

CHAPTER - 4

TECHNICAL SPECIFICATIONS FOR ATOMIC FORCE MICROSCOPE

S.N.	Part	Final Specification
1.	AFM System	
2	Scanner	
	X-Y scan range	50 μm x 50 μm or better
	X-Y Position Sensor Noise	Less than 0.5 nm
	Z scan range	10 μm or better
	Noise on the z sensor	0.4 nm or less
	Max. scan speed	5 hz/s or better
3.	Sample	
	Max. sample diameter	More than 90 mm
	Max. sample height	More than 19 mm
	Max. sample weight	3 kg or lower
	Position repeatability (uni-directional)	Yes
4	Video microscope	
	Camera	5 - Megapixel camera or better
	Field of view	480x360 μm or better
	Spatial resolution	Less than 6 μm
	Focus	Complete Motorized Focus
5	Modes	
	Standard modes	Contact and Tapping Mode
	Optional modes	Conductive electric force microscopy, magnetic force microscopy
6	Sample Mount	With magnetic and vacuum sample holder.
7	Temperature control stage/stages for variable temperature studies	-25°C to 110°C or better
8	Software for operation and image analysis	Software to comply operation of AFM. At least 5 License copies for data analysis should be provided.
9	Computer with Dual Monitors	Provide Software 1) Which enabled to control complete AFM, acquisition of data, and analysis. 2) Up-gradation in future must be provided free of cost. 3) Branded computer with latest (i-7 or better) processor along with at least 23 inch monitor and colour printer with antiplexing optic should be supplied
10	Accessories	50 pre-mounted contact cantilevers and 50 pre-mounted non-contact cantilevers.

11	Warranty Coverage	Three Year warranty
12	Active Vibration Isolation	High resolution imaging
13	Pre-installation requirements	Pre-installation such as room size, tolerable limits of EM field and vibration (mechanical), required power rating, utility requirement are to be stated clearly, and to be started clearly, and to be verified/surveyed by the supplier at the installation site UPS to support AFM instrument.
14.	Training and Support	<ul style="list-style-type: none"> (i) All necessary accessories need to attain full functionality such as connecting lines, fittings, wires etc. shall be provided (ii) Machine should be installed at NIPER, Raebareli (Lucknow campus). (iii) Vendor should provide four times training on operation and application of the equipment on request of user during the initial three years (two basic and two advance training). (iv) Operator require for 1 year