Electric Cylinder

Series LZB/LZC

CE

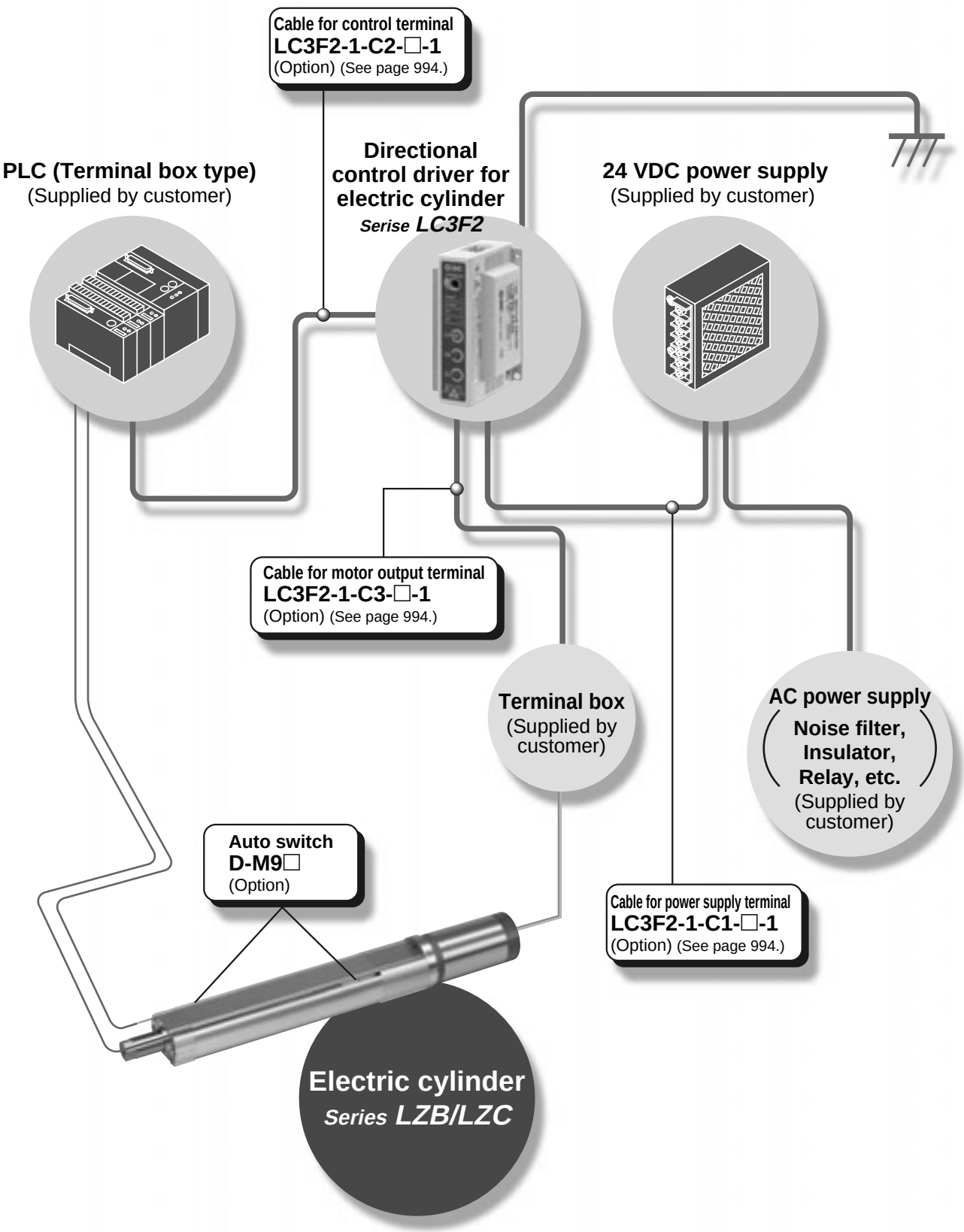
It can be operated like an air cylinder.

Series LZB

Series LZC

Model	Max. thrust	Max. speed	Lead screw	Stroke
LZB LZC	196 N	200 mm/s	Slide screw: ø8, ø12 Lead: 2, 6, 12	25, 40, 50, 100, 200

Series LZ□ System Chart



Model Selection

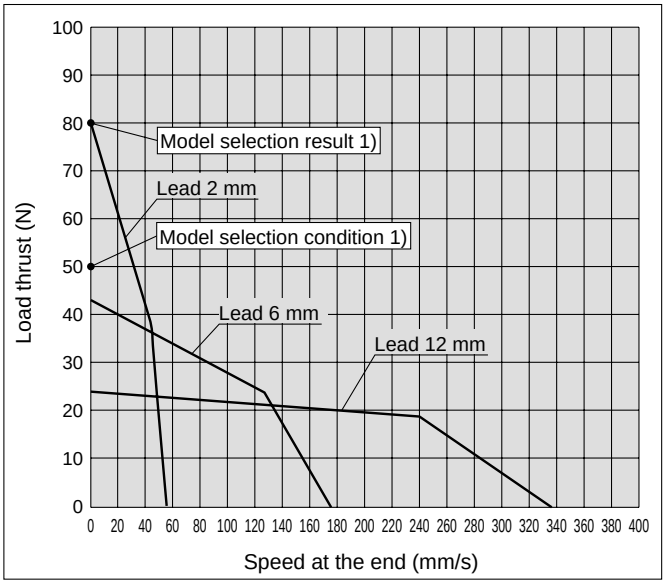
Note) These graphs are made using actual data. Therefore these graphs are to be used as a reference and are not a guarantee of product's performance in any case. The graphs may change depending on the operating condition or environment.

Horizontal Motion of Pressing Force

Model selection condition 1)
Used as a force-pressing. 50 N or greater pressing force is required.

Model selection result 1)
From Graph 1, LZB/C□3's lead 2 is applicable. (Pressing force: 80 N)

Graph 1 **LZ□3: [Speed-Thrust] Relationship Graph**

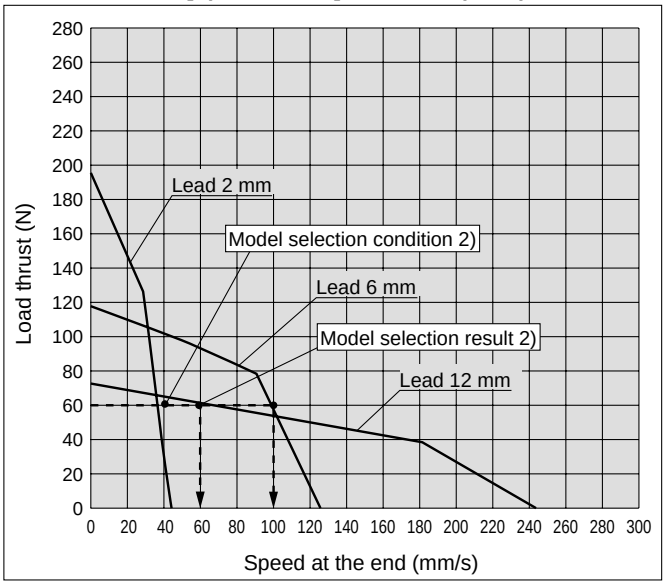


Horizontal Transfer

Model selection condition 2)
Used as a transfer. 60 N transfer thrust and 40 mm/s transfer speed are required.

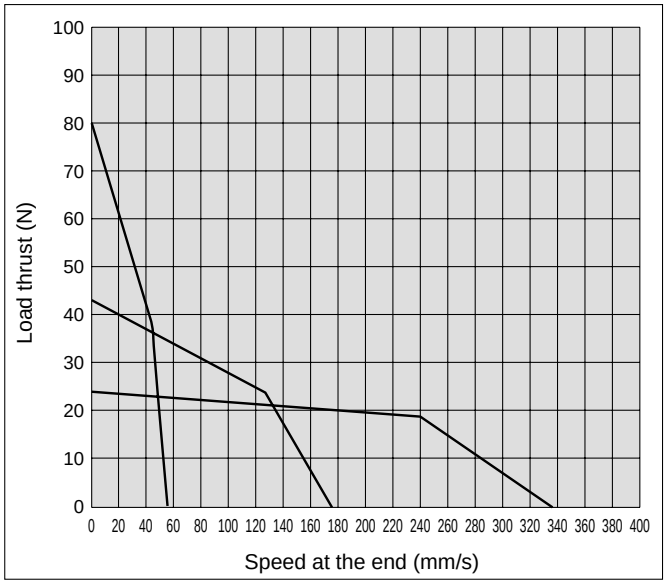
Model selection result 2)
From Graph 2, LZB/C□5's lead 6 mm and lead 12 mm are applicable. But, speed at the end with 60 N load will be 100 mm/s for lead 6 mm and 60 mm/s for lead 12 mm. Select a suitable product in accordance with the customer's equipment.

Graph 2 **LZ□5: [Speed-Thrust] Relationship Graph**

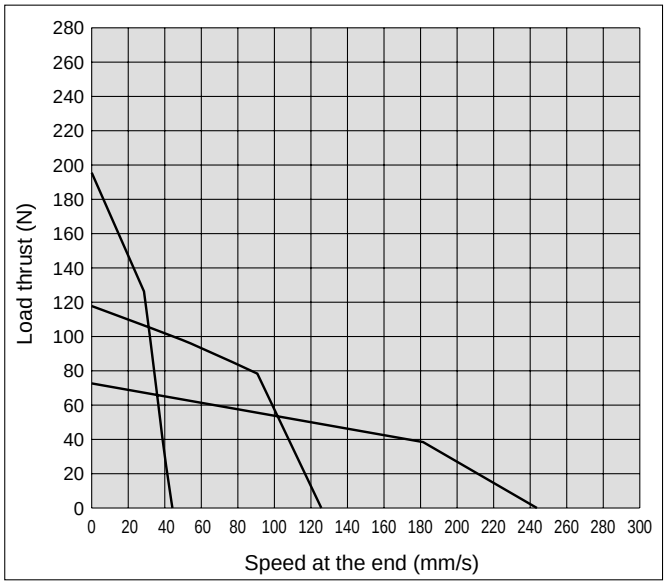


Speed-Thrust Graph (Horizontal Operation)

LZ□3



LZ□5



Electric Cylinder
Series LZB

How to Order

LZB **B** **3** **L** – **100** **A** **3** ☐

With auto switch **LDZB** **B** **3** **L** – **100** **A** **3** ☐ – **M9B** ☐

Built-in magnet

Mounting style

B	Basic style
L	Axial foot style
F	Rod flange style
U	Rod trunnion style

Cylinder size

3	Equivalent to ø16 cylinder Note)
5	Equivalent to ø25 cylinder Note)

Note) Equivalent to 0.4 MPa, theoretical output (lead 2)
For details, refer to page 977 “Speed – Thrust Graph”.

Thread lead (mm)

L	Lead 2
M	Lead 6
H	Lead 12

Stroke (mm)
Refer to “Standard Stroke” table.

Motor type

A	DC motor

Motor size

3	Applicable cylinder size 3
5	Applicable cylinder size 5

Rod end thread

Nil	Female
L	Male

∗ Rod end male thread is shipped together.

Auto switch

Nil	Without auto switch (Built-in magnet)

∗ Refer to the table below for auto switch model numbers.
∗ Auto switches are shipped together (not assembled).

Number of auto switches

Nil	2 pcs.
S	1 pc.
n	n

Standard Stroke

Cylinder size	Standard stroke (mm) ∗
3, 5	25, 40, 50, 100, 200

∗ Other intermediate strokes can be manufactured upon receipt of order.
(Maximum manufacturable stroke: 200 mm)
Conditions for using a trunnion bracket are as follows:
• Maximum stroke: 150 mm
• Thread lead L (lead 2 mm) only

Applicable Auto Switches/For detailed auto switch specifications, refer to pages 1077 through to 1085.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model	Lead wire length (m) ∗				Pre-wired connector	Applicable load	
					DC	AC		0.5 (Nil)	1 (M)	3 (L)	5 (Z)			
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	**M9N**	●	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)			**M9P**	●	●	●	○	○		
				2-wire		12 V	**M9B**	●	●	●	○	○	—	

∗ Lead wire length symbols: 0.5 m ····· Nil (Example) M9B
1 m ····· M M9BM
3 m ····· L M9BL
5 m ····· Z M9BZ

∗ Solid state auto switches marked “○” are produced upon receipt of order.

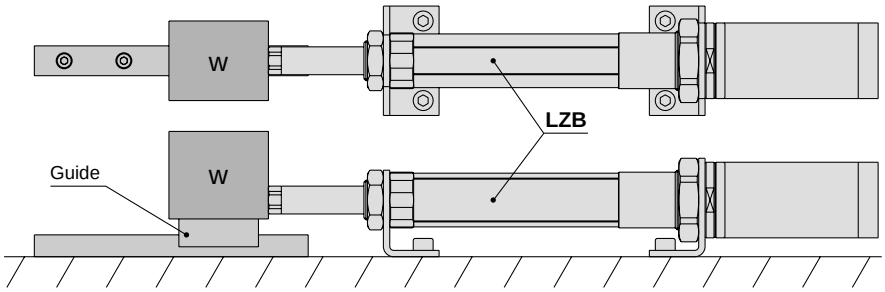
Specifications

Model		L□ZB□3L	L□ZB□3M	L□ZB□3H	L□ZB□5L	L□ZB□5M	L□ZB□5H
Size		3 (Equivalent to ø16 cylinder) Note 1)			5 (Equivalent to ø25 cylinder) Note 1)		
Lead screw	**Thread diameter**	ø8			ø12		
	Lead (mm)	2	6	12	2	6	12
Rated speed with no load (mm/s) Note 2)		33	100	200	33	100	200
Rated thrust (N) Note 3)		80	43	24	196	117	72
Stroke (mm)		25, 40, 50, 100, 200					
Main body (kg)∗		0.67 + (0.07/50 stroke)			1.74 + (0.16/50 stroke)		
Operating ambient temperature (°C)		5 to 40 (No condensation)					
Allowable tolerance of stroke		$^{+1}_{0}$					
Motor		DC motor					
Applicable directional control driver model		LC3F212-5A3□			LC3F212-5A5□		
Applicable auto switch model		D-M9N, M9P, M9B					

Note 1) Equivalent to 0.4 MPa, theoretical output (lead 2)
Note 2) In the table speeds are shown without a load, as rated speed, and thrusts are shown as rated thrust based on the pressure force.
Note 3) Speed will vary as they are affected by a load. Refer to page 977 for model selection.
∗ Refer to page 989 for mounting bracket mass.

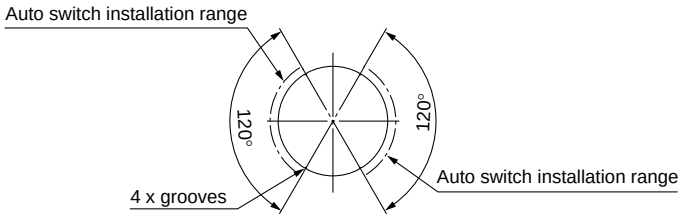
⚠Specific Product Precautions

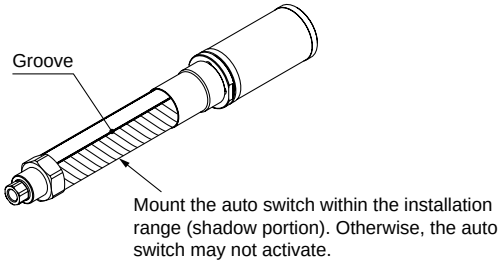
1. Do not apply any lateral load to the rod of the LZB series. When applying a lateral load, use a guide to avoid the load from being applied to the rod.



2. Auto switch mounting

There are 4 grooves on the outside surface of the cylinder tube, indicating the auto switch installation range. Mount the auto switches within the range shown below.





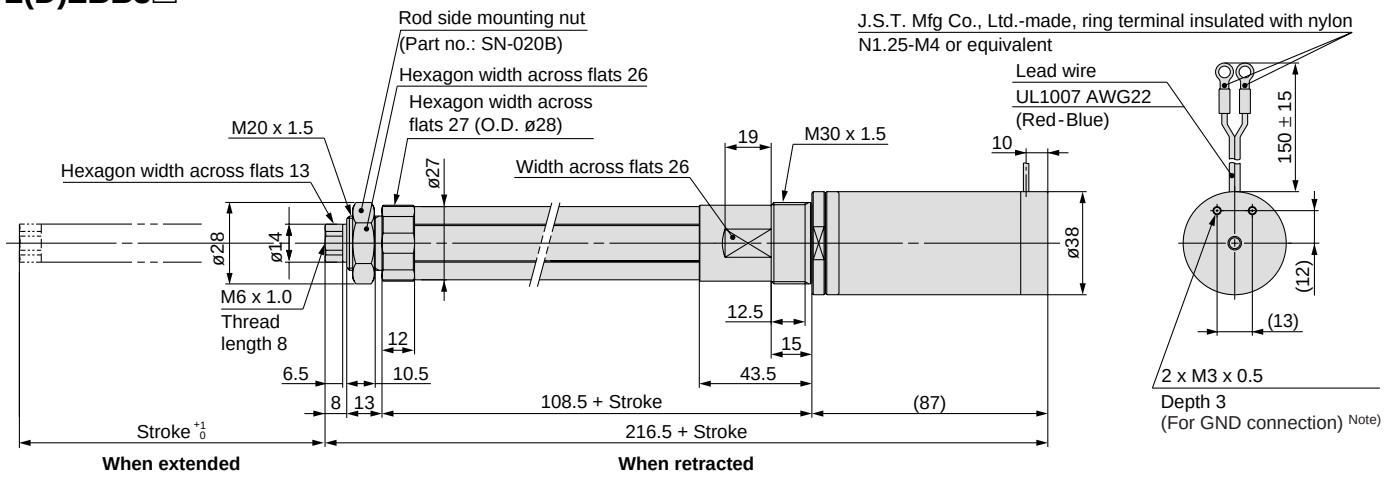
∗ Refer to page 991 for information on mounting an auto switch.

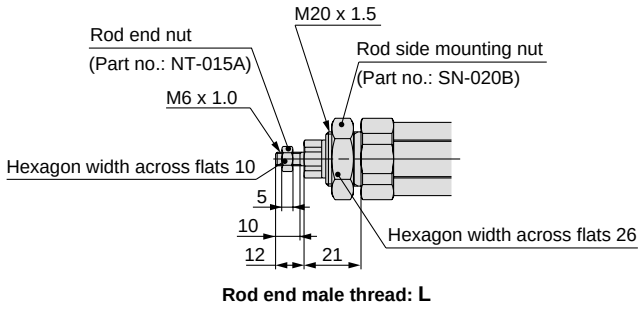
Dimensions

Note) Grounding must be performed. For details, refer to the back of page 484.

L(D)ZBB3□

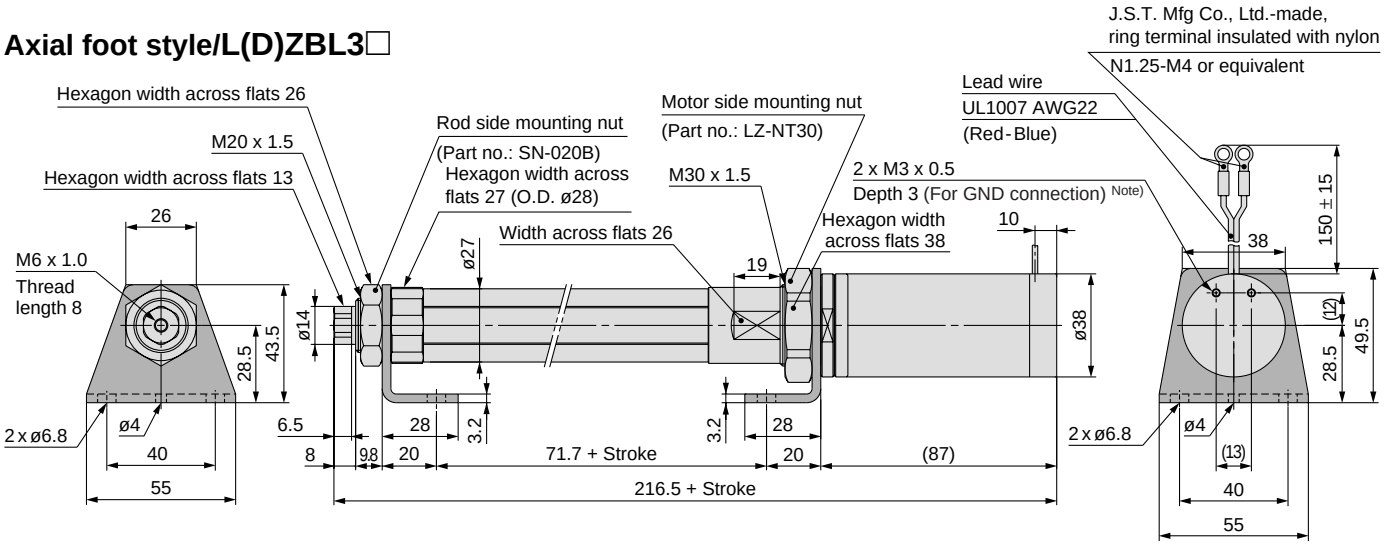
∗ The electrical entry direction is different depending on the product.



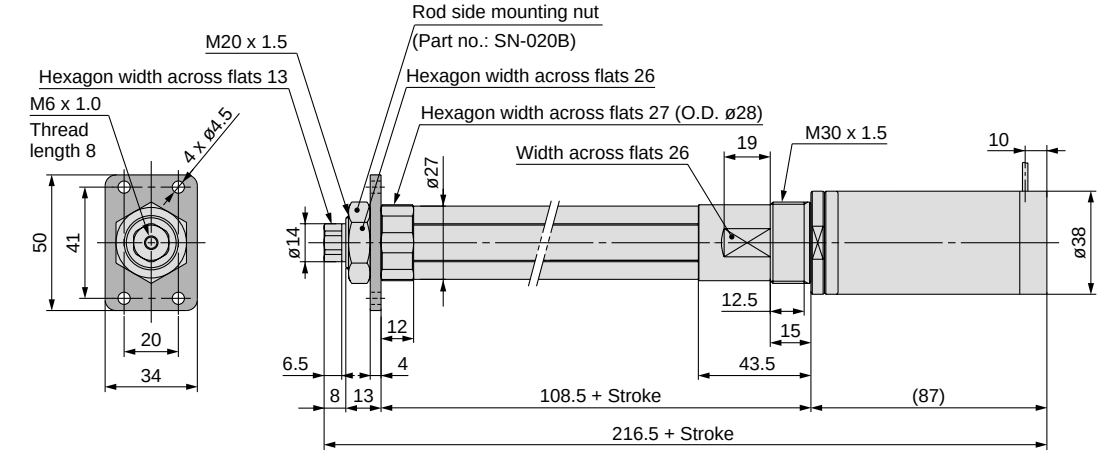


Rod end male thread: L

Axial foot style/L(D)ZBL3□



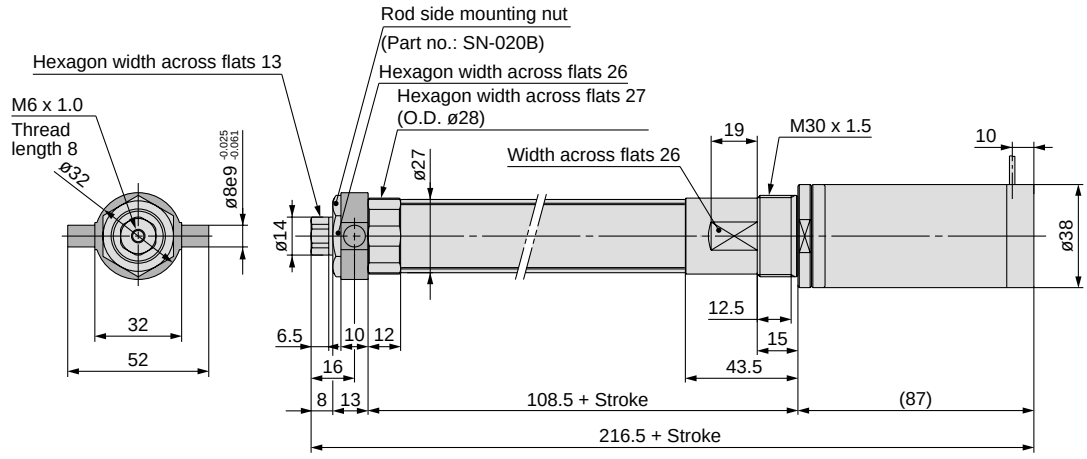
Rod flange style/L(D)ZBF3□



SMC

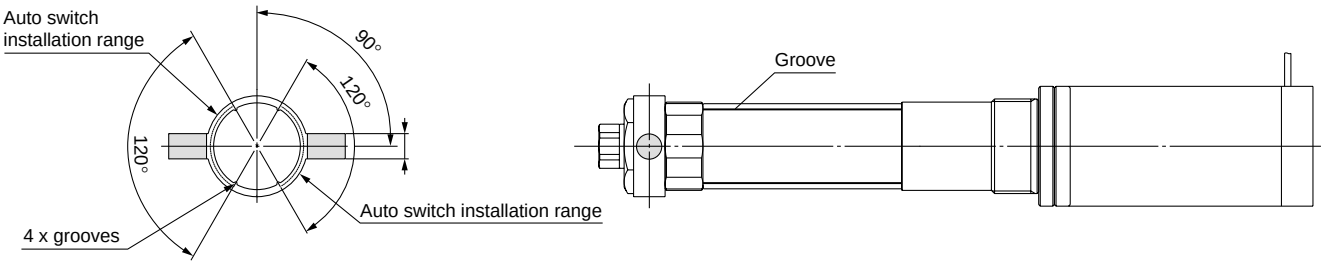
Dimensions

Rod trunnion style/L(D)ZBU3□



⚠Caution for using a trunnion bracket

In the event of mounting a trunnion bracket, fix it to the position illustrated below before using.



∗ Conditions for using a trunnion bracket are as follows:

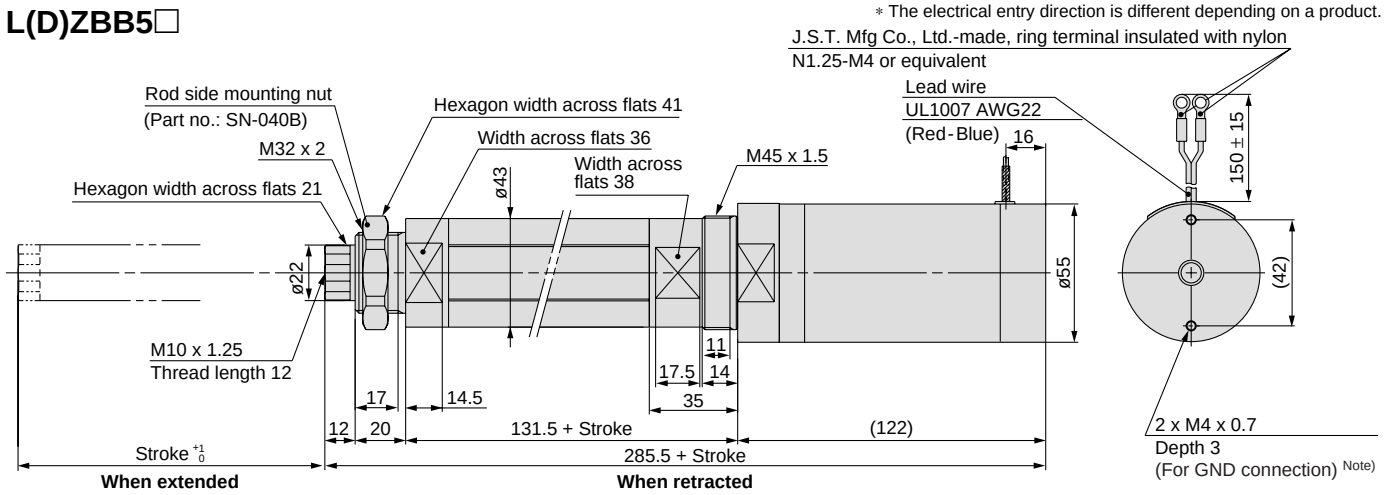
- Maximum stroke: 150 mm
- Thread lead L (lead 2 mm) only

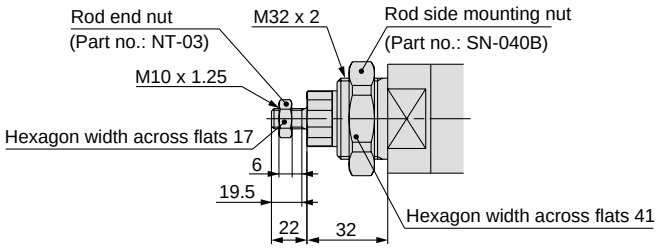
Dimensions

Note) Grounding must be performed. For details, refer to the back of page 484.

L(D)ZBB5□

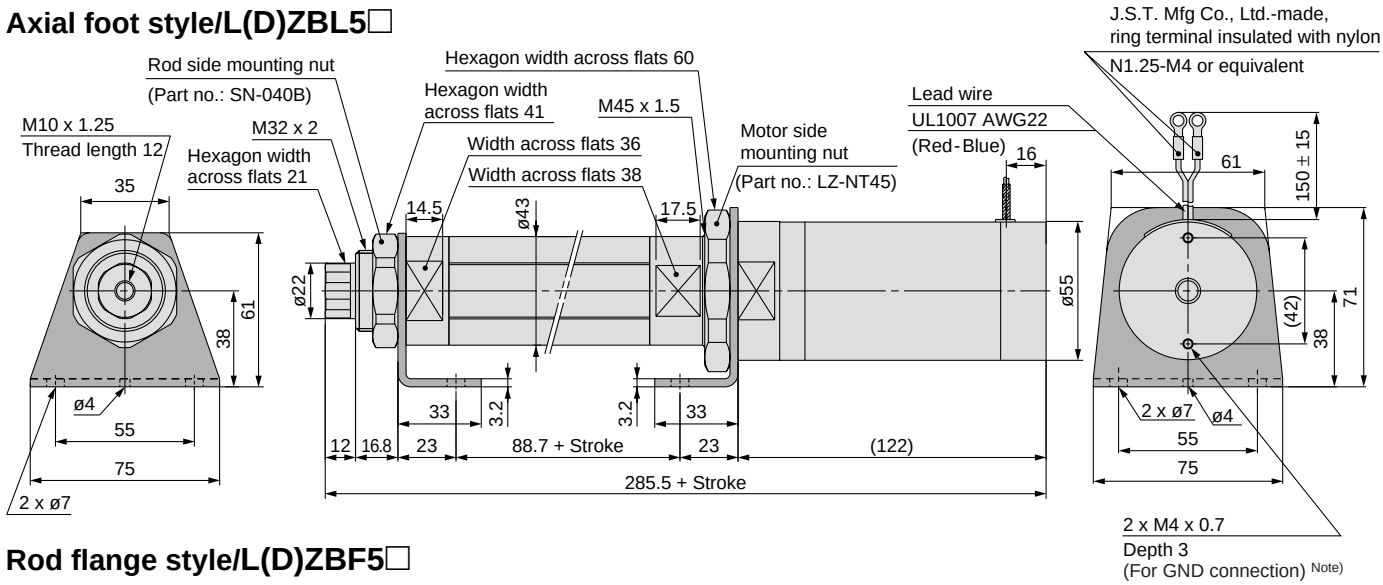
∗ The electrical entry direction is different depending on a product.



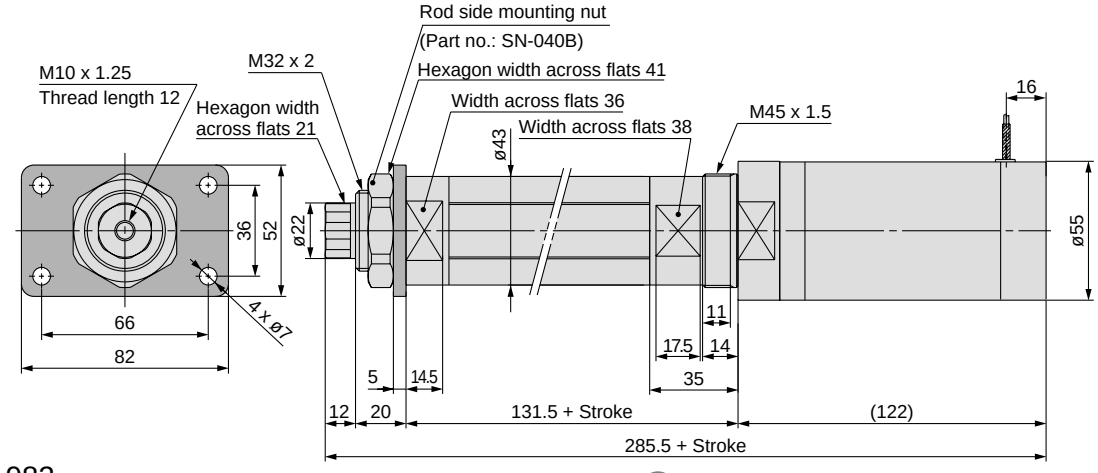


Rod end male thread: L

Axial foot style/L(D)ZBL5□



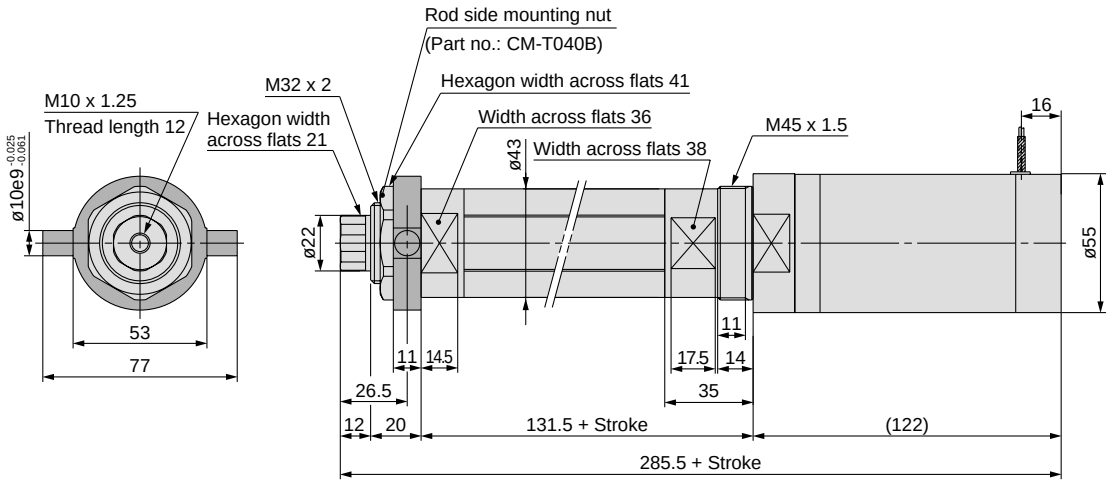
Rod flange style/L(D)ZBF5□



SMC

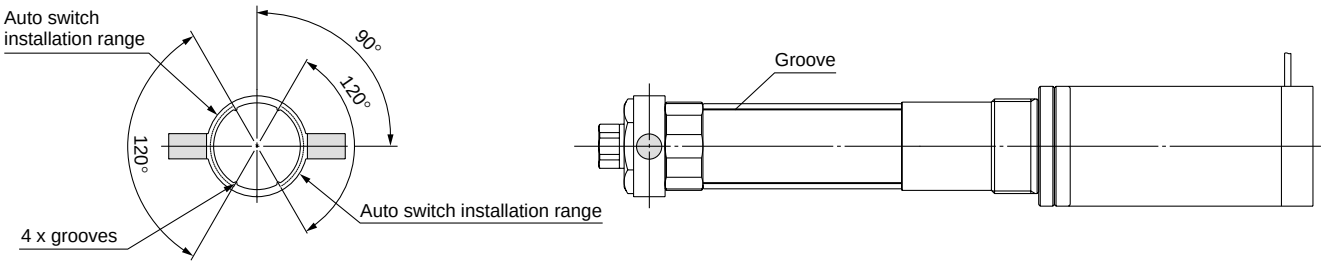
Dimensions

Rod trunnion style/L(D)ZBU5□



⚠Caution for using a trunnion bracket

In the event of mounting a trunnion bracket, fix it to the position illustrated below before using.



∗ Conditions for using a trunnion bracket are as follows:

- Maximum stroke: 150 mm
- Thread lead L (lead 2 mm) only

Electric Cylinder
Series LZC

How to Order

LZC **B** **3** **L** – **100** **A** **3** □ □

With auto switch **LDZC** **B** **3** **L** – **100** **A** **3** □ □ – **M9B** □

Built-in magnet

Mounting style

B	Basic style
L	Axial foot style

Cylinder size

3	Equivalent to ø16 cylinder Note)
5	Equivalent to ø25 cylinder Note)

Note) Equivalent to 0.4 MPa, theoretical output (lead 2)

Thread lead (mm)

L	Lead 2
M	Lead 6
H	Lead 12

Stroke (mm)
Refer to "Standard Stroke" table.

Motor type

A	DC motor

Motor size

3	Applicable cylinder size 3
5	Applicable cylinder size 5

Rod end thread

Nil	Female
L	Male

∗ Rod end male thread is shipped together.

Cover specification

Nil	None
H	Partially covered
F	Fully covered

Auto switch

Nil	Without auto switch (Built-in magnet)

∗ Refer to the table below for auto switch model numbers.
∗ Auto switches are shipped together (not assembled).
Select a cover when using an auto switch.

Number of auto switches

Nil	2 pcs.
S	1 pc.
n	n

Standard Stroke

Cylinder size	Standard stroke (mm) ∗
3, 5	25, 40, 50, 100, 200

∗ Other intermediate strokes can be manufactured upon receipt of order.
(Maximum manufacturable stroke: 200 mm)

Applicable Auto Switches/For detailed auto switch specifications, refer to pages 1077 through to 1085.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model	Lead wire length (m) ∗ 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	Pre-wired connector	Applicable load	
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	**M9N**	●	●	●	○	○	IC circuit	Relay PLC
				3-wire (PNP)				**M9P**	●	●	●	○	○		
				2-wire		12 V		**M9B**	●	●	●	○	○	—	

∗ Lead wire length symbols: 0.5 m ····· Nil (Example) M9B
1 m ····· M M9BM
3 m ····· L M9BL
5 m ····· Z M9BZ

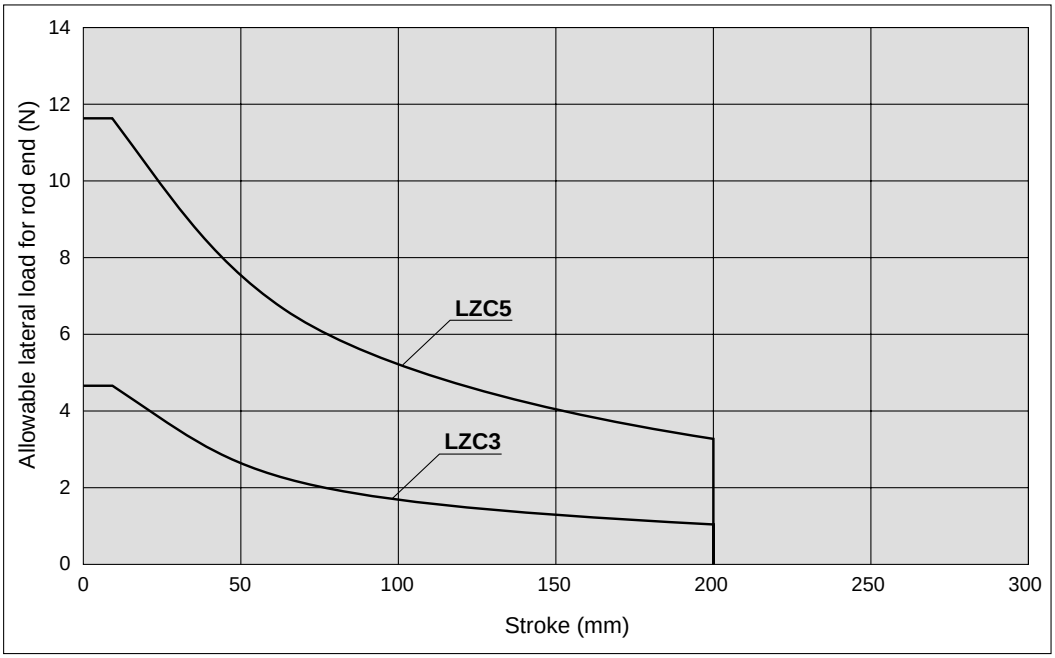
∗ Solid state auto switches marked "○" are produced upon receipt of order.

Specifications

Model		L□ZC□3L	L□ZC□3M	L□ZC□3H	L□ZC□5L	L□ZC□5M	L□ZC□5H
Size		3 (Equivalent to ø16 cylinder) Note 1)			5 (Equivalent to ø25 cylinder) Note 1)		
Lead screw	**Thread diameter**	ø8			ø12		
	Lead (mm)	2	6	12	2	6	12
Rated speed with no load (mm/s) Note 2)		33	100	200	33	100	200
Rated thrust (N) Note 3)		80	43	24	196	117	72
Stroke (mm)		25, 40, 50, 100, 200					
Main body (kg)*		0.72 + (0.03/50 stroke)			1.72 + (0.16/50 stroke)		
Lateral load for rod end (at maximum stroke) (kg)		0.1			0.24		
Operating ambient temperature (°C)		5 to 40 (No condensation)					
Allowable tolerance of stroke		$^{+1}_{0}$					
Motor		DC motor					
Applicable directional control driver model		LC3F212-5A3□			LC3F212-5A5□		
Applicable auto switch model		D-M9N, M9P, M9B					

Note 1) Equivalent to 0.4 MPa, theoretical output (lead 2)
Note 2) In the table speeds are shown without a load, as rated speed, and thrusts are shown as rated thrust based on the pressure force.
Note 3) Speed will vary as they are affected by a load. Refer to page 977 for model selection.
* Refer to page 989 for mounting bracket mass.

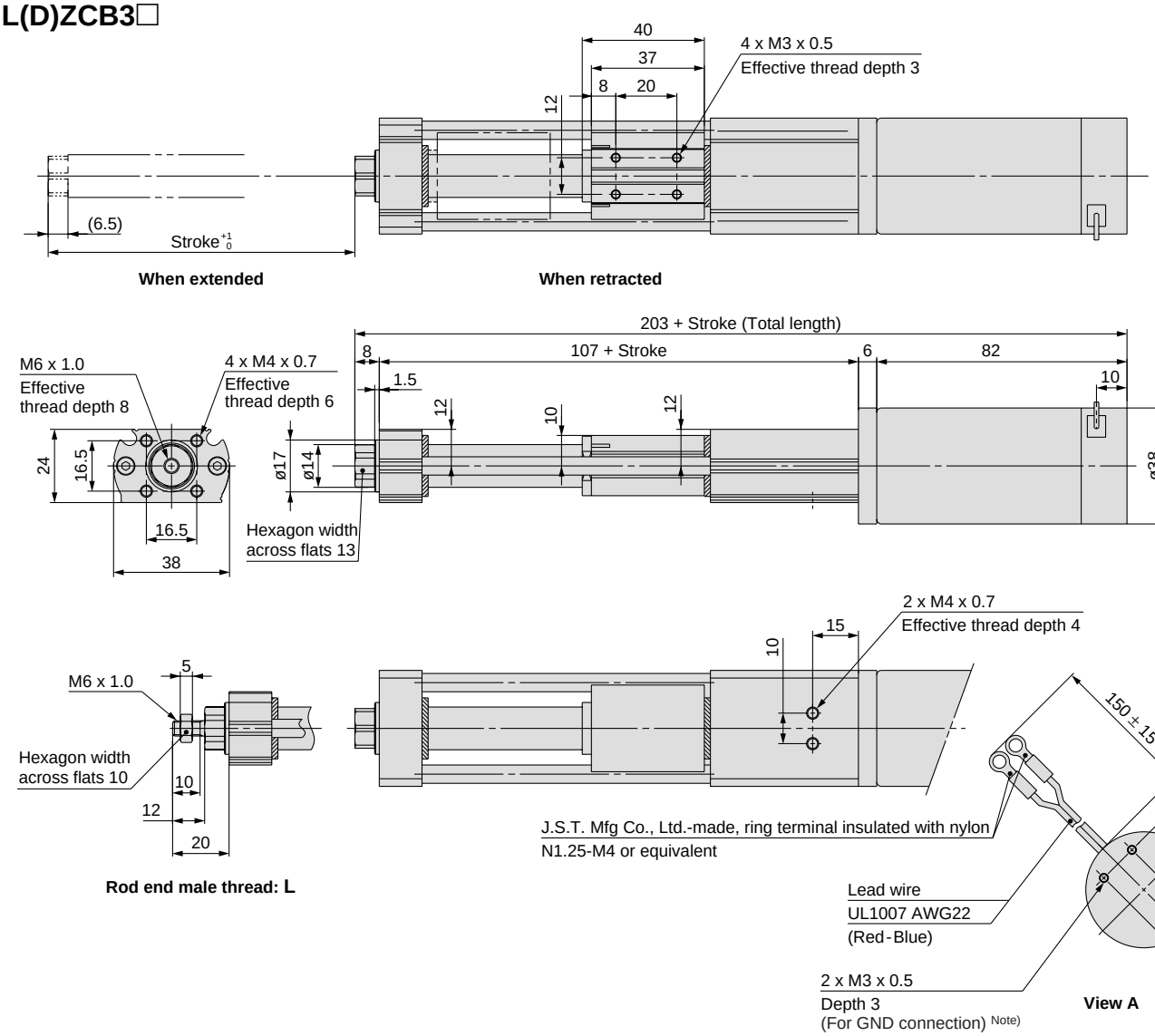
Allowable Lateral Load for Rod End



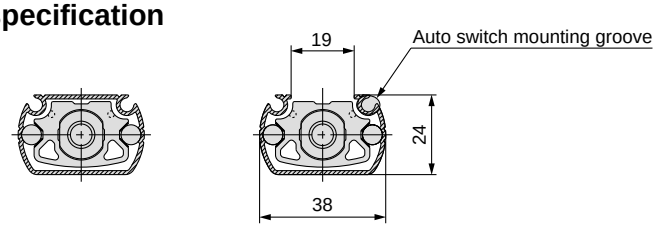
Dimensions

Note) Grounding must be performed. For details, refer to the back of page 484.

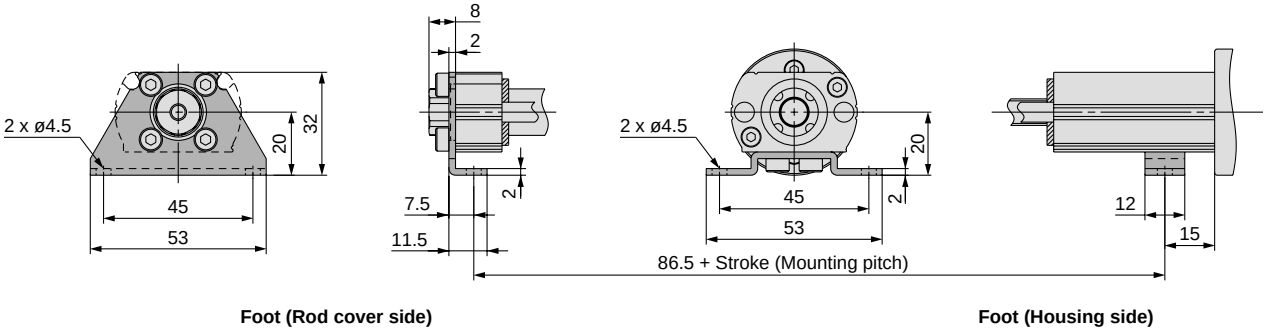
L(D)ZCB3□



Cover specification



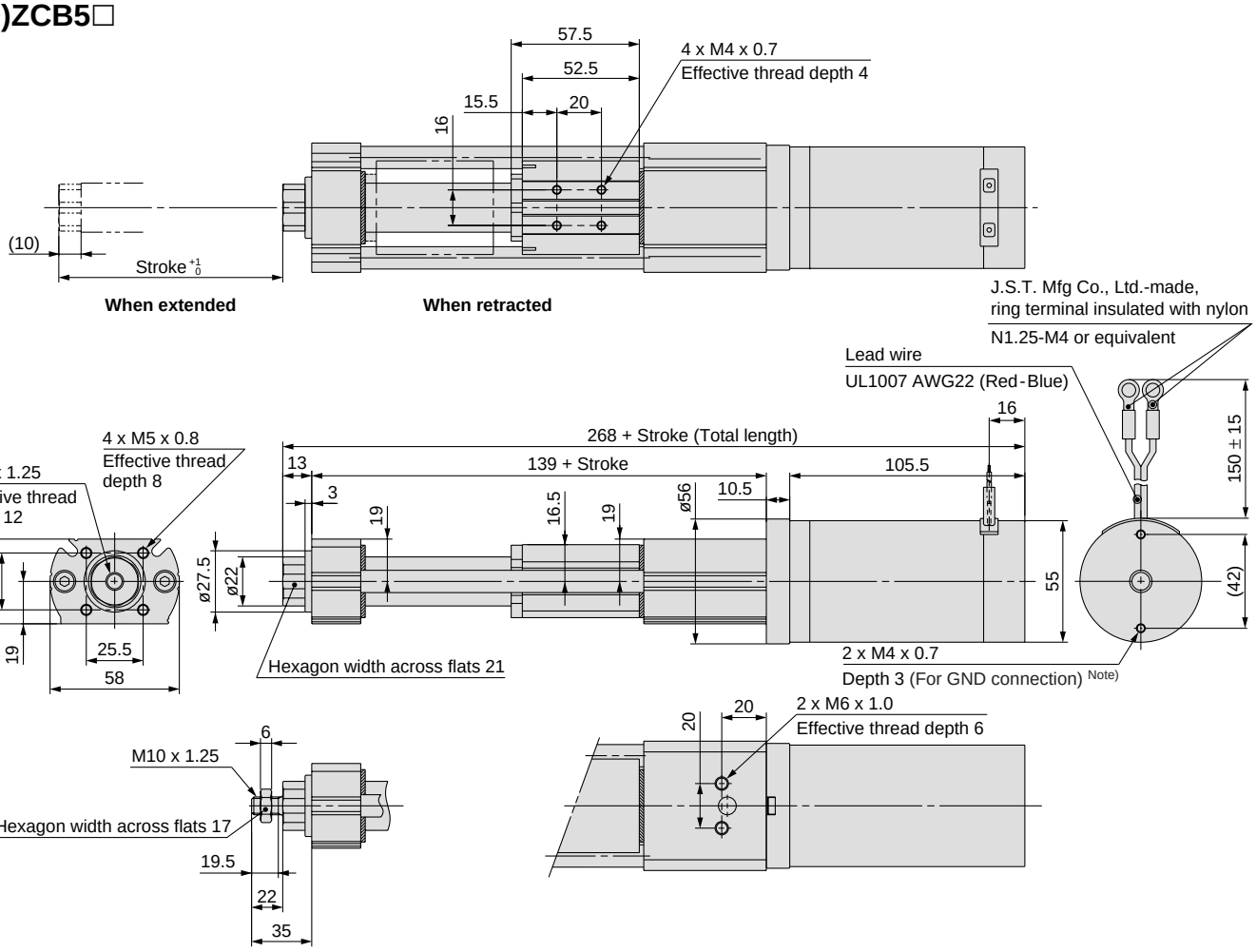
Axial foot style: L



Dimensions

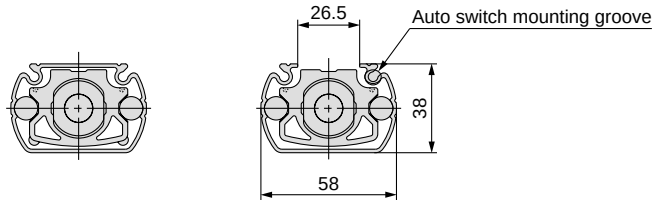
Note) Grounding must be performed. For details, refer to the back of page 484.

L(D)ZCB5□



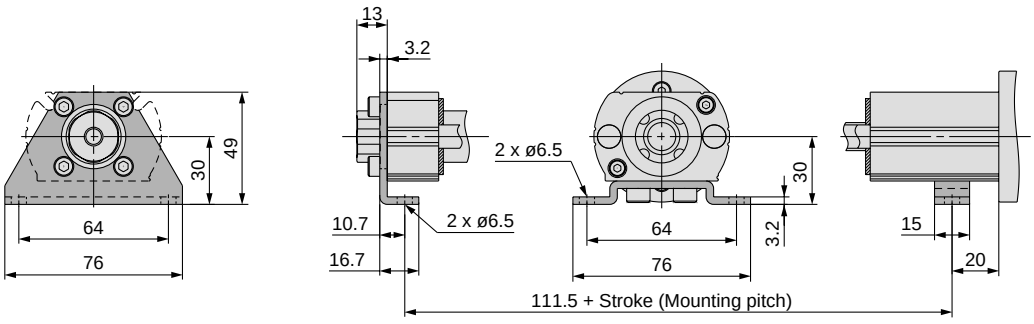
Rod end male thread: L

Cover specification



Fully covered: F **Partially covered: H**

Axial foot style: L



Foot (Rod cover side) **Foot (Housing side)**

LZB/C Vertical Application Specifications

Some of series LZ can be used in vertical applications.
However, please check before using vertically.

Never apply a force exceeding the prescribed force.
When a force exceeding the transfer thrust is applied, the cylinder and directional control driver (LC3F2) may be damaged.

Model which can be used vertically

- **L(D)ZB□3L-□A3□-□□**
- **L(D)ZC□3L-□A3□□-□□**
- **L(D)ZB□5L-□A5□-□□**
- **L(D)ZC□5L-□A5□□-□□**

Specifications

Model	L(D)ZB□3L	L(D)ZC□3L	L(D)ZB□5L	L(D)ZC□5L
Speed (mm/s)	P.977 Refer to the graph on speed – thrust.			
Transfer thrust (Vertically) (N)	40		100	
Holding force* (N)				
Standard stroke (mm)	25, 40, 50, 100, 200			
Operating ambient temperature (°C)	5 to 40 (No condensation)			
Motor	DC motor			
Applicable directional control driver model	LC3F212-5A3□		LC3F212-5A5□	
Applicable auto switch model	D-M9N, D-M9P, D-M9B			

* Holding force
Holding force means the force which cannot be dropped even if a load should be applied vertically when a cylinder is stopped.
Therefore, for example, holding is not possible when turning off the power supply once a cylinder has been activated.
Additionally, a load may be dropped due to external impacts or vibrations.

Accessories

LZB

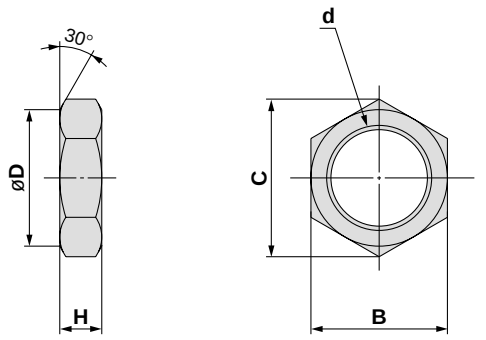
Accessory	Description
With auto switch	Switch mounting band, switch mounting bracket (one included per one switch)
Foot style	Rod side foot bracket, motor side foot bracket Rod side mounting nut, motor side mounting nut
Flange style	Flange bracket, rod side mounting nut
Trunnion style	Trunnion bracket Rod side mounting nut (designed for trunnion)

LZC

Accessory	Description
Foot style	Rod side foot bracket, motor side foot bracket Foot bracket mounting bolts (6)

Accessory Bracket

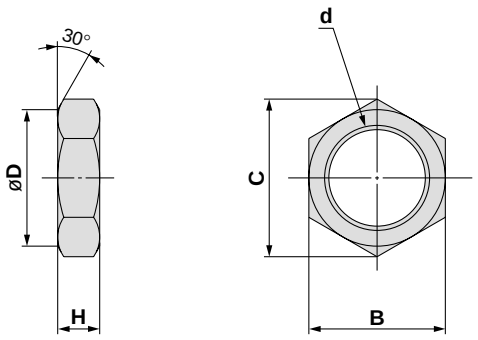
Mounting nut



(mm)

Name	Part no.	Applicable series	B	C	D	d	H
Rod side mounting nut	**SN-020B**	LZB3	26	30	25.5	M20 x 1.5	8
Motor side mounting nut	**LZ-NT30**	LZB3	38	42	38	M30 x 1.5	10
Rod side mounting nut	**SN-040B**	LZB5	41	47.3	40.5	M32 x 2.0	10
Motor side mounting nut	**LZ-NT45**	LZB5	60	64	60	M45 x 1.5	10

Rod end nut



(mm)

Part no.	Applicable series	B	C	D	d	H
NT-015A	LZ□3	10	11.5	9.8	M6 x 1.0	5
NT-03	LZ□5	17	19.6	16.5	M10 x 1.25	6

Mounting Bracket/Part No.

Series	**LZB3**	**LZB5**
Rod side foot	LZB-LR3 (64 g)	LZB-LR5 (112 g)
Motor side foot	LZB-LM3 (64 g)	LZB-LM5 (126 g)
Flange	LZB-F3 (40 g)	LZB-F5 (120 g)
Rod side trunnion	CM-T020B (40 g)	CM-T040B (100 g)

( ): Mass for bracket
Note) Bracket mounting nuts are not included. Please purchase mounting nuts matched to each bracket separately.

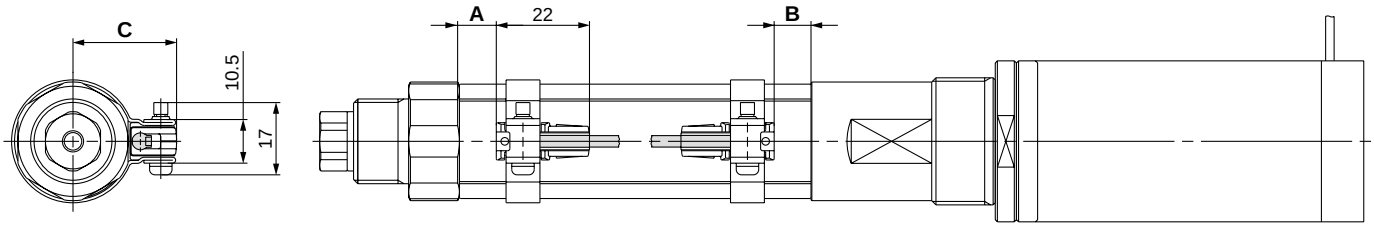
Series	**LZC3**	**LZC5**
Rod side foot	LZC-LR3 (21 g)	LZC-LR5 (71 g)
Motor side foot	LZC-LM3 (10 g)	LZC-LM5 (27 g)

( ): Mass for bracket
Note) Mounting bolts are not included. Please prepare separately.

Auto Switch Proper Mounting Position (Detection at Stroke End) and It's Mounting Height

Solid state auto switch
D-M9□

LDZB



Auto Switch Mounting Position/Height

Model	A	B	C
LDZB□3	20	19	24
LDZB□5	33	33	32

Operating Range of Auto Switch *

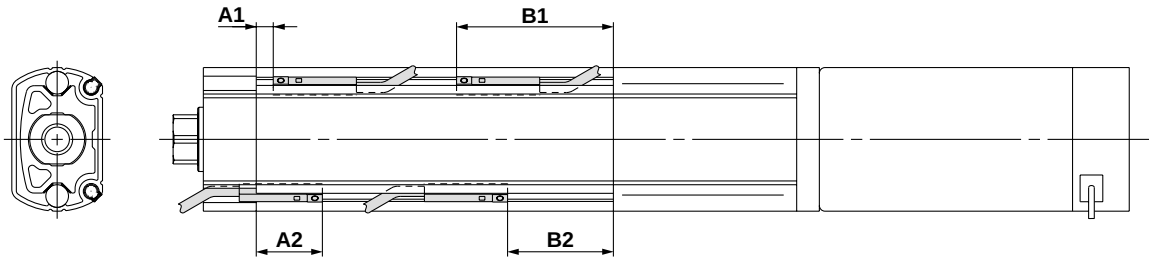
Model	A
LDZB□3	3
LDZB□5	5

* The operating range is a guide including hysteresis, but is not guaranteed. There may be substantial variation depending on the surrounding environment (assuming approximately ±30% dispersion).

Minimum Stroke for Auto Switch Mounting

Model	1 pc.	2 pcs. (Different sides)	2 pcs. (Same sides)
LDZB□3	10	15	45
LDZB□5	10	15	45

LDZC



Auto Switch Mounting Position for Stroke End Detection

Model	A1	A2	B1	B2
LDZC□3	4.5	17.5	41.5	28
LDZC□5	7	57	20	44

Operating Range of Auto Switch *

Model	A
LDZC□3	2
LDZC□5	2

* The operating range is a guide including hysteresis, but is not guaranteed. There may be substantial variation depending on the surrounding environment (assuming approximately ±30% dispersion).

Minimum Stroke for Auto Switch Mounting

Model	1 pc.	2 pcs.
LDZC□3	5	10
LDZC□5	5	10

Mounting and Moving Auto Switches (Series LDZB Only)

⚠ Caution

1. Tighten the screw under the specified torque when mounting the auto switch.
2. Set the auto switch mounting band perpendicularly to cylinder tube.

Correctly attached **Incorrectly attached**

Mounting the Auto Switch

1. Attach a switch bracket to the switch holder.
(Fit the switch bracket to the switch holder.)
2. Mount an auto switch mounting band to the cylinder tube.
3. Set the switch holder (1.) between the reinforcing plates of the band mounted to the cylinder.
4. Insert an auto switch mounting screw in the hole of the reinforcing plate through the auto switch holder, and thread it into the other plate. Tighten the screw temporarily.
5. Remove the set screw attached to the auto switch.
6. Attach a switch spacer to the auto switch.
7. Insert the auto switch with the switch spacer from the back of the switch holder.
(Insert the auto switch with an angle of approximately 10 to 15°. See figure 1.)
8. To secure the auto switch, tighten the switch mounting screw with the specified torque (0.8 N·m to 1.0 N·m).

Adjusting the Auto Switch Position

1. Unloosen the auto switch mounting screw 3 turns to adjust the auto switch set position.
2. Tighten the auto switch mounting screw as described above (8.) after adjustment.

Removing the Auto Switch

1. Remove the auto switch mounting screw from the switch holder.
2. Move the auto switch back towards the position where it stops at the lead wire side.
3. Hold up the lead wire side of the auto switch at the angle of around 45°.
4. Maintain the angle, and pull back the auto switch obliquely at the same angle.

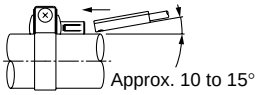
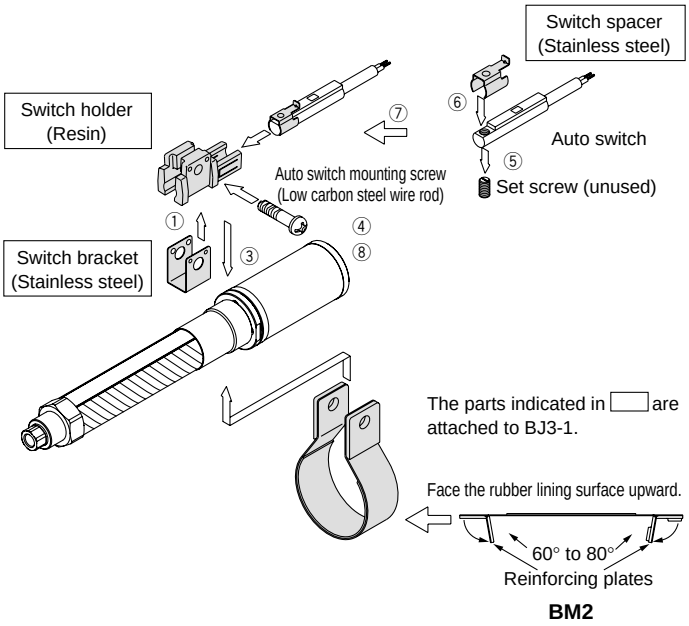


Figure 1. Auto switch insert angle



BM2

Auto Switch Mounting Bracket/Part No.

Applicable series	Mounting bracket	Mounting band
LDZB□3	BJ3-1 (Switch holder, Switch spacer, Switch bracket)	BM2-025
LDZB□5		L1ZB45-0318

Order one auto switch mounting bracket and one auto switch mounting band per one auto switch.

Series LZB
Specific Product Precautions

Be sure to read before handling.
Refer to front matters 30 and 31 for Safety Instructions, and pages 482 to 490 for Electric Actuators/Cylinders and Auto Switches Precautions.

⚠Caution

1. Mount the auto switches at the center of the operating range.
Check ON and OFF points before setting auto switches so that positions can be detected at the center of the operating range.
If mounted at the end of the operating range, the signal detection will be unstable.

2. Be aware of the environment temperature and thermal cycle.
Operate auto switches and auto switch cylinders within the operating temperature range.
The reliability of the auto switches may be adversely affected, especially, when they are exposed to thermal shock, severe temperature and humidity cycle etc.

3. Be aware of the suitability of oil, chemicals etc.
Resin and rubber materials are used for the auto switches and auto switch mounting brackets. Therefore, if there are chemicals such as oil or organic solvents in the environment, the resin and rubber materials may be adversely affected.

4. During maintenance, securely tighten the switch mounting screws periodically.
Use auto switch mounting brackets with the proper tightening torque. In addition, securely tighten the auto switch mounting screws periodically.

5. Be careful not to pull or strain the lead wires.
Be careful not to apply excess tensile force (over 10 N) to the auto switches. Also, adjust the position of the auto switches by sufficiently loosening the auto switch mounting screws (3 turns or more).

6. Do not use the auto switches in environments with strong vibration and impact.
Do not use the auto switches in environments where excess vibration and impact force outside of the specifications are applied.

7. Be sure to use a switch spacer and a switch bracket.
Confirm that a switch spacer is mounted to the end of the auto switch before fastening the auto switch. If the switch bracket is not mounted, the auto switch may move after installation.