

UHV Multi-Axis Positioning System

MDC's Multi-Axis Positioning System (MAPS) is an integrated UHV positioner combined with substrate heating. MAPS feature tilt, rotation and sample heating capability for a wide variety of substrates.

Sample tilt angle is adjustable from -180° to $+180^\circ$ and rotation about the sample normal is continuous. Resolution of both axes of rotation is $<1.0^\circ$ and speed can vary from 0.2 to 60° per second. Accuracy of positioning is provided with gear reduction in each axis.

Heating from room temperature up to 400°C is standard with an option that can heat samples up to 900°C. MAPS can be operated in any orientation and can be either manually driven or motorized to include motor options on either or both axes of motion with communications link for computer control. Heater controllers with PID feedback and RS232 communications are available.

Versatile Modular Design

The MAPS as shown is designed for UHV with tilt and rotation of a 2" x 2" sample and mounted on an 8" CFF flange. The modular design of this unit, allows variations for a wide range of applications —

- The system can be integrated into larger and/or different types of flanges. Sample distance from the flange face can vary from 6 to 18 inches.
- It can be easily scaled to handle much larger substrates.
- Transferable sample holder capability.
- Use as a 5-axis positioner or goniometer when mounted to an XYZ stage.
- Motions can be manually operated or motorized.

Applications

Originally developed as a positioner for GLAD (Glancing Angle Deposition) for the growth of thin films in a thermal evaporation coater, the versatility of MDC's MAPS makes it ideal for any HV or UHV application requiring tilt and rotation. Mounted to a large bore XYZ stage for use as a 5-axis positioning system or goniometer, the MAPS could be used for a variety of surface science (XPS, AES, SEM) applications or other types of deposition systems.

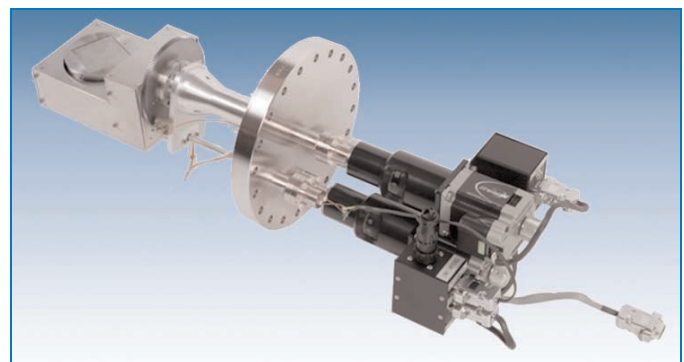
ULTRAHIGH VACUUM SERIES

Features

- UHV compatible
- Multi-positioning with tilt and rotation
- Efficient sample heating system
- Modular design easily accommodates unique configurations
- Transferable sample stage compatibility
- Manual or automated
- Designed to operate in any orientation

Specifications

MATERIAL	All UHV compatible
Multi-axis system	304 SS 6001 aluminum WS2 dry lube
Heater	Radiative Quartz halogen lamps - 300 watts $\geq 400^\circ\text{C}$ BN Coated graphite for high temp $\geq 900^\circ\text{C}$
Optional Heater	304ss for MTM
Transporter adapter	304ss and aluminum for PMT
Receiving station	304ss
Description	
Substrate size	2 inch x 2 inch or larger
Interface	8" CFF or larger
Dimensions	See diagram below
Performance	
Tilt angle	Adjustable from -180 degrees to $+180$ degrees
Resolution	<1.0 degree
Rotation	Continuous
Speed	Can vary from .2 to 60 degrees/second
Motorization Controls	
System I/O Controls	Pushbutton, RS232 or digital I/O
Pushbutton Controls	Set point/Extract/Retract
Manual Controls	
Manual Operation	Graduated dial
Optional:	Heater controller available



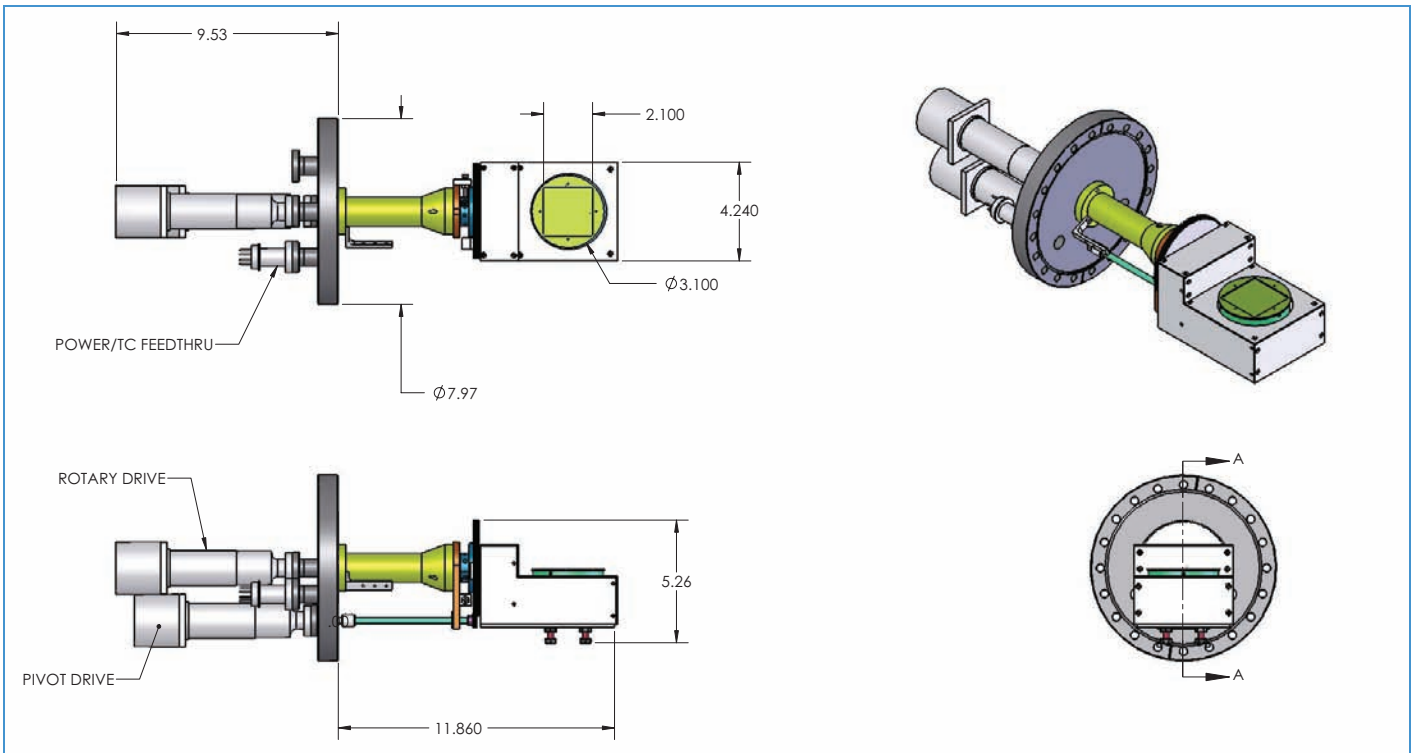


Diagram of Typical MAPS, Multi-Axis Positioning System

Motion & Manipulation

New

For additional details regarding MDC's new Multi-Axis Positioning System (MAPS) product line, please contact-
 Tom Bogdan
 Director of Technical Sales
 MDC Vacuum Products, LLC
 Ph: (direct) 510-265-3531
 Fax: 510-887-0626
 Cell: 925-209-6041
 e-mail: tbogdan@mdcvacuum.com