# 2001VE SERIES SINGLE AXIS PRECISION POSITIONING AND RATE TABLE SYSTEM

## STANDARD FEATURES

- **Position Accuracy**: ±1 arc sec
- **Rate Accuracy**: ±0.0001%
- **Maximum Rate**: 2001VE-10: 1,000 deg/sec (standard)
  2001VE-30: 3,000 deg/sec (optional)
- Direct-drive, DC brushless servo system
- Precision-ground anodized aluminum tabletop
- 14 inch diameter tabletop
- Fail-safe brake
- Slipring lines for unlimited rotation
- Electronics Console for AERO 5 ELITE Controller and Servo Amplifiers

## DESCRIPTION

The 2001VE Series Automatic Positioning and Rate Table Systems are designed to provide precise position, rate and acceleration motion for the development and/or production testing of navigation sensor systems such as Fiber Optic Gyros (FOG), Ring Laser Gyros (RLG), Inertial Navigation Systems (INS) and accelerometers. The 2001VE 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 5 ELITE Controller for local control or through a computer interface for remote control.

## AERO 5 ELITE CONTROLLER FEATURES

- Aerosmith Table Language (ATL) for remote operation over Ethernet
- Data Acquisition streaming at up to 20 kHz over Ethernet
- Highly-customizable Graphical User Interface
- Local and remote operation
- Trapezoidal velocity profiles with programmable velocity and acceleration
- Signal Generator to execute motion based on sine, sine sweep, step, triangle, or sawtooth signals, with configurable amplitude and frequency
- Motion Files for simulating complex motion
- Analog Input control in Position or Velocity modes

## EASE OF INTERGRATION

- LabVIEWTM Virtual Instrument (.vi) driver included
- GPIB and 100base-T Ethernet interfaces standard
- Available control languages: ATL (Aerosmith Table Language)

## OPTIONS

- Integral Thermal Chamber with electric heating and LN2, CO2 or mechanical cooling
- Custom tabletop
- Higher torque motor
- Various slipring packages
- RF Rotary Joint
- Fiber Optic Rotary Joint
- Wrap option available for limited rotation applications
- Vacuum Chamber System
- Horizontal axis configuration
- High Speed Reflective Memory Interface

***For much more detailed information, contact Ideal to request a Specification Document.***

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## Performance Specifications by Series

| Model | 2001VE-10 | 2001VE-30 |
|---|---|---|
| **Positioning** | | |
| • Accuracy, arc sec (deg) | ± 1 (0.00028) | ± 1 (0.00028) |
| • Repeatability, arc sec (deg) | ± 1 (0.00028) | ± 1 (0.00028) |
| • Display Resolution, deg | 0.00001 | 0.00001 |
| **Rate** | | |
| • Maximum, deg/sec | 1,000 | 3,000 |
| • Minimum, deg/sec | 0.00001 | 0.00001 |
| • Display Resolution, deg/sec | 0.00001 | 0.00001 |
| • Accuracy (measured over 360 deg), ± Resolution | 0.0001% | 0.0001% |
| • Stability (measured over 360 deg) | 0.0001% | 0.0001% |
| **Model** | **2001VE-10 and 2001VE-30** | |
| **Acceleration** (based on 14 inch dia tabletop and no load) | **Peak Acceleration** (2 second period of sin movement) | **Maximum Continuous Acceleration** |
| • Standard –T36 motor | 25,600 deg/sec$^2$ | 6,300 deg/sec$^2$ |
| • Optional High Torque –T95 motor | 44,500 deg/sec$^2$ | 11,100 deg/sec$^2$ |
| **Bandwidth** | **-T36 Motor** | **-T95 Motor** |
| -3dB Bandwidth with 14 in tabletop, no load | 75 Hz | 100 Hz |
| **Axis Wobble** | 3 arc sec (0.0008 deg) | |

NOTE: The –T95 will exhibit less acceleration degradation as the payload size increases. Listed accelerations may not be available over the full rate range

## System Physical Configuration

| | |
|---|---|
| **Table Surface Characteristics** | |
| • Diameter | Standard size: 14 inch (356 mm)<br>Optional: 18, 22, 24, 36 and 40 inch (457, 559, 610, 914, 1016 mm)<br>Test load mounting provisions are 1/4-20 threaded holes on a two-inch (50<br>mm) grid pattern. Custom tabletop and interface patterns available upon request. |
| • Material & Surface Finish | Aluminum with 32 RMS Surface Finish |
| **Test Load Capacity** (Vertical Axis Config) | 200 lbs. (91 Kg) Centered with 18 inch (457 mm) maximum height |
| **Slipring Package Options** | Standard: 34, 64, or 108 lines<br>Larger or custom slipring packages are available. Please consult Ideal. |
| **Controller** | Refer to AERO 5 ELITE Data Sheet for more detailed information. |
| • Type & Configuration | AERO 5 ELITE Controller |
| • Communication Interfaces | IEEE-488 and Ethernet ports available to user |
| • Servo Update frequency | 20 kHz |
| • Control Modes | Position, Rate, Profile, Stop |

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