

L Series

Lead Screw Step Motors



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L Series Lead Screw Step Motors

Introduction

Applied Motion Products hybrid linear stepping motors are specifically designed for equipment designers who require high performance and endurance in a small package.

The designs use a proprietary manufacturing process, incorporating engineering thermoplastics in the rotor drive nut and a stainless steel lead screw. This allows the motor to be much quieter, more efficient and more durable than the V-thread and bronze nut configuration commonly used in other motors. Motor life is 10 times that of a bronze nut style, requires no maintenance and is cost effective.

Applied Motion Products hybrid stepping motors have 5 sizes, NEMA sizes 08, 11, 14 and 23. Each size has 2 configurations available, non-captive and an external linear version. Some versions are available with as captive designs.

These linear motors are ideal for applications requiring precise positioning, rapid motion and long life. Typical applications include X-Y tables, medical devices, semiconductor processing, telecommunication equipment and numerous other uses.

L C17-048D-003

Motor Class

L = linear actuator

Actuator Type

C = captive
N = non-captive
E = external

NEMA Frame Size

08
11
14
17
23
24
34
42

Shaft Diameter

A = .138
B = .1875
C = .218
D = .25
E = .375

Screw Lead in Inches

031 = .03125"
048 = .048"
050 = .050"
062 = .0625"
083 = 1/12"
096 = .096"
100 = .100"
125 = .125"
166 = 1/6"
192 = .192"
200 = .200"
250 = .250"
384 = .384"
400 = .400"

Screw Lead in Millimeters

M10 = 1mm
M20 = 2mm
M40 = 4mm
M80 = 8mm

Numbers: indicates custom motor derived from main part number

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Screw Length Options

Linear Travel Per Full Step		LX08	LX11	LX14		LX17		LX23	Order Code
in.	mm	ø0.138" (3.5)	ø0.1875" (4.76)	ø0.218" (5.54)	ø0.25" (6.35)	ø0.218" (5.54)	ø0.250" (6.35)	ø0.375" (9.53)	
0.00015*	0.00396*						•		031
0.00019*	0.005	•							M10
0.00024	0.00609*	•		•		•			048
0.00025	0.00635		•						050
0.00031*	0.00793*				•		•	•	062
0.00039*	0.01	•							M20
0.00041*	0.01058*								083
0.00048	0.01219*	•		•		•			096
0.0005	0.0127		•					•	100
0.00062*	0.01587*				•		•		125
0.00078*	0.02	•							M40
0.00083*	0.02116*							•	166
0.00096	0.02438*			•		•			192
0.001	0.0254		•						200
0.00125	0.03175				•		•		250
0.00157*	0.04	•							M80
0.00192	0.04876*			•		•			384
0.002	0.0508		•					•	400

* Values truncated

LX08 Series

Applied Motion Products LX08 series, NEMA size 08 motor is our smallest hybrid linear stepping motor.

It is specifically designed for mechanical structure designers who require precise linear motion control in a very small package.

Configurations options:

Thrust up to 35N, speeds up to 12mm/s

Captive / Noncaptive / External Nut



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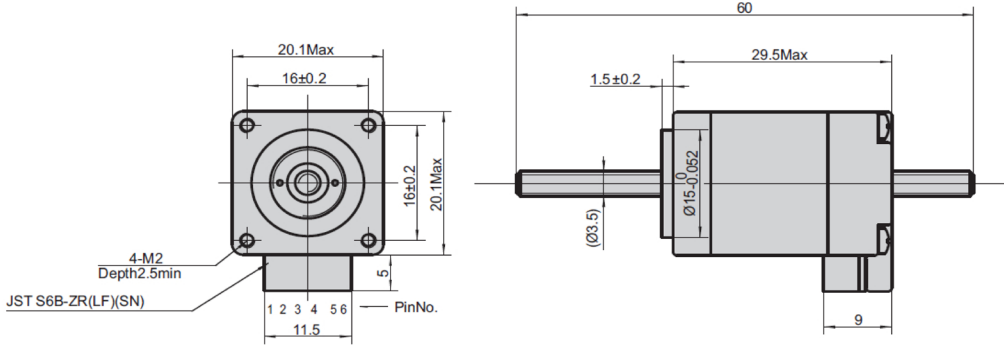
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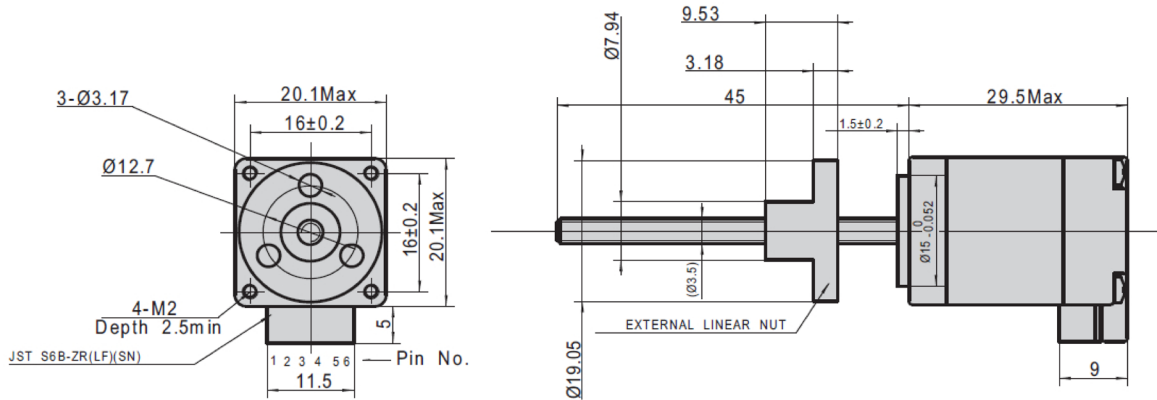
sales@electromate.com

LX08 Mechanical Data

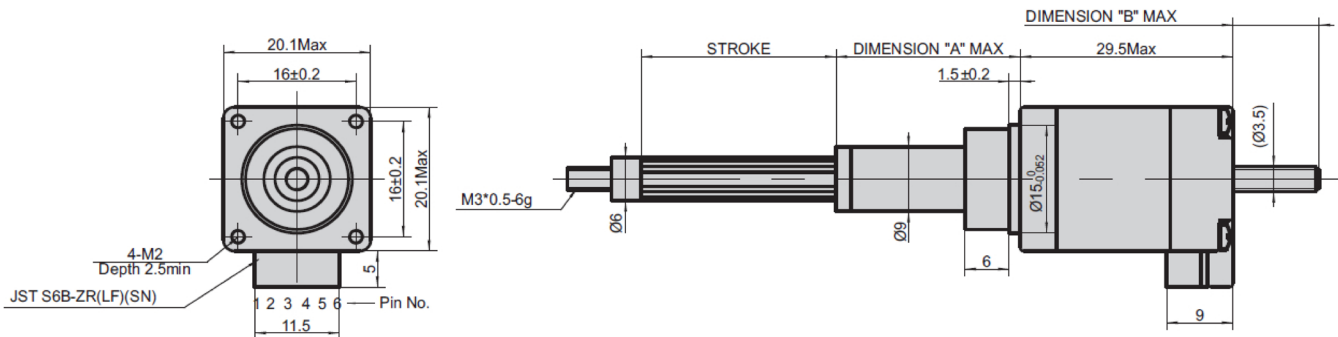
Noncaptive LN08-XXXX



External Nut LE08-XXXX



Captive LC08-XXXX



LX08 Specifications

Type	LX08-XXXX
Rated Current	0.25A
Resistance Per Phase	9 Ω
Inductance Per Phase	1.85mH
Temperature Rise	75 degrees C
Weight	42g
Rotor Inertia	2g*cm ²

ø3.505mm				
Lead		Travel Per Full Step		Order Code (-XXXX)
in.	mm	in.	mm	
0.048	1.2192	0.00024	0.00609*	048A

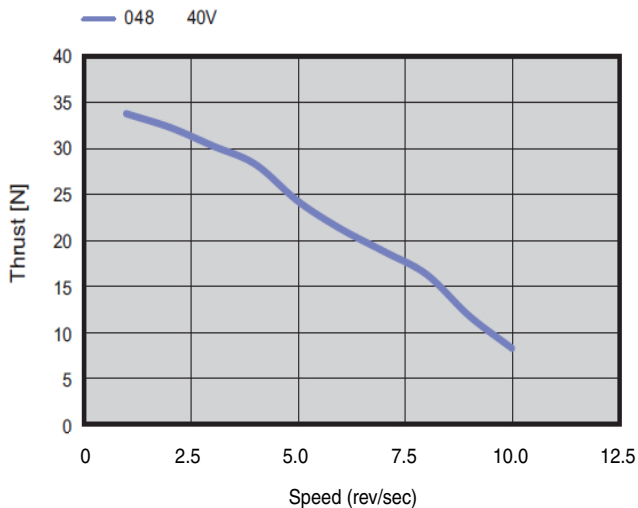
* Values truncated

LX08 Performance Curves

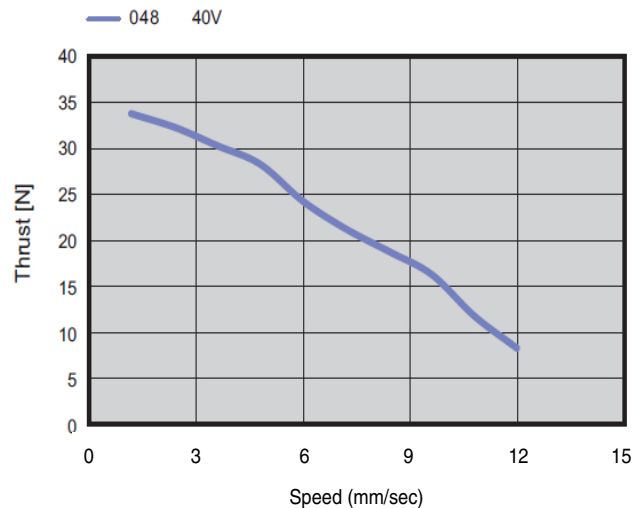
Conditions: Bi-polar Constant Current Driver

Mode: Full Step

LX08-XXXX Force vs Rotational Speed:



LX08-XXXX Force vs Linear Velocity:



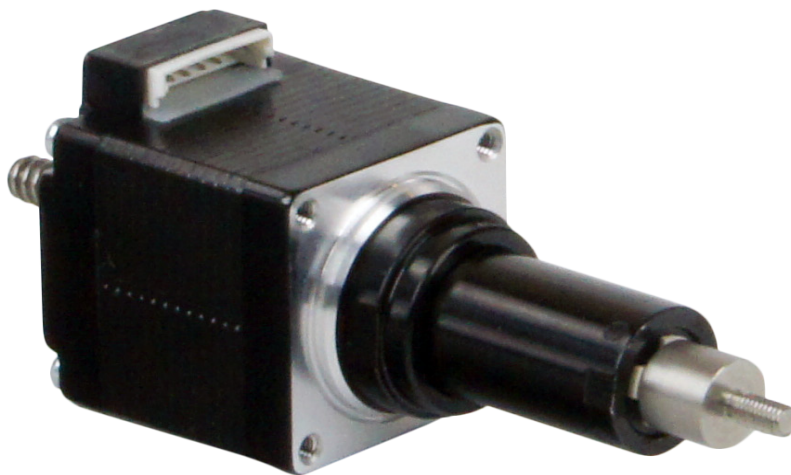
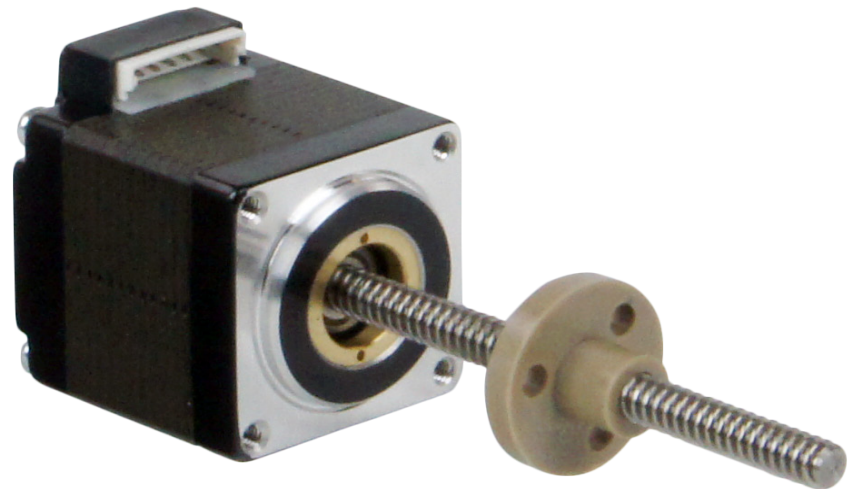
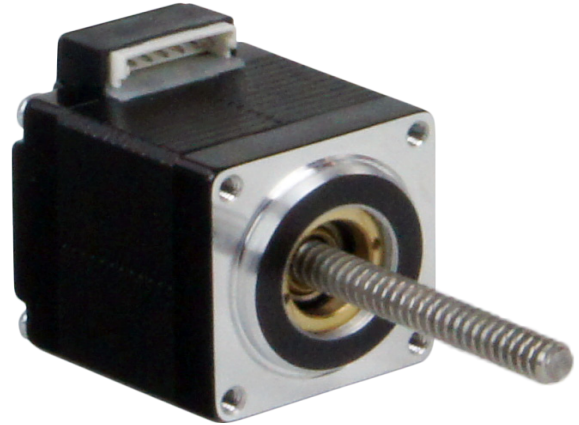
LX11 Series

Applied Motion Products LX11 series, NEMA size 11 linear stepping motor combines small size with high thrust and speed. These units are especially suitable for equipment requiring higher thrust and speed while maintaining a small overall package size.

Configurations options:

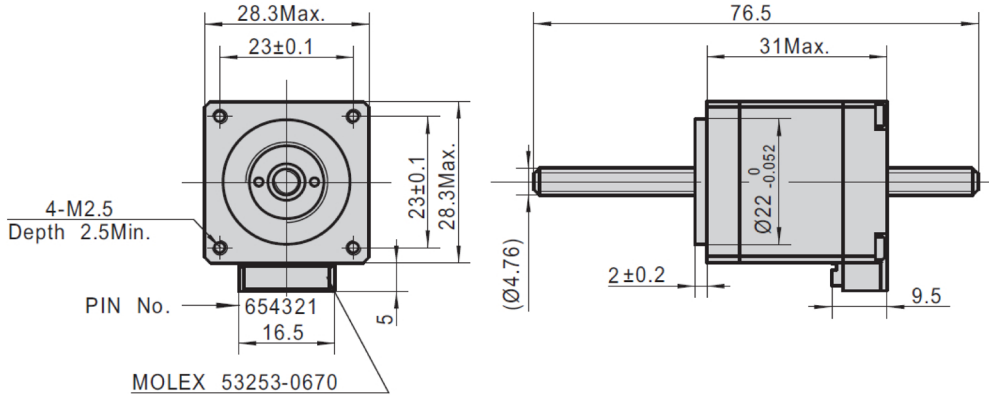
Thrust up to 70N and speeds up to 40mm/s

Captive / Noncaptive / External Nut

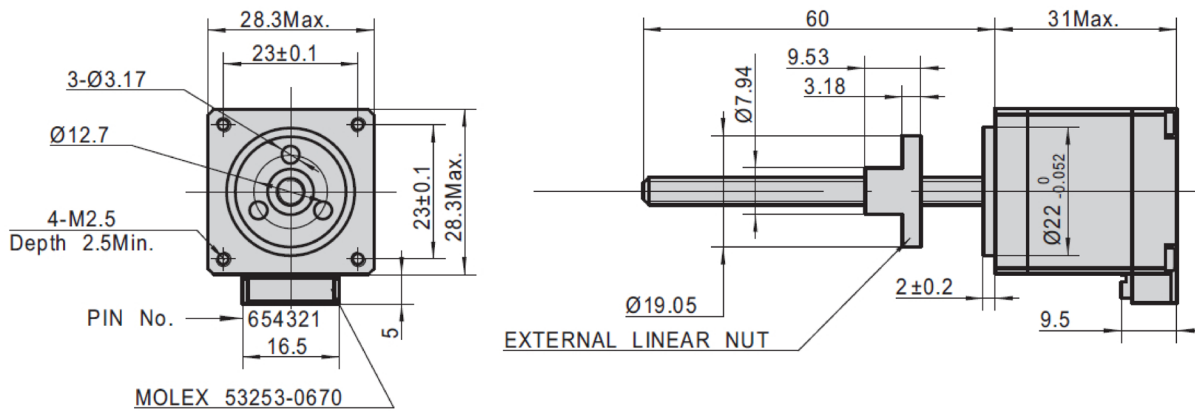


LX11 Mechanical Data

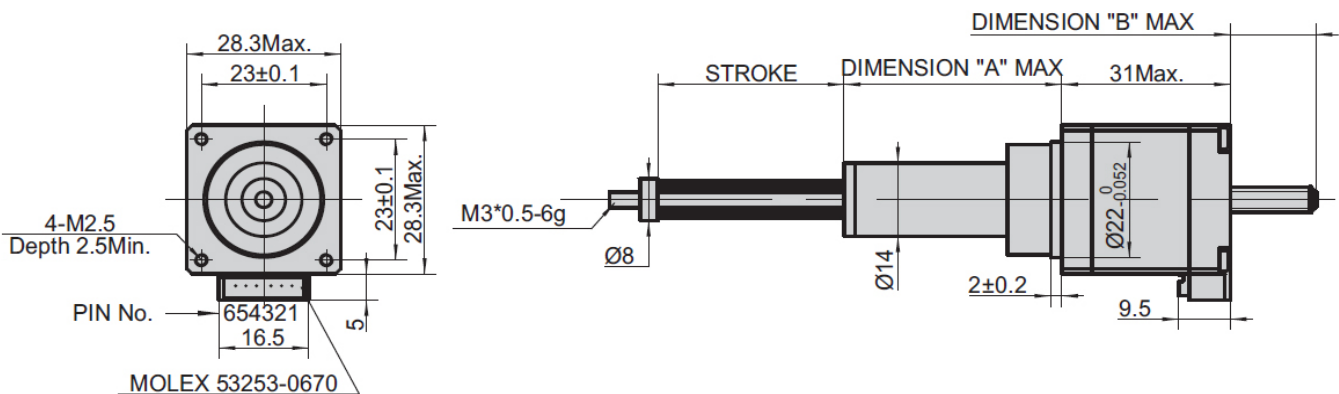
Noncaptive LN11-XXXX



External Nut LE11-XXXX



Captive LC11-XXXX



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LX11 Specifications

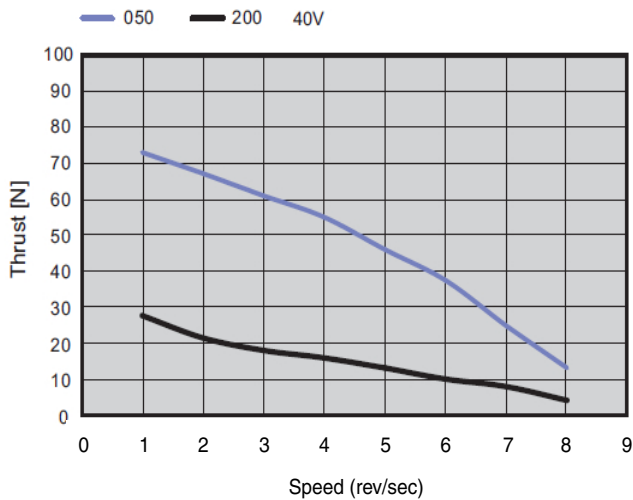
Type	LX11-XXXB
Rated Current	0.5A
Resistance Per Phase	12 Ω
Inductance Per Phase	9mH
Temperature Rise	75 degrees C
Weight	100g
Rotor Inertia	9g*cm ²

ø4.76mm				
Lead		Travel Per Full Step		Order Code (-XXXB)
in.	mm	in.	mm	
0.05	1.27	0.00025	0.00635	050B
0.2	5.08	0.001	0.0254	200B

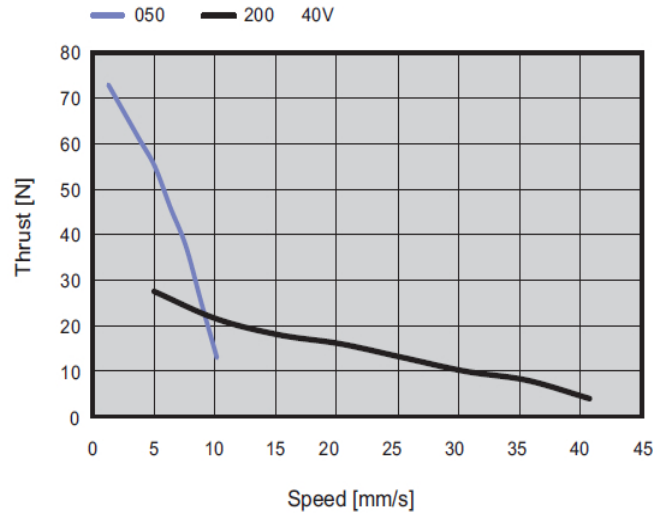
LX11 Performance Curves

Conditions: Bi-polar Constant Current Driver
Mode: Full Step

LX11-XXXB Force vs Rotational Speed:



LX11-XXXB Force vs Linear Velocity:



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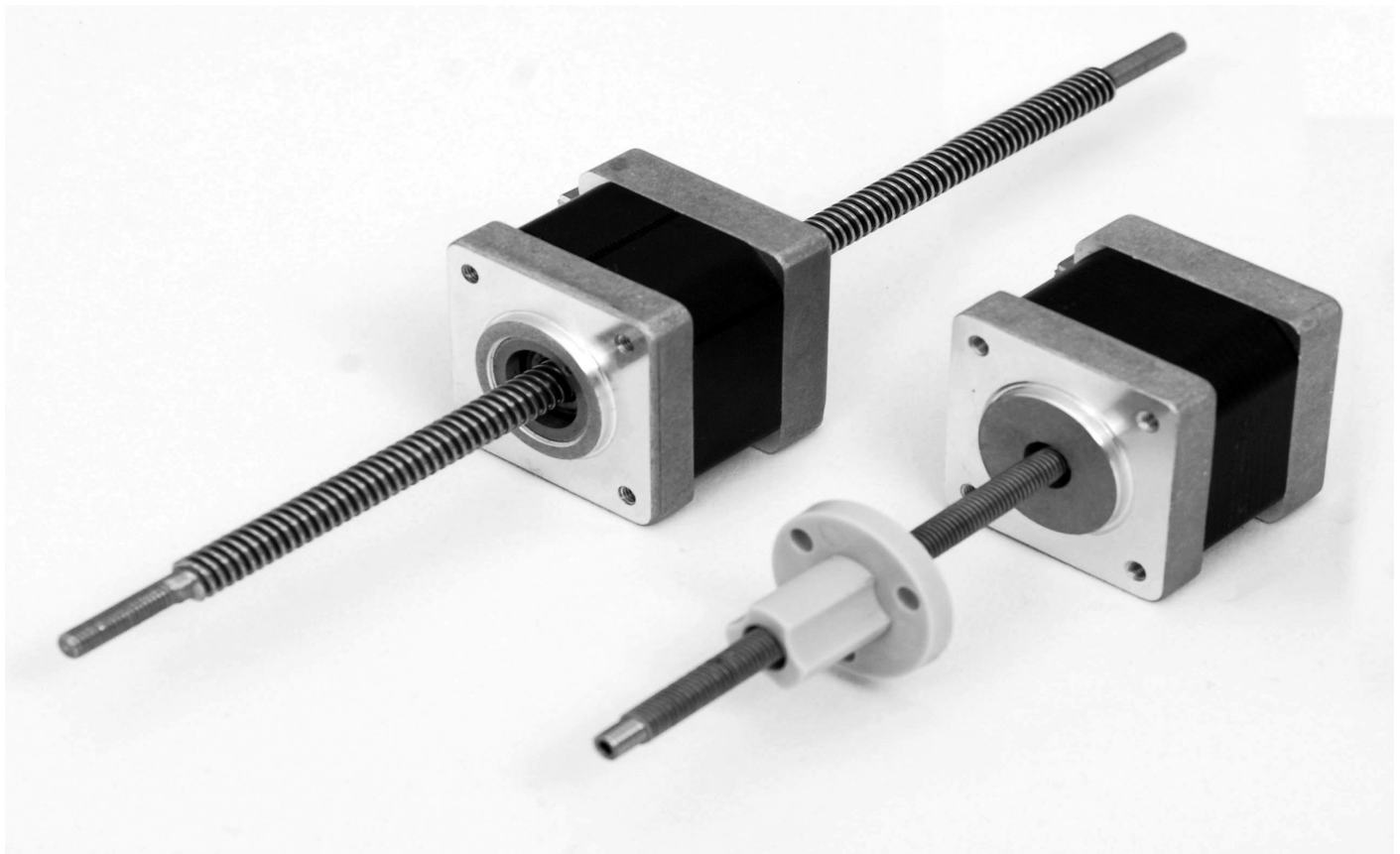
LX14 Series

Applied Motion Products LX14 series, NEMA size 14 linear hybrid motor has greater torque providing high thrust, high speeds and long-life. These models are Ideal for high performance systems requiring overall compact design.

Configurations options:

Thrust up to 300N, speeds up to 45mm/s

Noncaptive / External Nut



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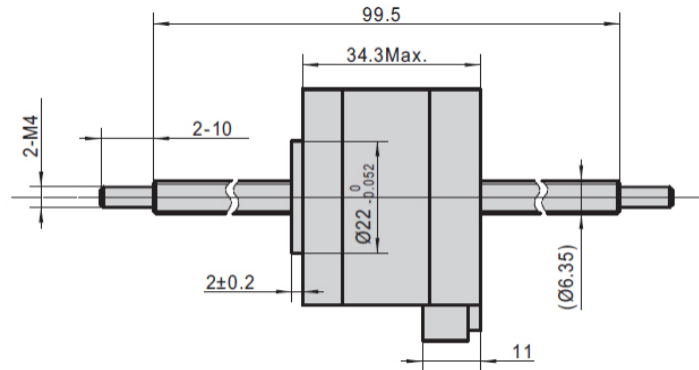
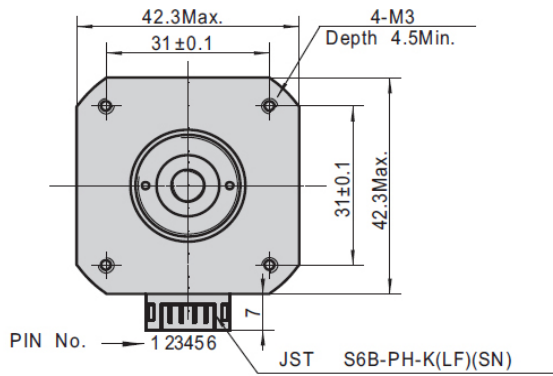
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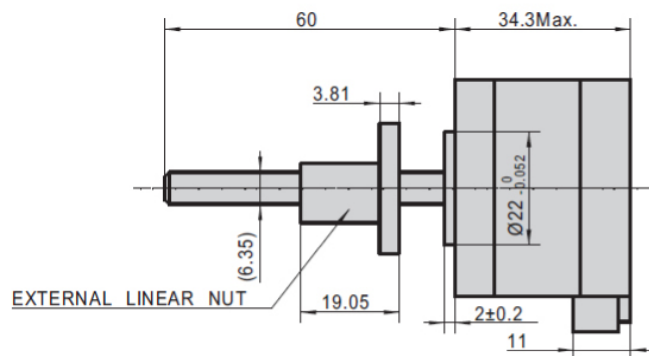
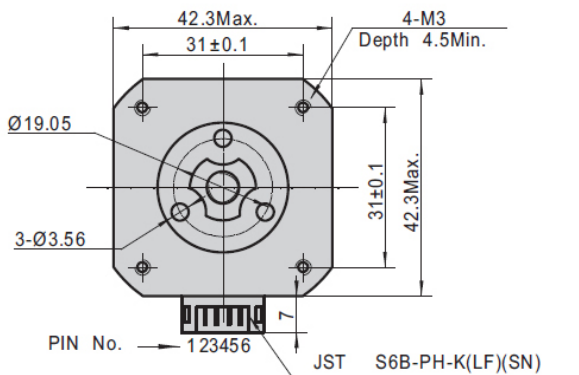
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LX14 Mechanical Data

Noncaptive LN14-XXXD



External Nut LE14-XXXD



L Series Lead Screw Step Motors

LX14 Specifications

Type	LX14-XXXD
Rated Current	1.25A
Resistance Per Phase	2 Ω
Inductance Per Phase	2.8mH
Temperature Rise	75 degrees C
Weight	210g
Rotor Inertia	20g*cm ²

ø6.35mm				
Lead		Travel Per Full Step		Order Code (-XXXD)
in.	mm	in.	mm	
0.03125	0.79375	0.00015*	0.00396*	031D
0.25	6.35	0.00125	0.03175	250D

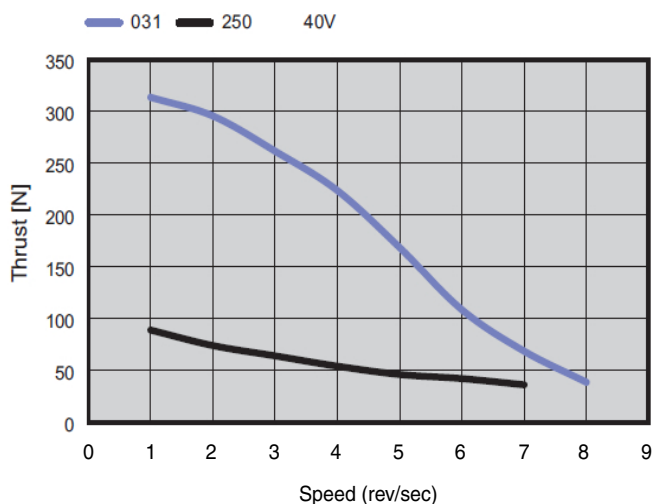
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LX14 Performance Curves

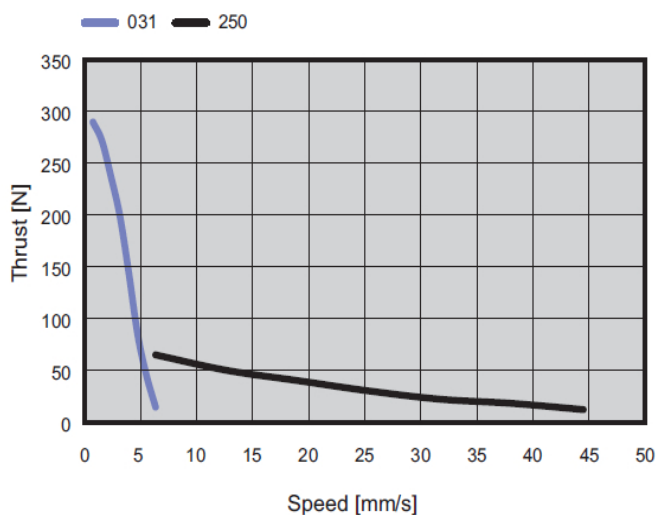
Conditions: Bi-polar Constant Current Driver

Mode: Full Step

LX14-XXXD Force vs Rotational Speed:



LX14-XXXD Force vs Linear Velocity:



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LX17 Series

Applied Motion Products LX17 series, NEMA size 17 linear stepping motors have been developed for equipment designers who require for the highest performance linear motion control and reliability.

Configurations options:

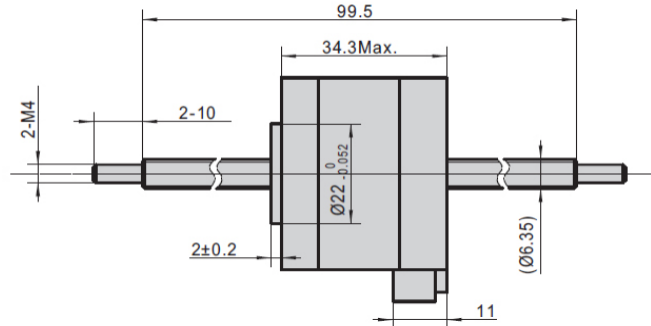
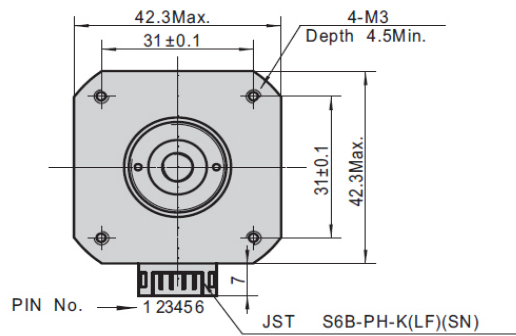
Thrust up to 650N and speeds up to 45mm/s

Noncaptive / External Nut

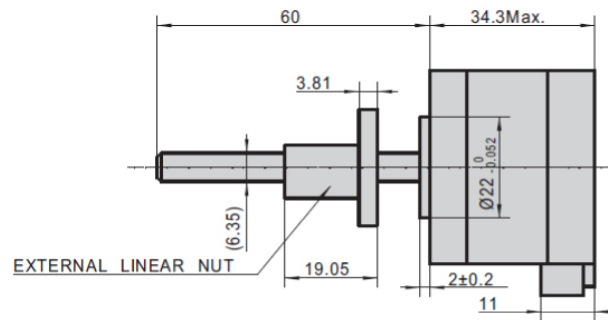
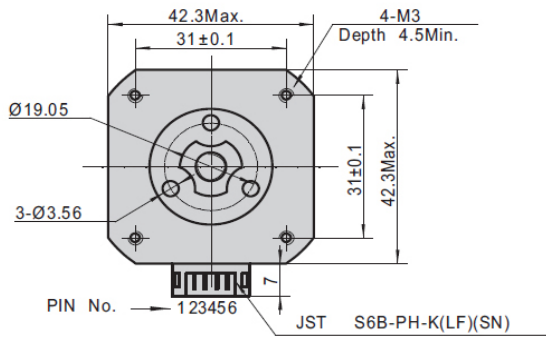


LX17 Mechanical Data

Noncaptive LN17-XXXD



External Nut LE17-XXXD



LX17 Specifications

Type	LX17-XXXD
Rated Current	0.7A
Resistance Per Phase	7.2 Ω
Inductance Per Phase	10.5mH
Temperature Rise	75 degrees C
Weight	230g
Rotor Inertia	37g*cm ²

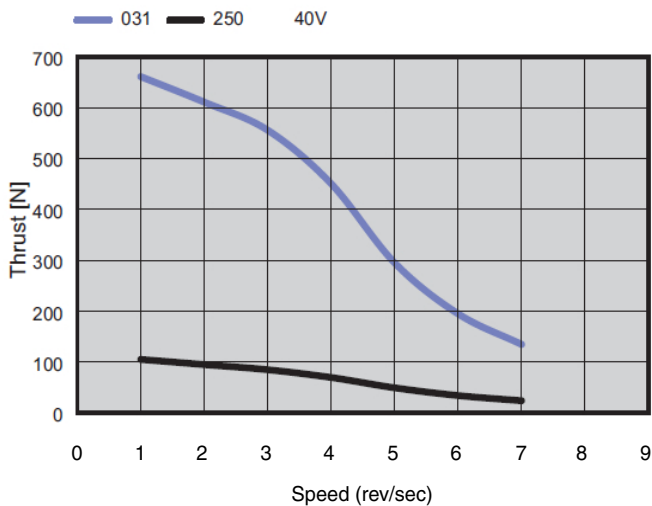
ø6.35mm				
Lead		Travel Per Full Step		Order Code (-XXXD)
in.	mm	in.	mm	
0.03125	0.79375	0.00015*	0.00396*	031D
0.25	6.35	0.00125	0.03175	250D

* Values truncated

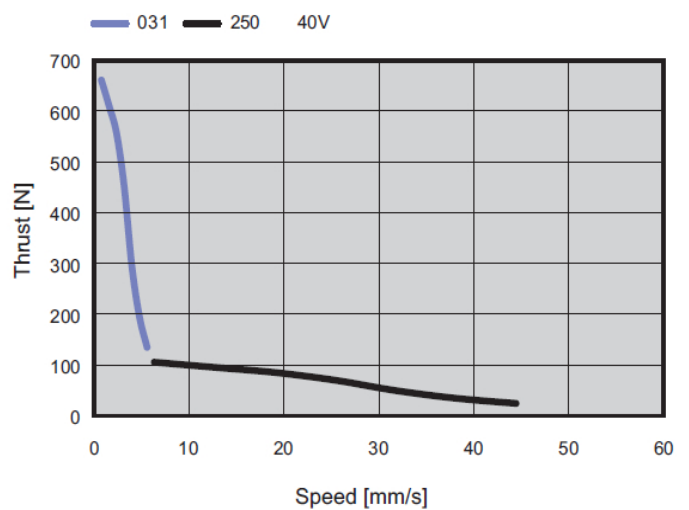
LX17 Performance Curves

Conditions: Bi-polar Constant Current Driver
Mode: Full Step

LX17-XXXD Force vs Rotational Speed:



LX17-XXXD Force vs Linear Velocity:



L Series Lead Screw Step Motors

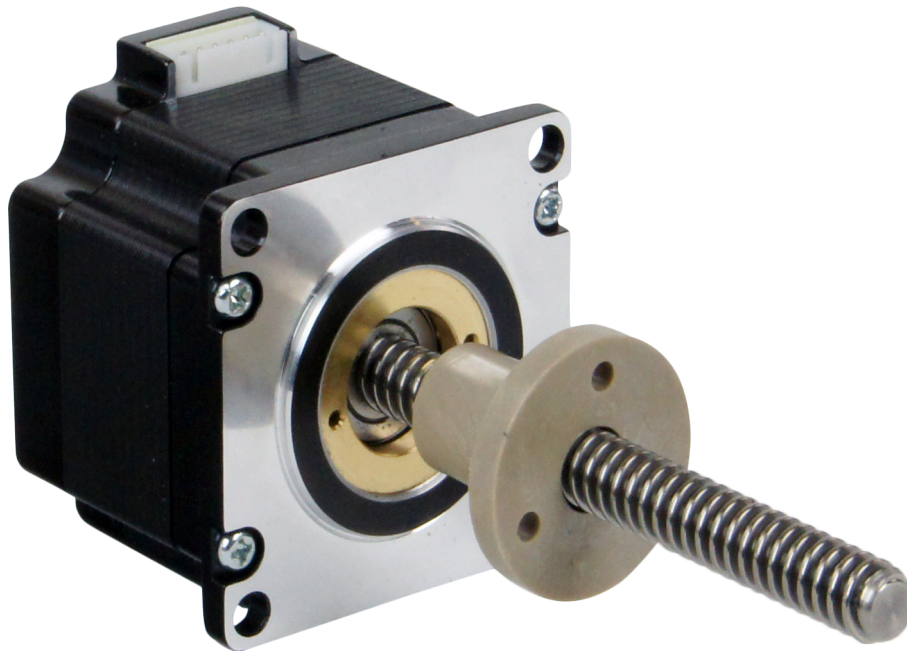
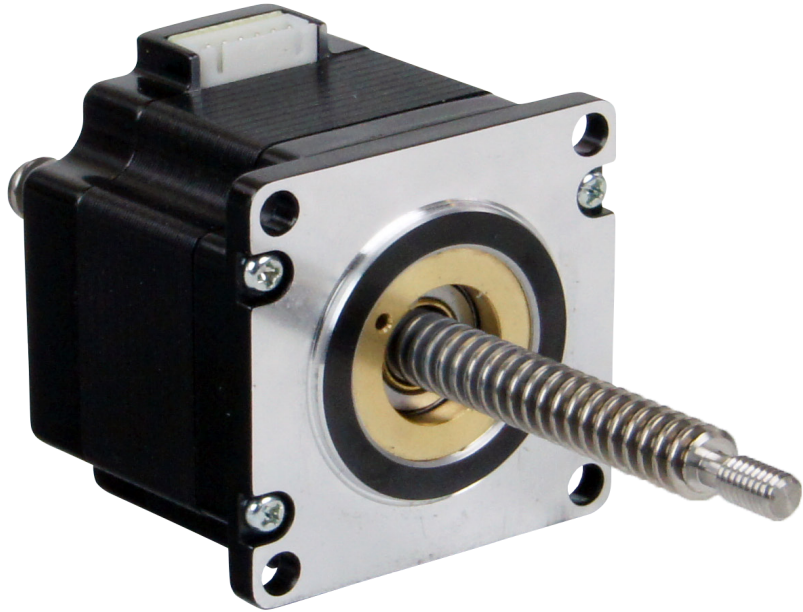
LX23 Series

Applied Motion Products LX23 series, NEMA size 23 linear stepping motor incorporates the same reliable design as the LX17 series while providing our highest linear thrust available.

Configurations options:

Thrust up to 1300N and speeds up to 20 mm/sec

Noncaptive / External Nut



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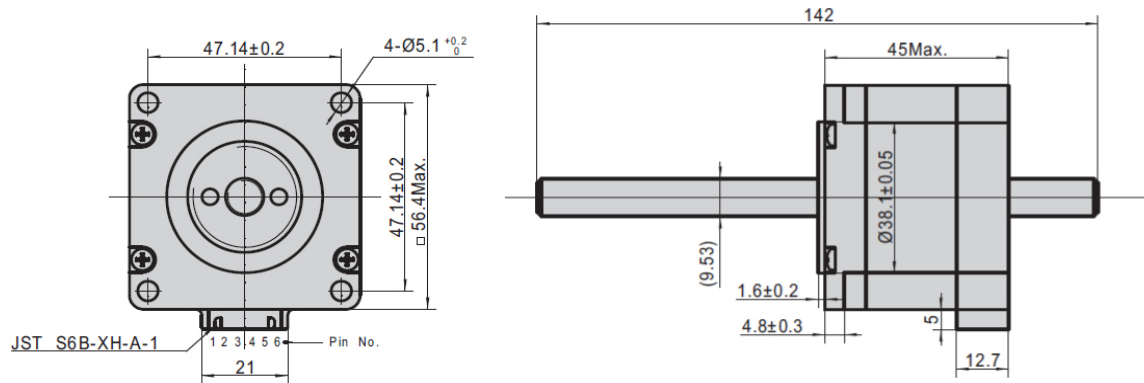
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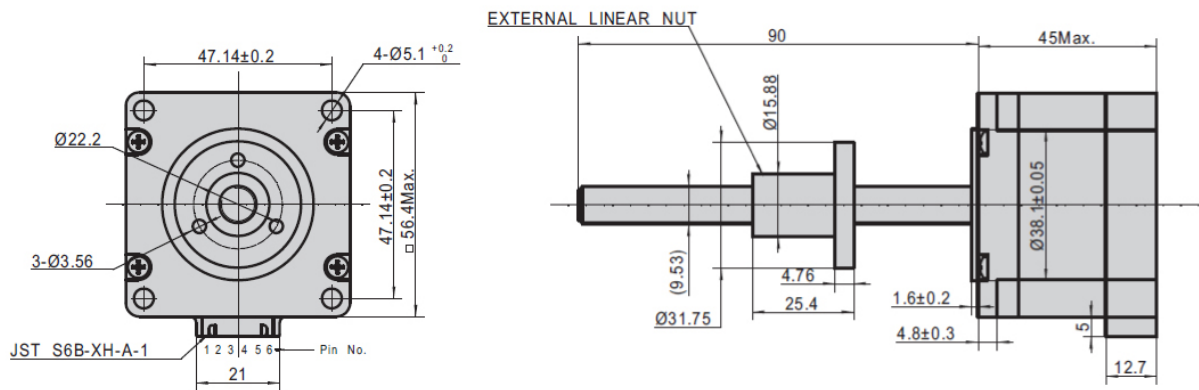
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LX23 Mechanical Data

Noncaptive LN23-XXXE



External Nut LE23-XXXE



LX23 Specifications

Type	LX23-XXXE
Rated Current	2A
Resistance Per Phase	1.7 Ω
Inductance Per Phase	5mH
Temperature Rise	75 degrees C
Weight	480g
Rotor Inertia	165g*cm ²

ø9.53mm				
Lead		Travel Per Step		Order Code (-XXXE)
in.	mm	in.	mm	
0.0625	1.5875	0.00031*	0.00793*	062E
0.1	2.54	0.0005	0.0127	100E

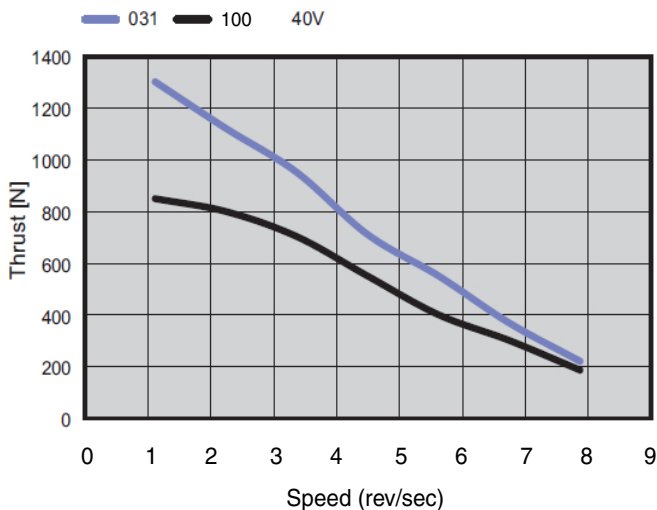
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LX23 Performance Curves

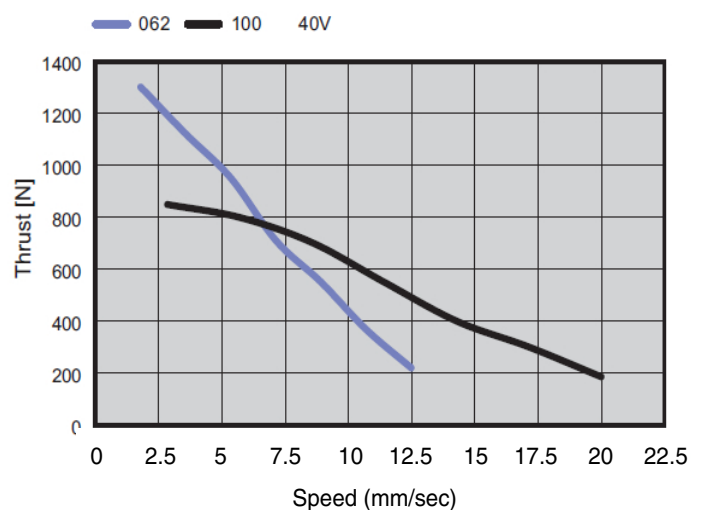
Conditions: Bi-polar Constant Current Driver

Mode: Full Step

LX23-XXXE Force vs Rotational Speed:



LX23-XXXE Force vs Linear Velocity:



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