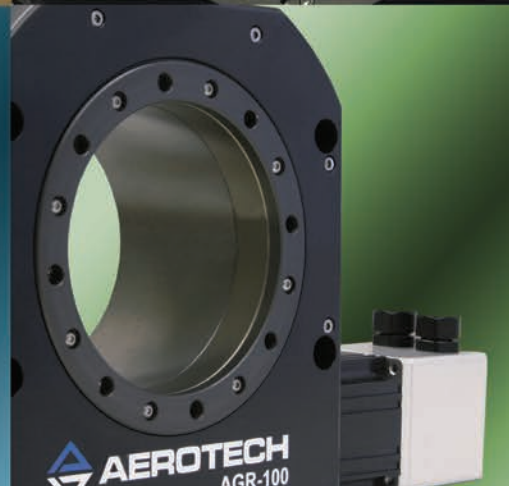
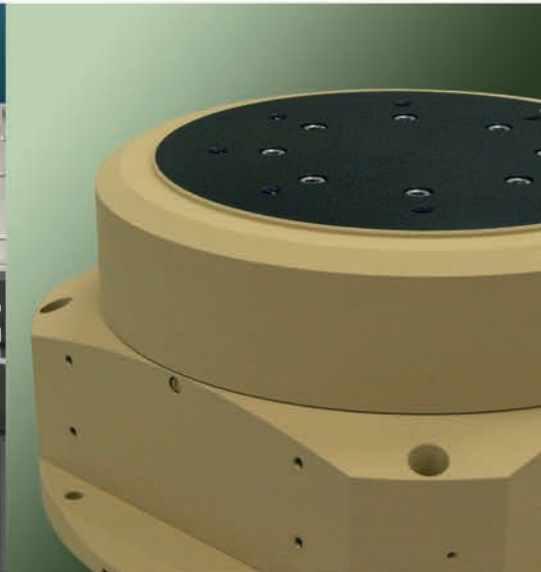
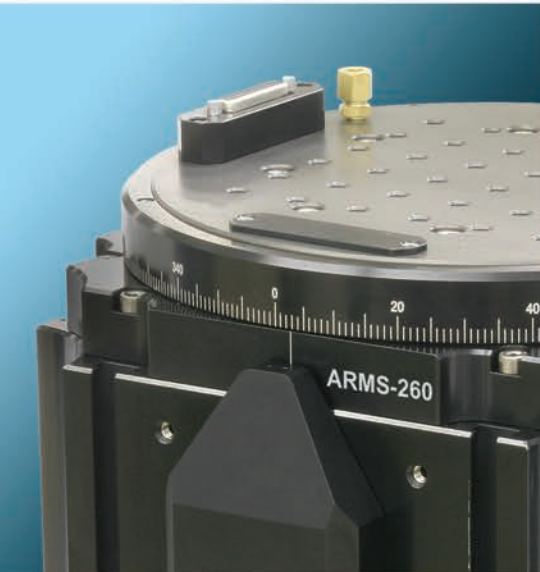
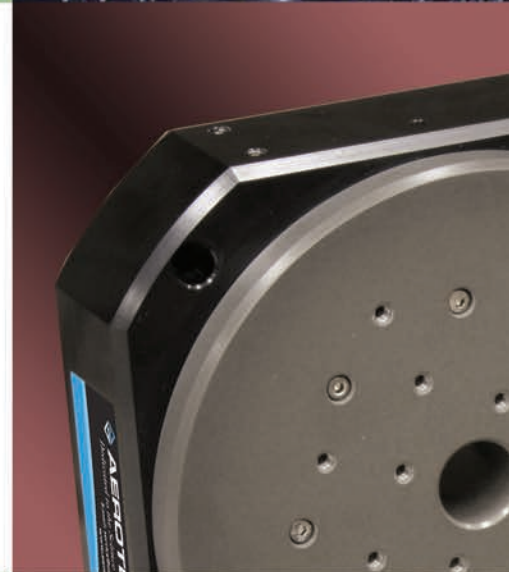


 **AEROTECH**  
**旋转平台**  
Precision in Motion



# Contents

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# Aerotech 精密旋转平台



ABRS



ABRT



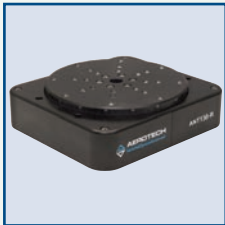
AXR



ASRT



ANT95-R



ANTI30-R



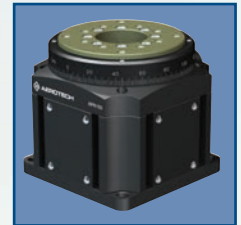
ASR1000



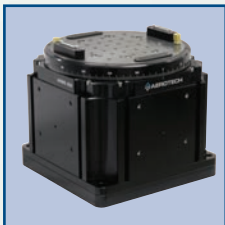
ADRT



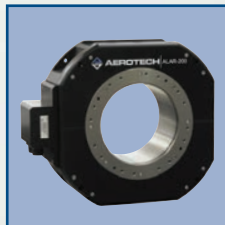
ADRS



APR



ARMS



ALAR



ACS



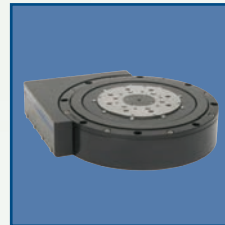
ACS LP



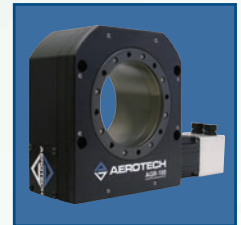
ASR1100



ASR1200



WaferMax T



AGR

Aerotech 生产各种高精度旋转平台包含 - 使用Aerotech生产之无刷伺服之直驱 (DD) 旋转平台, 与蜗杆传动旋转平台。旋转平台有许多种选项包含 - 不同尺寸之中空孔径 (Aperture), 台面大小, 安装孔位选项等, 为各种不同工业自动化应用之理想解决方案。Aerotech生产之旋转平台具有极佳的摆动(Wobble)与偏转(Runout)特性, 适用于工业机械手臂, 光纤, 光电, 视觉检测系统, 工具机, 封装, 半导体设备, 医疗装置激光加工, 电子零件生产, 与其他高性能工业自动化应用等。另外, Aerotech 生产高性能驱动器与运动控制器, 与高精度旋转平台集成成为极高性能之运动系统。

# ABRT

## 空气轴承, 直驱旋转平台

- 大扭力输出, 直接驱动无槽, 无刷伺服电机
- 无顿转 (Zero cogging) 伺服电机以提供极高之速度稳定性
- 极佳的误差运动 (Error Motion) 与偏转 (Runout) 特性
- 直接耦合, 高精度旋转编码器(圆光栅)
- 大尺寸中空口径
- 完全无机械接触

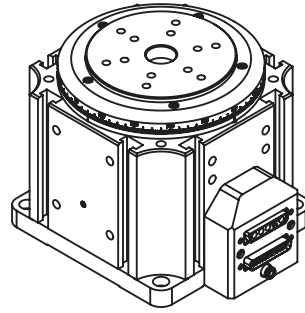
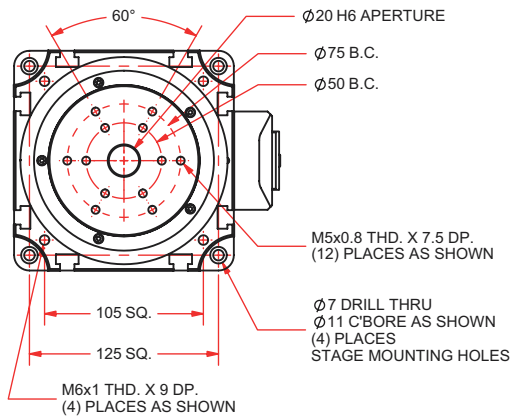
ABRT系列空气轴承旋转平台提供杰出之角度定位精度, 速度稳定性, 与误差运动规格, 同时维持大负载能力与轴向与径向刚性。ABRT可达到DVD 刻板 (DVD mastering), 硅片检测, 高精度量测, X-ray绕射, 光学元件检测与生产, 微机电/纳米装置生产之各种严苛要求。

ABRT Series		ABRT-150	ABRT-200	ABRT-260
Width		146 mm	196 mm	260 mm
Tabletop Diameter		100 mm	145 mm	200 mm
Height		135 mm	165 mm	185 mm
Aperture		20 mm	30 mm	50 mm
Total Travel		360° Continuous		
Motor		Direct-Drive Brushless Servomotor		
Stall Torque, Continuous		0.36 N-m	3.7 N-m	6.7 N-m
Peak Torque		1.4 N-m	14.6 N-m	26.6 N-m
BEMF, Line-Line, Max		10.9 V <sub>pk</sub> /krpm	163.6 V <sub>pk</sub> /krpm	129.8 V <sub>pk</sub> /krpm
Continuous Current, Stall		3.8 A <sub>pk</sub>	2.7 A <sub>pk</sub>	6.2 A <sub>pk</sub>
		2.7 A <sub>rms</sub>	1.9 A <sub>rms</sub>	4.4 A <sub>rms</sub>
Torque Constant		0.09 N-m/A <sub>pk</sub>	1.35 N-m/A <sub>pk</sub>	1.07 N-m/A <sub>pk</sub>
		0.13 N-m/A <sub>rms</sub>	1.91 N-m/A <sub>rms</sub>	1.52 N-m/A <sub>rms</sub>
Bus Voltage		Up to 320 VDC		
Resolution <sup>(1)</sup>		0.267 μrad (0.055 arc sec)	0.174 μrad (0.036 arc sec)	0.133 μrad (0.027 arc sec)
Fundamental Encoder Resolution		11,840 lines/rev	18,000 lines/rev	23,600 lines/rev
Max Speed <sup>(2)</sup>		1200 rpm	800 rpm	600 rpm
Accuracy <sup>(3)</sup>		±2 arc sec		
Repeatability		<1 arc sec		
Max Load <sup>(4)</sup>	Axial	20 kg	41 kg	69 kg
	Radial	3 kg	6 kg	10 kg
	Tilt	3.5 N-m	8 N-m	18 N-m
Axial Error Motion (Synchronous)		<100 nm		
Radial Error Motion (Synchronous)		<150 nm		
Tilt Error Motion (Synchronous)		<2.4 μrad (<0.5 arc-sec)		
Axial Error Motion (Asynchronous)		<20 nm		
Radial Error Motion (Asynchronous)		<20 nm		
Tilt Error Motion (Asynchronous)		<0.2 μrad (<0.04 arc-sec)		
Operating Pressure <sup>(6)</sup>		80 psig (5.5 bar) ± 5 psig (0.3 bar)		
Air Consumption <sup>(7)</sup>		<56.6 SLPM (<2 SCFM)		
Inertia	Unloaded	2300 kg-mm <sup>2</sup>	13,500 kg-mm <sup>2</sup>	46,400 kg-mm <sup>2</sup>
Total Mass		6.7 kg	14.7 kg	27.1 kg
Material		Aluminum		
Finish		Hardcoat (62 Rockwell Hardness)		

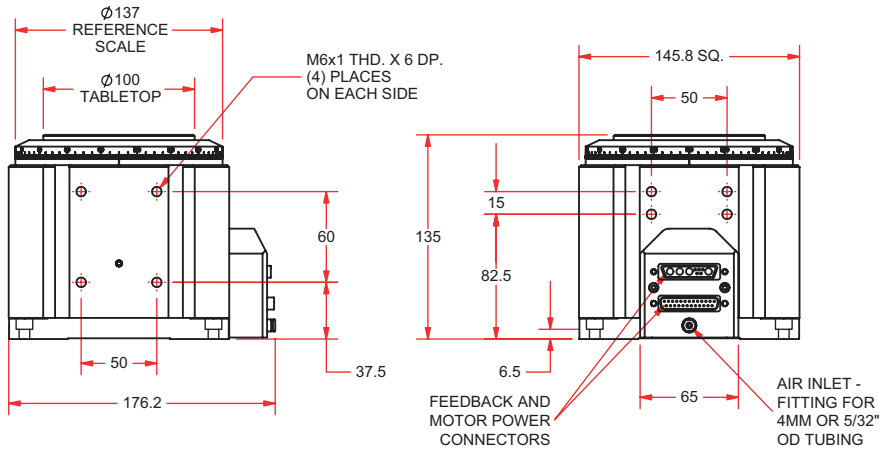
Notes:

1. Maximum resolution presumes A3200 controller using MXH500 multiplication, and accounts for controller quadrature.
2. Maximum speed based on stage capability. Maximum application velocity may be limited by system data rate and system resolution.
3. Certified with each stage. Requires the use of an Aerotech controller.
4. Maximum loads are mutually exclusive.
5. All error motion specifications measured at 60 rpm.
6. To protect air bearing against under-pressure, an in-line pressure switch tied to the motion controller is recommended.
7. Air supply must be clean, dry to 0° F dew point, and filtered to 0.25 μm or better. Recommend nitrogen at 99.9% purity.

# ABRT-150



## DIMENSIONS - MILLIMETERS



ABRT空气轴承旋转平台具有大负载能力与杰出轴向与径向刚性

# ABRS

- 直接驱动无槽，无刷伺服电机
- 无顿转 (Zero cogging) 伺服电机以提供极高之速度稳定性
- 极佳的误差运动 (Error Motion) 与摆动 (Wobble)特性
- 直接耦合，高精度旋转编码器(圆光栅)
- 平面式设计，降低平台高度
- 完全无机械接触

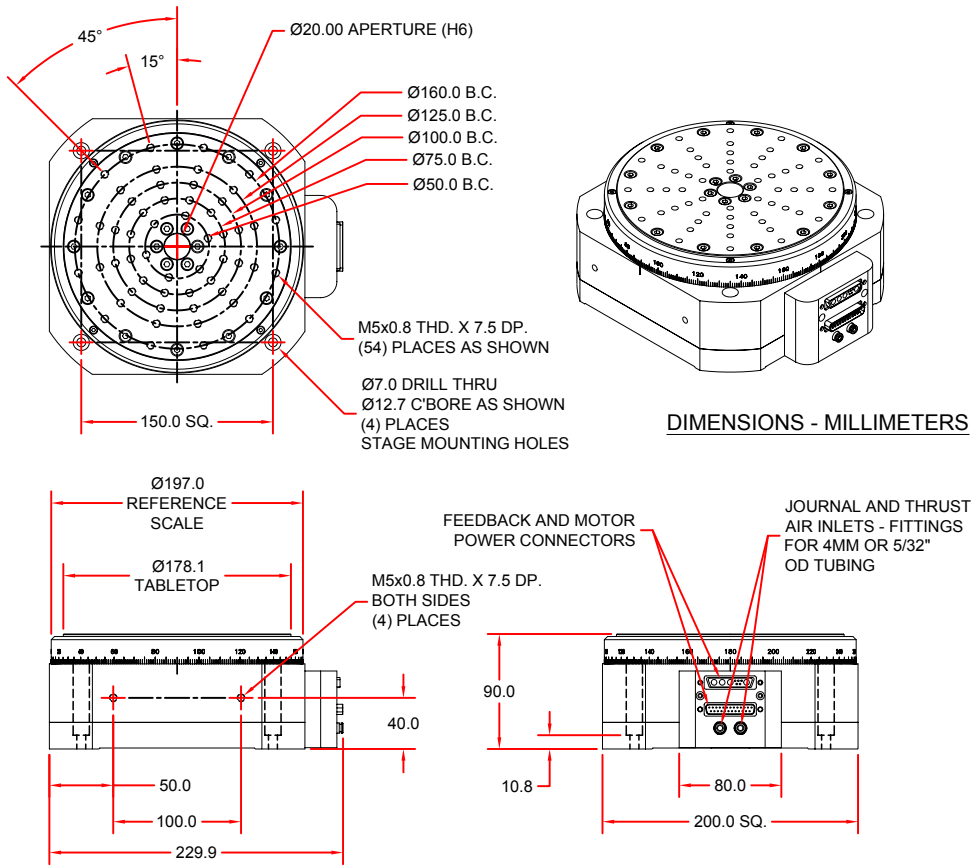
ABRS系列空气轴承旋转平台提供杰出之角度定位精度，速度稳定性，与误差运动规格同时维持极低的平台整体高度。ABRS可达到硅片检测，高精度量测，X-ray，光学元件检测与生产，微机电/纳米装置生产之各种严苛要求。ABRS之特殊设计能够将平台高度降到最低。

ABRS Series	ABRS-150MP	ABRS-200MP	ABRS-250MP	ABRS-300MP	
Width	150 mm	200 mm	250 mm	300 mm	
Tabletop Diameter	128.1 mm	178.1 mm	228.1 mm	278.1 mm	
Height	80 mm	90 mm	100 mm	110 mm	
Aperture	8 mm	20 mm	35 mm	75 mm	
Total Travel	360° Continuous				
Motor	S-50-39-A	S-76-35-A	S-130-39-A	S-180-44-A	
Stall Torque, Continuous	0.20 N-m	0.53 N-m	2.36 N-m	5.99 N-m	
Peak Torque	0.82 N-m	2.12 N-m	9.42 N-m	23.98 N-m	
BEMF, Line-Line, Max	10.3 V <sub>pk</sub> /Krpm	32.1 V <sub>pk</sub> /Krpm	75.1 V <sub>pk</sub> /Krpm	268.7 V <sub>pk</sub> /Krpm	
Continuous Current, Stall	2.4 A <sub>pk</sub>	2.0 A <sub>pk</sub>	3.8 A <sub>pk</sub>	2.7 A <sub>pk</sub>	
	1.7 A <sub>pk</sub>	1.4 A <sub>pk</sub>	2.7 A <sub>pk</sub>	1.9 A <sub>pk</sub>	
Torque Constant	0.09 N-m/A <sub>pk</sub>	0.26 N-m/A <sub>pk</sub>	0.62 N-m/A <sub>pk</sub>	2.22 N-m/A <sub>pk</sub>	
	0.12 N-m/A <sub>rms</sub>	0.37 N-m/A <sub>rms</sub>	0.88 N-m/A <sub>rms</sub>	3.14 N-m/A <sub>rms</sub>	
Bus Voltage	80 VDC				
Resolution <sup>(1)</sup>	0.873 μrad (0.18 arc sec)	0.383 μrad (0.079 arc sec)	0.267 μrad (0.055 arc sec)	0.174 μrad (0.036 arc sec)	
Fundamental Encoder Resolution	3600 lines/rev	8192 lines/rev	11,840 lines/rev	18,000 lines/rev	
Max Speed <sup>(2)</sup>	300 rpm	300 rpm	500 rpm	500 rpm	
Accuracy <sup>(3)</sup>	±3 arc sec				
Repeatability (Bi-Directional)	<2 arc sec				
Max Load <sup>(4)</sup>	Axial	8 kg	31 kg	66 kg	97 kg
	Radial	4 kg	15 kg	36 kg	51 kg
	Tilt	3 N-m	10 N-m	28 N-m	45 N-m
Axial Error Motion (Synchronous)	<175 nm		<100 nm		
Radial Error Motion (Synchronous)	<450 nm		<250 nm		
Tilt Error Motion (Synchronous)	<9.7 μrad (<2.0 arc sec)	<3.4 μrad (<0.7 arc-sec)	<2.4 μrad (<0.5 arc sec)	<2.4 μrad (<0.5 arc sec)	
Axial Error Motion (Asynchronous)	<20 nm				
Radial Error Motion (Asynchronous)	<20 nm				
Tilt Error Motion (Asynchronous)	<0.4 μrad (<0.08 arc sec)	<0.3 μrad (<0.06 arc-sec)	<0.2 μrad (<0.04 arc sec)	<0.2 μrad (<0.04 arc sec)	
Operating Pressure <sup>(6)</sup>	80 psig (5.5 bar) + 0 psig (0.0 bar) / - 10 psig (0.7 bar)				
Air Consumption <sup>(7)</sup>	<56.6 SLPM (<2 SCFM)				
Inertia	Unloaded	3850 kg-mm <sup>2</sup>	13,800 kg-mm <sup>2</sup>	39,100 kg-mm <sup>2</sup>	102,000 kg-mm <sup>2</sup>
Total Mass		4.8 kg	9.1 kg	15.6 kg	24.5 kg
Material	Aluminum				
Finish	Hardcoat (62 Rockwell Hardness)				

Notes:

1. Maximum resolution presumes A3200 controller using MXH500 multiplication, and accounts for controller quadrature.
2. Maximum speed based on stage capability. Maximum application velocity may be limited by system data rate and system resolution.
3. Certified with each stage. Requires the use of an Aerotech controller.
4. Maximum loads are mutually exclusive.
5. All error motion specifications measured at 60 rpm.
6. To protect air bearing against under-pressure, an in-line pressure switch tied to the motion controller is recommended.
7. Air supply must be clean, dry to 0° F dew point, and filtered to 0.25 μm or better. Recommend nitrogen at 99.9% purity.

# ABRS-200MP



ABRS之特殊设计能够  
将平台高度降到最低



# ADRT

## 机械轴承, 直驱旋转平台

- 大扭力输出, 直接驱动无槽, 无刷伺服电机
- 无顿转(Zero cogging)伺服电机以提供极高之速度稳定性
- 极佳的误差运动(Error Motion)与偏转(Runout)特性
- 直接耦合, 高精度旋转编码器(圆光栅)
- 大尺寸中空口径

ADRT系列机械轴承直驱旋转平台提供杰出之角度定位精度与速度稳定性, 适用于取放设备, 高速激光加工, 高精度硅片检测等。大尺寸双轴承提供最高的性能并维持杰出之摆动(Wobble), 侧向刚性, 与重复精度。大尺寸之轴承提供高负载并维持高性能。

ADRT Series		ADRT-100-85	ADRT-100-135	ADRT-150-115	ADRT-150-135	ADRT-150-180
Bearing Option		-P (Precision)/-S (Standard)				
Continuous Current, Stall	A <sub>pk</sub>	2.0	3.7	3.8	3.4	3.1
	A <sub>rms</sub>	1.43	2.6	2.7	2.4	2.2
Motor Type		S-76-35-A	S-76-85-A	S-130-39-A	S-130-60-A	S-130-102-A
Bus Voltage		Up to 320 VDC				
Accuracy <sup>(1)</sup>		5 arc sec (-P); 60 arc sec (-S)				
Repeatability		3 arc sec				
Axial Error Motion		5 μm (-P); 10 μm (-S)				
Radial Error Motion <sup>(2)</sup>		5 μm (-P); 10 μm (-S)				
Tilt Error Motion		10 arc sec				
Height		85 mm	135 mm	115 mm	135 mm	180 mm
Aperture		13 mm			50 mm	
Resolution		0.873-87.3 μrad (0.18 -18 arc sec)				
Radial Load <sup>(3)</sup>		10 kg			25 kg	
Axial Load		15 kg			30 kg	
Rated Speed		1000 rpm (-S); 1500 rpm (-P)			600 rpm	
Inertia		0.00028 kg-m <sup>2</sup>	0.00067 kg-m <sup>2</sup>	0.003379 kg-m <sup>2</sup>	0.004958 kg-m <sup>2</sup>	0.008118 kg-m <sup>2</sup>
Mass		2.3 kg	2.9 kg	5.3 kg	6.9 kg	10.2 kg
Finish	Table	Hardcoat				
	Stage	Black Anodize				

ADRT Series		ADRT-200-155	ADRT-200-185	ADRT-260-160	ADRT-260-180
Bearing Option		-P (Precision)/-S (Standard)			
Continuous Current, Stall	A <sub>pk</sub>	5.1	4.9	5.9	5.8
	A <sub>rms</sub>	3.6	3.5	4.2	4.1
Motor Type		S-180-69-A	S-180-94-A	S-240-63-A	S-240-83-A
Bus Voltage		Up to 320 VDC			
Accuracy <sup>(1)</sup>		5 arc sec (-P); 60 arc sec (-S)			
Repeatability		3 arc sec			
Axial Error Motion		5 μm (-P); 10 μm (-S)			
Radial Error Motion <sup>(2)</sup>		5 μm (-P); 10 μm (-S)			
Tilt Error Motion		10 arc sec			
Height		155 mm		160 mm	
Aperture		75 mm		100 mm	
Resolution		0.582-58.2 μrad (0.12-12 arc sec)			
Radial Load <sup>(3)</sup>		80 kg		110 kg	
Axial Load		140 kg		170 kg	
Rated Speed		500 rpm		375 rpm	
Inertia		0.020991 kg-m <sup>2</sup>	0.027666 kg-m <sup>2</sup>	0.066488 kg-m <sup>2</sup>	0.08566 kg-m <sup>2</sup>
Mass		13.4 kg	16.7 kg	25.4 kg	30.6 kg
Finish	Table	Hardcoat			
	Stage	Black Anodize			

Note:

1. -P accuracy requires calibration and Aerotech controls.

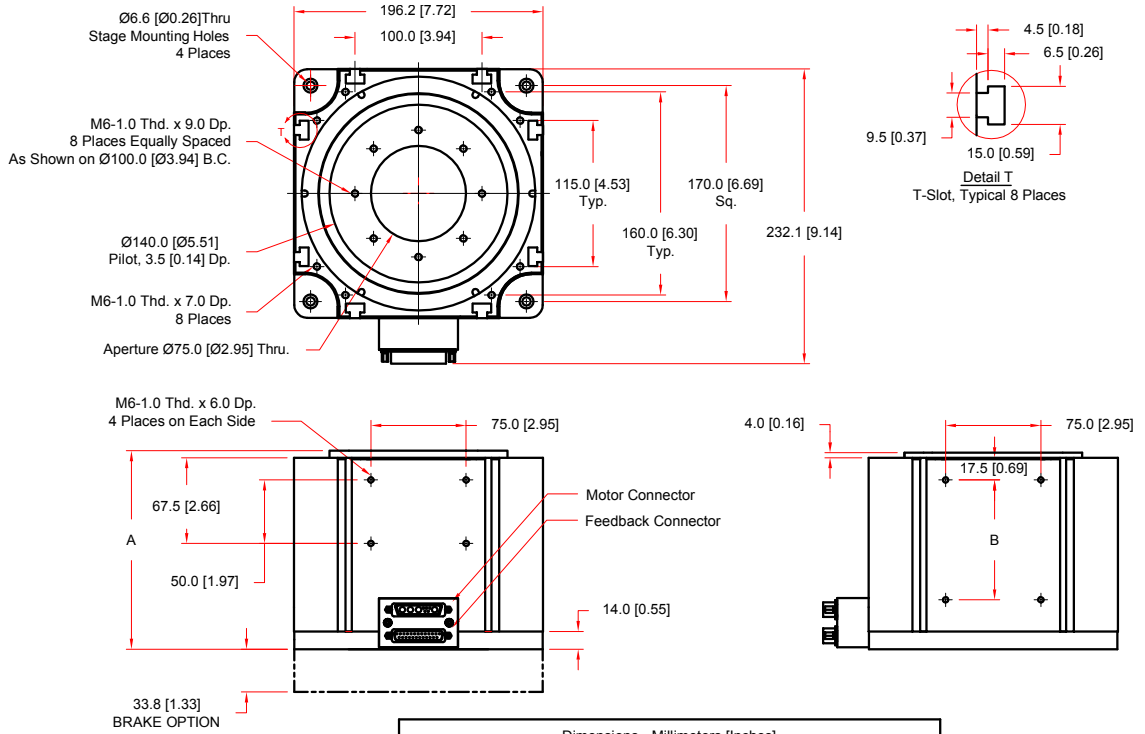
2. Specifications are for single-axis systems. Performance of multi-axis systems is payload and workpoint dependent. Consult factory for multi-axis or non-standard applications.

3. Moment load based on 5 year continuous rotation at 250 rpm with maximum axial load applied. Larger moment loads possible for low speed and/or low duty cycle applications.

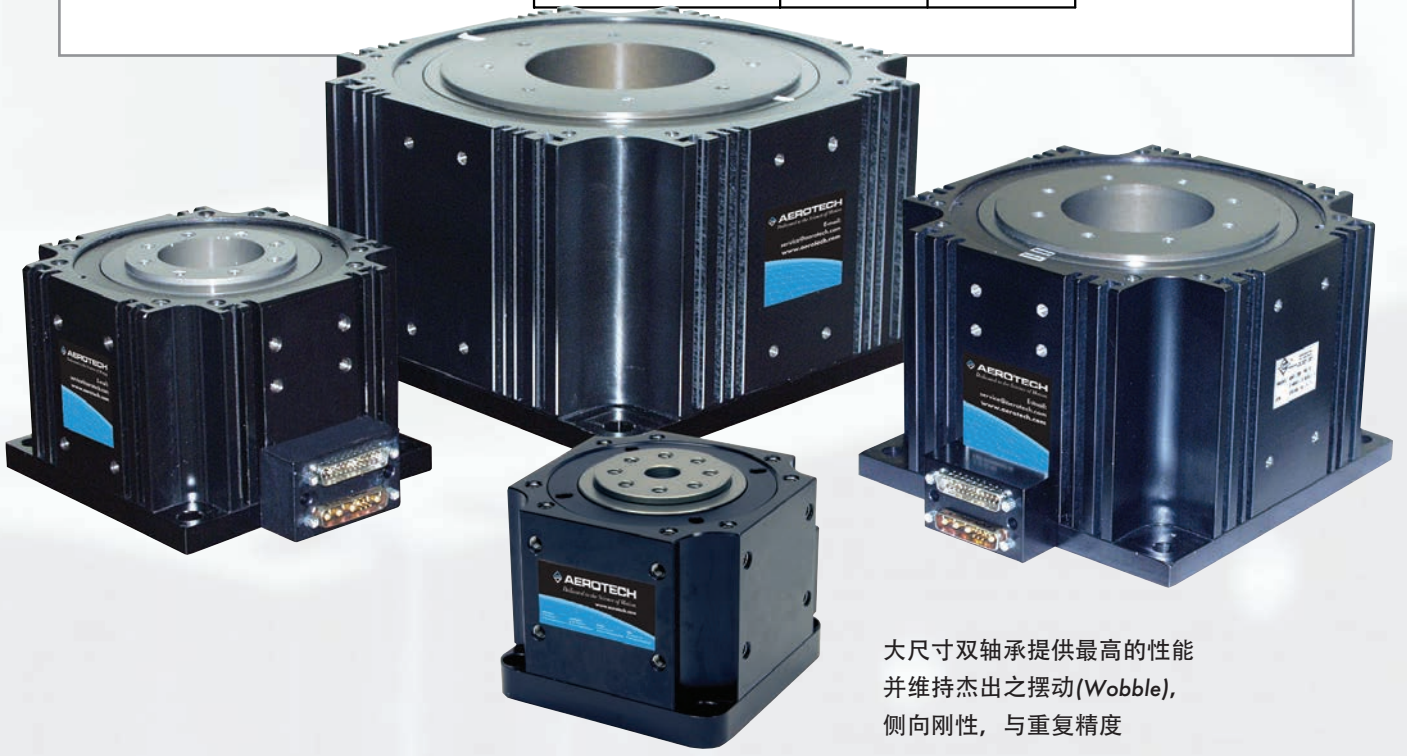
8 Consult Aerotech for additional information.



# ADRT-200



Dimensions - Millimeters [Inches]		
Base Model	A	B
ADRT-200-155-S	154.8 [6.09]	80 [3.15]
ADRT-200-155-P	154.8 [6.09]	80 [3.15]
ADRT-200-185-S	179.8 [7.08]	100 [3.94]
ADRT-200-185-P	179.8 [7.08]	100 [3.94]



大尺寸双轴承提供最高的性能  
 并维持杰出之摆动(Wobble),  
 侧向刚性, 与重复精度

# ADRS

## 机械轴承, 直驱旋转平台

- 大扭力输出, 直接驱动无槽, 无刷伺服电机
- 无顿转 (Zero cogging) 伺服电机以提供极高之速度稳定性
- 直接耦合, 高精度旋转编码器(圆光栅)
- 极低的平台高度降低工作高度

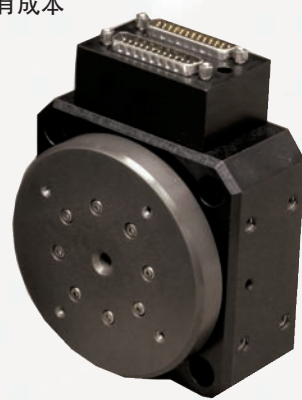
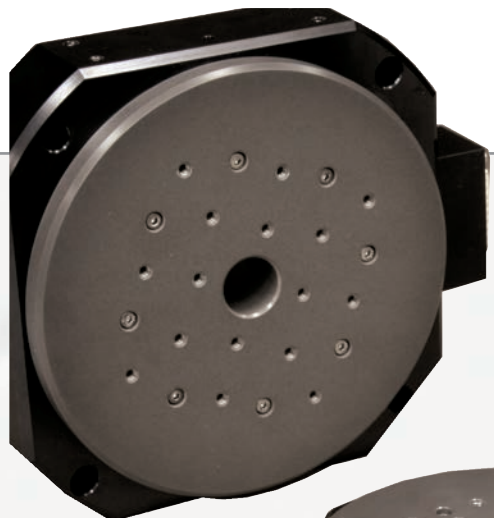
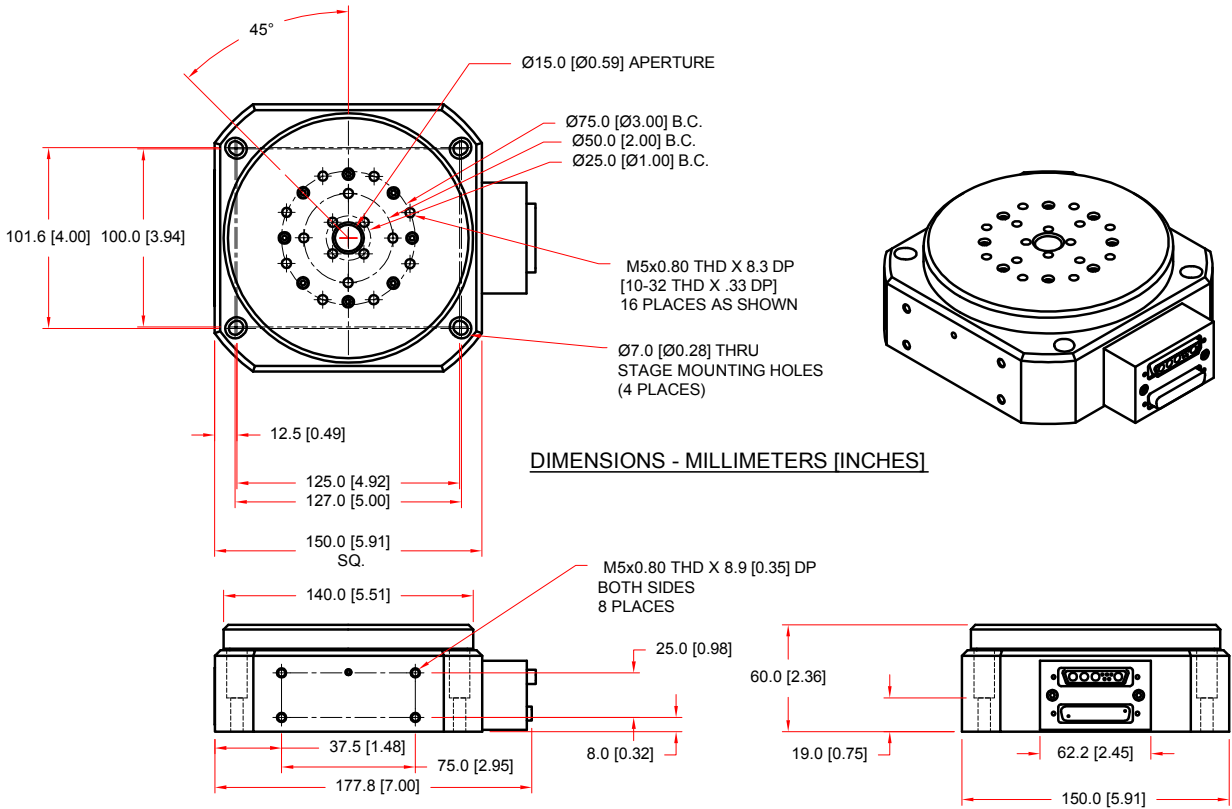
ADRS之设计理念是将平台高度降到最低。极低的平台高度降低累加误差, 另外, ADRS提供中空孔径可以提供物件通过如激光光束传导。ADRS具有极低的保养需求与高产能, 提供使用者最低的拥有成本。

ADRS Series		ADRS-100		ADRS-150		ADRS-200	
Tabletop Diameter		95 mm		140 mm		190 mm	
Aperture		6 mm		15 mm		26 mm	
Motor (-A/-B)		S-76-35-A	S-76-35-B	S-130-39-A	S-130-39-B	S-180-44-A	S-180-44-B
Continuous Current, Stall	A <sub>pk</sub>	2	4	3.8	7.6	2.7	5.3
	A <sub>rms</sub>	1.4	2.8	2.7	5.4	1.9	3.8
Bus Voltage		320	160	320	160	320	160
Resolution		0.87-87.3 μrad (0.18-18 arc sec)		0.315-31.5 μrad (0.065-6.5 arc sec)			
Max Speed <sup>(1)</sup>		1500 rpm		600 rpm		400 rpm	
Accuracy	Uncalibrated	388 μrad (80 arc sec)					
	Calibrated <sup>(2)</sup>	29.1 μrad (6 arc sec)					
Repeatability		14.6 μrad (3 arc sec)					
Max Load <sup>(3)</sup>	Axial	7 kg		20 kg		40 kg	
	Radial	3 kg		10 kg		20 kg	
Axial Error Motion <sup>(4)</sup>		2 μm		5 μm		5 μm	
Radial Error Motion <sup>(4)</sup>		3 μm		5 μm		5 μm	
Tilt Error Motion		48.5 μrad (10 arc sec)					
Inertia	Unloaded	0.00038 kg-m <sup>2</sup>		0.00242 kg-m <sup>2</sup>		0.00843 kg-m <sup>2</sup>	
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. With HALAR.
3. Maximum loads are mutually exclusive.
4. For the ADRS-100, 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-150



ADRS具有极低的保养需求与高产能，提供使用者最低的拥有成本

# APR

## 机械轴承, 直驱旋转平台

- 最供最高至  $\pm 1.5$  arc-second 之定位精度
- 轴向负载最高至 450 kg
- 增量式或绝对式编码器
- 大尺寸之轴承提供高负载与侧向负载能力
- 375-800 rpm 连续旋转速度
- 七种型号可供选择, 每种型号可选择 50, 75, or 100 mm 中空孔径

APR系列直接驱动旋转平台具有极高的角度定位精度。经过精密加工研磨之平台零组件, 与高精度轴承提供极低的误差运动(Error Motion), 位置误差, 与重复精度误差。另外, 高精度圆光栅提供极佳之定位能力与低抖动(jitter) 特性。APR适用于旋转平台测试, 定位, 光学元件校正与量测应用。

APR Series		APR200DR-155	APR200DR-185	APR260DR-160	APR260DR-180
Travel		Continuous (Optional 270° Max Limited)			
Accuracy	Standard	Uncalibrated	33 arc sec	25 arc sec	
		Calibrated	3 arc sec	2 arc sec	
	High Accuracy	Uncalibrated	3 arc sec	2 arc sec	
		Calibrated	1.75 arc sec	1.50 arc sec	
Resolution (Min. Mechanical Step)		0.06 arc sec		0.04 arc sec	
Repeatability (Bi-Directional) <sup>(1)</sup>		1.00 arc sec		0.75 arc sec	
Repeatability (Uni-Directional)		0.50 arc sec		0.50 arc sec	
Total Tilt Error Motion <sup>(1)</sup>		2.00 arc sec			
Total Axial Error Motion <sup>(1)</sup>		1.50 $\mu$ m			
Total Radial Error Motion <sup>(1)</sup>		1.50 $\mu$ m			
Maximum Speed <sup>(3)</sup>	-A	500 rpm		375 rpm	
	-B	700 rpm		N/A	
Maximum Acceleration		380 rad/s <sup>2</sup>	440 rad/s <sup>2</sup>	175 rad/s <sup>2</sup>	215 rad/s <sup>2</sup>
Aperture		75 mm		100 mm	
Maximum Torque (Continuous)		11.12 Nm	15.93 Nm	19.71 Nm	29.09 Nm
Load Capacity	Axial	205 kg		250 kg	
	Radial	100 kg		135 kg	
Rotor Inertia (Unloaded)		0.026 kg-m <sup>2</sup>	0.032 kg-m <sup>2</sup>	0.10 kg-m <sup>2</sup>	0.12 kg-m <sup>2</sup>
Stage Mass <sup>(4)</sup>		17.8 kg	22 kg	29.8 kg	35.4 kg
Material		Aluminum; Hardcoat/Anodize Finish			
MTBF (Mean Time Between Failure)		20,000 hours			

Notes:

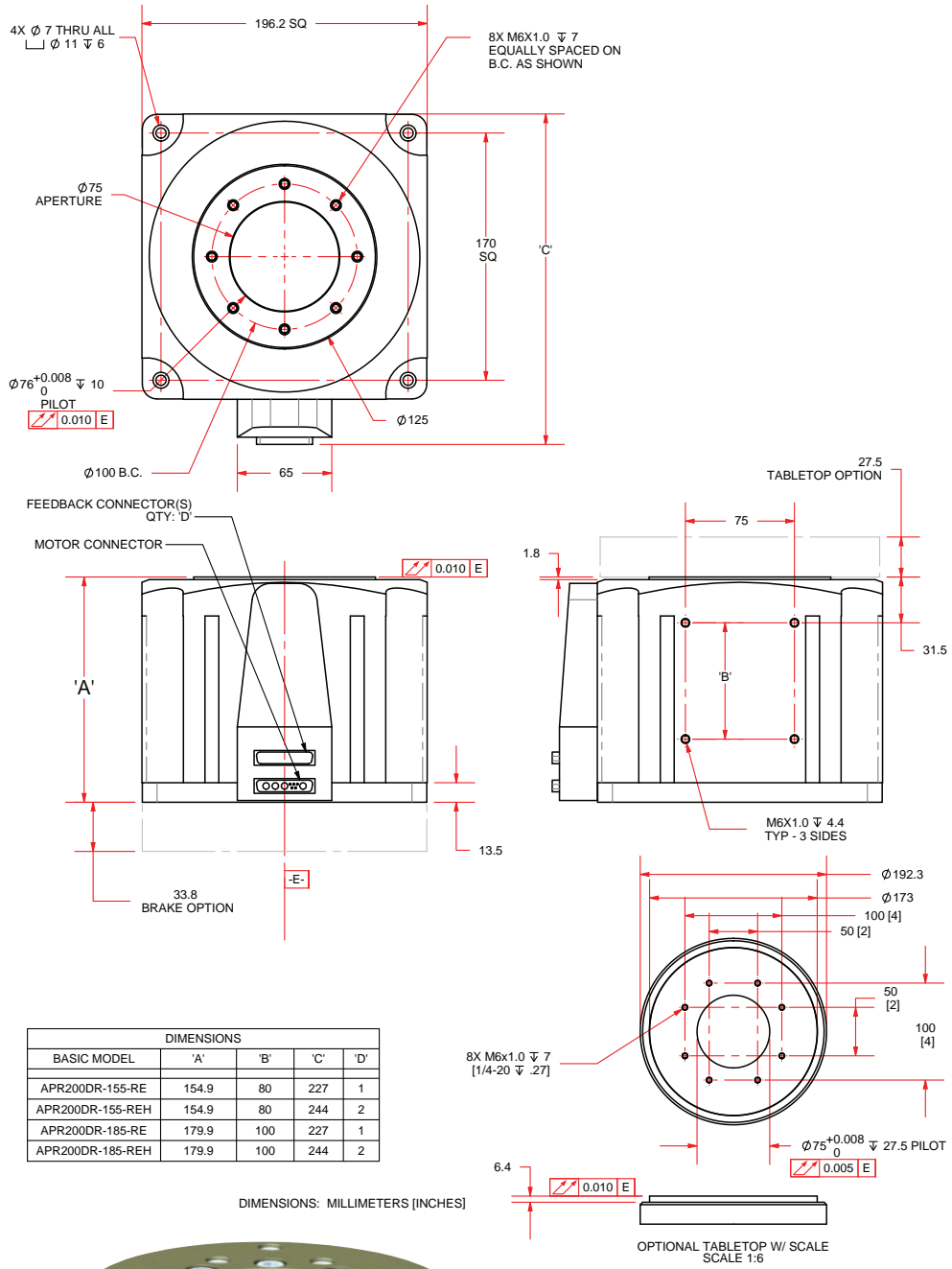
1. Certified with each stage.

2. All error motion specifications are measured at 60 rpm.

3. Maximum speed listed is stage and motor dependent (assuming a 340 V bus). Actual speed may be lower due to motor back emf or encoder bandwidth (see Encoder Bandwidth table). Consult an Aerotech Applications Engineer for more details.

4. Mass listed is for the standard stage option (no brake and no tabletop). Consult Aerotech if brake and tabletop masses are desired.

# APR200



DIMENSIONS				
BASIC MODEL	'A'	'B'	'C'	'D'
APR200DR-155-RE	154.9	80	227	1
APR200DR-155-REH	154.9	80	244	2
APR200DR-185-RE	179.9	100	227	1
APR200DR-185-REH	179.9	100	244	2

DIMENSIONS: MILLIMETERS [INCHES]



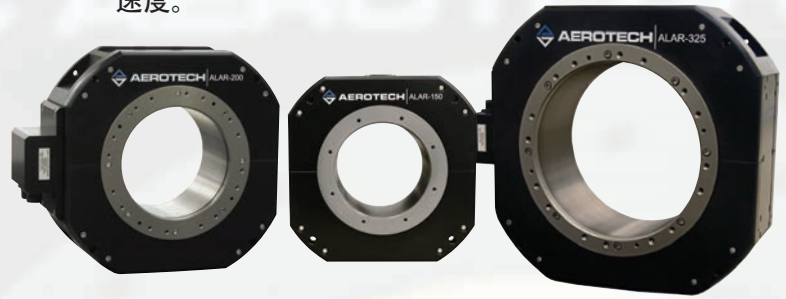
APR适用于旋转平台测试, 定位, 光学元件校正与量测应用

# ALAR

## 机械轴承, 直驱旋转平台

- 5 种不同中空孔径: 100 mm, 150 mm, 200 mm, 250 mm, 325 mm
- 无限或有限行程
- 轴向负载最高至 595 kg
- 大尺寸之轴承提供高负载与侧向负载能力
- 杰出的定位精度与重复精度
- 直接驱动, 长时间运作维持定位精度不变
- 45-300 rpm 连续旋转速度
- 提供 $10^{-6}$  真空选项

Aerotech's ALAR 系列直驱旋转平台提供杰出之角度定位精度与速度稳定性, 与极大的中空孔径。集成大孔径与直驱电机, ALAR系列让涡轮驱动大口径旋转平台成为历史。传统涡轮驱动大口径旋转平台若要承载相同负载时, 通常仅只能具有15 rpm或更低的速度。ALAR直驱旋转平台在相同负载下, 可达到300 rpm连续转速, 具有超过涡轮驱动平台五倍的速度。



ALAR Series		ALAR-100-SP	ALAR-100-LP	ALAR-150-SP	ALAR-150-LP
Aperture		100 mm (3.94 in)	100 mm (3.94 in)	150 mm (5.91 in)	150 mm (5.91 in)
Motor		S-180-44-A	Brushless Slotless	S-240-43-A	Brushless Slotless
Continuous Current	$A_{pk}$	2.7	5.76	6.2	5.41
	$A_{rms}$	1.9	4.1	4.4	4.1
Peak Current, Stall	$A_{pk}$	10.8	33.5	24.8	31.4
	$A_{rms}$	7.6	23.7	17.5	22.2
Bus Voltage		Up to 340 VDC			
Length		250 mm (9.84 in)	250 mm (9.84 in)	300 mm (11.81 in)	300 mm (11.81 in)
Width		250 mm (9.84 in)	250 mm (9.84 in)	300 mm (11.81 in)	300 mm (11.81 in)
Height		100 mm (3.94 in)	65 mm (2.56 in)	100 mm (3.94 in)	65 mm (2.56 in)
Unlimited Travel		Yes			
Maximum Limited Travel		$\pm 170^\circ$	$\pm 170^\circ$	$\pm 170^\circ$	$\pm 170^\circ$
Maximum Velocity @ 160 V Bus <sup>(1)</sup>		300 rpm	50 rpm	250 rpm	45 rpm
Maximum Acceleration		1364 rad/s <sup>2</sup>	1009 rad/s <sup>2</sup>	1330 rad/s <sup>2</sup>	829 rad/s <sup>2</sup>
Resolution <sup>(2)</sup>		0.1 $\mu$ rad (0.02 arc-sec)	0.1 $\mu$ rad (0.02 arc-sec)	0.08 $\mu$ rad (0.016 arc-sec)	0.09 $\mu$ rad (0.018 arc-sec)
Maximum Torque		23.9 N-m (211.5 lb-in)	11.9 N-m (105.3 lb-in)	42.9 N-m (379.7 lb-in)	15.4 N-m (136.3 lb-in)
Continuous Torque		6.0 N-m (53.1 lb-in)	2.0 N-m (17.7 lb-in)	10.7 N-m (94.7 lb-in)	2.6 N-m (23.0 lb-in)
Stage Mass		16.3 kg	8.3 kg	18.6 kg	9.8 kg
Stage Mass with Limits		17 kg	8.9 kg	19.6 kg	10.8 kg
Shaft Inertia		0.022 kg-m <sup>2</sup>	0.022 kg-m <sup>2</sup>	0.040 kg-m <sup>2</sup>	0.031 kg-m <sup>2</sup>
Shaft Inertia with Limits		0.026 kg-m <sup>2</sup>	0.026 kg-m <sup>2</sup>	0.051 kg-m <sup>2</sup>	0.042 kg-m <sup>2</sup>
Axial Load		1550 N (348 lb)	1175 N (264 lb)	1950 N (438 lb)	1325 N (298 lb)
Radial Load		1350 N (303 lb)	950 N (214 lb)	1925 N (433 lb)	1275 N (287 lb)
Moment Load		250 N-m	150 <sup>(3)</sup> N-m	450 N-m	225 <sup>(3)</sup> N-m
Repeatability		$\pm 2.4 \mu$ rad ( $\pm 0.5$ arc sec)			
Accuracy <sup>(4)</sup>		$\pm 9.7 \mu$ rad ( $\pm 2$ arc sec)			
Tilt-Error Motion		9.7 $\mu$ rad (2.0 arc sec)			

Note:

1. Square-wave digital encoder options will limit maximum speed below the listed value. Contact factory for specific stage and encoder speed combination.
2. Resolution assumes -AS encoder with 2000X controller multiplication.
3. The ALAR-LP base must be fully supported by a rigid mounting plate to achieve this moment load.
4. Certified with each stage. Requires the use of an Aerotech controller.

ALAR Series	ALAR-200-SP	ALAR-200-LP	ALAR-250-SP-2	ALAR-250-SP-3	ALAR-250-LP	
Aperture	200 mm (7.87 in)	200 mm (7.87 in)	250 mm (9.84 in)	250 mm (9.84 in)	250 mm (9.84 in)	
Motor	Brushless Slotless					
Continuous Current	A <sub>pk</sub>	5.3	5.3	5.3	7.95	5.3
	A <sub>rms</sub>	3.75	3.75	3.75	5.62	3.75
Peak Current, Stall	A <sub>pk</sub>	34.8	34.8	34.8	52.2	34.8
	A <sub>rms</sub>	24.6	24.6	24.6	36.9	24.6
Bus Voltage	Up to 340 VDC					
Length	400 mm (15.75 in)	400 mm (15.75 in)	450 mm (17.72 in)	450 mm (17.72 in)	450 mm (17.72 in)	
Width	400 mm (15.75 in)	400 mm (15.75 in)	450 mm (17.72 in)	450 mm (17.72 in)	450 mm (17.72 in)	
Height	150 mm (5.91 in)	100 mm (3.94 in)	150 mm (5.91 in)	150 mm (5.91 in)	100 mm (3.94 in)	
Unlimited Travel	Yes					
Maximum Limited Travel	±170°	±170°	±170°	±170°	±170°	
Maximum Velocity <sup>(1)</sup>	90 rpm	90 rpm	140 rpm	140 rpm	90 rpm	
Maximum Acceleration	361 rad/s <sup>2</sup>	570 rad/s <sup>2</sup>	287 rad/s <sup>2</sup>	287 rad/s <sup>2</sup>	407 rad/s <sup>2</sup>	
Resolution <sup>(2)</sup>	0.06 μrad (0.012 arc-sec)	0.07 μrad (0.014 arc-sec)	0.05 μrad (0.01 arc-sec)	0.05 μrad (0.01 arc-sec)	0.05 μrad (0.01 arc-sec)	
Maximum Torque	86 N-m (761.2 lb-in)	86 N-m (761.2 lb-in)	92 N-m (814.3 lb-in)	138 N-m (1221.4 lb-in)	92 N-m (814.3 lb-in)	
Continuous Torque	12.9 N-m (114.2 lb-in)	12.9 N-m (114.2 lb-in)	14.1 N-m (124.8 lb-in)	21.1 N-m (186.8 lb-in)	14.1 N-m (124.8 lb-in)	
Stage Mass	40.4 kg	28.2 kg	51.3 kg	51.3 kg	35.0 kg	
Stage Mass with Limits	43.1 kg	30.1 kg	54.5 kg	54.5 kg	37.4 kg	
Shaft Inertia	0.320 kg-m <sup>2</sup>	0.190 kg-m <sup>2</sup>	0.500 kg-m <sup>2</sup>	0.500 kg-m <sup>2</sup>	0.310 kg-m <sup>2</sup>	
Shaft Inertia with Limits	0.359 kg-m <sup>2</sup>	0.229 kg-m <sup>2</sup>	0.573 kg-m <sup>2</sup>	0.573 kg-m <sup>2</sup>	0.383 kg-m <sup>2</sup>	
Axial Load	4675 N (1051 lb)	4350 N (978 lb)	4950 N (1113 lb)	4950 N (1113 lb)	4950 N (1113 lb)	
Radial Load	4775 N (1073 lb)	4125 N (927 lb)	5200 N (1169 lb)	5200 N (1169 lb)	5050 N (1135 lb)	
Moment Load	1600 N-m	1075 <sup>(3)</sup> N-m	1825 N-m	1825 N-m	1475 <sup>(3)</sup> N-m	
Repeatability	±2.4 μrad (±0.5 arc sec)					
Accuracy <sup>(4)</sup>	±9.7 μrad (±2 arc sec)					
Tilt-Error Motion	9.7 μrad (2.0 arc sec)					

Note:

1. Square-wave digital encoder options will limit maximum speed below the listed value. Contact factory for specific stage and encoder speed combination.

ALAR Series	ALAR-325-SP-2	ALAR-325-SP-3	ALAR-325-LP	
Aperture	325 mm (12.80 in)	325 mm (12.80 in)	325 mm (12.80 in)	
Motor	Brushless Slotless			
Continuous Current	A <sub>pk</sub>	5.1	7.65	5.1
	A <sub>rms</sub>	3.63	5.41	3.63
Peak Current, Stall	A <sub>pk</sub>	31.2	46.8	31.2
	A <sub>rms</sub>	22.1	33.1	22.1
Bus Voltage	Up to 340 VDC			
Length	525 mm (20.67 in)	525 mm (20.67 in)	525 mm (20.67 in)	
Width	525 mm (20.67 in)	525 mm (20.67 in)	525 mm (20.67 in)	
Height	150 mm (5.91 in)	150 mm (5.91 in)	100 mm (3.94 in)	
Unlimited Travel	Yes			
Maximum Limited Travel	±170°	±170°	±170°	
Maximum Velocity <sup>(1)</sup>	150 rpm	150 rpm	120 rpm	
Maximum Acceleration	185 rad/s <sup>2</sup>	185 rad/s <sup>2</sup>	339 rad/s <sup>2</sup>	
Resolution <sup>(2)</sup>	0.04 μrad (0.009 arc-sec)	0.04 μrad (0.009 arc-sec)	0.04 μrad (0.009 arc-sec)	
Maximum Torque	143 N-m (1265.7 lb-in)	214.9 N-m (1902.0 lb-in)	143 N-m (1265.7 lb-in)	
Continuous Torque	23.4 N-m (207.1 lb-in)	35.1 N-m (310.7 lb-in)	23.4 N-m (207.1 lb-in)	
Stage Mass	61.2 kg	61.2 kg	44.5 kg	
Stage Mass with Limits	64.9 kg	64.9 kg	49.9 kg	
Shaft Inertia	1.01 kg-m <sup>2</sup>	1.01 kg-m <sup>2</sup>	0.55 kg-m <sup>2</sup>	
Shaft Inertia with Limits	1.2 kg-m <sup>2</sup>	1.2 kg-m <sup>2</sup>	0.675 kg-m <sup>2</sup>	
Axial Load	5825 N (1310 lb)	5825 N (1310 lb)	5825 N (1310 lb)	
Radial Load	6650 N (1495 lb)	6650 N (1495 lb)	6450 N (1450 lb)	
Moment Load	2650 N-m	2650 N-m	2200 <sup>(3)</sup> N-m	
Repeatability	±2.4 μrad (±0.5 arc sec)			
Accuracy <sup>(4)</sup>	±9.7 μrad (±2 arc sec)			
Tilt-Error Motion	9.7 μrad (2.0 arc sec)			

Note:

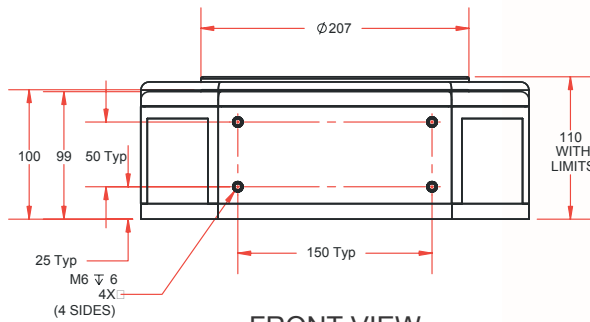
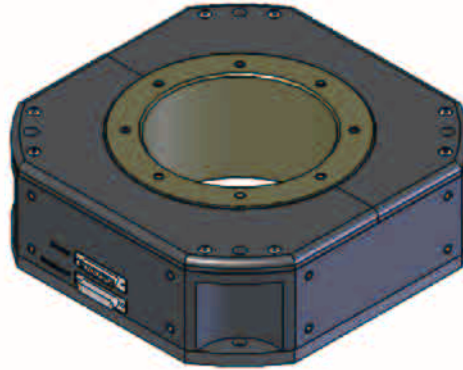
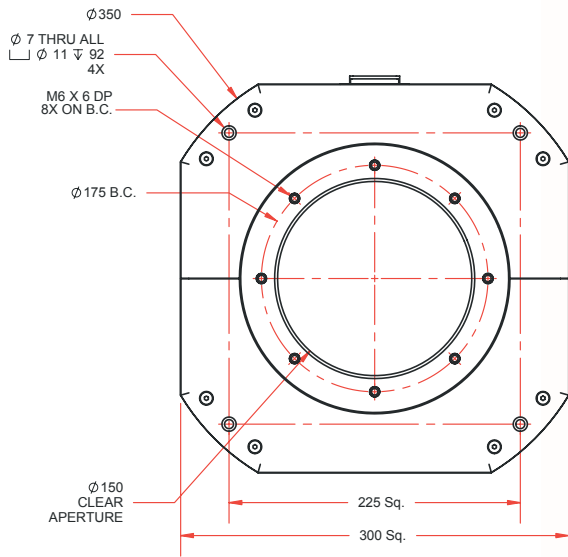
1. Square-wave digital encoder options will limit maximum speed below the listed value. Contact factory for specific stage and encoder speed combination.

2. Resolution assumes -AS encoder with 2000X controller multiplication.

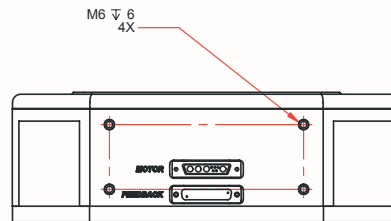
3. The ALAR-LP base must be fully supported by a rigid mounting plate to achieve this moment load.

4. Certified with each stage. Requires the use of an Aerotech controller.

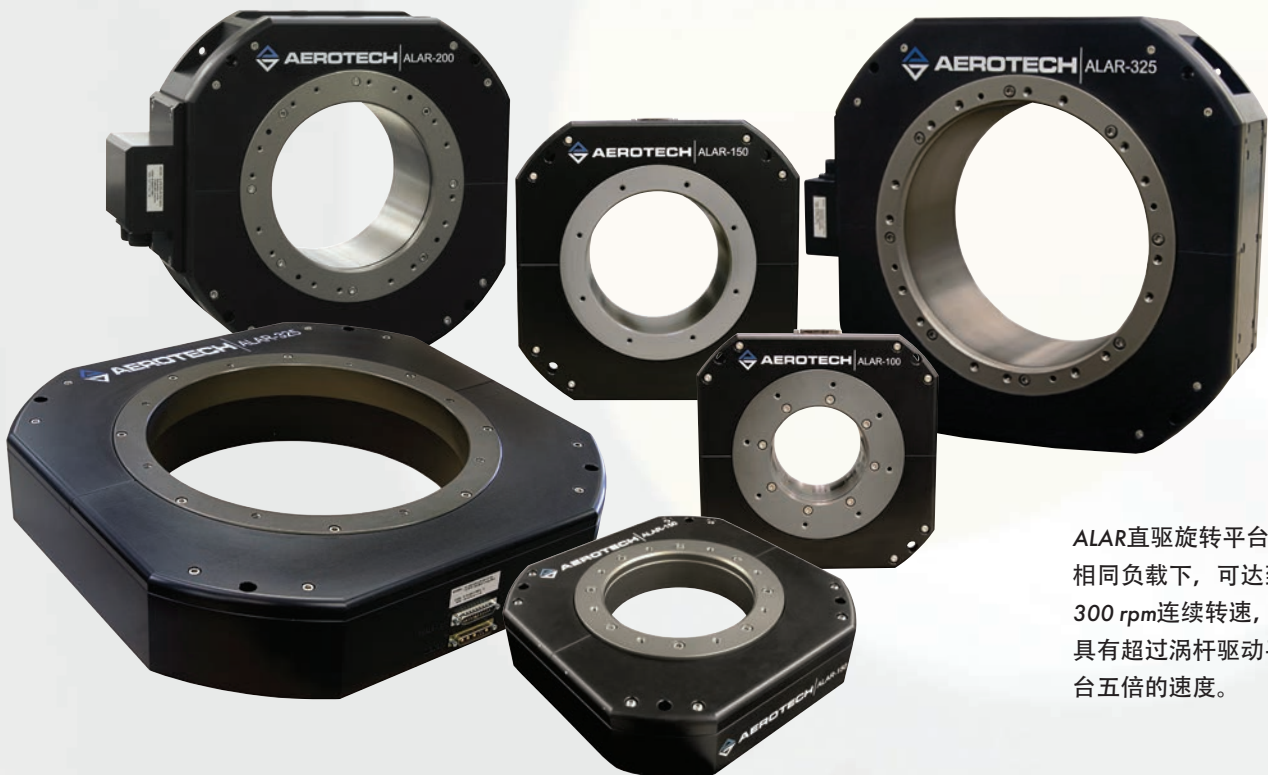
# ALAR-150-SP



FRONT VIEW



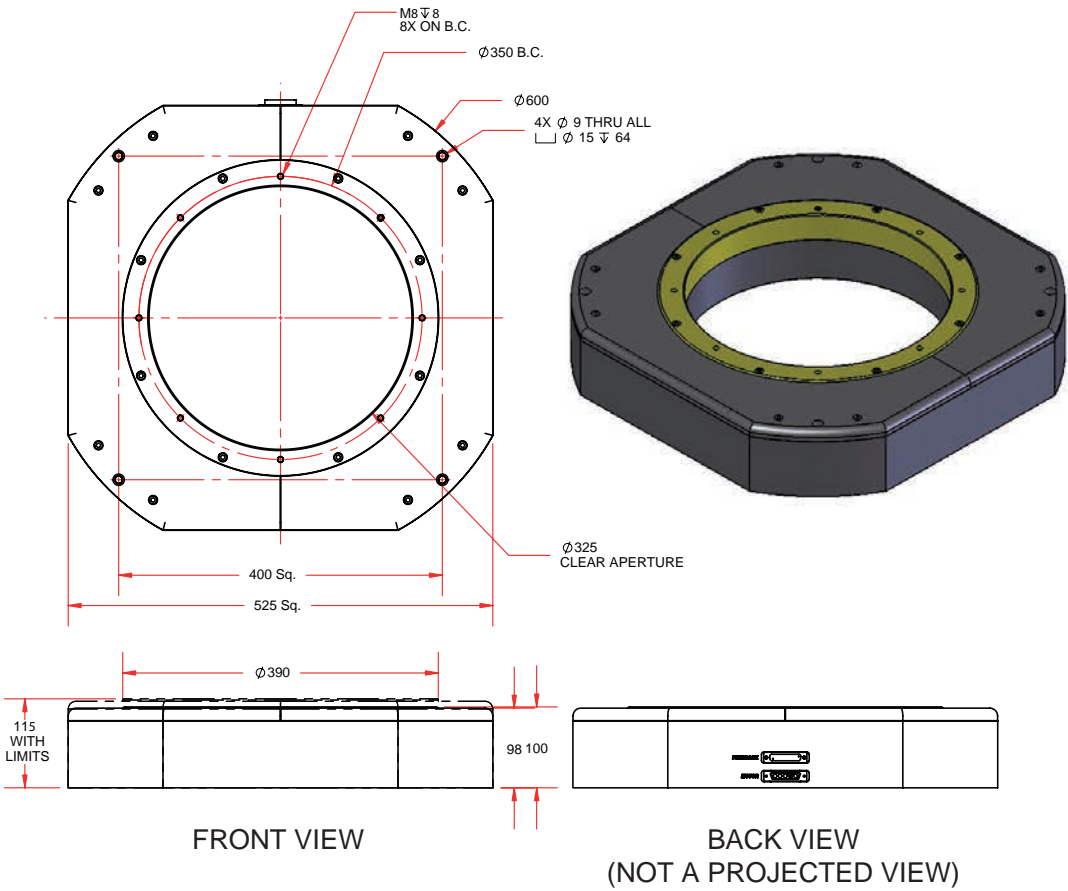
BACK VIEW  
(NOT A PROJECTED VIEW)



ALAR直驱旋转平台在相同负载下，可达到300 rpm连续转速，具有超过涡杆驱动平台五倍的速度。



# ALAR-325-LP



# ANT95-R

## 机械轴承, 直驱旋转平台

- 高分辨率 (0.01 arc sec)
- 大行程高精度
- 极佳的误差运动 (Error Motion) 特性
- 极佳的定位稳定性 (In position stability)
- 可集成多轴架构
- 高动态性能

ANT95-R 与ANT95-R-PLUS直驱旋转平台为 Aerotech纳米定位科技系列产品线之一。此旋转平台具有无可取代的定位稳定性 (0.005 arc sec), 与低于0.01 arc-sec 之最小步径量, 并提供两种定位精度等级。ANT95-R 系列可轻易的与Aerotech ANT系列线性位移平台集成, 将这些平台集成后将提供高精度, 稳定性, 与极小步径性能提供纳米尺寸之装置生产或检测应用。

Mechanical Specifications		ANT95-20-R	ANT95-20-R-PLUS	ANT95-180-R	ANT95-180-R-PLUS	ANT95-360-R	ANT95-360-R-PLUS
Rotation Angle		20°	20°	180°	180°	±360° Continuous	±360° Continuous
Accuracy <sup>(1)</sup>		10 arc sec	3 arc sec	10 arc sec	3 arc sec	10 arc sec	3 arc sec
Resolution		0.01 arc sec	0.01 arc sec	0.01 arc sec	0.01 arc sec	0.01 arc sec	0.01 arc sec
Repeatability (Bi-Directional) <sup>(1)</sup>		1.5 arc sec	1.5 arc sec	1.5 arc sec	1.5 arc sec	1.5 arc sec	1.5 arc sec
Repeatability (Uni-Directional)		0.5 arc sec	0.5 arc sec	0.5 arc sec	0.5 arc sec	0.5 arc sec	0.5 arc sec
Tilt Error Motion	Synchronous	NA	NA	NA	NA	10 arc sec	10 arc sec
	Asynchronous	NA	NA	NA	NA	3 arc sec	3 arc sec
Axial Error Motion <sup>(1)</sup>	Synchronous	NA	NA	NA	NA	2 µm	2 µm
	Asynchronous	NA	NA	NA	NA	0.5 µm	0.5 µm
Radial Error Motion <sup>(1)</sup>	Synchronous	NA	NA	NA	NA	3 µm	3 µm
	Asynchronous	NA	NA	NA	NA	1 µm	1 µm
Maximum Speed		20 rpm	20 rpm	20 rpm	20 rpm	200 rpm	200 rpm
Maximum Acceleration		400 rad/s <sup>2</sup>	400 rad/s <sup>2</sup>	400 rad/s <sup>2</sup>	400 rad/s <sup>2</sup>	400 rad/s <sup>2</sup>	400 rad/s <sup>2</sup>
In-Position Stability <sup>(2)</sup>		0.005 arc sec	0.005 arc sec	0.005 arc sec	0.005 arc sec	0.005 arc sec	0.005 arc sec
Aperture		11 mm (0.433 in)	11 mm (0.433 in)	11 mm (0.433 in)	11 mm (0.433 in)	11 mm (0.433 in)	11 mm (0.433 in)
Maximum Torque (Continuous)		0.2 Nm	0.2 Nm	0.2 Nm	0.2 Nm	0.2 Nm	0.2 Nm
Load Capacity <sup>(3)</sup>	Axial	2.0 kg (4.4 lb)	2.0 kg (4.4 lb)	2.0 kg (4.4 lb)	2.0 kg (4.4 lb)	2.0 kg (4.4 lb)	2.0 kg (4.4 lb)
	Radial	1.5 kg (3.3 lb)	1.5 kg (3.3 lb)	1.5 kg (3.3 lb)	1.5 kg (3.3 lb)	1.5 kg (3.3 lb)	1.5 kg (3.3 lb)
	Moment	2 Nm	2 Nm	2 Nm	2 Nm	2 Nm	2 Nm
Rotor Inertia (Unloaded)		0.00065 kg-m <sup>2</sup>	0.00065 kg-m <sup>2</sup>	0.00066 kg-m <sup>2</sup>	0.00066 kg-m <sup>2</sup>	0.00069 kg-m <sup>2</sup>	0.00069 kg-m <sup>2</sup>
Stage Mass		1.2 kg (2.6 lb)	1.2 kg (2.6 lb)	1.2 kg (2.6 lb)	1.2 kg (2.6 lb)	1.2 kg (2.6 lb)	1.2 kg (2.6 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 3 sigma value.
  3. Axis orientation for on-axis loading is listed.
- Specifications are per axis, measured 25 mm above the tabletop. Consult factory for multi-axis or non-standard applications.
  - All error motion specifications are measured at 60 rpm.
  - For high speed operation, customer payload must be balanced to G1.0 per ISO 1940.

**ANT95-R**

PART NAME:

**ANT95-R  
CATALOG MODEL**

MODEL FILENAME:

ANT95-R-CAT

MODEL BY:

BHARROLD

PART CODE:

ANT95-R

DWG. NO.

**ANT95-R-CAT**REV  
**B**

SHEET 1 OF 1

NAME

DATE

DRAW

BHARROLD

15-JAN-16

CHECK

ACAPAN

15-JAN-16

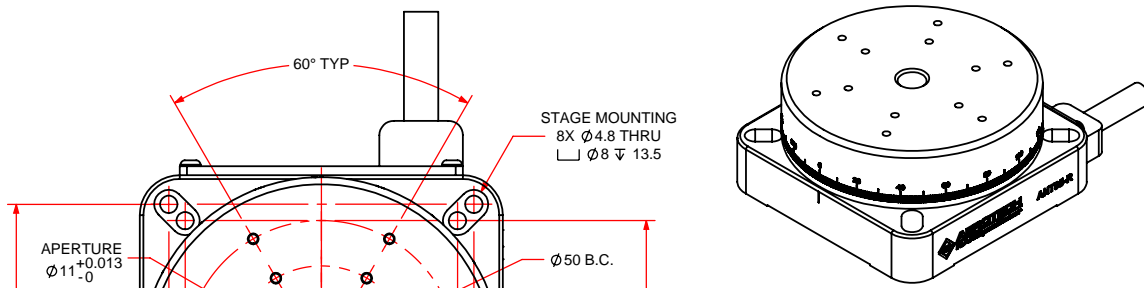
APPR.

BHARROLD

15-JAN-16

## REVISIONS

ECN	REV.	DESCRIPTION	DATE	APPROVED
MCN17126	B	HEIGHT FROM 42 TO 48; REDRAWN W/ CATALOG MODEL	15-JAN-16	BHARROLD



ANT95-R 不须要周  
期性保养, 保证数  
年以上的正常运作



# ANT130-R

## 机械轴承, 直驱旋转平台

- 高分辨率 (0.01 arc sec)
- 大行程高精度
- 极佳的误差运动 (Error Motion) 特性
- 极佳的定位稳定性 (In position stability)
- 可集成多轴架构
- 高动态性能

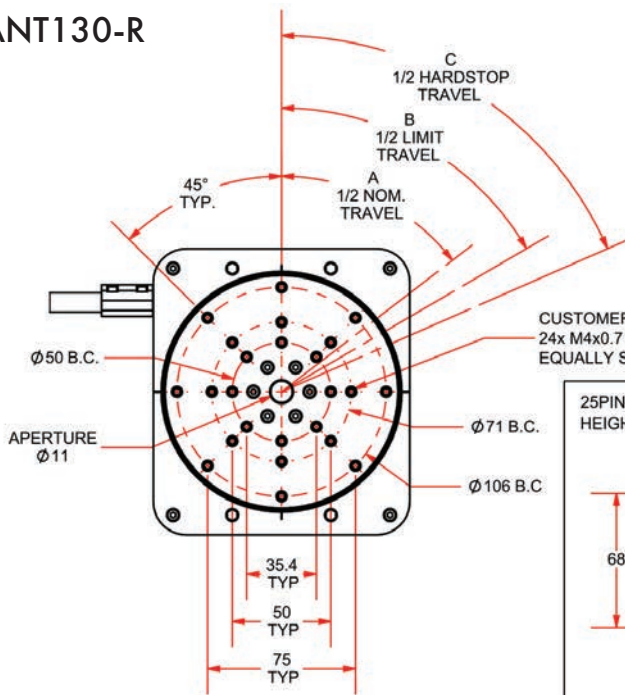
ANT130-R 与ANT130-R-PLUS直驱旋转平台为 Aerotech纳米定位科技系列产品线之一。此旋转平台具有无可取代的定位稳定性(0.005 arc sec), 与低于0.01 arc-sec 之最小步径量, 并提供两种定位精度等级。ANT130-R是基于24/7的生产环境所设计, 不像其他的旋转位移装置, ANT130-R不须要周期性保养, 保证数年以上的正常运作。

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

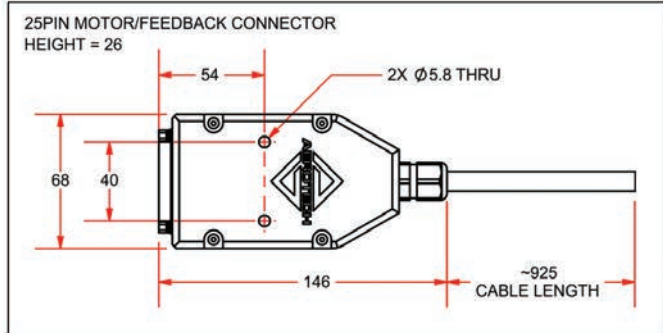
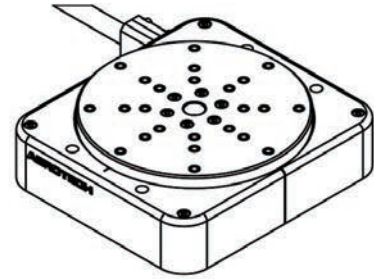
Notes:

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

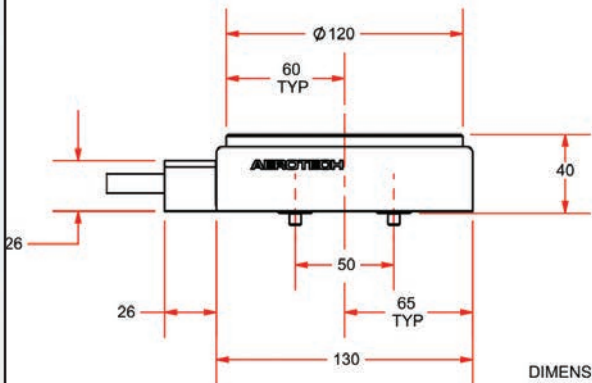
# ANT130-R



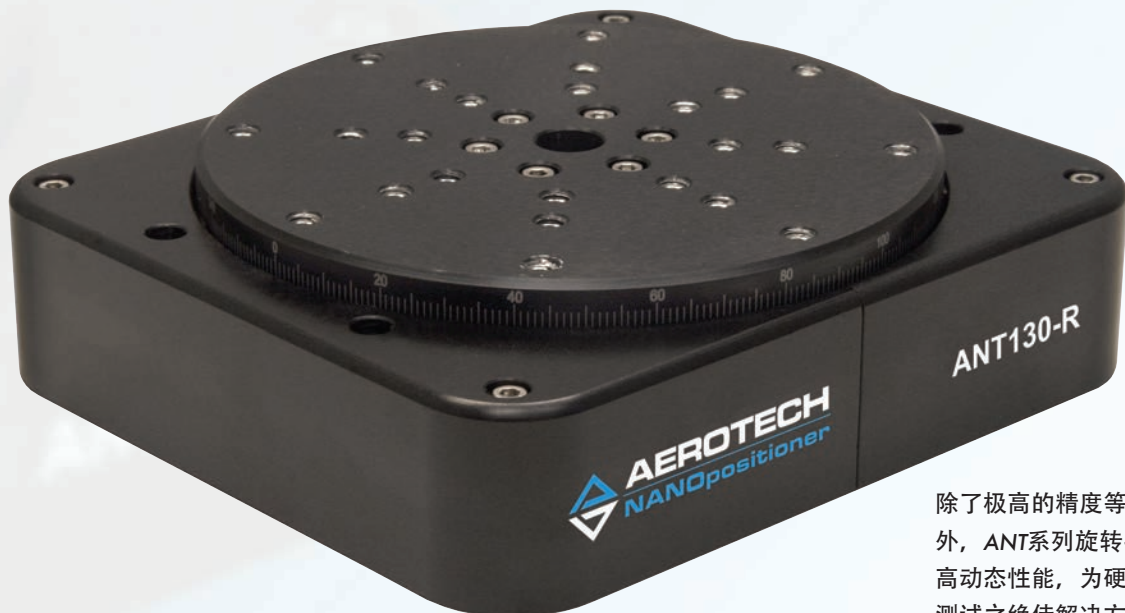
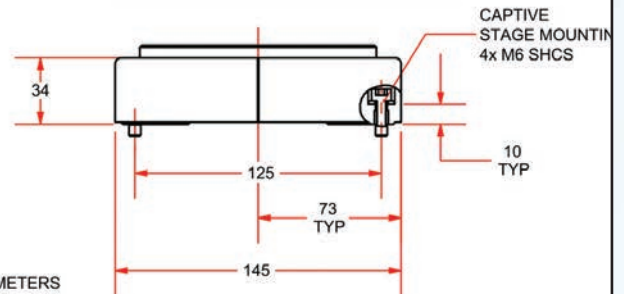
CUSTOMER MOUNTING  
24x M4x0.7 HELICOIL  $\nabla$  4.0  
EQUALLY SPACED ON B.C.



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



除了极高的精度等级之外，ANT系列旋转平台提供高动态性能，为硬盘生产与测试之绝佳解决方案

# ASRT

## 机械轴承, 直驱旋转平台

- IP66: 完全密封, 防止粉尘与水柱由任何方向侵入
- 直驱电机提供高速高精度之位移, 无齿轮背隙问题
- 低摩擦系数之密封将转向时产生的滞后 (hysteresis) 现象将到最低, 提供精密定位
- 无限或有限行程
- 轴向负载最高至 175 kg
- 杰出定位精度及重复精度
- 三种不同尺寸之中空孔径:  
30 mm, 80 mm, 130 mm
- 轴心开口 (Shaft aperture) 选项提供电, 气, 与流体通过
- 100-200 rpm连续旋转速度

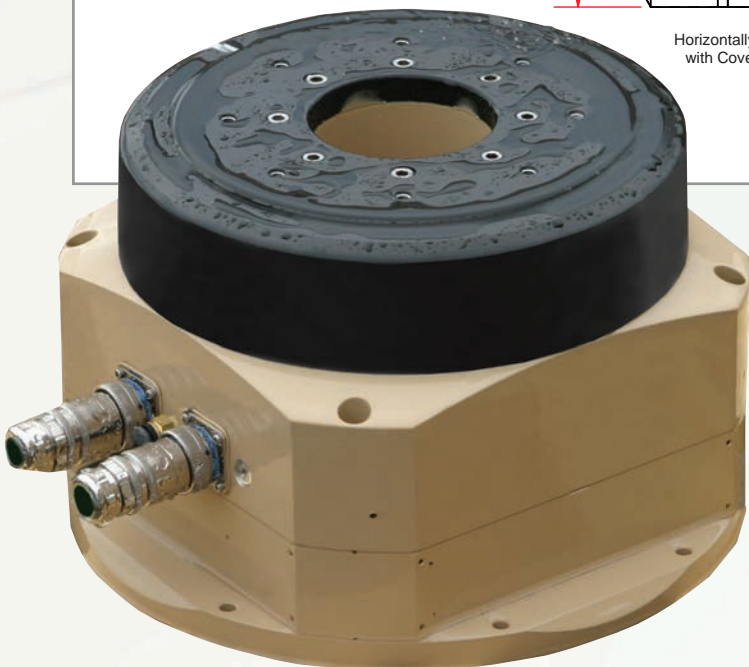
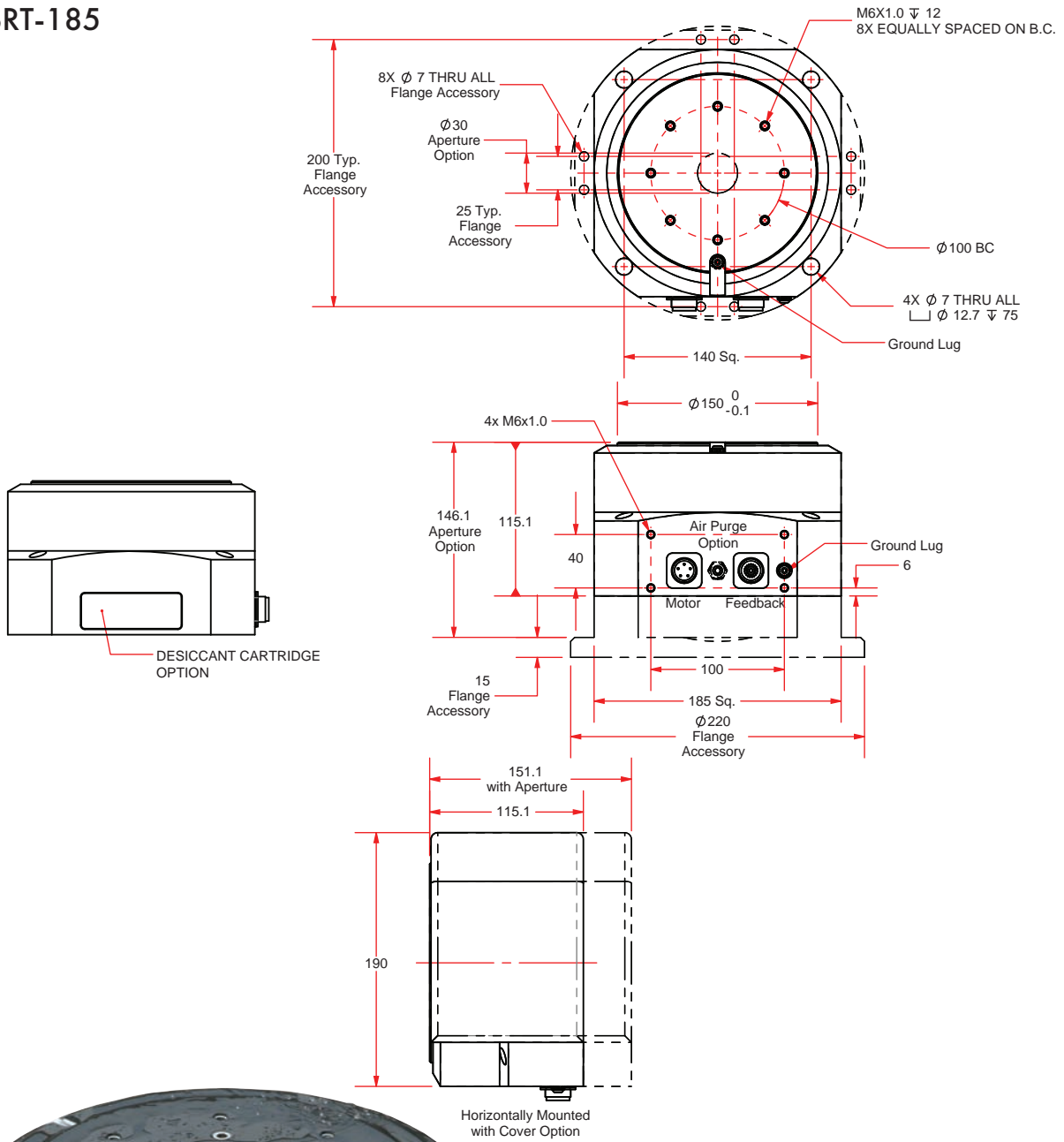
ASRT密封旋转平台提供恶劣环境下之精密角度定位, 适用于具有脏污及液体的环境下。此旋转平台可以防止粉尘与水注由任何方向侵入。ASRT平台可以使用在距有切削液存在之环境下, 可应用于机械加工应用或严苛环境的感测器定位。ASRT在产品的环境测试或者许多追踪应用特别适用。

Mechanical Specifications		ASRT-185	ASRT-245	ASRT-300
Travel		360° Continuous		
Accuracy <sup>(1)</sup> (-O)	Standard	20 arc sec		
	HALAR	2 arc sec		
Resolution (-O)		0.036 arc sec	0.027 arc sec	0.018 arc sec
Bi-Directional Repeatability <sup>(1)</sup> (-O)		1 arc sec		
Accuracy <sup>(1)</sup> (-M)	Standard	50 arc sec	45 arc sec	N/A
	HALAR	15 arc sec	15 arc sec	N/A
Resolution (-M)		0.63 arc sec	0.54 arc sec	N/A
Bi-Directional Repeatability <sup>(1)</sup> (-M)		10 arc sec		
Tilt Error Motion		5 arc sec		
Maximum Speed		200 rpm	150 rpm	100 rpm
Maximum Acceleration		950 rad/s/s	900 rad/s/s	650 rad/s/s
Aperture		30 mm	80 mm	130 mm
Maximum Torque (Peak)		9.6 Nm	35.5 Nm	46.7 Nm
Maximum Torque (Continuous)		2.1 Nm	6.6 Nm	9.7 Nm
Load Capacity	Axial	30 kg	140 kg	175 kg
	Radial	25 kg	125 kg	150 kg
	Moment	175 Nm	425 Nm	500 Nm
Rotor Inertia (Unloaded)	Base Model	0.0096 kg-m <sup>2</sup>	0.026 kg-m <sup>2</sup>	0.066 kg-m <sup>2</sup>
	Aperture Opt.	0.013 kg-m <sup>2</sup>	0.039 kg-m <sup>2</sup>	0.079 kg-m <sup>2</sup>
Stage Mass	Base Model	10.3 kg	18.8 kg	25.0 kg
	Aperture Opt.	12.6 kg	21.9 kg	29.0 kg
Material		Polymer-Painted Aluminum/Aluminum Hardcoat		
MTBF (Mean Time Between Failure) <sup>(2)</sup>		10,000 Hours		

Note:

1. Certified with each stage.
2. Application dependent. Dry environments between 0° and 70°C up to 10,000 hours.
3. Long-term exposure to temperature cycles and wet environments will require periodic maintenance.

# ASRT-185



ASRT在产品的环境测试或者许多追踪应用特别适用

# ARMS

## 机械轴承, 直驱旋转平台

- 设计于产生极精密之运动曲线
- 具有0.0001% 全行程 360°之速度稳定性
- 0.02 arc sec定位分辨率
- 负载最高至 230 kg
- 集成滑环 (Slip ring) 及旋转接头 (rotary unions)
- 直驱无刷电机提供高速及大扭力

Aerotech的ARMS系列直驱旋转运动模拟器 (motion simulators) 提供杰出的速度控制, 加速度控制, 与定位控制提供测试惯性元件或系统如MEMS, 角度规(gyroscopes), 惯性感测器, 航太设备, 加速度计(accelerometers)等。与Aerotech先进运动控制器后, ARMS之分辨率可以高达0.02 arc second, 定位精度达 ±2.5 arc seconds, 重复精度达±0.5 arc second。ARMS具有速度分辨率达0.002 deg/s与速度稳定性达0.0001%。低惯量与无背隙之ARMS为需要频繁转换方向应用之最佳解决方案。

ARMS Series		ARMS-150-12	ARMS-150-37	ARMS-200-56	ARMS-200-80	ARMS-260-100	ARMS-260-146
Width		146 mm		196 mm		260 mm	
Height <sup>(1)</sup>		183 mm	246 mm	224 mm	249 mm	229 mm	250 mm
Aperture <sup>(2)</sup>		8 mm				25 mm	
Total Travel		±360° Continuous					
Motor		S-130-39-A	S-130-102-A	S-180-69-A	S-180-94-A	S-240-63-A	S-240-83-A
Continuous Current, Stall	A <sub>pk</sub>	3.8	3.1	5.1	4.9	5.9	5.8
	A <sub>rms</sub>	2.7	2.2	3.6	3.5	4.2	4.1
Bus Voltage		Up to 320 VDC					
Peak Torque		11.7 N-m	37.4 N-m	55.6 N-m	80.0 N-m	100 N-m	146 N-m
Continuous Torque		2.8 N-m	9.2 N-m	13.7 N-m	19.9 N-m	24.9 N-m	36.5 N-m
Resolution		0.04-4 arc sec		0.03-3 arc sec		0.02-2 arc sec	
Fundamental Encoder Resolution		16,200 lines/rev		23,600 lines/rev		32,400 lines/rev	
Accuracy <sup>(3)</sup>		±2.5 arc sec					
Repeatability		±0.5 arc sec					
Max Load <sup>(4)</sup>	Axial	30 kg		140 kg		230 kg	
Max Load <sup>(4)</sup>	Moment	175 N-m		425 N-m		650 N-m	
Wobble		±1 arc sec					
Maximum Rate <sup>(5)</sup>		1500°/s					
Minimum Rate <sup>(6)</sup>		0.002°/s				0.001°/s	
Rate Resolution <sup>(6)</sup>		0.002°/s				0.001°/s	
Rate Stability <sup>(6)</sup>	Over 360°	0.0001%					
	Over 10°	0.005%					
	Over 1°	0.05%					
Peak Acceleration <sup>(7)</sup>		>20,000°/s <sup>2</sup>					
Inertia (unloaded) <sup>(7)</sup>		6,600 kg-mm <sup>2</sup>	9,700 kg-mm <sup>2</sup>	33,600 kg-mm <sup>2</sup>	39,800 kg-mm <sup>2</sup>	115,200 kg-mm <sup>2</sup>	139,000 kg-mm <sup>2</sup>
Total Mass <sup>(7)</sup>		9 kg	15 kg	22 kg	26 kg	39 kg	44 kg
Servo Bandwidth <sup>(8)</sup>		>70 Hz (-3 dB)					
Material		Aluminum					
Stage Finish		Black Anodize					
Tabletop Finish		Hard Coating (62 Rockwell Hardness)					

Notes:

1. Height may vary with certain slip ring and rotary union options. See product dimensional drawings for more details.

2. Aperture not available with all slip ring and rotary union options. See ordering information for more details.

3. Certified with each stage. Requires the use of an Aerotech controller.

4. Maximum loads are mutually exclusive.

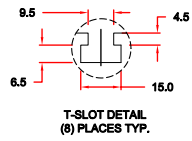
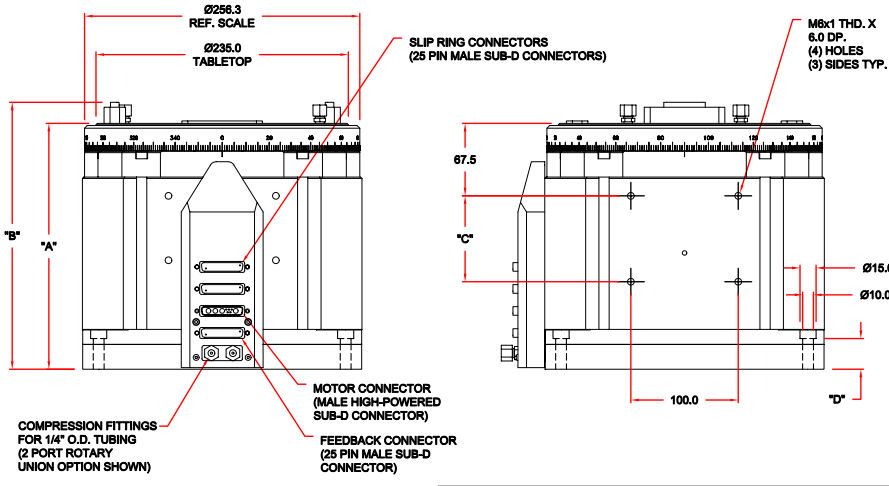
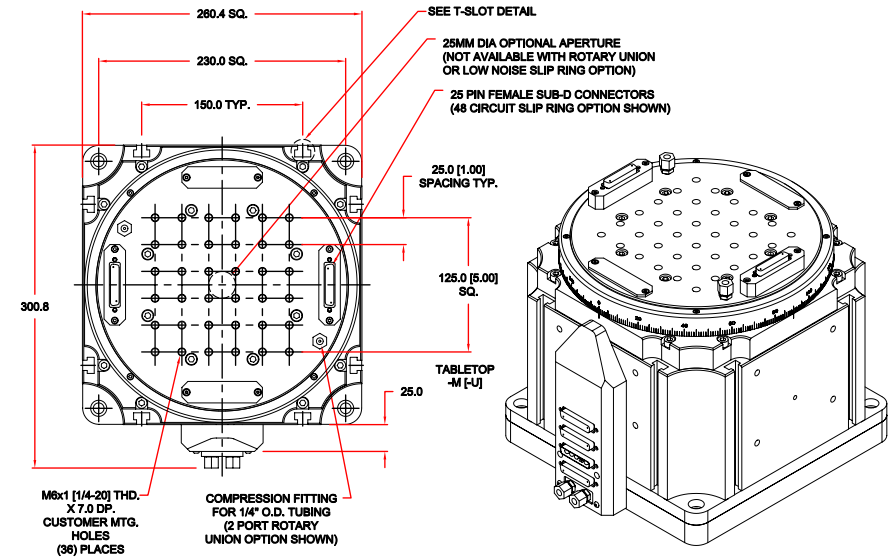
5. Maximum rate is based on stage capability. Actual rate may depend on encoder resolution, load, amplifier bus voltage and motor. See the S-series rotary motor for more information.

6. Minimum rate, rate resolution and rate accuracy are based on stage capability. Actual rate, resolution and accuracy may depend on encoder resolution.

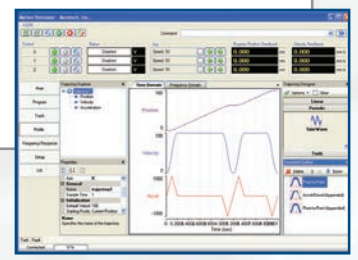
7. Peak acceleration, inertia and total mass based on unloaded stage with standard diameter tabletop.



# ARMS-260



DIMENSIONS - MILLIMETERS				
BASIC MODEL	"A"	"B"	"C"	"D"
ARMS-260-100-SRNG24(24LN)	229.0	248.6	80.0	28.6
ARMS-260-100-SRNG48(48LN)	229.0	248.6	80.0	28.6
ARMS-260-100-SRNG72(70LN)	279.0	298.6	80.0	78.6
ARMS-260-100-SRNG96(90LN)	329.0	348.6	80.0	128.6
ARMS-260-146-SRNG24(24LN)	250.0	269.6	100.0	28.6
ARMS-260-146-SRNG48(48LN)	250.0	269.6	100.0	28.6
ARMS-260-146-SRNG72(70LN)	279.0	298.6	100.0	57.6
ARMS-260-146-SRNG96(90LN)	329.0	348.6	100.0	100.6



低惯量与无背隙之ARMS  
为需要频繁转换方向应  
用之最佳解决方案

# AGR

## 机械轴承, 齿轮传动旋转平台

- 提高速度与负载能力
- 革新的蜗杆齿轮模组设计 (patent pending) 提供长时间工作下杰出定位精度与重复精度
- 大中空孔径应用于广泛应用
- 连续360°旋转定位
- 可选配直接耦合圆光栅
- 可适用于温度变化较大之环境下

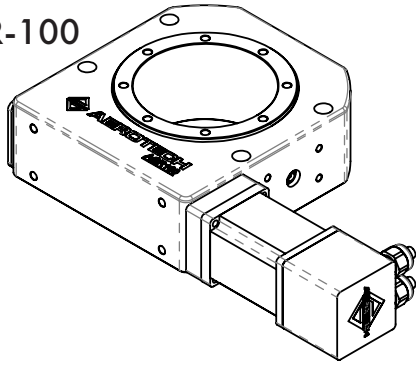
AGR系列电机驱动旋转平台大幅提高传统蜗杆驱动旋转平台之性能, 包含速度, 负载能力, 长时间定位性能等。AGR系列强调使用于各种不同应用如实验室或工业之泛用角度定位。独特的预载方式避免磨损问题 (changing wear characteristics), 提供较长的平台寿命并维持平台性能, 使平台可以在广泛温度条件下工作。

Mechanical Specifications		AGR50	AGR75	AGR100	AGR150	AGR200
<b>Travel</b>		360° (Limited Travel Versions Available)				
<b>Accuracy<sup>(1)</sup></b>	<b>Standard</b>	180 arc sec		120 arc sec		
	<b>Direct Encoder</b>	20 arc sec				
<b>Repeatability (Uni-Directional)<sup>(1)</sup></b>	<b>Standard</b>	10 arc sec				
	<b>Direct Encoder</b>	5 arc sec				
<b>Repeatability (Bi-Directional)<sup>(1)</sup></b>	<b>Standard</b>	45 arc sec				
	<b>Direct Encoder</b>	8 arc sec				
<b>Tilt Error Motion</b>		10 arc sec				
<b>Axial Error Motion</b>		5 µm				
<b>Radial Error Motion</b>		10 µm				
<b>Gear Ratio</b>		51:1	67:1	85:1	117:1	126:1
<b>Maximum Speed<sup>(2)</sup></b>	<b>BM/BMS</b>	180°/s				120°/s
	<b>SM</b>	60°/s		40°/s		
<b>Maximum Acceleration<sup>(3)</sup></b>		720°/s <sup>2</sup>				480°/s <sup>2</sup>
<b>Aperture</b>	<b>mm</b>	50 mm	75 mm	100 mm	150 mm	200 mm
<b>Load Capacity</b>	<b>Axial</b>	40 kg	100 kg	200 kg	300 kg	425 kg
	<b>Radial</b>	20 kg	50 kg	100 kg	125 kg	200 kg
	<b>Moment</b>	See Moment Load Curves				
<b>Maximum Torque Load to Stage Shaft</b>		2.5 N-m	3.5 N-m	12 N-m	20 N-m	80 N-m
<b>Rotor Inertia (Unloaded)</b>		0.00052 kg-m <sup>2</sup>	0.0013 kg-m <sup>2</sup>	0.0035 kg-m <sup>2</sup>	0.011 kg-m <sup>2</sup>	0.076 kg-m <sup>2</sup>
<b>Stage Mass (No Motor)</b>	<b>Standard</b>	1.9 kg	2.4 kg	4.5 kg	6.1 kg	18.6 kg
	<b>Direct Encoder</b>	2.5 kg	3.1 kg	5.6 kg	7.6 kg	21.7 kg
<b>Material</b>		Aluminum				

Note:

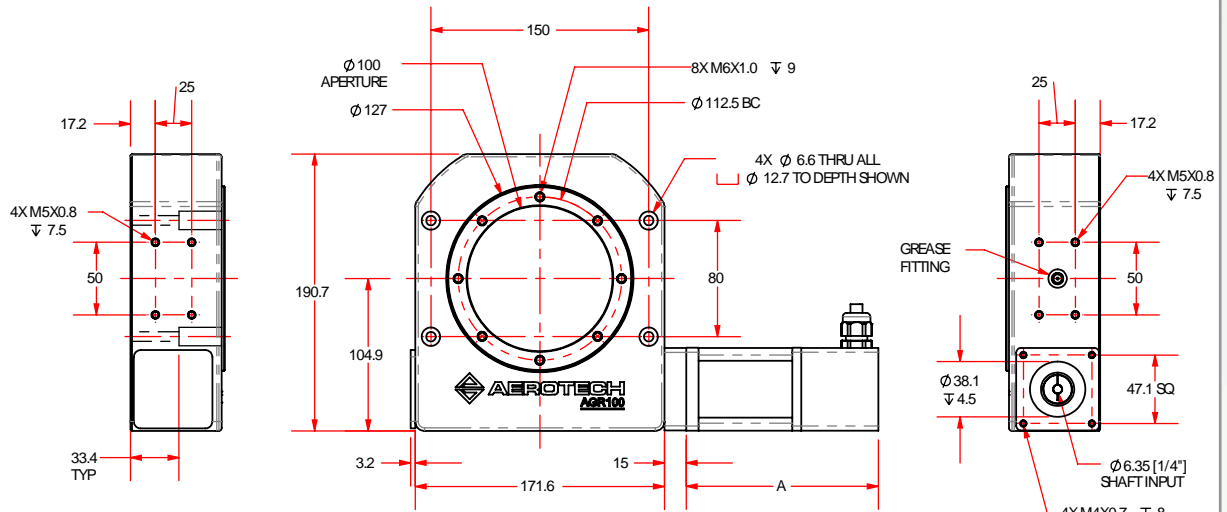
1. Certified with each stage.
2. Maximum speed is load dependent. Contact an Aerotech Application Engineer if imbalanced loads are present.
3. Unloaded acceleration.
4. On-axis loading is listed.
5. Specifications are for single-axis systems measured 25 mm above the tabletop. Performance of multi-axis systems is payload and workpoint dependent. Consult factory for multi-axis or non-standard applications.

# AGR-100



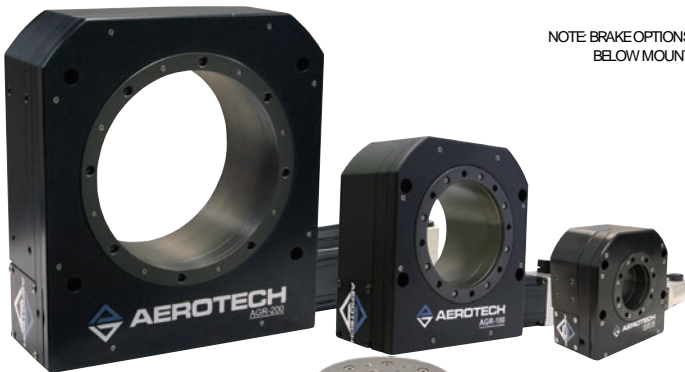
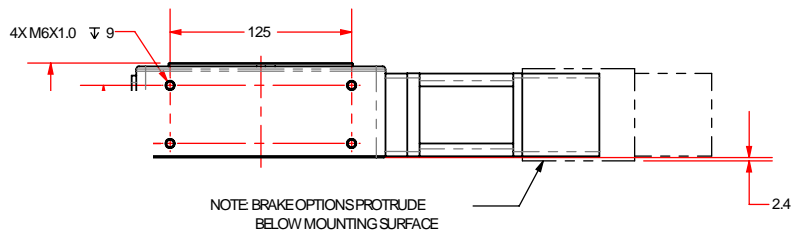
MOTOR	LENGTH "A"
BM75	132.3
BM75-BRAKE	209.5
BMS60	132.3
BMS60-BRAKE	209.5
50SMB2-HM	84.3

OPTION	HEIGHT "B"
DEFAULT	65
SEAL	78
ENCODER	81
SEAL + ENCODER	94



CW 0.5° NOMINAL TRAVEL      CCW 0.5° NOMINAL TRAVEL

TABLETOP BC ORIENTATION AT CENTER OF TRAVEL



除了大口径以外，AGR系列强调需要使用通孔之应用如安装镜组等。

# 先进系统控制

## GSE: 地面支援设备 (Ground Support Equipment)

- 节省时间与经费
- Windows®-based 运动控制器提供简洁, 容易使用之LabVIEW®, .NET, C, C#, AeroBasic™软体
- 位置同步触发 (Position Synchronized Output) 可触发激光, 涡电流, 或超音波传感器控制
- 简易设定无刷, 有刷或步进电机控制
- 支援解角器, 感应同步器 (inductosyn), 增量式与绝对式编码器
- 撷取实验中所有的运动曲线以进行品质控制
- 内建先进频率响应分析软体
- 使用.NET, C#, C, 与LabVIEW®.函式库或范例程式开发你的人机介面与其他程式
- 简易设定的电机参数计算与自动调校软体
- 使用高阶的人机介面开发你的运动程式
- 功能最强大的诊断软体
- 可灵活设定的2D误差作图

### Automation 3200



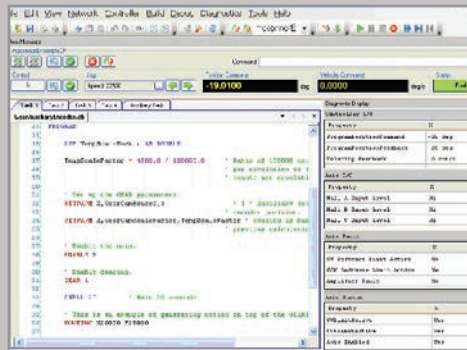
- 最高至32组任务 (Task)
- PC-based
- RS-274 G-code
- 先进控制技术应用用于最严苛应用
- 1 至32 轴同步运动
- 激光打标之振镜控制
- 高度集成之激光控制功能
- 加强既有系统性能之翻新模组
- 类比与数位 I/O控制

### Ensemble

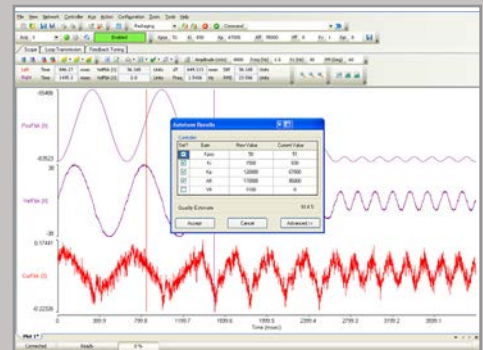


- 最高至四组任务 (Task)
- 1-10轴之独立控制器
- 灵活度高, 低成本, 同步运动
- PWM 或线性驱动器 (10-150 A 峰值电流输出)

## 集成的开发环境



Programming Interface (程式设计界面)



Autotune (自动调校软体)

## 线性与旋转伺服或转矩电机



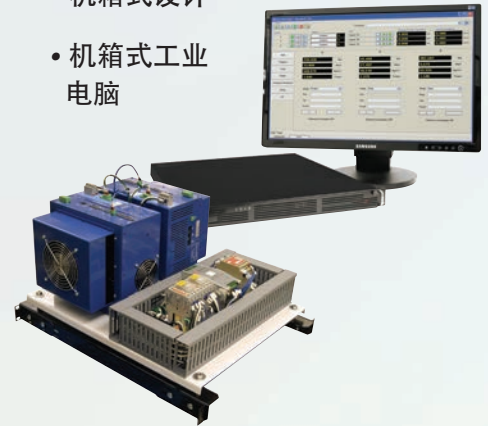
## 通讯协定

- Ethernet/IP™
- Modbus®/TCP
- DeviceNET
- Ethernet TCP/IP
- USB
- RS-232
- GPIB



## 相关零配件

- 线性驱动器
- 紧急开关
- 机箱式设计
- 机箱式工业电脑

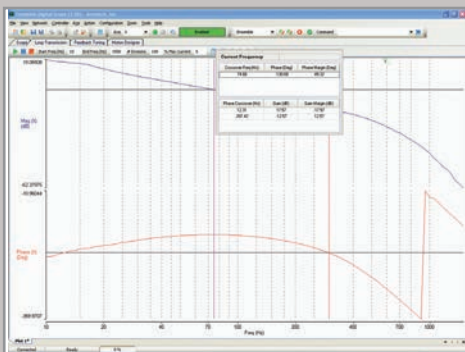


- 无刷, 有刷或步径电机控制
- 机箱式或嵌入式
- .NET, C++, or LabVIEW®
- GPIB, Ethernet, USB

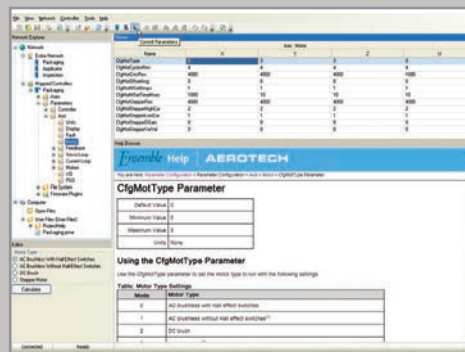
## Soloist



- 精简, 低成本高效能之单轴控制器
- 独立控制器 (包含控制器与驱动器)
- PWM 或线性驱动器 (10-150 A 峰值电流输出)
- .NET, C#, LabVIEW®
- Ethernet, USB



Loop Transmission (频率响应分析软体)



Parameter Editor (参数设定软体)

# 简介



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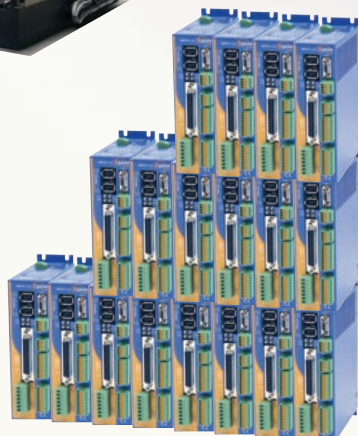


Aerotech 英国分公司   Aerotech 德国分公司   Aerotech 日本分公司   Aerotech 中国分公司   Aerotech 台湾分公司

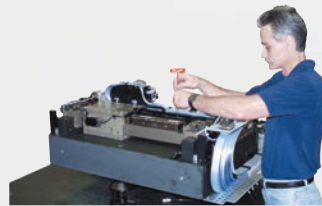
## 大量生产



超过100,000 轴于世界各地被广泛应用



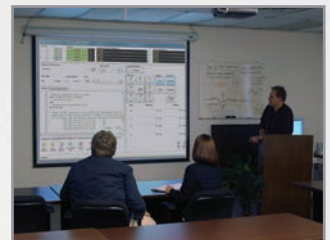
## 全球的业务与客服支持



全球的系统起始服务与到场培训

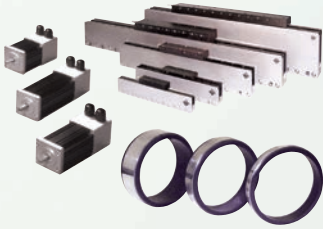


完善的培训设施

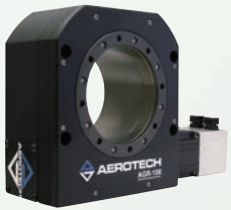


## 技术领先的零组件

最高性能的无刷  
线性与旋转电机



AGR旋转平台



PRO系列线  
性电机平台



Ndrive



A3200



Npaq

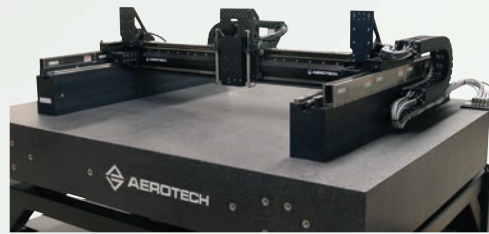
获奖无数之Automation 3200 1-32轴运动，视觉，PLC，机械手臂，与I/O控制

## 高性能模组

XYAB次系统提供高动态  
定位性能，应用于激光  
钻孔与微加工应用

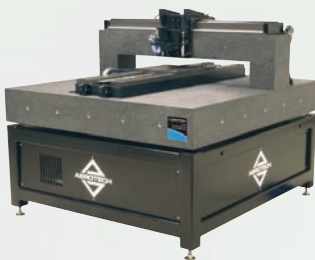


LaserTurn 5 高速圆  
柱材料加工平台



高产能线性电机龙门系统

## 市场上最高性能之次系统



高集成度之次系统包含，底座，  
显示器，与相关配电



客制化真空与无尘室条件之系统

量产化，使用于平  
面显示器或半导体  
应用之大尺寸空气  
轴承运动系统

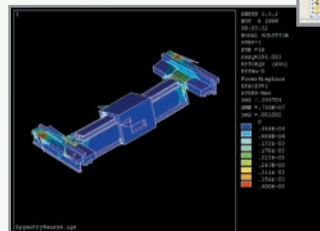
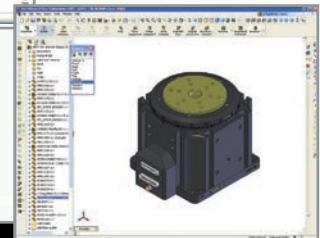


## 广泛的技术支持服务



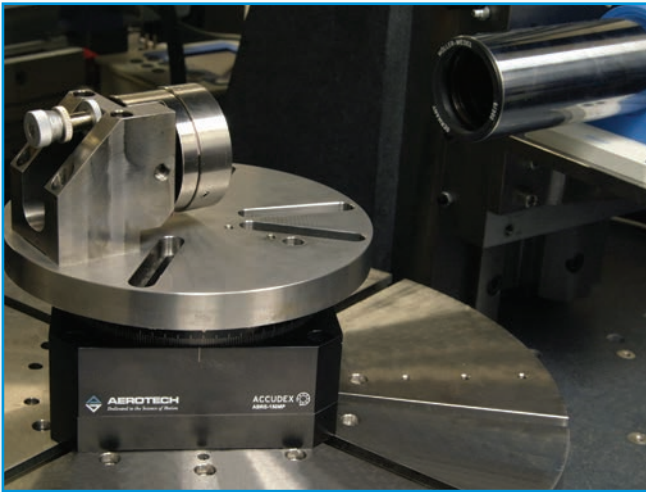
客制化软体服务

3D模型加速与更  
精准的系统设计



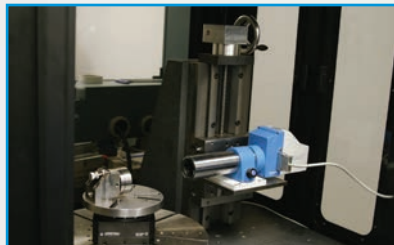
先进分析技术供最  
佳化系统几何设计

# Aerotech 角度校正仪 (Aerotech Rotary Calibrator)



Aerotech 角度校正仪(ARC) 提供了一个校正角度或旋转平台的新的工业标准。此角度校正仪的核心在于一个大型空气轴承旋转平台基准轴 (Master Axis), 其具有纳米等级误差运动(error motion)规格。此高精度空气轴承由钢材制造, 设计于符合周围花岗岩结构之热膨胀系数。此空气轴承平台为作为主要的角度产生装置, 其产生超过360度全行程之0.015 arc-seconds的小角度。

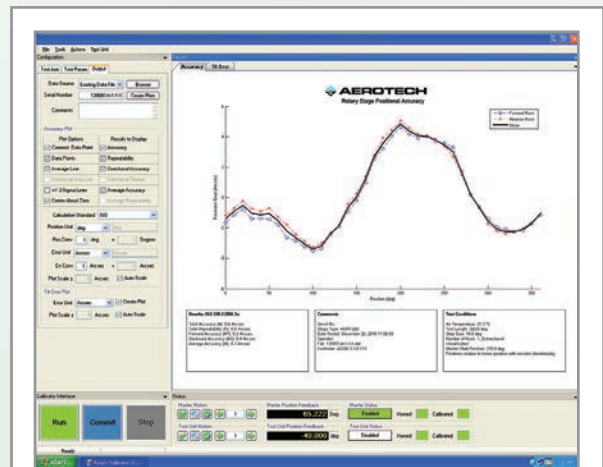
此角度校正仪装配有高分辨率, 高精度之自准直仪 (autocollimator), 用来量测光学表面的回馈。整套系统由高精度花岗岩结构组成, 并使用被动式防震以隔绝机台底座与地面的震动。客制化机台外罩可隔绝空气扰动, 高频率温度起伏, 与环境光害等。系统电器设施安装于独立的客制化配电箱内以隔绝机台的热与电子杂讯。客制化校正软体提供使用者简易的控制角度位移, 量测步骤(如Circle enclosure), 与制图/制表等。



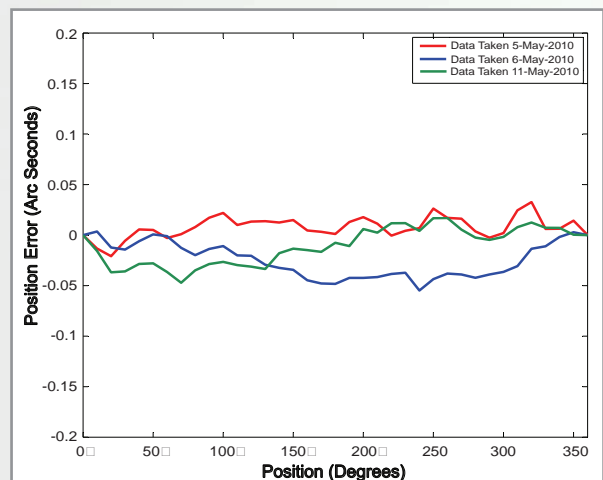
1. 角度量测不确定度 (uncertainty) 为依照 ANSI/NCSL Z540-2-1997: Guide to the Expression of Uncertainty in Measurement while calibration of a rotary table over 360° with 10° steps using a modified circle closure technique. 实验室之温度控制为: 20°C +/- 0.25°C.

## 系統規格

- 基準軸定位精度: <0.15 arc-seconds (<727 nano-radians)
- 最小位移量 (min. angle): 0.015 arc-seconds (73 nano-radians)
- 系統數位解析度: 0.0069 arc-seconds (34 nano-radians)
- 角度量測不確定度: <0.2 arc-seconds expanded uncertainty, k=2 (<970 nano-radians, k=2)<sup>1</sup>.



- 客制化软体供自动进行测试验证与制表
- 内建控制与制图功能



Aerotech 角度校正仪基准轴误差 - 经过多天校正后之重复精度



# 奖励与赞赏



ANT-130XY荣获2011年美国《控制工程》杂志颁发的“工程师精选奖”



ANT-130XY荣获美国《设计新闻》杂志2010年“金鼠夹奖” (Golden Mousetrap)



《设计新闻》2009年“金鼠夹最佳产品”奖项评选中, LaserTurn® 1, AGS15000和ANT95-XY荣膺大奖



LaserTurn® 1荣获2008年美国《控制工程》杂志颁发的“工程师精选奖”



Ensemble™荣获《半导体国际》2008年“编辑最佳产品奖”



《设计新闻》2008年“金鼠夹最佳产品”奖项评选中, Nmark™SSAM荣获大奖



WaferMaxT™荣获《半导体国际》2007年“编辑最佳产品奖”



WaferMaxZ™荣获2006年EuroAsia集成电路工业奖



《产品设计与开发》2002年50强产品-Automation 3200



Automation3200荣获美国《设计新闻》杂志2002年最佳产品提名



Aandrijftechniek 2002年大奖 - FiberMax®



光波NFOEC2002年参与者精选大奖 - FiberMax®

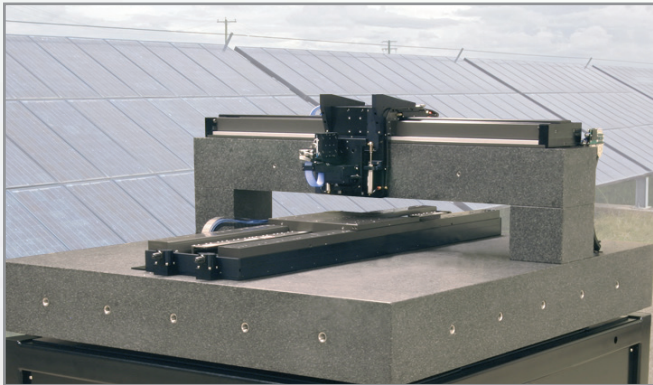


FiberAlign®130荣获2001年光波OFC颁发的“参与者精选奖”



“制造技术机械设计卓越奖” - Slides/Ways 1998和2000

# 在其他市场的应用能力

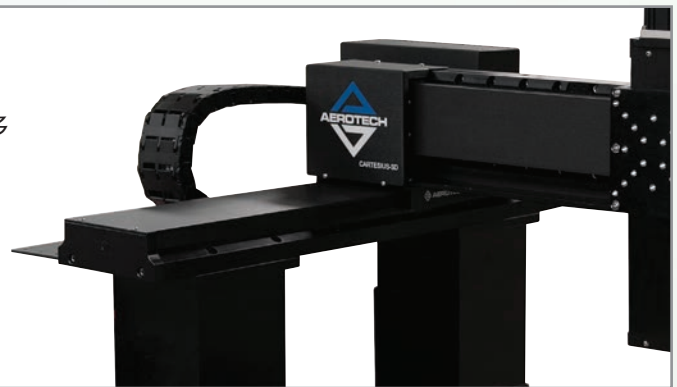


## 光电池、燃料电池与可替换能源

Aerotech拥有丰富多样的运动产品，具有广阔的应用空间，在光电池（太阳能电池）、燃料电池和其他可替换能源制造与测试平台领域将会是您理想的合作伙伴。我们在全球范围已为这些领域设计制造了许多运动平台，我们会锲而不舍，为您提供更多的创新解决方案。

## 通用自动化

Aerotech从1970年开始制造生产品质一流的自动化产品。在众多运动控制制造商中，Aerotech产品系列的多样性是独一无二的，其中包括自动纳米定位平台、平面空气轴承系统、高速龙门架、线性运动平台、旋转运动平台、提升运动平台、无刷线性及旋转伺服电动机和驱动器、单轴及多轴运动控制器、测角仪、平衡环/光学支架。Aerotech致力于运动科学。

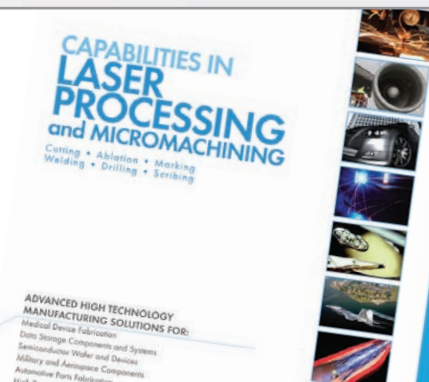


## 控制系统

Aerotech运动控制器、电动机和驱动器可用于我们的定位系统，是全球终端用户和原始设备制造商的不二之选。Automation 3200是一款基于软件并可控制多达32轴的运动控制器，加之Soloist™单轴伺服控制器和Ensemble™多轴独立式运动控制器，Aerotech可提供多项选择来满足您的应用要求。

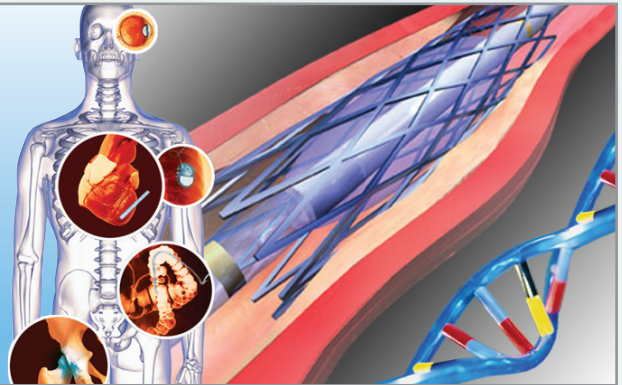
## 激光加工

Aerotech在提供用于切割、焊接、打标、蚀刻和微切削加工等激光加工的运动部件和子系统方面具有丰富的经验。这些加工程序是市场中诸如光电池制造、太空和医疗设备制造等先进技术的关键。



## 医疗设备制造及生命科学

Aerotech为医疗和生命科学应用制造性能优越的运动系统和部件，包括支架切割、用于心脏起搏器和导尿管的医疗激光焊接系统、人工晶体和隐形眼镜制造、DNA顺序分析、血液顺序分析、触摸式铣床和钻床、X射线机、磁共振扫描机和CAT扫描机。我们会根据您的具体要求定制医疗激光焊接系统。

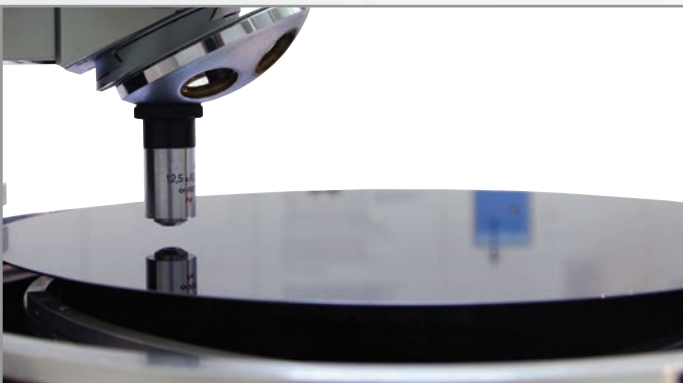
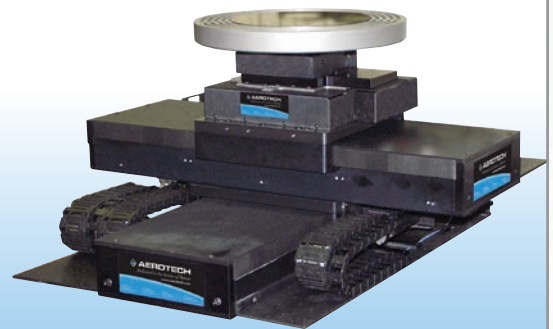


## 政府及教育研究和开发

Aerotech产品系列为学术及政府研发领域提供广泛的解决方案。定位运动平台的光学纤维产品系列可满足光子试验、微切削加工工作站和纳米切削加工工作站的精度要求。Aerotech的多轴旋转定位器和平衡环可满足国防、卫星和空间科学研究的高精度要求。独特的应用领域需要独特的解决方案，Aerotech可为您提供定制系统以满足您的具体要求。

## 电子制造与组装

速度、精度和可靠性是元件择嵌机、模板切割机、印刷电路板装配和其他电子制造及组装设备的关键要求。Aerotech从1970年就已经超过了用来评判电子制造和组装设备的最严格的标准，并且我们还会采用先进的运动技术，通过应对元件择嵌机、模板切割机、印刷电路板装配的行业特定挑战，继续提高标准。



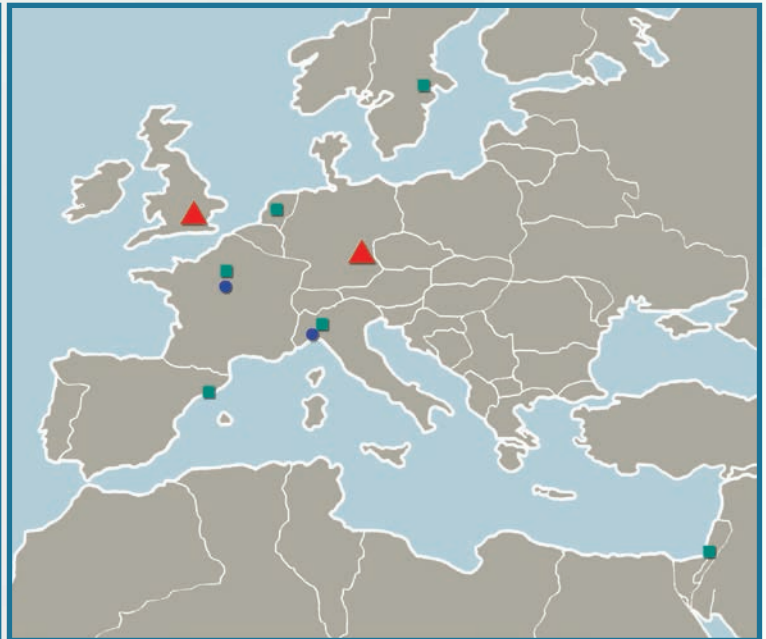
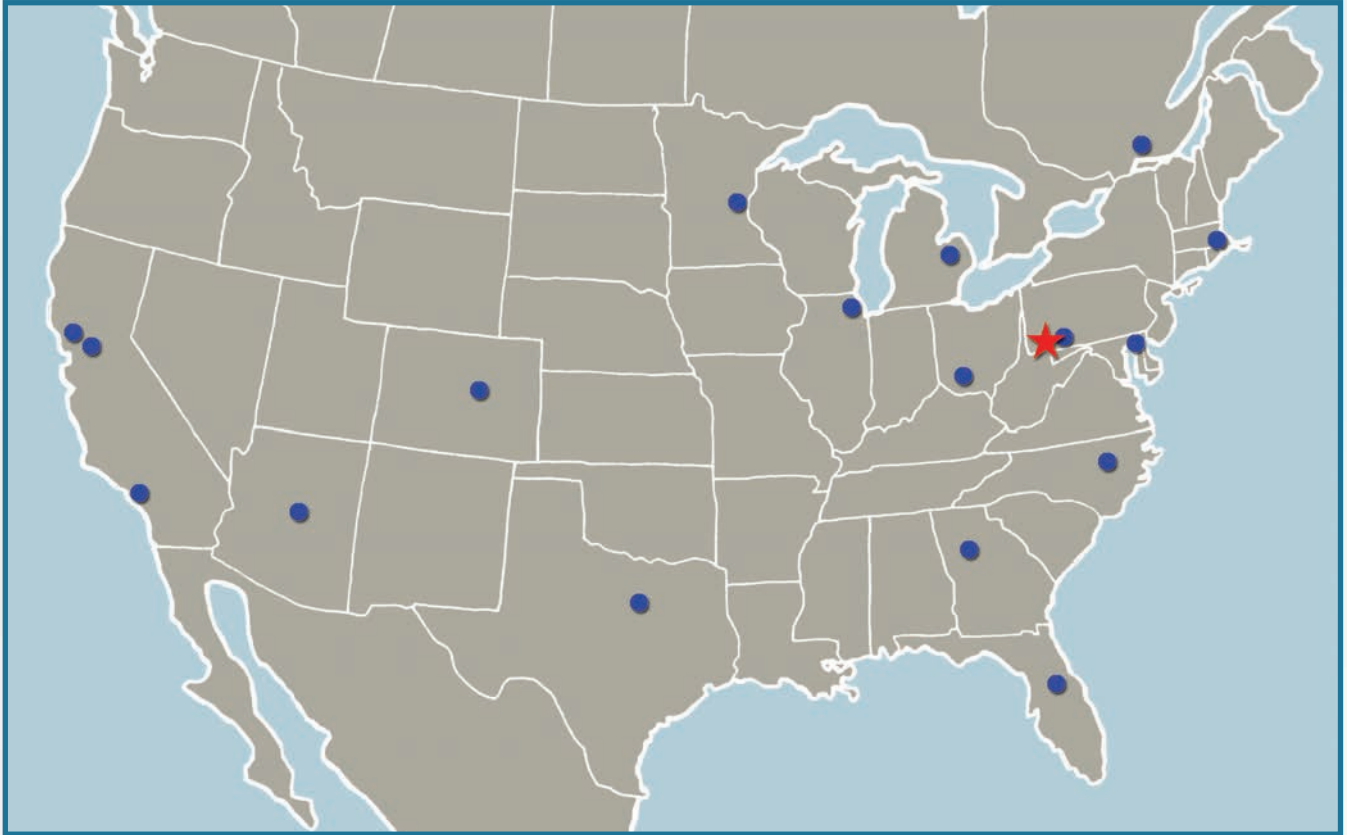
## 测试和检验

Aerotech为CMM、超声、涡电流、X射线、光学和电子学等行业应用提供测试和检验服务。所有的这些应用完全依赖于Aerotech产品独一无二的精密度、精确度和耐用性。光学检验解决方案包括高端直线电机驱动型号（该型号的优化机械底座包含所有控制元件）以及专为成本敏感应用设计的模块化系统。



Dedicated to the Science of Motion

## Aerotech's 全球业务及客服据点



★ - Aerotech 总部   ● - 直属业务办公室   ▲ - Aerotech 分公司   ■ - 代理商

[www.aerotech.com](http://www.aerotech.com)

