

RDQ150-AE57T10A Datasheet



- Contactless direct drive motor for high speed silent operation and long lifetime applications
- 0.01 arc second encoder resolution for optimal accuracy and repeatability
- Top speed up to 450 RPM and peak torque up to 7.8 Nm
- Minimum step size down to 0.2 μ rad
- 50.8 mm (2") rotating aperture with 10 kg centered load capacity
- With AutoDetect, the X-MCC controller configures its settings automatically for the connected peripheral

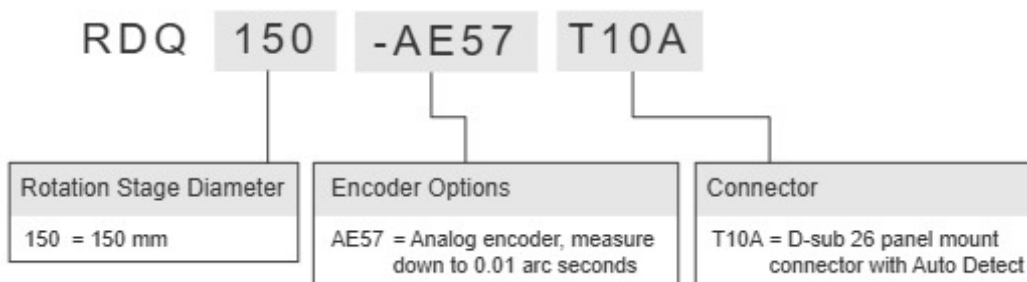
RDQ-AE Series Overview

Zaber's RDQ-AE Series products are motorized rotation stage devices suitable for high precision positioning and scanning applications. The integrated rotary encoder allows for top speeds of 450 RPM while maintaining consistent step sizes down to 0.2 μ rad. The ironless direct drive motor provides high acceleration and smooth motion while minimizing heat generation to improve repeatability. Both the drive and the encoder are non-contact and have no moving cables, resulting in a high lifetime system. Optional metric stage top provides convenient mounting and adjustable hard stops are available for limited travel applications to improve payload crash prevention.

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

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

RDQ-AE Series Part Numbering & Options



RDQ150-AE57T10A Drawings

- [Drawing for the RDQ150-AE.pdf \(Drawing for the RDQ150-AE\)](#)

RDQ150-AE57T10A Specifications

Built-in Controller	
Recommended Controller	X-MCC (48 V) Recommended
Range	360°
Accuracy (unidirectional)	0.006° (0.104700 mrad)
Minimum Incremental Move	0.0000115° (0.20 µrad)
Repeatability	< 0.0001° (< 0.002 mrad)
Maximum Speed	2700°/s (450 rpm)
Encoder Count Size	0.0000027778°/count (0.010000 arcseconds/count)
Minimum Speed	0.0000027778°/s (0.048 µrad/s)
Encoder Resolution	129600000 CPR (518400000 states/rev)
Encoder Type	Direct Reading Optical Encoder
Maximum Torque	780 N-cm (1104.6 oz-in)
Maximum Continuous Torque	200 N-cm (283.2 oz-in)
Maximum Centered Load	100 N (22.4 lb)
Maximum Moment (Transverse)	400 N-cm (566.4 oz-in)
Stage Top Dimension	70 mm (2.756")
Radial Error Motion	+/- 3 µm (+/- 0.000118")
Axial Error Motion	< 3 µm (< 0.000118")
Tilt Error Motion	+/- 0.0014° (+/- 24.43 µrad)
Bearing Plane Offset	16.5 mm (0.650")
Aperture Diameter	50.8 mm (2.000")
Motor Rated Current	3000 mA/phase
Motor Winding Resistance	1.200 ohms/phase
Inductance	0.170 mH/phase
Motor Connection	D-sub 26
Motor Rotor Inertia	51300 g-cm ²
Mechanical Drive System	Direct Drive
Limit or Home Sensing	Optical Index Mark
Mounting Interface	M3 and M6 Threaded Holes and M6 Mounting Holes
Torque Constant	65 N-cm/A (92.0 oz-in/A)
Operating Temperature Range	0-40 °C

Built-in Controller

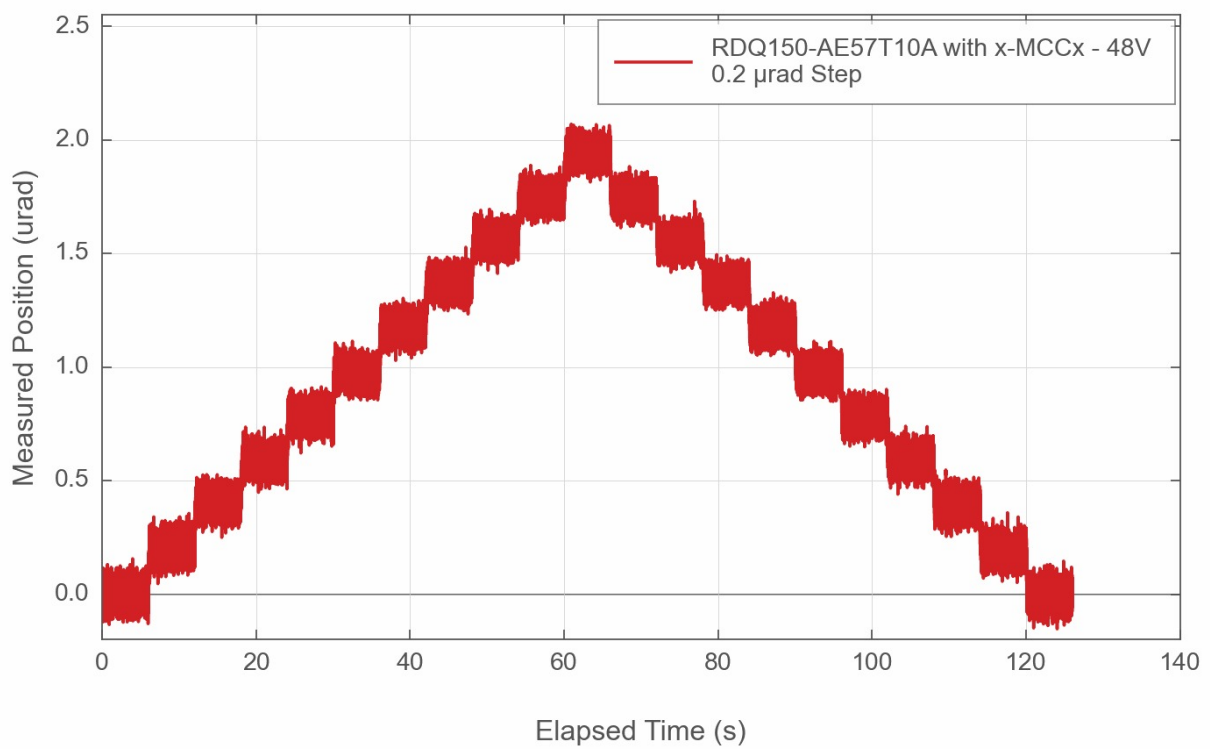
CE Compliant Yes

Vacuum Compatible No

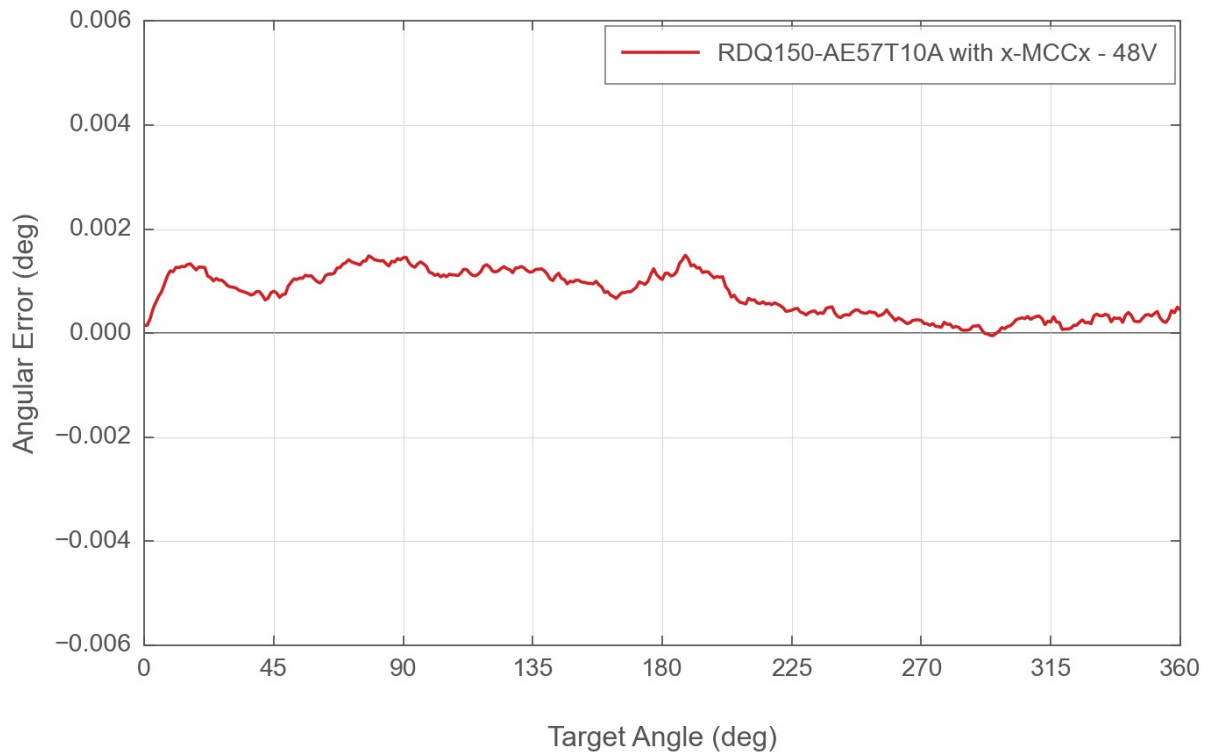
Weight 3.187 kg (7.026 lb)

RDQ-AE Series Charts

Typical Minimum Incremental Move



Typical Accuracy



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