

PointProbe® Plus Magnetic Force Microscopy - Reflex Coating

The NANOSENSORS™ PPP-MFMR AFM probe is our standard AFM probe for magnetic force microscopy providing a reasonable sensitivity, resolution and coercivity. It has proven stable imaging of a variety of recording media and other samples. The force constant of this AFM probe type is specially tailored for magnetic force microscopy yielding high force sensitivity while simultaneously enabling tapping mode and lift mode operation.

The hard magnetic coating on the AFM tip is optimized for high magnetic contrast and high lateral resolution of considerably better than 50 nm. The coating is characterized by a coercivity of app. 300 Oe and a remanence magnetization of app. 300 emu/cm³ (these values were determined on a flat surface).

The SPM probe offers unique features:

- hard magnetic coating on the tip side (coercivity of app. 300 Oe, remanence magnetization of app. 300 emu/cm³)
- effective magnetic moment in the order of 10 - 13 emu
- metallic electrical conductivity
- guaranteed AFM tip radius of curvature < 50 nm
- magnetic resolution better than 50 nm
- AFM tip height 10 - 15 μm
- Al coating on detector side of AFM cantilever enhancing the reflectivity of the laser beam by a factor of about 2.5
- alignment grooves on backside of silicon holder chip
- precise alignment of the AFM cantilever position (within +/- 2 μm) when used with the Alignment Chip
- compatible with **PointProbe® Plus XY-Alignment Series**

As both coatings are almost stress free the bending of the AFM cantilever due to stress is less than 3.5% of the AFM cantilever length. For enhanced signal strength the magnetization of the AFM tip by means of a strong permanent magnet prior to the measurement is recommended.

This AFM probe features alignment grooves on the back side of the holder chip. These grooves fit to the NANOSENSORS Alignment Chip.

Cantilever data:

Property	Nominal Value	Specified Range
Resonance Frequency [kHz]	75	45 - 115
Force Constant [N/m]	2.8	0.5 - 9.5
Length [μm]	225	215 - 235
Mean Width [μm]	28	20 - 35
Thickness [μm]	3	2 - 4

Order codes and shipping units:

Order Code	AFM probes per pack	Data sheet
PPP-MFMR-10	10	of all probes
PPP-MFMR-20	20	of all probes
PPP-MFMR-50	50
PPP-MFMR-W	380	of up to 32 probes