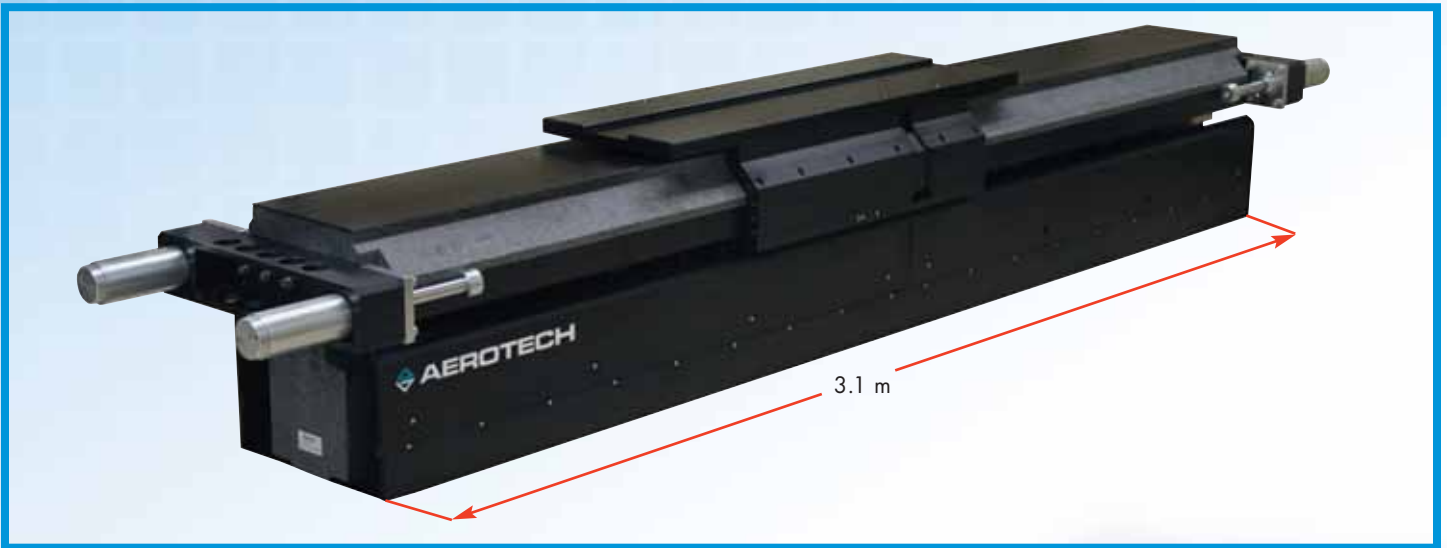
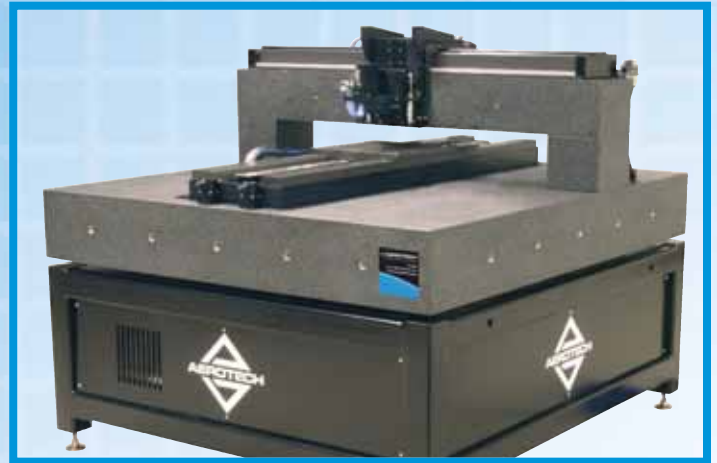




Automation Solutions for Solar Panel Inspection and Scribing

Aerotech Manufacturing Solutions for Crystalline Silicon and Thin-Film Photovoltaic Panels



*Dedicated to the
Science of Motion*
www.aerotech.com



Aerotech Worldwide
United States • Germany • United Kingdom • Japan • China

Automation Solutions for Solar Panel

Aerotech's mechanical systems and state-of-the-art controls offer unparalleled

Industry-Leading Gantry Technology

- High speed for increased throughput
- High accuracy for a better final product
- Direct-drive linear motor technology for low maintenance and higher throughput
- Rugged, low-maintenance design for high MTBF



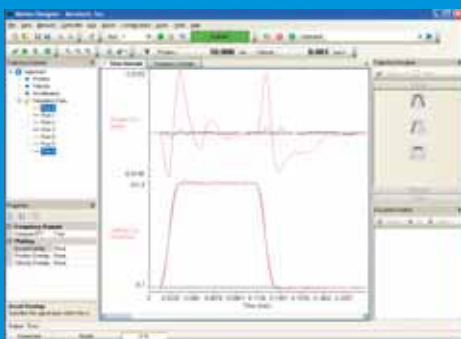
SolarScribe® Platform

- Industry-leading mechanical and air-bearing stage technology for smooth motion
- Split-axis or gantry configurations to meet your process needs
- Up to 2.5 m travel to process your longest panels
- Complete customization to your specific application means quicker setup



Wafer Level Photovoltaic Processing

- Stacked XY or split-axis options designed for your application
- Available with mechanical air-hybrid-bearing technologies to meet any process need
- Optional theta for de-skew increases throughput

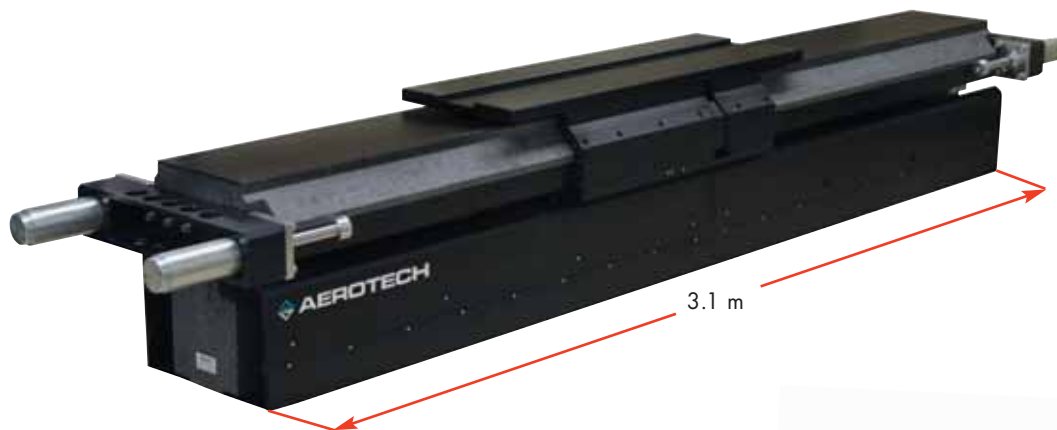


Motion Designer is a graphical tool for creating and optimizing motion trajectories



Inspection and Scribing

throughput, power, and precision for photovoltaic manufacturing.

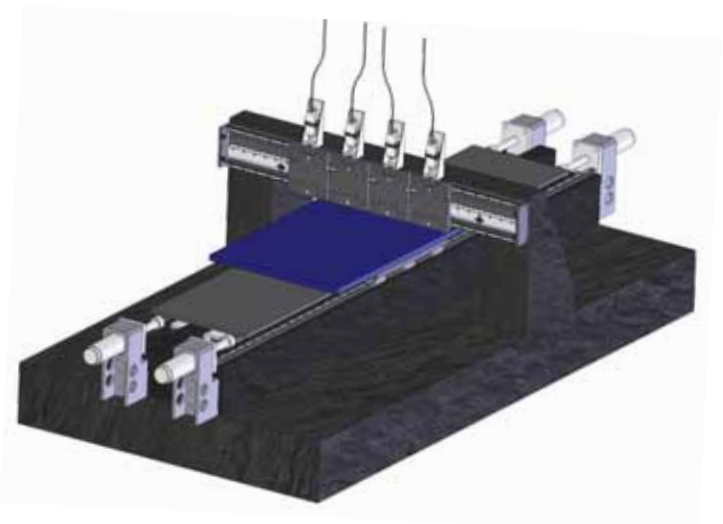


High-Speed Scan Axis

- 2 m travel for your largest panel scribing applications
- 3 m/s velocity for high throughput
- 5 g acceleration speeds turnaround time

Custom Options Include:

- Multi-head cross-axis for accurate parallel-line scribing
- Throughput enhancing parallel linear motor configurations
- Theta stage with integral brake, multiple Z-axis options, passive or active vibration isolation, machine base, and control enclosure
- Gantry, split axis, or stacked XY configurations to meet your requirements



Powerful, High-Quality Linear Motors

- Highest force per unit volume available
- Highly efficient
- Noncontact design for long life and zero maintenance

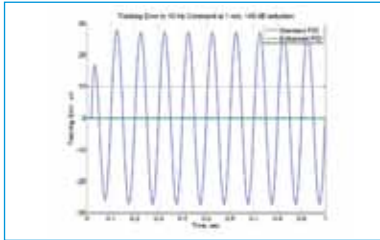
Automation 3200 software – the only motion controller with all-digital drive electronics provides the most powerful automation platform available.



Enhanced Throughput Module (ETM) improves positioning performance and throughput by directly compensating for base vibrations

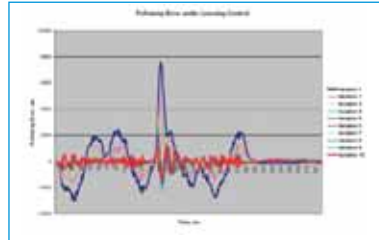
State-of-the-Art Control Electronics and Software

Advanced Control Capabilities



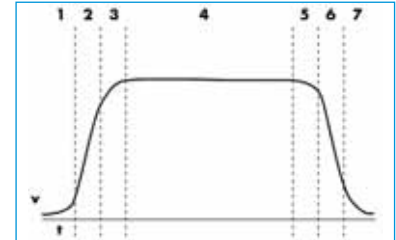
Harmonic Cancellation

- Reduce position error on periodic trajectories
- Reject periodic disturbances
- Built-in setup wizards
- Adapts to magnitude and frequency of error source



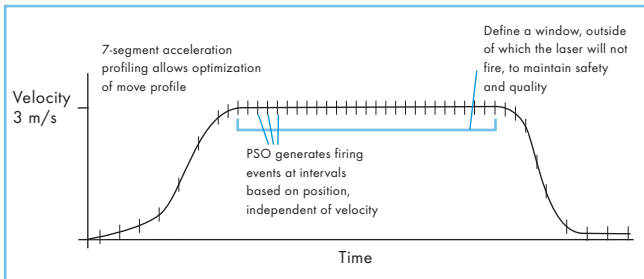
Iterative Learning Control

- Repeating move sequences can be learned and optimized
- Reduce following error
- Increase dynamic accuracy
- Increase production rates



Seven Segment Acceleration

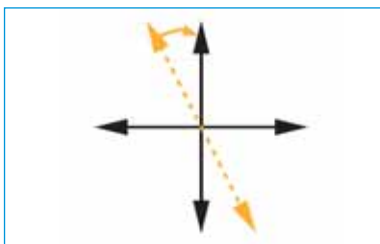
Specify the acceleration profile in seven segments, providing precise control over system motion.



Position-Synchronized Output for Precise Laser Control

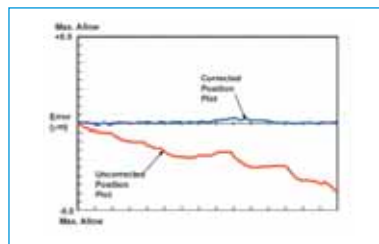
Aerotech's Position Synchronized Output (PSO) functionality fires a laser based on real-time position feedback on up to 3 axes, providing uniform pulse spacing on your material during 2D and 3D processing. Coordinating a motion subsystem with laser firing minimizes heat-affected zones and improves quality on photovoltaic panels for maximum efficiency.

Standard Control Capabilities



Orthogonality Correction

Improve X-Y planar accuracy by simply entering the known orthogonality error and the controller will compensate.



Axis Calibration

Compensate for repeatable mechanical errors in a positioning system.



Gantry Mode

Complex gantry control is reduced to a few simple commands to handle dual motor and/or dual feedback configurations.

WORLD HEADQUARTERS

Aerotech, Inc.

101 Zeta Drive
Pittsburgh, PA 15238
Ph: 412-963-7470
Fax: 412-963-7459
Email: sales@aerotech.com

Aerotech, Ltd.

Jupiter House, Calleva Park
Aldermaston, Berkshire
RG7 8NN, UK
Ph: +44-118-9409400
Fax: +44-118-9409401
Email: sales@aerotech.co.uk

Aerotech GmbH

Südwestpark 90
90449 Nürnberg, Germany
Ph: +49-911-9679370
Fax: +49-911-96793720
Email: sales@aerotechgmbh.de

Aerotech KK

17-25 1-chome Kitahoncho
Funabashi-shi
Chiba-ken, 273-0864, Japan
Ph: +81-47-489-1741
Fax: +81-47-489-1743
Email: sales@aerotechkk.co.jp

Aerotech China

Unit 3328, 33/F
China Merchants Tower
168 - 200 Connaught Road Central
HONG KONG
Ph: +852 3793 3488
Email: saleschina@aerotech.com