VCS-1010 Voice Coil Stage

Overview: Cost-efficient and easily customized, the VCS-1010 Voice Coil Stage is a high performance, and compact positioning system specifically developed for applications requiring both high precision and high-speed positioning over a short to medium stroke. It is ideal for optical focusing and other micro-positioning applications such as semiconductor, medical, optical testing, scanning microscopy, circuit board assembly and micro manufacturing.

Stage: The VCS-1010 is guided along a single axis by a high precision ball bearing slide. The use of a linear slide produces a compact and light-weight package and overall stage structure has been optimized for reduced weight, allowing it to be mounted vertically or horizontally. Multiple sets of mounting holes along various surfaces are included for convenient mounting.

Voice Coil: The VCS-1010 uses a high force voice coil motor to move the stage. Moving mass has been optimized to be as light as possible—extremely important for providing minimum response time. Voice coil motors produce the least amount of electrical noise of any motor type available today and our voice coil motor adds no additional friction to the stage while providing superior responsiveness over micro-positioners with conventional screw drives.

Positioning Feedback Sensor: Using a frictionless, non-contact optical technology, the VCS-1010’s sub-micron resolution linear displacement sensor has high bandwidth and low noise for responsive and precise movements. The compactness of this system and its extremely low mass, improves system performance.

VCS-1010 Specifications:

- **Range of Motion:** 10 mm
- **Positioning Resolution:** 150 nm
- **Peak Force:** 3 lbs, 10 sec
- **Max Continuous Force:** 1.5 lbs
- **Motor Constant:** 0.6 lbs./Amp
- **Coil Resistance:** 4 ohms
- **Coil Inductance:** 200 μH
- **Non-linearity:** <±0.5%
- **Repeatability, Short Term:** 200 nm
- **Repeatability, Long Term:** 50 ppm/1000 hrs.
- **Temperature Stability:** ±250 nm/°C
- **Hysteresis:** None
- **Deadband:** None
- **Travel Non-Straightness:** <10μm
- **Max Bandwidth:** 1 kHz
- **Footprint:** 1.5” x 3.0” x 1.6”
- **Total Mass:** 255 grams
- **Moving Mass:** 25 grams

FEATURES:
- Sub-Micron Resolution Positioning
- High Speed Positioning
- Compact Packaging
- Integrated Position Feedback Sensor
- Medium Force Generation
- Ball Bearing Slide
- Horizontal Or Vertical Operation
- Simple Electrical Interfacing
- Clean Room Compatibility
- Patent Pending Technologies
- Low Cost

Capture Light Through the Middle of the Motor by Design

We pride ourselves in giving OEMs and VARs precisely the tools they need to make the best systems possible—our highest priority is in applications support. Our knowledgeable engineers will help you analyze your objectives to achieve the very best solutions, even before you become a customer. Undivided attention and long term relationships ensures your success—and ours. Please contact Paul Swanson or our office by phone: (408) 245-7161, fax: (408) 245-7160, mail: 461 East Evelyn Avenue / Sunnyvale, CA 94086, or by email: pa.swanson@equipsolutions.com