

LDQ0450C-AE53T10A Datasheet



- 75, 150, 300, 450, 600 and 1000 mm travel
- Up to 1.5 m/s speed, 35 N continuous thrust
- Minimum incremental move of 25 nm
- Integrated linear encoder provides high accuracy closed loop servo positioning
- Designed for use with MCC controllers for coordinated multi-axis motion
- Capable of providing peak thrust of 95 N when paired with MCC
- With AutoDetect, Zaber controllers automatically configure settings for the connected peripheral
- [Technical Article - Linear Motors: Overview and Selection Process](#)

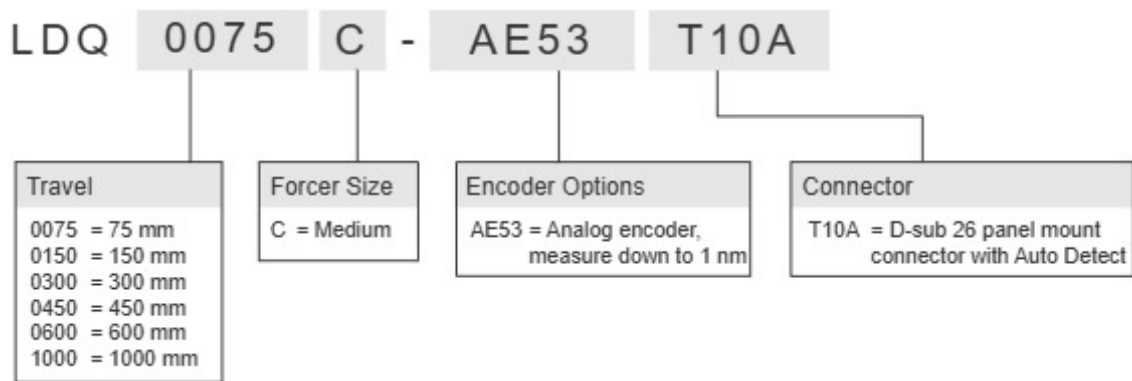
LDQ-AE Series Overview

Zaber's LDQ-AE Series devices are motorized linear motor stages with high precision and speed capabilities. The built-in linear encoder allows closed-loop servo positioning. The LDQ-AE's innovative design allows speeds up to 1.5 m/s and a minimum incremental move of 25 nm.

The stages are designed to connect directly to our MCC controllers using a single cable. Set-up is easy with AutoDetect. Once connected, the controller will automatically detect and configure the LDQ-AE.

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

LDQ-AE Series Part Numbering & Options



LDQ0450C-AE53T10A Drawings

- [LDQ-AE \(Drawing for the LDQ-AE\)](#)

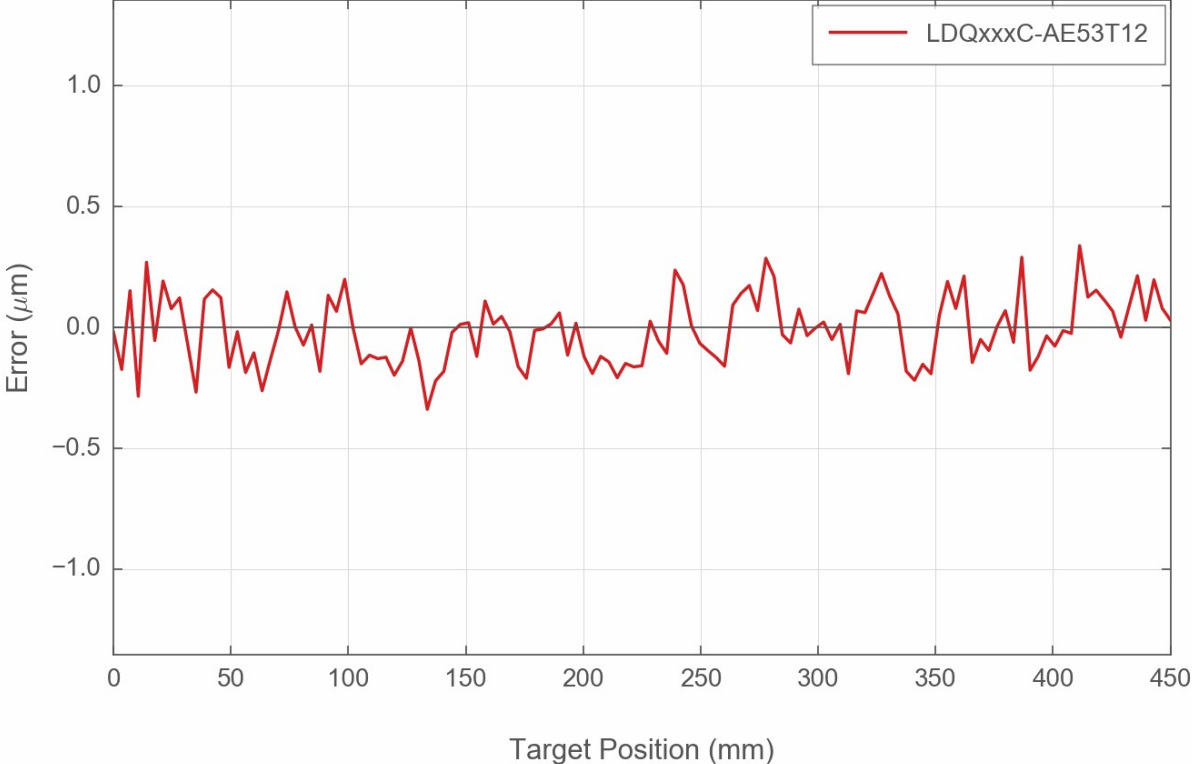
LDQ0450C-AE53T10A Specifications

Built-in Controller	
Recommended Controller	MCC (48 V) Recommended
AutoDetect	Yes
Travel Range	450 mm (17.716")
Accuracy (unidirectional)	2.5 μm (0.000098")
Repeatability	< 0.3 μm (< 0.000012")
Minimum Incremental Move	25 nm
Maximum Acceleration	39.24 m/s ² (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	95 N (21.3 lb)
Maximum Continuous Thrust	35 N (7.8 lb)
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	\pm 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 $\mu\text{rad/N-m}$)
Stiffness in Roll	3800 N-m/° (5 $\mu\text{rad/N-m}$)
Stiffness in Yaw	4000 N-m/° (4 $\mu\text{rad/N-m}$)
Motor Type	Moving Coil Linear Motor
Motor Rated Current	2400 mA/phase
Force Constant	15.8 N/A (3.5 lbs/A)

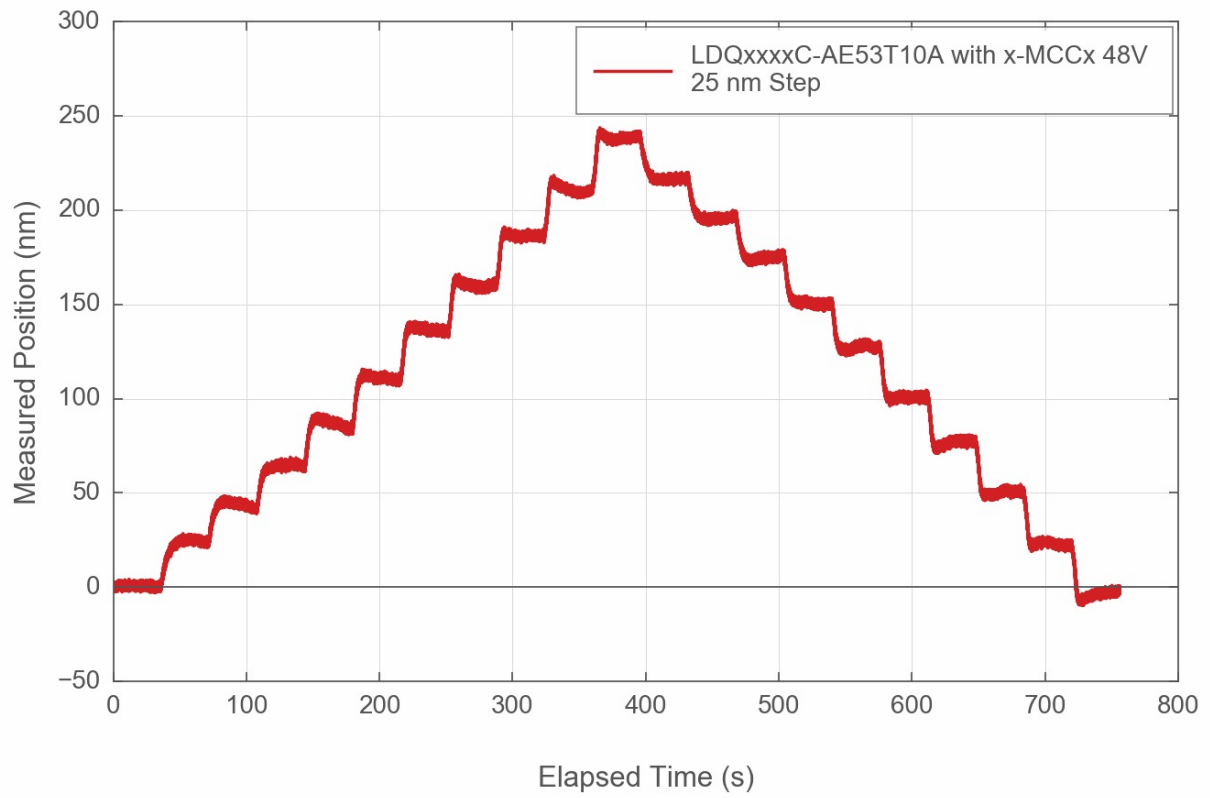
Built-in Controller	
Motor Winding Resistance	6.4 ohms/phase
Inductance	1.24 mH/phase
Guide Type	Recirculating Ball Linear Guide
Limit or Home Sensing	Optical Index Mark
Axes of Motion	1
Mounting Interface	M6 threaded holes
Moving Mass	1.5 kg (3.300 lbs)
Operating Temperature Range	0 to 50 °C
CE Compliant	Yes
Vacuum Compatible	No
Weight	10.87 kg (23.964 lb)

LDQ-AE Series Charts

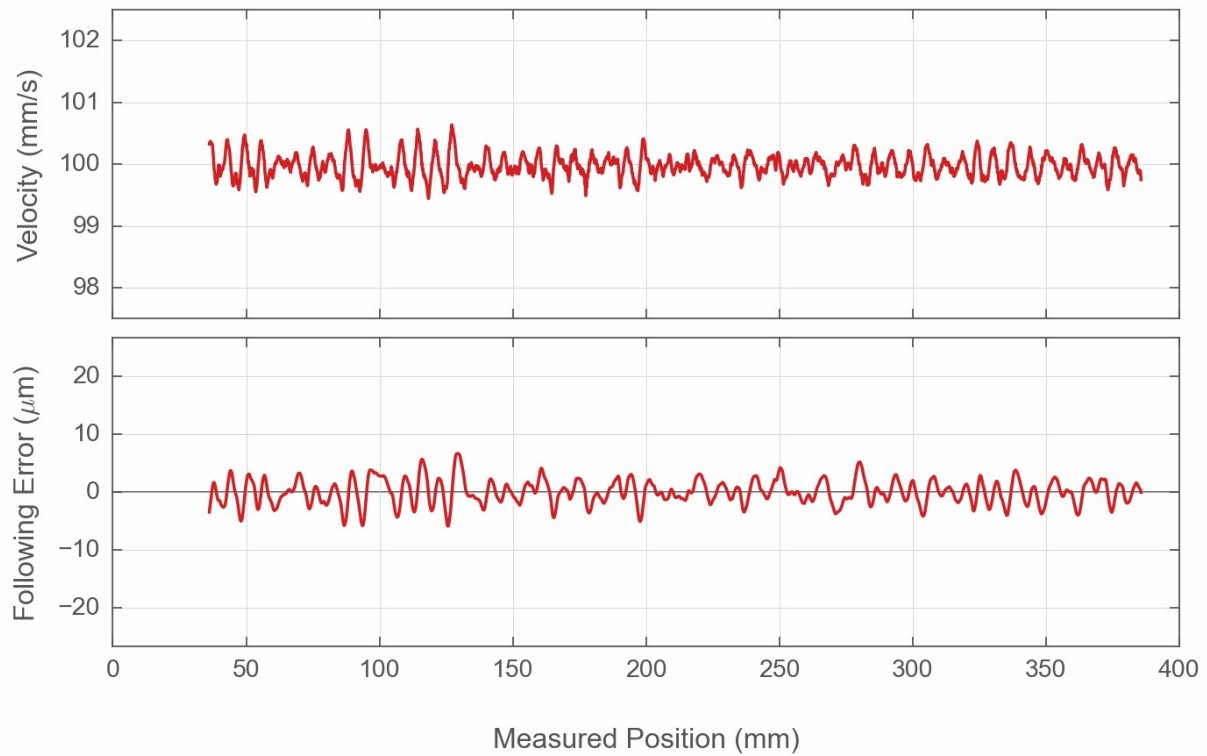
Typical Accuracy



Typical Minimum Incremental Move



Typical Velocity Stability and Following Error



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