

ADR75 Series

Mechanical-Bearing Rotary Stage

Direct-drive brushless servomotor

Cog-free design for outstanding velocity stability

Outstanding wobble and runout specifications

Direct coupled, high-accuracy rotary encoder

High-accuracy angular contact bearings



Aerotech's ADR series direct-drive rotary stages provide superior angular positioning and velocity control. Applications include photonic component alignment, high-speed laser machining, and precision wafer inspection.

Superior Mechanical Design

Angular contact bearings are used to maximize performance with respect to wobble, moment stiffness, and rotating friction. A thick-walled, precision-ground shaft further minimizes wobble.

Brushless Direct-Drive

To maximize positioning performance, the ADR series utilizes Aerotech's S-series brushless, slotless motor. This motor has all the advantages of a brushless direct-drive motor — no brushes to wear, no gear trains to maintain, and high acceleration and high speeds. Since it is a slotless, ironless design, there is zero cogging, meaning that there is absolutely no torque ripple. This makes the ADR ideal for applications requiring outstanding contoured motion, smooth scan velocity, or precise incremental steps.

With its low inherent inertia and high power output, the ADR is capable of speeds and accelerations that are an order of magnitude greater than typical direct-drive devices or worm-driven stages. The low inertia and zero backlash make the ADR the ideal solution for applications requiring frequent directional changes.

Accurate Positioning

Performance is assured with a 5920 lines per revolution encoder that results in 0.11 arc-sec resolution. The motor and high-performance rotary encoder are directly coupled to a common shaft. The absence of gear trains and mechanical couplings means no position errors caused by hysteresis, windup, or backlash. As a result, accuracy of ± 5 arc sec is attainable.

Flexible Configurations

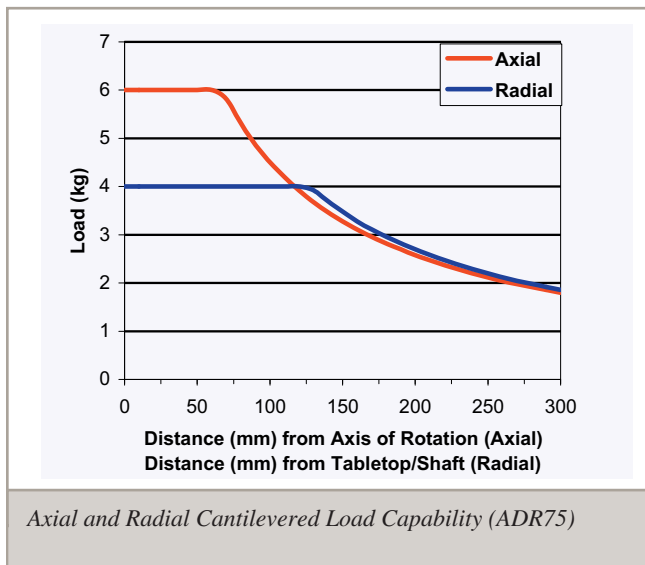
Options include thru-hole apertures and metric or English tabletops. Aerotech manufactures a wide range of servo amplifiers and advanced controllers to provide a complete, integrated package.

ADR75 Series SPECIFICATIONS

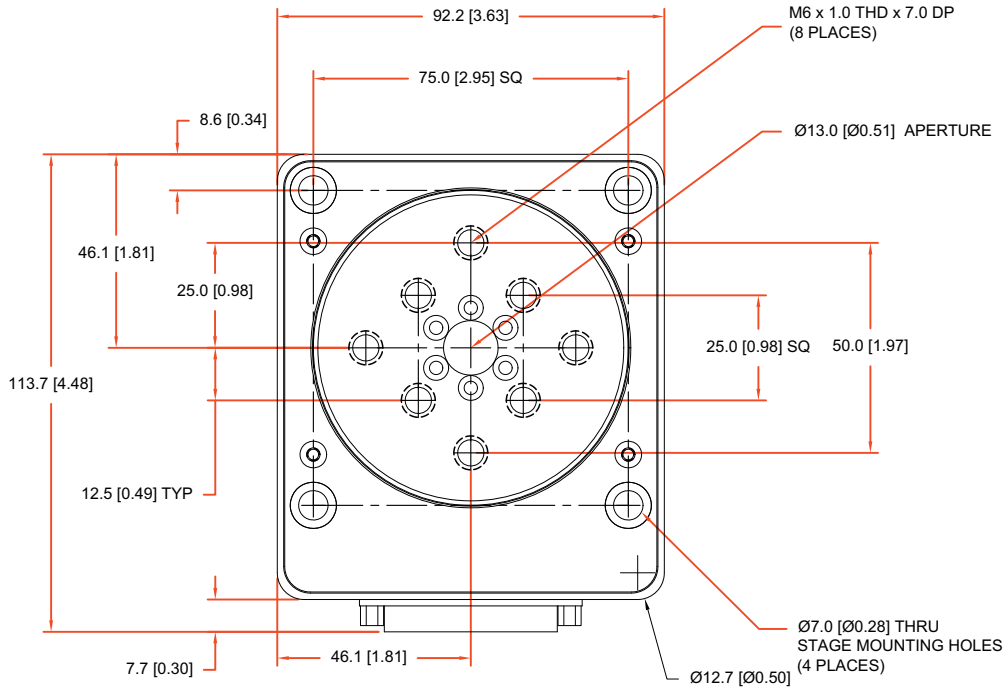
ADR75 Series		
Table Diameter		75 mm (3 in)
Total Travel		±360° Continuous
Motor Type		S-50-39-A
Continuous Current, Stall	A _{pk}	2.4
	A _{rms}	1.7
Bus Voltage		Up to 80 VDC
Feedback		5920 line count/revolution with home marker
Resolution		0.54-53.4 μrad (0.11-11.0 arc sec); 0.0164 μrad (0.0034 arc sec) with Automation 3200
Accuracy ⁽¹⁾		±24.3 μrad (±5 arc sec)
Repeatability		±4.9 μrad (±1 arc sec)
Maximum Rotary Speed		200 rpm
Maximum Load	Axial	6 kg
	Radial	4 kg
Inertia (Unloaded)		0.0001 kg/m ² (0.00007 lb-ft-s ²)
Acceleration (Unloaded)		530 rad/s ²
Axis Tilt Error		48.5 μrad (10 arc sec)
Axis Error Motion	Axial	2.0 μm (80 μin)
	Radial ⁽²⁾	3.0 μm (120 μin)
Nominal Stage Weight		2.23 kg (4.9 lb)
Finish	Table	Black Anodize or Hardcoat
	Stage	Black Anodize

Notes:

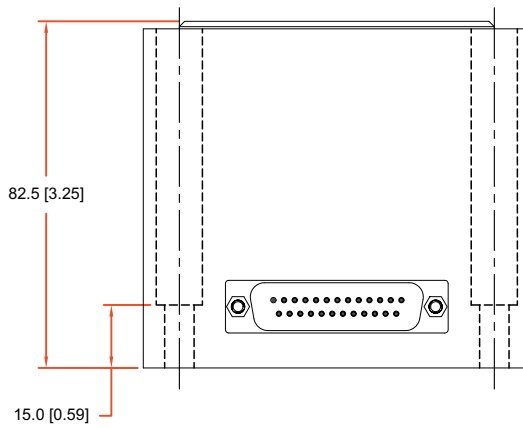
- Value with Aerotech controls and HAL option.
- Measured 50 mm (2 in) above the tabletop.



ADR75 Series DIMENSIONS



DIMENSIONS - MILLIMETERS [INCHES]



ADR75 Series ORDERING INFORMATION

Ordering Example

ADR	-75	-MA
Series	Table Diameter (mm)	Mounting and Grid Pattern
	-75	-MA
Consult Factory For Larger Diameter		

ADR Series Direct-Drive Rotary Stage

ADR75 75 mm (3 in) diameter rotary table

Mounting and Grid Pattern

-MA Tabletop with aperture and metric-dimension mounting pattern and holes

Encoder

RTAS Amplified sine encoder with 5920 cycles per revolution (before interpolation)