

DESCRIPTION

The **HP1000V-MPS** Micro Probing Station is designed for applications where both thermal and atmospheric control is critical. With XYZ remote positioning, this thermal probing station allows electrical testing at ease without compromising atmospheric control. The low-vacuum/gas tight chamber creates a closed environment to eliminate oxidation, aid in humidity studies, or conserve expensive reacting gases. Additionally, this stage is large enough to accommodate a variety of samples, including wafers from 10mm to 50mm.

KEY FEATURES

Precision High Temperature Control

Heating to 1000°C in atmospheric or vacuum pressures. Electrical

XYZ Prober Positioning

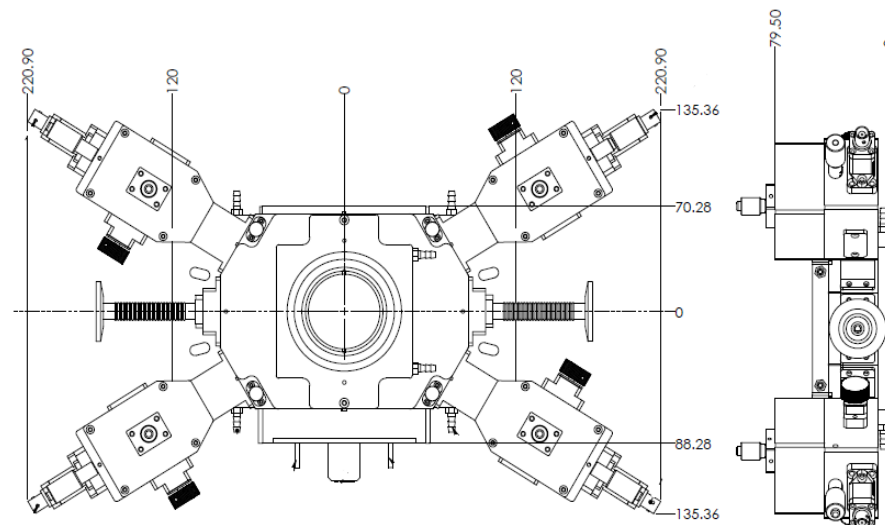
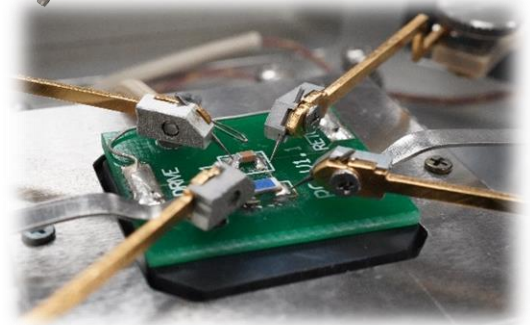
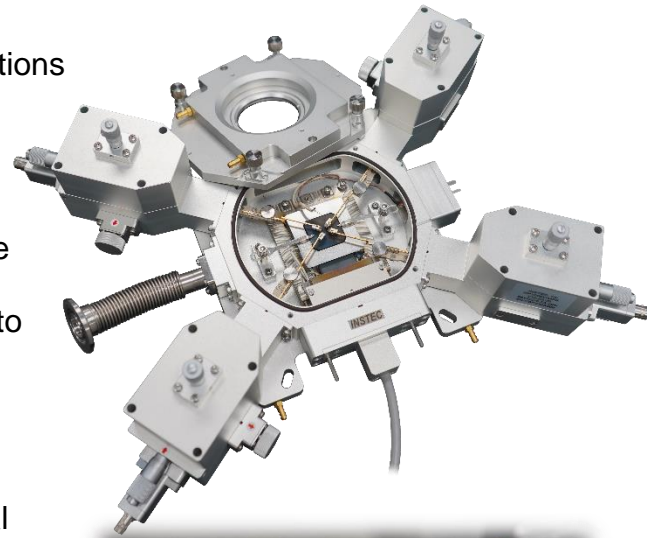
Position sample while maintaining a vacuum chamber with the optional XY positioner. With greater flexibility, sample area accessibility, and precision control, this option is optimal for use with a rotational stage on a polarizing microscope due to the directional nature of polarization

Vacuum Chamber

Vacuum tight chamber allows for ultra-low or high temperature experiments with virtually no gas or air contamination of the sample. Apply a positive pressure gas purge up to 0.5Bar, or evacuate the chamber down to 10^{-3} mBar. Upgraded vacuum limit of 10^{-6} mBar is available with HCS421HVXY model (Available by request).

Accuracy and Stability

A pt100 platinum RTD sensor is embedded into the sample heating and cooling block to guarantee high temperature accuracy and stability. The RTD sensor is calibrated to measure the temperature of the surface of the sample heating block – giving the closest and most accurate reading of the sample possible. Additional sensor option and alternative sensors, such as a thermistors, are also available.



Additional Features

- Includes standalone [mK2000](#) temperature controller
- Includes 'InstecApp' Windows compatible software for optional operation via PC
- Comes standard with optical glass windows that can be easily replaced with IR or UV transparent glass.

THERMAL SPECIFICATIONS

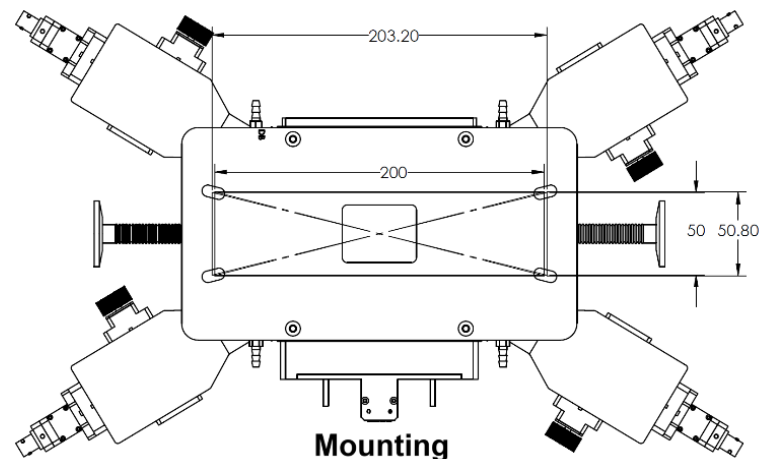
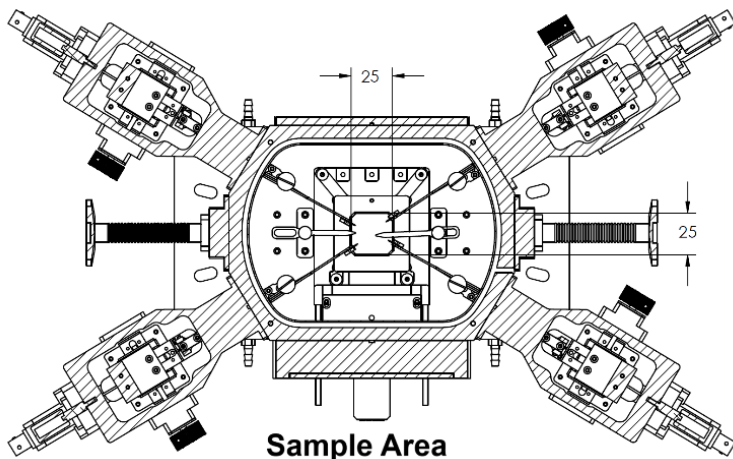
Temperature Control	<i>mK2000</i> with programmable precision switching PID method
Thermal Block	Ceramic Silicon Carbide
Sample Thermal Cover	Removable inner sample cover with additional window
Minimum Temperature	Room temperature, no active cooling possible
Maximum Temperature	1000°C
Temperature Sensor	S-type thermocouple
Maximum Heating Rate	+50°C per minute <850°C, +20°C per minute >850°C
Maximum Cooling Rate	Passive cooling via convection, dependent on experiment configuration
Minimum Heating and Cooling Rate	±0.1°C per minute
Temperature Resolution	0.1°C
Temperature Stability	±0.1°C (>25°C), ±0.1°C (>800°C)
Power supply	Universal power input
Software	Windows software to record and export temperature-time data

OPTICAL SPECIFICATIONS

Optical access	Reflection light and emission measurement capability (transmission upon request)
Optical windows	Removable and exchangeable windows permit full-spectrum transparency
Minimum Objective Working Distance	12 mm
Top Window Aperture	Ø45 mm with Ø50mm Quartz window
Top Viewing Angle	±57.0° from normal
Window Defrost	Integrated external window convection cooling
Window Material	Quartz, Sapphire, CaF ₂ , Graphite

STRUCTURAL SPECIFICATIONS

Sample Area	25x25mm
Chamber Height	8.5 mm
Atmosphere Control	Sealed chamber with vacuum capability to control humidity, condensation, and oxidation. Standard vacuum level to 5x10 ⁻² mBar
Sample Loading	Sample loading requires lid removal
Sample Positioning	10 mm fine travel with Vernier XY dials for remote manipulation in sealed chamber
Frame Cooling	Integrated frame cooling and lid with chiller system
Mounting	Horizontal optical table mounting options for standalone breadboard or direct microscope mounting.
Frame Dimensions	440mm x 270mm x 106 mm
Weight	5000 g



OPTIONS



Frame Cooling

Safety always comes first – keep the frame of the thermal stage cool and safe to touch with an optional water circulator (see [C100W](#)). Frame cooling keeps the outside of the HP1000V-MPS near room temperature, which prevents heat buildup even as the sample is at 1000°C and helps to prevent accidental burns.



Sample Fixing Clamps

Secure samples with metal, spring-loaded clamps. Particularly useful in keeping sample in place when landing electrical probers.



Inner Sample Cover

The chamber height is the distance between the top surface of the thermal block and the bottom surface of the outer cover. With an optional inner cover, the distance is minimized to allow for just enough space for intended samples (slides, slipcovers, wafer pieces, etc.). By closing the distance, vertical temperature gradients are significantly reduced, and sample temperature uniformity is significantly improved.



Electrical Feedthroughs

Add custom electrical feedthroughs for applying an electric field to the sample via wire bonding. DB15, SMA, PCB feedthroughs, and more are addable.



Microscope

Entry-level polarizing microscope offering superior performance for a variety of research applications with specifications to satisfy a wide range of demanding observational requirements. (see [TPM-CX40](#))



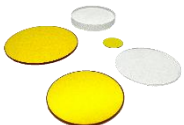
Microscope Camera with Realtime Temperature Overlay

Integrate digital image acquisition with sample temperature overlay. Includes software (WinDV2 via InstecApp), USB 3.0 connection, 20-megapixel resolution, and standard C-mount microscope connection. (see [MITO2](#))



Mounting Adapters





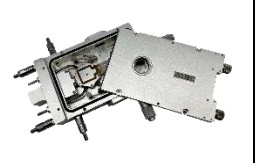
Various mounting adapters are available for most microscope models and/or instruments. Custom mounting adapters may also be made to fit each and every application.



Windows

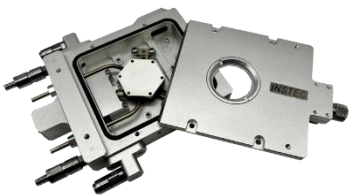
Additional or alternate available windows are available, such as Sapphire, BaF2, CaF2, ZnSe (see [HCS601GXY-IRM](#) for IR applications).

SIMILAR PRODUCTS

	HCP421V-MPS	HCP421V-PM	HP1000G-PM	HP1000V-PS	HCS621GXY
					
Temperature Range	-190°C to 400°C	-190°C to 400°C	RT to 1000°C	RT to 1000°C	-190°C to 600°C
Atmospheric Control	Vacuum/gas-purge	Vacuum/gas-purge	Gas-purge	Vacuum/gas-purge	Gas-purge
Sample Area	Ø28mm	Ø28mm	16 x 16mm	16 x 16mm	Ø28mm
Sample Cooling	LN2	LN2	- *	- *	LN2
Thermal Block	Silver	Silver	Silicon Carbide	Silicon Carbide	Silver
Electrical Feedthroughs	Up to 2	Up to 2	Up to 2	Up to 2	Up to 2
XY Manipulation	Probers only	Not available	Not available	Probers only Sample upon request	Sample only

*Heating only, no sample cooling available

Other products to consider....



HCP621G heating and cooling plate with Ø28mm sample area. Temperature range -190°C to 600°C. Gas tight chamber with gas purge capabilities. Includes option to add electrical feedthroughs. Has a higher max temperature, but does not have a transmission aperture, and does not support evacuation. Highly compatible with reflection-mode optical instruments.



Probing Stations Instec offers traditional probing stations, complete with chuck XYZ and rotational movement, magnetic base precision probers, microscope, and a suction pump. In a variety of sized from 2" to 8" chucks, these are a great addition to any setup. Our probing stations can also include temperature control via our numerous thermal chuck styles.



Thermal Chucks Ranging in size from 2" to 12", Instec brings precision temperature control to wafer and device testing. With multiple vacuum zones for suction of many sample sizes, temperature control is done via thermoelectric or resistive heating with LN2 cooling. Mountable to any probing station or benchtop application.

CONTACT A REPRESENTATIVE 