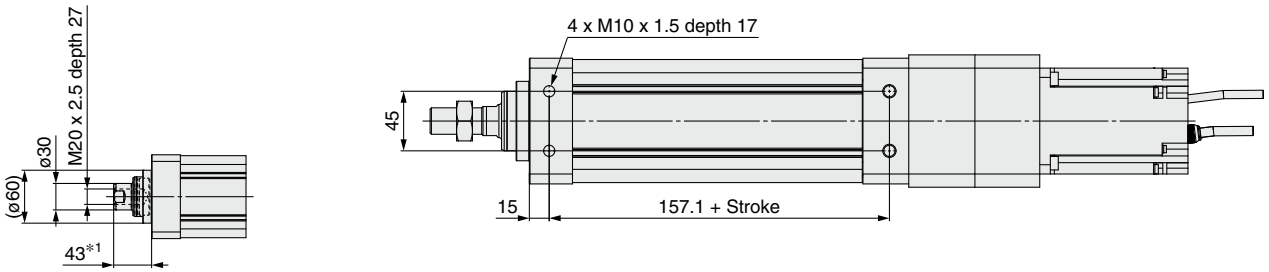
Dimensions: In-line Motor

LEY100D□

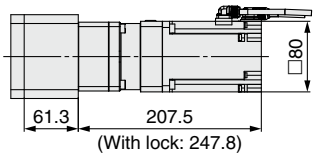
∗ part dimensions indicate the dimensions when a male rod end is selected.



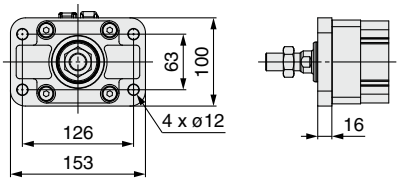
Rod end female thread: LEY100DT9□-□□□



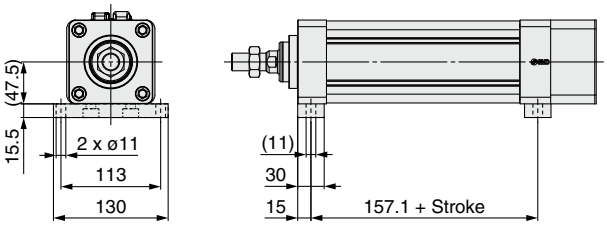
With reducer: LEY100DT9(D/L)-□□□□



Rod flange shape: LEY100DT9□-□□□F



Foot: LEY100DT9□-□□□L



∗1 The dimension in the figure is the first Z-phase detecting position.
∗2 The orientation of the square-width width across flats at the end of the rod differs for each product.

Stroke and Product Weight

[kg]

Stroke	100	200	300	400	500	600	700	800	900	1000
Product weight	12.7	14.4	16.0	17.7	19.3	21.0	22.6	24.2	25.9	27.5

Additional Weight

[kg]

With reducer		2.4
Motor option	With lock	1.0
Rod end thread	Male thread	0.11
	Nut	0.05
Mounting	Foot	1.1
	Flange	0.8

Motorless Type

Electric Actuator/ Rod Type

LEY100 Series

Size 100

RoHS

How to Order

Motorless Type **LEY 100 D NN B – 200 ❶ ❷ ❸ ❹ ❺ ❻ ❼**

❶ Size

100

❷ Motor mounting position

D	In-line

❸ Motor type*1

Symbol	Type	Note
NN	ø80 - M5 thread hole	—

*1 A motor adapter and motor flange are not included.

❹ Lead [mm]

Symbol	LEY100
B	10

❺ Stroke [mm]

100	100
to	to
1000	1000

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

❻ Rod end thread

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

❼ Mounting*2 *3

Symbol	Type	Motor mounting position
		In-line
Nil	Ends tapped	●
L	Foot	●
F	Flange	●

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

*3 Do not mount using the "flange" or "ends tapped" options for the horizontal type with one end secured.

Applicable Stroke Table

Size	Stroke [mm]										
	100	**200**	**300**	**400**	**500**	**600**	**700**	**800**	**900**	**1000**	Manufacturable stroke range
100	●	●	●	●	●	●	●	●	●	●	100 to 1000

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

Compatible Motors

Manufacturer	Series	Type	NN
Mitsubishi Electric Corporation	MELSERVO-J4	HG-KR	●
	MELSERVO-J5	HK-KT	●
YASKAWA Electric Corporation	Σ-V	SGMJV	●
	Σ-7	SGM7J	●
SANYO DENKI CO., LTD.	SANMOTION R	R2	●
NIDEC SANKYO CORPORATION	S-FLAG	MX	●
KEYENCE CORPORATION	SV	SV-M/SV-B	●
FUJI ELECTRIC CO., LTD.	ALPHA5/ALPHA7	GYS/GYB/GYG	●
Delta Electronics, Inc.	ASDA-A2	ECMA	●

Specifications

∗ The values in this specifications table are the allowable values of the actuator body with the standard motor mounted.
∗ Do not use the actuator so that it exceeds these values.

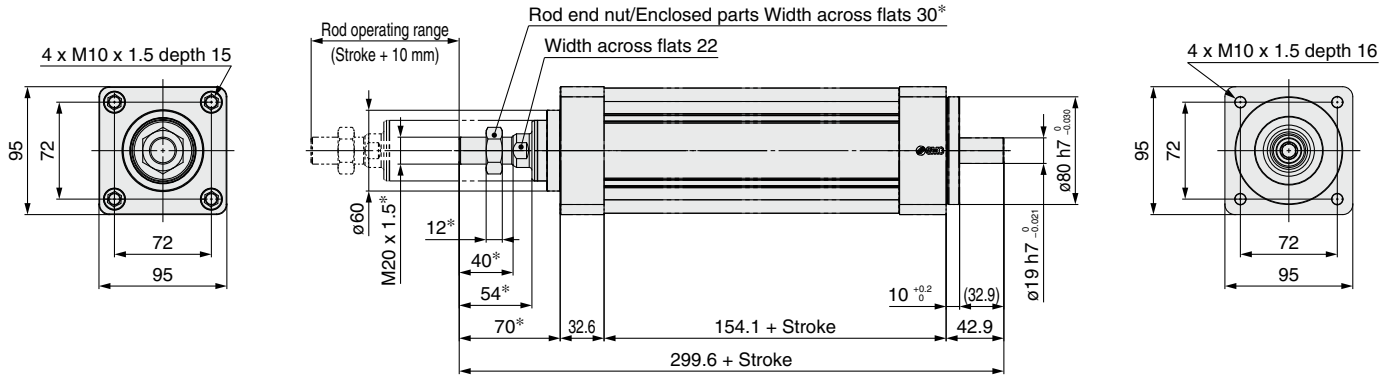
Model			LEY100DNNB
Actuator specifications	Stroke [mm]		100, 200, 300, 400, 500, 600, 700, 800, 900, 1000
	Work load [kg]	Horizontal∗1	240/1200 [When equipped with reducer (reduction ratio 1/5)]
		Vertical	80/200 [When equipped with reducer (reduction ratio 1/5)]
	Rated force [N]/Set value: Rated torque 87%∗2		1100/5500 [When equipped with reducer (reduction ratio 1/5)]
	Max. force [N]/Set value: Max. torque 192%∗2		2600/12000 [When equipped with reducer (reduction ratio 1/5)]
	Max. speed [mm/s]∗3	Up to 500	500
		600	370
		700	285
		800	225
		900	180
		1000	150
	Pushing speed [mm/s]∗4		20 or less
	Max. acceleration/deceleration [mm/s²]		3000/2000 [When equipped with reducer (reduction ratio 1/5)]
	Positioning repeatability [mm]		±0.02
	Lost motion [mm]∗5		0.1 or less
	Screw lead [mm]		10
	Impact/Vibration resistance [m/s²]∗6		50/20
	Actuation type		Ball screw
	Guide type		Sliding bushing (Piston rod)
	Operating temperature range [°C]		5 to 40
	Operating humidity range [%RH]		90 or less (No condensation)
Other specifications∗7	Actuation unit weight [kg] (∗ [ST]: Stroke)		2.80 + (7.50 x 10^{-3}) x [ST]
	Other inertia [kg·cm]		0.047
	Friction coefficient		0.05
	Mechanical efficiency		0.9
Reference motor spec.	Motor shape		□80
	Motor type		AC servo motor
	Rated output capacity [W]		750
	Rated torque [N·m]		2.4
	Rated rotation [rpm]		3000

∗1 This is the max. value of the horizontal work load. An external guide is necessary to support the load (Friction coefficient of guide: 0.1 or less).
The actual work load changes according to the condition of the external guide. Confirm the load using the actual device.
∗2 The force setting range for the force control (Speed control mode, Torque control mode)
The force changes according to the set value. Set it with reference to the “Force Conversion Graph (Guide)” on page 4.
∗3 The allowable speed changes according to the stroke.
∗4 The allowable collision speed for collision with the workpiece
∗5 A reference value for correcting errors in reciprocal operation
∗6 Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)
Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)
∗7 Each value is only to be used as a guide to select a motor of the appropriate capacity.

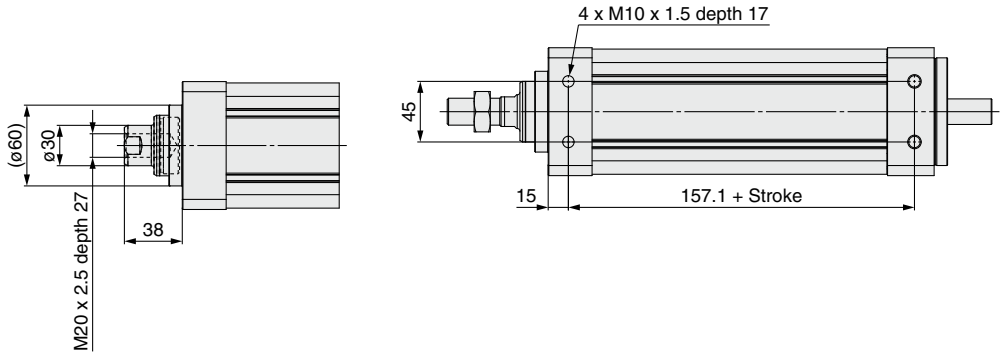
Dimensions: In-line Motor

LEY100

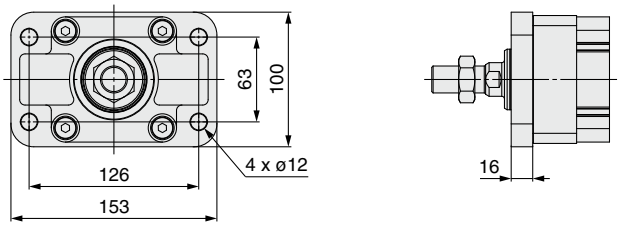
∗ part dimensions indicate the dimensions when a male rod end is selected.



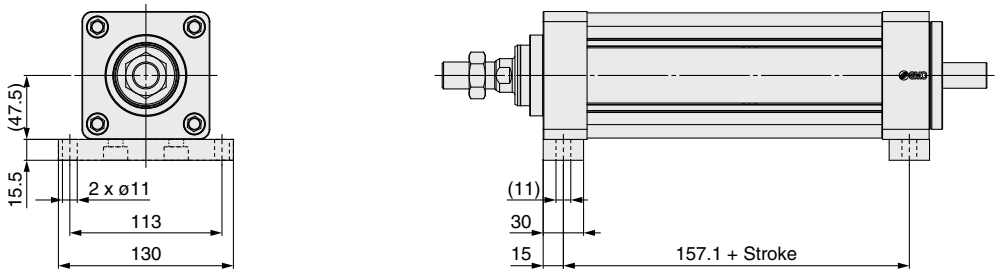
Rod end female thread: LEY100DNNB-□□□



Rod flange shape: LEY100DNNB-□□□F



Foot: LEY100DNNB-□□□L



Motor Flange Assembly

Motor flange **LEY − MF 100 D − NZ**

❶

❶ Motor flange type

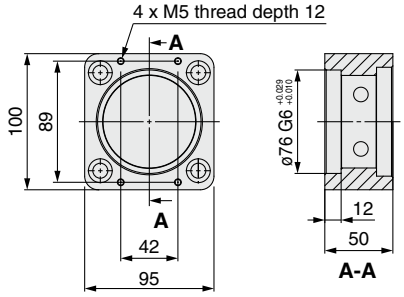
Symbol	Motor type	(Note)	Ⓐ Motor adapter	Ⓑ Motor flange	Ⓒ Coupling (O.D. ø40)	Ⓒ Coupling (O.D. ø55)	Ⓓ Reducer
NZ	Mounting type Z	Mitsubishi and others	●	●	—	—	—
NZC	Mounting type Z + Coupling included	O.D. ø40	●	●	●	—	—
NG	Mounting type G	For reducers	●	●	—	—	—
NGC	Mounting type G + Coupling included	O.D. ø55	●	●	—	●	—
NGC3	Mounting type G + With reducer*1	Reduction ratio 1/3	●	●	—	●	●
NGC5	Mounting type G + With reducer*1	Reduction ratio 1/5	●	●	—	●	●
N	Without motor flange	Motor adapter only	●	—	—	—	—

*1 A coupling (O.D. ø55) is also included.

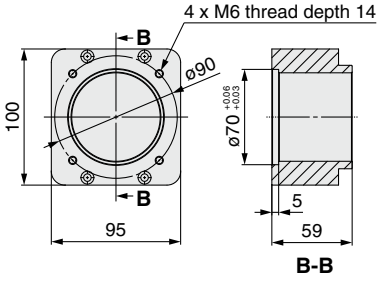
Compatible Motors

Manufacturer	Series	Type	NZC/ NGC3/ NGC5
Mitsubishi Electric Corporation	MELSERVO-J4	HG-KR	●
	MELSERVO-J5	HK-KT	●
YASKAWA Electric Corporation	Σ-V	SGMJV	●
	Σ-7	SGM7J	●
SANYO DENKI CO., LTD.	SANMOTION R	DXF	●
	SANMOTION R	R2	●
NIDEC SANKYO CORPORATION	S-FLAG	MX	●
KEYENCE CORPORATION	SV	SV-M/SV-B	●
FUJI ELECTRIC CO., LTD.	ALPHA5/ALPHA7	GYS/GYB/GYG	●
Delta Electronics, Inc.	ASDA-A2	ECMA	●

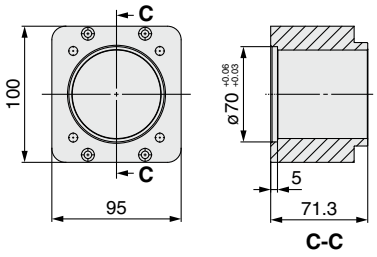
Ⓐ Motor adapter



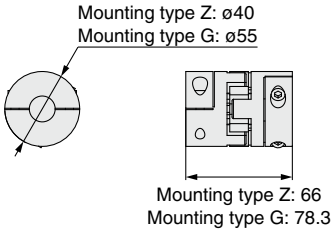
Ⓑ Motor flange (Mounting type Z)



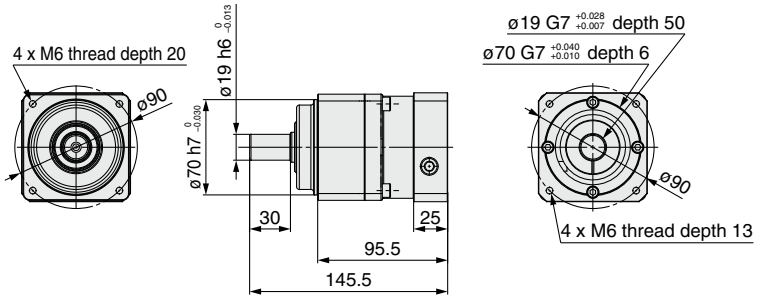
Ⓑ Motor flange (Mounting type G)



Ⓒ Coupling



Ⓓ Reducer (Reduction ratio 1:3/1:5)



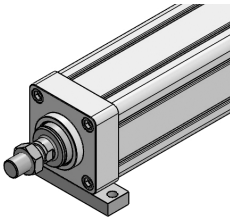
Mounting Bracket

LEY − L 100

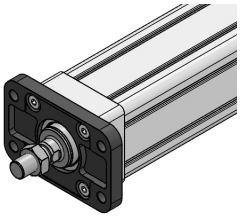
❶

❶ Mounting bracket

Symbol	Mounting bracket
L	Foot
F	Flange



L: Foot



F: Flange

LEY100 Series
Specific Product Precautions
Be sure to read this before handling the products.

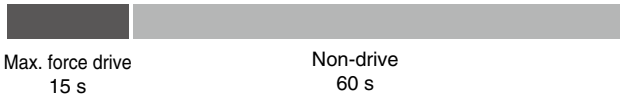
Handling

⚠Caution

Continuous use at max. force is prohibited.

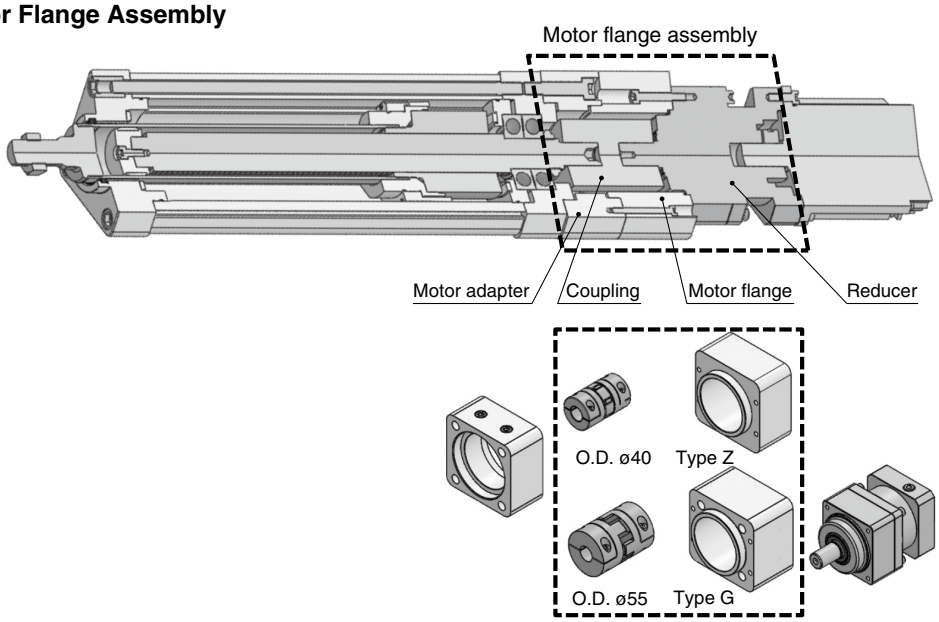
When using the product at max. force, be sure to use the product within 15 s and with a duty ratio of 20% or less. (With motor)

Example of driving conditions with a duty ratio of 20%



For the motorless type, be sure to check the specifications of the motor and driver to be used in combination before use.
The force should be within the rated force when using continuously.

Motor Flange Assembly



Products from other companies and
self-produced products can be used instead.

Symbol	Motor adapter	Motor flange (Type)	Coupling (ø40)	Coupling (ø55)	Reducer (Reduction ratio)
NZ	●	● (Z)	—	—	—
NZC	●	● (Z)	●	—	—
NG	●	● (G)	—	—	—
NGC	●	● (G)	—	●	—
NGC3	●	● (G)	—	●	● (1/3)
NGC5	●	● (G)	—	●	● (1/5)
N	●	—	—	—	—

AC Servo Motor | Motorless Type

Electric Actuator
Rod Type

⚠ Safety Instructions | Be sure to read the “Handling Precautions for SMC Products” (M-E03-3) and “Operation Manual” before use.