

X-DMQ-AE Series Datasheet



- 12 mm travel and 15.5 N peak thrust
- Up to 1400 mm/s speed, 25 Hz full-travel cycling
- Direct position measurement from 1 nm resolution linear encoder
- One digital input and two digital outputs
- Built-in controller; daisy-chains with other Zaber products
- Technical Article - Linear Motors: Overview and Selection Process

X-DMQ-AE Series Overview

Zaber's X-DMQ-AE Series devices are computer-controlled, direct-drive voice coil driven, linear stages with high acceleration and precision capabilities in a compact size. They are stand-alone units requiring only a standard 24 V or 48 V power supply.

The innovative moving-coil actuator design has a very flat force-vs-position profile for applications requiring smooth force output throughout travel. The technology also allows for a minimal moving mass for rapid acceleration, and no exposed moving cables for a high duty-cycle. The force output allows the light carriage to reach speeds up to 1400 mm/s within the 12mm travel.

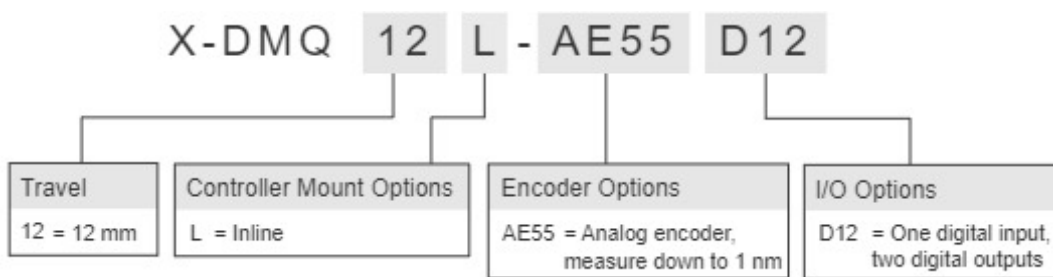
The built-in analog linear encoder is interpolated to 1 nm resolution and allows closed-loop servo

control of position and velocity. Switch to force control mode for applications requiring direct control of the force output of the stage instead of position or velocity based control.

Like all of Zaber's products, the X-DMQ-AE Series is designed to be 'plug and play' and very easy to set up and operate. 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.

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

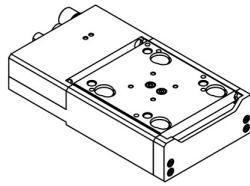
X-DMQ-AE Series Part Numbering



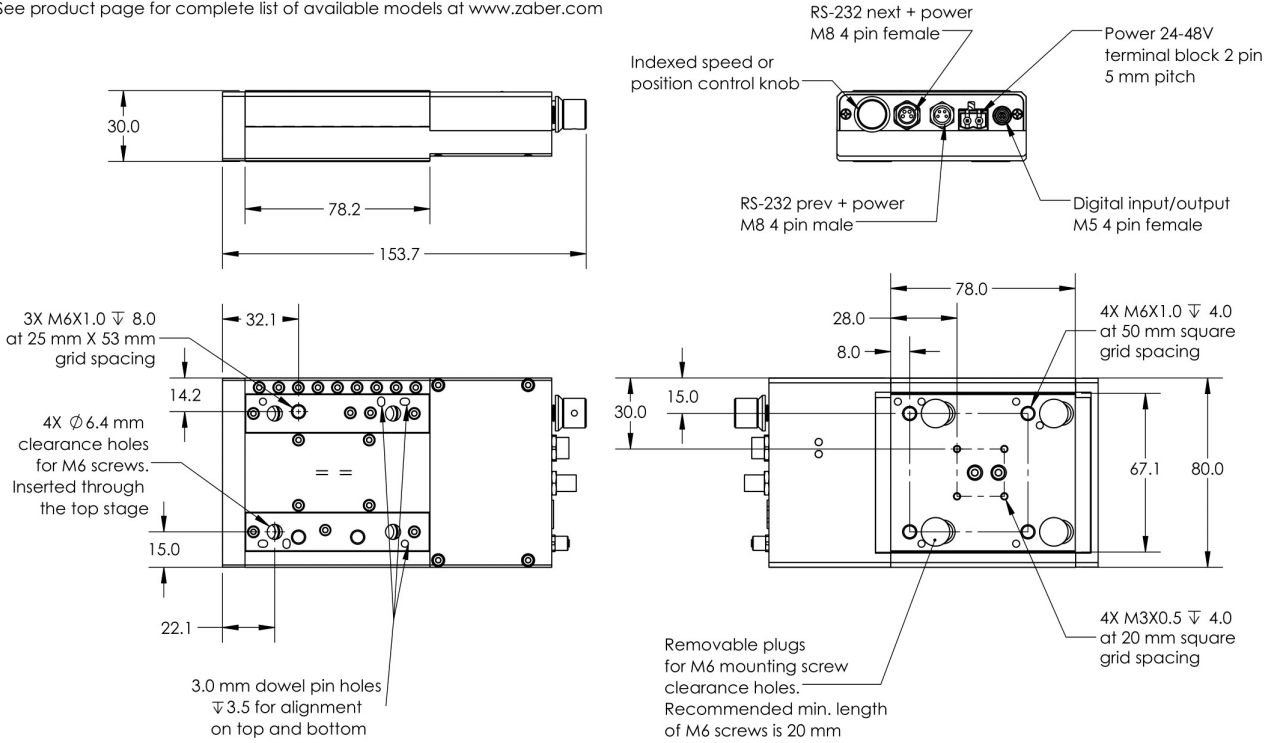
X-DMQ-AE Series Drawings

ZABER

X-DMQ-AE Voice Coil Linear Stage
 dimensions in mm



*See product page for complete list of available models at www.zaber.com



DWG 3281 R01A

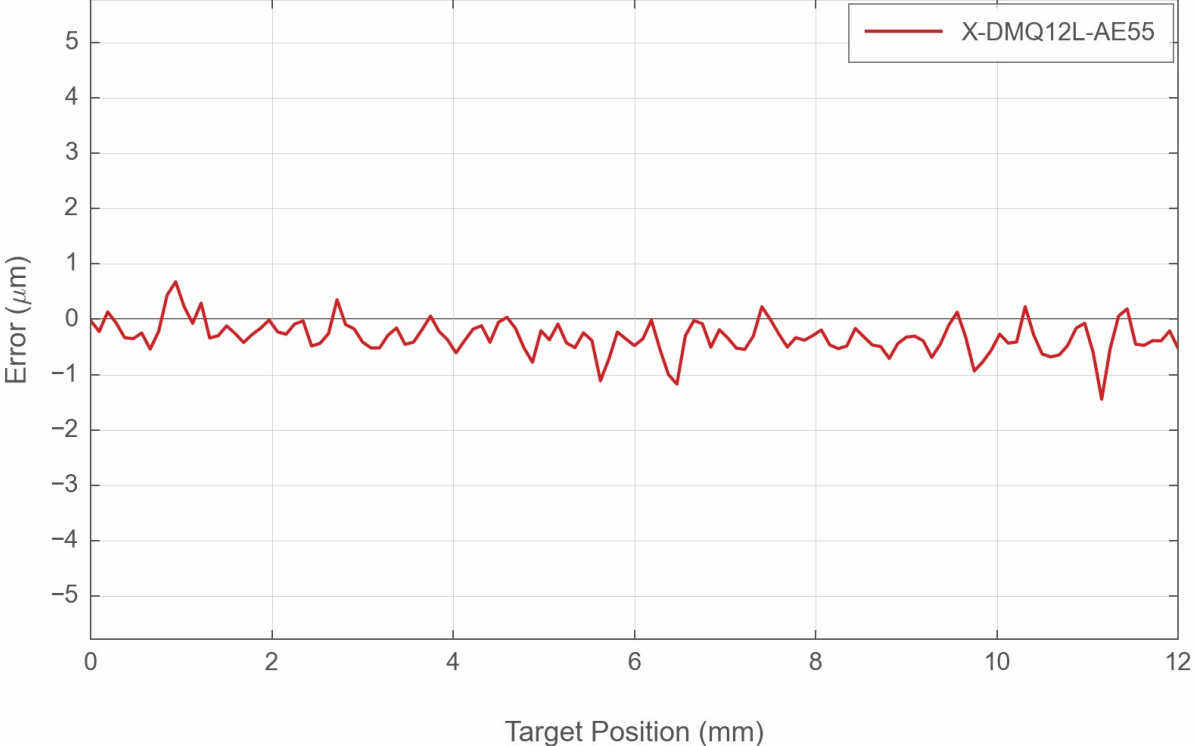
X-DMQ-AE Series Specifications

Specification	Value	Alternate Unit
Built-in Controller	Yes	
Travel Range	12 mm	0.472"
Accuracy (unidirectional)	4 μm	0.000157"
Repeatability	< 0.5 μm	< 0.000020"
Minimum Incremental Move	200 nm	
Maximum Speed	1400 mm/s	55.118"/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	15.5 N	3.5 lb
Maximum Continuous Thrust	12 N	2.7 lb
Communication Interface	RS-232	
Communication Protocol	Zaber ASCII (Default)	
Maximum Centered Load	100 N	22.4 lb
Maximum Cantilever Load	320 N-cm	453.2 oz-in
Guide Type	Crossed-Roller Bearing	
Vertical Runout	< 6 μm	< 0.000236"
Horizontal Runout	< 5 μm	< 0.000197"
Pitch	0.03°	0.523 mrad
Roll	0.03°	0.523 mrad
Yaw	0.03°	0.523 mrad
Stiffness in Pitch	50 N-m/°	349 $\mu\text{rad/N-m}$
Stiffness in Roll	70 N-m/°	249 $\mu\text{rad/N-m}$
Stiffness in Yaw	85 N-m/°	205 $\mu\text{rad/N-m}$
Maximum Current Draw	1000 mA	
Power Supply	24-48 VDC	
Power Plug	2-pin screw terminal	
Motor Type	Voice Coil Linear Actuator	
Force Constant	12.6 N/A	2.8 lbs/A

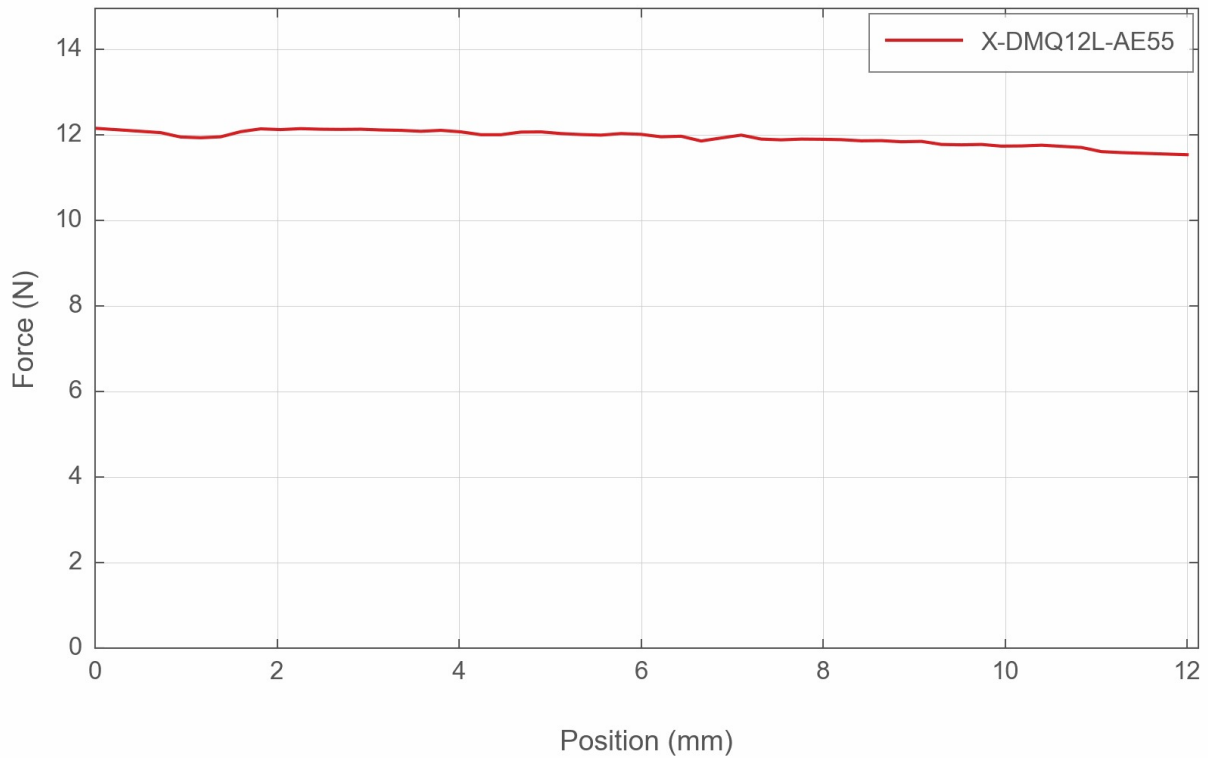
Specification	Value	Alternate Unit
Data Cable Connection	Locking 4-pin M8	
Mechanical Drive System	Moving Coil, Direct Drive	
Limit or Home Sensing	Optical Index Mark	
Axes of Motion	1	
LED Indicators	Yes	
Mounting Interface	M6 and M3 threaded holes	
Operating Temperature Range	0-50 °C	
Vacuum Compatible	No	
RoHS Compliant	Yes	
CE Compliant	Yes	
Moving Mass	0.095 kg	0.209 lbs
Digital Input	1	
Digital Output	2	
Weight	0.8 kg	1.764 lb

X-DMQ-AE Series Charts

Typical Accuracy



Typical Force Over Travel



Contact

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