With Linear Guide

LCG

Linear Slide Cylinder

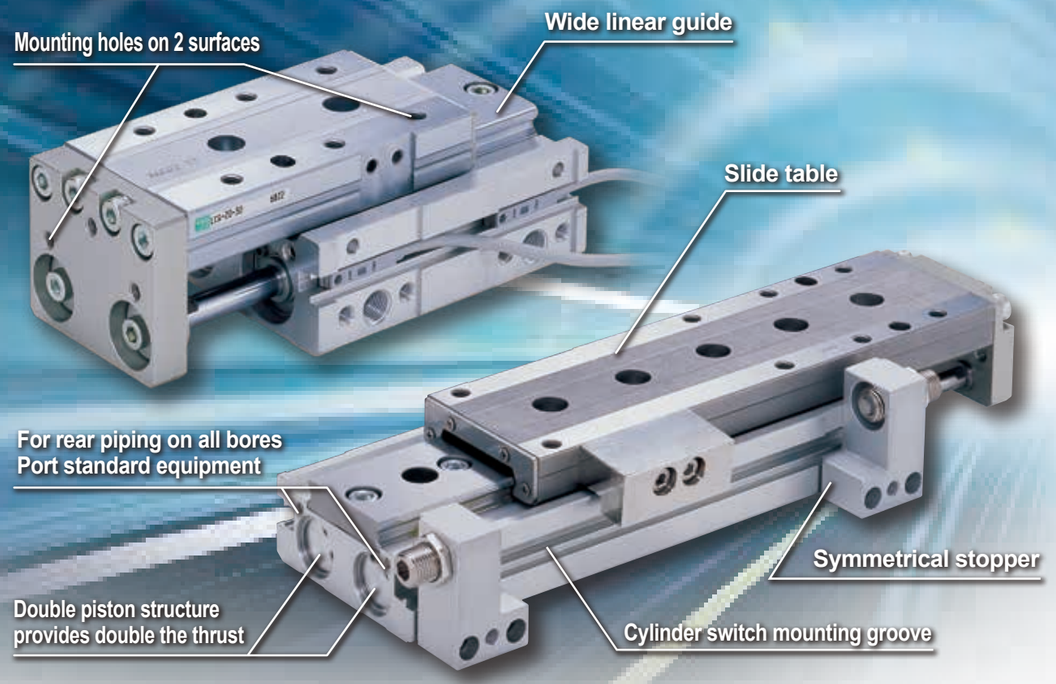
ø6, ø8, ø12, ø16, ø20, ø25

CONTENTS

LCG Series

To higher precision and rigidity, and easier to use

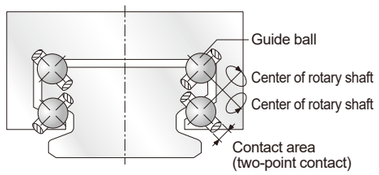
High-precision, high-rigidity wide linear guide mounted on a double piston cylinder. The linear guide table surface is directly used as the slide table. Linear slide cylinder LCG series (ø6 to ø25) with unprecedented precision and rigidity, making it easier to use.



Guide balls aligned in four rows on the linear guide (ø12 and up)

Guide balls are arranged in 4 rows, providing stable operation regardless of the load direction. In addition, since the contact width of the guide balls is smaller compared to a guide with 2 rows, the frictional resistance generated during rotation is also small, resulting in smooth operation and improved accuracy and rigidity.

■ 4-row arrangement, 2-point contact structure



Double piston structure adopted

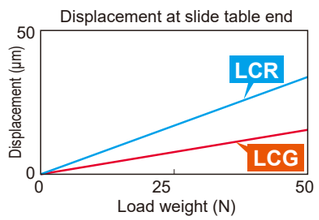
Double thrust due to double piston structure. Compact yet high output.

More precise

The table surface of the linear guide is adopted as the slide table as is. Compared to conventional products, it has become more precise.
Parallelism 0.03 mm (ø12-30 stroke)
End plate squareness 0.05 mm

More rigid

The material of the slide table has been changed from the conventional aluminum material to stainless steel or steel. Combined with a wide guide, rigidity has been further improved.



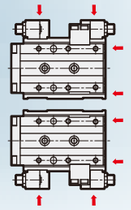
Product Features

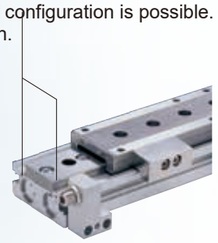
High degree of design freedom

This product offers extremely high design freedom, including symmetrical stoppers, multi-surface piping, 2-surface mounting, and positioning holes.

■ Change to laterally symmetrical configuration is possible.
■ Rear piping port Standard equipment

Change to laterally symmetrical configuration is possible.
The ← shows the piping direction.





Anti-rust treatment type (ø20, 25)

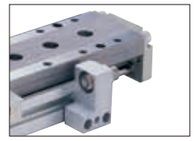
Rust prevention treatment on the table and rail surfaces reduces the occurrence of rust in high-humidity environments, such as near an ionizer.

2-color switch selectable

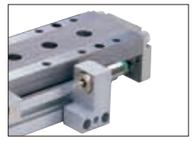
Solid-state 2-color indicator switch is now selectable. The switch does not protrude from the main body, resulting in a neat appearance.

Abundant options and variations

Standard and drop prevention types are available. A wide range of options are available, including stroke adjustment stoppers and Shock absorber type stoppers.



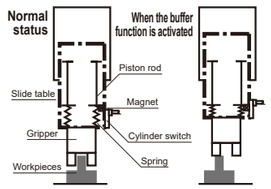
■ Stroke adjustment stopper
One-side adjustment range 0 to 5 mm



■ Shock absorber type stopper
Shock absorption at stroke end

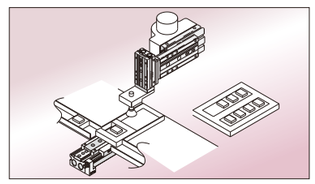
With buffer mechanism

This type protects the workpiece and cylinder by activating the shock absorbing mechanism even if the drive unit and workpiece collide when the cylinder advances. Used when a shock absorbing mechanism is required at the tip, such as in pick & place applications. Furthermore, a cylinder switch that detects buffer operation can be mounted (BL type) to detect abnormalities in lines, etc.

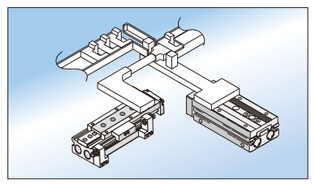


Usage Example

Storing small parts in trays or supplying from trays



Feeding small parts

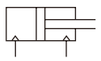
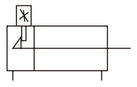


LCG Series Product Lineup

Model variations	Bore size	Stroke (mm) 10	20	30	40	50	75	100	125	150	With buffer B*	Anti-rust treatment U
Double acting / single rod LCG	ø6	●	●	●	●	●	●	●	●	●	●	●
	ø8	●	●	●	●	●	●	●	●	●	●	●
	ø12	●	●	●	●	●	●	●	●	●	●	●
	ø16	●	●	●	●	●	●	●	●	●	●	●
	ø20 / ø25	●	●	●	●	●	●	●	●	●	●	●
Double acting / position locking LCG-Q	ø8	●	●	●	●	●	●	●	●	●	●	
	ø12	●	●	●	●	●	●	●	●	●	●	
	ø16	●	●	●	●	●	●	●	●	●	●	
	ø20 / ø25	●	●	●	●	●	●	●	●	●	●	

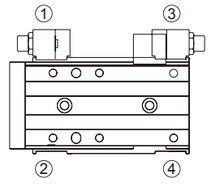
Linear Slide Cylinder
LCG Series

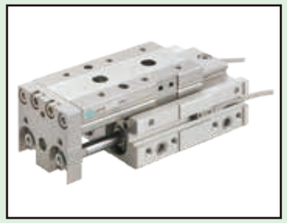
● : Standard, ◎ : Option, ○ : Custom order Not manufacturable

Variation	Model No. / Circuit Diagram Symbol	Bore size (mm)	Stroke (mm) 10	20	30	40	50	75	100	125	150	Option: Stroke adjustment stopper — Stopper position ① S1	Stopper position ② S2	Stopper position ③ S3	Stopper position ④ S4	Stopper position ①/③ S5	Stopper position ②/④ S6	Shock absorber type stopper — Stopper position ① A1	Stopper position ② A2	Stopper position ③ A3	Stopper position ④ A4	Stopper position ①/③ A5	Stopper position ②/④ A6	Double-sided combination double stopper — A1 + Metal stopper W1	A2 + Metal stopper W2	A3 + Metal stopper W3	A4 + Metal stopper W4	A5 + Metal stopper W5	A6 + Metal stopper W6	Single-sided mixed stopper mix — A1 + S3 C1	A2 + S4 C2	A3 + S1 C3	A4 + S2 C4	With buffer — Without switch groove B	With switch groove BL	Anti-rust treatment — Anti-rust treated product U	Plug included N	Switch	Page
Double Acting/ Single Rod Type	LCG 	ø6	●	●	●	●	●					◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	◎	○	○	○	○	○	○	○	○	○	○	◎	◎	*1	◎	◎	132
		ø8	●	●	●	●	●	●																																
		ø12	●	●	●	●	●	●	●																															
		ø16	●	●	●	●	●	●	●	●																														
		ø20, ø25	●	●	●	●	●	●	●	●	●																										◎			
Double Acting/ Drop Prevention Type	LCG-Q 	ø8	●	●	●	●	●	●				◎	◎					◎	◎					○	○							○	○			*1		◎	162
		ø12	●	●	●	●	●	●	●																															
		ø16	●	●	●	●	●	●	●	●																														
		ø20, ø25	●	●	●	●	●	●	●	●	●																										◎			

*1: Standard uses stainless steel.

●Stopper position

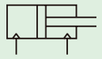




Linear Slide Cylinder Double Acting, Single Rod Type

LCG Series

● Bore Size: ø6, ø8, ø12, ø16, ø20, ø25

Circuit Diagram Symbol 

RoHS

Model No. Notation Method (ø6 to ø16)

Without Switch
(Built-in magnet for switch)

LCG - 8 - 40 —— S5

Model No. ❶ ❷ ❺

With Switch
(Built-in magnet for switch)

LCG - 12 - 40 - F2H - R - A1 DT

Model No. ❷ Stroke ❹ Number of Switches ❻ Option
❶ Bore size ❸ Switch Model No. ❺ Stopper

❶ Bore Size (mm)

Code	Content
6	ø6
8	ø8
12	ø12
16	ø16

❷ Stroke (mm)

Code		Applicable Bore size ø6	ø8	ø12	ø16
Standard Stroke	10	●	●	●	●
	20	●	●	●	●
	30	●	●	●	●
	40	●	●	●	●
	50	●	●	●	●
	75		●	●	●
	100			●	●
	125				●

❸ Switch Model No.

For switch details, please refer to P. 753.
Switches are included to the product and shipped.

Contact	Indicator LED / Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	-	10 to 30	-	5 to 20	-	F2S□	
		3-wire (NPN)	-	30 or less	-	50 or less	-	F3S□	
		2-wire	-	10 to 30	-	5 to 20 *2	F2H□	F2V□	
		3-wire (NPN)	-	30 or less	-	50 or less	F3H□	F3V□	
		3-wire (PNP)	-	30 or less	-	50 or less	F3PH□	F3PV□	
	2-Color	2-wire	-	24 ± 10%	-	5 to 20	F2YH□	F2YV□	
		3-wire (NPN)	-	30 or less	-	50 or less	F3YH□	F3YV□	
	1-Color	2-wire	-	10 to 30	-	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	-	30 or less	-	100 or less	T3H□	T3V□	
		3-wire (PNP)	-		-		T3PH□	T3PV□	
	2-Color	2-wire	-	24 ± 10%	-	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	-	30 or less	-	50 or less	T3WH□	T3WV□	
	2-Color Water Resistance Improved	2-wire	-	24 ± 10%	-	5 to 20	T2WLH□	T2WLV□	 *3
	1-Color Flexible Lead Wire Type		-	10 to 30	-	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator LED		110	5/12/24	20 or less	50 or less	T5H□	T5V□	

*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4 : ❶ For bore size ø16, F type switch cannot be selected.
*5 : ❶ For bore size ø6, 8, 12, T type switch cannot be selected.
*6 : Switches other than the switch model Nos. are also available. (Custom Product) For details, see P. 753.

*** Lead wire length, connector specification**

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
*8 5	5 m (Option)
*7 W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*7: Only T2WLH and T2WLV can be selected.
*8: For F type switch, 5 m lead wire cannot be selected.

Example) Lead wire length
1m TOH
3m TOH 3
5m TOH 5

❹ Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs

❺ Stopper

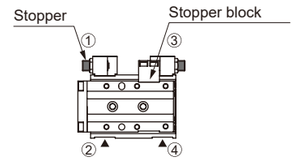
For details, see P. 136.

	Code	Content	
*2	Blank	No stopper	
	S Stroke adjustment stopper		*3, *4, *5
	S1□□	Stopper position ① (④ Changeable to)	Stopper Mounting Position
	S2□□	Stopper position ② (③ Changeable to)	
*11	S3□□	Stopper position ③ (② Changeable to)	
*11	S4□□	Stopper position ④ (① Changeable to)	
	S5□□	Stopper position ①, ③	
	S6□□	Stopper position ②, ④	
	A Shock absorber type stopper		*3, *4, *6, *7
	A1	Stopper position ① (④ Changeable to)	Stopper Mounting Position
	A2	Stopper position ② (③ Changeable to)	
*11	A3	Stopper position ③ (② Changeable to)	
*11	A4	Stopper position ④ (① Changeable to)	
	A5	Stopper position ①, ③	
	A6	Stopper position ②, ④	
	W Double-sided combination double stopper (Shock absorber type stopper, Metal stopper)		*6, *8, *9
	W1	A1 + Metal stopper	Stopper Mounting Position
	W2	A2 + Metal stopper	
	W3	A3 + Metal stopper	
	W4	A4 + Metal stopper	
	W5	A5 + Metal stopper	
	W6	A6 + Metal stopper	
	C Single-sided mixed stopper mix (Shock absorber type stopper, Stroke adjustment stopper)		*6
	C1□□	A1 + S3	Stopper Mounting Position
	C2□□	A2 + S4	
	C3□□	A3 + S1	
	C4□□	A4 + S2	

□□part Stroke adjustment range ●Applicable to all. ▲Applicable to some. *10

	Extension end side	Retraction end side	Stopper model No. S	A	W	C
Blank	5 mm or none	5 mm or none	●	–	–	●
02	15 mm or none	15 mm or none	●			●
03	25 mm or none	25 mm or none	●			●
04	15 mm	5 mm	▲			–
05	25 mm	5 mm	▲			–
06	5 mm	15 mm	▲			–
07	5 mm	25 mm	▲			–

● Stopper position



*1: For stopper positions ① to ④, refer to the diagram on the right.
*2: The standard port positions when there is no stopper are positions ① and ③ in the diagram on the right.
*3: For combinations of stroke adjustment stoppers, metal stoppers, and Shock absorber type stoppers, refer to ❺ Stopper "C□", "W□".
*4 : When using the S□□□ with ø6 to ø8-30 strokes or less and the A□□□ with 2 switches, select the F□H type switch.
*5 : The stroke adjustment stopper becomes metal touch at an operating pressure of 0.3 MPa or more.
*6 : For the stroke adjustment range when using a Shock absorber type, refer to the dimension table in the stopper outline drawing P. 156.
*7 : ø6 to ø8-10 strokes, ø12, ø16 to 20 strokes or less A1□□, A2□□, A5□□, and A6□□ cannot be adjusted with the standard stoppers and will be in a Custom Product.
*8 : For ø6 (all strokes), ø8 (20 to 40 stroke), ø12 (20 stroke or more), and ø16 (20 to 50 stroke), if W3 to 6 (stopper for use on both sides) is selected, please use the straight lead wire type when using two switches or for use on the head side.
*9 : When the type for use on both sides (W) is selected, the stroke adjustment range will be ø6: 9 mm, ø8: 13.5 mm, ø12: 14.5 mm, and ø16: 15 mm.
*10 : Selectable only when using stroke adjustment stopper (S) and single-sided mixed type (C).
*11 : When changing the stopper position from the head side to the rod side, a separate stopper must be purchased, depending on the stroke and stroke adjustment amount.P. 140 and P. 141. Depending on the stroke, A1, A2, and adjustment amounts of 15 mm and 25 mm may not be possible.
*12 : For stopper combinations, please refer to the combination possibility table on P. 138.
*13 : The rust prevention treatment type is a custom product.

❻ Option

Code	Content	
Stopper part port		*2, *5
Blank	No port	
D	Side and bottom ports available *1	
Stopper block material		*2
Blank	Steel	
T	Steel (nitriding treatment)	
With buffer		*3
B	Without switch groove	
BL	With switch groove	
Plug included		
Blank	None	
*4 N	Plug for side piping port included (Cannot be selected for ø6.)	

*1: Port position is P. 156 Refer to the stopper dimensions.
*2: Selectable only when stopper type is selected.
*3: Purchase the buffer part switch separately using the switch single item model No. indication method on P. 139.
*4 : Select N when using with rear piping. For details, see P. 196.
*5 : If the double-sided combination type (W) is selected, the stopper part port is standard, so option "D" cannot be selected.

Rechargeable Battery Compatible Specification

(Catalog No. CC-1226AA)
● Structure usable in secondary battery manufacturing processes
LCG - ····· - P4□
* Please contact us for details.

High Durability Components HP Series

(Catalog No. CC-1421AA)
● Long-life actuator that can contribute to productivity improvement with stable operation
LCG - ····· - HP□

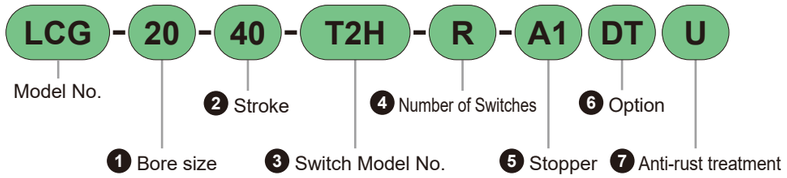
Clean Specification

(Catalog No. CB-033SA)
● Dust generation prevention structure usable in cleanrooms
LCG - ····· - P7□

Model No. Notation Method (ø20, ø25)

Without Switch
(Built-in magnet for switch)

With Switch
(Built-in magnet for switch)



1 Bore Size (mm)

Code	Content
20	ø20
25	ø25

2 Stroke (mm)

Code	Content
10	10
20	20
30	30
40	40
50	50
75	75
100	100
125	125
150	150

3 Switch Model No.

For switch details, please refer to P. 753.
Switches are included to the product and shipped.

Contact	Indicator LED Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape	
Solid State	1-Color	2-wire	-	10 to 30	-	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	-	30 or less	-	100 or less	T3H□	T3V□	
		3-wire (PNP)	-		-		T3PH□	T3PV□	
	2-Color	2-wire	-	24 ± 10%	-	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	-	30 or less	-	50 or less	T3WH□	T3WV□	
	2-Color Water Resistance Improved	2-wire	-	24 ± 10%	-	5 to 20	T2WLH□	T2WLV□	*3
	1-Color Flexible Lead Wire Type		-	10 to 30	-	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator LED		110	5/12/24	20 or less	50 or less	T5H□	T5V□	

*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length, connector specification" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: This does not guarantee the water resistance of the cylinder.
*4: Switches other than the switch model Nos. are also available. (Custom Product) For details, see P. 753.

*5

*** Lead wire length, connector specification**

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)
W	M8 Connector, 1PIN (+), 4PIN (−) Lead Wire 0.3 m

*5 : Only T2WLH and T2WLV can be selected.

Example) Lead wire length
1m TOH
3m TOH 3
5m TOH 5

4 Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs

5 Stopper

For details, see P. 136.

	Code	Content	
*2	Blank	No stopper	
	S Stroke adjustment stopper		*3, *4
	S1□□	Stopper position ① (④Changeable to)	Stopper Mounting Position
	S2□□	Stopper position ② (③Changeable to)	
*7	S3□□	Stopper position ③ (②Changeable to)	
*7	S4□□	Stopper position ④ (①Changeable to)	
	S5□□	Stopper position ①, ③	
	S6□□	Stopper position ②, ④	
	'A' Shock absorber type stopper		*3, *5
	A1	Stopper position ① (④Changeable to)	Stopper Mounting Position
	A2	Stopper position ② (③Changeable to)	
*7	A3	Stopper position ③ (②Changeable to)	
*7	A4	Stopper position ④ (①Changeable to)	
	A5	Stopper position ①, ③	
	A6	Stopper position ②, ④	
*6	**W Double-sided combination double stopper (Shock absorber type stopper, Metal stopper)**		*5
	W1	A1 + Metal stopper	Stopper Mounting Position
	W2	A2 + Metal stopper	
	W3	A3 + Metal stopper	
	W4	A4 + Metal stopper	
	W5	A5 + Metal stopper	
	W6	A6 + Metal stopper	
*6	**'C' Single-sided mixed stopper mix (Shock absorber type stopper, Stroke adjustment stopper)**		*5
	C1□□	A1 + S3	Stopper Mounting Position
	C2□□	A2 + S4	
	C3□□	A3 + S1	
	C4□□	A4 + S2	

□□ part Stroke adjustment range ●Applicable to all. ▲Applicable to some. *6

	Extension end side	Retraction end side	Stopper model No. S	A	W	C
Blank	5 mm or none	5 mm or none	●	–	–	●
02	15 mm or none	15 mm or none	●			●
03	25 mm or none	25 mm or none	●			●
04	15 mm	5 mm	▲			–
05	25 mm	5 mm	▲			–
06	5 mm	15 mm	▲			–
07	5 mm	25 mm	▲			–

*1: For stopper positions ① to ④, refer to the diagram on the right.
*2: The standard port positions when there is no stopper are positions ① and ③ in the diagram on the right.
*3: For combinations of stroke adjustment stoppers, metal stoppers, and Shock absorber type stoppers, refer to 5 Stopper "C□", "W□".
*4 : The stroke adjustment stopper becomes metal touch at an operating pressure of 0.3 MPa or more.
*5 : For the stroke adjustment range when using a Shock absorber type, refer to the dimension table in the stopper outline drawing P. 156.
*6: Selectable only when using stroke adjustment stopper (S) and single-sided mixed type (C).
*7: When changing the stopper position from the head side to the rod side, a separate stopper must be purchased, depending on the stroke and stroke adjustment amount.P. 140 and P. 141. Depending on the stroke, A1, A2, and adjustment amounts of 15 mm and 25 mm may not be possible.
*8: For stopper combinations, please refer to the combination possibility table on P. 138.

6 Option

Code	Content	
Stopper part port		*2, 5
Blank	No port	
D	Side and bottom ports available *1	
Stopper block material		*2
Blank	Steel	
T	Steel (nitriding treatment)	
With buffer		*3
B	Without switch groove	
BL	With switch groove	
Plug included		*4
Blank	None	
N	Plug for side piping port included (Cannot be selected for ø25.)	

*1: Port position is P. 156
*2: Selectable only when stopper type is selected.
*3: Purchase the buffer part switch separately using the switch single item model No. indication method on P. 139.
*4: Select N when using with rear piping. For details, see P. 196.
*5: If the double-sided combination type (W) is selected, the stopper part port is standard, so option "D" cannot be selected.

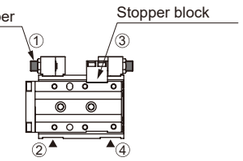
7 Anti-rust treatment

Code	Content	
Blank	None	
U	Anti-rust treated product (Table/Guide part)	

*1
*2

*1: The table uses steel. When used in high-temperature, high-humidity environments or environments where water droplets may adhere due to condensation, etc., rust may occur, so please select "U".
*2: The table and rail will be black. Anti-rust treatment applied to the table surface and rail surface reduces rust generation in high-humidity environments such as near ionizers.
*3: If anti-rust treatment is required for the standard (stainless steel), please contact our sales department.

● Stopper position



Rechargeable Battery Compatible Specification

(Catalog No. CC-1226AA)
● Structure usable in secondary battery manufacturing processes

LCG – · · · · – P4□

* Please contact us for details.

High Durability Components HP Series

(Catalog No. CC-1421AA)
● Long-life actuator that can contribute to productivity improvement with stable operation

LCG – · · · · – HP□

Clean Specification

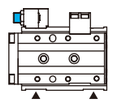
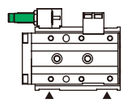
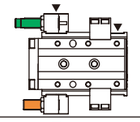
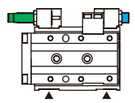
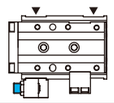
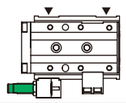
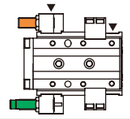
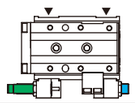
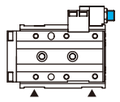
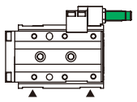
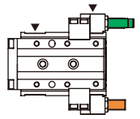
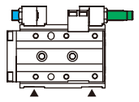
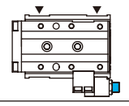
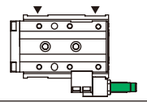
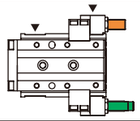
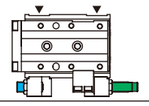
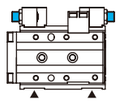
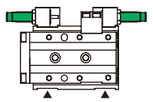
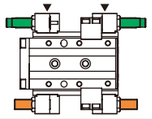
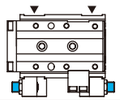
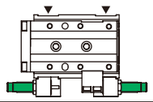
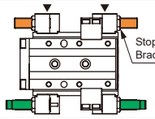
(Catalog No. CB-033SA)
● Dust generation prevention structure usable in cleanrooms

LCG – · · · · – P7□

Stopper Model No. Selection Method

1 Stopper Combination Table

Model No. –[①Stopper type] [②Stopper position] [③] Example) LCG-8-40-[S] [5] 06

Stopper position [②]	Stopper [①] Stroke adjustment type (single side) [S]	Shock absorber type (single side) [A]	Double-sided combination double stopper [W]	Single-sided mixed stopper mix [C]
[1]	[S1] 	[A1] 	[W1] 	[C1] 
[2]	[S2] 	[A2] 	[W2] 	[C2] 
[3]	[S3] 	[A3] 	[W3] 	[C3] 
[4]	[S4] 	[A4] 	[W4] 	[C4] 
[5]	[S5] 	[A5] 	[W5] 	
[6]	[S6] 	[A6] 	[W6] 	

▲ indicates the piping direction.
If the double-sided combination type [W] is selected, the stopper brackets on both sides will have piping, and the stopper bracket on the side opposite to the ▲(piping direction) will have a plug.

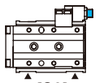
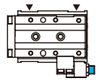
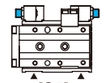
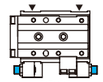
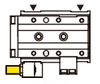
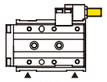
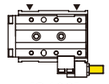
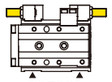
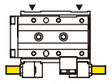
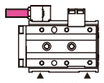
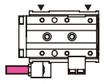
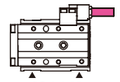
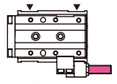
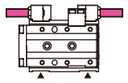
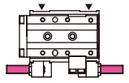
: Shock absorber type stopper
: Stroke adjustment stopper (adjustment range 5 mm)
: Metal stopper (adjustment range 15 mm)

Stopper Model No. Selection Method

2 Stopper Combination Table

Model No.-[① Stopper type] [② Stopper position] [③ Adjustable stroke range]
Example) LCG-8-40-S5 [06]
In case of stroke adjustment stopper -S

: Stroke adjustment stopper (adjustment range 5 mm)
: Stroke adjustment stopper (adjustment range 15 mm)
: Stroke adjustment stopper (adjustment range 25 mm)

Stroke adjustment range [③]	Stopper adjustment range Extension end side	Stopper adjustment range Retraction end side	Stopper type, Stopper position [① ②] [S1]	[S2]	[S3]	[S4]	[S5]	[S6]
Blank	5 mm or None	5 mm or None	[S1] 	[S2] 	[S3] 	[S4] 	[S5] 	[S6] 
[02]	15 mm or None	15 mm or None	[S102] 	[S202] 	[S302] 	[S402] 	[S502] 	[S602] 
[03]	25 mm or None	25 mm or None	[S103] 	[S203] 	[S303] 	[S403] 	[S503] 	[S603] 
[04]	15 mm	5 mm					[S504]	[S604]
[05]	25 mm	5 mm					[S505]	[S605]
[06]	5 mm	15 mm					[S506]	[S606]
[07]	5 mm	25 mm					[S507]	[S607]

▲ indicates the piping direction.
Cannot be selected for Shock Absorber Type [A], or Both Sides Combination Type [W].

3 In case of single-sided mixed stopper mix -C

: Shock absorber type stopper
: Stroke adjustment stopper (adjustment range 5 mm)
: Stroke adjustment stopper (adjustment range 15 mm)
: Stroke adjustment stopper (adjustment range 25 mm)

Stroke adjustment range [③]	Stopper adjustment range Extension end side	Stopper adjustment range Retraction end side	Stopper type, Stopper position [① ②] [C1]	[C2]	[C3]	[C4]
Blank	5 mm or Shock Absorber	5 mm or Shock Absorber	[C1]	[C2]	[C3]	[C4]
[02]	15 mm or Shock Absorber	15 mm or Shock Absorber	[C102]	[C202]	[C302]	[C402]
[03]	25 mm or Shock Absorber	25 mm or Shock Absorber	[C103]	[C203]	[C303]	[C403]

▲ indicates the piping direction.
For the stroke adjustment range of the Shock absorber type, refer to the dimension table in the stopper outline drawing P. 156.

LCG Double Acting, Single Rod Type Combination Availability Table

(Combination with stroke adjustment stopper, Shock absorber type stopper)

● : Not combinable - : Not combinable

Model No.	Stopper type		Stroke adjustment type																							
	Stopper code		S1			S2			S3			S4			S5							S6					
			Adjustment range code																							
	Bore size	Stroke	Blank	02	03	Blank	02	03	Blank	02	03	Blank	02	03	Blank	02	03	04	05	06	07	Blank	02	03	04	05	06	07
LCG	ø6, ø8	10	●	-	-	●	-	-	●	●	-	●	●	-	●	-	-	-	-	●	-	●	-	-	-	-	●	-
		20 or more	●	●	-	●	●	-	●	●	-	●	●	-	●	●	-	●	-	●	-	●	●	-	●	-	●	-
	ø12 to ø25	10	●	-	-	●	-	-	●	●	-	●	●	-	●	-	-	-	-	●	-	●	-	-	-	-	●	-
		20	●	●	-	●	●	-	●	●	●	●	●	●	●	●	-	●	-	●	●	●	●	-	●	-	●	●
		30 or more	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
LCG-B, BL	ø6, ø8	10	●	-	-	●	-	-	●	●	-	●	●	-	●	-	-	-	-	●	-	●	-	-	-	-	●	-
		20 or more	●	-	-	●	-	-	●	●	-	●	●	-	●	-	-	-	-	●	-	●	-	-	-	-	●	-
	ø12 to ø25	10	●	-	-	●	-	-	●	●	-	●	●	-	●	-	-	-	-	●	-	●	-	-	-	-	●	-
		20	●	●	-	●	●	-	●	●	●	●	●	●	●	●	-	●	-	●	●	●	●	-	●	-	●	●
		30 or more	●	●	-	●	●	-	●	●	●	●	●	●	●	●	-	●	-	●	●	●	●	-	●	-	●	●

Model No.	Stopper type		Shock absorber type						Double-sided combination double stopper						Single-sided mixed stopper mix											
	Stopper code		A1	A2	A3	A4	A5	A6	W1	W2	W3	W4	W5	W6	C1			C2			C3			C4		
															Adjustment range code											
	Bore size	Stroke													Blank	02	03	Blank	02	03	Blank	02	03	Blank	02	03
LCG	ø6, ø8	10	-	-	●	●	-	-	-	-	●	●	-	-	-	-	-	-	-	-	●	-	-	●	-	-
		20 or more	●	●	●	●	●	●	●	●	●	●	●	●	●	●	-	●	●	-	●	●	-	●	●	-
	ø12 to ø25	10	-	-	●	●	-	-	-	-	●	●	-	-	-	-	-	-	-	-	●	-	-	●	-	-
		20	-	-	●	●	-	-	-	-	●	●	-	-	-	-	-	-	-	-	●	●	-	●	●	-
		30 or more	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
LCG-B, BL	ø6, ø8	10	-	-	●	●	-	-	-	-	●	●	-	-	-	-	-	-	-	-	●	-	-	●	-	-
		20 or more	●	●	●	●	●	●	●	●	●	●	●	●	●	●	-	●	●	-	●	-	-	●	-	-
	ø12 to ø25	10	-	-	●	●	-	-	-	-	●	●	-	-	-	-	-	-	-	-	●	-	-	●	-	-
		20	-	-	●	●	-	-	-	-	●	●	-	-	-	-	-	-	-	-	●	●	-	●	●	-
		30 or more	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	-	●	●	-

Option Code D : Stopper part with port, T : Please refer to the combination table above to determine if a steel stopper block (nitrided) can be selected. (● : Selectable - : Not selectable)

Switch Single Unit Model No. Notation Method

For ø8 to ø16

SW - F2H

❸ Switch model No. (P. 132 Section ③)

For ø20, ø25

SW - T2H3

❸ Switch model No. (P. 134 Section ③)

● For buffer

SW - F 2 V 3

❽ Output format ❾ Lead wire length

L-shaped lead wire type

❽ Output format

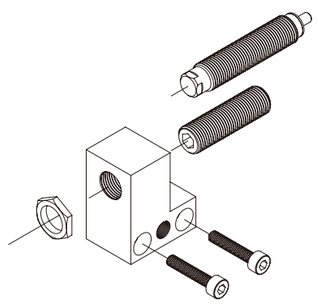
Code	Content
2	DC 2-wire solid-state
3	DC 3-wire solid-state

❾ Lead wire length

Code	Content
Blank	1 m (Standard)
3	3 m (Option)

Stopper Set Model No. Notation Method

● Set of stopper part and stroke adjustment stopper or Shock absorber type stopper
● Used when changing from standard to with stroke adjustment stopper or with Shock absorber type stopper



LCG - 12 - S 2 D - S02

❶ Bore size ⓫ Stopper mounting position ⓭ Stroke adjustment amount

❿ Stopper type ⓬ Stopper part port

❿ Stopper type

Code	Content
S	Stroke adjustment stopper
A	Shock absorber type stopper

⓫ Stopper mounting position

Code	Content
1	Stopper position ①or④ for
2	Stopper position ②or③ for

*When mounting at stopper mounting positions ① and ②, the relationship of the stroke adjustment amount changes depending on the stroke, so refer to the table below.

⓬ Stopper part port

Code	Content
Blank	No port
D	Side/bottom ports available

⓭ Stroke adjustment amount

Code	Content
Blank	Stroke adjustment range 5 mm
S02	Stroke adjustment range 15 mm
S03	Stroke adjustment range 25 mm

*1: S03 cannot be selected for ø8.
*2: Cannot be selected in the case of ❿ Shock absorber type stopper "A".

Precautions when purchasing a stopper set

Please note that only when mounting at the position(s) ①, ② (refer to P. 132 and P. 134), the stroke adjustment amount will be as follows, depending on the stroke.

- : Not compatible

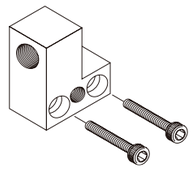
Model No. Code	Option Code		Stopper for Stroke Adjustment Single Unit		
			Stroke adjustment amount (mm)		
	Bore size	Stroke	-5	-15	-25
LCG Series -S1, S2, S5, S6	ø6, ø8	10	S02	-	-
		20 or more	Blank	S02	-
	ø12 to ø25	10	S03	-	-
		20	S02	S03	-
		30 or more	Blank	S02	S03

● Stopper set weight (Unit : g)

Stopper type	S1, S2			A1, A2
Stopper part port	Blank, D			
Stroke adjustment amount / Bore size	Blank	S02	S03	Blank
ø6	15	18	-	18
ø8	21	25	-	27
ø12	28	31	34	33
ø16	42	47	52	49
ø20	77	85	92	86
ø25	87	94	101	95

Stopper Bracket Single Item Model No. Notation Method

● Use when changing to the stopper position (①or④) ↔ (②or ③) or when changing to the stopper with port.



LCG - 12 - STB 1 D

❶ Bore size
⓯ Stopper part port
⓮ Stopper mounting position

● Stopper bracket weight (Unit : g)

Stopper mounting position	1,2
Stopper part port / Bore size	Blank, D
ø6	8
ø8	14
ø12	20
ø16	29
ø20	53
ø25	62

⓮ Stopper mounting position

Code	Content
1	Stopper position ① or ④ for
2	Stopper position ② or ③ for

⓯ Stopper part port

Code	Content
Blank	No port
D	Side/Bottom ports available

*When using the bottom port with ø20 or 25, purchase a plug kit (LCG-20-N, 2 pcs/set) and seal the side port before use.

Stroke Adjustment Stopper Single Item Model No. Notation Method

● Hexagon socket set screw with urethane rubber
● Use when changing stroke adjustment range or setting intermediate stroke

LCG - 12 - S02

❶ Bore size
⓰ Stroke Adjustment range

⓰ Stroke adjustment range

Code	Content
S01	One side 5 mm (Standard)
S02	One side 15 mm
S03	One side 25 mm

*"S03" cannot be selected for ø6 and ø8.
Some model Nos. may not be compatible or the stroke adjustment range may differ from the above.

Precautions when purchasing stopper single items

Only when mounting at mounting positions and ①, ② (see P. 132, P. 134), please note that the combination will be as shown on the right depending on the stroke and stroke adjustment amount.

- : Not combinable

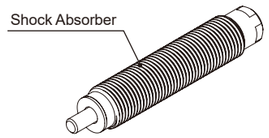
Model No. code	Option Code		Stroke adjustment stopper single item Stroke adjustment amount (mm)		
	Bore size	Stroke	-5	-15	-25
LCG Series -S1, S2, S5, S6	ø6, ø8	10	S02	-	-
		20 or more	S01	S02	-
	ø12 to ø25	10	S03	-	-
		20	S02	S03	-
		30 or more	S01	S02	S03

● Stopper for Stroke Adjustment, Single Unit Weight (Unit : g)

Stroke adjustment range / Bore size	S01	S02	S03
ø6	6	9	-
ø8	7	10	-
ø12	7	11	14
ø16	11	16	22
ø20	22	30	37
ø25	23	30	37

Shock absorber Type Stopper Single Item Model No. Notation Method

● Shock absorber set
● Used when changing from stroke adjustment stopper to Shock absorber type stopper



LCG - 12 - A01

❶ Bore size

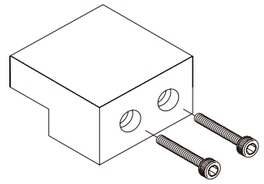
*Some model Nos. may not be compatible.**P. 132, 134.** For the stroke adjustment range of the Shock absorber type stopper, see P. 156.

Shock absorber model No. used

Model	Shock absorber model No.	Weight (g)
LCG-6	SKL-0804	9
LCG-8	SKL-0805	12
LCG-12	SKL-0805	12
LCG-16	SKL-1006	19
LCG-20	SKL-1208	31
LCG-25	SKL-1208	31

Stopper Block Single Item Model No. Notation

● Used when changing from standard to with stroke adjustment stopper or with Shock absorber type stopper



LCG - 12 - SB1 T

❶ Bore size
⓱ Stopper block
⓲ Material

● Stopper for Stroke Adjustment, Single Unit Weight (Unit : g)

Stroke adjustment range / Bore size	SB1 (T)	SB2 (T)
ø6	11	21
ø8	14	24
ø12	23	37
ø16	38	72
ø20	60	99
ø25	112	206

⓱ Stopper block

Code	Content
SB1	ø6, ø8: For 30 strokes or less
	ø12 to ø25: For 50 strokes or less
SB2	ø6, ø8: For 40 strokes or more
	ø12 to ø25: For 75 strokes or more

⓲ Material

Code	Content
Blank	Stopper block material Steel
T	Stopper block material Steel (nitriding treatment)

Side Piping Port Plug Kit Model No. Notation

LCG - 12 - N (2 pcs/1 set)

❶ Bore size

● Weight of plug kit for side piping port

Bore size	Weight (g)
ø8	1
ø12	1
ø16	1
ø20	5

Specifications

Item		LCG					
Bore size mm		ø6	ø8	ø12	ø16	ø20	ø25
Actuation method		Double Acting Type					
Operating Fluid		Compressed Air					
Max. Working Pressure MPa		0.7					
Min. Operating Pressure MPa		0.15 (*1)					
Proof Pressure MPa		1.05					
Ambient Temperature °C		-10 to 60 (however, no freezing)					
Port Size	Main body side	M3	M5			Rc1/8	
	Main body rear	M3				M5	Rc1/8
Stroke tolerance mm		+2.0 (*2) 0					
Operating Piston Speed mm/s		50 to 500 (*3)					
Cushion		With Rubber Cushion					
Lubrication		Not required (When lubricating, use turbine oil Class 1 ISO VG32)					
Allowable Absorbed Energy J		Refer to Table 3 on P. 188.					

*1: When using ø6 Shock absorber type stopper, it will be 0.2MPa.
*2: When used without a stopper, please note that there is a slight gap between the end plate and the floating bush.
*3: When using a stroke adjustment stopper, use at 50 to 200 mm/s.
*4 : The stroke adjustment stopper becomes metal touch at an operating pressure of 0.3 MPa or more.

Stroke

Bore Size (mm)	Standard Stroke (mm)
ø6	10, 20, 30, 40, 50
ø8	10, 20, 30, 40, 50, 75
ø12	10, 20, 30, 40, 50, 75, 100
ø16	10, 20, 30, 40, 50, 75, 100, 125
ø20	10, 20, 30, 40, 50, 75, 100, 125, 150
ø25	10, 20, 30, 40, 50, 75, 100, 125, 150

*Strokes other than the above cannot be manufactured.

With buffer specification

Specifications other than the following are the same as the common specifications above.

Item		Content					
Bore size mm		ø6	ø8	ø12	ø16	ø20	ø25
Buffer Stroke mm		4		9		10	
Buffer part	At SET N	3	5	10	13	17	21
Spring Load	During operation N	7	8	14	20	25	29

*1: If rod side stroke adjustment is performed with a buffer, the buffer stroke will be shortened by the stroke adjustment amount, and the spring load at set will also increase.
*2: Use a buffer stroke less than the stroke above. This will cause malfunction or damage.

Theoretical Thrust Table

See P. 189.

Cylinder Weight

● Basic Type (Unit : g)

Bore size (mm)	Stroke (mm)							
	10	20	30	40	50	75	100	125
ø6	150	150	170	230	250	-	-	-
ø8	220	220	250	330	360	450	-	-
ø12	480	480	480	530	580	770	910	-
ø16	750	740	730	810	890	1.240	1.430	1.630
ø20	1.270	1,260	1.250	1.370	1.490	1.930	2.220	2.510
ø25	2.120	2,100	2.080	2.260	2.440	3.240	3.660	4.080

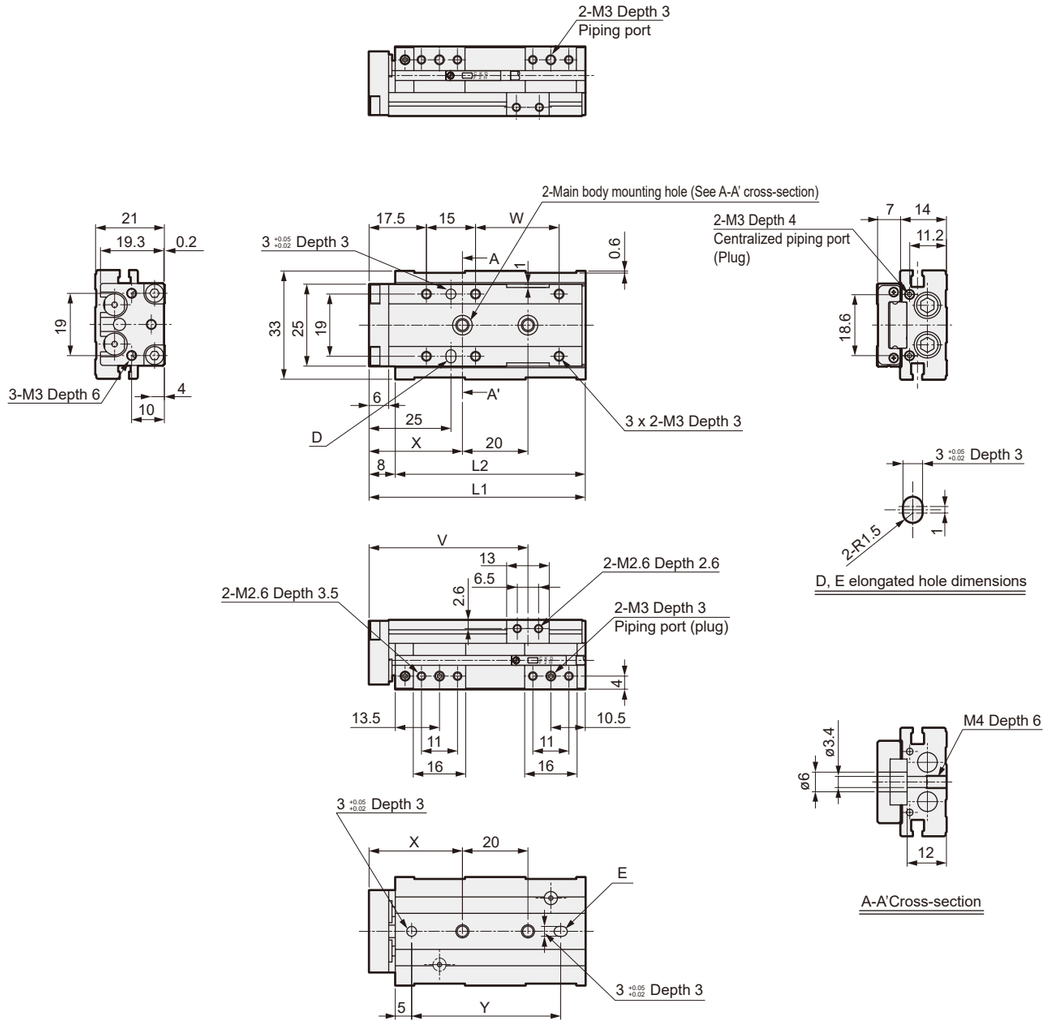
● Additional weight of options (Unit : g)

Bore size (mm)	Stopper code				With buffer
	S1 to S4	S5, S6	A1 to A4	A5, A6	B, BL
ø6	30	40	40	50	40
ø8	40	60	50	70	40
ø12	70	100	80	110	70
ø16	110	150	120	160	80
ø20	170	250	180	270	150
ø25	290	380	300	400	320

Outline dimension drawing (Bore size: ø6)

● LCG-6

Stroke: 10, 20, 30
(The main body mounting holes in this figure show the case of stroke 20)



Dimension table by stroke

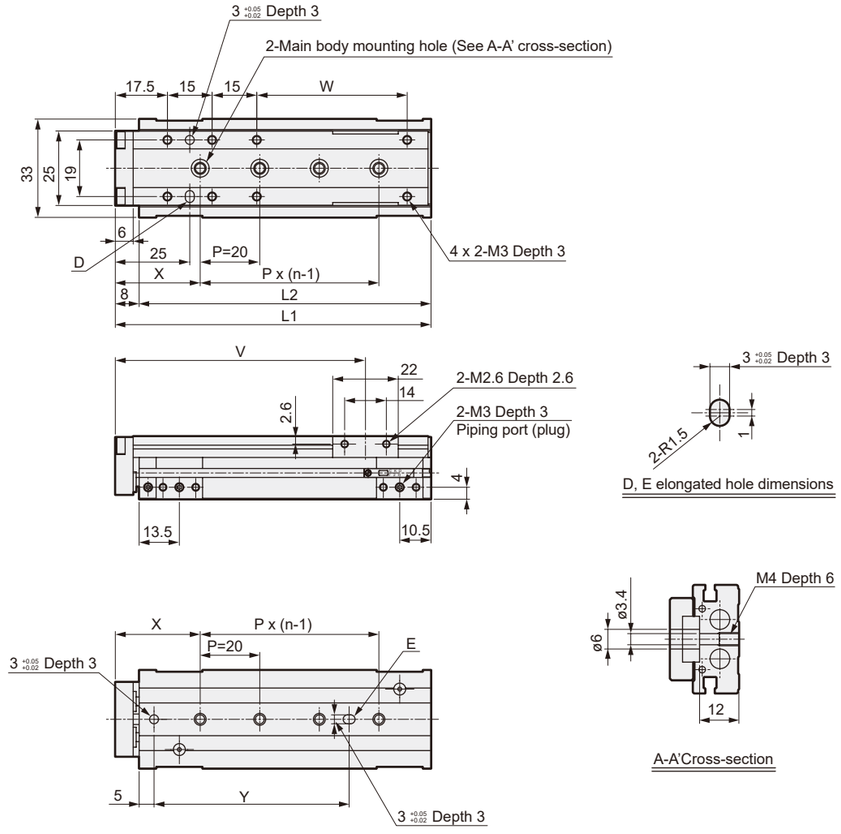
Code	Stroke		
	10	20	30
L1	66		76
L2	58		68
V	48.5		58.5
W	25.5		35.5
X	28.5		26
Y	45.5		43

*1: When using positioning holes, use pins with dimensions that do not result in a loose fit. The recommended pin tolerance is JIS tolerance m6 or less.
*2: For dimensions of models with switches, please refer to P. 186 and 187.

Outline dimension drawing (Bore size: ø6)

● LCG-6

Stroke: 40, 50
(The main body mounting holes in this figure show the case of stroke 50)



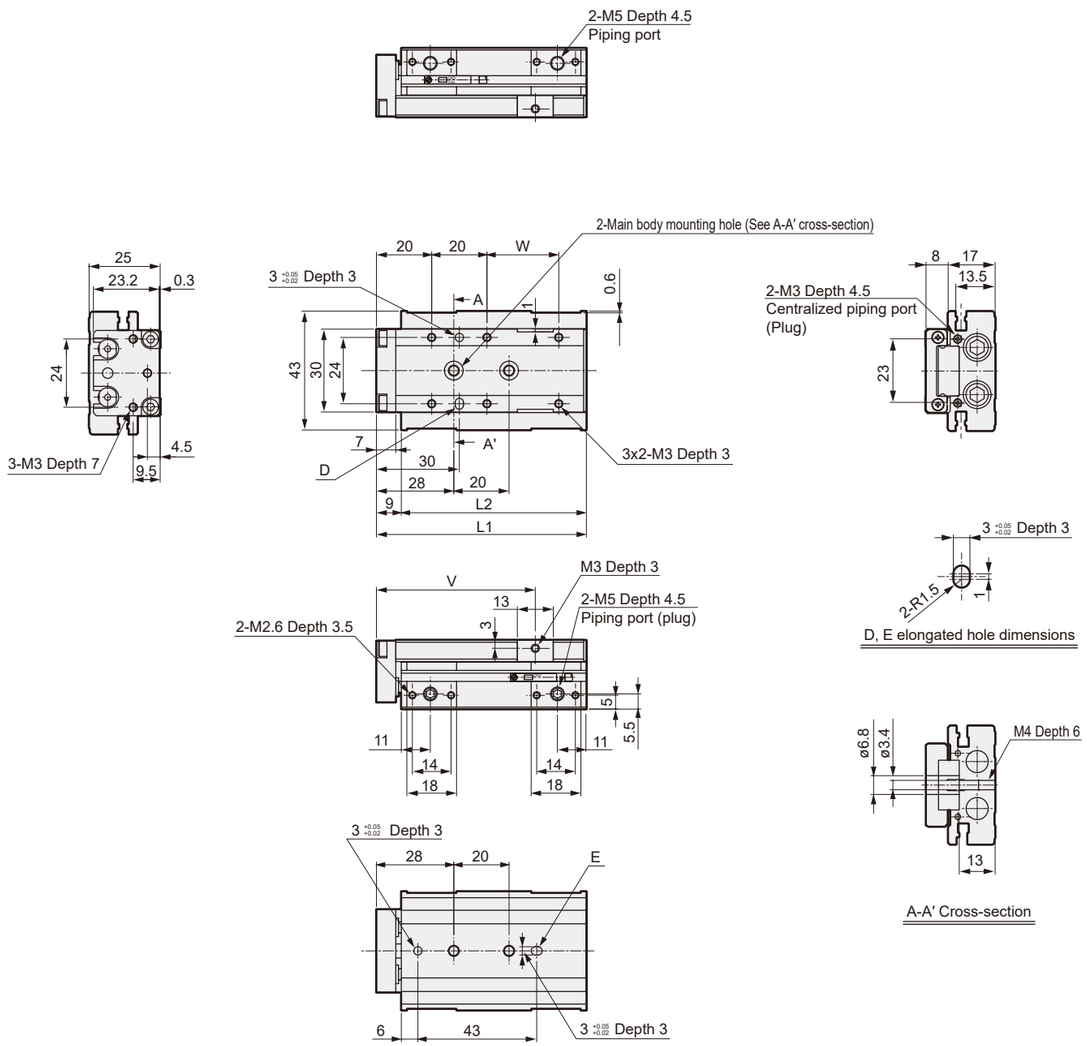
Dimension table by stroke

Code	Stroke	
	40	50
L1	96	106
L2	88	98
n	3	4
V	74	84
W	40.5	50.5
X	27	28.5
Y	44	65.5

*1: When using positioning holes, use pins with dimensions that do not result in a loose fit. The recommended pin tolerance is JIS tolerance m6 or less.
*2: For dimensions of models with switches. Please refer to P. 186, 187

Outline dimension drawing (Bore size: ø8)

● LCG-8
Stroke: 10, 20, 30
(The main body mounting holes in this figure show the case of stroke 30)



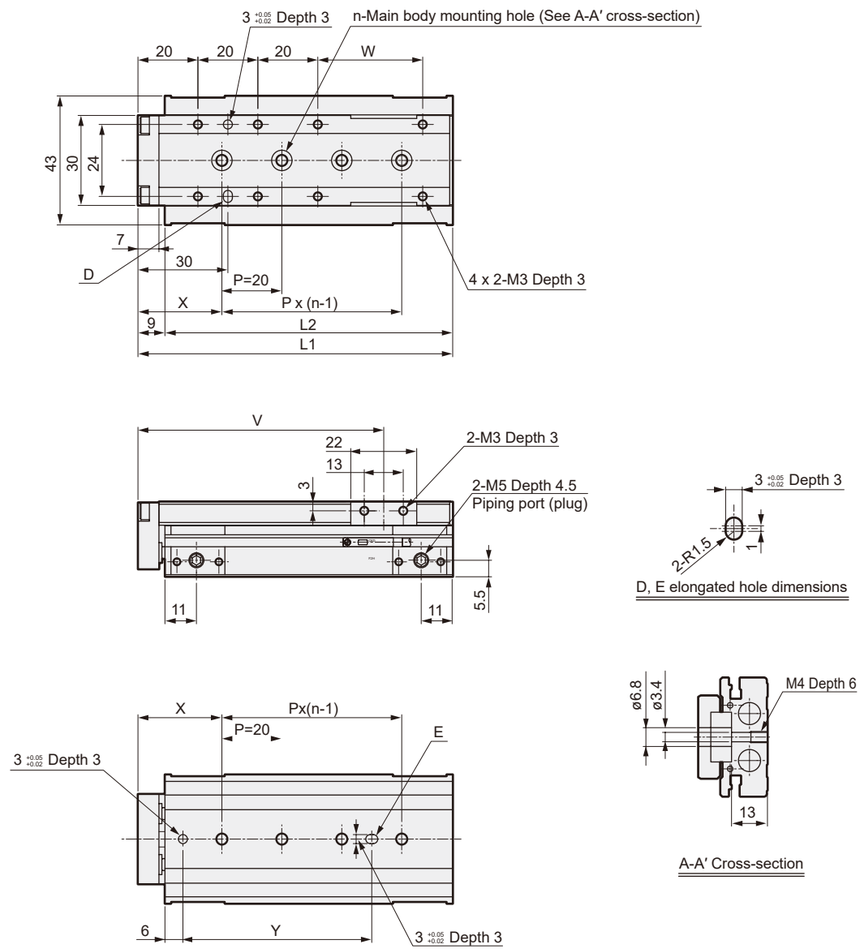
Dimension table by stroke

Code	Stroke		
	10	20	30
L1	66		76
L2	57		67
V	47.5		57.5
W	16		26

*1: When using positioning holes, use pins with dimensions that do not result in a loose fit. The recommended pin tolerance is JIS tolerance m6 or less.
***2: For dimensions of models with switches, refer to P. 186, 187**

Outline dimension drawing (Bore size: ø8)

● LCG-8
Stroke: 40, 50, 75
(The main body mounting holes in this figure show the case of stroke 50)



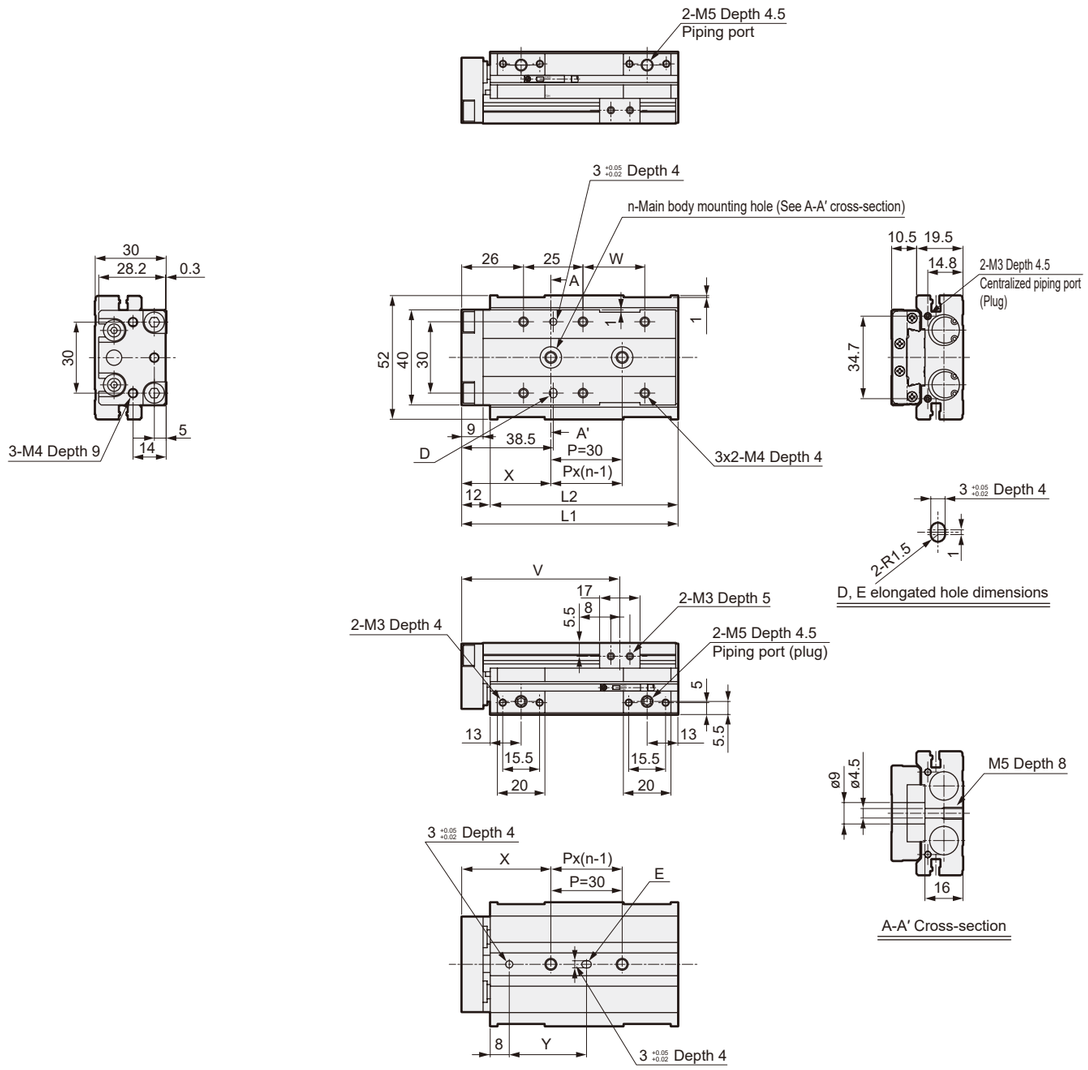
Dimension table by stroke

Code	Stroke		
	40	50	75
L1	95	105	130
L2	86	96	121
n	3	4	5
V	72	82	107
W	25	35	60
X	26.5	28	25
Y	41.5	63	80

*1: When using positioning holes, use pins with dimensions that do not result in a loose fit. The recommended pin tolerance is JIS tolerance m6 or less.
***2: For dimensions of models with switches, refer to P. 186, 187**

Outline dimension drawing (Bore size: ø12)

● LCG-12
Stroke: 10, 20, 30, 40, 50
(The main body mounting holes in this figure show the case of stroke 30)



Dimension table by stroke

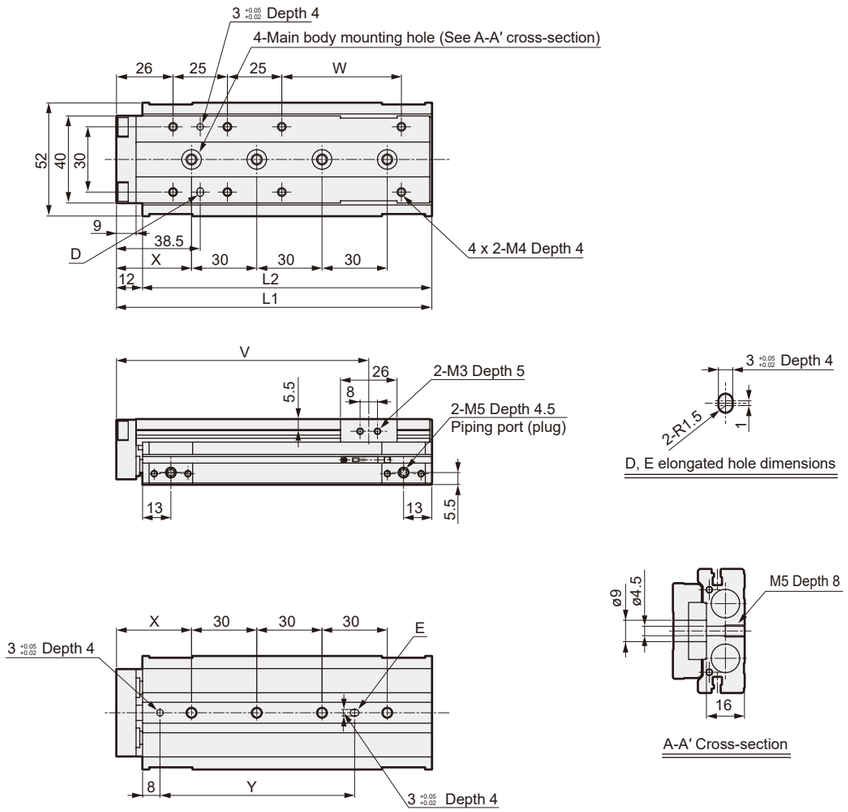
Code	Stroke				
	10	20	30	40	50
L1	91			101	111
L2	79			89	99
n	2			3	
V	66.5			76.5	86.5
W	26			36	46
X	37.5			36	32
Y	32.5			31	57

*1: When using positioning holes, use pins with dimensions that do not result in a loose fit. The recommended pin tolerance is JIS tolerance m6 or less.

***2: For dimensions of models with switches, refer to P. 186, 187**

Outline dimension drawing (Bore size: ø12)

● LCG-12
Stroke: 75, 100
(The main body mounting holes in this figure show the case of stroke 100)



Dimension table by stroke

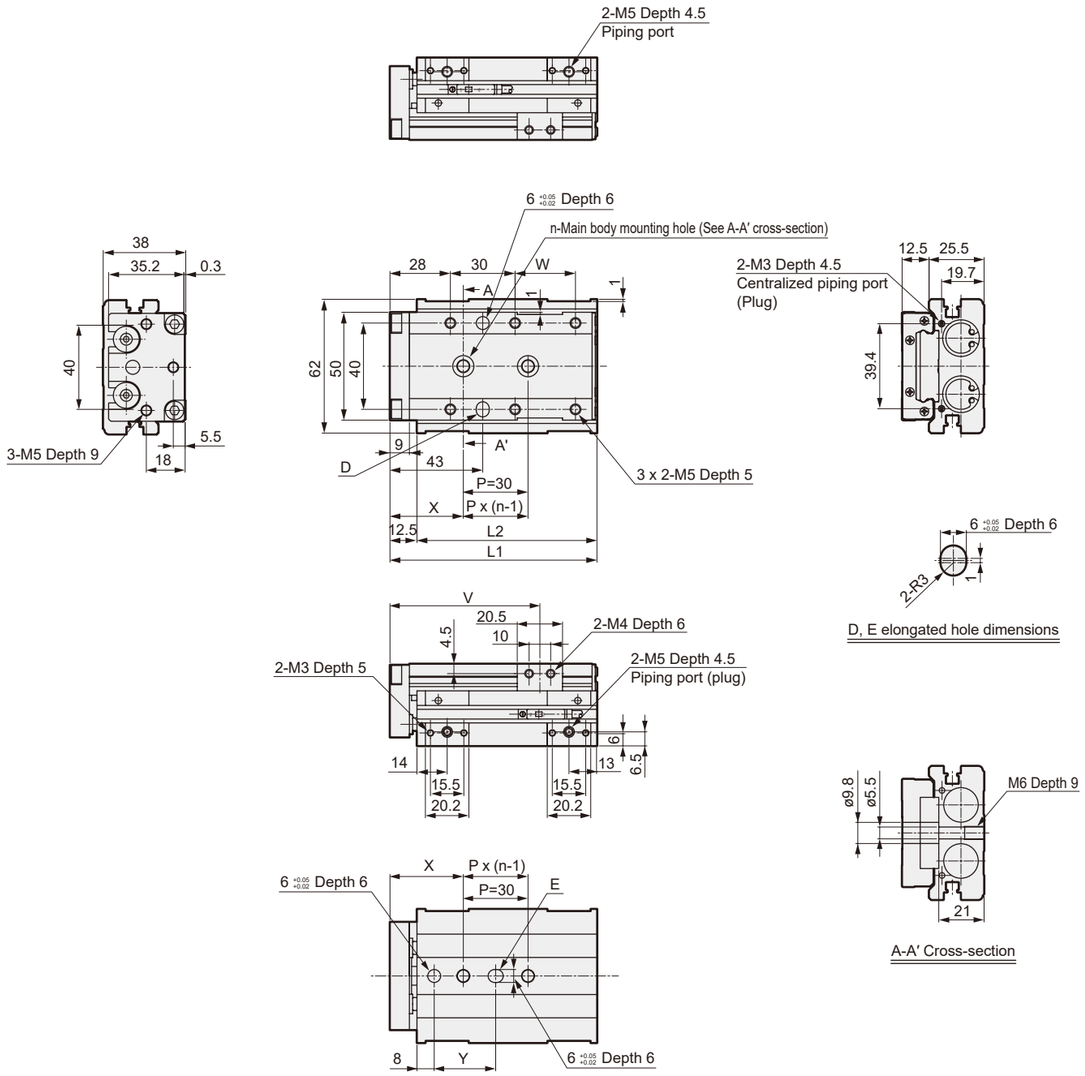
Code	Stroke	
	75	100
L1	145	170
L2	133	158
V	116	141
W	55	80
X	34.5	47
Y	89.5	102

*1: When using positioning holes, use pins with dimensions that do not result in a loose fit. The recommended pin tolerance is JIS tolerance m6 or less.

***2: For dimensions of models with switches, refer to P. 186, 187**

Outline dimension drawing (Bore size: ø16)

● LCG-16
Stroke: 10, 20, 30, 40, 50
(The main body mounting holes in this figure show the case of stroke 30)



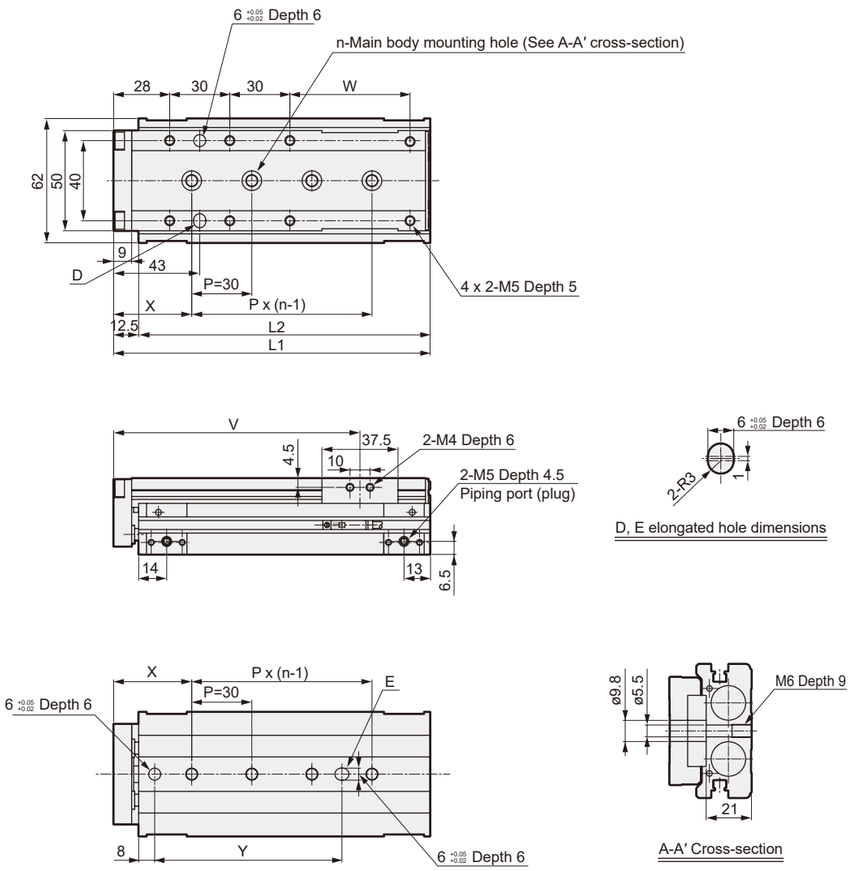
Dimension table by stroke

Code	Stroke				
	10	20	30	40	50
L1	96			106	116
L2	83.5			93.5	103.5
n	2				3
V	69.8			79.8	89.8
W	28			38	48
X	34			45.5	35.5
Y	28.5			40	60

*1: When using positioning holes, use pins with dimensions that do not result in a loose fit. The recommended pin tolerance is JIS tolerance m6 or less.
***2: For dimensions of models with switches, refer to P. 186, 187**

Outline dimension drawing (Bore size: ø16)

● LCG-16
Stroke: 75, 100, 125
(The main body mounting holes in this figure show the case of stroke 75)



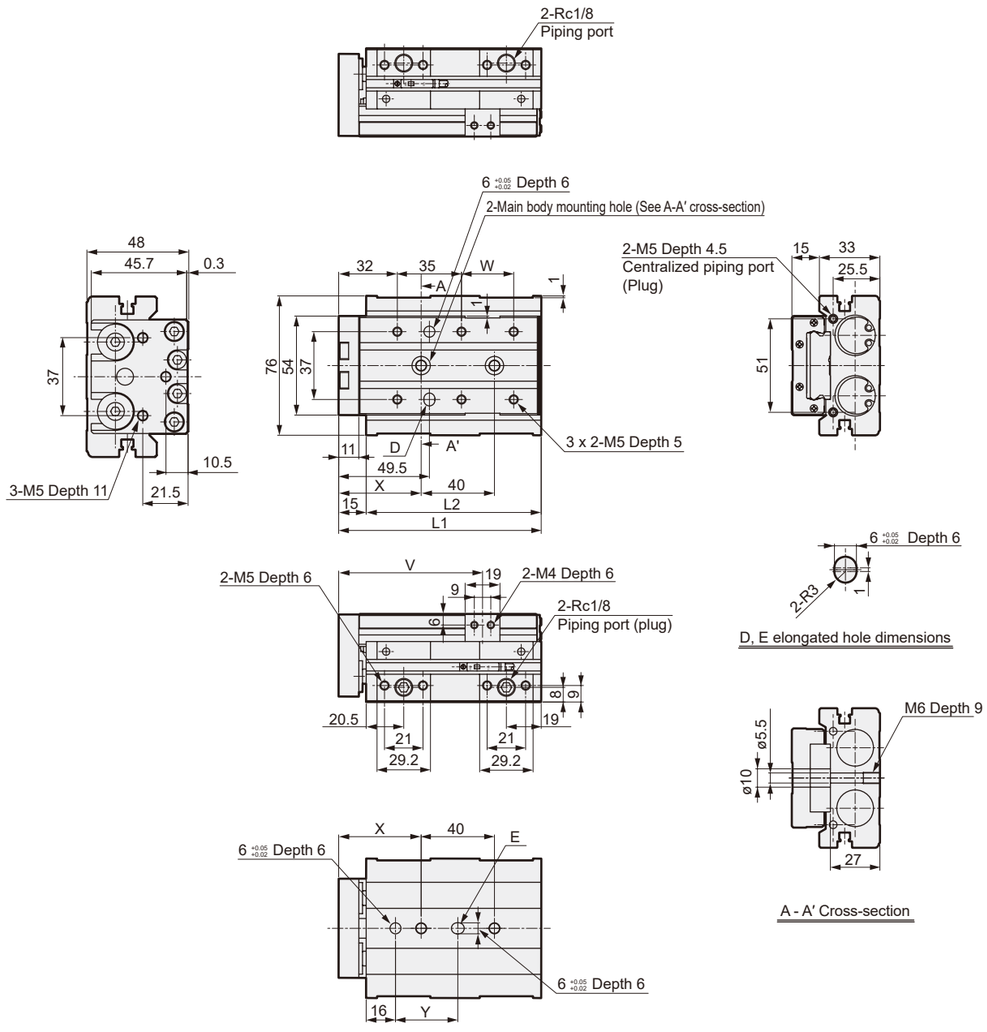
Dimension table by stroke

Code	Stroke		
	75	100	125
L1	158	183	208
L2	145.5	170.5	195.5
n	4	5	
V	123.3	148.3	173.3
W	60	85	110
X	39	37	49
Y	93.5	121.5	133.5

*1: When using positioning holes, use pins with dimensions that do not result in a loose fit. The recommended pin tolerance is JIS tolerance m6 or less.
***2: For dimensions of models with switches, refer to P. 186, 187**

Outline dimension drawing (Bore size: ø20)

● LCG-20
Stroke: 10, 20, 30, 40, 50
(The main body mounting holes in this figure show the case of stroke 30)



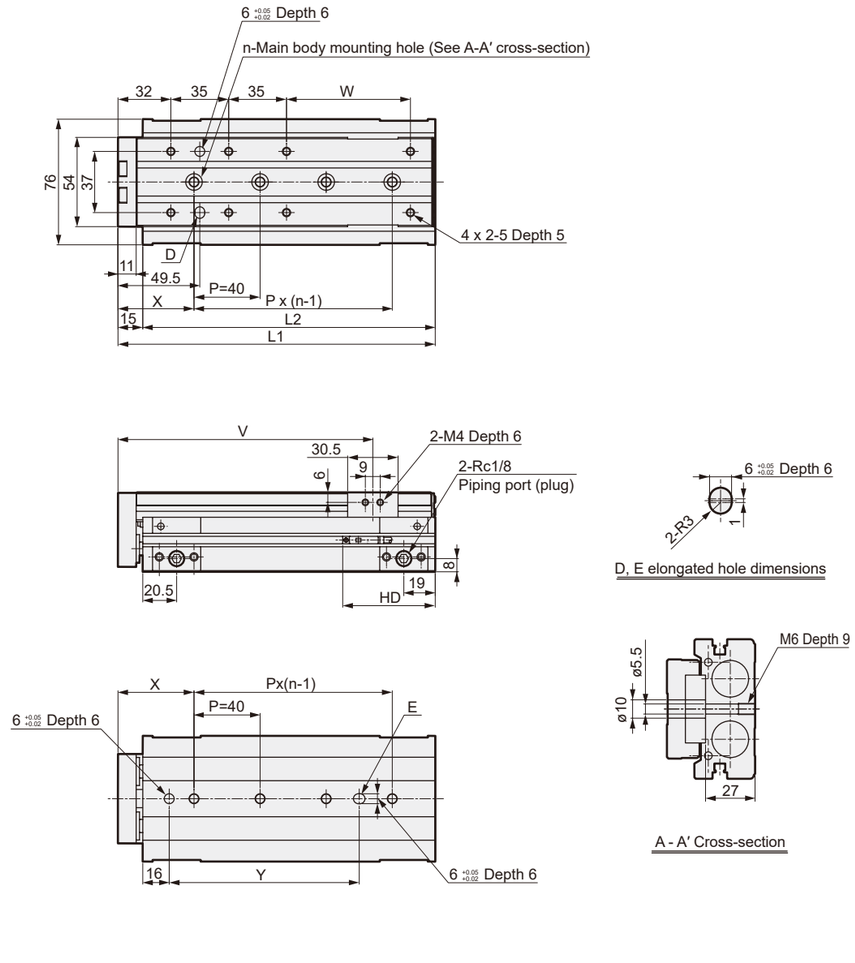
Dimension table by stroke

Code	Stroke				
	10	20	30	40	50
L1	110.5			120.5	130.5
L2	95.5			105.5	115.5
V	78.5			88.5	98.5
W	28.5			38.5	48.5
X	45			51	49
Y	34			40	38

*1: When using positioning holes, use pins with dimensions that do not result in a loose fit. The recommended pin tolerance is JIS tolerance m6 or less.
*2: The outline dimension drawing of the anti-rust treated product U is also the same.
***3: For dimensions of models with switches, refer to P. 186, 187**

Outline dimension drawing (Bore size: ø20)

● LCG-20
Stroke: 75, 100, 125, 150
(The main body mounting holes in this figure show the case of stroke 100)



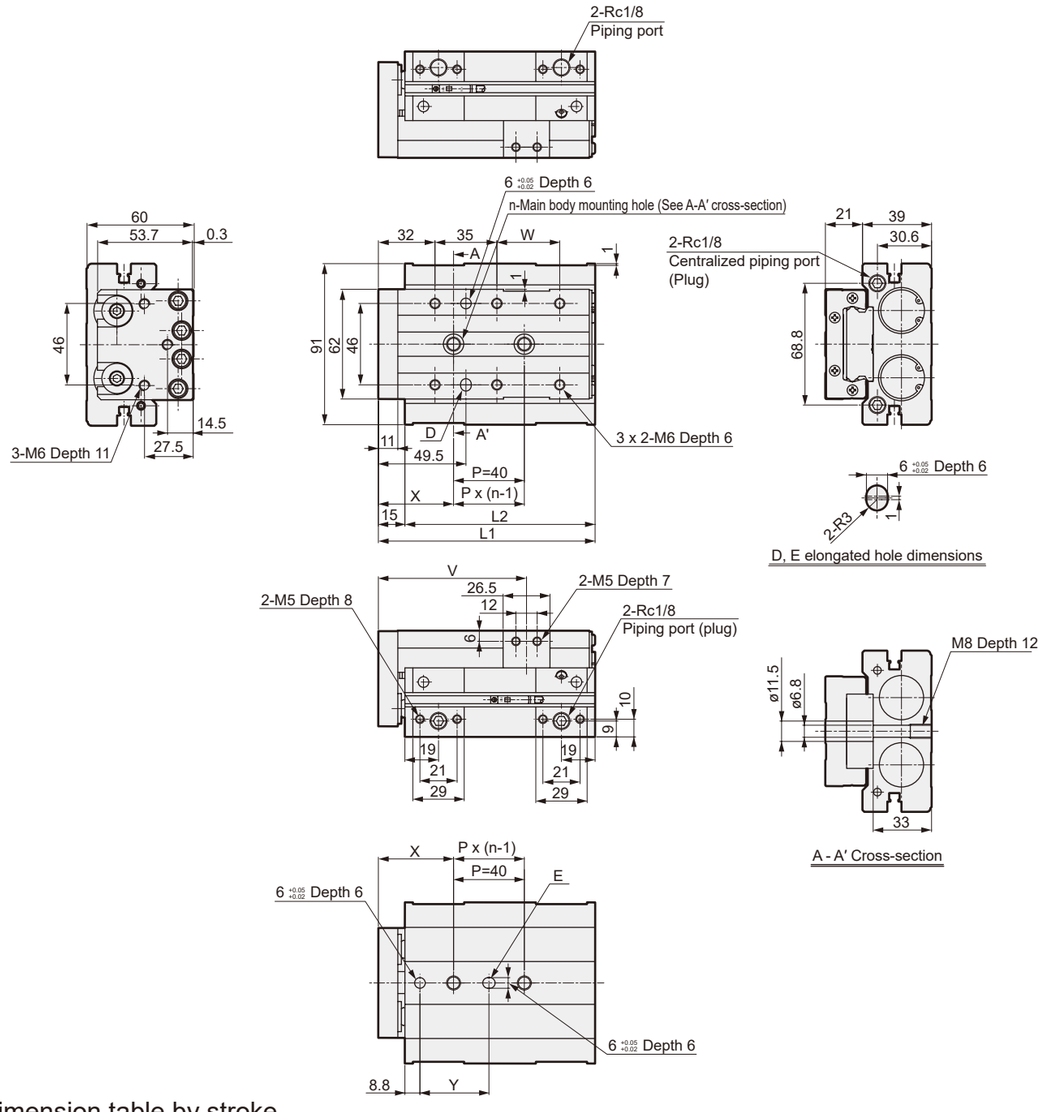
Dimension table by stroke

Code	Stroke			
	75	100	125	150
L1	167	192	217	242
L2	152	177	202	227
n	3	4		5
V	129.3	154.3	179.3	204.3
W	50	75	100	125
X	46		53	51
Y	75	115	122	160

*1: When using positioning holes, use pins with dimensions that do not result in a loose fit. The recommended pin tolerance is JIS tolerance m6 or less.
*2: The outline dimension drawing of the anti-rust treated product U is also the same.
***3: For dimensions of models with switches, refer to P. 186, 187**

Outline Dimension Drawing (Bore size : ø25)

● LCG-25
Stroke: 10, 20, 30, 40, 50
(The main body mounting holes in this figure show the case of stroke 30)



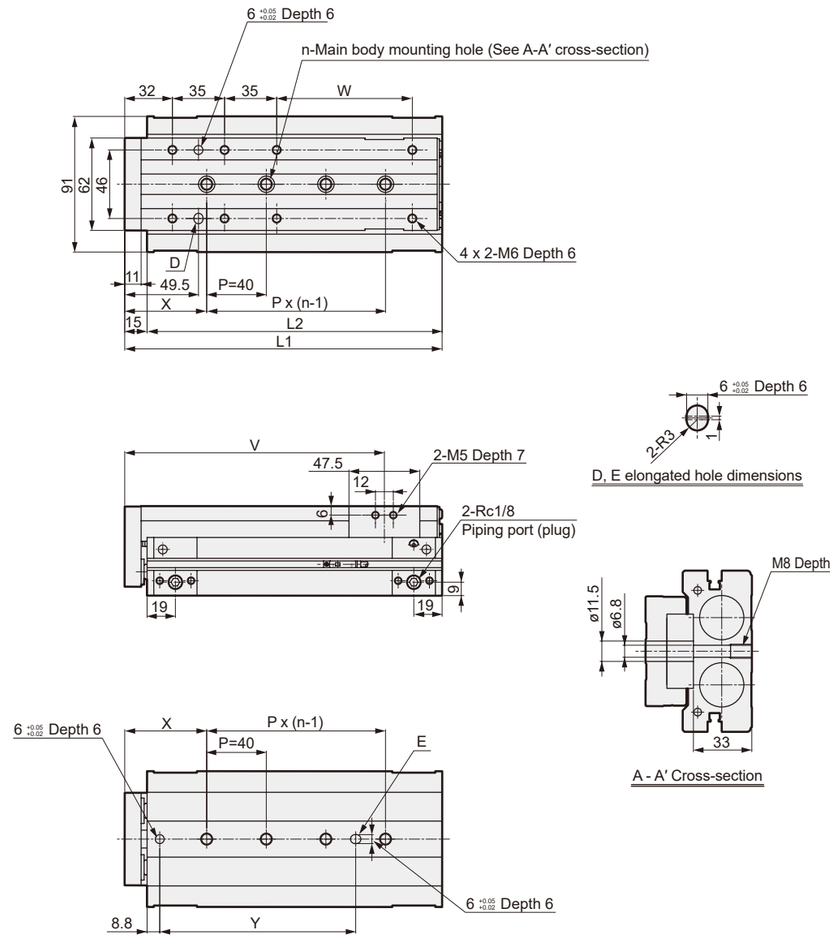
Dimension table by stroke

Code	Stroke				
	10	20	30	40	50
L1	122.5			132.5	142.5
L2	107.5			117.5	127.5
n	2			3	2
V	83.8			93.8	103.8
W	35.5			45.5	55.5
X	42.5			45.5	60.5
Y	39			42	57

*1: When using positioning holes, use pins with dimensions that do not result in a loose fit. The recommended pin tolerance is JIS tolerance m6 or less.
*2: The outline dimension drawing of the anti-rust treated product U is also the same.
***3: For dimensions of models with switches, refer to P. 186, 187**

Outline Dimension Drawing (Bore size : ø25)

● LCG-25
Stroke: 75, 100, 125, 150
(The main body mounting holes in this figure show the case of stroke 100)



Dimension table by stroke

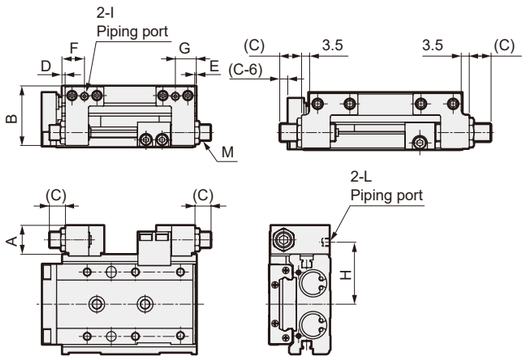
Code	Stroke			
	75	100	125	150
L1	188	213	238	263
L2	173	198	223	248
n	3	4	5	
V	138.8	163.8	188.8	213.8
W	66	91	116	141
X	60	55	45	60
Y	96.5	131.5	161.5	176.5

*1: When using positioning holes, use pins with dimensions that do not result in a loose fit. The recommended pin tolerance is JIS tolerance m6 or less.
*2: The outline dimension drawing of the anti-rust treated product U is also the same.
***3: For dimensions of models with switches, refer to P. 186, 187**

Outer Dimensions Diagram with Option

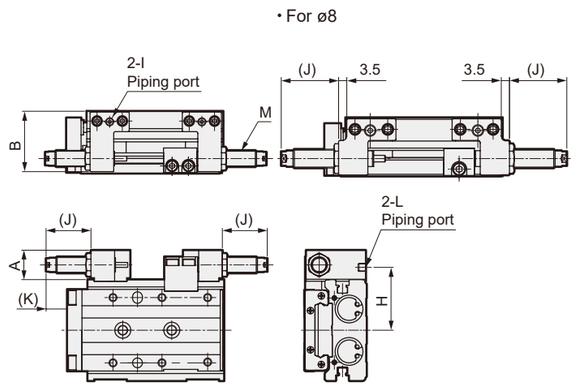
● Stroke adjustment stopper (S1 to S6)

• For ø8

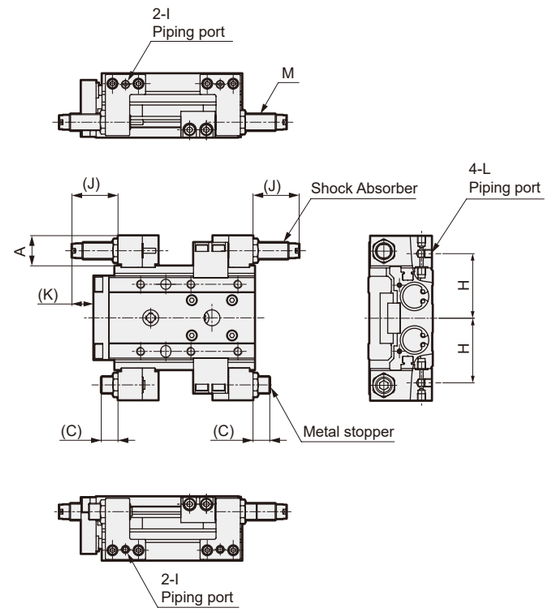


● Shock absorber type stopper (A1 to A6)

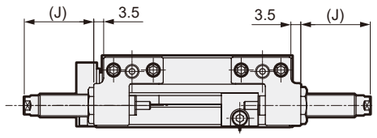
• For ø8

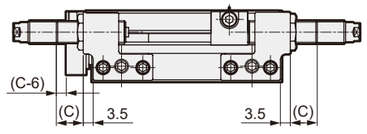


● Double-sided combination double stopper (W1 to W6)



• For ø8



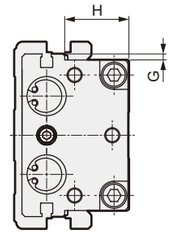


Code / Bore size (mm)	A	B	C Stroke adjustment range 5 mm	C Stroke adjustment range 15 mm	C Stroke adjustment range 25 mm	D	E	F	G	H	I	J	K	L	Shock absorber type stopper Stroke adjustment range (one side)	M
ø6	14	19.9	11	21	–	4	1	13.5	10.5	24	M3 Depth 3	20.5	9	M3 Depth 3	9	M8x0.75
ø8	15.6	24.5	9.5	19.5	–	0.5	0.5	11	11	27.3	M5 Depth 4	24.5	15.5	M5 Depth 4	13.5	M8x0.75
ø12	15.5	29	12	22	32	1	1	13	13	31	M5 Depth 4	24.5	12	M5 Depth 4	14.5	M8x0.75
ø16	18	37	10	20	30	2	1	14	13	38.5	M5 Depth 4	27.5	14	M5 Depth 4	15	M10x1
ø20	20.5	45.5	14.5	24.5	34.5	4	2.5	20.5	19	47	Rc1/8	27.5	9.5	M5 Depth 4	13	M12x1
ø25	20.5	57	11.5	21.5	31.5	2.5	2.5	19	19	54.5	Rc1/8	24.5	8	M5 Depth 4	10	M12x1

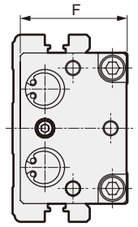
*1: F, G, H, I, and L dimensions are only for cases with stopper part port (S□D□, A□D□, W□, C□D□).
*2: In the case of single-sided mixed stopper mix (C□), refer to stroke adjustment type stopper (S□) and Shock absorber type stopper (A□).
*3: W3□□ to W6□□, C□□ are not available for the drop prevention function type.
*4 : In the case of double-sided combination double stopper (W□), the C dimension is for a stroke adjustment range of 15 mm.

Outer Dimensions Diagram with Option

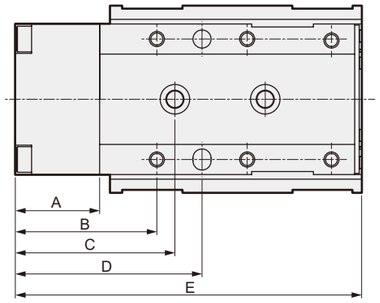
● With buffer (B, BL)



Option code BL



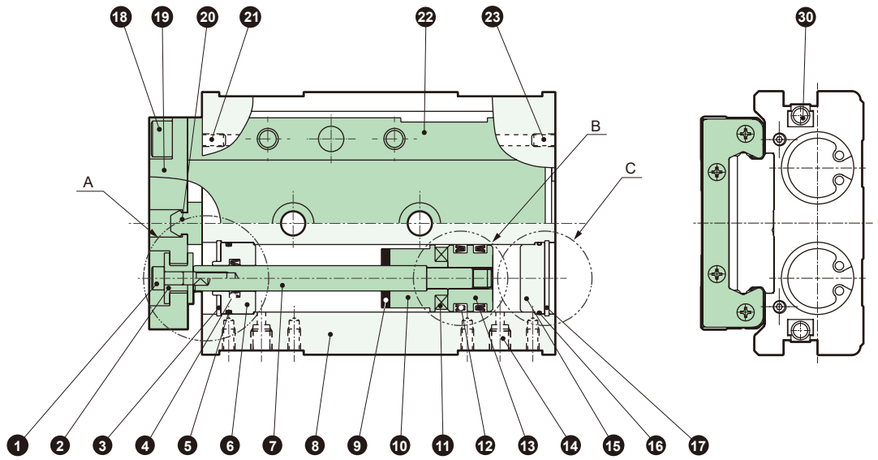
Option code: B



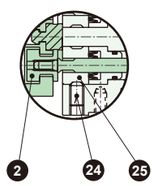
Code / Bore Size (mm)	A	B	C Stroke (mm) 10	20	30	40	50	75	100	125	150	D
ø6	22.5	34	45	45	42.5	43.5	45	-	-	-	-	41.5
ø8	21.5	34.5	42.5	42.5	42.5	41	42.5	39.5	-	-	-	44.5
ø12	27	44	55.5	55.5	55.5	54	50	52.5	65	-	-	56.5
ø16	28	47	53	53	53	64.5	54.5	58	56	68	-	62
ø20	31	52	65	65	65	71	69	66	66	73	71	69.5
ø25	34	55	65.5	65.5	65.5	68.5	83.5	83	78	68	83	72.5

Code / Bore Size (mm)	E Stroke (mm) 10	20	30	40	50	75	100	125	150	F	G	H
ø6	82.5	82.5	92.5	112.5	122.5	-	-	-	-	20	3.5	11.2
ø8	80.5	80.5	90.5	109.5	119.5	144.5	-	-	-	23.5	3.2	13.5
ø12	109	109	109	119	129	163	188	-	-	29	3.2	16
ø16	115	115	115	125	135	177	202	227	-	35.5	1	21.3
ø20	130.5	130.5	130.5	140.5	150.5	187	212	237	262	45.5	4	24.5
ø25	145.5	145.5	145.5	155.5	165.5	211	236	261	286	56	4.5	31

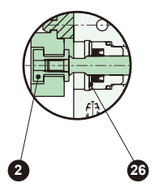
Internal Structure Diagram / Material



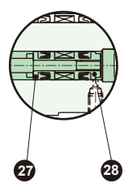
When part A is ø6



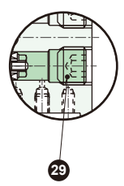
When part A is ø8



When part B is ø6, ø8, ø12



When part C is ø6, ø8



Part No.	Part Name	Material	Remarks
1	Hexagon Socket Head Cap Screw	Alloy Steel	Zinc Chromate
2	Floating bush	Stainless Steel	
3	C-type retaining ring	ø8: Steel ø12 to 25: Stainless steel	ø8 to 25 only
4	Rod Packing	Nitrile Rubber	
5	Metal gasket	Nitrile Rubber	
6	Rod Metal	Aluminum Alloy	Alumite
7	Piston Rod	Stainless Steel	
8	Cylinder Body	Aluminum Alloy	Hard Anodized
9	Cushion rubber (R)	Urethane Rubber	
10	Magnet spacer	Aluminum Alloy	Chromate
11	Magnet	Plastic	
12	Piston Packing	Nitrile Rubber	
13	Piston	Aluminum Alloy	Chromate
14	Plug	ø6 to 16: Stainless steel ø20, 25: Steel	
15	Cover	Aluminum Alloy	Chromate
16	Cover gasket	Nitrile Rubber	

Part No.	Part Name	Material	Remarks
17	C-type retaining ring	ø8: Steel ø12 to 25: Stainless steel	ø8 to 25 only
18	Hexagon Socket Head Cap Screw	Alloy Steel	Zinc Chromate
19	End plate	Aluminum Alloy	Alumite
20	Cushion rubber (H)	Urethane Rubber	
21	Plug	Stainless Steel	
22	Table	ø6 to 16: Stainless steel ø20, 25: Steel	
23	Hexagon socket head set screw	Stainless Steel	
24	Hexagon socket head set screw	Stainless Steel	ø6 only
25	Rod metal A	Aluminum Alloy	
26	Cap	Aluminum Alloy	Chromate
27	Piston A	Aluminum Alloy	Chromate
28	Piston B	Aluminum Alloy	Chromate
29	Hexagon socket head set screw	Alloy Steel	Zinc Chromate
With Switch			
30	Switch		

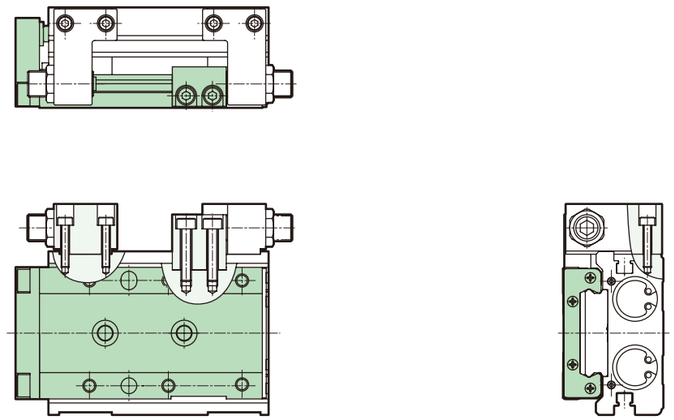
Consumable Parts List

Bore Size (mm)	Kit No.	Consumable Part No.
ø6	LCG-6K	4 5 9 12 16 20
ø8	LCG-8K	
ø12	LCG-12K	
ø16	LCG-16K	
ø20	LCG-20K	
ø25	LCG-25K	

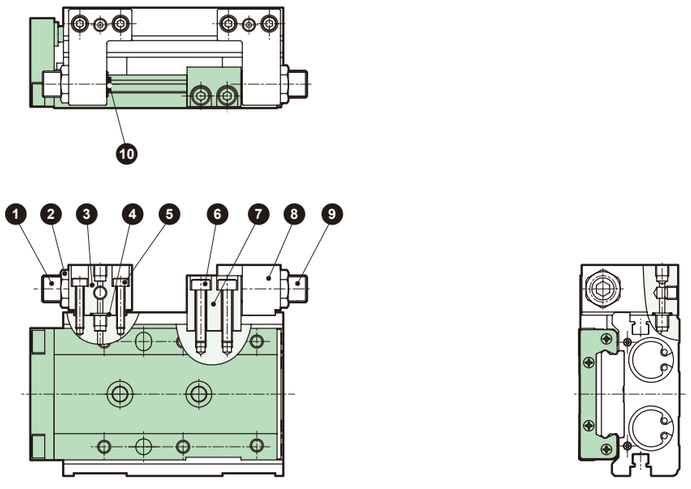
Internal structure diagram / materials (Option)

Stopper structural diagram

● When stopper part has no port (Blank)



● Stopper part port side, bottom available type (Code D)



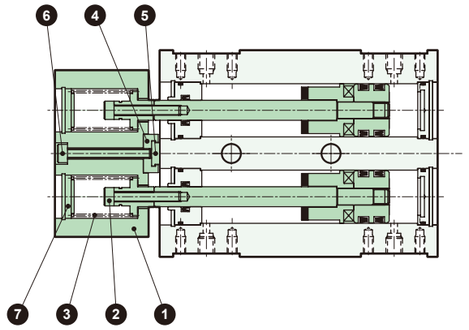
Part No.	Part Name	Material	Remarks
1	Stopper bolt	Alloy Steel	Nickel Plating
2	Hexagon Nut	Alloy Steel	Nickel Plating
3	Stopper A	Aluminum Alloy	Alumite
4	Gasket	Nitrile Rubber	
5	Hexagon Socket Head Cap Screw	Alloy Steel	Zinc Chromate
6	Hexagon Socket Head Cap Screw	Alloy Steel	Zinc Chromate

Part No.	Part Name	Material	Remarks
7	Stopper block (Stopper block code: Blank)	Steel	Nickel Plating
	Stopper block (Stopper block code: T)	Steel	Nitriding Treatment
8	Stopper B	Aluminum Alloy	Alumite
9	Stopper bolt	Alloy Steel	Nickel Plating
10	Cushion Rubber	Urethane Rubber	

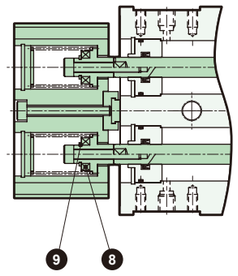
Internal structure diagram / materials (Option)

LCG-□-□-B□

● With buffer, without switch groove (B)



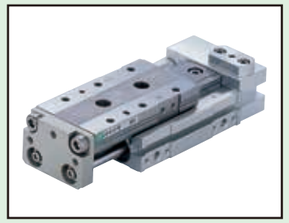
● With buffer, with switch groove (BL)



Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	End plate	Aluminum Alloy	Alumite	6	C-type retaining ring	ø6, 8: Steel ø12 to 25: Stainless steel	
2	Hexagon Socket Head Cap Screw	Alloy Steel	Zinc Chromate				
3	Coil Spring	Steel		7	Cover	Aluminum Alloy	Chromate
4	Stopper	ø6: Stainless steel ø8 to ø25: Aluminum alloy		8	Magnet	Plastic	
5	Cushion Rubber	Urethane Rubber		9	E-ring	ø6 to 12: Stainless steel ø16 to 25: Steel	

MEMO

With Linear Guide
LCM
LCR
LCG
LCW
LCX
MSDG
Cylinder Switch
Ending

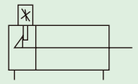


Linear Slide Cylinder Double Acting, Drop Prevention Type

LCG-Q Series

● Bore Size: ø8, ø12, ø16, ø20, ø25

Circuit Diagram Symbol



RoHS

Model No. Notation Method (ø8 to ø16)

Without Switch
(Built-in magnet for switch)

LCG-Q - 8 - 40 ——— S2

Model No. ❶ ❷ ❺

With Switch
(Built-in magnet for switch)

LCG-Q - 12 - 40 - F2H - R - A1 DT

Model No. ❷ Stroke ❹ Number of Switches ❻ Option

❶ Bore size ❸ Switch Model No. ❺ Stopper

❶ Bore size (mm)

Code	Content
8	ø8
12	ø12
16	ø16

❷ Stroke (mm)

	Stroke (mm)	Applicable Bore size ø8	ø12	ø16
Standard Stroke	10	●	●	●
	20	●	●	●
	30	●	●	●
	40	●	●	●
	50	●	●	●
	75	●	●	●
	100		●	●
	125			●

❸ Switch Model No.

For switch details, please refer to P. 753..
Switches are included to the product and shipped.

Contact	Indicator LED Special Function	Wiring (Output)	Load Voltage (V) AC	DC	Load Current (mA) AC	DC	Lead Wire *1 Straight	L-shape	
Solid State	1-Color	2-wire	-	10 to 30	-	5 to 20	-	F2S□	
		3-wire (NPN)	-	30 or less	-	50 or less	-	F3S□	
		2-wire	-	10 to 30	-	5 to 20 *2	F2H□	F2V□	
		3-wire (NPN)	-	30 or less	-	50 or less	F3H□	F3V□	
		3-wire (PNP)	-	30 or less	-	50 or less	F3PH□	F3PV□	
	2-Color	2-wire	-	24±10%	-	5 to 20	F2YH□	F2YV□	
		3-wire (NPN)	-	30 or less	-	50 or less	F3YH□	F3YV□	
	1-Color	2-wire	-	10 to 30	-	5 to 20 *2	T2H□	T2V□	
		3-wire (NPN)	-	30 or less	-	100 or less	T3H□	T3V□	
		3-wire (PNP)	-		-		T3PH□	T3PV□	
	2-Color	2-wire	-	24±10%	-	5 to 20	T2WH□	T2WV□	
		3-wire (NPN)	-	30 or less	-	50 or less	T3WH□	T3WV□	
	1-Color Flexible Lead Wire Type	2-wire	-	10 to 30	-	5 to 20 *2	T2HR3	T2VR3	
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□	
	No Indicator LED		110	5/12/24	20 or less	50 or less	T5H□	T5V□	

*Lead wire length

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)

'6

*6: For F type switch, 5 m lead wire cannot be selected.

Example) Lead wire length
1m TOH
3m TOH 3
5m TOH 5

*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: ❶For bore size ø16, F type switch cannot be selected.
*4: ❶For bore size ø8, 12, T type switch cannot be selected.
*5: Switches other than the switch model Nos. are also available. (Custom Product) For details, see P. 753.

❹ Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs

❺ Stopper For details, see P. 166.

	Code	Content	Stopper Mounting Position
*2	Blank	No stopper	
	'S' Stroke adjustment stopper *1, *4, *5		
	S1□□	Stopper position ①	Stopper Mounting Position
	S2□□	Stopper position ②	
	'A' Shock absorber type stopper *4, *7, *3, *6		
	A1	Stopper position ①	Stopper Mounting Position
	A2	Stopper position ②	
	'W' Double-sided combination double stopper (Shock absorber type stopper, Metal stopper) *8		
	W1	A1 + Metal stopper	Stopper Mounting Position
	W2	A2 + Metal stopper	

□□ part Stroke adjustment range ●Applicable to all. *9

	Extension end side	Retraction end side	Stopper model No. S	A	W
Blank	5 mm or none	5 mm or none	●	–	–
02	15 mm or none	15 mm or none	●		
03	25 mm or none	25 mm or none	●		

*1: For stopper positions ① , ② , please refer to the diagram on the right.
*2: The standard port positions when there is no stopper are positions ① and ③ in the diagram on the right.
*3: For combinations of metal stoppers and Shock absorber type stoppers, refer to ❺ Stopper "W□".
*4: For ø8 models with a stroke of 30 or less and equipped with S□□□, A□□□, please select the F□H type switch when using two switches.
*5: The stroke adjustment stopper becomes metal touch at an operating pressure of 0.3 MPa or more.
*6: For the stroke adjustment range when using a Shock absorber type, refer to the dimension table in the stopper outline drawing P. 156.
*7: For ø8 (10 stroke), ø12, and ø16 (20 stroke or less), A1 and A2 cannot be adjusted with the standard stopper and are therefore custom products.
*8: When the type for use on both sides (W) is selected, the stroke adjustment range will be ø8: 13.5 mm, ø12: 14.5 mm, and ø16: 15 mm.
*9: Can be selected only when using the stopper for stroke adjustment S□□□.
*10: Since the lock mechanism engages at the stroke end, do not install stoppers at positions ③ , ④ .
*11: For stopper combinations, please refer to the combination possibility table on P. 166.
*12: The rust prevention treatment type is a custom product.

❻ Option

Code	Content	
Stopper part port *2, *4		
Blank	No port	
D	Side and bottom ports available *1	
Stopper block material *2		
Blank	Steel	
T	Steel (nitriding treatment)	
With buffer *3		
B	Without switch groove	
BL	With switch groove	

*1: Port position is P. 156. Refer to the stopper dimensions.
*2: Selectable only when stopper type is selected.
*3: Purchase the buffer part switch separately using the switch single item model No. indication method on P. 167.
*4: If the double-sided combination type (W) is selected, the stopper part port is standard, so option "D" cannot be selected.

● Stopper position

Rechargeable Battery Compatible Specification (Catalog No. CC-1226AA)

● Structure usable in Rechargeable battery manufacturing processes

LCG-Q – • • • • – P4□

* Please contact us for details.

Model No. Notation Method (ø20, ø25)

Without Switch
(Built-in magnet for switch)

LCG-Q - 20 - 40 ——— S2 — U

Model No. ❶ ❷ ❺ ❼

With Switch
(Built-in magnet for switch)

LCG-Q - 25 - 40 - T2H - R - A1 DT U

Model No.
❶ Bore size
❷ Stroke
❸ Switch Model No.
❹ Number of Switches
❺ Stopper
❻ Option
❼ Anti-rust treatment

❶ Bore size (mm)

Code	Content
20	ø20
25	ø25

❷ Stroke (mm)

Code	Content
10	10
20	20
30	30
40	40
50	50
75	75
100	100
125	125
150	150

❸ Switch Model No.

For switch details, please refer to P. 753.
Switches are included to the product and shipped.

Contact	Indicator LED Special Function	Wiring (Output)	Load Voltage (V) AC	Load Voltage (V) DC	Load Current (mA) AC	Load Current (mA) DC	Lead Wire *1 Straight	Lead Wire *1 L-shape
Solid State	1-Color	2-wire	-	10 to 30	-	5 to 20 *2	T2H□	T2V□
		3-wire (NPN)	-	30 or less	-	100 or less	T3H□	T3V□
		3-wire (PNP)	-		-		T3PH□	T3PV□
	2-Color	2-wire	-	24±10%	-	5 to 20	T2WH□	T2WV□
		3-wire (NPN)	-	30 or less	-	50 or less	T3WH□	T3WV□
	1-Color Flexible Lead Wire Type	2-wire	-	10 to 30	-	5 to 20 *2	T2HR3	T2VR3
Reed	1-Color	2-wire	110	12/24	7 to 20	5 to 50	T0H□	T0V□
	No Indicator LED		110	5/12/24	20 or less	50 or less	T5H□	T5V□

*1: For "□" in the switch model No., enter the code selected from the "*Lead wire length" table.
*2: The maximum load current value above, 20 mA, is at 25°C. If the switch operating ambient temperature is higher than 25°C, it will be lower than 20 mA. (At 60°C, it will be 5 to 10 mA.)
*3: Switches other than the switch model Nos. are also available. (Custom order) For details, refer to P. 753.

*** Lead wire length**

Code	Content
Blank	1 m (Standard)
3	3 m (Option)
5	5 m (Option)

Example) Lead wire length
1m TOH
3m TOH 3
5m TOH 5

❹ Number of Switches

Code	Content
R	With 1 pc on rod side
H	With 1 pc on head side
D	With 2 pcs

❺ Stopper

For details, see P. 166.

Code	Content	Mounting Position
Blank	No stopper	
S Stroke adjustment stopper *4		
S1□□	Stopper position ①	Stopper
S2□□	Stopper position ②	Stopper
'A' Shock absorber type stopper *5, *6		
A1	Stopper position ①	Stopper
A2	Stopper position ②	Stopper
W Double-sided combination double stopper (Shock absorber type stopper, Metal stopper) *5, *7		
W1	A1 + Metal stopper	Stopper
W2	A2 + Metal stopper	Stopper

*2

□□ part	Stroke adjustment range ●Applicable to all. *8				
	Extension end side	Retraction end side	Stopper model No. S	A	W
Blank	5 mm or none	5 mm or none	●	–	–
02	15 mm or none	15 mm or none	●		
03	25 mm or none	25 mm or none	●		

*1: For stopper positions ①, ②, please refer to the diagram on the right.
*2: The standard port positions when there is no stopper are positions ① and ③ in the diagram on the right.
*3: For combinations of metal stoppers and Shock absorber type stoppers, refer to ❺ Stopper "W□".
*4: The stroke adjustment stopper becomes metal touch at an operating pressure of 0.3 MPa or more.
*5: For the stroke adjustment range when using a Shock absorber type, refer to the dimension table in the stopper outline drawing P. 156.
*6: For ø20, and ø25 (20 stroke or less), A1 and A2 cannot be adjusted with the standard stopper and are therefore custom products.
*7: If the double-sided combination type (W) is selected, the stroke adjustment range will be ø20: 13 mm, ø25: 10 mm.
*8: Can be selected only when using the stopper for stroke adjustment S□□□.
*9: Since the lock mechanism engages at the stroke end, do not install stoppers at positions ③, ④.
*10: For stopper combinations P. 166 .

❼ Anti-rust treatment

Code	Content	
Blank	None	
U	Anti-rust treated product (Table/Guide part)	

*1
*2

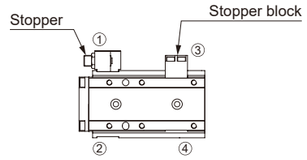
*1: The table uses steel. When used in high-temperature, high-humidity environments or environments where water droplets may adhere due to condensation, etc., rust may occur, so please select "U".
*2: The table and rail will be black. Rust prevention treatment on the table and rail surfaces reduces the occurrence of rust in high-humidity environments, such as near an ionizer.
*3: If anti-rust treatment is required for the standard (stainless steel), please contact our sales department.

❻ Option

Code	Content	
Stopper part port *2, *4		
Blank	No port	
D	Side and bottom ports available *1	
Stopper block material *2		
Blank	Steel	
T	Steel (nitriding treatment)	
With buffer *3		
B	Without switch groove	
BL	With switch groove	

*1: Port position is P. 156. Refer to the stopper dimensions.
*2: Selectable only when stopper type is selected.
*3: Purchase the buffer part switch separately using the switch single item model No. indication method on P. 167.
*4: If the double-sided combination type (W) is selected, the stopper part port is standard, so option "D" cannot be selected.

● Stopper position



Rechargeable Battery Compatible Specification (Catalog No. CC-1226AA)

● Structure usable in Rechargeable battery manufacturing processes

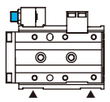
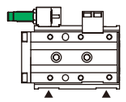
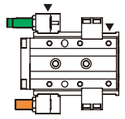
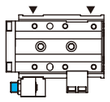
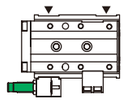
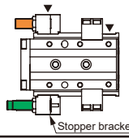
LCG-Q - · · · · - P4□

* Please contact us for details.

Stopper Model No. Selection Method

1 Stopper Combination Table

Model No. - [①Stopper type] [②Stopper position] [③] Example) LCR-Q-8-40- [S] [2] 06

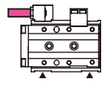
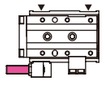
Stopper position [②]	Stopper [①] Stroke adjustment type (single side) [S]	Stopper [①] Shock absorber type (single side) [A]	Stopper [①] Double-sided combination double stopper [W]
[1]	[S1] 	[A1] 	[W1] 
[2]	[S2] 	[A2] 	[W2] 

▲ indicates the piping direction.
If the double-sided combination type [W] is selected, the stopper brackets on both sides will have piping, and the stopper bracket on the side opposite to the ▲(piping direction) will have a plug.

: Shock absorber type stopper
: Stroke adjustment stopper (adjustment range 5 mm)
: Metal stopper (adjustment range 15 mm)

2 Stopper Combination Table

Model No. - [①Stopper type] [②Stopper position] [③Stroke adjustment range]
Example) LCG-Q-8-40-S1 [02]
In case of stroke adjustment stopper -S

Stroke adjustment range [③]	Stopper adjustment range: Extension end side	Stopper type, Stopper position [① ②]: [S1]	[S2]
Blank	5 mm	 [S1]	 [S2]
[02]	15 mm	 [S102]	 [S202]
[03]	25 mm	 [S103]	 [S203]

: Stroke adjustment stopper (adjustment range 5 mm)
: Stroke adjustment stopper (adjustment range 15 mm)
: Stroke adjustment stopper (adjustment range 25 mm)

▲ indicates the piping direction.
Cannot be selected for Shock absorber type [A] or double-sided combination type [W].

LCG-Q Drop Prevention Type Combination Availability Table

(Combination with stroke adjustment stopper, Shock absorber type stopper)

●: Not combinable -: Not combinable

Option Code: Bore size	Stroke	Stroke adjustment stopper: S1 Adjustment range symbol: Blank	02	03	S2: Blank	02	03	Shock absorber type stopper: A1	A2	Double-sided combination double stopper: W1	W2
ø8	10	●	-	-	●	-	-	-	-	-	-
	20 or more	●	•	-	●	●	-	●	●	●	●
ø12 to ø25	10	●	-	-	●	-	-	-	-	-	-
	20	●	●	-	●	●	-	-	-	-	-
	30 or more	●	●	●	●	●	●	●	●	●	●

Option Code D: Stopper part with port, T: Please refer to the combination table above to determine if a steel stopper block (nitrided) can be selected. (●: Selectable -: Not selectable)

Switch Single Unit Model No. Notation Method

For ø8 and ø12: SW - F2H
For ø16 to ø25: SW - T2H3
● For buffer: SW - F 2 V 3

❸ Switch model No. (P. 162 Section ③)
❽ Output format
❾ Lead wire length
Lead wire L-shaped type

❽ Output format

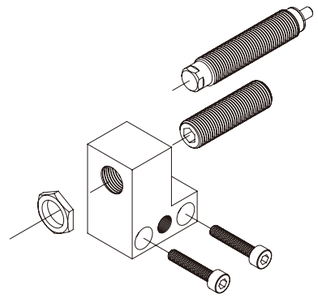
Code	Content
2	DC 2-wire solid-state
3	DC 3-wire solid-state

❾ Lead wire length

Code	Content
Blank	1 m (Standard)
3	3 m (Option)

Stopper Set Model No. Notation Method

Note: Since the lock mechanism works at the stroke end, do not install a stopper on the head side.
● Set of stopper part and stroke adjustment stopper or Shock absorber type stopper
● Used when changing from standard to with stroke adjustment stopper or with Shock absorber type stopper



LCG - 12 - S 2 D - S02

❶ Bore size
⓫ Stopper mounting position
⓭ Stroke Adjustment amount
❿ Stopper type
⓬ Stopper part port

❿ Stopper type

Code	Content
S	Stroke adjustment stopper
A	Shock absorber type stopper

⓫ Stopper mounting position

Code	Content
1	Stopper position ①
2	Stopper position ②

*1: The relationship of the stroke adjustment amount changes depending on the stroke, so refer to the table below.

⓬ Stopper part port

Code	Content
Blank	No port
D	Side/bottom ports available

⓭ Stroke adjustment amount

Code	Content
Blank	Stroke adjustment range 5 mm
S02	Stroke adjustment range 15 mm
S03	Stroke adjustment range 25 mm

*1: S03 cannot be selected for ø8.
*2: ⓾ Cannot be selected in the case of Shock absorber type stopper "A".

Precautions when purchasing a stopper set

Please note that the stroke adjustment amount will be as follows depending on the stroke.

▼

-: Not compatible

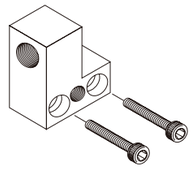
Model No. code	Option Code: Bore size	Stroke	Stroke adjustment stopper single item: Stroke adjustment amount (mm) -5	-15	-25
LCG Series -S1, S2	ø8	10	S02	-	-
		20 or more	Blank	S02	-
	ø12 to ø25	10	S03	-	-
		20	S02	S03	-
		30 or more	Blank	S02	S03

● Stopper set weight (Unit: g)

Stopper type	S1, S2			A1, A2
Stopper part port	Blank, D			
Stroke adjustment amount / Bore size	Blank	S02	S03	Blank
ø8	21	25	-	27
ø12	28	31	34	33
ø16	42	47	52	49
ø20	77	85	92	86
ø25	87	94	101	95

Stopper Bracket Single Item Model No. Notation Method

(Note: Since the lock mechanism works at the stroke end, do not install a stopper on the head side.
● Used when changing the stopper mounting position between ① and ②, or when changing to a stopper with a port.



LCG - 12 - STB 1 D

1 Bore size
14 Stopper mounting position
15 Stopper part port

● Stopper bracket weight (Unit: g)

Stopper mounting position	1,2
Stopper part port / Bore size	Blank, D
ø6	8
ø8	14
ø12	20
ø16	29
ø20	53
ø25	62

14 Stopper mounting position

Code	Content
1	Stopper position ①
2	Stopper position ②

15 Stopper part port

Code	Content
Blank	No port
D	Side/Bottom ports available

Note: When using the bottom port with ø20 or 25, purchase a plug kit (LCG-20-N, 2 pcs/set) and seal the side port before use.

Stroke Adjustment Stopper Single Item Model No. Notation Method

● Hexagon socket set screw with urethane rubber
● Use when changing stroke adjustment range or setting intermediate stroke

LCG - 12 - S02

1 Bore size
16 Stroke Adjustment range

16 Stroke adjustment range

Code	Content
S01	One side 5 mm (Standard)
S02	One side 15 mm
S03	One side 25 mm

Note: "S03" cannot be selected for ø6 and ø8.
Some model Nos. may not be compatible or the stroke adjustment range may differ from the above.

Precautions when purchasing stopper single items

Only when mounting at mounting positions and ①, ② (see P. 162, P. 164), please note that the combination will be as shown on the right depending on the stroke and stroke adjustment amount.

-: Not combinable

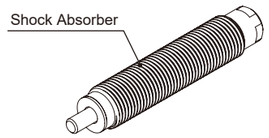
Model No. code	Option Code		Stroke adjustment stopper single item Stroke adjustment amount (mm)		
	Bore size	Stroke	-5	-15	-25
LCG Series -S1, S2, S5, S6	ø6, ø8	10	S02	-	-
		20 or more	S01	S02	-
	ø12 to ø25	10	S03	-	-
		20	S02	S03	-
		30 or more	S01	S02	S03

● Stopper for Stroke Adjustment, Single Unit Weight (Unit: g)

Stroke adjustment range / Bore size	S01	S02	S03
ø6	6	9	-
ø8	7	10	-
ø12	7	11	14
ø16	11	16	22
ø20	22	30	37
ø25	23	30	37

Shock absorber Type Stopper Single Item Model No. Notation Method

● Shock absorber set
● Used when changing from stroke adjustment stopper to Shock absorber type stopper



LCG - 12 - A01

1 Bore size

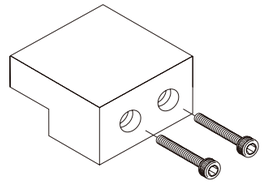
Note: Some models are not compatible, depending on the model number. Please refer to P. 162 and P. 164. For the stroke adjustment range of the shock killer type stopper, please refer to P. 156.

Shock absorber model No. used

Model	Shock absorber model No.	Weight (g)
LCG-6	SKL-0804	9
LCG-8	SKL-0805	12
LCG-12	SKL-0805	12
LCG-16	SKL-1006	19
LCG-20	SKL-1208	31
LCG-25	SKL-1208	31

Stopper Block Single Item Model No. Notation

● Used when changing from standard to with stroke adjustment stopper or with Shock absorber type stopper



LCG - 12 - SB1 T

1 Bore size
17 Stopper block
18 Material

● Stopper for Stroke Adjustment, Single Unit Weight (Unit: g)

Stroke adjustment range / Bore size	SB1 (T)	SB2 (T)
ø6	11	21
ø8	14	24
ø12	23	37
ø16	38	72
ø20	60	99
ø25	112	206

17 Stopper block

Code	Content
SB1	ø6, ø8: For 30 strokes or less
	ø12 to ø25: For 50 strokes or less
SB2	ø6, ø8: For 40 strokes or more
	ø12 to ø25: For 75 strokes or more

18 Material

Code	Content
Blank	Stopper block material Steel
T	Stopper block material Steel (nitriding treatment)

Side Piping Port Plug Kit Model No. Notation

LCG - 12 - N (2 pcs/1 set)

1 Bore size

● Weight of plug kit for side piping port

Bore size	Weight (g)
ø8	1
ø12	1
ø16	1
ø20	5

Specifications

Item			LCG-Q				
Bore size		mm	ø8	ø12	ø16	ø20	ø25
Actuation method			Double Acting Type				
Operating Fluid			Compressed Air				
Max. Working Pressure		MPa	0.7				
Min. Operating Pressure		MPa	0.15				
Proof Pressure		MPa	1.05				
Ambient Temperature		°C	-10 to 60 (however, no freezing)				
Port Size	Main body side		M5			Rc1/8	
	Main body rear		None				
Stroke tolerance		mm	+2.0 (*1) 0				
Operating Piston Speed		mm/s	50 to 500				
Cushion			With Rubber Cushion				
Fall prevention mechanism			Head Side				
Holding Force		N	At PULL, Theoretical thrust x 0.7 (at 0.7MPa)				
Lubrication			Not required (When lubricating, use turbine oil Class 1 ISO VG32)				
Allowable absorption energy		J	Refer to Table 3 on P. 188.				

*1: When used without a stopper, please note that there is a slight gap between the end plate and the floating bush.
*2: The stroke adjustment stopper becomes metal touch at an operating pressure of 0.3 MPa or more.

Stroke

Bore Size (mm)	Standard Stroke (mm)
ø8	10, 20, 30, 40, 50, 75
ø12	10, 20, 30, 40, 50, 75, 100
ø16	10, 20, 30, 40, 50, 75, 100, 125
ø20	10, 20, 30, 40, 50, 75, 100, 125, 150
ø25	10, 20, 30, 40, 50, 75, 100, 125, 150

Note: Strokes other than the above cannot be manufactured.

With buffer specification

Specifications other than the following are the same as the common specifications above.

Item			Content				
Bore size		mm	ø8	ø12	ø16	ø20	ø25
Buffer Stroke		mm	4	9		10	
Buffer part	At SET	N	5	10	13	17	21
spring load	During operation	N	8	14	20	25	29

*1: If rod side stroke adjustment is performed with a buffer, the buffer stroke will be shortened by the stroke adjustment amount, and the spring load at set will also increase.
*2: Use a buffer stroke less than the stroke above. This will cause malfunction or damage.

Theoretical Thrust Table

See P. 189.

Cylinder Weight

● Drop prevention type (Unit: g)

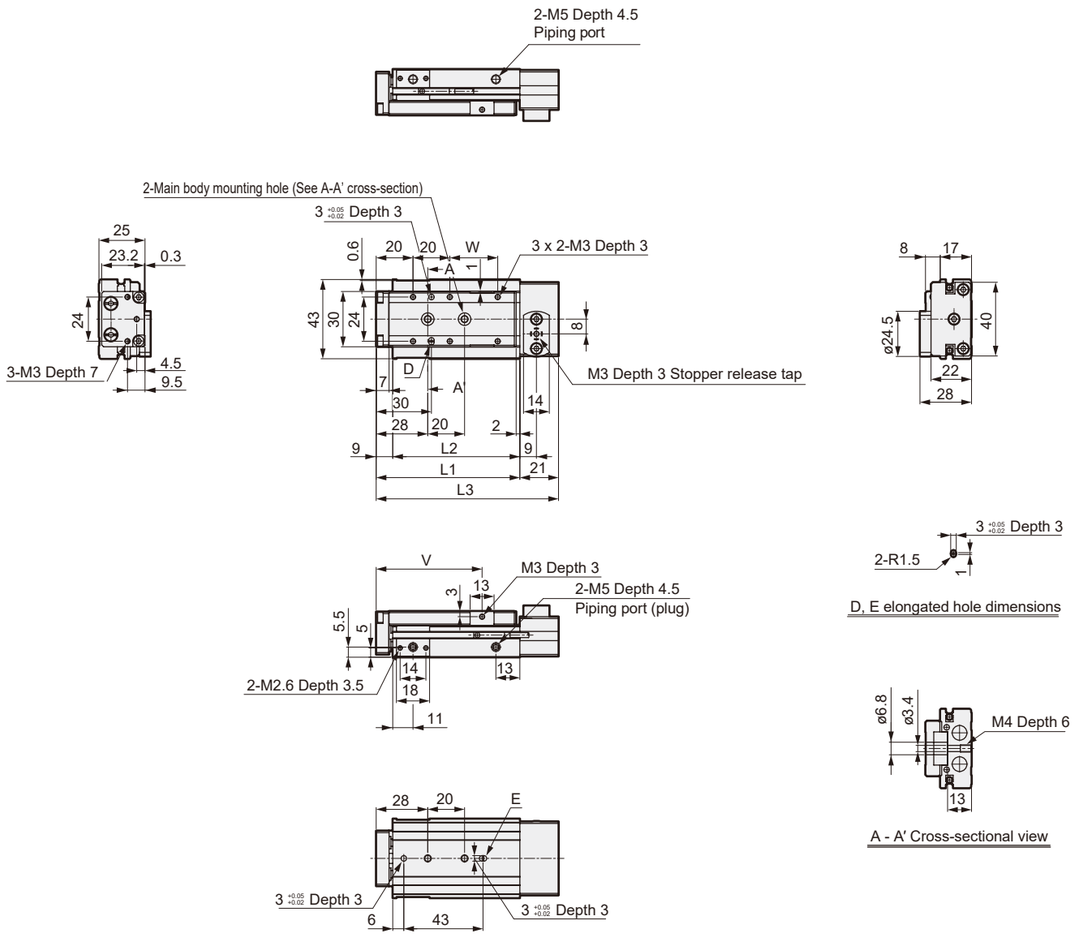
Bore size (mm)	Stroke (mm)								
	10	20	30	40	50	75	100	125	150
ø8	280	280	310	390	420	510	-	-	-
ø12	570	570	570	620	670	860	1,000	-	-
ø16	880	870	860	940	1.020	1.370	1.560	1,760	-
ø20	1.450	1.440	1.430	1.550	1.670	2.110	2.400	2.690	2.980
ø25	2.360	2.340	2.320	2.500	2.680	3.480	3,900	4.320	4,740

● Additional weight of options (Unit: g)

Bore size (mm)	Stopper code		With buffer
	S1, S2	A1, A2	B, BL
ø8	40	50	40
ø12	70	80	70
ø16	110	120	80
ø20	170	180	150
ø25	290	300	320

Outline dimension drawing (Bore size: ø8)

● LCG-Q-8
Stroke: 10, 20, 30



Dimension table by stroke

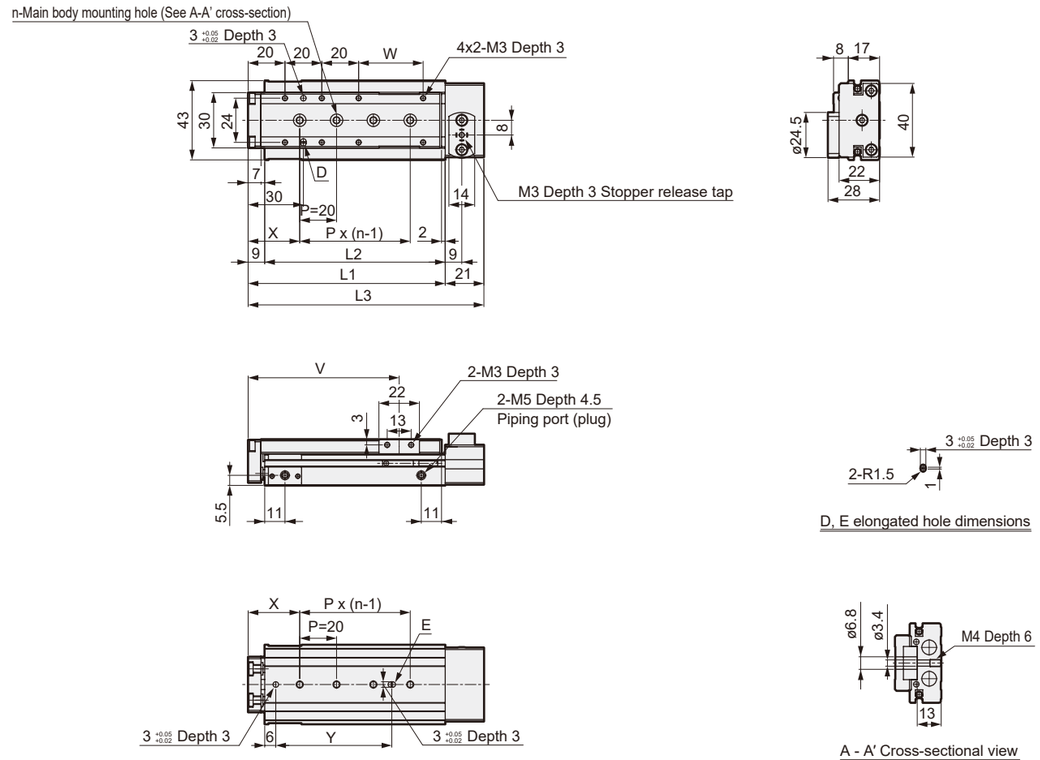
Stroke	10	20	30
L1	68		78
L2	59		69
L3	89		99
V	47.5		57.5
W	16		26

*1: When using positioning holes, use pins with dimensions that do not result in a loose fit. The recommended pin tolerance is JIS tolerance m6 or less.

***2: For dimensions of models with switches, refer to P. 186 and P 187.**

Outline dimension drawing (Bore size: ø8)

● LCR-Q-8
Stroke: 40, 50, 75



Dimension table by stroke

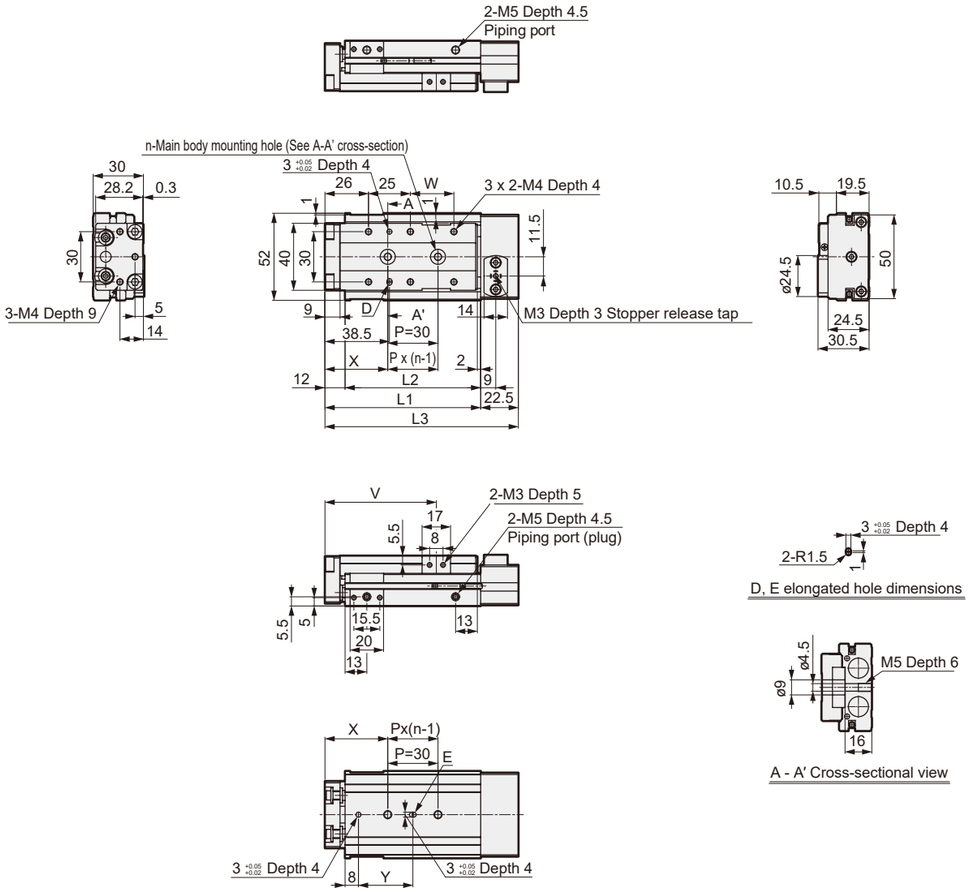
Stroke	40	50	75
L1	97	107	132
L2	88	98	123
L3	118	128	153
n	3	4	5
V	72	82	107
W	25	35	60
X	26.5	28	25
Y	41.5	63	80

*1: When using positioning holes, use pins with dimensions that do not result in a loose fit. The recommended pin tolerance is JIS tolerance m6 or less.

***2: For dimensions of models with switches, refer to P. 186, 187**

Outline dimension drawing (Bore size: ø12)

● LCG-Q-12
Stroke: 10, 20, 30, 40, 50



Dimension table by stroke

Stroke	10	20	30	40	50
L1	93			103	113
L2	81			91	101
L3	115.5			125.5	135.5
n	2			3	
V	66.5			76.5	86.5
W	26			36	46
X	37.5			36	32
Y	32.5			31	57

*1: When using positioning holes, use pins with dimensions that do not result in a loose fit. The recommended pin tolerance is JIS tolerance m6 or less.
***2: For dimensions of models with switches, refer to P. 186, 187**

Outline dimension drawing (Bore size: ø12)

● LCG-Q-12
Stroke: 75, 100

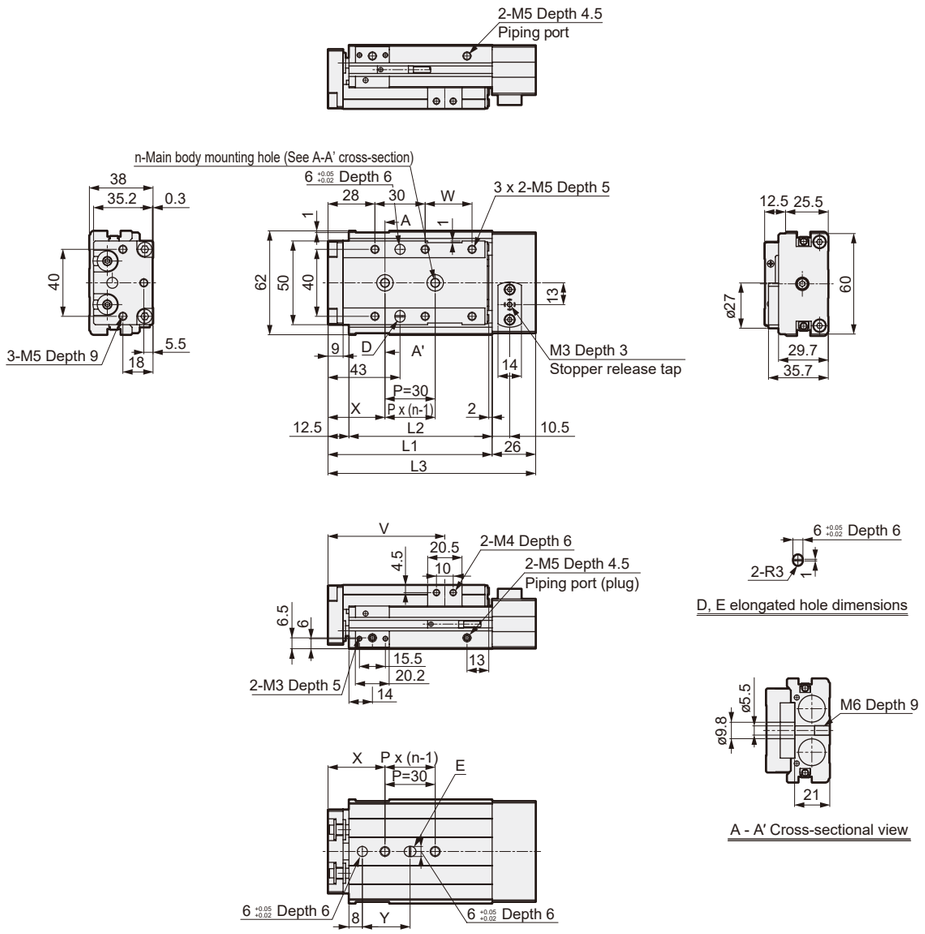
Dimension table by stroke

Stroke	75	100
L1	147	172
L2	135	160
L3	169.5	194.5
V	116	141
W	55	80
X	34.5	47
Y	89.5	102

*1: When using positioning holes, use pins with dimensions that do not result in a loose fit. The recommended pin tolerance is JIS tolerance m6 or less.
***2: For dimensions of models with switches, refer to P. 186, 187**

Outline dimension drawing (Bore size: ø16)

● LCG-Q-16
Stroke: 10, 20, 30, 40, 50



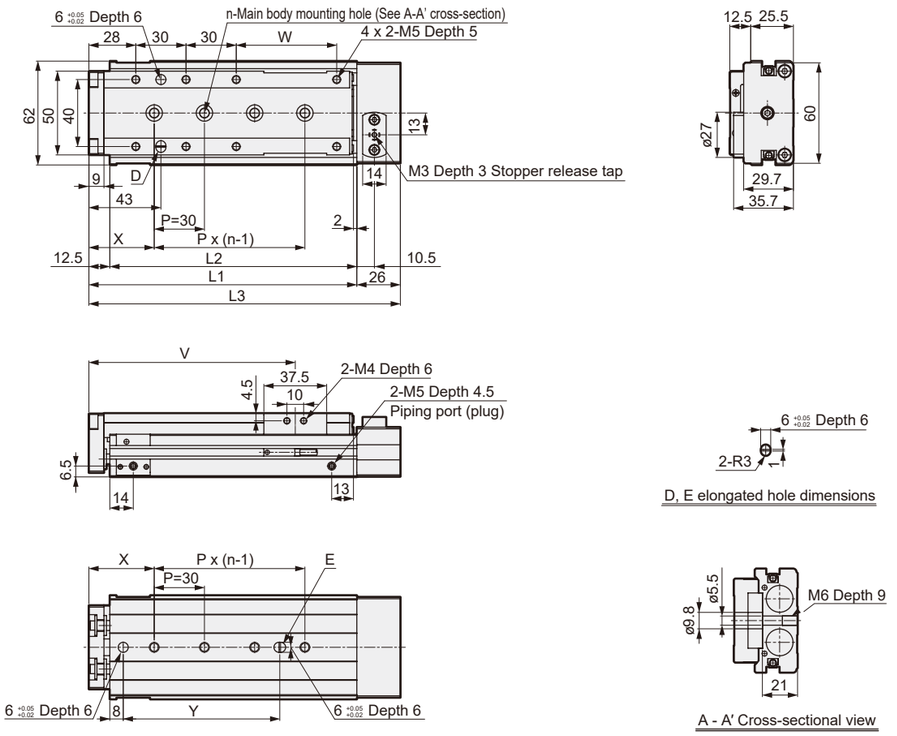
Dimension table by stroke

Stroke	10	20	30	40	50
L1	98			108	118
L2	85.5			95.5	105.5
L3	124			134	144
n	2				3
V	69.8			79.8	89.8
W	28			38	48
X	34			45.5	35.5
Y	28.5			40	60

*1: When using positioning holes, use pins with dimensions that do not result in a loose fit. The recommended pin tolerance is JIS tolerance m6 or less.
***2: For dimensions of models with switches, refer to P. 186, 187**

Outline dimension drawing (Bore size: ø16)

● LCR-Q-16
Stroke: 75, 100, 125



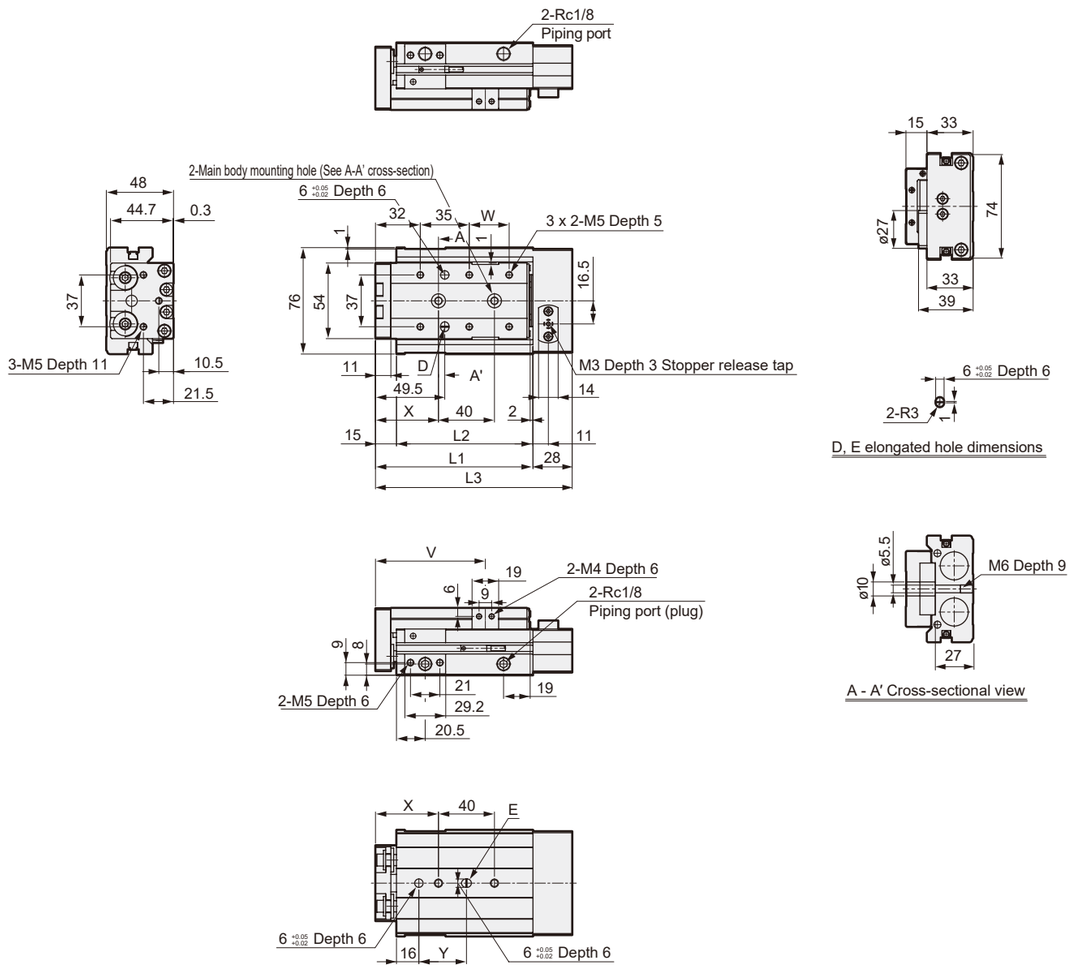
Dimension table by stroke

Stroke	75	100	125
L1	160	185	210
L2	147.5	172.5	197.5
L3	186	211	236
n	4	5	
V	123.3	148.3	173.3
W	60	85	110
X	39	37	49
Y	93.5	121.5	133.5

*1: When using positioning holes, use pins with dimensions that do not result in a loose fit. The recommended pin tolerance is JIS tolerance m6 or less.
***2: For dimensions of models with switches, refer to P. 186, 187**

Outline dimension drawing (Bore size: ø20)

● LCG-Q-20
Stroke: 10, 20, 30, 40, 50



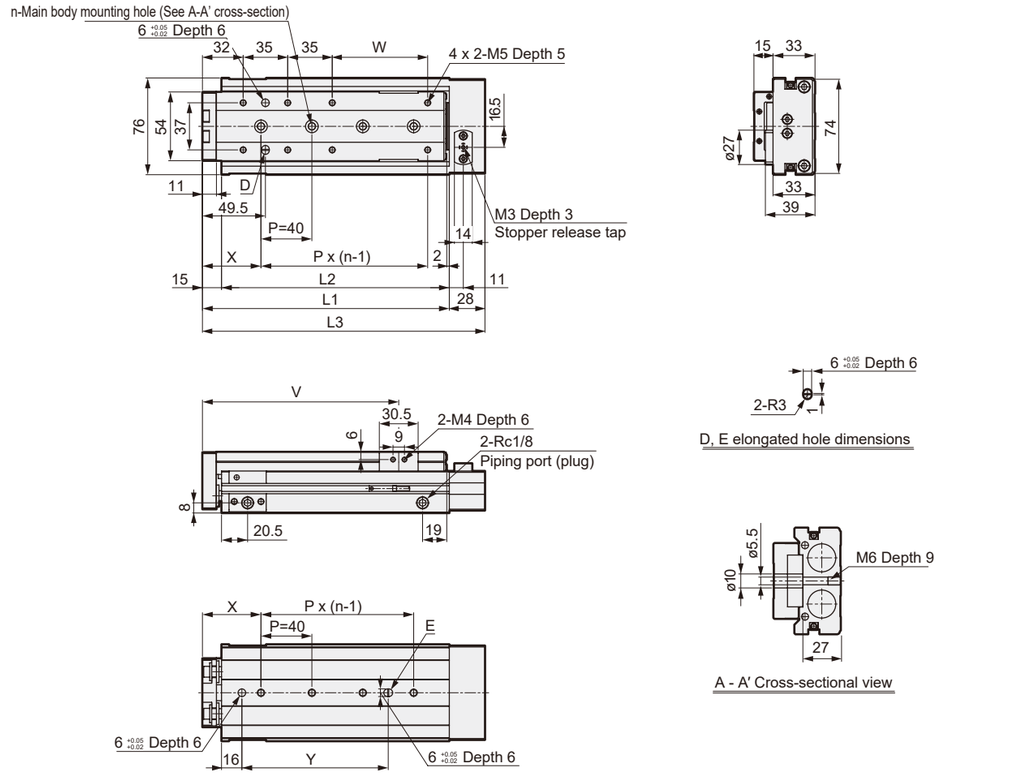
Dimension table by stroke

Stroke	10	20	30	40	50
L1	112.5			122.5	132.5
L2	97.5			107.5	117.5
L3	140.5			150.5	160.5
V	78.5			88.5	98.5
W	28.5			38.5	48.5
X	45			51	49
Y	34			40	38

*1: When using positioning holes, use pins with dimensions that do not result in a loose fit. The recommended pin tolerance is JIS tolerance m6 or less.
***2: For dimensions of models with switches, refer to P. 186, 187**

Outline dimension drawing (Bore size: ø20)

● LCR-Q-20
Stroke: 75, 100, 125, 150



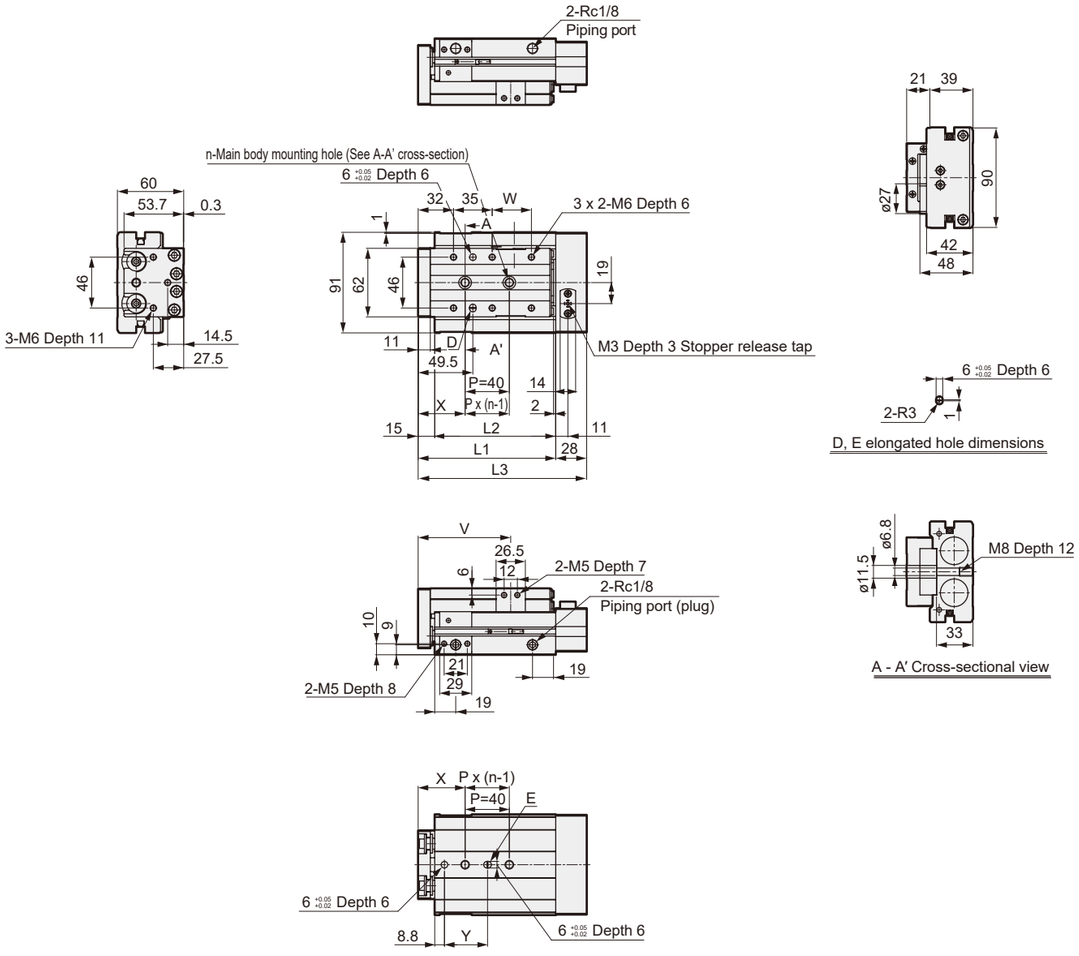
Dimension table by stroke

Stroke	75	100	125	150
L1	169	194	219	244
L2	154	179	204	229
L3	197	222	247	272
n	3	4		5
V	129.3	154.3	179.3	204.3
W	50	75	100	125
X	46		53	51
Y	75	115	122	160

*1: When using positioning holes, use pins with dimensions that do not result in a loose fit. The recommended pin tolerance is JIS tolerance m6 or less.
***2: For dimensions of models with switches, refer to P. 186, 187**

Outline Dimension Drawing (Bore size: ø25)

● LCG-Q-25
Stroke: 10, 20, 30, 40, 50



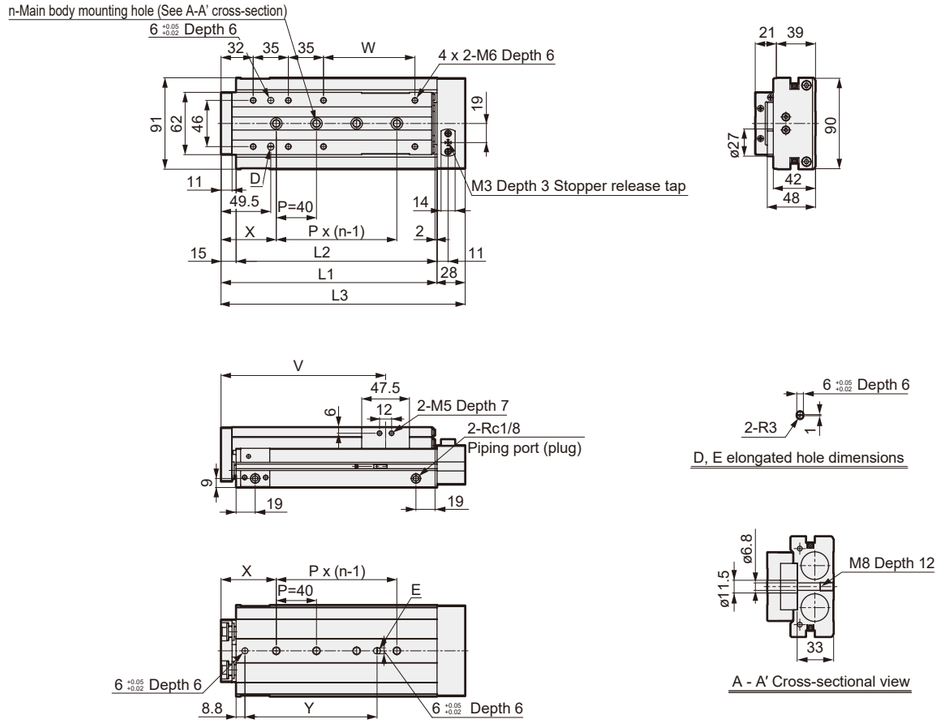
Dimension table by stroke

Stroke	10	20	30	40	50
L1	124.5			134.5	144.5
L2	109.5			119.5	129.5
L3	152.5			162.5	172.5
n	2			3	2
V	83.8			93.8	103.8
W	35.5			45.5	55.5
X	42.5			45.5	60.5
Y	39			42	57

*1: When using positioning holes, use pins with dimensions that do not result in a loose fit. The recommended pin tolerance is JIS tolerance m6 or less.
***2: For dimensions of models with switches, refer to P. 186, 187**

Outline Dimension Drawing (Bore size: ø25)

● LCG-Q-25
Stroke: 75, 100, 125, 150



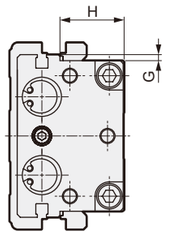
Dimension table by stroke

Stroke	75	100	125	150
L1	190	215	240	265
L2	175	200	225	250
L3	218	243	268	293
n	3	4	5	
V	138.8	163.8	188.8	213.8
W	66	91	116	141
X	60	55	45	60
Y	96.5	131.5	161.5	176.5

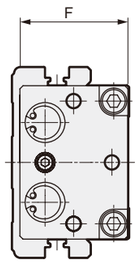
*1: When using positioning holes, use pins with dimensions that do not result in a loose fit. The recommended pin tolerance is JIS tolerance m6 or less.
***2: For dimensions of models with switches, refer to P. 186, 187**

Outer Dimensions Diagram with Option

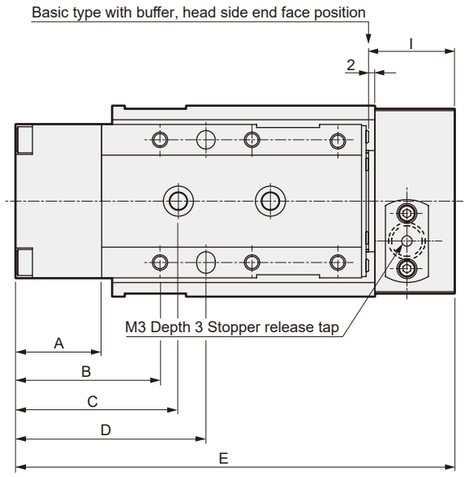
With buffer (B, BL)



Option code: BL



Option code: B



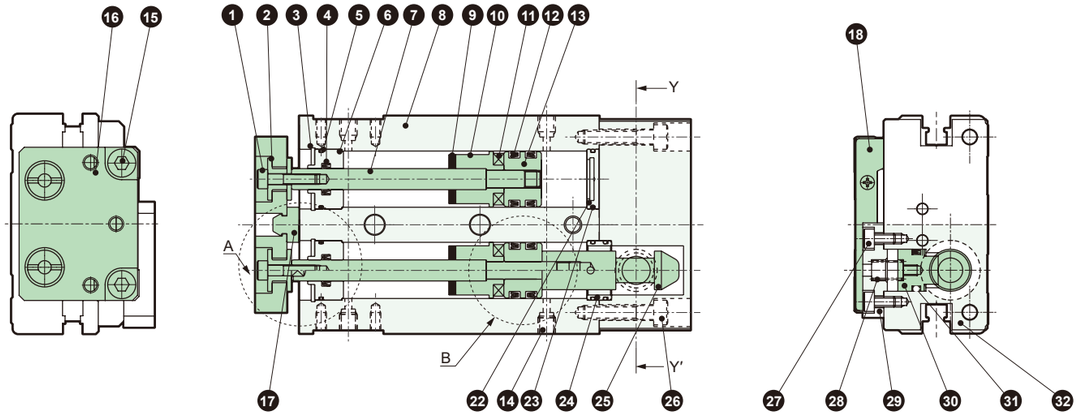
Code / Bore Size (mm)	A	B	C Stroke (mm)									D	E Stroke (mm)									F	G	H	I
			10	20	30	40	50	75	100	125	150		10	20	30	40	50	75	100	125	150				
ø8	21.5	34.5	42.5	42.5	42.5	41	42.5	39.5	-	-	-	44.5	103.5	103.5	113.5	132.5	142.5	167.5	-	-	-	23.5	3.2	13.5	23
ø12	27	44	55.5	55.5	55.5	54	50	52.5	65	-	-	56.5	133.5	133.5	133.5	143.5	153.5	187.5	213	-	-	29	3.2	16	24.5
ø16	28	47	53	53	53	64.5	54.5	58	56	68	-	62	143	143	143	153	163	205	230	255	-	35.5	1	21.3	28
ø20	31	52	65	65	65	71	69	66	66	73	71	69.5	160.5	160.5	160.5	170.5	180.5	217	242	267	292	45.5	4	24.5	30
ø25	34	55	65.5	65.5	65.5	68.5	83.5	83	78	68	83	72.5	175.5	175.5	175.5	185.5	195.5	241	266	291	316	56	4.5	31	30

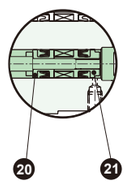
MEMO

With Linear Guide
LCM
LCR
LCG
LCW
LCX
MSDG
Cylinder Switch
Ending

Internal Structure Diagram/Material

● LCG-Q





Y-Y' Cross-section

Part No.	Part Name	Material	Remarks	Part No.	Part Name	Material	Remarks
1	Hexagon Socket Head Cap Screw	Alloy Steel	Zinc Chromate	17	Cushion rubber (H)	Urethane Rubber	
2	Floating bush	Stainless Steel		18	Table	ø6 to 16: Stainless steel ø20, 25: Steel	
3	C-type retaining ring	ø8: Steel ø12 to 25: Stainless steel	ø8 to 25 only	19	Cap	Aluminum Alloy	Chromate
4	Rod Packing	Nitrile Rubber		20	Piston A	Aluminum Alloy	Chromate
5	Metal gasket	Nitrile Rubber		21	Piston B	Aluminum Alloy	Chromate
6	Rod Metal	Aluminum Alloy	Alumite	22	Cover	Aluminum Alloy	
7	Piston Rod	Stainless Steel		23	Gasket	Nitrile Rubber	
8	Cylinder Body	Aluminum Alloy	Hard Anodized	24	Joint ring	ø8: Stainless steel ø12 to 25: Aluminum alloy	ø12 to 25: Chromate
9	Cushion rubber (R)	Urethane Rubber		25	Sleeve	Carbon steel	Nitriding Treatment
10	Magnet spacer	Aluminum Alloy	Chromate	26	Hexagon Socket Head Cap Screw	Alloy Steel	Zinc Chromate
11	Magnet	Plastic		27	Hexagon Socket Head Cap Screw	Alloy Steel	Zinc Chromate
12	Piston Packing	Nitrile Rubber		28	Coil Spring	Steel	
13	Piston	Aluminum Alloy	Chromate	29	Stopper Cover	Aluminum Alloy	Alumite
14	Plug	ø6 to 16: Stainless steel ø20, 25: Steel		30	Stopper Piston	Carbon steel	Nitriding Treatment
15	Hexagon Socket Head Cap Screw	Alloy Steel	Zinc Chromate	31	Stopper packing	Nitrile Rubber	
16	End plate	Aluminum Alloy	Alumite	32	Head Cover	Aluminum Alloy	Alumite

Consumable Parts List

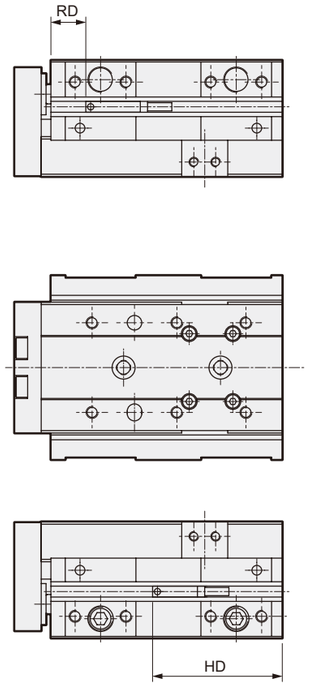
Bore size (mm)	Kit No.	Consumable Part No.	
		Drop prevention part consumable parts	Basic consumable parts
ø8	LCG-Q-8K	31	4 5 9 12 17 23
ø12	LCG-Q-12K		
ø16	LCG-Q-16K		
ø20	LCG-Q-20K		
ø25	LCG-Q-25K		

MEMO

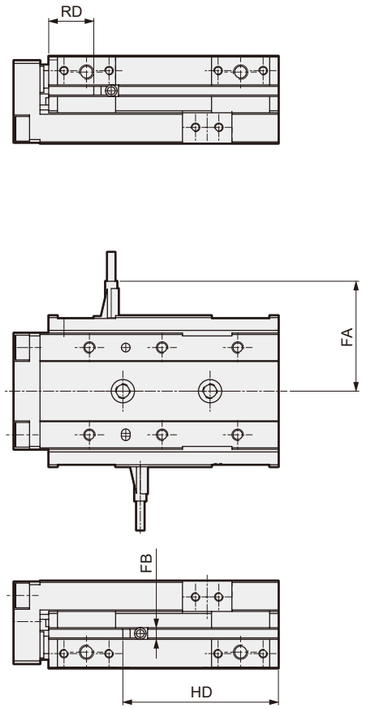
MSDG
With Linear Guide
LCM
LCR
LCG
LCW
LCX
Cylinder Switch
Ending

LCG Series Switch External Dimensions Diagram

● F2H/V, F3H/V, F2YH/V, F3YH/V, F3PH/V
LCG, LCG-Q



● F2S, F3S
LCG, LCG-Q

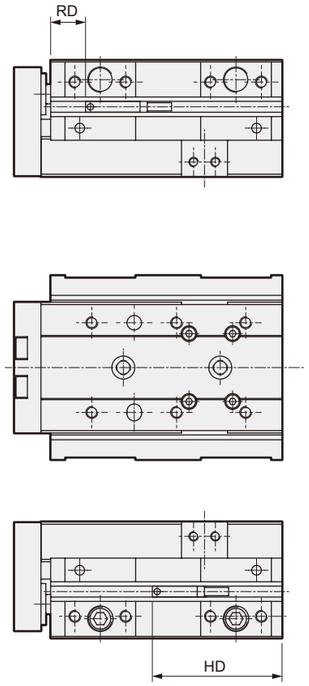


Code / Bore Size (mm)	Stroke	LCG, LCG-Q					
		F2, F3, F2Y, F3Y, F3P		F2S, F3S			
		RD	HD	RD	HD	FA	FB
ø6	10	15.5	32.5	14.5	33.5	29.6	4
	20,30		22.5		23.5		
	40, 50	25.5		24.5			
ø8	10	13	34	12	35	32.6	4
	20,30		24		25		
	40,50,75		33		34		
ø12	10	21.5	47	20.5	48	37.8	4
	20		37		38		
	30,40,50		27		28		
	75.100		36		37		

Note: For switch mountability, refer to the model No. notation method for each variation.

LCG Series Switch External Dimensions Diagram

● T0H/V, T5H/V, T2H/V, T3H/V, T3PH/V, T2□R3, T2WH/V, T3WH/V, T2WLH/V
LCG, LCG-Q

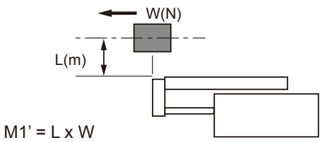


Code / Bore Size (mm)	Stroke	LCG,LCG-Q			
		T0, T5, T2, T3, T3P, T2□R3		T2W, T3W, T2WL	
		RD	HD	RD	HD
ø16	10	17	56.5	19.5	54
	20		46.5		44
	30,40,50		36.5		34
	75100125		53.5		51
ø20	10	16	69.5	18.5	67
	20		59.5		57
	30,40,50		49.5		47
	75100125150		61		58.5
ø25	10	18.5	79	21	76.5
	20		69		66.5
	30,40,50		59		56.5
	75100125150		79.5		77

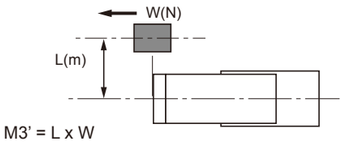
Note: For switch mountability, refer to the model No. notation method for each variation.

STEP-1

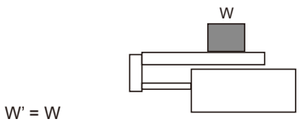
❶ Determine the load and impact moment generated in each direction at the stroke end.



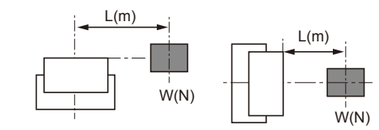
M1' = L x W



M3' = L x W



W' = W



M2'= L x W

From [Table 1], determine the approximate value of the G coefficient.

[Table 1] Va (Average speed) = $\frac{\text{Travel distance}}{\text{Travel time}}$ (m/s)

Va average speed (m/s)	Vm Stroke End speed (m/s)	G coefficient
to 0.07	to 0.1	5
to 0.2	to 0.3	14
to 0.27	to 0.4	19
to 0.35	to 0.5	24

G coefficient = ☐

M1' x G = ☐ (N·m)

M2' = ☐ (N·m)

M3' x G = ☐ (N·m)

W' = ☐ (N)

$E' = \frac{1}{2} \times (m + m_\alpha) \times Vm^2$

= ☐ (J)

$(m \approx \frac{W}{9.8})$

❷ Temporarily select a tube inner diameter that satisfies the following conditional expression.

$$M'_T = \frac{M1' \times G}{M1' \max} + \frac{M2'}{M2' \max} + \frac{M3' \times G}{M3' \max} + \frac{W'}{W' \max} < 1$$

$E' < E \max$

M'T : Combined Moment (Must be less than 1)

G : G coefficient

W' max : Max. allowable value of W' (from Table 2)

M1' max : Max. allowable value of M1' (from Table 2)

M2' max : Max. allowable value of M2' (from Table 2)

M3' max : Max. allowable value of M3' (from Table 2)

E max : Max. allowable value of E_0 (from Table 3)

m_α : [Table 4] Table Weight

[Table 2] Allowable Static Load Values

Bore size	Stroke (mm)	Vertical load W'max (N)	Bending moment M1'max (N·m)	Lateral bending moment M2'max (N·m)	Torsional Moment M3'max (N·m)
ø6	10 to 30	140	1.7	4.0	1.7
	40 to 50	186	10.7	6.0	10.7
ø8	10 to 30	152	3.4	6.8	3.4
	40 to 75	230	13.8	10.3	13.8
ø12	10 to 50	220.8	5.7	15.2	5.7
	75 to 100		22.2	21.0	22.2
ø16	10 to 50	380.8	17.8	36.0	17.8
	75 to 125		37.3	40.0	37.3
ø20	10 to 50	548.8	31.1	60.3	31.1
	75 to 150		56.2	61.6	56.2
ø25	10 to 50	961.5	65.1	131.8	65.1
	75 to 150		127.5	132.0	127.5

Note: When installing the load on the end plate, even if a long stroke (ø6, 8...40 or more, ø12 or more...75 or more) is selected, calculate the allowable value using the short stroke (ø6, 8...30 or less, ø12 or more...50 or less) value.

[Table 3] LCG Allowable absorption energy (E_0)

Bore size	Standard (J)	With stroke adjustment stopper (J)	With Shock absorber type stopper (J)
ø6	0.025	0.0032	0.14
ø8	0.058	0.0032	0.25
ø12	0.112	0.014	0.25
ø16	0.176	0.043	0.65
ø20	0.314	0.055	1.3
ø25	0.314	0.14	1.3

[Table 4] Table Weight (Unit: kg)

Bore size	Stroke (mm)									P72, P73 Increase	B, BL Increase
	10	20	30	40	50	75	100	125	150		
ø6	0.060	0.060	0.070	0.085	0.095	-	-	-	-	0.005	0.030
ø8	0.080	0.080	0.090	0.110	0.125	0.150	-	-	-	0.015	0.030
ø12	0.210	0.210	0.210	0.235	0.260	0.335	0.400	-	-	0.025	0.060
ø16	0.315	0.315	0.315	0.350	0.380	0.515	0.595	0.680	-	0.035	0.070
ø20	0.475	0.475	0.475	0.520	0.565	0.715	0.820	0.930	1.035	0.045	0.140
ø25	0.785	0.785	0.785	0.845	0.915	1.200	1.360	1.515	1.680	0.075	0.310

STEP-2

Next, improve the accuracy of the load factor, effective thrust, stroke end speed, and combined moment value.

● Determine the load factor.

$\alpha = \frac{F_0}{F} \times 100$ [%]

α : Load factor

F_0 : Force required to move the workpiece (N)

F : Cylinder theoretical thrust (N) [Table 5]

During horizontal operation	During vertical operation
$F_0 = F_W$	$F_0 = W + F_W$
FW: Wx0.2 *(N)	
W: Load (N)	

* Friction Coefficient

[Table 5] Theoretical Thrust Table (Unit: N)

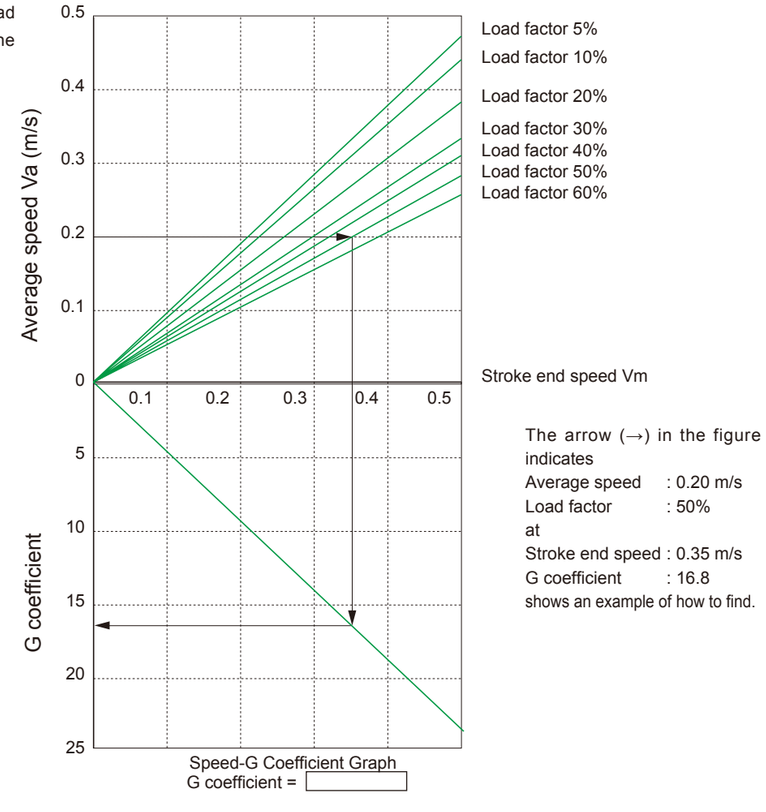
Bore size (mm)	Operating Direction	Operating pressure MPa						
		0.15	0.2	0.3	0.4	0.5	0.6	0.7
ø6	PUSH	8	11	17	23	28	34	40
	PULL	6	8	13	17	21	25	30
ø8	PUSH	15	20	30	40	50	60	70
	PULL	11	15	23	30	38	45	53
ø12	PUSH	34	45	68	90	113	136	158
	PULL	25	34	51	68	85	102	119
ø16	PUSH	60	80	121	161	201	241	281
	PULL	52	69	104	138	173	207	242
ø20	PUSH	94	126	188	251	314	377	440
	PULL	79	106	158	211	264	317	369
ø25	PUSH	147	196	295	393	491	589	687
	PULL	124	165	247	330	412	495	577

[Table 6] Load Factor Guideline

Operating pressure MPa	Load factor (%)
0.2 to 0.3	α ≤ 40
0.3 to 0.6	α ≤ 50
0.6 to 0.7	α ≤ 60

STEP-3

From the average speed (Va) and the load factor obtained in STEP-2, determine the stroke end speed (Vm) and G coefficient.



Speed-G Coefficient Graph
G coefficient = ☐

The arrow (→) in the figure indicates
Average speed : 0.20 m/s
Load factor : 50%
at
Stroke end speed : 0.35 m/s
G coefficient : 16.8
shows an example of how to find.

STEP-4

Confirm the combined moment (MT) from the G coefficient stroke end speed (Vm) obtained from STEP-3.

M1' x G = ☐ (N·m)

M2' = ☐ (N·m)

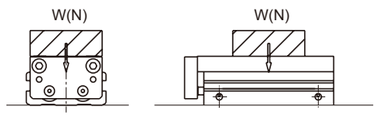
M3' x G = ☐ (N·m)

W' = ☐ (N)

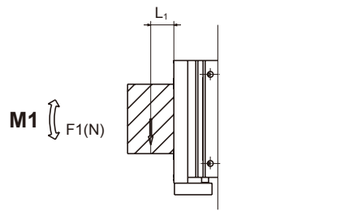
$$M'_T = \frac{M1'xG}{M1'max} + \frac{M2'}{M2'max} + \frac{M3'xG}{M3'max} + \frac{W'}{W'max} = \square$$

Confirm the combined moment MT during travel. (Please note that this is different from what was obtained in STEP-1.)

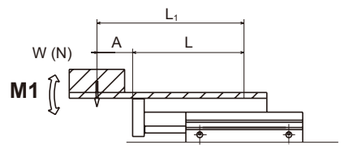
● Vertical load: W (N)



● Bending moment: M1 (N·m)

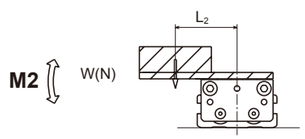


M1=F1xL1

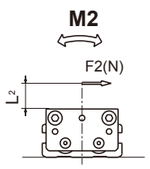


M1=WxL1
L1=A+L
L is the value in the table below

● Lateral bending moment: M2 (N·m)

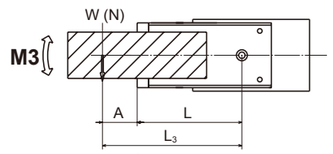


M2=WxL2

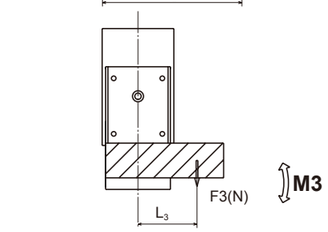


M2=F2xL2

● Torsional Moment: M3 (N·m)



M3=WxL3
L3=A+L
L is the value in the table below



M3=F3xL3

Value of L

Unit (m)

Bore size	Stroke									P72, P73 Increase	B, BL Increase
	10	20	30	40	50	75	100	125	150		
ø6	0.039	0.0415	0.049	0.0615	0.069	-	-	-	-	0.012	0.0165
ø8	0.0395	0.042	0.0495	0.0615	0.069	0.088	-	-	-	0.020	0.0145
ø12	0.053	0.0555	0.058	0.0655	0.073	0.096	0.115	-	-	0.020	0.018
ø16	0.0555	0.058	0.0605	0.068	0.0755	0.1025	0.1215	0.140	-	0.020	0.019
ø20	0.0635	0.066	0.0685	0.076	0.0835	0.108	0.127	0.1455	0.1645	0.025	0.020
ø25	0.0695	0.072	0.0745	0.082	0.0895	0.1185	0.1375	0.156	0.175	0.025	0.023

M1=M1 = ☐ (N·m)

M2=M2 = ☐ (N·m)

M3=M3 = ☐ (N·m)

W=W = ☐ (N)

$$M_T = \frac{M1}{M1\ max} + \frac{M2}{M2\ max} + \frac{M3}{M3\ max} + \frac{W}{Wmax} = \square$$

MT : Combination of moments

Wmax : Max. allowable value of W (from Table 7)

M1max : Max. allowable value of M1 (from Table 7)

M2max : Max. allowable value of M2 (from Table 7)

M3max : Max. allowable value of M3 (from Table 7)

E max : Max. allowable value of E0 (from Table 3)

[Table 7] Allowable Traveling Load Values

Bore size	Stroke (mm)	Vertical load Wmax (N)	Bending moment M1 max (N·m)	Lateral bending moment M2 max (N·m)	Torsional Moment M3 max (N·m)
ø6	10 to 30	14	0.17	0.40	0.17
	40 to 50	15.5	0.89	0.50	0.89
ø8	10 to 30	15.2	0.34	0.68	0.34
	40 to 75	19.2	1.1	0.86	1.1
ø12	10 to 50	27.6	0.71	1.9	0.71
	75 to 100		2.2	2.1	2.2
ø16	10 to 50	47.6	1.9	4.0	1.9
	75 to 125		4.6	5.0	4.6
ø20	10 to 50	68.6	3.4	6.7	3.4
	75 to 150		7.0	7.7	7.0
ø25	10 to 50	128.2	7.6	15.5	7.6
	75 to 150		17.0	17.6	17.0

Note: When installing the load on the end plate, even if a long stroke (ø6, 8...40 or more, ø12 or more...75 or more) is selected, calculate the allowable value using the short stroke (ø6, 8...30 or less, ø12 or more...50 or less) value.

Confirm that MT, M'T≤1.
↓
Bore size determination
↓
øA

STEP-5

Confirmation of allowable absorbed energy

$$E = \frac{1}{2} \times (m + m\alpha) \times Vm^2$$

E : Kinetic energy at workpiece end (J)

m : Load weight (kg) ($m \approx \frac{W\ (N)}{9.8}$)

mα : [Table 4] Table Weight

Vm : Stroke end speed (m/s)

E max : Max. allowable value of E0 (from Table 3)

Confirm that E ≤ E max.
↓
Bore size determination
↓
øB

STEP-6

Bore size determined from STEP-4 (Load conditions) → øA

Bore size determined from STEP-5 (Allowable absorbed energy) → øB

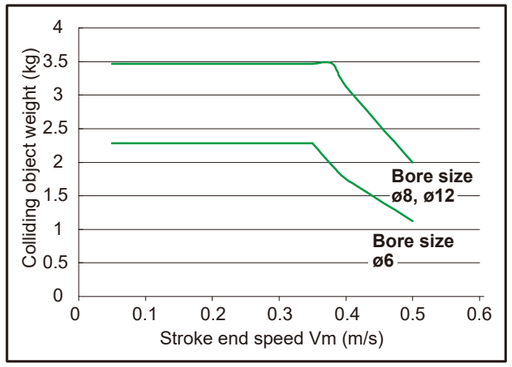
øA ≤ øB → øB is selected.

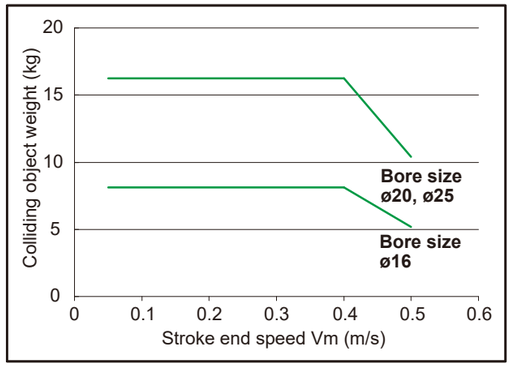
or → øA Can be addressed by using in combination with an external damper or with a Shock absorber type stopper.

øA > øB → øA is selected.

Shock absorber Type Stopper Selection Confirmation Graph

1. This is a simple confirmation graph for Shock absorber type stoppers. The area inside the graph is the usable range. Select a Bore size that can accommodate a Shock absorber within the usable range.
2. The simple selection graph shows values when the air pressure used for the cylinder is 0.5 MPa.
3. The absorbed energy of the Shock absorber changes with temperature. The simple confirmation graph shows values at room temperature.
4. The colliding weight is the sum of the load weight m and the table weight ma.

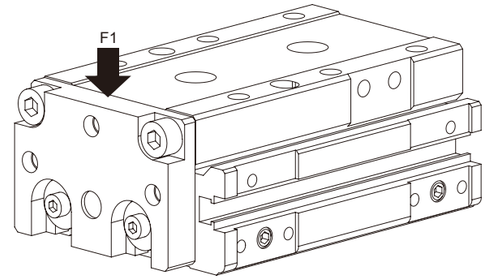




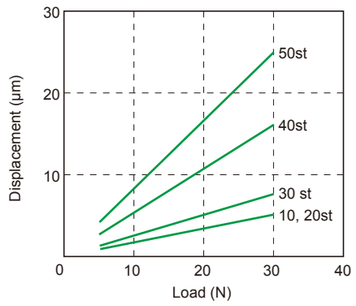
Technical Data

[Table Displacement due to M1 Moment] (Reference Value)

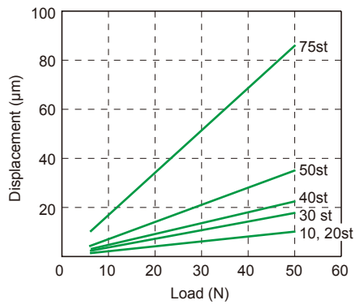
Displacement at the table tip when a load (F1) is applied to the table tip



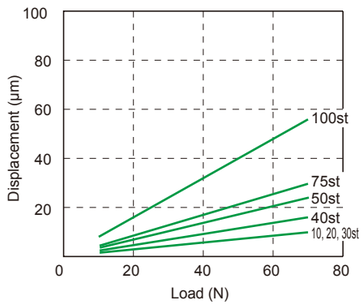
LCG-6 (M1)



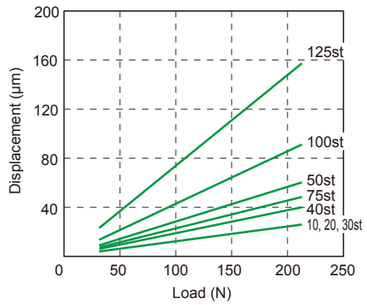
LCG-8 (M1)



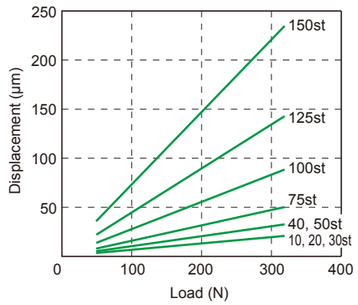
LCG-12 (M1)



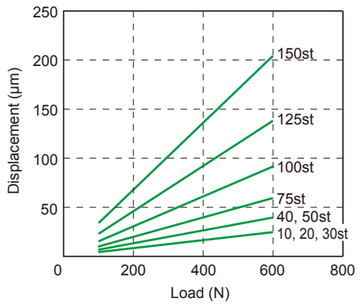
LCG-16 (M1)



LCG-20 (M1)



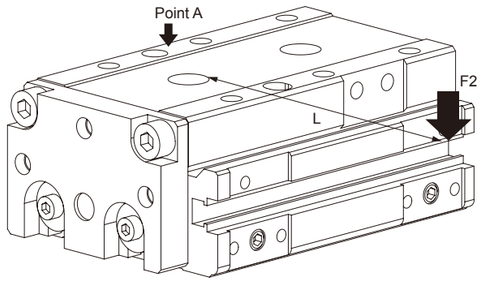
LCG-25 (M1)



Technical Data

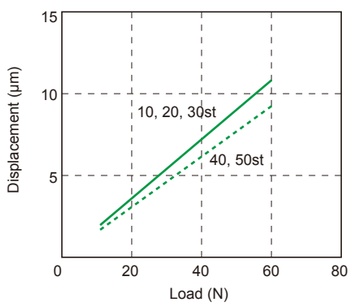
[Table Displacement due to M2 Moment] (Reference Value)

Displacement at the table end (Point A) when a load (F2) is applied at a position Lmm away from the cylinder center

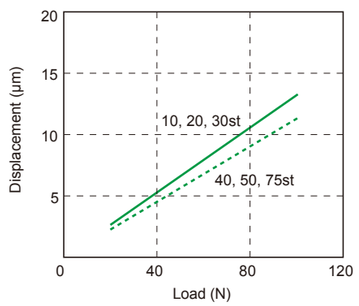


Value of L
ø6: L = 70, ø8: L = 70
ø12: L = 90, ø16: L = 100
ø20: L = 100, ø25: L = 200

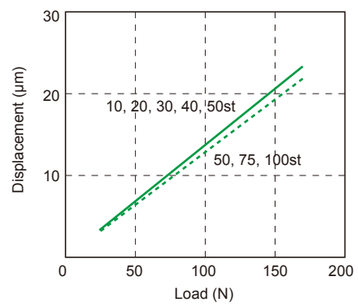
LCG-6 (M2)



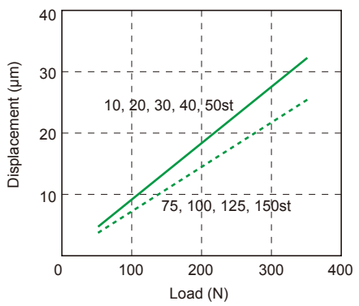
LCG-8 (M2)



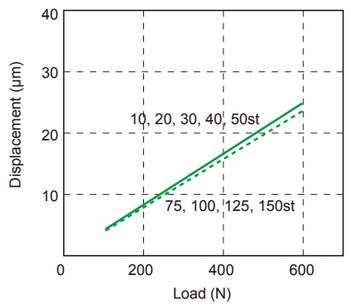
LCG-12 (M2)



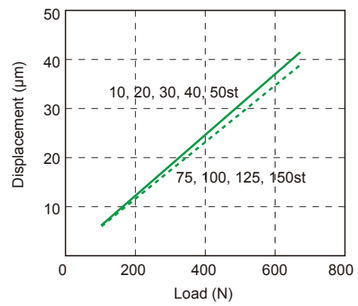
LCG-16 (M2)



LCG-20 (M2)



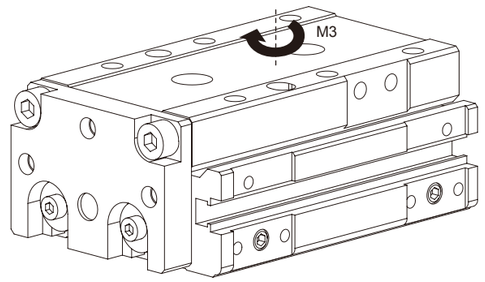
LCG-25 (M2)



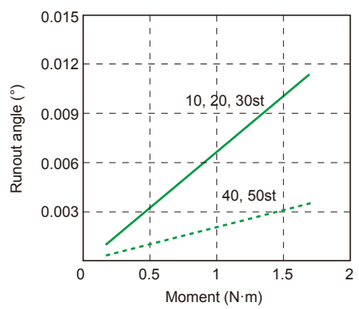
Technical Data

[Table Displacement Angle due to M3 Moment] (Reference Value)

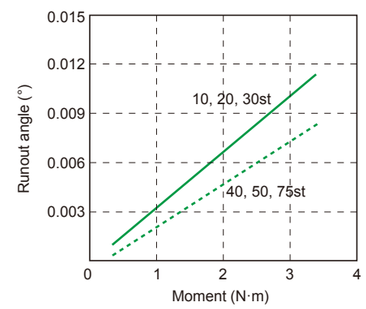
Displacement angle of the table when a rotational moment (M3) is applied to the cylinder



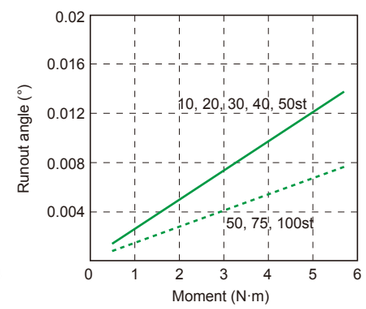
LCG-6 (M3)



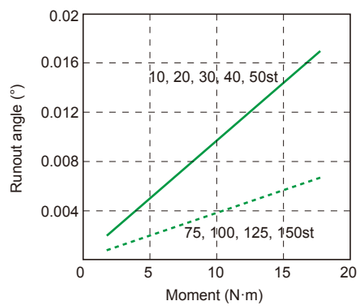
LCG-8 (M3)



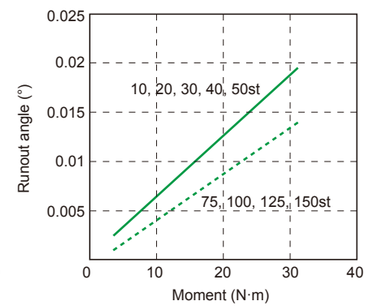
LCG-12 (M3)



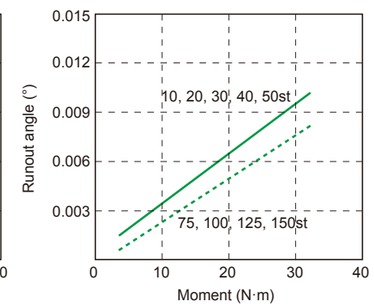
LCG-16 (M3)



LCG-20 (M3)



LCG-25 (M3)



Pneumatic Equipment

To Use This Product Safely

Be sure to read this before use.
For general cylinder information, see Intro 41, and for cylinder switches, see P. 808.

Individual Precautions: Linear Slide Cylinder LCG Series

During Design / Selection

1. Common

Caution

■ For cylinder selection, follow the "LCG Selection Guide" on P. 188 to 192.

■ If the cylinder is used in a place exposed to water droplets or oil droplets, a place where there is a risk of corrosion, or a place with a lot of dust, it may cause damage or malfunction, so protect the product with a cover, etc.

■ Precautions for products with switches
- When using a T□V type switch with a stroke adjustment stopper (S3□□, S4□□, S5□□, S6□□) or a Shock absorber type stopper (A3□□, A4□□, A5□□, A6□□), the switch on the head side will interfere with the stopper, so install the switch on the opposite side of the stopper.
- For switches with a stroke of 30 or less, one switch is included to each of the two grooves on the main body, so pay attention to the lead wire extraction direction during design.

■ Be careful as bringing strong magnets near this product may cause the table to become magnetized and the switch to malfunction.

2. Drop prevention type LCG-Q

Caution

■ Do not use 3-position valves.
Avoid using in combination with 3-position valves (especially closed center metal seal type). If pressure is trapped in the port on the side with the lock mechanism, the lock will not engage. Also, even if locked once, air leaking from the valve may enter the cylinder, and the lock may be released over time.

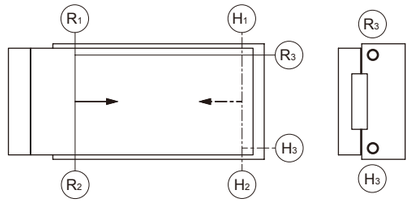
During Use

1. Common; During piping

Caution

■ When changing the piping port position, use adhesive for M3 and M5 plugs (hexagon socket head set screws). (Recommended adhesive: Loctite 222/221, ThreeBond 1344, or other low-strength adhesives)

■ Piping port position and operating direction



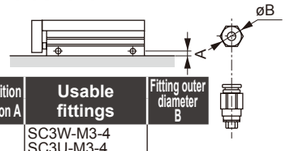
Ⓡ indicates the rod side pressurizing port, and Ⓗ indicates the head side pressurizing port. At the time of factory shipment, ports other than Ⓡ1 Ⓗ1 (Ⓡ2 Ⓗ2 depending on the stopper position when a stopper is selected) are sealed with plugs.

■ Rear piping
This product, excluding the fall prevention type, can be used with rear piping (Ⓗ3 ports Ⓡ2 shown in the diagram above). When using Ⓡ3, Ⓗ3 remove the plug sealing the port Ⓡ1, Ⓗ1 and seal the port with a plug from the table on the right.

Item	Plug
LCG-6	Seal the Ⓡ1, Ⓗ1 ports with the plug that was sealing the Ⓡ1, Ⓗ1 ports.
LCG-8	M5x5 (Hexagon socket head set screw)
LCG-12	
LCG-16	
LCG-20	R1/8 (Hexagon socket head taper thread plug)
LCG-25	Seal the Ⓡ1, Ⓗ1 ports with the plug that was sealing the Ⓡ1, Ⓗ1 ports.

For ø8 to ø20, it is necessary to prepare two plugs from the table above separately.

■ Precautions for piping fittings
Be sure to use a speed controller when piping. Also, the usable fittings are as follows.



Item: Bore Size (mm)	Port Size	Port position dimension A	Usable fittings	Fitting outer diameter B
ø6	M3	4	SC3W-M3-4 SC3U-M3-4 SC3W-M3-3.2 SC3U-M3-3.2 GWS3-M3-S GWS4-M3-S	ø8 or less
ø8	M5	5.5	SC3W-M5-4 SC3W-M5-6 GWS4-M5-S GWS4-M5	ø11 or less
ø12		5.5		
ø16		6.5	SC3W-M5-4 SC3W-M5-6 GWS4-M5-S GWS4-M5 GWL4-M5 GWL6-M5 GWS6-M5	ø13 or less
ø20	Rc1/8	8	SC3W-6-4,6,8 GWS4-6 GWS8-6 GWL6-6 GWS6-6 GWL4-6	ø15 or less
ø25		9		

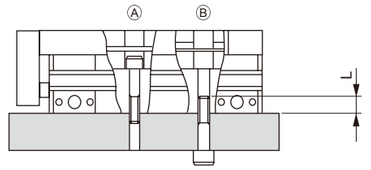
2. Common; During installation

Caution

■ Please do not make dents or scratches on the mounting surface of the main body (tube) and the table surface that may impair flatness. Also, the flatness of the mating side to be included to the main body and table should be 0.02 mm or less.

■ Observe the following values for the bolt screw-in length and tightening torque when mounting the main body.

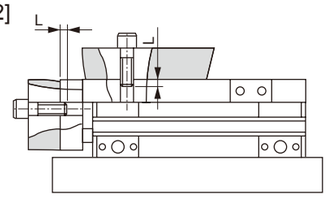
[Figure 1]



Item	A		B		
	Bolt used	Tightening torque (N·m)	Bolt used	Tightening torque (N·m)	Max. screw-in depth L (mm)
LCG-6	M3x0.5	0.6 to 1.1	M4x0.7	1.4 to 2.4	6
LCG-8	M3x0.5	0.6 to 1.1	M4x0.7	1.4 to 2.4	6
LCG-12	M4x0.7	1.4 to 2.4	M5x0.8	2.9 to 5.1	8
LCG-16	M5x0.8	2.9 to 5.1	M6x1.0	4.8 to 8.6	9
LCG-20	M5x0.8	2.9 to 5.1	M6x1.0	4.8 to 8.6	9
LCG-25	M6x1.0	4.8 to 8.6	M8x1.25	12.0 to 21.6	12

■ Observe the following values for the bolt screw-in length and tightening torque when mounting a jig to the slide table and end plate.

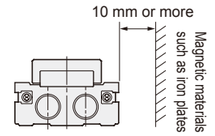
[Figure 2]



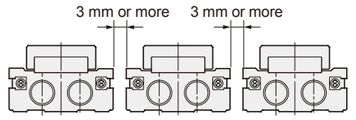
Item	Table		
	Bolt used	Tightening torque (N·m)	Max. screw-in length L (mm)
LCG-6	M3x0.5	0.6	3
LCG-8	M3x0.5	0.6	3
LCG-12	M4x0.7	1.4	4
LCG-16	M5x0.8	2.9	5
LCG-20	M5x0.8	2.9	5
LCG-25	M6x1.0	4.8	6

Item	End plate		
	Bolt used	Tightening torque (N·m)	Screw-in length L (mm)
LCG-6	M3x0.5	0.6	4.5 to 6
LCG-8	M3x0.5	0.6	4.5 to 7
LCG-12	M4x0.7	1.4	6 to 9
LCG-16	M5x0.8	2.9	7.5 to 9
LCG-20	M5x0.8	2.9	7.5 to 11
LCG-25	M6x1.0	4.8	9 to 11

■ If there is a magnetic material such as an iron plate near the cylinder switch, it may malfunction. It can be used safely by keeping it 10 mm or more away from the cylinder surface or by changing the mounting surface of the cylinder switch. (Common to all bore sizes)



■ If cylinders are adjacent, the cylinder switch may malfunction. Maintain the following distance from the cylinder surface. (Common to all bore sizes)



■ Treat our Shock absorbers as consumable parts. Replace when a decrease in energy absorption capacity is observed or when operation is no longer smooth.

■ When using locating holes, use pins with dimensions that do not result in a press fit. Using press-fit dimension pins may cause damage to the linear guide part due to press-fitting load or accuracy deterioration due to distortion.
The recommended tolerance for pins is JIS tolerance m6 or less.

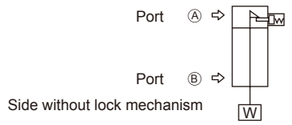
■ For the guide part, apply AFF grease (manufactured by THK CO., LTD.) to the guide rail raceway surface every 6 months or 1 million operations, whichever comes first.

■ Pay attention to the corrosion resistance of the table.
The table uses martensitic stainless steel (ø6 to ø16) and alloy steel (ø20, ø25). Rust may occur if used in a hot and humid environment or in an environment where water droplets adhere due to condensation, etc.

3. Drop prevention type LCG-Q

Warning

■In the locked state, if pressure is supplied to port Ⓐ from a state where both side ports are not pressurized, the lock may not be released, or the lock may suddenly be released and the piston rod may fly out, which is very dangerous. When releasing the lock mechanism, always supply pressure to port Ⓑ and release it from a state where no load is applied to the lock mechanism.



■When using a quick exhaust valve to increase the lowering speed, the cylinder body may start moving before the lock pin operates, and normal release may not be possible. Do not use a quick exhaust valve with a drop prevention type cylinder.

Caution

■The lock mechanism works at the stroke end. If an external stopper is applied mid-stroke, the lock mechanism may not engage, and there is a risk of falling. When setting the load, be sure to confirm that the lock mechanism is working before installing.

■If the piping on the side with the lock mechanism is thin and long, or if the speed controller is far from the cylinder port, the exhaust speed may be slow and it may take time for the lock to engage, so please be careful. Also, clogging of the silencer included to the EXH. port of the solenoid valve will lead to similar results.

■If back pressure is applied to the lock mechanism side, the lock may be released, so use a single solenoid valve or a manifold with individual exhaust.

■Do not use multiple cylinders synchronized.
Do not use a method where two or more fall prevention type cylinders are synchronized to move one workpiece. The lock of one of the cylinders may become unremovable.

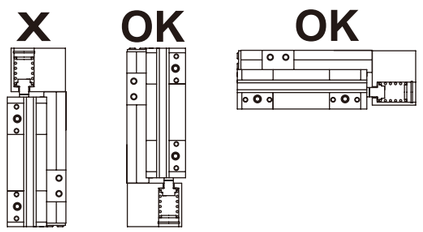
■Use the speed controller with meter-out control.
Lock may not be released with meter-in control.

■On the side with the lock, be sure to use the cylinder to the stroke end.
If the cylinder piston has not reached the stroke end, the lock may not engage, or it may not be possible to release the lock.

4. With buffer LCG-B

■Depending on the speed and load, the buffer may activate during operation, causing the switch to malfunction. Adjust the speed according to the load before use.

■Please note that models with buffers cannot be used in a vertically upward orientation.



■Use the buffer with a stroke less than the buffer stroke. This will cause malfunction or damage.

For precautions regarding mounting, installation, adjustment, use, and maintenance, please see "Precautions for Use" in this catalog and the CKD Components Product website (https://www.ckd.co.jp/kiki/en/) → "Model No." → Instruction Manual.

MEMO