



# mK - SPM System in Cryogen Free Dilution Refrigerator

NanoMagnetics Instruments Ltd. presents mK Scanning Probe Microscopes for Cryogen Free Dilution Refrigerator Systems from Different Vendors



## Typical Specifications

### mK - SPM

- Robust design
- Dedicated control electronics, acquisition and analyses software
- Several operation modes, STM, QTF-AFM, SHPM etc.

### Dilution Refrigerator

- Fully integrated Cryofree magnets, up to 16 T
- Base temperature:  $\leq 7$  mK expected
- Cooling power  $\geq 200$  or  $400 \mu\text{W}$  at 100 mK
- Automatic control of the dilution refrigerator from RT to base temperature



## System Specifications

**Imaging Modes** : STM, AFM, contact AFM, non-contact AFM, MFM, Quartz/Akiyama AFM, EFM, SNOM

Scan Size	Large Area Scan Head	Standart Scan Head	Small Area Scan Head
	150 x 150 $\mu\text{m}$ @ 300 K	x 52 $\mu\text{m}$ @ 300K	8 x 8 $\mu\text{m}$ @ 300 K
	36 x 36 $\mu\text{m}$ @ 77 K	14 x 14 $\mu\text{m}$ @ 77 K	3.5 x 3.5 $\mu\text{m}$ @ 77 K
	18 x 18 $\mu\text{m}$ @ 4.2 K	6 x 6 $\mu\text{m}$ @ 4.2 K	1.5 x 1.5 $\mu\text{m}$ @ 4.2 K

Z Range	Large Area Scan Head	Standart Scan Head	Small Area Scan Head
	7.0 $\mu\text{m}$ @ 300 K	4.8 $\mu\text{m}$ @ 300 K	2.4 $\mu\text{m}$ @ 300 K
	1.8 $\mu\text{m}$ @ 77 K	1.2 $\mu\text{m}$ @ 77 K	0.6 $\mu\text{m}$ @ 77K
	0.8 $\mu\text{m}$ @ 4.2 K	0.5 $\mu\text{m}$ @ 4.2 K	0.25 $\mu\text{m}$ @ 4.2K

**Head Dimensions** : 23.6 mm OD x 125 mm or 25.4 mm OD x 100 mm

**Sample Approach** : Stick-slip type; 10 mm Z,  $\varnothing$ 3 mm XY range with 50 - 800 nm step size

**Sample Size** : 15 x 15 x 5 mm maximum

**Temperature Range**: 10 mK - 300 K (Limited by the cryogenic system)

**Magnetic Field** : >16 T

**Compatibility** : Different vendors' Dilution Refrigerators and He3 systems. Can be customised to fit in to other mK systems if free space permits.

