ANT130-R Series nano Motion Technology

Mechanical Bearing, Direct-Drive Rotary Stage

- High resolution (0.01 arc sec)
- High performance in large travels
- Outstanding error motion specifications
- Excellent in-position stability
- Multi-axis configurations
- High dynamic performance

The ANT130-R direct-drive rotary stages are designed as part of Aerotech's nano Motion Technology product family. Our rotary stages offer unprecedented in-position stability (0.005 arc sec) and incremental motion (0.01 arc sec) performance.

Multi-Axis Capabilities

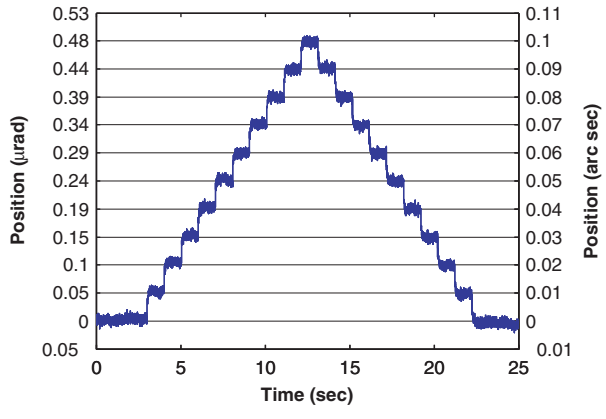
The ANT130-R series is designed for compatibility and easy integration with Aerotech's ANT linear stage product offerings. Together these stages provide accuracy, stability, and small size performance capability for almost any nano-manufacturing or inspection application.

Dynamic Performance

In addition to the high precision levels, these systems offer high dynamic performance and throughput ideal for disk drive manufacture and test.

Durability

The ANT130-R stage series was designed to operate in a 24/7 manufacturing environment. Unlike other rotary devices, the ANT130-R requires no periodic maintenance, assuring years of trouble-free operation.



ANT130-R 0.01 arc sec step plot. Best-in-class resolution and exceptional in-position stability for large angular travel stages. See additional performance graphs on the following pages.

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ANT130-R Series SPECIFICATIONS

Mechanical Specifications		ANT130-20-R	ANT130-180-R	ANT130-360-R
Travel		20°	180°	360° Continuous
Accuracy[1]		5 arc sec	5 arc sec	5 arc sec
Resolution		0.01 arc sec	0.01 arc sec	0.01 arc sec
Repeatability (Bi-directional)[1]		1.5 arc sec	1.5 arc sec	1.5 arc sec
Repeatability (Uni-directional)[1]		0.5 arc sec	0.5 arc sec	0.5 arc sec
Tilt Error Motion	Synchronous	NA	NA	10 arc sec
	Asynchronous	NA	NA	3 arc sec
Axial Error Motion[1]	Synchronous	NA	NA	2 µm
	Asynchronous	NA	NA	0.5 µm
Radial Error Motion[1]	Synchronous	NA	NA	3 µm
	Asynchronous	NA	NA	1 µm
Maximum Speed		20 rpm	20 rpm	200 rpm
Maximum Acceleration		400 rad/s^2	400 rad/s^2	400 rad/s^2
In-Position Stability[2]		0.005 arc sec	0.005 arc sec	0.005 arc sec
Aperture		11 mm	11 mm	11 mm
Maximum Torque (Continuous)		0.2 Nm	0.2 Nm	0.2 Nm
Load Capacity[3]	Axial	3.0 kg (6.6 lb)	3.0 kg (6.6 lb)	3.0 kg (6.6 lb)
	Radial	2.0 kg (4.4 lb)	2.0 kg (4.4 lb)	2.0 kg (4.4 lb)
	Moment	3 Nm	3 Nm	3 Nm
Rotor Inertia (Unloaded)		0.001 kg-m^2	0.001 kg-m^2	0.0016 kg-m^2
Stage Mass		1.5 kg (3.3 lb)	1.5 kg (3.3 lb)	1.7 kg (3.74 lb)
Material		Aluminum Body/Black Hardcoat Finish		
MTBF (Mean Time Between Failure)		30,000 Hours		

Notes:
1. Certified with each stage. Requires the use of an Aerotech controller.
2. In-Position Jitter listing is 3σ value.
3. Axis orientation for on-axis loading is listed.
4. Specifications are for single-axis systems measured 25 mm above the tabletop. Performance of multi-axis systems is payload and workpoint dependent. Consult factory for multi-axis or non-standard applications.
5. All error motion specifications are measured at 60 rpm.
6. For high speed operation, customer payload must be balanced to G1.0 per ISO 1940.

Electrical Specifications	ANT130-20-R	ANT130-180-R	ANT130-360-R
Drive System	Slotless, Brushless, Direct-Drive Rotary Motor		
Feedback	Noncontact Rotary Encoder		
Maximum Bus Voltage	±80 VDC		
Limit Switches	5 V, Normally Closed		
Home Switch	Near Center		

Recommended Controller		ANT130-20-R	ANT130-180-R	ANT130-360-R
Multi-Axis	A3200	Npaq MXR Npaq MR-MXH Ndrive ML-MXH		
	Ensemble	Epaq MXR Epaq MR-MXH Ensemble ML-MXH		
Single Axis	Soloist	Soloist ML-MXH		

Notes:
1. Linear amplifiers are required to achieve the listed specifications. Other options are available.

Note: To ensure the achievement and repeatability of specifications over an extended period of time, environmental temperature must be controlled to within 0.25ºC/24 hours. If this is not possible, alternate products are available. Please consult Aerotech Sales Engineering for more information.

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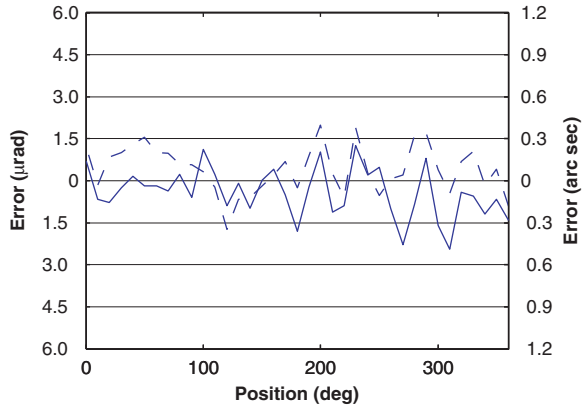
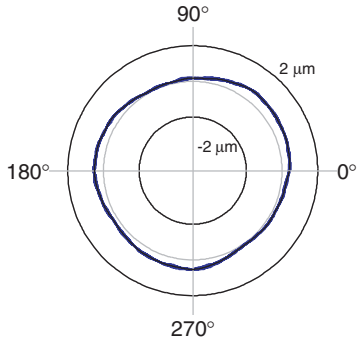
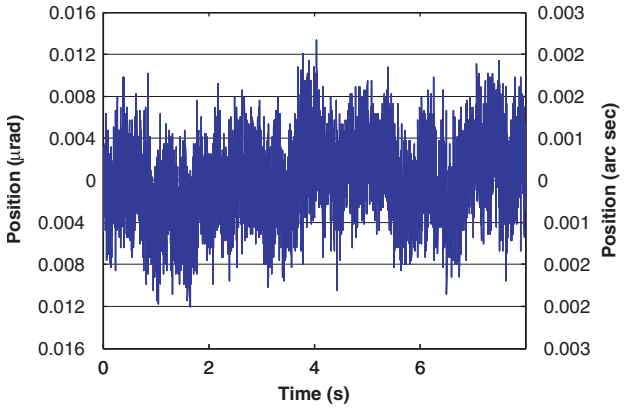
ANT130-R Series PERFORMANCE



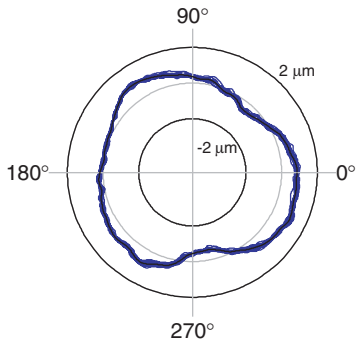
ANT130-R accuracy plots showing excellent accuracy and bi-directional positioning capability.



ANT130-R axial error plot illustrating outstanding synchronous and asynchronous error motion performance.



ANT130-R plot showing best-in-class in-position stability.



ANT130-R radial error plot illustrating outstanding synchronous and asynchronous error motion performance.

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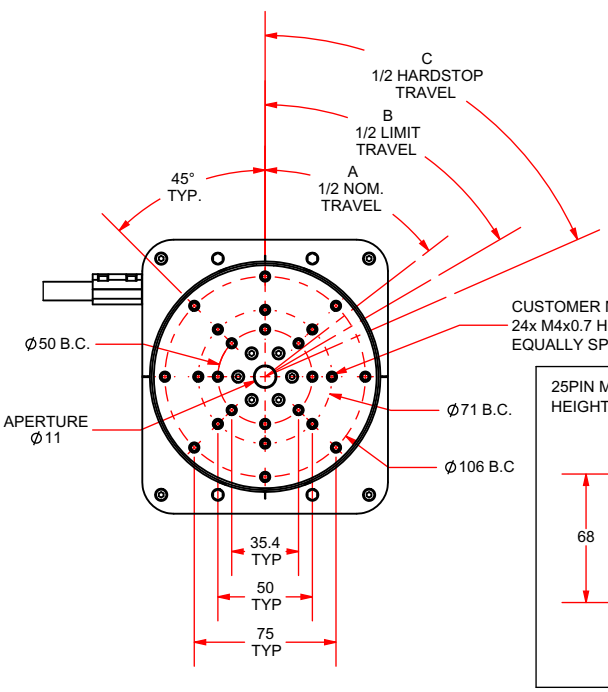
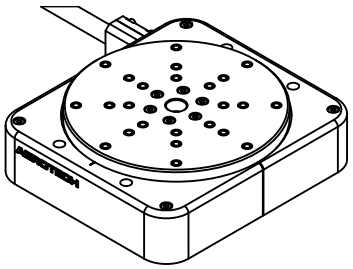
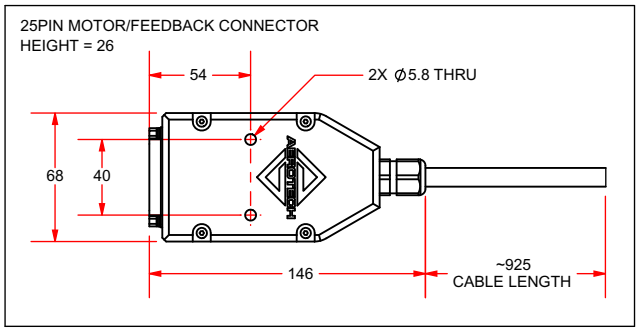
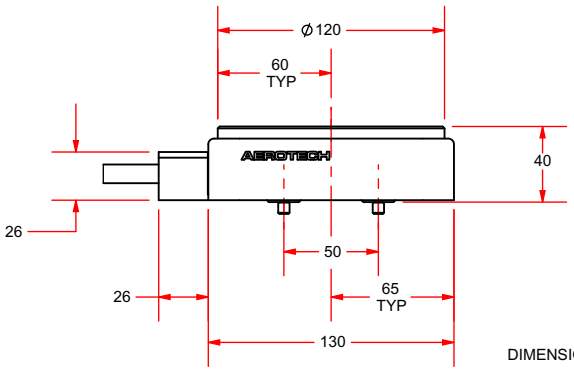
ANT130-R DIMENSIONS

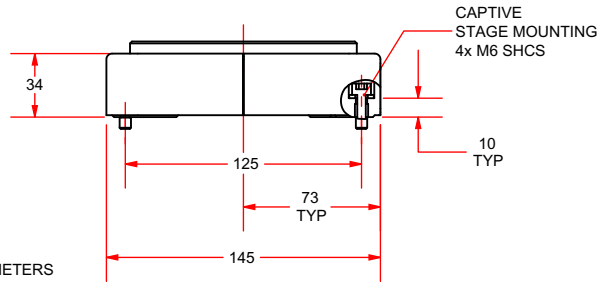






MODEL	TRAVEL (DEGREES)		
	A	B	C
ANT130-020-R	10	15	37
ANT130-180-R	90	95	117
ANT130-360-R	360 CONT.	-	-





DIMENSIONS: MILLIMETERS

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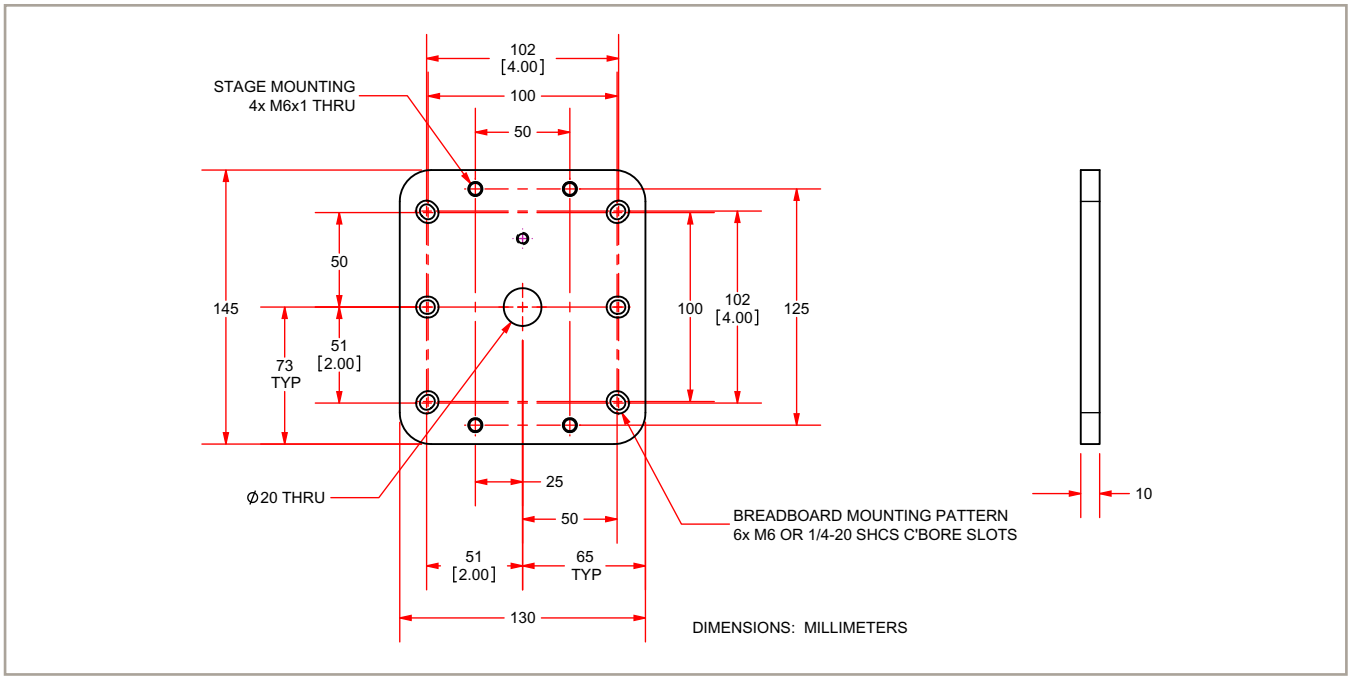
ANT130-R Mounting Plate DIMENSIONS



ANT130-R Series ORDERING INFORMATION

ANT130-R Series Rotary Stage

ANT130-R	Aerotech rotary positioner

Rotary Stage Travel

ANT130-20-R	20° travel rotary stage with slotless, brushless, direct-drive motor
ANT130-180-R	180° travel rotary stage with slotless, brushless, direct-drive motor
ANT130-360-R	360° continuous travel rotary stage with slotless, brushless, direct-drive motor

Accessories

-MP	Breadboard mounting plate

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