

X-BLQ-E Series Datasheet



- 70 to 3000 mm travel
- Up to 2.0 m/s speed, 55 N thrust, and 20 kg load capacity
- Encoder position feedback with slip/stall detection and automatic recovery
- Built-in controller; daisy-chains with any other Zaber products

X-BLQ-E Series Overview

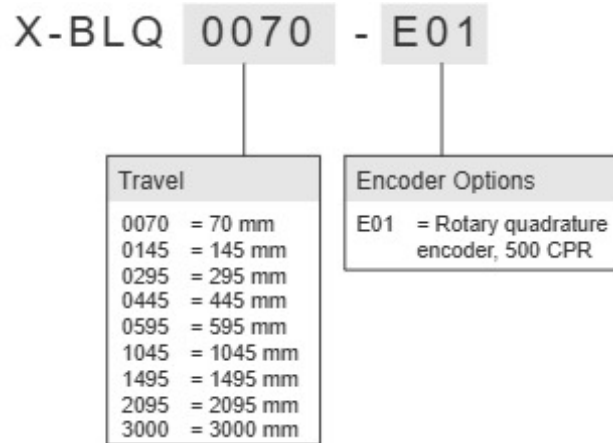
Zaber's X-BLQ-E Series products are computer controlled, belt-driven linear stages with integrated stepper motors and controllers. A built-in motor encoder allows closed-loop operation with slip/stall recovery features. They are stand-alone devices requiring only a standard 48 V power supply for operation.

An indexed knob provides convenient manual control for versatile operation even without a computer. These stages connect to the RS-232 port or USB port of any computer, and they can be daisy-chained with any other Zaber products. The daisy-chain also shares power, making it possible for multiple X-Series products to share a single power supply. Convenient locking, 4-pin, M8 connectors on the unit allow for secure connection between devices.

With travel lengths up to 3 m, 20 μ m repeatability, and a maximum speed of 2.0 m/s, X-BLQ-E stages are perfect for rapid positioning over large distances. Like all of Zaber's products, the X-BLQ-E Series is designed to be 'plug and play' and very easy to set up and operate.

For more information visit: <https://www.zaber.com/products/linear-stages/X-BLQ-E>

X-BLQ-E Series Part Numbering & Options



X-BLQ-E Series Drawings

- [X-BLQ-E.png \(Drawing for the X-BLQ-E\)](#)

X-BLQ-E Series Specifications

Microstep Size (Default Resolution)	4.21875 μm
Built-in Controller	Yes
Repeatability	< 20 μm (< 0.000787")
Backlash	< 75 μm (< 0.002953")
Minimum Speed	0.002576 mm/s (0.000101"/s)
Speed Resolution	0.002576 mm/s (0.000101"/s)
Encoder Resolution	500 CPR (2000 states/rev)
Encoder Type	Rotary quadrature encoder
Peak Thrust	55 N (12.3 lb)
Maximum Continuous Thrust	20 N (4.5 lb)
Communication Interface	RS-232
Communication Protocol	Zaber ASCII (Default), Zaber Binary
Data Cable Connection	Locking 4-pin M8
Maximum Centered Load	200 N (44.9 lb)
Maximum Moment (Pitch)	5 N-m (3.7 ft-lb)
Maximum Moment (Roll)	15 N-m (11.1 ft-lb)
Maximum Moment (Yaw)	5 N-m (3.7 ft-lb)
Vertical Runout	< 30 μm (< 0.001181")
Stiffness in Pitch	115 N-m/ $^{\circ}$ (152 $\mu\text{rad/N-m}$)
Stiffness in Roll	145 N-m/ $^{\circ}$ (120 $\mu\text{rad/N-m}$)
Stiffness in Yaw	110 N-m/ $^{\circ}$ (159 $\mu\text{rad/N-m}$)
Power Supply	24-48 VDC
Maximum Current Draw	1800 mA
Linear Motion Per Motor Rev	54 mm (2.126")
Motor Steps Per Rev	200
Motor Type	Stepper (2 phase)
Motor Rated Current	2300 mA/phase
Inductance	2.2 mH/phase
Default Resolution	1/64 of a step
Guide Type	Recirculating Ball Linear Guide
Mechanical Drive System	Synchronous belt

Microstep Size (Default Resolution)	4.21875 μm
Limit or Home Sensing	Magnetic home sensor
Manual Control	Indexed knob with push switch
Axes of Motion	1
Mounting Interface	M6 threaded holes and 8-32 threaded holes
Stage Parallelism	< 100 μm (< 0.003937")
Operating Temperature Range	0 to 50 °C
CE Compliant	Yes
Vacuum Compatible	No

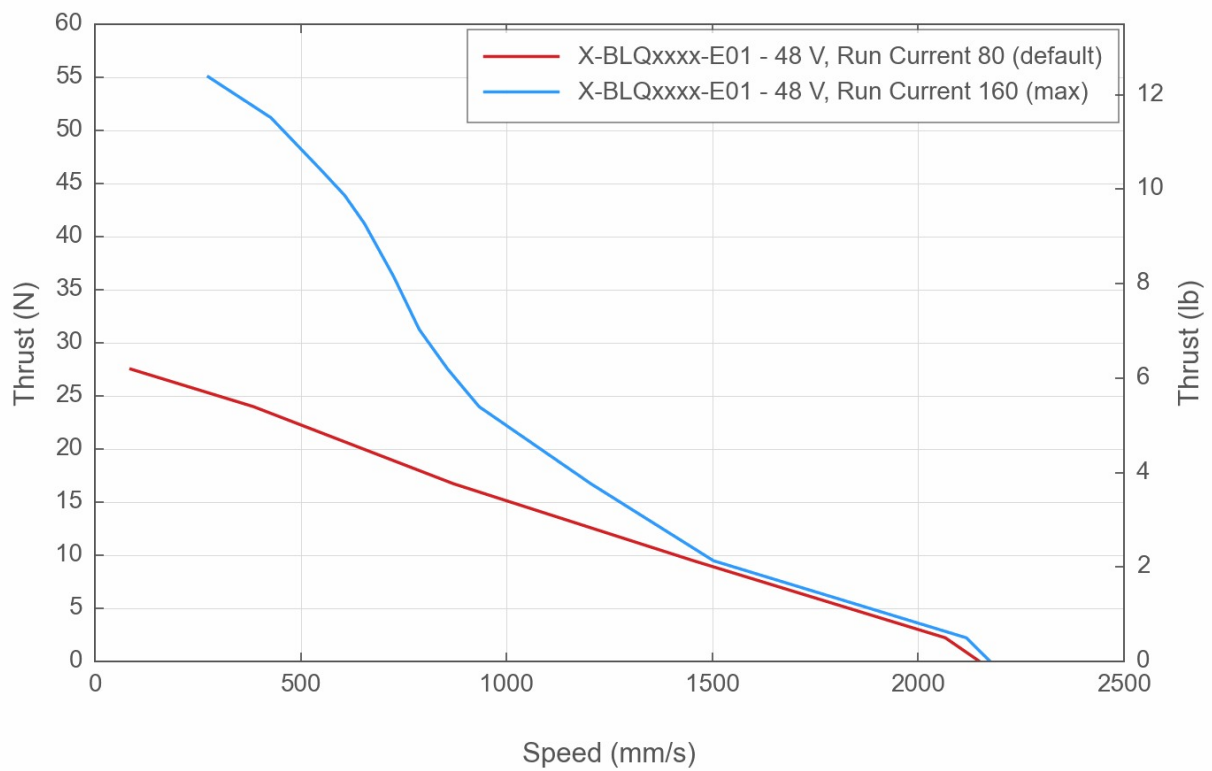
Part Number	Travel Range	Accuracy (unidirectional)	Maximum Speed	Horizontal Runout
X-BLQ0070-E01	70 mm (2.756")	200 μm (0.007874")	1100 mm/s (43.307"/s)	< 20 μm (< 0.000787")
X-BLQ0145-E01	145 mm (5.709")	200 μm (0.007874")	1600 mm/s (62.992"/s)	< 30 μm (< 0.001181")
X-BLQ0295-E01	295 mm (11.614")	300 μm (0.011811")	2000 mm/s (78.740"/s)	< 35 μm (< 0.001378")
X-BLQ0445-E01	445 mm (17.520")	400 μm (0.015748")	2000 mm/s (78.740"/s)	< 40 μm (< 0.001575")
X-BLQ0595-E01	595 mm (23.425")	500 μm (0.019685")	2000 mm/s (78.740"/s)	< 60 μm (< 0.002362")
X-BLQ1045-E01	1045 mm (41.142")	700 μm (0.027559")	2000 mm/s (78.740"/s)	< 60 μm (< 0.002362")
X-BLQ1495-E01	1495 mm (58.858")	1100 μm (0.043307")	2000 mm/s (78.740"/s)	
X-BLQ2095-E01	2095 mm (82.480")	1500 μm (0.059055")	2000 mm/s (78.740"/s)	
X-BLQ3000-E01	3000 mm (118.110")	2200 μm (0.086614")	2000 mm/s (78.740"/s)	

Part Number	Pitch	Roll	Yaw	Weight
X-BLQ0070-E01	0.06° (1.047 mrad)	0.03° (0.523 mrad)	0.03° (0.523 mrad)	1.7 kg (3.748 lb)
X-BLQ0145-E01	0.06° (1.047 mrad)	0.03° (0.523 mrad)	0.03° (0.523 mrad)	1.85 kg (4.079 lb)
X-BLQ0295-E01	0.06° (1.047 mrad)	0.03° (0.523 mrad)	0.03° (0.523 mrad)	2.15 kg (4.740 lb)
X-BLQ0445-E01	0.06° (1.047 mrad)	0.03° (0.523 mrad)	0.03° (0.523 mrad)	2.5 kg (5.512 lb)
	0.06°	0.03°	0.03°	2.75 kg

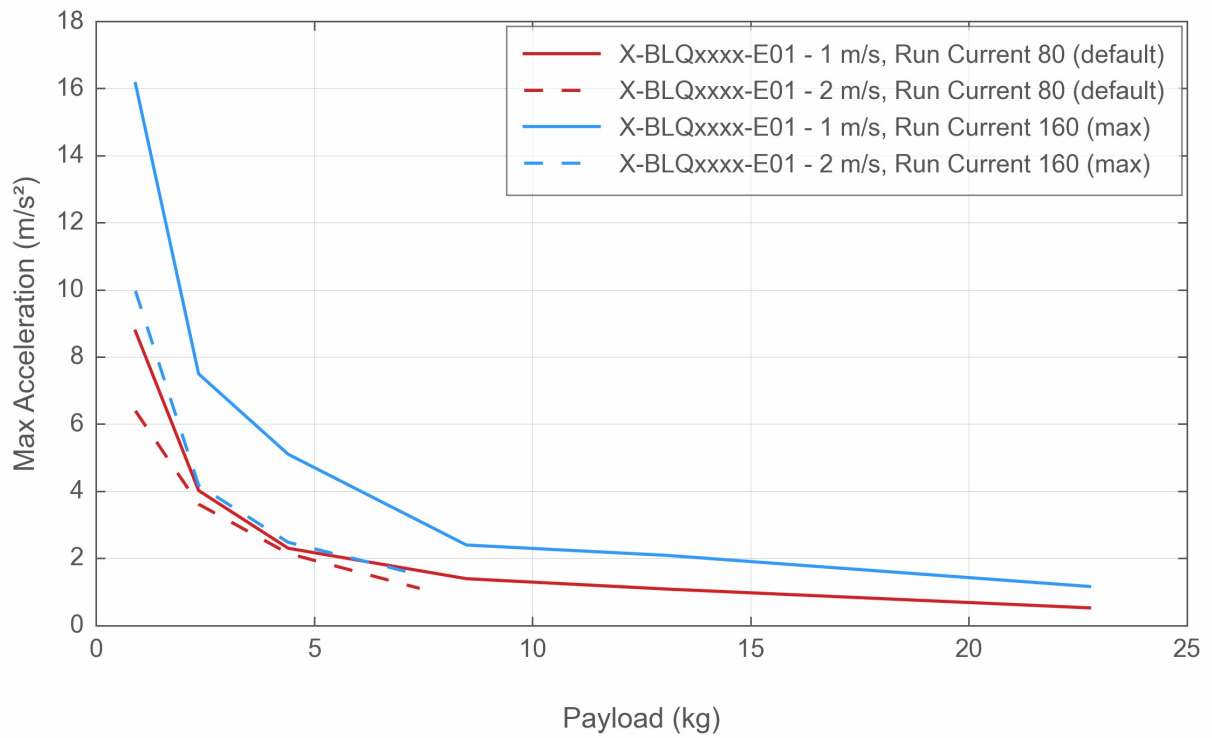
Part Number	Pitch	Roll	Yaw	Weight
X-BLQ0595-E01	(1.047 mrad)	(0.523 mrad)	(0.523 mrad)	(6.063 lb)
X-BLQ1045-E01	0.075° (1.309 mrad)	0.06° (1.047 mrad)	0.06° (1.047 mrad)	3.75 kg (8.267 lb)
X-BLQ1495-E01				4.7 kg (10.362 lb)
X-BLQ2095-E01				6 kg (13.228 lb)
X-BLQ3000-E01				7.8 kg (17.196 lb)

X-BLQ-E Series Charts

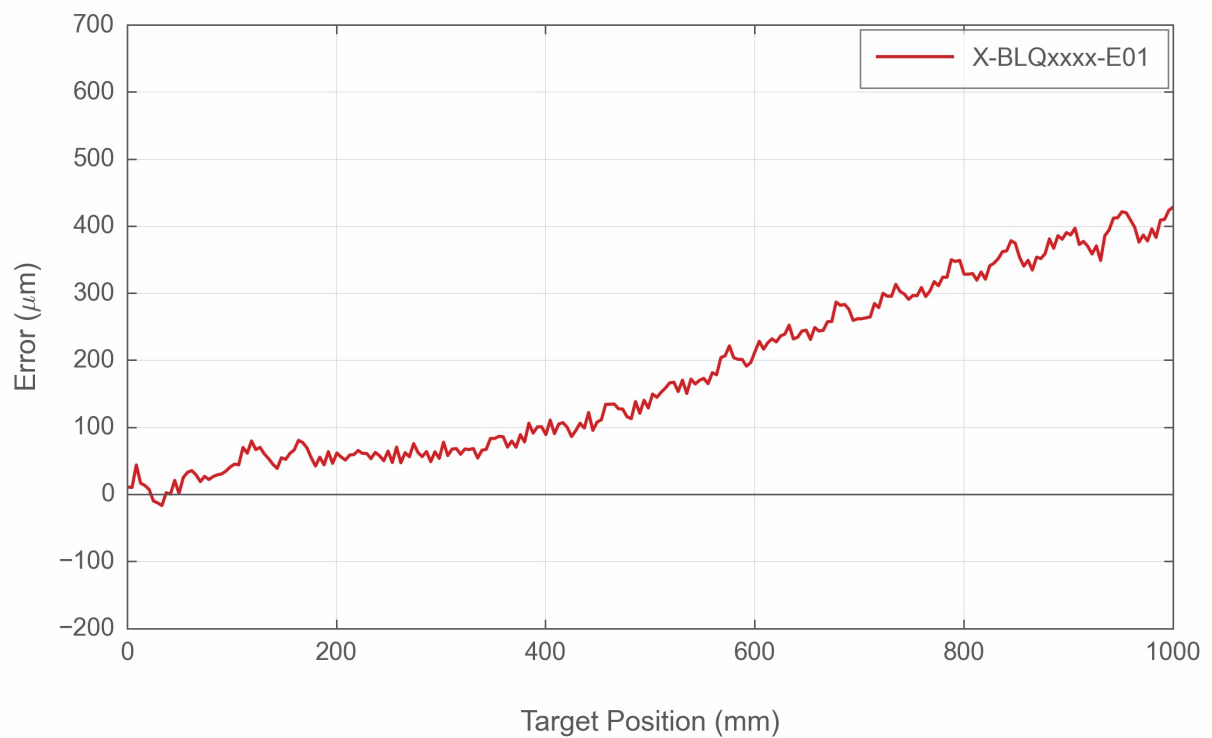
Thrust Speed Performance



Horizontal Acceleration



Typical Accuracy



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