IDEAL AEROSMITH

Datasheet

Model 1571P
Single Axis High Speed Position and Rate Table Systems

Spin Fixture

FEATURES

- Position Accuracy: ±10 arc sec
- Rate Accuracy: 0.01% ± Resolution
- Maximum Rate: 18,000 deg/sec (50 Hz)
- Direct-drive, DC brushless servo system
- Aerodynamic/safety enclosure around tabletop
- Precision-ground anodized aluminum tabletop
- 10 to 24 inch diameter tabletop options
- Fail-safe brake
- 48 slipring lines
- Electronics Console for AERO 4000 Controller and Servo Amplifiers

AERO 4000 CONTROLLER FEATURES

- .NET interface over Ethernet
- Front panel display of status and data
- Local and remote operation
- Trapezoidal velocity profiles with programmable velocity and acceleration
- Sinusoidal motion profiles with variable amplitude and frequency
- Profile Modes for simulating complex motion

DESCRIPTION

The 1571P Series High Speed Rate Table Systems are designed to provide a precision high velocity testing solution for the development and/or production testing of inertial packages or their components. A typical application is for missile or projectile programs.

The 1571P test table is a servo-controlled system featuring a direct-drive DC brushless motor, precision optical encoder and a microprocessor that provides accurate and reliable motion control.

The table can be operated from the AERO 4000 Controller front panel for local control or through a computer interface for remote control.

EASE OF INTEGRATION

- LabVIEW™ Virtual Instrument (.vi) driver included
- GPIB and 100base-T Ethernet interfaces standard
- Available control languages: ATL (Aerosmith Table Language) and MPACS (Legacy Carco and Contraves Controllers)

OPTIONS

- Integral Thermal Chamber with electric heating and LN_2 or CO_2. Testing range: -65 to 150 deg C.
- Various Tabletop sizes
- Custom slip package
- Drive assembly available separately as a spin fixture or as a “roll drive” for use on existing tables
- Horizontal axis configuration

For special requirements, please contact Ideal Aerosmith regarding system customization.

Model 1571P Performance Specifications

Positioning	
• Accuracy	± 10 arc sec (0.0028 deg)
• Repeatability	± 5 arc sec (0.0014 deg)
• Command/Display resolution	0.0001 deg
• System resolution	0.00002 deg
Rate	
• Maximum	18,000 deg/sec (3000 RPM or 50 Hz)
• Command/Display Resolution	0.00001 deg/sec
• System Resolution	0.00001 deg/sec
• Accuracy (avg. 10 readings measured over 1 rev), %	0.01% ± resolution
• Stability (avg. 10 readings measured over 1 rev), %	0.01%

Acceleration			
Tabletop diameter Inches	**Peak Acceleration** deg/sec^2 2 second maximum, no payload	**Continuous Acceleration** deg/sec^2 no payload	**Tare Inertia** $lbm\text{-}in^2$ ($Kg\text{-}m^2$)
10	12100	7550	223 (0.065)
14	5650	3500	475 (0.139)
18	2450	1525	1090 (0.319)
22	1150	740	2275 (0.665)
24	850	525	3165 (0.926)
Axis Wobble, arc sec	10		

System Physical Configuration

Table Surface Characteristics	
• Diameter, inch (mm)	Standard size: 14 (356) Options: 10 (254), 18 (457), 22 (559) and 24 (610)
• Hole Pattern, inch (mm)	3/8-24 UNF tapped holes. Eight holes spaced equally on each of the following applicable bolt circles: 7 (177.8), 9 (228.6),11 (279.4), 13 (330.2), 15 (381), 17 (431.8), 19 (482.6), 21 (533) and 23 inch (584.2). Custom tabletop and interface patterns available upon request.
• Face Flatness	0.005 inches (0.127 mm) TIR (for 14 inch diameter tabletop)
• Face Runout	0.002 inches (0.051 mm) @ 6 inch (152.4 mm) Radius
• Material & Surface Finish	Aluminum with 32 RMS Surface Finish
Test Load Capacity	50 lb. (22.68 Kg) Centered (Vertical Axis) 18 inch (457 mm) maximum height
Slipring package	48 lines rated at 5A each. Custom slipring packages are available. Consult Ideal.
Test Table	
• Height - Tabletop to Floor	38.8 inches (985 mm) nominal
• Overall Dimensions	37.3 (947) W x 31.5 (800) D x 67.4 (1712) H for test table configuration
• Weight	1300 lbs (590 Kg) for test table configuration
Controller	Refer to AERO 4000 Data Sheet for more detailed information.
• Type & Configuration	AERO 4000 Test Table Controller configured in a 19 inch Cabinet
• Communication Interfaces	IEEE-488, RS-232, Ethernet
• Architecture	DSP based Motion Control installed on a PCI bus with distributed processing
• Servo Update frequency	5 kHz
• Control Modes	Position, Rate, Profile, Stop
• Miscellaneous Features	• 19 inch flat panel monitor with powerful, user-friendly GUI • Digital capture, display and logging of data variables • Multiple control options including local, ATL, MPACS emulation, real-time reflective memory, analog and a .NET interface.

For additional information or special requirements contact Ideal Aerosmith. Specification and pricing subject to change without notice. Rev A