

PointProbe® Plus Magnetic Force Microscopy - Low Coercivity - Reflex Coating

The NANOSENSORS™ PPP-LC-MFMR AFM probe is coated with a soft magnetic thin film enabling the measurement of magnetic domains in soft magnetic samples. Due to the low coercivity of the AFM tip coating the magnetisation of the AFM tip will easily get reoriented by hard magnetic samples.

The soft magnetic coating on the AFM tip has a coercivity of app. 7.5 Oe and a remanence magnetization of app. 225 emu/cm³ (these values were determined on a flat surface).

The SPM probe offers unique features:

- soft magnetic coating on the tip side (coercivity of app. 7.5 Oe, remanence magnetization of app. 225 emu/cm³)
- effective magnetic moment 0.75x of standard AFM probes
- magnetic resolution better than 35 nm
- guaranteed AFM tip radius of curvature < 30 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-LC-MFMR-10 | 10 | of all probes |
| PPP-LC-MFMR-20 | 20 | of all probes |
| PPP-LC-MFMR-50 | 50 | |