

# HEATING AND COOLING STAGES

## HCS601-STC200 MICROSCOPE HOT AND COLD STAGE SYSTEMS

### Features:

- **0.1°C Precision Temperature Control From -190°C to 700 °C**
- **Fast Heating And Cooling Rate**
- **Inner Silver Lid For Precision Temperature Control**
- **Can Be Mounted Vertically Or Horizontally**
- **Closed Sample Chamber for Gas Purge**
- **Super Stable Platinum RTD sensor**



### Description

The newly improved HCS601 Hot and Cold Stage is equipped with a silver heating and cooling block, which provides 0.1°C precision temperature control from -190°C to 600°C (700°C optional). The HCS601 has an inner silver cover to ensure temperature uniformity and accuracy. The frame temperature of the HCS601 is maintained at room temperature via circulating water. Operating below ambient temperatures is achieved by using Instec's LN2 cooling accessory.

All of the windows on the HCS601 stage are removable and exchangeable, allowing this stage to be used for infrared spectroscopy, X-ray diffraction, and other experiments requiring beam access to the sample.

As with most of Instec's other microscope hot stages, the HCS601 can be mounted vertically for experiments

requiring horizontal beam access to the sample chamber.

An optional high precision XY can be purchased to move the sample inside the heating and cooling stage. A different, movable inner silver lid is included with the XY option.

The HCS601 is fitted with a gas purge connection. This is used to blow nitrogen gas into the sample chamber, preventing sample oxidation, or to draw air out of the sample chamber when heating volatile samples. Access holes are provided for passing wires when application of an electric field to the sample is required.

The HCS601 is available with Instec's STC200 Standalone Temperature Controller.

### Applications

Flexible design and easy-to-use features make hot stage systems ideal for use in:

- |                                     |                           |                         |
|-------------------------------------|---------------------------|-------------------------|
| • <b>Optical Thermal Microscopy</b> | • <b>Food Science</b>     | • <b>Medicine</b>       |
| • <b>Polymers</b>                   | • <b>Material Science</b> | • <b>Dentistry</b>      |
| • <b>Liquid Crystals</b>            | • <b>Semiconductors</b>   | • <b>Biophysics</b>     |
| • <b>Forensics</b>                  | • <b>Microbiology</b>     | • <b>Pharmaceutical</b> |



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Inside View of HCS601



HCS601 With Inner Lid On



#### Technical Specification

Temperature Control Sensor	Platinum RTD
Temperature Range	-190°C to 600°C (700°C optional), below ambient operation requires LN2 cooling system
Temperature Precision (with inner lid)	±0.1°C
Temperature Stability	±0.2°C at 100°C
Heating/Cooling Rate	±300°C/Min at 200°C
Minimum Objective Working Distance	6.5 mm (shorter working distance with optional objective cooler)
Minimum Condenser Distance	13 mm
Sample Chamber	Gas purge
Sample Area	20mmx20mm
Sample View Window (transmitted light)	2.0 mm diameter
Sample View Window (reflected light)	25 mm diameter

#### Ordering information

Part Number	Description
HCS601-STC20A	HCS601 with the STC200 Standalone Temperature Controller, included with one inner lid, RS232 and WinTemp software. Input voltage 115V (XY positioner optional)
HCS601-STC20U	HCS601 with the STC200 Standalone Temperature Controller, included with one inner lid, RS232 and WinTemp software. Input voltage 220V (XY positioner optional)
HCS601+700C	Optional higher temperature limit to 700°C
XY-HCS601	XY sample positioner for HCS601
SP06-HCS601	1.5 mm spacer to increase sample chamber height
SP12-HCS601	3 mm spacer to increase sample chamber height
LN2-P2AF2	The cooling accessory for the HCS601 consists of a 2 liter liquid nitrogen container, the LN2-F2, and a two speed liquid nitrogen pump, the LN2-P2, input voltage 115V
LN2-P2UF2	The cooling accessory for the HCS601 consists of a 2 liter liquid nitrogen container, the LN2-F2, and a two speed liquid nitrogen pump, the LN2-P2, input voltage 230V
WP115V	Water Pump (115 V AC pump) with 0.25" inlet and outlet tubing ID, for frame cooling
WP230V	Water Pump (230 V AC pump) with 0.25" inlet and outlet tubing ID, for frame cooling
WP115C	Water Pump (115 V AC pump) with 0.1" inlet and outlet tubing ID, for inner stage cooling
WP230C	Water Pump (230 V AC pump) with 0.1" inlet and outlet tubing ID, for inner stage cooling
OBC-01	Objective cooler 100X objectives to ensure that the 100X can be used at 600C or -190C



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