



INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
MATERIALS MANAGEMENT DIVISION
 Powai, Mumbai - 400076

PR No. 1000029275

Rfx No. 6100001252

Technical specification of Spare Parts of Conductive Atomic Force Microscope (c-AFM)

Sr.	Technical specifications of SThM Module	Qty
1	SThM-MFP	
	SThM-MFP an add-on component of existing c-AFM	
1.1	SThM Scanning Thermal Microscopy Option for MFP-3D AFM	
	The SThM module provides nanoscale temperature and thermal conductivity measurements. The measurement utilizes a specialized AFM probe which incorporates a resistor located near the apex of the tip which is part of a circuit built into the SThM cantilever holder.	
	Includes:	
	<ul style="list-style-type: none"> • SThM Dual Contact Cantilever Holder with Integrated Wheatstone Bridge • (10) SThM unmounted GLA Kelvin Nanotechnology KNT-SThM-2an probes • Structurally compensated probe design gives flatter cantilevers and minimizes temperature-induced bending when approaching hot surfaces • Maximum Temperature: 200°C (Probe dependent) • Spring constant: ~0.4 N/m • Tip Radius: <100 nm • Tip Height: ~ 10 µm • Cantilever Length/Width/Height: 150µm/120µm/0.35µm • Resistance: 275-425 Ω (typ 325Ω) • Accessory and Tool Kit 	1
1.2	Software and Hardware Integration with MFP-3D Control System, Including:	
	<ul style="list-style-type: none"> • SThM – Contact, AC, NAP and DART resonance tracking imaging • Point-to-point thermal mapping 	
1.3	Calibration is required with a highly accurate variable temperature source.	
2	PHEAT-PEEK	
	PHEAT-PEEK an add-on component of existing c-AFM	
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2.1	PolyHeater for MFP-3D AFM System	



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	<ul style="list-style-type: none"> • Extra High temperature, modular heating stage designed especially for high temperature polymer studies. 	
	<ul style="list-style-type: none"> • This stage rides on the MFP-3D XY scanning stage and can heat samples up to 8 x 8mm from ambient to 300°C. 	
	<ul style="list-style-type: none"> • Control of the stage directly from the MFP-3D AFM software allows custom temperature profiles to be run during imaging experiments. 	
	<ul style="list-style-type: none"> • Includes all-PEEK Cantilever Holder and kit of accessories and spare parts, allowing for fully sealed operation. 	
	<ul style="list-style-type: none"> • Requires new or existing MFP Environmental Controller (CTRL-HTR) sold separately. 	
3	CTRL-HTR	
	CTRL-HTR an add-on component of existing c-AFM	
3.1	Environmental Controller	
	<ul style="list-style-type: none"> • Stand-alone temperature controller with bi-directional current supply for use with Asylum Research heating and cooling sample stages. 	1
	<ul style="list-style-type: none"> • Built-in microcontroller regulates closed loop temperature feedback independent from the AFM controller or PC computer. 	
	<ul style="list-style-type: none"> • SmartStart compatible for plug and play ease of use. Fully operated through the graphical interface of the MFP-3D AFM software. 	
	<ul style="list-style-type: none"> • Temperature controller along with resistive heating elements and thermistors provide temperature control. For use with Asylum Research temperature-controlled stages. 	
	<ul style="list-style-type: none"> • Interface and power cables included 	
4	Probe Station Adapter	
	Probe Station Adapter an add-on component of existing c-AFM	
4.1	Probe Station Adapter for MFP-3D AFM	
	The probe station consists of two tungsten needle probes that can be independently and accurately positioned on the sample with micromanipulators. The AFM's cantilever can serve as another electrical probe which allows for in-situ two-point and three-point probe electrical measurements. The micromanipulators have a 3-axis range of motion of 7.5mm and can be used to position one or both probe tips to well within the AFM's 90um field of view using the TopView optics. They are held down magnetically to a platform that mounts directly to the sample stage, allowing easy repositioning.	1



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5.	Warranty is 12 months from the date of installation and commissioning for all four spare parts
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