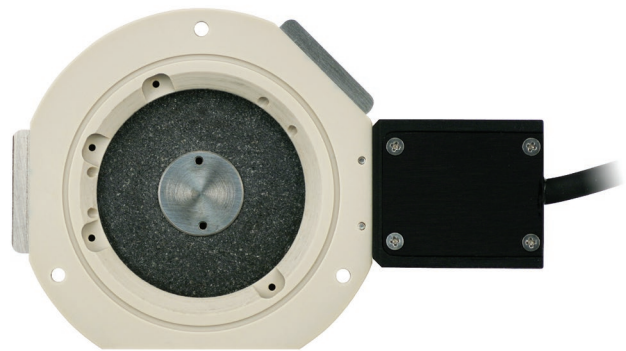


## Introduction

The **PolyHeater for Origin** is a thermal accessory for the **MFP-3D Origin** AFM that allows controlled heating of dry samples from ambient to 275°C. The PolyHeater is designed for imaging and measurements in ambient air and is ideal for materials science samples such as polymers, thin films and others. Note that higher temperatures (up to 400°C) are possible on MFP-3D Classic, BIO, and Infinity AFMs using a different version of the PolyHeater.

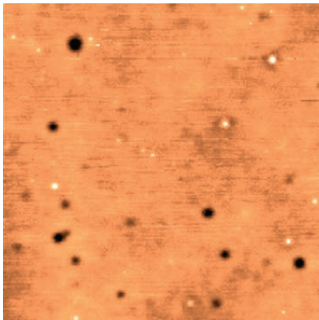
The PolyHeater consists of a metal heating stage embedded in ceramic and high performance plastic. The heating stage can be used with a standard cantilever holder for heating up to 250°C. For experiments between 250° and 275°C a high temperature cantilever holder is included.

The sample stage accepts magnetic AFM mounting discs and has clips and threaded holes for other sample mounting methods. Sample mounts of 12 mm in diameter are recommended. Sample thicknesses to 2 mm are supported. There are four 1/16" ports which can be used for inert gas purging or electrical connections to the sample. The cell can be fully sealed with a membrane that is included with the kit. Thicker samples of 5-10 mm are possible when the cell is not sealed. The maximum coarse sample translation is 10 mm.

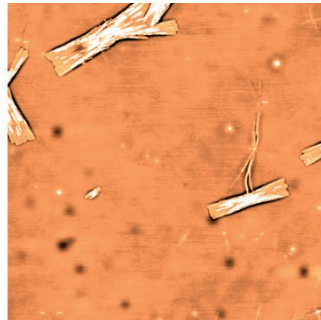


*The PolyHeater sample stage allows easy sample mounting.*

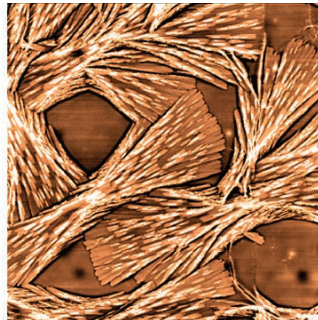
5 min.



38 min.



110 min.



321 min.



*Syndiotactic polypropylene melted to 160°C, then allowed to crystallize at 105°C. The initial image (top left) shows cooling after approximately five minutes. The remaining images show the crystallization process occurring after the amount of time shown, 80 μm scans.*

## Specifications

The PolyHeater includes the heater stage, a high temperature cantilever holder, standalone controller, and an accessory kit containing an initial supply of consumable items required for operation.

### Temperature control

- Heats from ambient to 275°C

### Environmental control

- Sample chamber can be fully sealed to control gas environment
- Four 1/16" access ports are provided for tubing or electrical connections

### Sample compatibility

- Samples up to 20 mm diameter (12 mm recommended) and 2 mm thickness
- Samples may be manually positioned on the 20 mm diameter heated stage
- Supports up to 10 mm coarse sample translation

### Cleaning

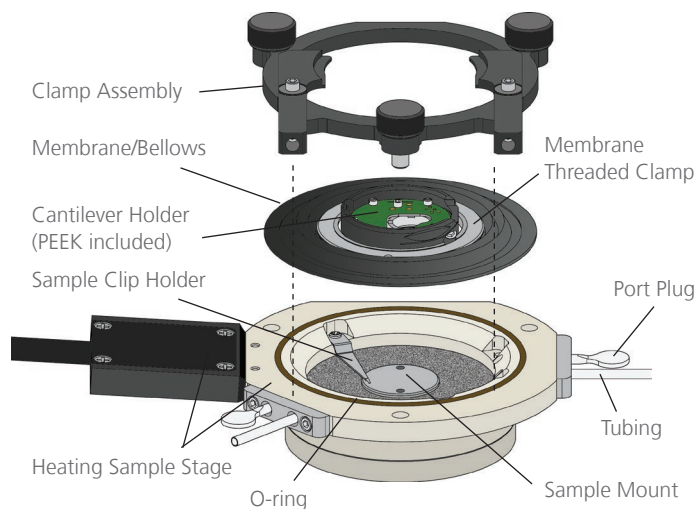
- Swap with alcohol; not immerse in fluid
- Not autoclavable

### System compatibility

- Compatible only with the MFP-3D Origin (a different version of the PolyHeater is available for MFP-3D Classic, BIO, and Infinity AFMs)

### Controller

- Closed loop operation
- Operates at 110 or 220 VAC
- CE tested
- Built-in microprocessor for temperature control
- All settings controlled by touchscreen interface on the controller (Not controllable through the MFP-3D software)



Schematic of PolyHeater assembly

Visit [www.AsylumResearch.com](http://www.AsylumResearch.com) to learn more

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