

Series LXF

Series LXP

Series LXS

Short Stroke  
Electric Actuator

# Series LX

Direct Acting Guide/Ball Bushing

Series	Motor type	Brake	Guide type	Model	Lead screw lead mm		Page
					Ball screw	Slide screw	
LXF	5 phase stepper	Without brake	Direct acting guide	LXFH5	2 5	6 12	210
LXP	2 phase stepper	Without brake	Ball bushing	LXPB2	2 5	6 12	218
		With brake			2 5	6 12	226
	5 phase stepper	Without brake		LXPB5	2 5	6 12	234
		With brake			2 5	6 12	242
LXS	2 phase stepper	Without brake	High rigidity direct acting guide	LXSH2	2 5	6 12	250
		With brake			2 5	6 12	258
	5 phase stepper	Without brake		LXSH5	2 5	6 12	266
		With brake			2 5	6 12	274

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- Made to Order
  - AC servomotor specification \_\_\_\_\_ 288
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- Construction \_\_\_\_\_ 296
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## Part Number Designations

**LX S H 5 B C 100 S B F9N 1**

**Actuator configuration**

F	Flat table type
P	Guide rod type
S	Slide table type

**Guide type**

H	Direct acting guide
B	Ball bushing

**Motor type**

2	2 phase stepper motor
5	5 phase stepper motor

**Lead screw type**

B	Ball screw
S	Slide screw

**Lead screw lead**

A	6mm
B	12mm
C	2mm
D	5mm

**Stroke**

100	100mm
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**Home position switch**

Nil	None
S	With solid state switch (cable length 0.3m)

**Brake**

Nil	None
B	With brake

**Number of auto switches/proximity switches**

1	1 pc.
2	2 pcs.
:	:
6	6 pcs.

**Auto switch/Proximity switch type**

Nil	Without auto switch/proximity switch
F9N	D-F9N (lead wire length 0.5m)
F9P	D-F9P (lead wire length 0.5m)
F9G	D-F9G (lead wire length 0.5m)
F9H	D-F9H (lead wire length 0.5m)
F9GL	D-F9GL (lead wire length 3m)
F9HL	D-F9HL (lead wire length 3m)
F9B	D-F9B (lead wire length 0.5m)
F9NL	D-F9NL (lead wire length 3m)
F9PL	D-F9PL (lead wire length 3m)
F9BL	D-F9BL (lead wire length 3m)

**Proximity switches**

GN	With sensor plate, without proximity switch
G	GXL-8F (lead wire length 1m)
GD	GXL-8FI (lead wire length 1m)
GB	GXL-8FB (lead wire length 1m)
GDB	GXL-8FIB (lead wire length 1m)
GU	GXL-8FU (lead wire length 1m)
GUB	GXL-8FUB (lead wire length 1m)

The tables above show the definition for each symbol only and cannot be used for actual model selection.

# 5 Phase Stepper Motor

# Low Profile Slide Table Type

# Without Motor Brake

# Series LXF

Direct Acting Guide

Ball Screw  
ø8mm/2mm lead

## How to Order

LXFH5 **BC** — **Stroke** **S** — **GD** **1**

Home position switch

Nil	None
S	Yes (cable length 0.3m)

Proximity switch type

Nil	None
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Refer to the table on the right for proximity switch part numbers.

Number of proximity switches

1	1 pc.
2	2 pcs.
⋮	⋮
6	6 pcs.

### Proximity switch types

Symbol	Model	Wiring/ Output type	Lead wire length (m)	Contact
GN	With sensor rail and 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	25	50	75	100
Performance	Body weight	kg	0.8	1.0	1.1	1.2
	Operating temperature range	°C	5 to 40 (with no condensation)			
	Work load	kg	3 (2) horizontal <small>Note 1)</small>			
	Speed	mm/s	to 30 <small>Note 2)</small>			
	Positioning repeatability	mm	±0.03			
Main parts	Motor	5 phase stepper motor (without brake)				
	Lead screw	Ball screw ø8mm, 2mm lead				
	Guide	Direct acting guide				
Home position switch	Model	Photo micro sensor EE-SX672				
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.

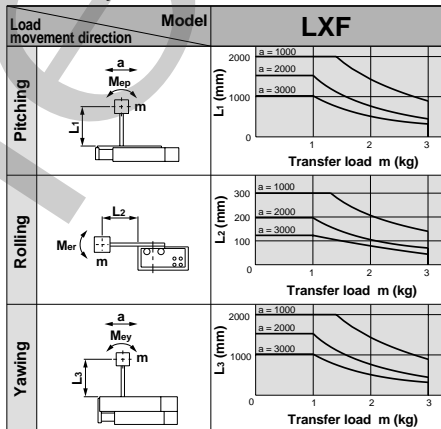
## Allowable Moment (N·m)

### Allowable static moment

Pitching	4
Rolling	3
Yawing	4

m : Transfer load (kg)  
L : Overhang to work piece center of gravity (mm)  
a : Work piece acceleration (mm/sec<sup>2</sup>)  
Me : Dynamic moment

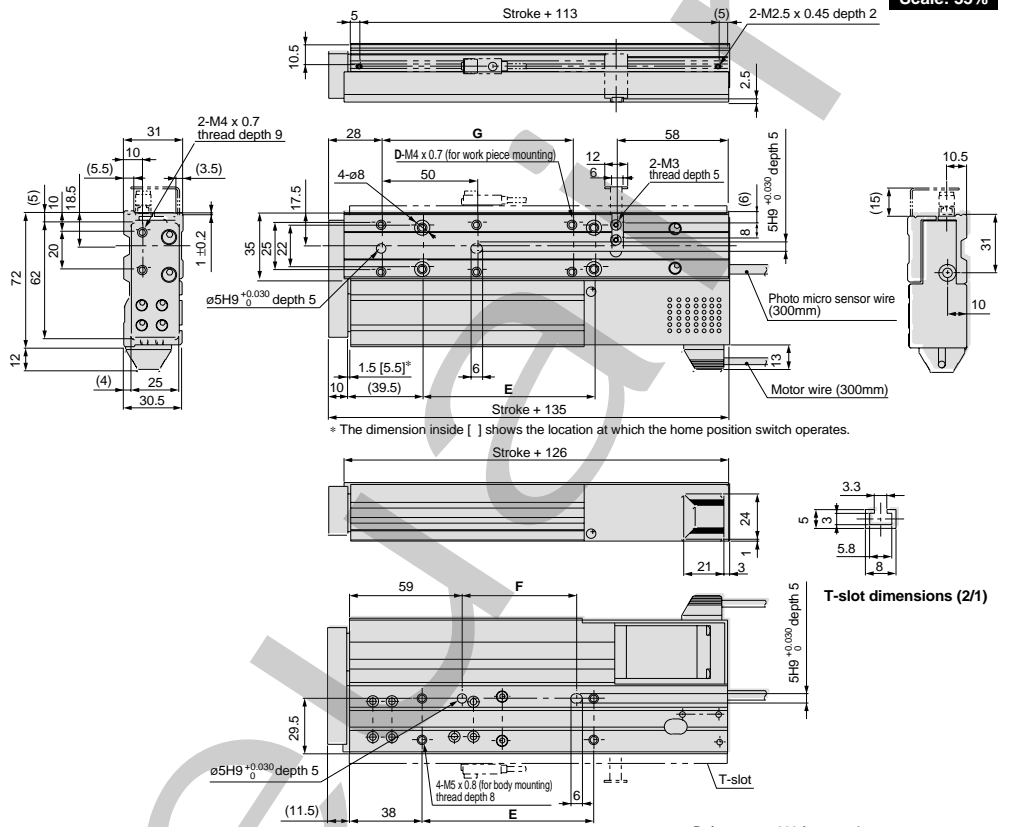
### Allowable dynamic moment



Refer to page 304 for deflection data.

**Dimensions/LXFH5BC**

Scale: 35%



Refer to page 299 for mounting.

Model	D	E	F	G
LXFH5BC-25	4	60	30	(50)
LXFH5BC-50	4	90	60	(50)
LXFH5BC-75	6	90	60	100
LXFH5BC-100	6	90	60	100

**Positioning Time Guide (for Horizontal Mount)**

For transfer load of 0kg

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

For transfer load of 2kg

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

For transfer load of 1kg

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

For transfer load of 3kg

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

Refer to page 303 for acceleration time.

# 5 Phase Stepper Motor

# Low Profile Slide Table Type

# Without Motor Brake

# Series LXF

Direct Acting Guide

Ball Screw  
∅8mm/5mm lead

## How to Order

LXFH5 **BD** — **Stroke** **S** — **GD** **1**

Home position switch

Nil	None
S	Yes (cable length 0.3m)

Proximity switch type

Nil	None
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Refer to the table on the right for proximity switch part numbers.

Number of proximity switches

1	1 pc.
2	2 pcs.
⋮	⋮
6	6 pcs.

### Proximity switch types

Symbol	Model	Wiring/ Output type	Lead wire length (m)	Contact
GN	With sensor rail and 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	25	50	75	100	
Performance	Body weight	kg	0.8	1.0	1.1	1.2		
	Operating temperature range	°C	5 to 40 (with no condensation)					
	Work load	kg	3 (2) horizontal <small>Note 1)</small>					
	Speed	mm/s	to 80 <small>Note 2)</small>					
	Positioning repeatability	mm	±0.03					
Main parts	Motor	5 phase stepper motor (without brake)						
	Lead screw	Ball screw ∅8mm, 5mm lead						
	Guide	Direct acting guide						
Home position switch	Model	Photo micro sensor EE-SX672						
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.

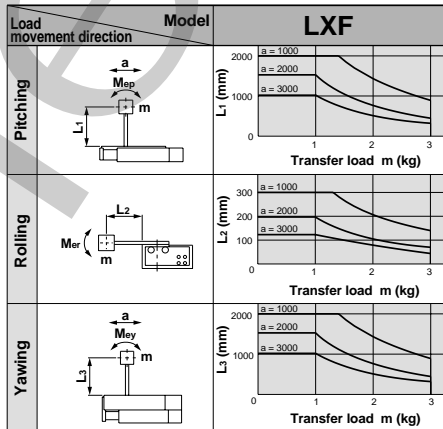
## Allowable Moment (N·m)

### Allowable static moment

Pitching	4
Rolling	3
Yawing	4

m : Transfer load (kg)  
L : Overhang to work piece center of gravity (mm)  
a : Work piece acceleration (mm/sec<sup>2</sup>)  
Me : Dynamic moment

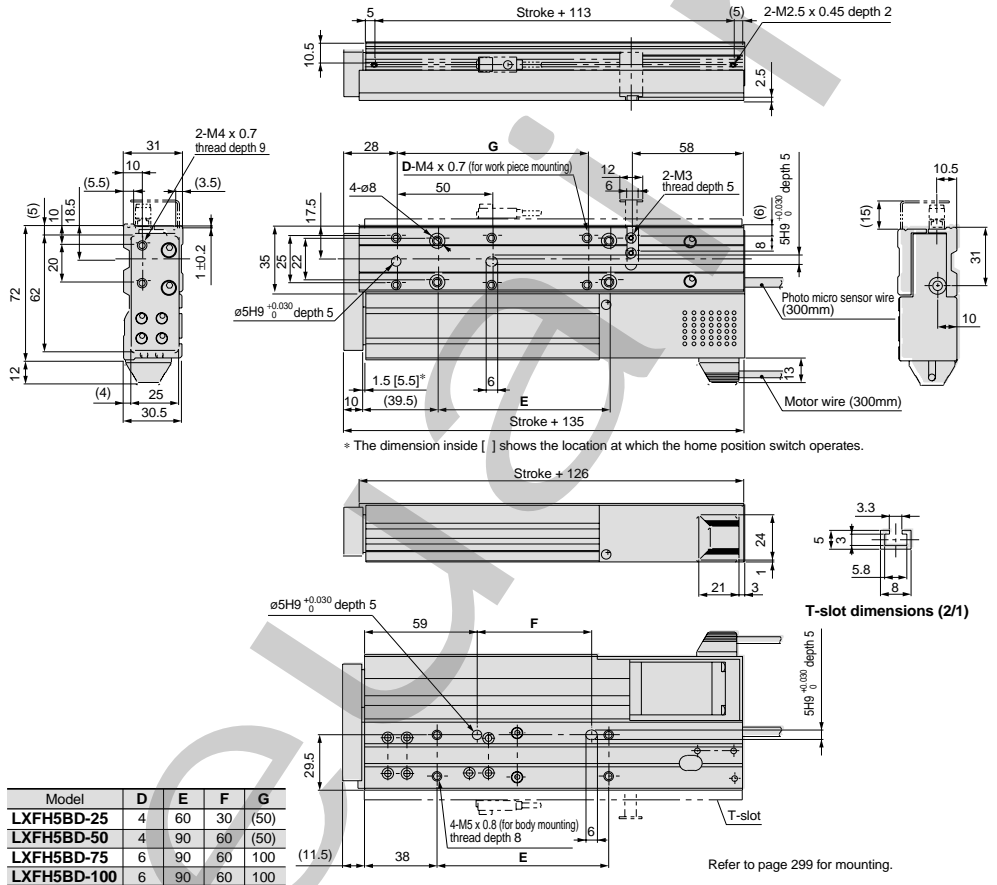
### Allowable dynamic moment



Refer to page 304 for deflection data.

Dimensions/LXFH5BD

Scale: 35%



Positioning Time Guide (for Horizontal Mount)

For transfer load of 0kg

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

For transfer load of 2kg

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

For transfer load of 1kg

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

For transfer load of 3kg

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

Refer to page 303 for acceleration time.

# 5 Phase Stepper Motor

# Low Profile Slide Table Type

# Without Motor Brake

# Series LXF

Direct Acting Guide

Ball Screw  
ø8mm/6mm lead

## How to Order

LXFH5 SA 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 and 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	25	50	75	100
Performance	Body weight	kg	0.8	1.0	1.1	1.2
	Operating temperature range	°C	5 to 40 (with no condensation)			
	Work load	kg	3 (2) horizontal (Note 1)			
	Speed	mm/s	to 100 (Note 2)			
	Positioning repeatability	mm	±0.05			
Main parts	Motor	5 phase stepper motor (without brake)				
	Lead screw	Ball screw ø8mm, 6mm lead				
	Guide	Direct acting guide				
Home position switch	Model	Photo micro sensor EE-SX672				
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 6mm/s or more as a guide for speed.

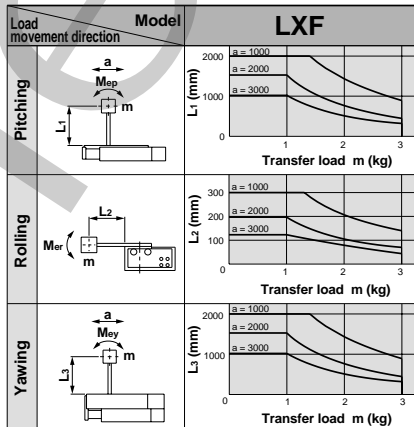
## Allowable Moment (N·m)

### Allowable static moment

Pitching	4
Rolling	3
Yawing	4

m : Transfer load (kg)  
L : Overhang to work piece center of gravity (mm)  
a : Work piece acceleration (mm/sec<sup>2</sup>)  
Me : Dynamic moment

### Allowable dynamic moment



Refer to page 304 for deflection data.



# 5 Phase Stepper Motor

# Low Profile Slide Table Type

# Without Motor Brake

# Series LXF

Direct Acting Guide

Slide Screw  
ø8mm/12mm lead

## How to Order

LXFH5 SB 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
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 and 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	25	50	75	100
Performance	Body weight	kg	0.8	1.0	1.1	1.2
	Operating temperature range	°C	5 to 40 (with no condensation)			
	Work load	kg	2 (2) horizontal (Note 1)			
	Speed	mm/s	to 200 (Note 2)			
	Positioning repeatability	mm	±0.05			
Main parts	Motor	5 phase stepper motor (without brake)				
	Lead screw	Slide screw ø8mm, 12mm lead				
	Guide	Direct acting guide				
Home position switch	Model	Photo micro sensor EE-SX672				
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 12mm/s or more as a guide for speed.

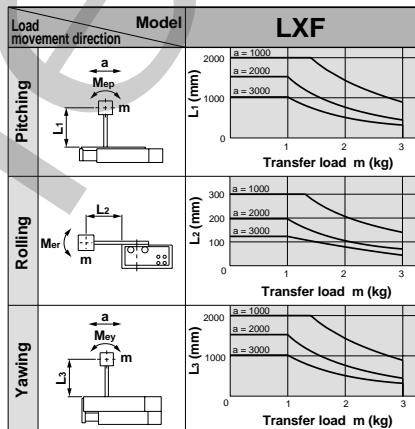
## Allowable Moment (N·m)

### Allowable static moment

Pitching	4
Rolling	3
Yawing	4

m : Transfer load (kg)  
L : Overhang to work piece center of gravity (mm)  
a : Work piece acceleration (mm/sec<sup>2</sup>)  
Me : Dynamic moment

### Allowable dynamic moment



Refer to page 304 for deflection data.



