Micro Heating Stage 450C

The Micro Heating Stage 450C (MHS450) is built in the same form factor as standard microscopy stubs and can be mounted to your microscope's stage in the same way as the stubs are.

A C T U A L   S I Z E

The heating stage is supplied with a temperature control unit which allows the stage to be heated from room temperature up to 450°C.

The MHS450 is supplied with special sample holders that can be inserted into the heating stage's receptacle. Mounting samples to these holders is achieved using a special carbon-based adhesive.

The Micro Heating Stage utilizes the same feedthrough system as our micromanipulators and can be used in conjunction with our other micromanipulation products.

Applications
- IC stress testing
- Ageing tests
- Re-soldering bond pads
- Semiconductor characterization at different temperatures
- Curing of components & glues using temperature ramps

Technical specifications
- Dimensions
  - Diameter: 14 mm
  - Overall height: 14 mm
  - Pin length: 6 mm
  - Pin diameter: 3.2 mm

- Temperature range at air: RT - 200°C
- Temperature range in vacuum: RT - 450°C
- Temperature resolution: 0.1°C
- Temperature accuracy:
  Tolerance class B according to DIN EN 60751
- Heating-up time from room temperature:
  100 s to 100°C, 200 s to 400°C
  (in vacuum, depending on vacuum level)
- Cooling-down time from 400°C:
  100 s to 200°C, 300 s to 100°C
  (in vacuum, depending on vacuum level)
- Pressure range: 1E-7 mbar to atmospheric pressure

Further information

Kleindiek is proudly represented in Australia and New Zealand by
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Micro Heating Stage

The Micro Heating Stage (MHS) is built in the same form factor as standard microscopy stubs and can be mounted to your microscope's stage in the same way as the stubs are.

3 mm
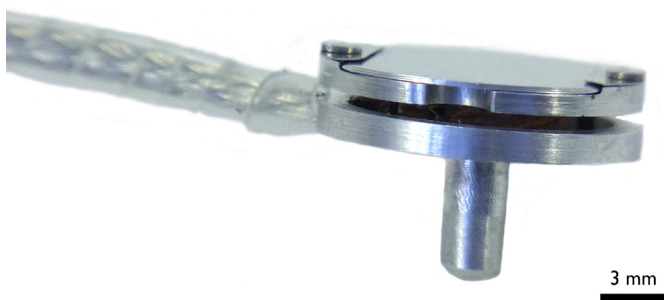
The heating stage is supplied with a temperature control unit which allows the stage to be heated from room temperature up to 200°C.

For ease of use the heating stage is fitted with a sliding sample plate that can be inserted into the stage's receptacle.

The Micro Heating Stage utilizes the same feedthrough system as our micromanipulators and can be used in conjunction with our other micromanipulation products.

Applications
- IC stress testing
- Ageing tests
- Re-soldering bond pads

Technical specifications
- Dimensions
  - Diameter: 16 mm
  - Overall height: 10 mm
  - Pin length: 6 mm
  - Pin diameter: 3.2 mm

- Temperature range at air: RT - 100°C
- Temperature range in vacuum: RT - 200°C
- Temperature resolution: 1°C
- Temperature stability of sensor:
  Better than 0.05% at 200°C after 1000 h
- Temperature accuracy: 0.5%
- Analog voltage output accuracy:
  0.5% (after offset correction)
- Heating-up time from room temperature:
  100 s to 100°C, 200 s to 200°C
  (in vacuum, depending on vacuum level)
- Cooling-down time from 200°C:
  200 s to 100°C, 600 s to 45°C
  (in vacuum, depending on vacuum level)
- Pressure range: 1E-7 mbar to 1200 mbar

Further information

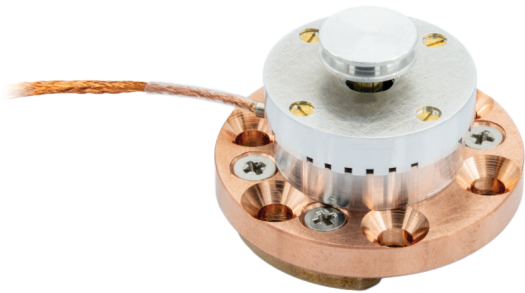Kleindiek is proudly represented in Australia and New Zealand by
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Micro Heating Cooling Stage

The Micro Heating Cooling Stage is a compact, waterless(!) Peltier heating and cooling system that can be added to any SEM.


This compact device is mounted to your SEM's stage using the usual dovetail or a specialized mount, depending on the microscope in question. The only additional piece of hardware that is required is a vacuum feedthrough.

Installing the cooling stage is the same as inserting any other sample holder into your microscope.

Samples are mounted to the cooling stage using the standard pin stubs common in electron microscopy.

The included temperature controller with accompanying software provides intuitive control of the temperature setpoint. It also allows driving custom temperature profiles while recording the set point, power consumption, and actual temperature. This data is displayed in graphical format and the graph as well as the raw data can be exported for future reference.
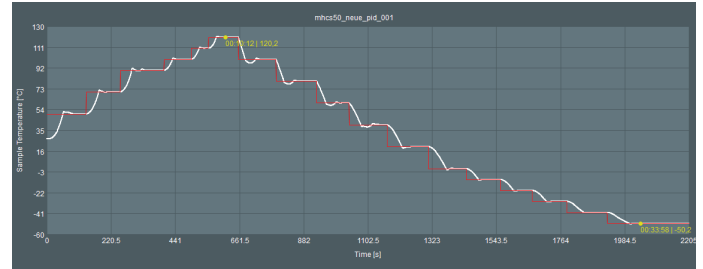
Specifications

- min. temperature -50°C
- max. temperature 125°C
- Temperature resolution (controller): 0.1°C
- Temperature stability (controller): 1°C
- Diameter 40 mm
- Height: 21 mm (w/o dovetail)
- Vibration free
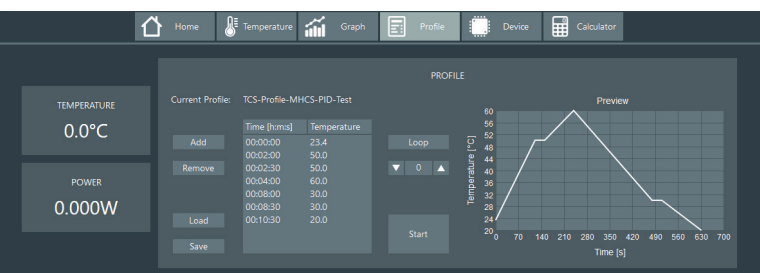
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STFMA SpringTable & Force Measurement Analysis

The STFMA package is an ingenious and low-tech way of measuring forces in-situ in an SEM. The SpringTable relies on the microscope's high resolution power to deliver force measurements quickly and easily. Data is collected by deflecting
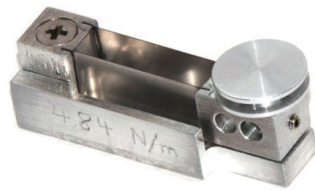
ACTUAL SIZE

the table - which has a well defined and known spring constant - by a given distance while recording images with the SEM. Each amount of deflection corresponds to a force. The Force Measurement Analysis software processes the image files, reading out the header info and detecting the deflection (both of the substrate and the sample) and convolutes this data to yield a force distance curve.
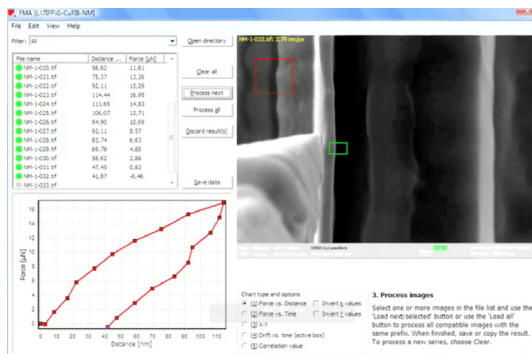
The SpringTable's design and construction confine its motion to one dimension thereby avoiding any ambiguity in the results.

Using the Force Measurement Analysis software, the acquired imagery is batch processed, delivering results with just a few mouse-clicks, seconds after performing the experiment.

Applications
- Nanoindentation
- Nanoforging
- Tensile testing
- MEMS analysis

Technical specifications
- Maximum force: 50 mN
- Minimum force: 10 nN
- The SpringTable's dimensions depend on the desired force constant.
- The SpringTable's resolution depends on the SEM's resolution (up to 1:1000).

Further information

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