

PAV200

200 mm Semi-automatic Vacuum Probe System



DATA SHEET

The PAV200 is the ideal solution for testing wafers and substrates up to 200 mm in a vacuum environment. It provides a wide range of measurements, including I-V, C-V and RF, and can be used for probing under high vacuum up to 10^{-5} mbar. Application flexibility is ensured for DC and RF measurements, MEMS and opto-engineering tests.

The base of the PAV200 is a vibration-isolated mainframe. The chuck and the chuck stage with 200 mm x 200 mm X-Y travel, theta and separation stroke are located inside the high vacuum chamber that contains flanges for vacuum-tight mechanical feedthrough drives. Thus the chuck and up to eight vacuum-type positioners can easily be operated from outside via cardan shaft.

The probe platen, which is divided into two parts, is prepared for mounting probe cards or up to eight vacuum-type positioners on magnetic feet. Both, DC and RF positioners can be used. A high-resolution video microscope with 50 mm x 50 mm travel range is mounted either on a microscope bridge for vibration-sensitive test instruments or on a remote-controlled lift.

The PAV200 is customized to your requirements. It can be outfitted with a number of instruments. These include, among others, various video microscopes, laser cutters and optical motion analysis tools. Also available are specially-designed thermal chucks with electrical and coolant bulk feedthroughs for use under vacuum conditions. Different temperature ranges from -60°C to 300°C are possible.

FEATURES / BENEFITS

Customized to user requirements	Different substrate carriers for wafers up to 200 mm or single dies Upstream pressure, downstream pressure or medium vacuum regulation ProberBench™ Operating Environment Wide range of measurements (I-V, C-V, two-port, multi-port and differential RF) RF tests supported by wide range of probes and calibration tools, such as calibration substrates and WinCal XE™ calibration software Accessories available, such as laser cutters and optical motion analysis tools
Stability	High accuracy Ideal for small structures Highly stable mechanics, stable vibration isolation table
Ease-of-use	Comfortable and ergonomic operation, straightforward layout of controls Quick and ergonomic change of the DUT through front door
High measurement throughput	Independent control of chuck and positioners for fast step-and-repeat testing of the whole wafer

AUTOMATION

Pressure control: up-stream, down-stream, high-precision capacitance vacuum gauges
Bridge with rails for programmable movement of mounted instruments

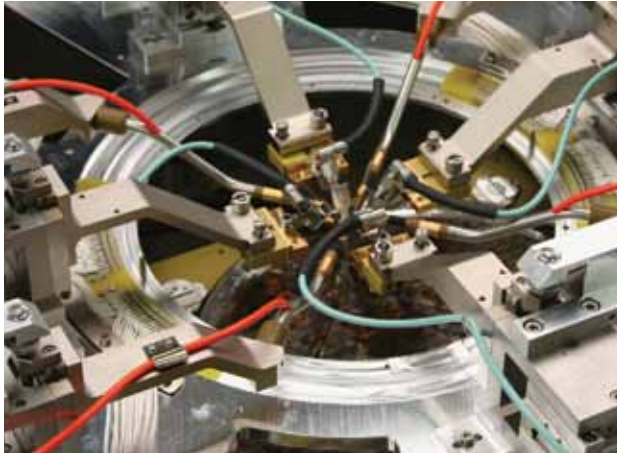
APPLICATIONS

MEMS

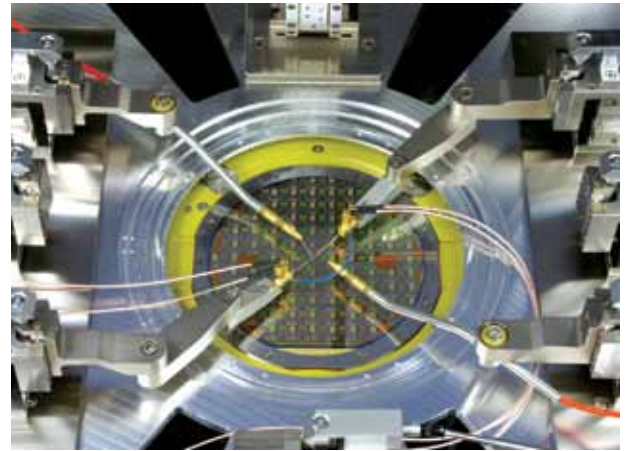
Acceleration sensors
RF MEMS switches
Micro-bolometers
Gyro sensors
Gas sensors
Pressure sensors

MOEMS

Micro-mirrors
Optical switches



Vacuum chamber with eight positioners
(four RF, four DC)



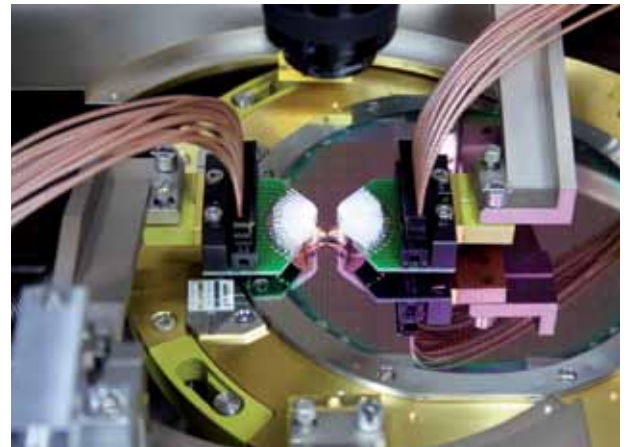
Vacuum chamber with four DC positioners

VACUUM PROBE CARD

Specially designed for use in high vacuum
Customer electronics on board possible
Easy-to-use probe card holder for fast change of probe card
Needle ring for up to 120 needles
Coax and/or twisted-pair cabling
Pseudo Kelvin cabling – junction point at probe card holder
Alternatively, DC ProbeWedges™ can be used

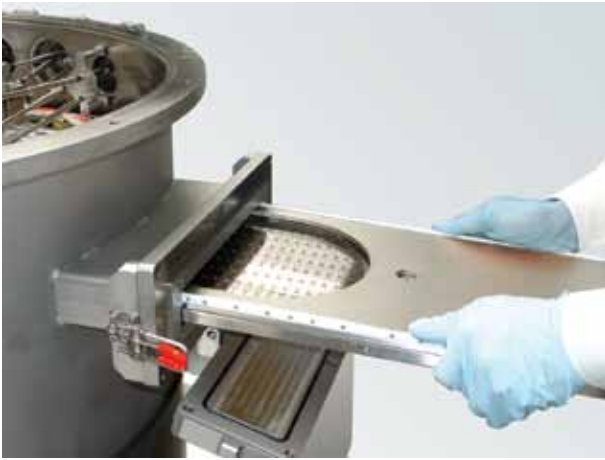


Vacuum probe card



Two DC ProbeWedges on ProbeHeads

HANDLING



Wafer loading principle



Probe positioning

INTEGRATION OF THIRD-PARTY MEMS TEST TOOLS

Polytec MSA-500	For out-of-plane and in-plane motion analysis and optional topology measurements Seamless integration of both systems by Cascade Microtech and Polytec Communication Tool
Black Bodies	For controlled exposure with infrared radiation for microbolometer testing Cavity or surface type can be adopted Aperture, filter and shutter functions are optionally available



Polytec MSA-500 over topside viewport for mechanical motion analysis



PAV200 with Black Body for microbolometer testing.

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Data subject to change without notice

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