

PMV200

200 mm Manual Vacuum Probe System



DATA SHEET

The PMV200 is the ideal solution for testing wafers and substrates up to 200 mm in a high vacuum environment up to 10^{-5} mbar. It supports a wide temperature range from -60°C to 300°C .

Specially designed for laboratory requirements, it supports a wide range of applications, including DC and RF measurements, MEMS and opto-engineering tests. The probe platen is designed to mount probe cards or up to eight vacuum-type positioners on magnetic feet. A high-resolution video microscope with 50 mm x 50 mm travel range is mounted either on a microscope mount with swivel or on a microscope bridge for vibration-sensitive test applications and additional test instruments.

The PMV200 is equipped with a stable vibration isolating frame. The chuck and the manual chuck stage with 200 mm x 200 mm X-Y travel, theta and Z-axis are located inside the high-vacuum chamber. Via vacuum-tight mechanical feedthrough drives and cardan shafts, the X-Y travel, contact/separation and up to eight vacuum-type positioners can be easily operated from outside of the chamber. For the use under vacuum conditions, specially-designed thermal chucks with electrical and cooling line bulk-feedthroughs are available.

The PMV200 can be customized with a number of instruments, including various video microscopes, optical topology measurement tools and black bodies for exposure of the DUT with controlled IR radiation.

FEATURES / BENEFITS

Flexibility	System is customized to user's requirements Different substrate carriers for wafers up to 200 mm or single dies Upstream pressure, downstream pressure or medium vac regulation Wide range of measurements (I-V, C-V, RF) Accessories available, such as Black Bodies and optical motion analysis tools
Stability	High accuracy, ideal for small structures Highly stable mechanics with a stable vibration isolation table
Ease of use	Simple, straightforward design for easy and ergonomic operation Quick and ergonomic change of the DUT through front door
High measurement throughput	Manual control of chuck for fast step-and-repeat testing of the entire wafer

SPECIFICATIONS*

Wafer / Substrate Size	200 mm (round or square)
X, Y, Theta Shuck Stage	
Resolution	5 μ m
X-Y travel	200 mm x 200 mm
Load stroke, Y axis	100 mm
Z contact / separation stroke	5 mm
Theta travel (standard)	$\pm 3^\circ$
Positioners	
Type	Up to eight vacuum-type positioners with universal joints
Probecard	
Type	Round 6 inch or 4.5 inch x 7/11 inch
Chuck Types	
Wafer chuck	100 mm, 150 mm or 200 mm
Universal chuck	Small dies, wafer fragments, 1", 2" and 3" wafers
Thermal chuck	-60°C to 300°C
High-/Medium-Vacuum Pumping System	
Maximum vacuum	10 ⁻⁵ mbar
Pump types	Forepumps: diaphragm or scroll pumps High-vacuum: turbo-molecular drag pumps
Vacuum gauge	Full-range Pirani / cold-cathode or precision capacitance gauge(s)
Manual Microscope Support (Swivel Mechanism / Linear Bridge)	
Travel range	50 mm x 50 mm
Z travel	Large motorized Z stroke or 50 mm manual focus drive and pneumatic lift-off
View Port	
Diameter	60 mm
Material	Quartz glass (others available upon request)
Working distance	30 mm, 50 mm or 80 mm
Microscope	
Type	Video zoom microscope (optional: FS70 or custom instruments)
Zoom range	12x
Magnification	1.16x - 14x
Resolution	9 μ m - 2 μ m

* Data, design and specification depend on individual process conditions and can vary according to equipment configurations.
Not all specifications may be valid simultaneously.

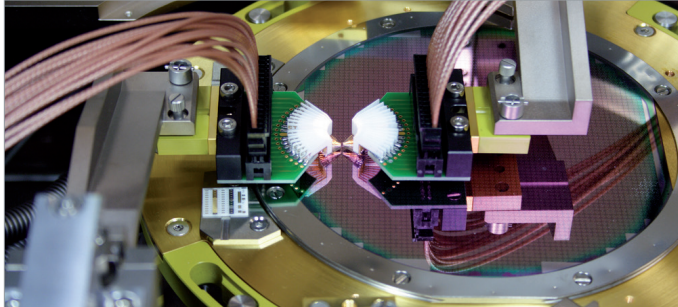
APPLICATIONS

MEMS / MOEMS

Acceleration sensors
RF-MEMS switches, resonators
Microbolometers
Yaw rate sensors / gyro sensors
Gas sensors
Micromirrors / optical switches

Next Generation Technologies

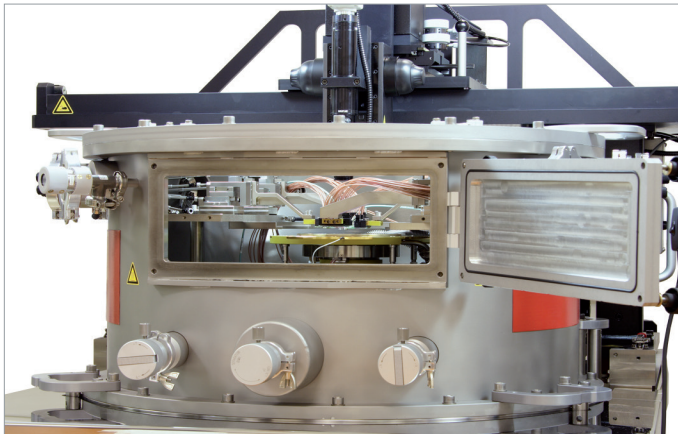
OLEDs
Nanotechnology



Test of a MEMS wafer with two Multi DC ProbeWedges™.

HANDLING

All knobs located outside of the chamber ensure easy and precise control of the chuck stage and positioners. The hinged front door enables quick and ergonomic loading and unloading of the DUT. The chamber lid allows easy probe configuration and probe tip exchange.



The large front door enables quick and ergonomic loading and unloading of the DUT. The chuck and up to eight vacuum-type positioners can be easily operated from outside of the chamber via universal joint drivers.



View through the view port of the chamber lid. The shown configuration consists of four RF IZI Probes® and four DC probes.

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Data subject to change without notice.

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www.cascademicrotech.com

Cascade Microtech, Inc.
Corporate Headquarters
toll free: +1-800-550-3279
phone: +1-503-601-1000
email: cmi_sales@cmicro.com

Germany
phone: +49-35240-73-333
email: cmg_sales@cmicro.com

Japan
phone: +81-3-5615-5150
email: cmj_sales@cmicro.com

China
phone: +86-21-3330-3188
email: cmc_sales@cmicro.com

Singapore
phone: +65-6873-7482
email: cms_sales@cmicro.com

Taiwan
phone: +886-3-5722810
email: cmt_sales@cmicro.com

