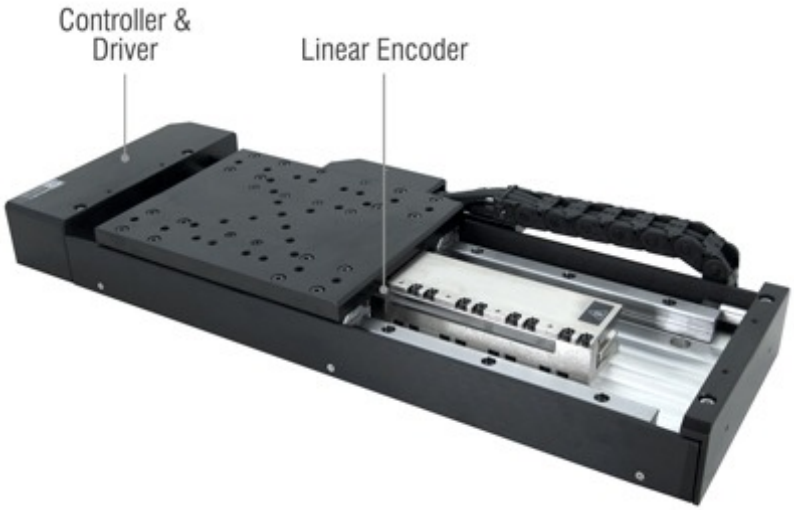
X-LDQ0450C-AE53D12 Datasheet



- 75, 150, 300, 450, 600 and 1000 mm travel
- Up to 1.5 m/s speed and up to 2 g acceleration
- Up to 2.5 µm accuracy over 1000 mm travel
- Minimum incremental move of 50 nm
- Zero backlash
- One digital input and two digital outputs
- Integrated linear encoder provides high accuracy closed loop servo positioning
- Built-in controller; daisy-chains with other Zaber products
- Technical Article - Linear Motors: Overview and Selection Process

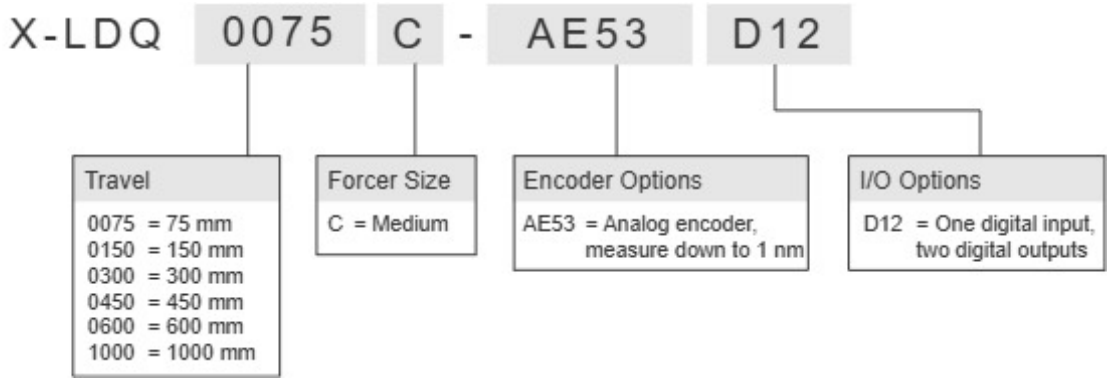
X-LDQ-AE Series Overview

Zaber's X-LDQ-AE Series devices are computer-controlled, motorized linear motor stages with high precision and speed capabilities. They are stand-alone units requiring only a standard 48 V power supply. The built-in controller and linear encoder allows pre-tuned closed-loop servo positioning with adjustable tuning parameters. An optional 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 units. The X-LDQ-AE's innovative design allows speeds up to 1.5 m/s and minimum incremental move of 50 nm. Like all of Zaber's products, the X-LDQ-AE Series is designed to be 'plug and play' and very easy to set up and operate. X-LDQ-AE devices also include a digital input and two digital outputs for interfacing with external systems. An event-driven trigger system allows devices to be programmed for stand-alone operation based on I/O, time, or movement stimuli.

For more information visit: https://www.zaber.com/products/linear-stages/X-LDQ-AE

X-LDQ-AE Series Part Numbering & Options



X-LDQ0450C-AE53D12 Drawings

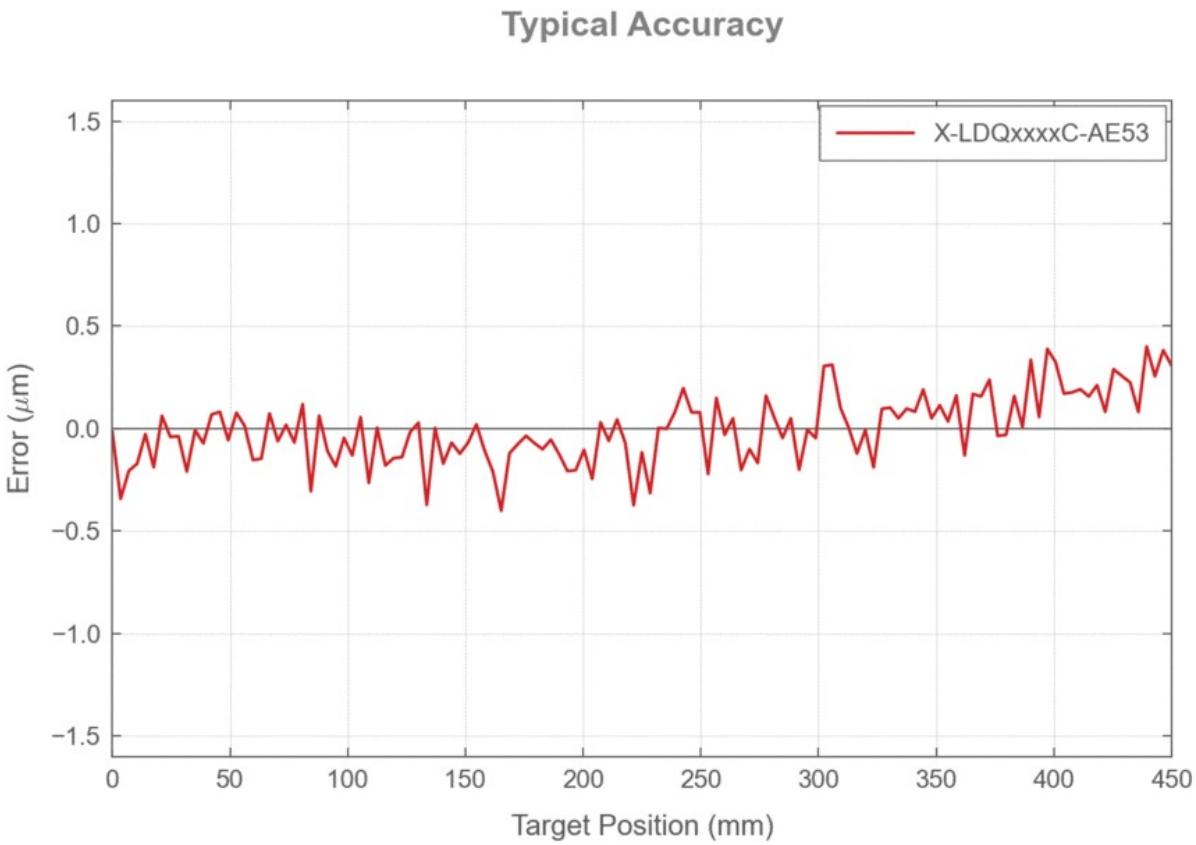
- X-LDQ-AE (Drawing for the X-LDQ-AE)

X-LDQ0450C-AE53D12 Specifications

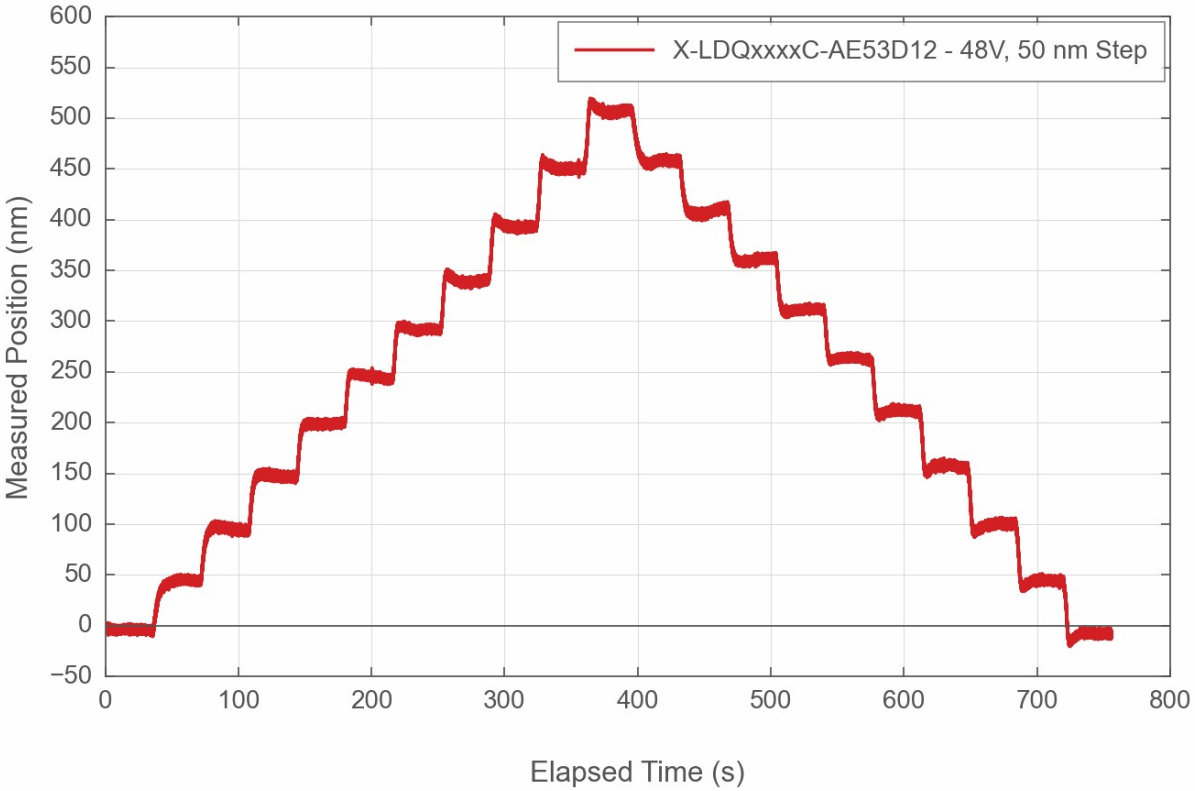
Built-in Controller	
Travel Range	450 mm (17.716")
Accuracy (unidirectional)	2.5 µm (0.000098")
Repeatability	< 0.3 µm (< 0.000012")
Minimum Incremental Move	50 nm
Maximum Acceleration	39.24 m/s2 (4.00 g)
Maximum Speed	1500 mm/s (59.055"/s)
Minimum Speed	0.61 nm/s
Speed Resolution	0.61 nm/s
Encoder Type	Linear analog encoder
Encoder Count Size	1 nm
Peak Thrust	40 N (9.0 lb)
Maximum Continuous Thrust	35 N (7.8 lb)
Communication Interface	RS-232
Communication Protocol	Zaber ASCII (Default)
Data Cable Connection	Locking 4-pin M8
Maximum Centered Load	200 N (44.9 lb)
Maximum Moment (Pitch)	30 N-m (22.1 ft-lb)
Maximum Moment (Roll)	30 N-m (22.1 ft-lb)
Maximum Moment (Yaw)	30 N-m (22.1 ft-lb)
Vertical Runout	< 40 µm (< 0.001575")
Horizontal Runout	< 30 µm (< 0.001181")
Typical Velocity Stability	± 0.54% at 100 mm/s with a 5 kg payload
Pitch	0.05° (0.873 mrad)
Roll	0.02° (0.349 mrad)
Yaw	0.035° (0.611 mrad)
Stiffness in Pitch	8000 N-m/° (2 µrad/N-m)
Stiffness in Roll	3800 N-m/° (5 µrad/N-m)

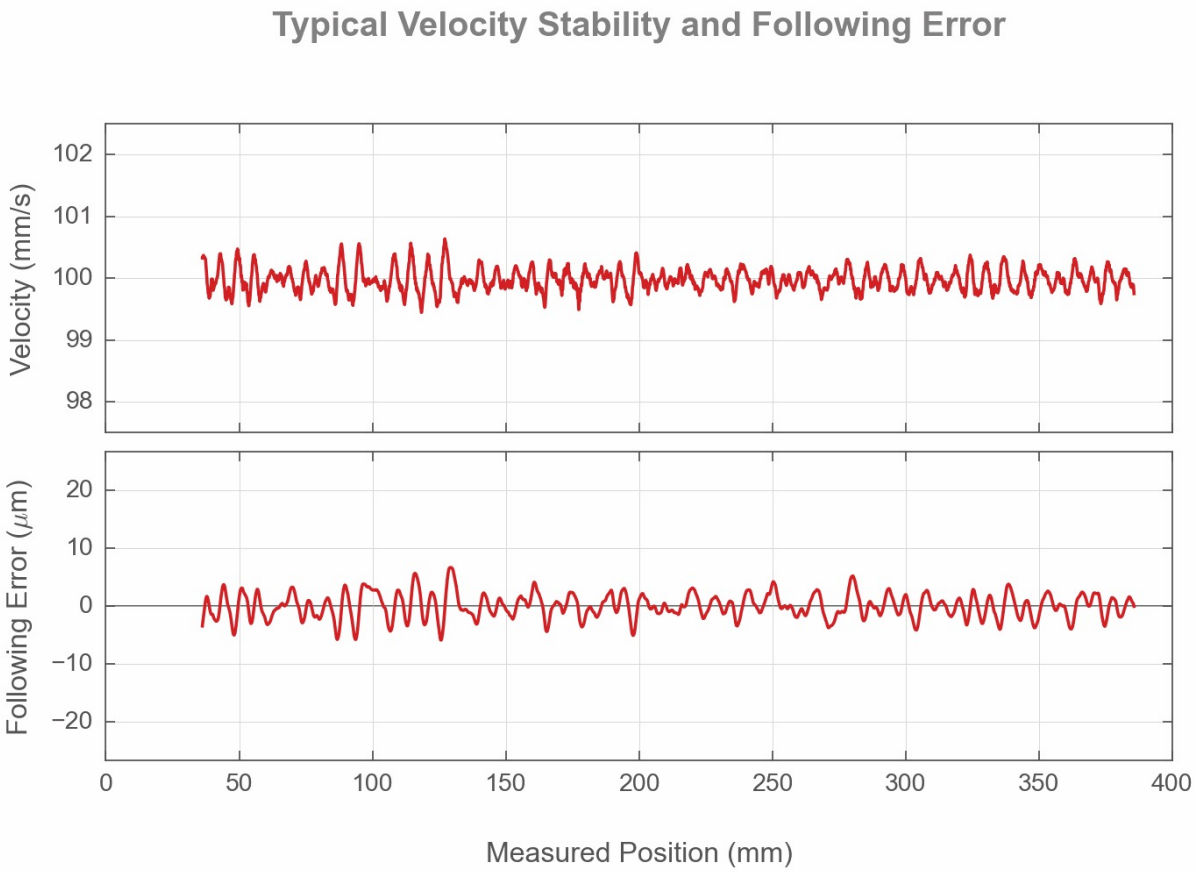
Built-in Controller	
Stiffness in Yaw	4000 N-m/° (4 µrad/N-m)
Power Supply	24-48 VDC
Power Plug	2-pin screw terminal
Maximum Current Draw	3000 mA
Motor Type	Moving Coil Linear Motor
Force Constant	15.8 N/A (3.5 lbs/A)
Guide Type	Recirculating Ball Linear Guide
Limit or Home Sensing	Optical Index Mark
Manual Control	Indexed knob with push switch
Axes of Motion	1
LED Indicators	Yes
Mounting Interface	M6 threaded holes
Moving Mass	1.5 kg (3.300 lbs)
Digital Input	1
Digital Output	2
Operating Temperature Range	0 to 50 °C
CE Compliant	Yes
Vacuum Compatible	No
Weight	10.9 kg (24.030 lb)

X-LDQ-AE Series Charts



Typical Minimum Incremental Move





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