

Introduction

The Model 4460 probe station, in either 6" or 8" form, is designed to retain Micromanipulator's renowned stability, open design and precise mechanics in an economical probe station.

Like its manual-drive counter part, the 4460 was designed for those customers not needing the low current capability, extreme precision of positioning and additional convenience features of the 8000 series. The Model 4460 prober provides a capable probe station solution for everyday analytical probing.

A full line of probing accessories supports the Model 4460 including probe card holders, a wide range thermal chucks with internal plumbing options, laser cutters and motorized *hands-off* manipulators.

The 4460 also may be upgraded with motorized or programmable microscope drives, 8" Z range microscope drives and integrated dry environments for sub-ambient probing.

The Model 4460 is a cost effective solution to today's analytical probing application.

Features and Benefits

- Semi-automatic control of stage, platen and microscope (optional) for quick measurements.
- 4"x4"x2" X-Y-Z microscope control allows precise semi-automatic control of microscope positioning.
- Gold plated 6- or 8-inch (150mm or 200mm) vacuum chuck with either 6- or 8-inch (150mm or 200mm) stage travel available, permanently planarized at the factory (stainless steel or triaxial optional).

- Platen fast lift lever allows all probes or probe cards to be raised up to 1.25 inches (31.75mm) for sample changes and adjustments.
- Large platen with large manipulator area. Supports vacuum based manipulators.
- Solid four point platen support/lift mechanically isolated for stability.
- Optional probe card holder designed to accommodate 4.5 inch rectangular and 8.75 inch circular probe cards. Includes precise and easy to use probe card planarity and theta adjustment controls (other configurations available upon request).
- Integral platen fixture ring accommodates tester load boards, custom probe cards and platen mounted switch matrix.
- Choice of USMCO, A-Zoom, or Mitutoyo microscopes.
- Compact design increases stability while reducing bench space required. Compatible with most light tight enclosures.
- Integrated facility for optional hot chuck additions which include internal cable/hose handling and convenient termination at the rear of the probe station.
- Upgrades available to motorized or programmable microscopes and manipulators.

Specifications

System Components

- Test station with anti-backlash lead screw assemblies provide for accurate stage, platen and microscope X-Y positioning.

Platen

- Allows use of a large number of manipulators.
- Open back platen support with cable strain relief for easy wire routing for probe card electrical interface.
- Accepts up to 10 vacuum based manipulators.
- Vacuum manifolds for up to 10 manipulators standard.
- Accepts four Model 900VM programmable or motorized manipulators.
- BNC or triaxial style probe signal strain reliefs optional.

Platen Control Features

- Both fast lift and high resolution controls are standard.
- Range of travel is 1.0" (25mm).
- Resolution is 1.0 mm.
- Fast lift via fast lift lever positioned at the left side of the probe station.

X-Y Stage Movement



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Made in the USA

- Cast stage cores for faster settling time.
- Cross roller bearing way construction for high reliability and precision.
- Resolution is 0.5 μm
- Semi-automatic 64 TPI theta adjust over a full 15 degrees.

Microscope and Support Post

- Massive bridge support structure with cross roller bearing construction insures excellent stability and mechanical isolation.

Vacuum Chuck

- 6- and 8-inch (150mm or 200mm) chucks are available either gold plated or ground stainless steel.
- Flatness equals ± 12 microns.
- Electrical isolation exceeds 5×10^9 Ohms at 500v DC.
- Chuck surface is electrically connected to a BNC connector at right rear of probe station.

Options for Model 4460

- 8800-FPC-FR6 or 8800-FPC-FR8: fixed probe card adapter.
- 8800-ISE, 7000-LTE or 8800-LTE: light tight enclosure.
- 1201-01-11GR: vibration isolation table.
- H1000 series: hot/cold chucks with temperature range from -65 to 400°C .
- Integrated dry environment (ISE) for low temperature probing.
- Hot Chuck integral plumbing option, provides services for Hot Chuck usage within the probe station.
- Laser Cutter.
- Motorized or Programmable microscope XYZ drive.
- 900VM: motorized or programmable manipulators.
- NetProbe™ navigation system/software.
- Microscope Selection:
USMCO with up to 2000X (200X objective 10X eyepieces) magnification,
or
Mitutoyo FS-70 with up to 4000X (200X objective, 10X eyepieces, 2X zoom) magnification,
or
Optem's A-Zoom microscopes with up to 9000X zoom magnification.

Model 4460 Specifications

Stage

- X and Y axis range*
6" x 6" (150mm x 150mm)
8" x 8" (200mm x 200mm)
 - Standard Precision
3 μm repeatability & accuracy
 - 5 μm resolution
- * Range based on chuck size specified; i.e., 6-inch diameter chuck or 8-inch diameter chuck.

Microscope

- 4" x 4" x 2" X, Y and Z axis range
- Standard Precision (programmable)
 ± 3 μm Repeatability & Accuracy
- Advanced Precision (programmable)
 ± 1.5 μm Repeatability & Accuracy
- Resolution
 - Better than 1 μm manual
 - 0.5 μm motorized/programmable

Platen

- 1" (25.4mm) Z axis range
- 0.1 μm Resolution

Chuck

- ± 12 μm Surface flatness
- 15 degrees Theta range

Facility Requirements

- Power 100-240v AC
1.0/0.5 ampere
60/50 Hz
- Vacuum 20 inch Hg

Test Station Dimensions

- Footprint (Width x Depth)
22.75" x 23.35" (57.7x59.3cm)
- Width, Depth, Height
28.5" x 26.75" x 21.5"
(72.3x67.9x 54.6cm)
- Weight 246 lb. (542.3 kg)

Construction

- Material: Machined aluminum plate and magnetic stainless
- Finish: Grained black anodized and grained natural finish