ADRS Series

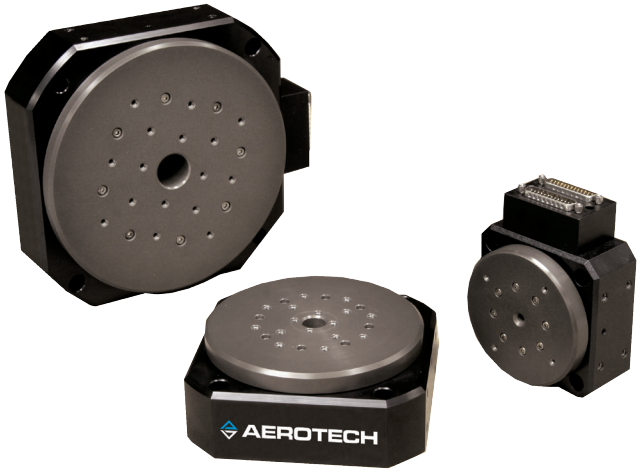
Mechanical-Bearing Rotary Stage

High torque output, direct-drive brushless servomotor

Cog-free slotless motor design for outstanding velocity stability

Direct coupled, high-accuracy rotary encoder

Ultra-low-profile minimizes working height



Aerotech's ADRS series with its direct-drive technology and low profile provide a superior alternative to belt- and worm-drive stages.

Compact Package

The design of the ADRS series direct-drive rotary stage was optimized to minimize stage height. The low profile of the stage reduces the effective working height of the system minimizing "stack-up" related errors. In addition to the low overall height, the ADRS series provides a clear aperture that can be used for product feed-through or laser beam delivery.

Brushless Direct-Drive

To maximize positioning performance, the ADRS series utilizes direct-drive brushless motor technology. Direct-drive technology is optimized for 24/7 production environments, as there are no brushes to replace and no gear trains or belts to maintain. Direct drive also provides quicker acceleration and higher top speeds than gear- or belt-driven mechanisms, yielding higher total overall throughput.

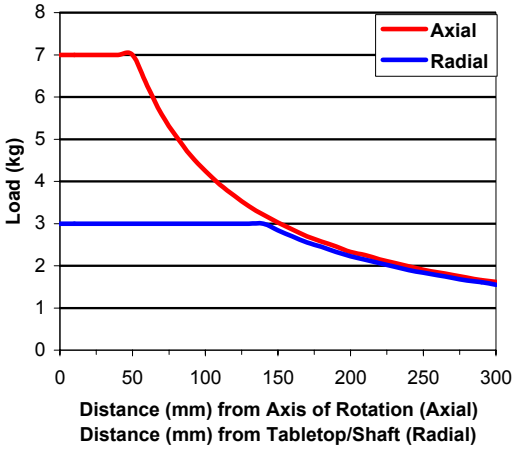
The low maintenance and high-throughput characteristics of the ADRS series provide a stage that yields the lowest total cost of ownership.

Slotless Motor

The ADRS series uses a slotless stator design that eliminates torque ripple. This motor technology provides ultra-smooth velocity stability comparable to a high-quality DC brush motor without all the DC motor's inherent maintenance requirements. Since the slotless motor is directly coupled to the tabletop, velocity disturbances created by toothed belt drives or worm gears are eliminated.

Multiple Configurations

The ADRS series is available in 100 mm, 150 mm, and 200 mm versions. Each stage has options for different motor windings to better match the stage to different operating conditions. The -B winding option provides the highest possible speed operation for a given available bus voltage, while the -A winding gives greater output torque for comparable current levels. Metric and "English" pattern tabletops are available and slotted mounting holes enable attachment to 25 mm and 1inch hole pattern breadboards. The tabletop of the ADRS series has a labyrinth seal that protects the bearings and encoder from contamination. An optional shaft end seal is available for applications where the bottom of the stage is exposed to contamination.



Axial and Radial Cantilevered Load Capability (ADRS100)

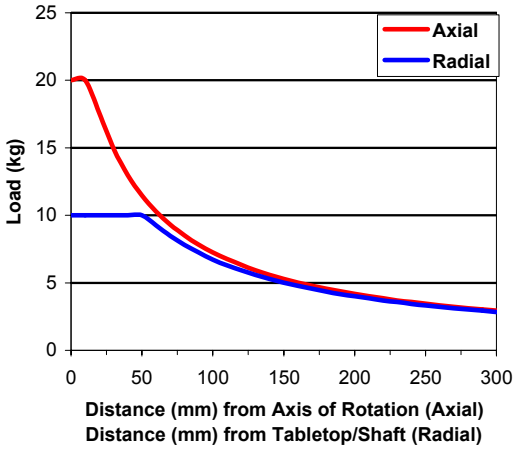
ADRS Series SPECIFICATIONS

ADRS Series		ADRS100	ADRS150	ADRS200
Tabletop Diameter		95 mm	140 mm	190 mm
Aperture		6 mm	15 mm	26 mm
Bus Voltage		340 VDC		
Maximum Torque (Continuous)		0.48 N·m	2.36 N·m	5.99 N·m
Max Speed(1)		1500 rpm	600 rpm	600 rpm
Accuracy(2)	Uncalibrated	388 µrad (80 arc sec)		
	Calibrated(3)	29.1 µrad (6 arc sec)		
Repeatability(2)		14.6 µrad (3 arc sec)		
Max Load(4)	Axial	7 kg	20 kg	40 kg
	Radial	3 kg	10 kg	20 kg
Axial Error Motion(5)		2 µm	5 µm	5 µm
Radial Error Motion(5)		3 µm	5 µm	5 µm
Tilt Error Motion		48.5 µrad (10 arc sec)		
Inertia	Unloaded	0.00038 kg-m^2	0.00242 kg-m^2	0.00843 kg-m^2
Total Mass		2.0 kg	4.3 kg	7.6 kg
Finish	Tabletop	Hardcoat		
	Stage	Black Anodize		

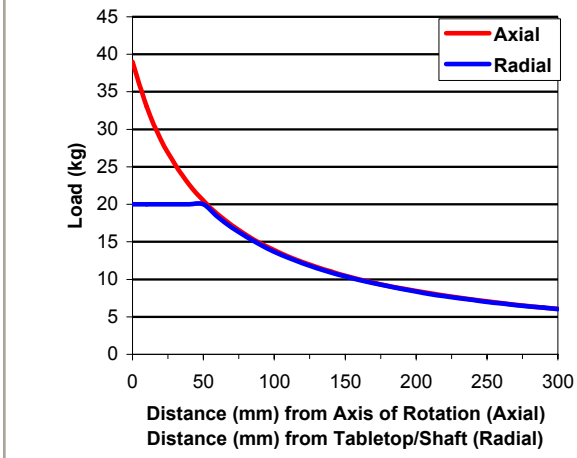
Notes:
1. Maximum speed is based on stage capability. Actual speed may depend on encoder resolution, load, amplifier bus voltage and motor. See the S-series rotary motor for more information.
2. Repeatability and accuracy are dependent on encoder resolution. To achieve the listed specifications, encoder resolution must be 0.36 arc sec or finer.
3. With -PL2 option.
4. Maximum loads are mutually exclusive.
5. For the ADRS100, error motion specifications are below 700 rpm. Above 700 rpm the max radial error is 5 microns. Errors measured 25 mm above the tabletop.

ADRS Maxmimum Speeds for Encoder Option

Encoder Option	ADRS100	ADRS150	ADRS200
-E1/-E2/-E3/-E4	1500 rpm	600 rpm	600 rpm
-E5	800 rpm	300 rpm	300 rpm



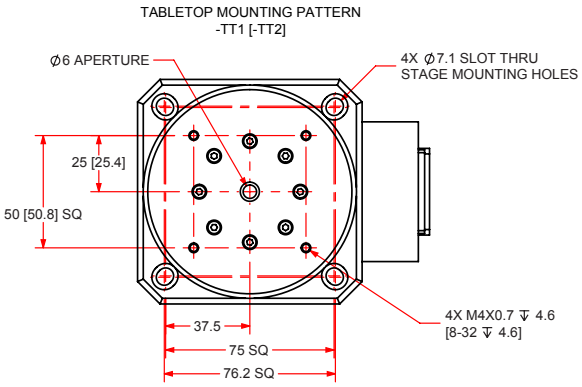
Axial and Radial Cantilevered Load Capability (ADRS150)

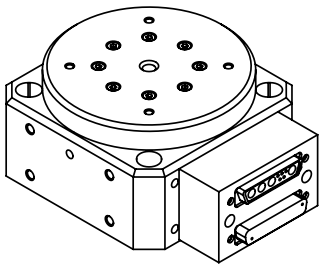


Axial and Radial Cantilevered Load Capability (ADRS200)

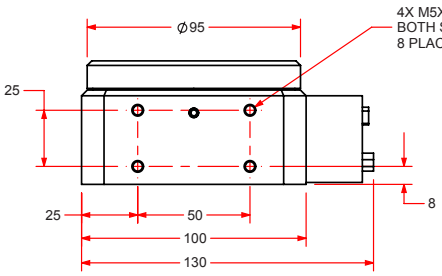
ADRS Series DIMENSIONS

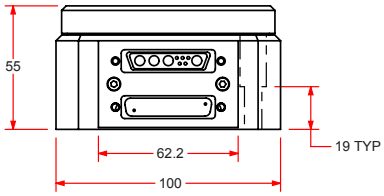
ADRS100

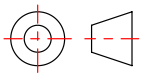




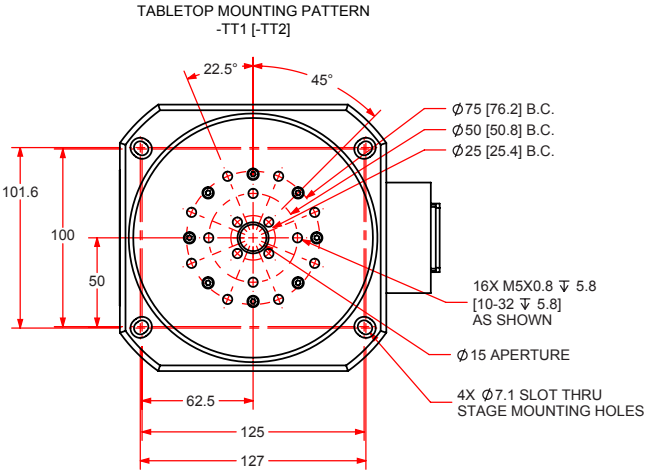
DIMENSIONS: MILLIMETERS

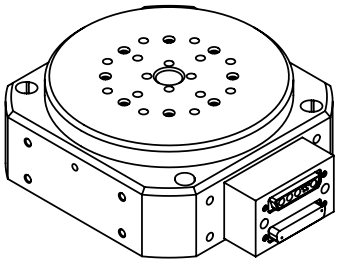






ADRS150





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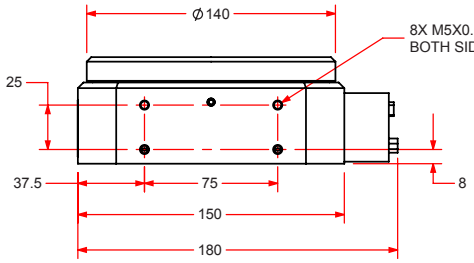
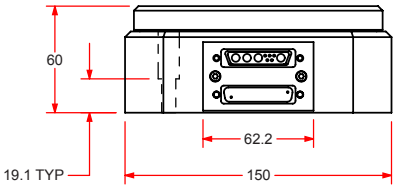
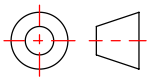
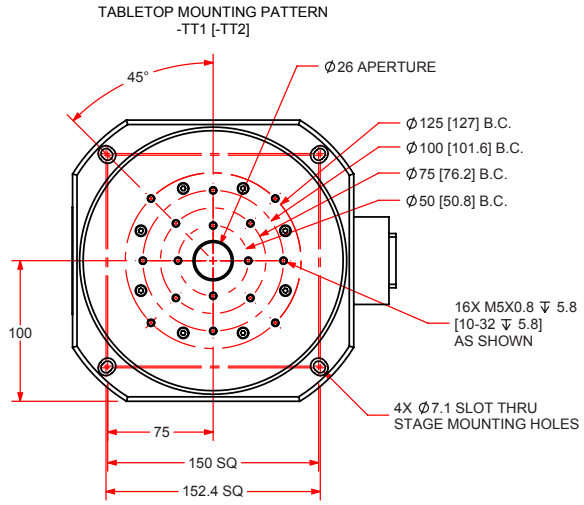


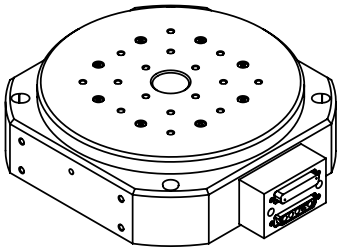




ADRS Series DIMENSIONS

ADRS200





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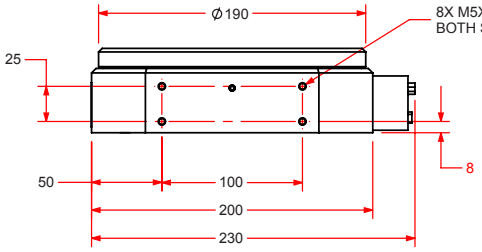

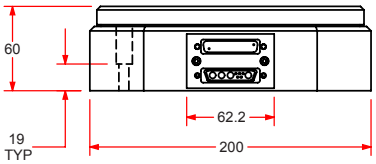

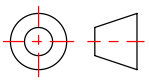

ADRS Series ORDERING INFORMATION

ADRS Series Direct-Drive Rotary Stage

ADRS100	ADRS100 mechanical-bearing direct-drive rotary stage
ADRS150	ADRS150 mechanical-bearing direct-drive rotary stage
ADRS200	ADRS200 mechanical-bearing direct-drive rotary stage

Feedback (Required)

-E1	Incremental encoder, 1 Vpp
-E2	Incremental encoder, TTL, x5 interpolation
-E3	Incremental encoder, TTL, x10 interpolation
-E4	Incremental encoder, TTL, x25 interpolation
-E5	Incremental encoder, TTL, x50 interpolation

Motor (Required)

-M1	Low current, -A winding
-M2	Low voltage, -B winding

Tabletop (Required)

-TT1	Metric tabletop
-TT2	English tabletop

Lower Seal (Optional)*

-	No lower seal
-SL	Lower seal

**Note: Lower Seal not available for the ADRS100*

Metrology (Required)

-PL1	Metrology, uncalibrated with performance plots
-PL2	Metrology, calibrated (HALAR) with performance plots

Integration (Required)

Aerotech offers both standard and custom integration services to help you get your system fully operational as quickly as possible. The following standard integration options are available for this system. Please consult Aerotech if you are unsure what level of integration is required, or if you desire custom integration support with your system.

-TAS	Integration - Test as system Testing, integration, and documentation of a group of components as a complete system that will be used together (ex: drive, controller, and stage). This includes parameter file generation, system tuning, and documentation of the system configuration.
-TAC	Integration - Test as components Testing and integration of individual items as discrete components that ship together. This is typically used for spare parts, replacement parts, or items that will not be used together. These components may or may not be part of a larger system.