

attoAFM III

low temperature atomic force microscope, tuning fork sensor

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Microscope Setup	
AFM sensor unit	very compact AFM head, also for constrained geometries, tuning fork shear force detection (non-contact mode)
titanium housing diameter	47 mm (others on request)
Operation Modes	
feedback	PI feedback loop with additional PLL
imaging modes	non-contact mode, EFM, SGM
Sample Positioning	
positioners and scanners	coarse positioners ANPxyz101 with piezo scanner ANSxyz100
coarse range	5 x 5 x 5 mm ³
step size	0.05 .. 3 µm @ 300 K, 10 .. 500 nm @ 4 K
fine scan range	40 x 40 µm ² @ 300 K, 9 x 9 µm ² @ 4 K (larger range on request)
sample monitoring	sample / tip monitoring via CCD camera and mirror (optional)
Operating Conditions	
temperature range	mK .. 300 K (dependent on cryostat)
magnetic field range	0 .. 15 T+ (dependent on magnet)
operating pressure range	1E-6 mbar .. 1 bar (designed for exchange gas atmosphere)
Cooling Specifications	
bore size	designed for a 2" (50.8 mm) cryostat/magnet bore
cryostat	LTSYS-He4, LTSYS-He3, LTSYS-HeDIL on request
Probes	
probe design	etched metal wires, etched or pulled optical fiber probes, STM tips, Akiyama probes
functional probes	conductive probes
Noise	
measured z-noise density	< 16 pm/√Hz
z bit resolution full range mode	7.6 pm
z bit resolution small range mode	0.12 pm
Scan Controller and Software	
ASC500 SPM controller	for detailed specifications please see attoCONTROL section

