How to Order

LXSH2 BC — Stroke — S — F9N — 1

Home position switch

Nil	None
S	Yes (cable length 0.3m)

Auto/Proximity switch type

Nil	None

Refer to the table on the right for auto/proximity switch part numbers.

Number of auto/proximity switches

1	1 pc.
2	2 pcs.
⋮	⋮
6	6 pcs.

When using both auto and proximity switches, list the proximity switch part number after the auto switch part number.
Example) **F9N1G2**

Auto switch types

Symbol	Model	Wiring/Output type	Lead wire length (m)	Contact
Nil	Without auto switch			
F9N	D-F9N	3 wire/NPN	0.5	N.O. (A contact)
F9P	D-F9P	3 wire/PNP	0.5	N.O. (A contact)
F9G	D-F9G	3 wire/NPN	0.5	N.C. (B contact)
F9H	D-F9H	3 wire/PNP	0.5	N.C. (B contact)
F9GL	D-F9GL	3 wire/NPN	3	N.C. (B contact)
F9HL	D-F9HL	3 wire/PNP	3	N.C. (B contact)
F9B	D-F9B	2 wire	0.5	N.O. (A contact)
F9NL	D-F9NL	3 wire/NPN	3	N.O. (A contact)
F9PL	D-F9PL	3 wire/PNP	3	N.O. (A contact)
F9BL	D-F9BL	2 wire	3	N.O. (A contact)

Proximity switch types

Symbol	Model	Wiring/Output type	Lead wire length (m)	Contact
GN	With sensor rail, without proximity switch			
G	GXL-8F	3 wire/NPN	1	N.O. (A contact)
GD	GXL-8FI	3 wire/NPN	1	N.O. (A contact)
GB	GXL-8FB	3 wire/NPN	1	N.C. (B contact)
GDB	GXL-8FIB	3 wire/NPN	1	N.C. (B contact)
GU	GXL-8FU	2 wire/solid state	1	N.O. (A contact)
GUB	GXL-8FUB	2 wire/solid state	1	N.C. (B contact)

∗ Refer to page 318 for detailed specifications of proximity switches.

Specifications

	Standard stroke	mm	50	75	100	125	150
Performance	Body weight	kg	1.9	2.1	2.3	2.5	2.7
	Operating temperature range	°C	5 to 40 (with no condensation)				
	Work load	kg	10 (4) horizontal/5 (4) vertical Note 1)				
	Speed	mm/s	to 30 Note 2)				
	Positioning repeatability	mm	±0.03				
Main parts	Motor		2 phase stepper motor (without brake)				
	Lead screw		Ball screw ø8mm, 2mm lead				
	Guide		High rigidity direct acting guide				
Home position switch	Model		Photo micro sensor EE-SX673				
Driver	Model		LC6D-220AD (Refer to page 306 for details.)				
Positioning driver	Model		LC6C-220AD (Refer to page 309 for details.)				

Note 1) When mounting a work piece to the actuator's end plate, its weight should be within the value inside ( ).

Note 2) Since vibration may increase with low speed operation, use 2mm/s or more as a guide for speed.

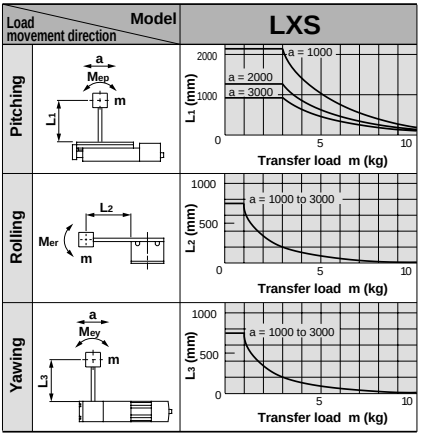
Allowable Moment (N·m)

Allowable static moment

Pitching	15.7
Rolling	15.7
Yawing	7.84

m : Transfer load (kg)
L : Overhang to work piece center of gravity (mm)
a : Work piece acceleration (mm/sec²)
Me: Dynamic moment

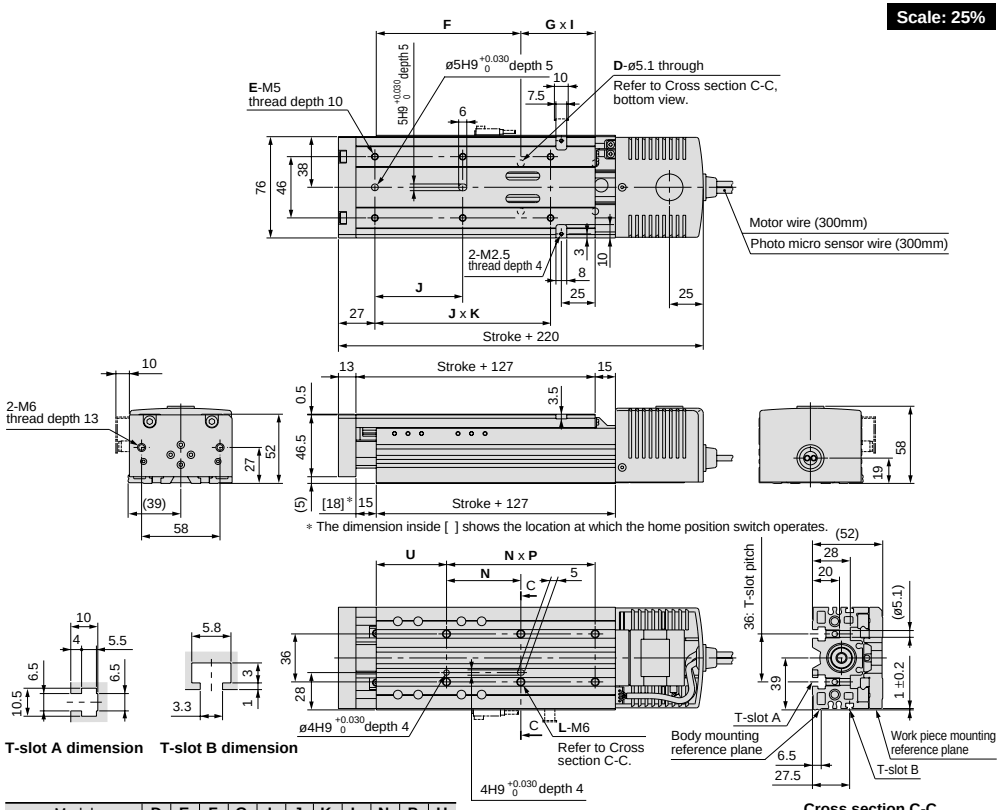
Allowable dynamic moment



Refer to page 304 for deflection data.

Dimensions/LXSH2BC

Scale: 25%



Model	D	E	F	G	I	J	K	L	N	P	U
LXSH2BC-50	4	6	107	55	1	65	2	6	55	2	52
LXSH2BC-75	4	6	112	65	1	75	2	6	65	2	47
LXSH2BC-100	4	8	122	75	1	65	3	6	75	2	47
LXSH2BC-125	4	8	132	85	1	70	3	6	85	2	47
LXSH2BC-150	6	8	112	65	2	75	3	8	65	3	47

Refer to page 301 for mounting.

Positioning Time Guide (for Horizontal Mount)

For transfer load of 0kg

		Positioning time (sec)				
Positioning distance (mm)		1	10	50	100	150
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1
	20	0.1	0.6	2.6	5.1	7.6
	30	0.1	0.4	1.7	3.4	5.1

For transfer load of 5kg

		Positioning time (sec)				
Positioning distance (mm)		1	10	50	100	150
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1
	20	0.1	0.6	2.6	5.1	7.6
	30	0.1	0.4	1.7	3.4	5.1

Refer to page 303 for acceleration time.

For transfer load of 10kg

		Positioning time (sec)				
Positioning distance (mm)		1	10	50	100	150
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1
	20	0.1	0.6	2.6	5.1	7.6
	30	0.1	0.4	1.7	3.4	5.1

How to Order

LXSH2 BD — Stroke — S — F9N — 1

Home position switch

Nil	None
S	Yes (cable length 0.3m)

Auto/Proximity switch type

Nil	None

Refer to the table on the right for auto/proximity switch part numbers.

Number of auto/proximity switches

1	1 pc.
2	2 pcs.
⋮	⋮
6	6 pcs.

When using both auto and proximity switches, list the proximity switch part number after the auto switch part number.
Example) **F9N1G2**

Auto switch types

Symbol	Model	Wiring/Output type	Lead wire length (m)	Contact
Nil	Without auto switch			
F9N	D-F9N	3 wire/NPN	0.5	N.O. (A contact)
F9P	D-F9P	3 wire/PNP	0.5	N.O. (A contact)
F9G	D-F9G	3 wire/NPN	0.5	N.C. (B contact)
F9H	D-F9H	3 wire/PNP	0.5	N.C. (B contact)
F9GL	D-F9GL	3 wire/NPN	3	N.C. (B contact)
F9HL	D-F9HL	3 wire/PNP	3	N.C. (B contact)
F9B	D-F9B	2 wire	0.5	N.O. (A contact)
F9NL	D-F9NL	3 wire/NPN	3	N.O. (A contact)
F9PL	D-F9PL	3 wire/PNP	3	N.O. (A contact)
F9BL	D-F9BL	2 wire	3	N.O. (A contact)

Proximity switch types

Symbol	Model	Wiring/Output type	Lead wire length (m)	Contact
GN	With sensor rail, without proximity switch			
G	GXL-8F	3 wire/NPN	1	N.O. (A contact)
GD	GXL-8FI	3 wire/NPN	1	N.O. (A contact)
GB	GXL-8FB	3 wire/NPN	1	N.C. (B contact)
GDB	GXL-8FIB	3 wire/NPN	1	N.C. (B contact)
GU	GXL-8FU	2 wire/solid state	1	N.O. (A contact)
GUB	GXL-8FUB	2 wire/solid state	1	N.C. (B contact)

∗ Refer to page 318 for detailed specifications of proximity switches.

Specifications

	Standard stroke	mm	50	75	100	125	150
Performance	Body weight	kg	1.9	2.1	2.3	2.5	2.7
	Operating temperature range	°C	5 to 40 (with no condensation)				
	Work load	kg	10 (4) horizontal/5 (4) vertical Note 1)				
	Speed	mm/s	to 80 Note 2)				
	Positioning repeatability	mm	±0.03				
Main parts	Motor		2 phase stepper motor (without brake)				
	Lead screw		Ball screw ø8mm, 5mm lead				
	Guide		High rigidity direct acting guide				
Home position switch	Model		Photo micro sensor EE-SX673				
Driver	Model		LC6D-220AD (Refer to page 306 for details.)				
Positioning driver	Model		LC6C-220AD (Refer to page 309 details.)				

Note 1) When mounting a work piece to the actuator's end plate, its weight should be within the value inside ( ).

Note 2) Since vibration may increase with low speed operation, use 5mm/s or more as a guide for speed.

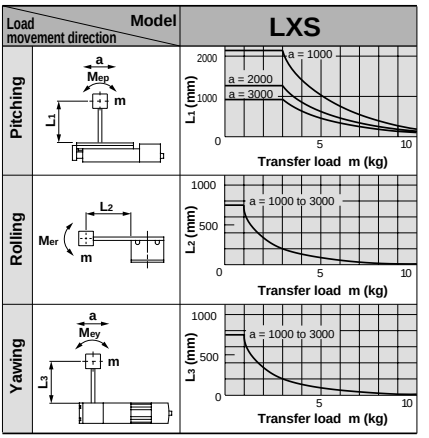
Allowable Moment (N·m)

Allowable static moment

Pitching	15.7
Rolling	15.7
Yawing	7.84

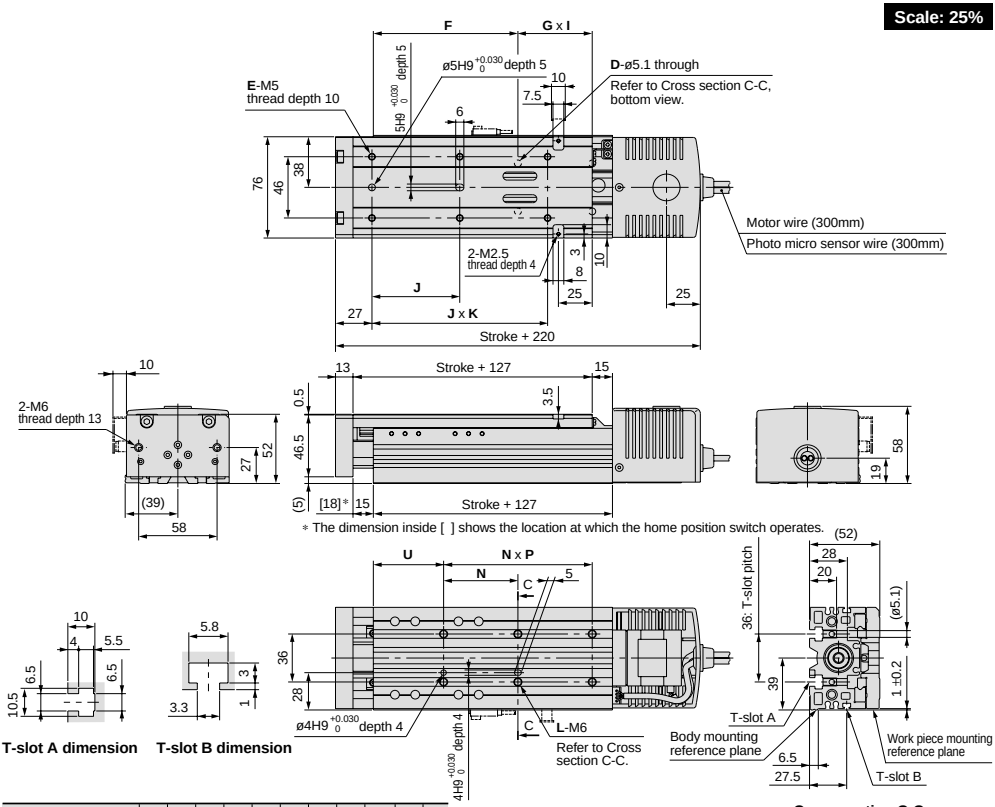
m : Transfer load (kg)
L : Overhang to work piece center of gravity (mm)
a : Work piece acceleration (mm/sec²)
Me: Dynamic moment

Allowable dynamic moment



Refer to page 304 for deflection data.

Dimensions/LXSH2BD



Model	D	E	F	G	I	J	K	L	N	P	U
LXSH2BD-50	4	6	107	55	1	65	2	6	55	2	52
LXSH2BD-75	4	6	112	65	1	75	2	6	65	2	47
LXSH2BD-100	4	8	122	75	1	65	3	6	75	2	47
LXSH2BD-125	4	8	132	85	1	70	3	6	85	2	47
LXSH2BD-150	6	8	112	65	2	75	3	8	65	3	47

Refer to page 301 for mounting.

Positioning Time Guide (for Horizontal Mount)

For transfer load of 0kg

Positioning distance (mm)		Positioning time (sec)				
		1	10	50	100	150
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1
	40	0.1	0.3	1.3	2.6	3.8
	80	0.4	0.2	0.7	1.3	1.9

For transfer load of 10kg

Positioning distance (mm)		Positioning time (sec)				
		1	10	50	100	150
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1
	40	0.1	0.3	1.3	2.6	3.8
	80	0.1	0.2	0.7	1.3	1.9

For transfer load of 5kg

Positioning distance (mm)		Positioning time (sec)				
		1	10	50	100	150
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1
	40	0.1	0.3	1.3	2.6	3.8
	80	0.1	0.2	0.7	1.3	1.9

Refer to page 303 for acceleration time.

How to Order

LXSH2 BC – Stroke S B – F9N 1

Home position switch

Nil	None
S	Yes (cable length 0.3m)

Auto/Proximity switch type

Nil	None

Refer to the table on the right for auto/proximity switch part numbers.

Number of auto/proximity switches

1	1 pc.
2	2 pcs.
⋮	⋮
6	6 pcs.

When using both auto and proximity switches, list the proximity switch part number after the auto switch part number.
Example) **F9N1G2**

Auto switch types

Symbol	Model	Wiring/Output type	Lead wire length (m)	Contact
Nil	Without auto switch			
F9N	D-F9N	3 wire/NPN	0.5	N.O. (A contact)
F9P	D-F9P	3 wire/PNP	0.5	N.O. (A contact)
F9G	D-F9G	3 wire/NPN	0.5	N.C. (B contact)
F9H	D-F9H	3 wire/PNP	0.5	N.C. (B contact)
F9GL	D-F9GL	3 wire/NPN	3	N.C. (B contact)
F9HL	D-F9HL	3 wire/PNP	3	N.C. (B contact)
F9B	D-F9B	2 wire	0.5	N.O. (A contact)
F9NL	D-F9NL	3 wire/NPN	3	N.O. (A contact)
F9PL	D-F9PL	3 wire/PNP	3	N.O. (A contact)
F9BL	D-F9BL	2 wire	3	N.O. (A contact)

Proximity switch types

Symbol	Model	Wiring/Output type	Lead wire length (m)	Contact
GN	With sensor rail, without proximity switch			
G	GXL-8F	3 wire/NPN	1	N.O. (A contact)
GD	GXL-8FI	3 wire/NPN	1	N.O. (A contact)
GB	GXL-8FB	3 wire/NPN	1	N.C. (B contact)
GDB	GXL-8FIB	3 wire/NPN	1	N.C. (B contact)
GU	GXL-8FU	2 wire/solid state	1	N.O. (A contact)
GUB	GXL-8FUB	2 wire/solid state	1	N.C. (B contact)

∗ Refer to page 318 for detailed specifications of proximity switches.

Specifications

	Standard stroke		mm	50	75	100	125	150
Performance	Body weight		kg	2.1	2.3	2.5	2.7	2.9
	Operating temperature range		°C	5 to 40 (with no condensation)				
	Work load		kg	10 (4) horizontal/5 (4) vertical Note 1)				
	Speed		mm/s	to 30 Note 2)				
	Positioning repeatability		mm	±0.03				
Main parts	Motor			2 phase stepper motor (with brake)				
	Lead screw			Ball screw ø8mm, 2mm lead				
	Guide			High rigidity direct acting guide				
	Electromagnetic brake	Model		De-energized operating type				
		Static torque		0.1N·m or more				
		Rated voltage		24VDC ±5%				
		Power consumption		5W				
Home position switch	Model			Photo micro sensor EE-SX673				
Driver	Model			LC6D-220AD (Refer to page 306 for details.)				
Positioning driver	Model			LC6C-220AD (Refer to page 309 for details.)				

Note 1) When mounting a work piece to the actuator's end plate, its weight should be within the value inside ( ).
Note 2) Since vibration may increase with low speed operation, use 2mm/s or more as a guide for speed.

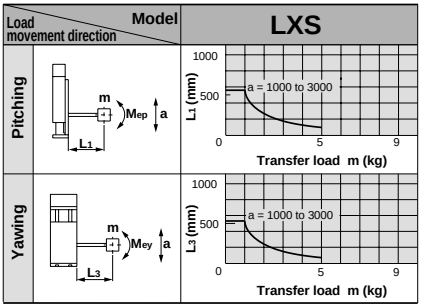
Allowable Moment (N·m)

Allowable static moment

Pitching	15.7
Yawing	7.84

m : Transfer load (kg)
L : Overhang to work piece center of gravity (mm)
a : Work piece acceleration (mm/sec²)
Me: Dynamic moment

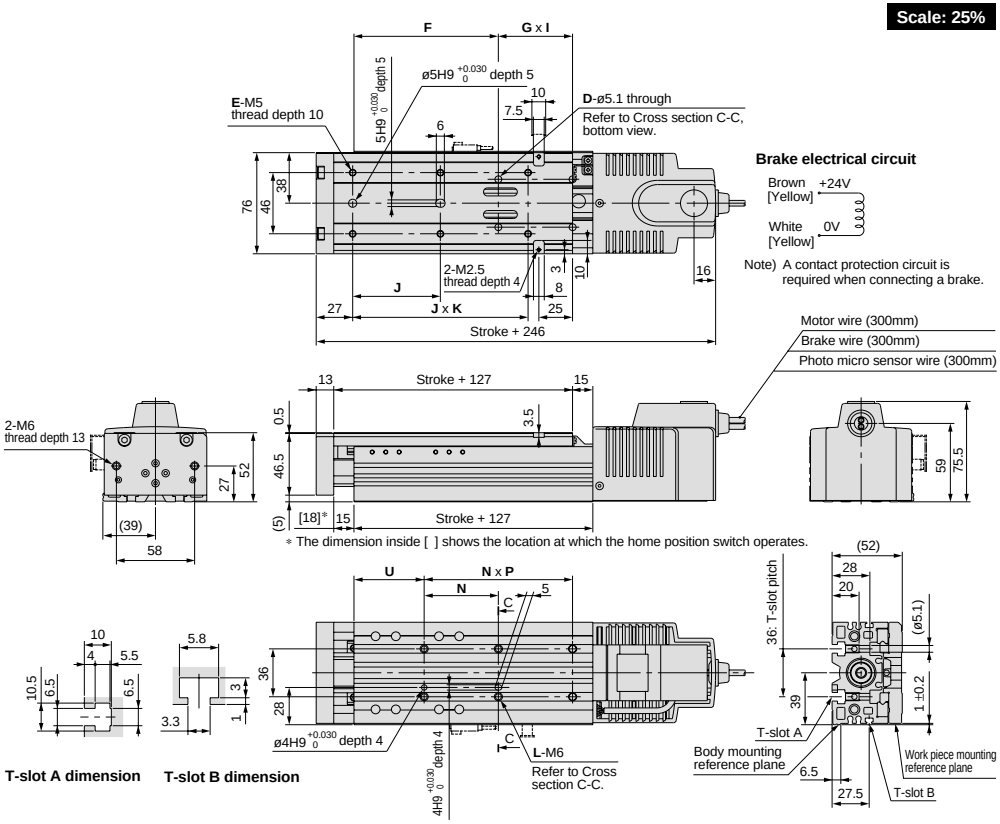
Allowable dynamic moment



Refer to page 304 for deflection data.

Dimensions/LXSH2BC

Scale: 25%



Model	D	E	F	G	I	J	K	L	N	P	U
LXSH2BC-50□B	4	6	107	55	1	65	2	6	55	2	52
LXSH2BC-75□B	4	6	112	65	1	75	2	6	65	2	47
LXSH2BC-100□B	4	8	122	75	1	65	3	6	75	2	47
LXSH2BC-125□B	4	8	132	85	1	70	3	6	85	2	47
LXSH2BC-150□B	6	8	112	65	2	75	3	8	65	3	47

Refer to page 301 for mounting.

Positioning Time Guide (for Vertical Mount)

For transfer load of 0kg

		Positioning time (sec)				
Positioning distance (mm)		1	10	50	100	150
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1
	20	0.1	0.6	2.6	5.1	7.6
	30	0.1	0.4	1.7	3.4	5.1

For transfer load of 5kg

		Positioning time (sec)				
Positioning distance (mm)		1	10	50	100	200
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1
	20	0.1	0.6	2.6	5.1	7.6
	30	0.1	0.4	1.7	3.4	5.1

For transfer load of 2.5kg

		Positioning time (sec)				
Positioning distance (mm)		1	10	50	100	150
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1
	20	0.1	0.6	2.6	5.1	7.6
	30	0.1	0.4	1.7	3.4	5.1

Refer to page 303 for acceleration time.

How to Order

LXSH2 BD – Stroke S B – F9N 1

Home position switch

Nil	None
S	Yes (cable length 0.3m)

Auto/Proximity switch type

Nil	None

Refer to the table on the right for auto/proximity switch part numbers.

Number of auto/proximity switches

1	1 pc.
2	2 pcs.
⋮	⋮
6	6 pcs.

When using both auto and proximity switches, list the proximity switch part number after the auto switch part number.
Example) **F9N1G2**

Auto switch types

Symbol	Model	Wiring/ Output type	Lead wire length (m)	Contact
Nil	Without auto switch			
F9N	D-F9N	3 wire/NPN	0.5	N.O. (A contact)
F9P	D-F9P	3 wire/PNP	0.5	N.O. (A contact)
F9G	D-F9G	3 wire/NPN	0.5	N.C. (B contact)
F9H	D-F9H	3 wire/PNP	0.5	N.C. (B contact)
F9GL	D-F9GL	3 wire/NPN	3	N.C. (B contact)
F9HL	D-F9HL	3 wire/PNP	3	N.C. (B contact)
F9B	D-F9B	2 wire	0.5	N.O. (A contact)
F9NL	D-F9NL	3 wire/NPN	3	N.O. (A contact)
F9PL	D-F9PL	3 wire/PNP	3	N.O. (A contact)
F9BL	D-F9BL	2 wire	3	N.O. (A contact)

Proximity switch types

Symbol	Model	Wiring/ Output type	Lead wire length (m)	Contact
GN	With sensor rail, without proximity switch			
G	GXL-8F	3 wire/NPN	1	N.O. (A contact)
GD	GXL-8FI	3 wire/NPN	1	N.O. (A contact)
GB	GXL-8FB	3 wire/NPN	1	N.C. (B contact)
GDB	GXL-8FIB	3 wire/NPN	1	N.C. (B contact)
GU	GXL-8FU	2 wire/solid state	1	N.O. (A contact)
GUB	GXL-8FUB	2 wire/solid state	1	N.C. (B contact)

∗ Refer to page 318 for detailed specifications of proximity switches.

Specifications

	Standard stroke		mm	50	75	100	125	150
Performance	Body weight		kg	2.1	2.3	2.5	2.7	2.9
	Operating temperature range		°C	5 to 40 (with no condensation)				
	Work load		kg	10 (4) horizontal/5 (4) vertical Note 1)				
	Speed		mm/s	to 80 Note 2)				
	Positioning repeatability		mm	±0.03				
Main parts	Motor			2 phase stepper motor (with brake)				
	Lead screw			Ball screw ø8mm, 5mm lead				
	Guide			High rigidity direct acting guide				
	Electromagnetic brake	Model		De-energized operating type				
		Static torque		0.1N·m or more				
		Rated voltage		24VDC ±5%				
		Power consumption		5 W				
Home position switch	Model			Photo micro sensor EE-SX673				
Driver	Model			LC6D-220AD (Refer to page 306 for details.)				
Positioning driver	Model			LC6C-220AD (Refer to page 309 for details.)				

Note 1) When mounting a work piece to the actuator's end plate, its weight should be within the value inside ( ).

Note 2) Since vibration may increase with low speed operation, use 5mm/s or more as a guide for speed.

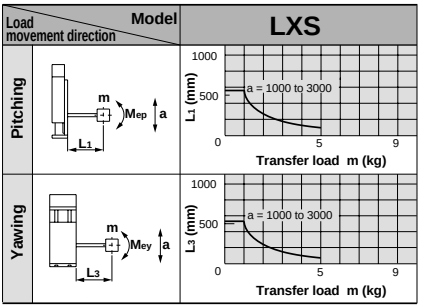
Allowable Moment (N·m)

Allowable static moment

Pitching	15.7
Yawing	7.84

m : Transfer load (kg)
L : Overhang to work piece center of gravity (mm)
a : Work piece acceleration (mm/sec²)
Me: Dynamic moment

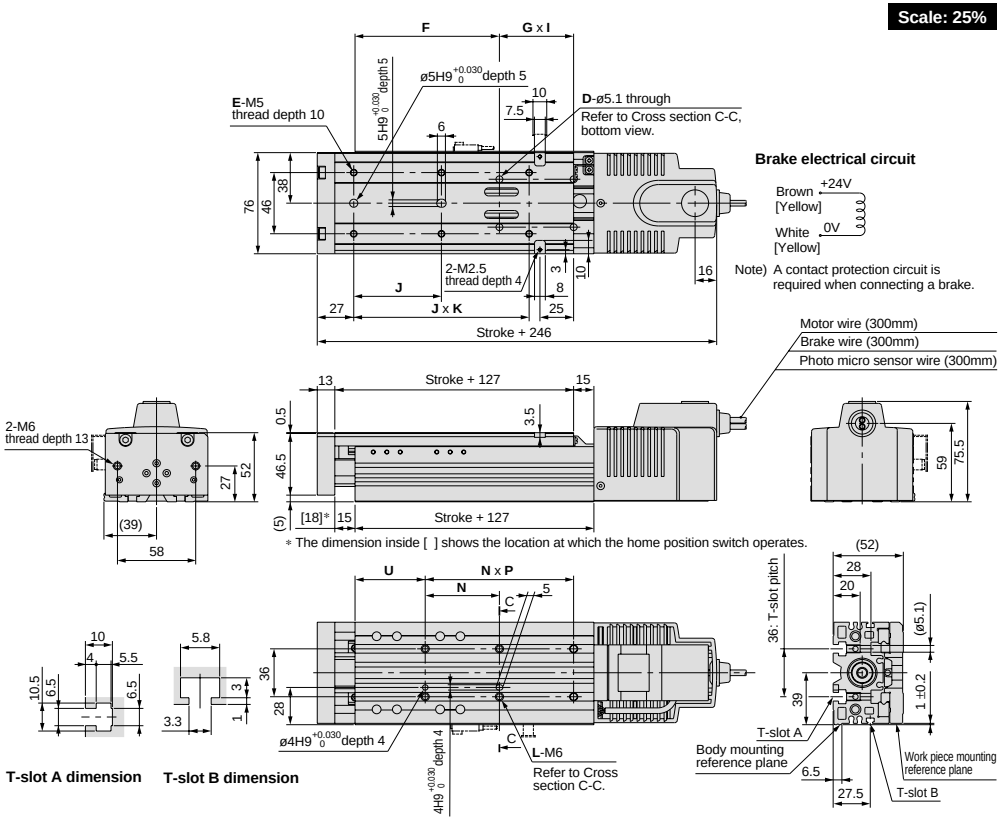
Allowable dynamic moment



Refer to page 304 for deflection data.

Dimensions/LXSH2BD

Scale: 25%



Model	D	E	F	G	I	J	K	L	N	P	U
LXSH2BD-50□B	4	6	107	55	1	65	2	6	55	2	52
LXSH2BD-75□B	4	6	112	65	1	75	2	6	65	2	47
LXSH2BD-100□B	4	8	122	75	1	65	3	6	75	2	47
LXSH2BD-125□B	4	8	132	85	1	70	3	6	85	2	47
LXSH2BD-150□B	6	8	112	65	2	75	3	8	65	3	47

Refer to page 301 for mounting.

Positioning Time Guide (for Vertical Mount)

For transfer load of 0kg

		Positioning time (sec)				
Positioning distance (mm)		1	10	50	100	150
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1
	40	0.1	0.3	1.3	2.6	3.8
	80	0.1	0.2	0.7	1.3	1.9

For transfer load of 5kg

		Positioning time (sec)				
Positioning distance (mm)		1	10	50	100	200
Speed (mm/s)	10	0.1	1	5	10	20
	40	0.1	0.3	1.3	2.6	5.1
	80	0.1	0.2	0.7	1.3	2.6

For transfer load of 2.5kg

		Positioning time (sec)				
Positioning distance (mm)		1	10	50	100	100
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1
	40	0.1	0.3	1.3	2.6	3.8
	80	0.1	0.2	0.7	1.3	2.0

Refer to page 303 for acceleration time.

How to Order

LXSH5 BC – Stroke S – F9N 1

Home position switch

Nil	None
S	Yes (cable length 0.3m)

Auto/Proximity switch type

Nil	None

Refer to the table on the right for auto/proximity switch part numbers.

Number of auto/proximity switches

1	1 pc.
2	2 pcs.
⋮	⋮
6	6 pcs.

When using both auto and proximity switches, list the proximity switch part number after the auto switch part number.
Example) **F9N1G2**

Auto switch types

Symbol	Model	Wiring/ Output type	Lead wire length (m)	Contact
Nil	Without auto switch			
F9N	D-F9N	3 wire/NPN	0.5	N.O. (A contact)
F9P	D-F9P	3 wire/PNP	0.5	N.O. (A contact)
F9G	D-F9G	3 wire/NPN	0.5	N.C. (B contact)
F9H	D-F9H	3 wire/PNP	0.5	N.C. (B contact)
F9GL	D-F9GL	3 wire/NPN	3	N.C. (B contact)
F9HL	D-F9HL	3 wire/PNP	3	N.C. (B contact)
F9B	D-F9B	2 wire	0.5	N.O. (A contact)
F9NL	D-F9NL	3 wire/NPN	3	N.O. (A contact)
F9PL	D-F9PL	3 wire/PNP	3	N.O. (A contact)
F9BL	D-F9BL	2 wire	3	N.O. (A contact)

Proximity switch types

Symbol	Model	Wiring/ Output type	Lead wire length (m)	Contact
GN	With sensor plate, without proximity switch			
G	GXL-8F	3 wire/NPN	1	N.O. (A contact)
GD	GXL-8FI	3 wire/NPN	1	N.O. (A contact)
GB	GXL-8FB	3 wire/NPN	1	N.C. (B contact)
GDB	GXL-8FIB	3 wire/NPN	1	N.C. (B contact)
GU	GXL-8FU	2 wire/Solid state	1	N.O. (A contact)
GUB	GXL-8FUB	2 wire/Solid state	1	N.C. (B contact)

∗ Refer to page 318 for detailed specifications of proximity switches.

Specifications

Standard stroke		mm	50	75	100	125	150
Performance	Body weight	kg	1.9	2.1	2.3	2.5	2.7
	Operating temperature range	°C	5 to 40 (with no condensation)				
	Work load	kg	10 (4) horizontal/5 (4) vertical Note 1)				
	Speed	mm/s	to 30 Note 2)				
	Positioning repeatability	mm	±0.03				
Main parts	Motor		5 phase stepper motor (without brake)				
	Lead screw		Ball screw ø8mm, 2mm lead				
	Guide		High rigidity direct acting guide				
Home position switch	Model		Photo micro sensor EE-SX673				
Driver	Model		LC6D-507AD (Refer to page 306 for details.)				

Note 1) When mounting a work piece to the actuator's end plate, its weight should be within the value inside ( ).

Note 2) Since vibration may increase with low speed operation, use 2mm/s or more as a guide for speed.

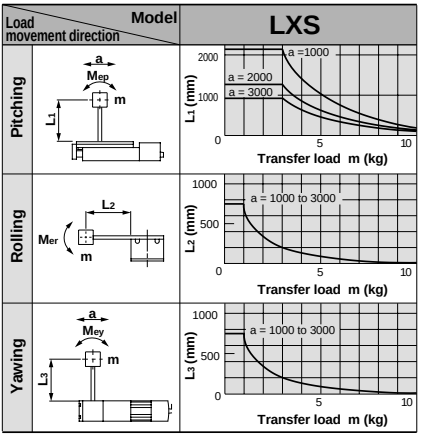
Allowable Moment (N·m)

Allowable static moment

Pitching	15.7
Rolling	15.7
Yawing	7.84

m : Transfer load (kg)
L : Overhang to work piece center of gravity (mm)
a : Work piece acceleration (mm/sec²)
Me: Dynamic moment

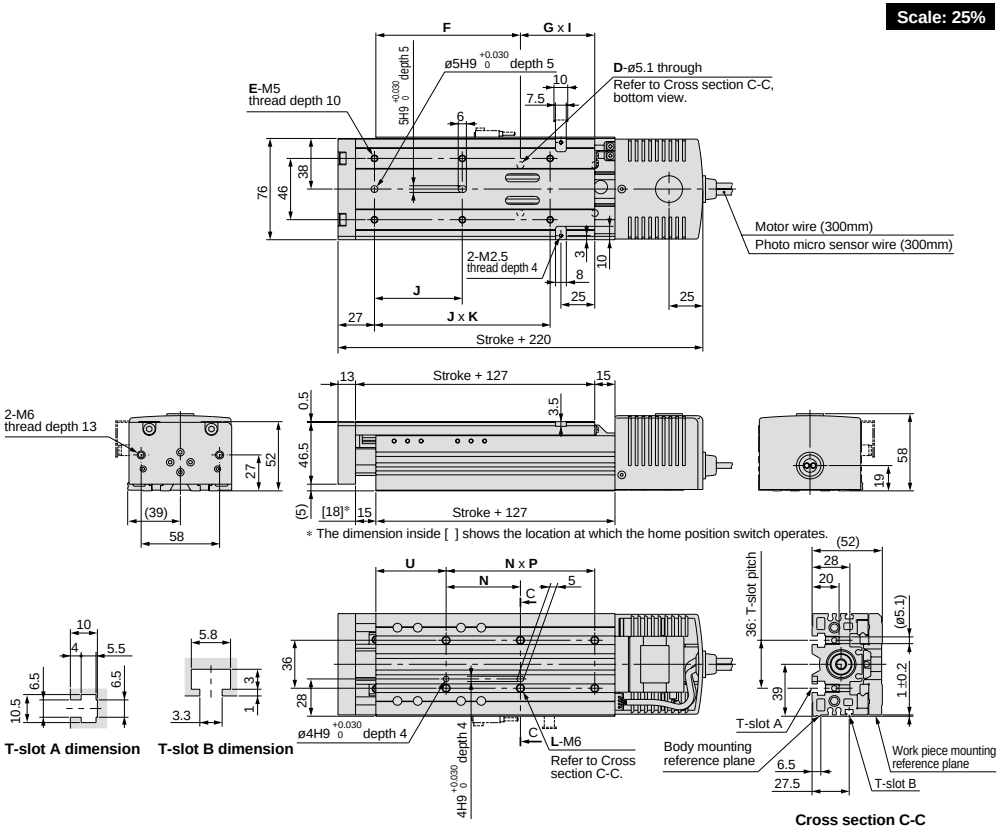
Allowable dynamic moment



Refer to page 304 for deflection data.

Dimensions/LXSH5BC

Scale: 25%



Model	D	E	F	G	I	J	K	L	N	P	U
LXSH5BC-50	4	6	107	55	1	65	2	6	55	2	52
LXSH5BC-75	4	6	112	65	1	75	2	6	65	2	47
LXSH5BC-100	4	8	122	75	1	65	3	6	75	2	47
LXSH5BC-125	4	8	132	85	1	70	3	6	85	2	47
LXSH5BC-150	6	8	112	65	2	75	3	8	65	3	47

Refer to page 301 for mounting.

Positioning Time Guide (for Horizontal Mount)

For transfer load of 0kg

Positioning distance (mm)		Positioning time (sec)				
		1	10	50	100	150
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1
	20	0.1	0.6	2.6	5.1	7.6
	30	0.1	0.4	1.7	3.4	5.1

For transfer load of 10kg

Positioning distance (mm)		Positioning time (sec)				
		1	10	50	100	150
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1
	20	0.1	0.6	2.6	5.1	7.6
	30	0.1	0.4	1.7	3.4	5.1

For transfer load of 5kg

Positioning distance (mm)		Positioning time (sec)				
		1	10	50	100	150
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1
	20	0.1	0.6	2.6	5.1	7.6
	30	0.1	0.4	1.7	3.4	5.1

Refer to page 303 for acceleration time.

How to Order

LXSH5 BD – Stroke S – F9N 1

Home position switch

Nil	None
S	Yes (cable length 0.3m)

Auto/Proximity switch type

Nil	None

Refer to the table on the right for auto/proximity switch part numbers.

Number of auto/proximity switches

1	1 pc.
2	2 pcs.
⋮	⋮
6	6 pcs.

When using both auto and proximity switches, list the proximity switch part number after the auto switch part number.
Example) **F9N1G2**

Auto switch types

Symbol	Model	Wiring/ Output type	Lead wire length (m)	Contact
Nil	Without auto switch			
F9N	D-F9N	3 wire/NPN	0.5	N.O. (A contact)
F9P	D-F9P	3 wire/PNP	0.5	N.O. (A contact)
F9G	D-F9G	3 wire/NPN	0.5	N.C. (B contact)
F9H	D-F9H	3 wire/PNP	0.5	N.C. (B contact)
F9GL	D-F9GL	3 wire/NPN	3	N.C. (B contact)
F9HL	D-F9HL	3 wire/PNP	3	N.C. (B contact)
F9B	D-F9B	2 wire	0.5	N.O. (A contact)
F9NL	D-F9NL	3 wire/NPN	3	N.O. (A contact)
F9PL	D-F9PL	3 wire/PNP	3	N.O. (A contact)
F9BL	D-F9BL	2 wire	3	N.O. (A contact)

Proximity switch types

Symbol	Model	Wiring/ Output type	Lead wire length (m)	Contact
GN	With sensor plate, without proximity switch			
G	GXL-8F	3 wire/NPN	1	N.O. (A contact)
GD	GXL-8FI	3 wire/NPN	1	N.O. (A contact)
GB	GXL-8FB	3 wire/NPN	1	N.C. (B contact)
GDB	GXL-8FIB	3 wire/NPN	1	N.C. (B contact)
GU	GXL-8FU	2 wire/Solid state	1	N.O. (A contact)
GUB	GXL-8FUB	2 wire/Solid state	1	N.C. (B contact)

∗ Refer to page 318 for detailed specifications of proximity switches.

Specifications

	Standard stroke	mm	50	75	100	125	150
Performance	Body weight	kg	1.9	2.1	2.3	2.5	2.7
	Operating temperature range	°C	5 to 40 (with no condensation)				
	Work load	kg	10 (4) horizontal/5 (4) vertical Note 1)				
	Speed	mm/s	to 80 Note 2)				
	Positioning repeatability	mm	±0.03				
Main parts	Motor		5 phase stepper motor (without brake)				
	Lead screw		Ball screw ø8mm, 5mm lead				
	Guide		High rigidity direct acting guide				
Home position switch	Model		Photo micro sensor EE-SX673				
Driver	Model		LC6D-507AD (Refer to page 306 for details.)				

Note 1) When mounting a work piece to the actuator's end plate, its weight should be within the value inside ( ).

Note 2) Since vibration may increase with low speed operation, use 5mm/s or more as a guide for speed.

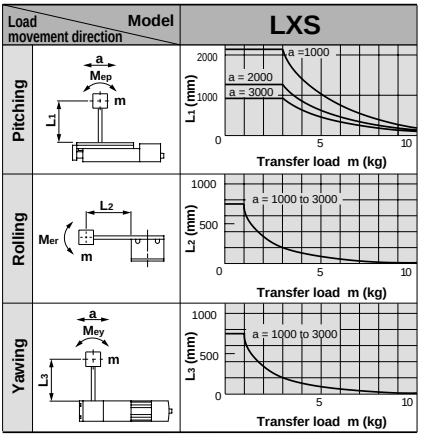
Allowable Moment (N·m)

Allowable static moment

Pitching	15.7
Rolling	15.7
Yawing	7.84

m : Transfer load (kg)
L : Overhang to work piece center of gravity (mm)
a : Work piece acceleration (mm/sec²)
Me: Dynamic moment

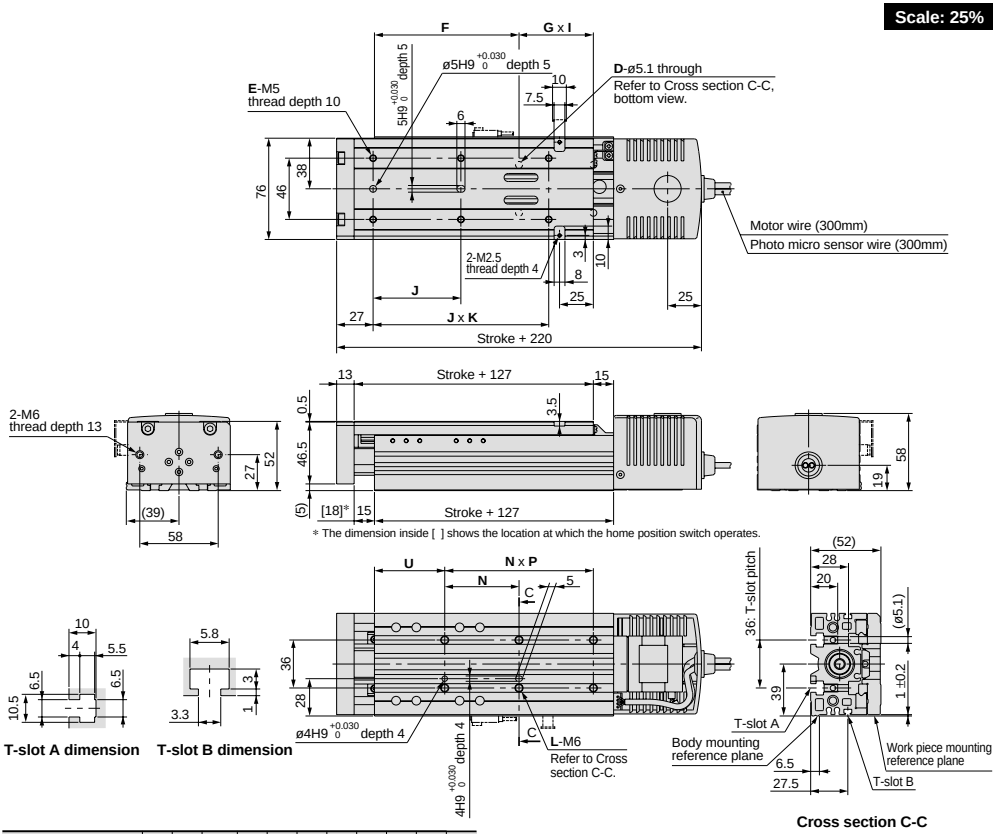
Allowable dynamic moment



Refer to page 304 for deflection data.

Dimensions/LXSH5BD

Scale: 25%



Model	D	E	F	G	I	J	K	L	N	P	U
LXSH5BD-50	4	6	107	55	1	65	2	6	55	2	52
LXSH5BD-75	4	6	112	65	1	75	2	6	65	2	47
LXSH5BD-100	4	8	122	75	1	65	3	6	75	2	47
LXSH5BD-125	4	8	132	85	1	70	3	6	85	2	47
LXSH5BD-150	6	8	112	65	2	75	3	8	65	3	47

Refer to page 301 for mounting.

Positioning Time Guide (for Horizontal Mount)

For transfer load of 0kg

		Positioning time (sec)				
Positioning distance (mm)		1	10	50	100	150
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1
	40	0.1	0.3	1.3	2.6	3.8
	80	0.1	0.2	0.7	1.3	1.9

For transfer load of 5kg

		Positioning time (sec)				
Positioning distance (mm)		1	10	50	100	150
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1
	40	0.1	0.3	1.3	2.6	3.8
	80	0.1	0.2	0.7	1.3	2.0

Refer to page 303 for acceleration time.

For transfer load of 10kg

		Positioning time (sec)				
Positioning distance (mm)		1	10	50	100	150
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1
	40	0.1	0.3	1.3	2.6	3.8
	80	0.1	0.2	0.7	1.3	2.0

How to Order

LXSH5 BC – Stroke S B – F9N 1

Home position switch

Nil	None
S	Yes (cable length 0.3m)

Auto/Proximity switch type

Nil	None

Refer to the table on the right for auto/proximity switch part numbers.

Number of auto/proximity switches

1	1 pc.
2	2 pcs.
⋮	⋮
6	6 pcs.

When using both auto and proximity switches, list the proximity switch part number after the auto switch part number. Example) **F9N1G2**

Auto switch types

Symbol	Model	Wiring/ Output type	Lead wire length (m)	Contact
Nil	Without auto switch			
F9N	D-F9N	3 wire/NPN	0.5	N.O. (A contact)
F9P	D-F9P	3 wire/PNP	0.5	N.O. (A contact)
F9G	D-F9G	3 wire/NPN	0.5	N.C. (B contact)
F9H	D-F9H	3 wire/PNP	0.5	N.C. (B contact)
F9GL	D-F9GL	3 wire/NPN	3	N.C. (B contact)
F9HL	D-F9HL	3 wire/PNP	3	N.C. (B contact)
F9B	D-F9B	2 wire	0.5	N.O. (A contact)
F9NL	D-F9NL	3 wire/NPN	3	N.O. (A contact)
F9PL	D-F9PL	3 wire/PNP	3	N.O. (A contact)
F9BL	D-F9BL	2 wire	3	N.O. (A contact)

Proximity switch types

Symbol	Model	Wiring/ Output type	Lead wire length (m)	Contact
GN	With sensor plate, without proximity switch			
G	GXL-8F	3 wire/NPN	1	N.O. (A contact)
GD	GXL-8FI	3 wire/NPN	1	N.O. (A contact)
GB	GXL-8FB	3 wire/NPN	1	N.C. (B contact)
GDB	GXL-8FIB	3 wire/NPN	1	N.C. (B contact)
GU	GXL-8FU	2 wire/Solid state	1	N.O. (A contact)
GUB	GXL-8FUB	2 wire/Solid state	1	N.C. (B contact)

∗ Refer to page 318 for detailed specifications of proximity switches.

Specifications

	Standard stroke		mm	50	75	100	125	150
Performance	Body weight		kg	2.1	2.3	2.5	2.7	2.9
	Operating temperature range		°C	5 to 40 (with no condensation)				
	Work load		kg	10 (4) horizontal/5 (4) vertical Note 1)				
	Speed		mm/s	to 30 Note 2)				
	Positioning repeatability		mm	±0.03				
Main parts	Motor			5 phase stepper motor (with brake)				
	Lead screw			Ball screw ø8mm, 2mm lead				
	Guide			High rigidity direct acting guide				
	Electromagnetic brake	Model		De-energized operating type				
		Static torque		0.1N·m or more				
		Rated voltage		24VDC ±5%				
		Power consumption		5 W				
Home position switch	Model			Photo micro sensor EE-SX673				
Driver	Model			LC6D-507AD (Refer to page 306 for details.)				

Note 1) When mounting a work piece to the actuator's end plate, its weight should be within the value inside ( ).

Note 2) Since vibration may increase with low speed operation, use 2mm/s or more as a guide for speed.

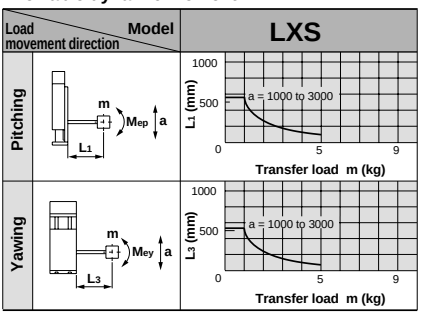
Allowable Moment (N·m)

Allowable static moment

Pitching	15.7
Yawing	7.84

m : Transfer load (kg)
L : Overhang to work piece center of gravity (mm)
a : Work piece acceleration (mm/sec²)
Me: Dynamic moment

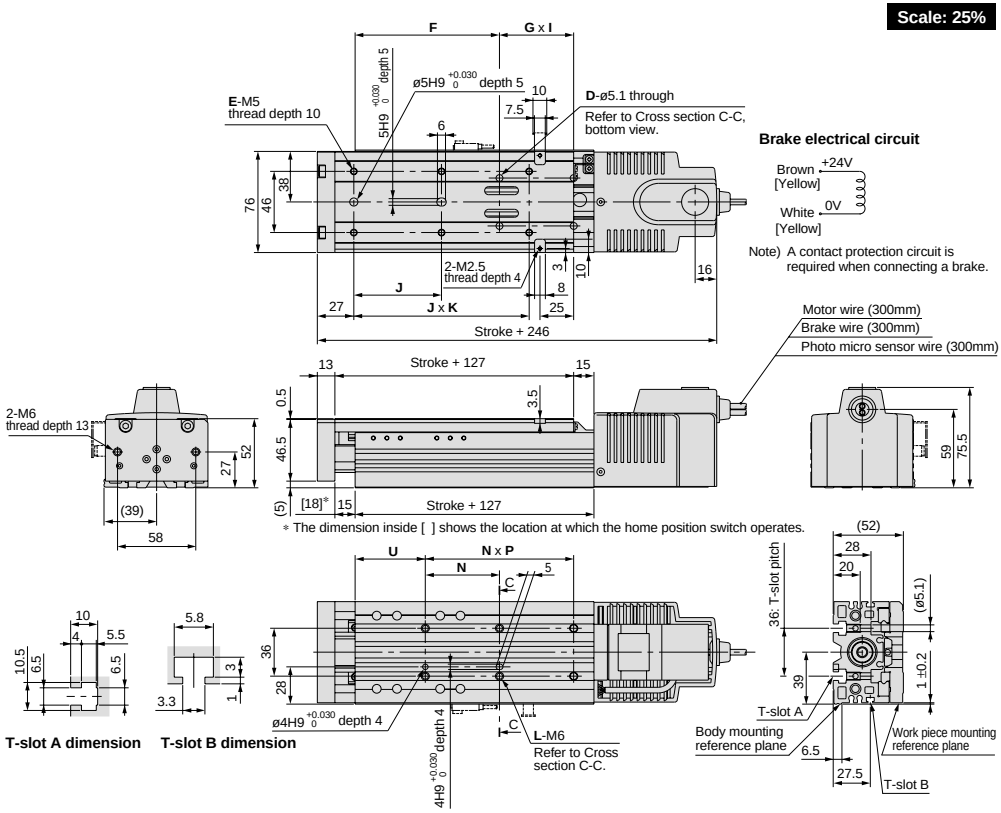
Allowable dynamic moment



Refer to page 304 for deflection data.

Dimensions/LXSH5BC

Scale: 25%



Model	D	E	F	G	I	J	K	L	N	P	U
LXSH5BC-50□B	4	6	107	55	1	65	2	6	55	2	52
LXSH5BC-75□B	4	6	112	65	1	75	2	6	65	2	47
LXSH5BC-100□B	4	8	122	75	1	65	3	6	75	2	47
LXSH5BC-125□B	4	8	132	85	1	70	3	6	85	2	47
LXSH5BC-150□B	6	8	112	65	2	75	3	8	65	3	47

Refer to page 301 for mounting.

Positioning Time Guide (for Vertical Mount)

For transfer load of 0kg

		Positioning time (sec)				
Positioning distance (mm)		1	10	50	100	150
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1
	20	0.1	0.6	2.6	5.1	7.6
	30	0.1	0.4	1.7	3.4	5.1

For transfer load of 5kg

		Positioning time (sec)				
Positioning distance (mm)		1	10	50	100	150
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1
	20	0.1	0.6	2.6	5.1	7.6
	30	0.1	0.4	1.7	3.4	5.1

For transfer load of 2.5kg

		Positioning time (sec)				
Positioning distance (mm)		1	10	50	100	150
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1
	20	0.1	0.6	2.6	5.1	7.6
	30	0.1	0.4	1.7	3.4	5.1

Refer to page 303 for acceleration time.

How to Order

LXSH5 BD – Stroke S B – F9N 1

Home position switch

Nil	None
S	Yes (cable length 0.3m)

Auto/Proximity switch type

Nil	None

Refer to the table on the right for auto/proximity switch part numbers.

Number of auto/proximity switches

1	1 pc.
2	2 pcs.
⋮	⋮
6	6 pcs.

When using both auto and proximity switches, list the proximity switch part number after the auto switch part number.
Example) **F9N1G2**

Auto switch types

Symbol	Model	Wiring/ Output type	Lead wire length (m)	Contact
Nil	Without auto switch			
F9N	D-F9N	3 wire/NPN	0.5	N.O. (A contact)
F9P	D-F9P	3 wire/PNP	0.5	N.O. (A contact)
F9G	D-F9G	3 wire/NPN	0.5	N.C. (B contact)
F9H	D-F9H	3 wire/PNP	0.5	N.C. (B contact)
F9GL	D-F9GL	3 wire/NPN	3	N.C. (B contact)
F9HL	D-F9HL	3 wire/PNP	3	N.C. (B contact)
F9B	D-F9B	2 wire	0.5	N.O. (A contact)
F9NL	D-F9NL	3 wire/NPN	3	N.O. (A contact)
F9PL	D-F9PL	3 wire/PNP	3	N.O. (A contact)
F9BL	D-F9BL	2 wire	3	N.O. (A contact)

Proximity switch types

Symbol	Model	Wiring/ Output type	Lead wire length (m)	Contact
GN	With sensor plate, without proximity switch			
G	GXL-8F	3 wire/NPN	1	N.O. (A contact)
GD	GXL-8FI	3 wire/NPN	1	N.O. (A contact)
GB	GXL-8FB	3 wire/NPN	1	N.C. (B contact)
GDB	GXL-8FIB	3 wire/NPN	1	N.C. (B contact)
GU	GXL-8FU	2 wire/Solid state	1	N.O. (A contact)
GUB	GXL-8FUB	2 wire/Solid state	1	N.C. (B contact)

∗ Refer to page 318 for detailed specifications of proximity switches.

Specifications

Standard stroke		mm	50	75	100	125	150
Performance	Body weight	kg	2.1	2.3	2.5	2.7	2.9
	Operating temperature range	°C	5 to 40 (with no condensation)				
	Work load	kg	10 (4) horizontal/5 (4) vertical Note 1)				
	Speed	mm/s	to 80 Note 2)				
	Positioning repeatability	mm	±0.03				
Main parts	Motor		5 phase stepper motor (with brake)				
	Lead screw		Ball screw ø8mm, 5mm lead				
	Guide		High rigidity direct acting guide				
	Electromagnetic brake	Model	De-energized operating type				
		Static torque	0.1N·m or more				
		Rated voltage	24VDC ±5%				
		Power consumption	5W				
Home position switch	Model		Photo micro sensor EE-SX673				
Driver	Model		LC6D-507AD (Refer to page 306 for details.)				

Note 1) When mounting a work piece to the actuator's end plate, its weight should be within the value inside ( ).

Note 2) Since vibration may increase with low speed operation, use 5mm/s or more as a guide for speed.

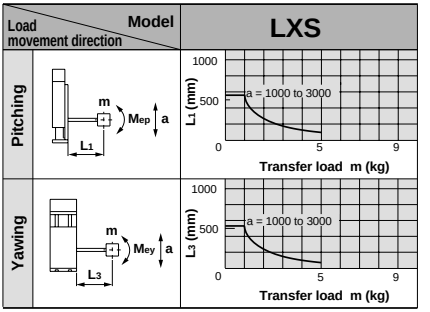
Allowable Moment (N·m)

Allowable static moment

Pitching	15.7
Yawing	7.84

m : Transfer load (kg)
L : Overhang to work piece center of gravity (mm)
a : Work piece acceleration (mm/sec²)
Me: Dynamic moment

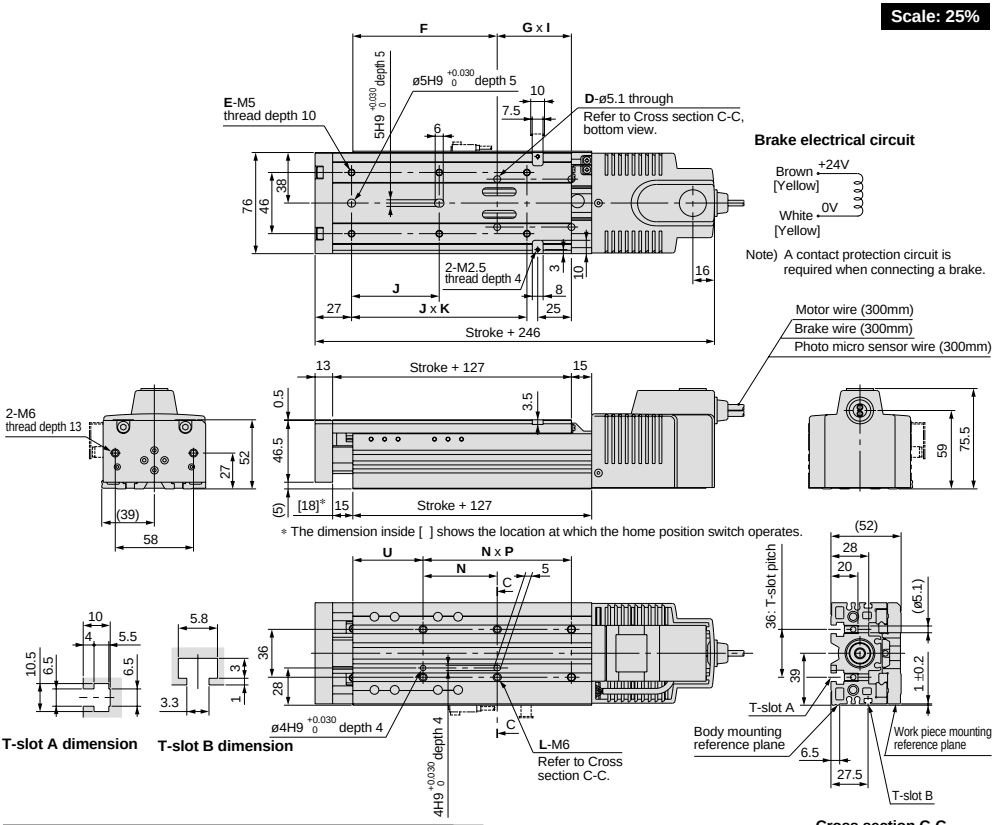
Allowable dynamic moment



Refer to page 304 for deflection data.

Dimensions/LXSH5BD

Scale: 25%



Model	D	E	F	G	I	J	K	L	N	P	U
LXSH5BD-50□B	4	6	107	55	1	65	2	6	55	2	52
LXSH5BD-75□B	4	6	112	65	1	75	2	6	65	2	47
LXSH5BD-100□B	4	8	122	75	1	65	3	6	75	2	47
LXSH5BD-125□B	4	8	132	85	1	70	3	6	85	2	47
LXSH5BD-150□B	6	8	112	65	2	75	3	8	65	3	47

Refer to page 301 for mounting.

Positioning Time Guide (for Vertical Mount)

For transfer load of 0kg

		Positioning time (sec)				
Positioning distance (mm)		1	10	50	100	150
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1
	40	0.1	0.3	1.3	2.6	3.8
	80	0.1	0.2	0.7	1.3	1.9

For transfer load of 5kg

		Positioning time (sec)				
Positioning distance (mm)		1	10	50	100	150
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1
	40	0.1	0.3	1.3	2.6	3.8
	80	0.1	0.2	0.7	1.3	2.0

For transfer load of 2.5kg

		Positioning time (sec)				
Positioning distance (mm)		1	10	50	100	150
Speed (mm/s)	10	0.2	1.1	5.1	10.1	15.1
	40	0.1	0.3	1.3	2.6	3.8
	80	0.1	0.2	0.7	1.3	2.0

Refer to page 303 for acceleration time.

How to Order

Low Profile Slide Table Type LXFH 5 B C 25 GD 1 X60

Guide Rod Type LXPB 2 B C 50 B F9N 1 X60

High Rigidity Slide Table Type LXSH 2 B C 50 B F9N 1 X60

Motor type

2	2 phase stepper motor
5	5 phase stepper motor

Lead screw type

B	Ball screw

Lead screw lead

C	2mm
D	5mm

Stroke

Model	Stroke (mm)							
	25	50	75	100	125	150	175	200
LXF	●	●	●	●				
LXP		●	●	●	●	●	●	●
LXS		●	●	●	●	●		

Home position switch

Nil	None
S	Yes (cable length 0.3m)

Brake

Nil	Without brake
B	With brake

Auto/Proximity switch type

Nil	None

Refer to the tables below for auto/proximity switch part numbers.

Number of auto/proximity switches

1	1 pc.
2	2 pcs.
⋮	⋮
6	6 pcs.

Low particulate generation specification

Auto switch types

Symbol	Model	Wiring/ Output type	Lead wire length (m)	Contact	Applicable actuator
F9N	D-F9N	3 wire/NPN	0.5	N.O. (A contact)	LXP LXS
F9P	D-F9P	3 wire/PNP	0.5	N.O. (A contact)	
F9G	D-F9G	3 wire/NPN	0.5	N.C. (B contact)	
F9H	D-F9H	3 wire/PNP	0.5	N.C. (B contact)	
F9GL	D-F9GL	3 wire/NPN	3	N.C. (B contact)	
F9HL	D-F9HL	3 wire/PNP	3	N.C. (B contact)	
F9B	D-F9B	2 wire	0.5	N.O. (A contact)	
F9NL	D-F9NL	3 wire/NPN	3	N.O. (A contact)	
F9PL	D-F9PL	3 wire/PNP	3	N.O. (A contact)	
F9BL	D-F9BL	2 wire	3	N.O. (A contact)	

∗ When using both auto and proximity switches, list the proximity switch part number after the auto switch part number. Example) **F9N1G2**

Proximity switch types

Symbol	Model	Wiring/ Output type	Lead wire length (m)	Contact	Applicable actuator
GN	With sensor rail and sensor plate, without proximity switch				LXF LXS
G	GXL-8F	3 wire/NPN	1	N.O. (A contact)	
GD	GXL-8FI	3 wire/NPN	1	N.O. (A contact)	
GB	GXL-8FB	3 wire/NPN	1	N.C. (B contact)	
GDB	GXL-8FIB	3 wire/NPN	1	N.C. (B contact)	
GU	GXL-8FU	2 wire/Solid state	1	N.O. (A contact)	
GUB	GXL-8FUB	2 wire/Solid state	1	N.C. (B contact)	

∗ Refer to page 318 for detailed specifications of proximity switches.

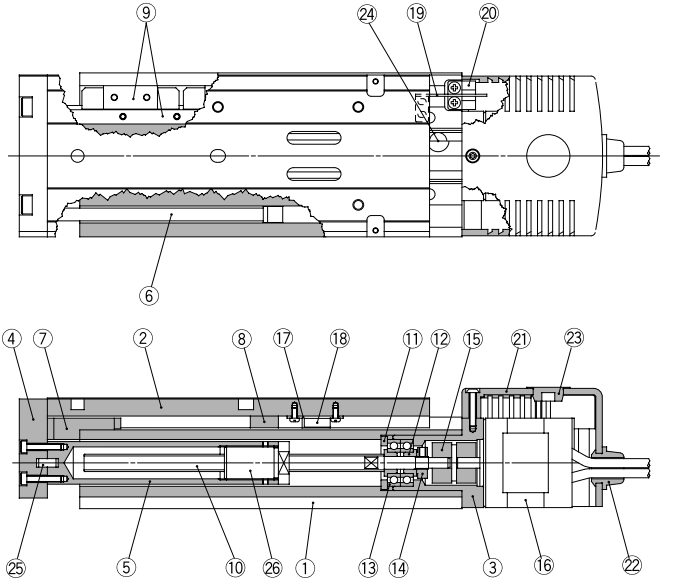
Specifications

Model	LXF	LXP	LXS
Guide type	Direct acting guide Stainless steel, With low particulate generating grease	Ball bushing Stainless steel, With low particulate generating grease	High rigidity direct acting guide Stainless steel, With low particulate generating grease
Lead screw	Ball screw ø8mm 2mm/5mm lead Black chrome coating + Special fluororesin coating, AFE grease (made by THK) applied		

For basic specifications such as allowable moment, refer to the "Standard" pages for equivalent products listed on Features pages 3 and 4.

Construction

Series LX**S**



Parts list

No.	Description	Material	Note
1	**Body**	Aluminum alloy	Anodized
2	**Table**	Aluminum alloy	Anodized
3	**Adaptor**	Aluminum alloy	Anodized
4	**Plate**	Aluminum alloy	Anodized
5	**Tube**	Aluminum alloy	Anodized
6	**Rod assembly**	——	With magnet
7	**Stopper A**	——	With bumper
8	**Stopper B**	——	
9	**Direct acting guide (block, rail)**	——	
10	**Rolled screw (shaft only)**	Alloy steel	
11	**Tension ring**	Stainless steel	
12	**Bearing retainer**	Stainless steel	
13	**Bearing**	——	

Parts list

No.	Description	Material	Note
14	**Lock nut**	Carbon steel	Black zinc chromated
15	**Coupling**	——	
16	**Motor**	——	
17	**Magnet holder**	Resin	
18	**Magnet**	Rare earth magnet	
19	**Sensor plate**	Mild steel	With home position switch
20	**Photo micro sensor**	——	With home position switch
21	**Motor cover**	Resin	
22	**Plug A**		
23	**Plug B**		
24	**Cap**		
25	**Parallel pin**	Carbon steel	
26	**Nut**	Resin/Alloy steel	

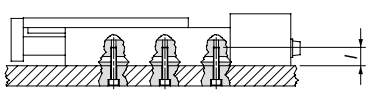
Mounting

Series LXS

Actuator mounting

An actuator can be mounted from two directions, which can be selected depending on the equipment or work piece.

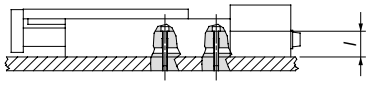
1. Tapped holes



Model	Bolt	Max. tightening torque N·m	Max. screw-in depth (*l* mm)
LXS	M6 x 1	7.4	20

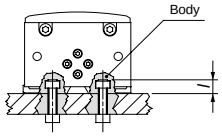
⚠**Caution** Use bolts at least 0.5mm shorter than the maximum screw-in depth, so they do not touch the body.

2. Through holes



Model	Bolt	Max. tightening torque N·m	Body thickness (*l* mm)
LXS	M5 x 0.8	4.4	28

3. T-slots



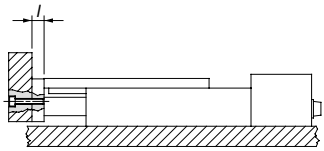
Model	Bolt	Max. tightening torque N·m	Max. screw-in depth (*l* mm)
LXS	M6 x 1	7.4	10

⚠**Caution** Use bolts at least 0.5mm shorter than the maximum screw-in depth, so they do not touch the body.

Work piece mounting

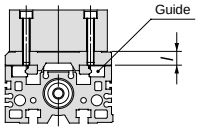
Work pieces can be mounted on two sides of the actuator.

1. Front mount type



Model	Bolt	Max. tightening torque N·m	Body thickness (*l* mm)
LXS	M6 x 1	7.4	13

2. Top mount type

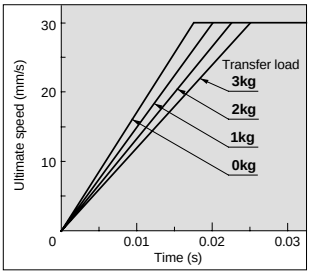


Model	Bolt	Max. tightening torque N·m	Max. screw-in depth (*l* mm)
LXS	M5 x 0.8	4.4	10

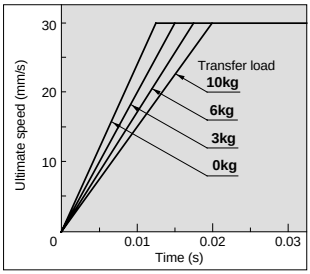
⚠**Caution** Use bolts at least 0.5mm shorter than the maximum screw-in depth, so they do not touch the body.

Acceleration Time Guide/Ball Screw Specification (Horizontal)

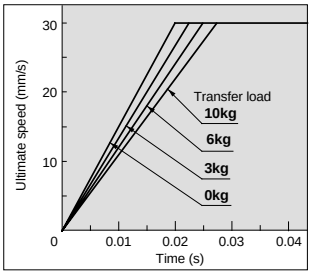
LXFH5BC



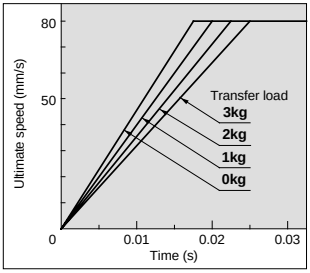
LXPB2BC/LXSH2BC



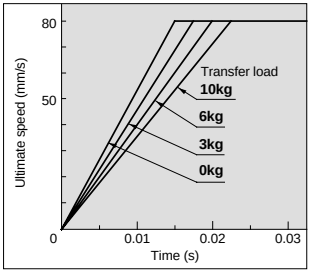
LXPB5BC/LXSH5BC



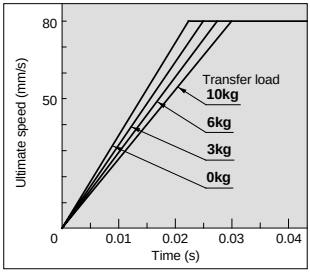
LXFH5BD



LXPB2BD/LXSH2BD

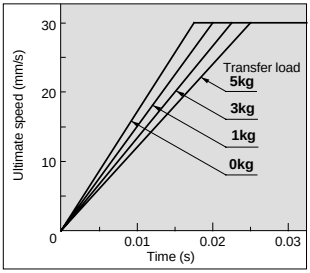


LXPB5BD/LXSH5BD

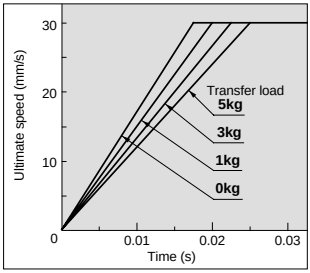


Acceleration Time Guide/Ball Screw Specification (Vertical)

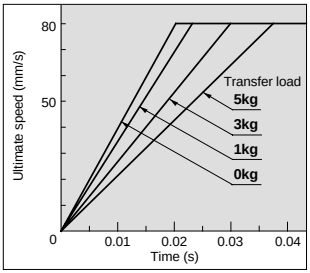
LXPB2BC/LXSH2BC



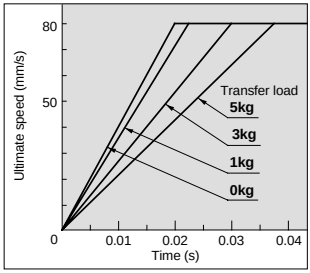
LXPB5BC/LXSH5BC



LXPB2BD/LXSH2BD



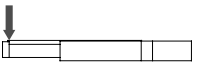
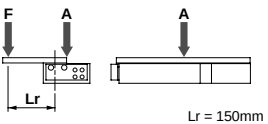
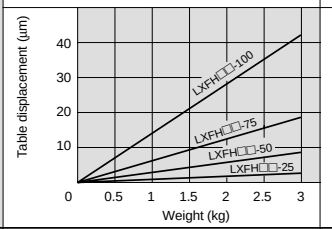
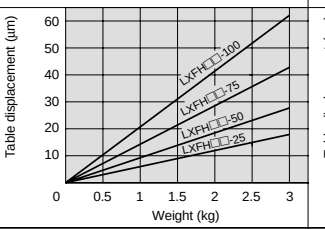
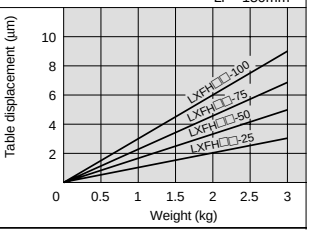
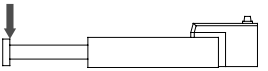
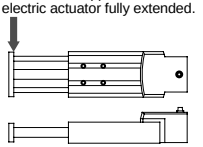
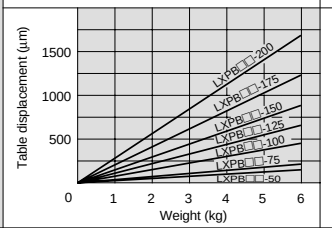
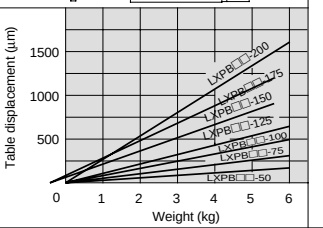
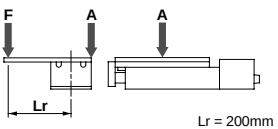
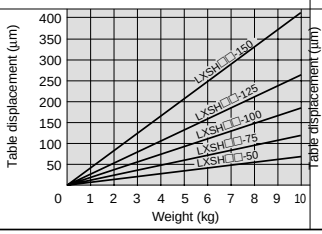
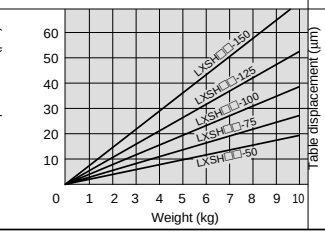
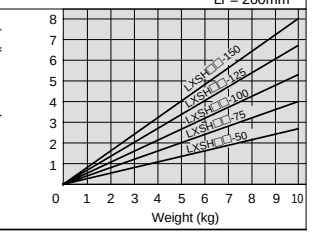
LXPB5BD/LXSH5BD



⚠ Caution

- Transfer loads should not exceed each model's work load specification.
- Determine the acceleration time based on the transfer load and ultimate speed.
- Operating over the graph ranges will cause loss of synchronism.
- The graphs are based on operation using an SMC DC power input type driver with halfstep energization.
- Data fluctuate depending on the operating conditions.

Table Deflection

	Table displacement by pitch moment load	Table displacement by yaw moment load	Table displacement by roll moment load
LXF	Displacement at the section indicated by the arrow when a load is applied to this section with the slide table fully extended.	Displacement at the section indicated by the arrow when a load is applied to this section with the slide table fully extended.	Displacement at "A" when a load is applied to "F" with the slide table retracted.
			
			Lr = 150mm
			
LXP	Displacement at the section indicated by the arrow when a load is applied to this section with the electric actuator fully extended.	Displacement at the section indicated by the arrow when a load is applied to this section with the electric actuator fully extended.	
			
			
LXS	Displacement at the section indicated by the arrow when a load is applied to this section with the slide table fully extended.	Displacement at the section indicated by the arrow when a load is applied to this section with the slide table fully extended.	Displacement at "A" when a load is applied to "F" with the slide table retracted.
			
			Lr = 200mm
			

Solid State Switches

Applicable Actuators

D-F9	**Series LXF*, LXP, LXS**
D-Y7GL	**Series LJ1 (non-standard motor)**

* Cannot be mounted on Series LXF with ball screw specification.

Auto Switch Specifications

Auto switch part no.	D-F9N	D-F9P	D-F9B	D-F9G	D-F9H
Contact	N.O. (A contact)			N.C. (B contact)	
Electrical entry	In-line				
Wiring type	3 wire		2 wire	3 wire	
Output type	NPN	PNP	—	NPN	PNP
Applicable load	IC circuit, Relay, PLC		24VDC relay, PLC	IC circuit, Relay, PLC	
Power supply voltage	5, 12, 24VDC (4.5 to 28V)		—	5, 12, 24VDC (4.5 to 28V)	
Current consumption	10mA or less		—	10mA or less	
Load voltage	28VDC or less	—	24VDC (10 to 28VDC)	28VDC or less	—
Load current	40mA or less	80mA or less	5 to 40mA	40mA or less	80mA or less
Internal voltage drop	1.5V or less (0.8V or less at load current of 10mA)	0.8V or less	0.4V or less	1.5V or less (0.8V or less at load current of 10mA)	0.8V or less
Leakage current	100μA or less at 24VDC		80mA or less	100μA or less at 24VDC	
Indicator light	Red LED lights up when ON			Red LED lights up when OFF	

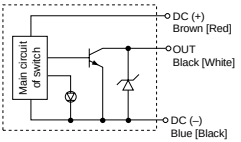
- Lead wire ——— Oil resistant heavy duty vinyl cord, ø2.7, 0.15mm² x 3 wire (Brown, Black, Blue [Red, White, Black]), 0.18mm² x 2 wire (Brown, Blue [Red, Black])
- Insulation resistance —— 50MΩ or more at 500VDC (between lead wire and case)
- Withstand voltage —— 1000VAC for 1 min. (between lead wire and case)
- Indication light ——— Lights when ON
- Ambient temperature —— –10 to 60°C
- Operating time ——— 1ms or less
- Impact resistance ——— 1000m/s²

Auto switch part no.	D-Y7GL
Contact	N.C. (B contact)
Electrical entry	In-line
Wiring type	3 wire
Output type	NPN
Applicable load	IC circuit, Relay, PLC
Power supply voltage	5, 12, 24VDC (4.5 to 28V)
Current consumption	10mA or less
Load voltage	28VDC or less
Load current	40mA or less
Internal voltage drop	1.5V or less (0.8V or less at load current of 10mA)
Leakage current	100μA or less at 24VDC
Indicator light	Red LED lights up when OFF

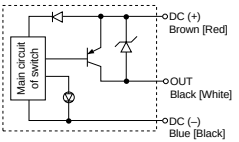
Auto switch internal circuits

Lead wire colors inside [ ] are those prior to conformity with IEC standards.

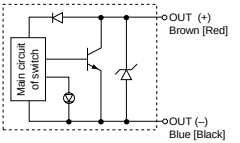
D-F9G, D-Y7GL



D-F9P, D-F9H



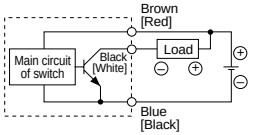
D-F9B



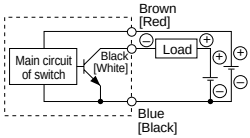
Solid State Switch Connection and Examples

Basic Wiring

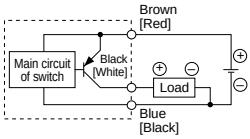
3 wire, NPN
(When the switch power supply and load power supply are the same)



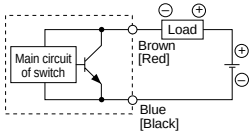
(When the switch power supply and load power supply are separate)

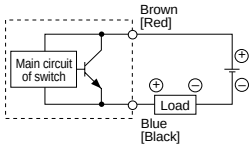


3 wire, PNP



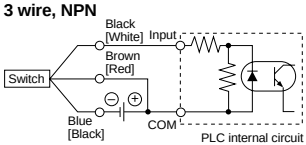
2 wire



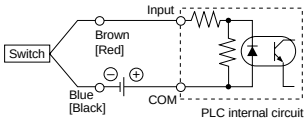


Examples of Connection to PLC

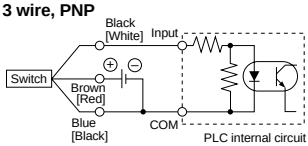
Sink input specifications,
3 wire, NPN



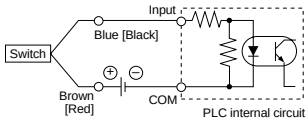
2 wire



Source input specifications,
3 wire, PNP



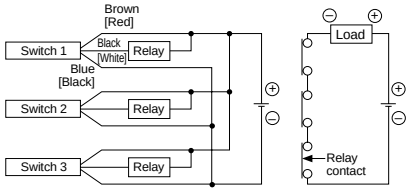
2 wire



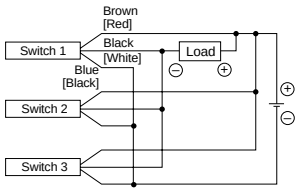
Connect according to the applicable PLC input specifications, as the connection method will vary depending on the PLC input specifications.

Connection Examples for AND (Series) and OR (Parallel)

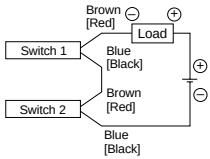
3 wire, AND connection for NPN output



3 wire, OR connection for NPN output



2 wire with 2 switch AND connection

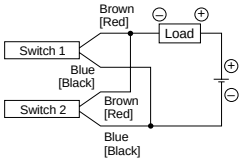


When two switches are connected in series, a load may malfunction because the load voltage will decline when in the ON state.
The indicator lights will light up when both of the switches are in the ON state.

Load voltage at ON = Power supply voltage – Residual voltage x 2 pcs.
= 24V – 4V x 2 pcs.
= 16V

Example: Power supply voltage is 24VDC.
Internal voltage drop in switch is 4V.

2 wire with 2 switch OR connection



When two switches are connected in parallel, malfunction may occur because the load voltage will increase when in the OFF state.

Load voltage at OFF = Leakage current x 2 pcs. x Load impedance
= 1mA x 2pcs. = 3kΩ
= 6V

Example: Load impedance is 3kΩ.
Leakage current from switch is 1mA.

SMC Information

SMC Corporation
1-16-4 Shinbashi, Minato-ku,
Tokyo 105-8659, Japan
URL: http://www.smcworld.com

'03-E503 Issued: December, 2003
D-YGA P-80(YGA)

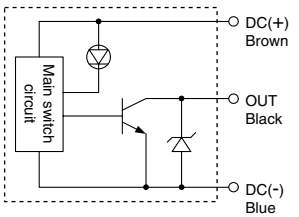
Solid-state Auto Switches for Direct Mounting
Series D-M9N(V)/D-M9P(V)/D-M9B(V)

Grommet

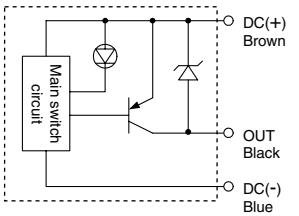
- Reduced load currents for two-wire model (2.5 to 40 mA)
- Compliance with lead-free requirements
- Use of UL-approved lead wires (style 2844)

Internal circuits

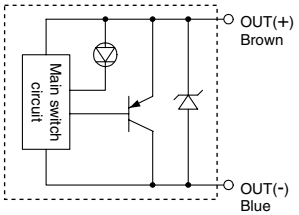
D-M9N/M9NV



D-M9P/M9PV



D-M9B/M9BV



Auto Switch Specifications

PLC: Programmable Logic Controller

D-M9□/D-M9□V (with Indicator light)						
Model number	**D-M9N**	**D-M9NV**	**D-M9P**	**D-M9PV**	**D-M9B**	**D-M9BV**
Electrical entry	In-line	Perpendicular	In-line	Perpendicular	In-line	Perpendicular
Wiring	Three-wire				Two-wire	
Output	NPN		PNP		—	
Applicable load	Integrated circuit, relay and PLC				24 V DC relay and PLC	
Power voltage	5, 12, or 24 V DC (4.5 to 28 V DC)				—	
Current consumption	10 mA or less				—	
Load voltage	28 V DC or less		—		24 V DC (10 to 28 V DC)	
Load current	40 mA or less				2.5 to 40 mA	
Internal voltage drop	0.8 V or less				4 V or less	
Leakage current	100 μA max. at 24 V DC				0.8 mA or less	
Indicator light	Red LED lights when ON.					

• Lead wire: oil-proof heavy-duty vinyl cable
2.7 x 3.2 with elliptic cross-section, 0.15 mm^2, two cores (D-M9B),
or three cores (D-M9N and D-M9P)

Solid state switch specifications

Leakage current	3-wire: 100 μA or less; 2-wire: 0.8 mA max.
Operating time	1 ms or less
Impact resistance	1000 m/s^2
Insulation resistance	50 MΩ or more at 500 V DC (between lead wire and case)
Withstand voltage	1000 V AC for 1 min. (between lead wire and case)
Ambient temperature	−10°C to 60°C
Enclosure	IEC529 standard IP67, JIS C 0920 watertight construction

Weight

Unit: g

Model		D-M9N(V)	D-M9P(V)	D-M9B(V)
Lead wire length (m)	0.5	8	8	7
	3	41	41	38
	5	68	68	63

How to Order

Standard Model Number

D-M9 N V L

Series Model Number

Wiring and output

N	3-wire, NPN
P	2-wire, PNP
B	2-wire

Electrical entry

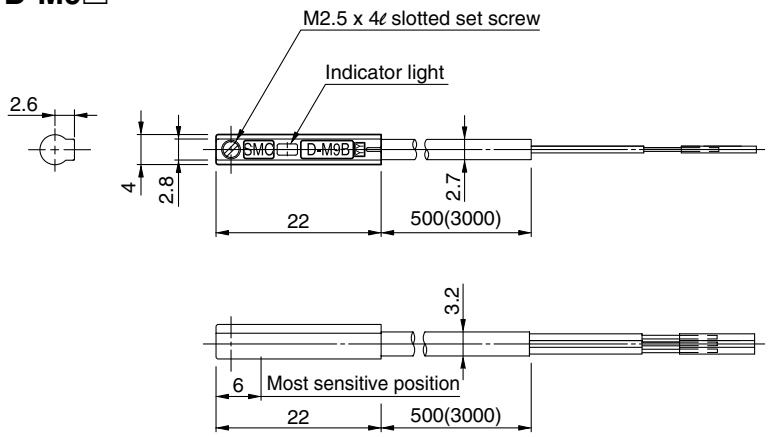
Nil	In-line
V	Perpendicular

Lead wire length

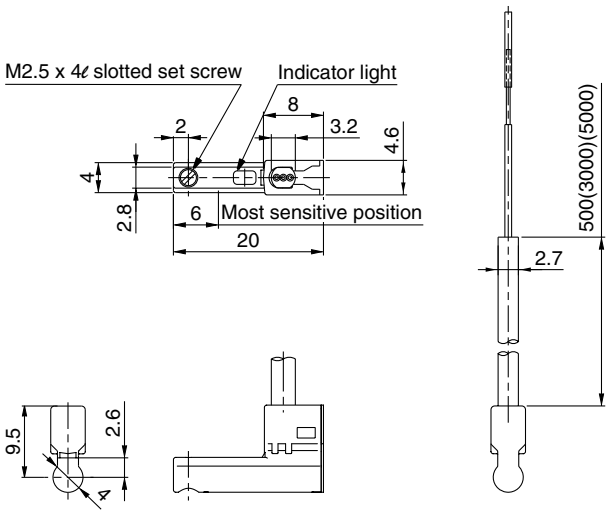
Nil	0.5m
L	3m
Z	5m

Auto Switch Dimensions

D-M9□



D-M9□V



⚠ Specific Product Precautions

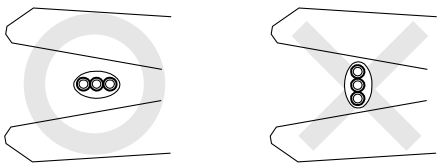
Be sure to read before handling. Contact SMC when the required specification is out of range.

Handling

⚠ Caution

Observe the following precautions when handling the product.

- The D-M9 series of auto switches is not overcurrent-protected.
  Faulty wiring or short circuit may result in breakage or burning-out of the switch.
- When stripping the cable clad, be careful about the orientation of the cable being stripped.
  The insulator may be accidentally torn or damaged depending on the orientation, as shown on the right.



● We recommend the following tools

Manufacturer	Product name	Product number
VESSEL	Wire stripper	No 3000G
Tokyo Ideal	Strip master	45-089

∗ The stripper for the round shape cords (ø2.0) is for a 2-wire style.

● Please do not attach the switch with any other screws than those already attached to the auto switch body.

The operation range is shorter than that of the conventional models.

If the auto switch replaces the conventional model, it may not function depending on its application because the operation range is shorter. Refer to the examples below.

- **In an application where at the end, the stopping position shifting range is larger than the operation range.**
  For example, pushing a work against something, or pressing a work into a hole, or clamping a work.
- **In an application where the auto switch is used to detect an intermediate stopping position. (Detecting time is shortened.)**

Note) Please contact SMC for the operation range details for each actuator.

The switch is damaged instantly when a load is shortened since short circuit protection is not built-in. Pay special attention to avoid reversing the connection of the brown lead of the power supply line and the black output line connection.

Applicable switch models

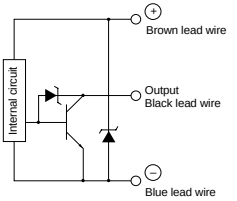
Applicable model	Model type	Part no.	Switch type		
LXF LXS	G	GXL-8F	Standard	N.O. (A contact)	3 wire
	GD	GXL-8FI	Varying frequencies	N.O. (A contact)	3 wire
	GB	GXL-8FB	Standard	N.C. (B contact)	3 wire
	GDB	GXL-8FIB	Varying frequencies	N.C. (B contact)	3 wire
	GU	GXL-8FU	Standard	N.O. (A contact)	2 wire
	GUB	GXL-8FUB	Standard	N.C. (B contact)	2 wire

Switch specifications (SUNX Corporation)

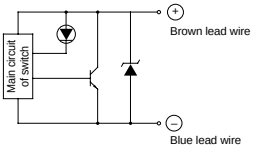
Part no.		GXL-8F(I)(B)	GXL-8FU	GXL-8FUB
Repeatability		Direction of detecting axis, Perpendicular to detecting axis: 0.04mm or less		
Power supply voltage		12 to 24VDC ±10%, Ripple P-P 10% or less		
Current consumption		15mA	0.8mA or less (when output is OFF)	
Output		NPN Maximum load current: 100mA Maximum applied voltage: 30VDC Residual voltage: 1V or less	2 wire solid state DC Load current: 3 to 70mA Residual voltage: 3V or less	
Maximum response frequency		500Hz	1kHz	
Indicator light		Red LED (lights up when ON)	Green LED (stable detection) Red LED (unstable detection)	
Environmental resistance	Ambient temperature	–10° to 55°C	–25° to 70°C	
	Ambient humidity	45 to 85% RH		
	Noise resistance	Power line: 240Vp, pulse width of 0.5µs		
Detecting distance fluctuation	Temperature characteristics	Within +15/–10% of detecting distance at 20°C within ambient temperature range		
	Voltage characteristics	Within ±2% with ±10% fluctuation of operating voltage		
Cable		0.08mm 3 wire heavy duty cable 1m	0.15mm 2 wire heavy duty cable 1m	

Proximity switch internal circuit

GXL-8F(I)(B)

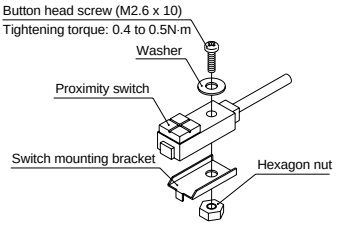


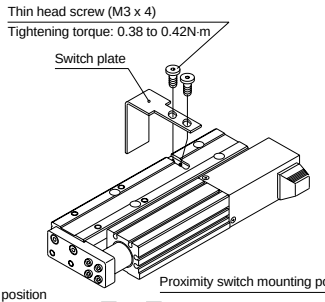
GXL-8FU(B)(I)

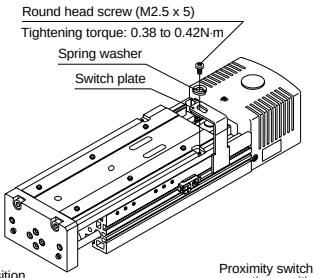


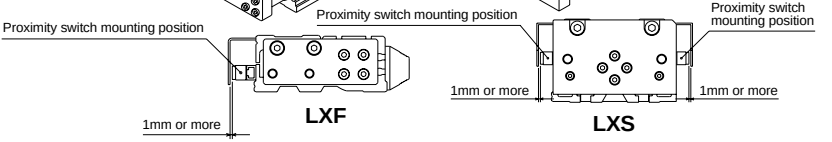
Proximity Switch/Switch Plate Mounting

Be sure to use the mounting screws included, and mount the proximity switch as shown in the drawing to the right.
Mount the switch plate as shown below. Always use the proper tightening torque and use a thread locking agent on screws to prevent loosening.
The switch body is made of PBT and acrylic resin. Select a thread locking agent that will not affect these materials.





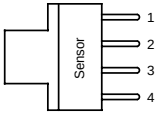




Standard Photo Micro Sensor for Home Position (OMRON Corporation)

Rating

Power supply voltage	5 to 24VDC ±10%, Ripple (p-p) 10% or less		
Current consumption	35mA or less		
Control output	5 to 24VDC load current (Ic) 100mA, Residual voltage 0.8V or less Load current (Ic) 40mA, Residual voltage 0.4V or less		
Ambient temperature	Operation: –25° to 55°C (When stored: –30° to 80°C)		
Ambient humidity	Operation: 5 to 85%RH (When stored: 5 to 95%RH)		
Part no.	EE-SX672 equivalent	EE-SX673 equivalent	EE-SX674
Applicable actuator	**LXF**	**LXP, LXS**	**LG1** (non-standard motor)

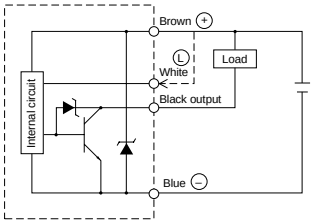
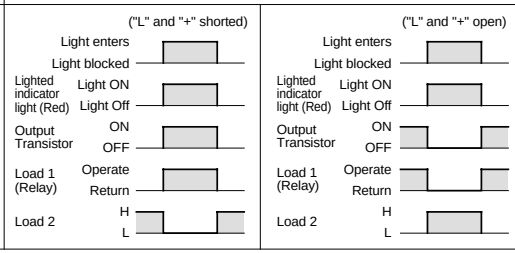


Terminal arrangement

1	Brown	Vcc ⊕
2	White	L*
3	Black	OUTPUT
4	Blue	GND (OV) ⊖

* Normally ON when light is blocked. However, if the Ⓛ terminal and ⊕ terminal are shorted, it changes to ON when light enters.

Output level circuit

Operating condition of output transistor	ON when light enters	ON when light is blocked
Output circuit		
Time chart		

* Normally ON when light is blocked. However, if the Ⓛ terminal and ⊕ terminal are shorted, it changes to ON when light enters.