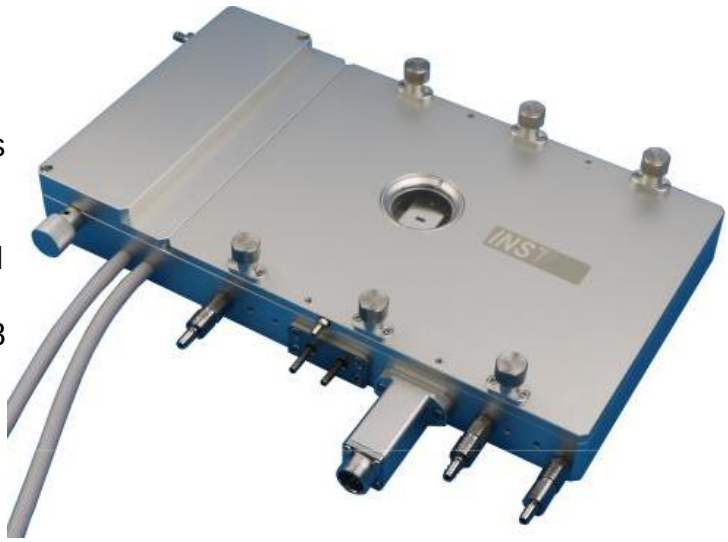
HCS350G-TNS Hot/Cold Stage with Tensile Measurement

#HCS350G-TNS-210801

DESCRIPTION

The **HCS350G-TNS** gas tight hot and cold stage is designed for tensile strength measurements and applications where both thermal and atmospheric control is critical. Using a silver heating and cooling block, this plate provides a wide temperature range with exceptional thermal uniformity. The gas tight chamber creates a closed environment to eliminate oxidation, aid in humidity studies, or conserve expensive reacting gases. Additionally, up to 8 optional feedthrough leads are available for sample connection and probing.



KEY FEATURES

Tensile Measuring

Specifically designed to test tensile properties of samples relative to temperature and measure changes in situ

Rapid Heating Rates

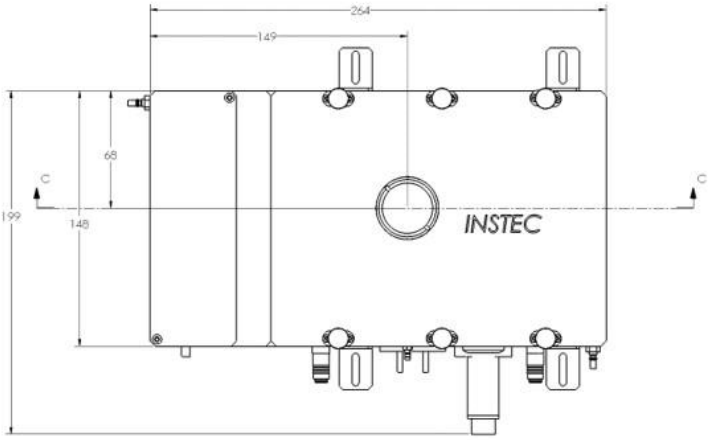
+150°C per minute max rate

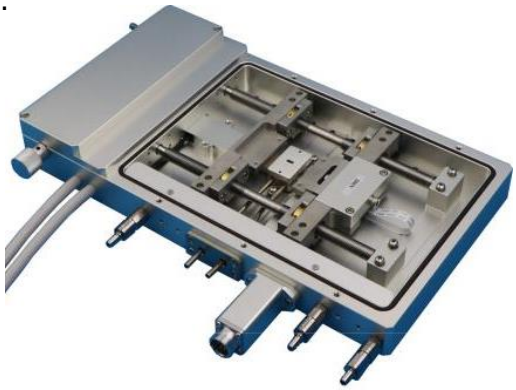
Gas Tight Chamber

Allows for gas purging and defrost to prevent condensation and oxidation. Also allows for a controlled atmosphere around samples. Features quick connect and release gas ports

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 sample possible. Additional sensor and alternative sensor, such as a thermistor, options 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.

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THERMAL SPECIFICATIONS

Temperature Control	***mK2000*** with programmable precision switching PID method
Thermal Block	Silver
Temperature Minimum	-190°C (with optional **LN2 cooling system**)
Temperature Maximum	350°C
Temperature Sensor	100 Ω Platinum RTD
Maximum Heating Rate	+150°C per minute at 100°C
Maximum Cooling Rate	-40°C per minute at 100°C
Minimum Heating and Cooling Rate	±0.01°C per minute
Temperature Resolution	0.01°C
Temperature Stability	±0.05°C (>25°C), ±0.1°C (<25°C)
Power supply	Universal power input
Software	Windows software to record and export temperature-time data

OPTICAL SPECIFICATIONS

Optical access	Reflection and transmission capability
Optical windows	Removable, exchangeable windows permit full-spectrum transparency
Minimum Objective Working Distance	7.5 mm
Minimum Condenser Working Distance	16 mm
Top Aperture	Ø27mm
Top Viewing Angle	±60° from normal
Transmission Aperture	2x3mm
Bottom Viewing Angle	±11° from normal
Window Defrost	Integrated external window defrost

STRUCTURAL SPECIFICATIONS

Sample Area	25mm x 16mm
Maximum Sample Size	8mm x 80mm
Maximum Sample Length	30mm
Maximum Sample Thickness	2mm
Sample Stretching	0mm – 60mm
Maximum Force	200 N
Force Resolution	±0.1 N (at 200N)
Chamber Height	2.2mm
Maximum Speed	1000 µm/s
Minimum Speed	1.6 µm/s
Atmosphere Control	Gas tight chamber w/ purge to control humidity, condensation, and oxidation
Frame Cooling	Integrated frame cooling with optional chiller system
Mounting	Horizontal or Vertical mounting capability
Frame Dimensions	264 mm x 148 mm x 29 mm
Weight	2100 g

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OPTIONS

Controlled Cooling

Extend lower temperature limit to -190°C with ***LN2-P*** cooling accessory; includes tubing and dewar (3L, 10L, or 30L). Enables active cooling with rates of up to -50°C per minute (at 100°C).

Frame Cooling

Safety always comes first – keep the frame of the **HCS350G-TNS** cool and safe to touch with an optional water circulator. (see ***C100W*** chiller) Frame cooling option allows thermal control of frame independent of sample thermal block and aids in preventing frost buildup when sample is being cooled below freezing temperatures.

Spacer Set and Custom Cover Lids

Increase chamber height with fitted ***spacer kit or custom cover*** to allow fitment of taller samples, while maintaining the gas tight capability with the top cover.

Inner 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 in design to allow for just enough space for intended samples (slides, slipcovers, wafer pieces, etc.) and to decrease the minimum objective working distance. By closing the distance, the vertical temperature gradients are also significantly reduced.

Electrical Feedthroughs

Add up to 8 electrical feedthroughs for applying electric field to sample.

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 **TPM310-TR**)

Camera

Integrate digital image acquisition with sample temperature overlay. Includes software (WinDV thru InstecApp) USB 2.0 connection, 1.92-megapixel resolution, C-mount microscope connection standard. (see ***MITO2***)

Mounting Adapter

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

Windows

Additionally available windows are Sapphire, BaF2, CaF2, ZnSe (see HCS601GXY-IRM for IR applications).