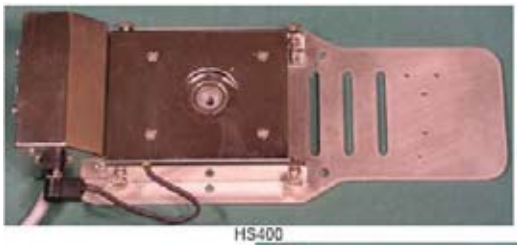
HEATING AND COOLING STAGES

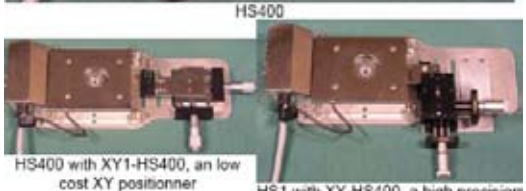
HS400
MICROSCOPE HOT STAGE SYSTEMS

Features:

- **Large Viewing Area**
- **Fast Heating Rate**
- **Variable Sample Chamber Height**
- **Programmable Precision Temperature Control From Ambient to 400 °C**
- **Easy Side Sample Loading With Standard Microscope Slides**
- **Vertical Mounting Option**
- **Corrosion-Resistant Stainless Steel Housing**
- **Cools Objective Lens**



HS400



HS400 with XY1-HS400, an low cost XY positionner

HS1 with XY-HS400, a high precision XY positionner

Description

The **HS400** Hot Stage features a large sample volume, a large viewing area, and precision temperature control, with a faster heating rate, and a 400°C temperature limit. The stage offers a very uniform temperature sample chamber due to its two, thin film heaters located above and below the sample.

The **HS400** temperature controlled environment is the ideal choice for optical microscopy or for other applications requiring optical access to the sample.

Since all of the windows on the **HS400** stage are removable and exchangeable, the **HS400** can be used for small angle X-ray diffraction, FTIR, and other experiments requiring beam access to the sample.

The **HS400** can be mounted vertically, allowing horizontal beam access to the sample chamber.

The interior of the **HS400** is large enough to accommodate a variety of samples, including complete electro-optic devices and cell culture preparations. Standard 1" x 3" (or 25mm x 75mm) microscope slides can be used as sample plates.

An optional fixed position thermal shielding shell is also provided to optimize thermal performance for work requiring ultra-high temperature stability and uniformity.

Applications

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

- **Optical Thermal Microscopy**
- **Polymers**
- **Liquid Crystals**
- **Forensics**
- **Food Science**
- **Material Science**
- **Semiconductors**
- **Microbiology**
- **Medicine**
- **Dentistry**
- **Biophysics**
- **Pharmaceutical**

Micro-optik, a division of **Flokal B.V.**
Dorpenweg 27 5371 KS Deursen. The Netherlands.
Tel +(31).486.46.3688 Fax +(31).486.41.4514, www.micro-optik.com email info@micro-optik.com

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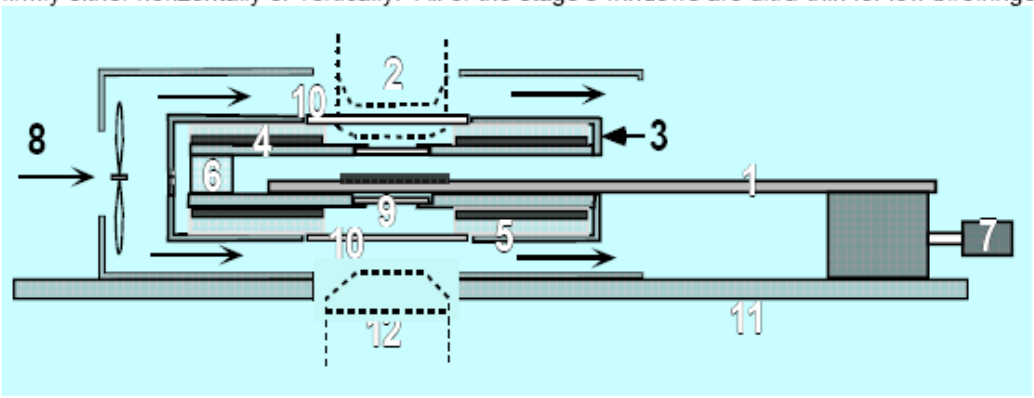
Design Features

The design of the **HS400** stage provides fast heating with good temperature stability, a large sample area, and good thermal shielding. The cooling fan keeps the body of the stage cool while the inside temperature can be as high as 400°C. The variable sample chamber height ensures a minimum objective working distance, while allowing for the accommodation of thicker samples. The mounting holes on the base enable the stage to be mounted firmly either horizontally or vertically. All of the stage's windows are ultra-thin for low birefringence.



1 Sample tongue
2 Objective
3 Furnace
4 Heater
5 Insulation
6 Spacer
7 X-Y Positioner
8 Cooling fan
9 Inner windows
10 Outer windows
11 Base with mounting holes
12 Condenser

Technical Specification

Temperature Control Sensor	Platinum RTD
Temperature Range	Ambient to 400°C
Temperature Accuracy	±0.2°C to 100°C, ±0.3°C to 200°C, ±0.5°C to 400°C
Temperature Stability	±0.2°C at 100°C
Heating Rate	Ambient to 250°C in 5 min.
Minimum Working Distance	6.5 mm (shorter working distance optional)
Minimum Condenser Distance	9 mm
Sample Area	38 x 63 mm
Chamber Height	1.6 mm, 6.0 mm (with spacers)
Sample View Window	5 mm, (10mm window optional)

Ordering information

Part Number	Description
HS400-STC20A	HS400 Hot Stage with STC200 Standalone Temperature Controller, one 1.5mm spacer, one 3.0mm spacer, RS232, and WinTemp software included. Input voltage 115V
HS400-STC20U	HS400 Hot Stage with STC200 Standalone Temperature Controller, one 1.5mm spacer, one 3.0mm spacer, RS232, and WinTemp software included. Input voltage 220V
XY1-HS400	Optional XY positionner
XY-HS400	Precision XY translation with micrometer head and 10µm resolution. This optional XY positioner is smoother and easier to load (unload) sample than the XY1-HS400
SL-HS400	Ultra-Precision Temperature Control Shell for reduced temperature gradients
IEEE-STC200	Optional IEEE communication port for STC200 controller
W10mm-HS400	Optional 10 mm viewing aperture
Parts to consider	**MITO, DITO**: Microscope c-mount digital cameras with sample temperature overlay on to the digital image.

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