PointProbe® Plus - Magnetic Force Microscopy - High Quality-Factor - Low Coercivity - Reflex Coating

The **NANOSENSORS™ PPP-QLC-MFMR** AFM probe combines the low disturbance of magnetic samples by a soft magnetic coating with the high mechanical quality factor under ultra high vacuum conditions of the Q30K-Plus-Series. Low coercivity and a Q-factor of more than 35,000 enable magnetic force microscopy of soft magnetic samples and high operation stability under UHV conditions. 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/cm^3 (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/cm^3)
- effective magnetic moment 0.75x of standard AFM probes
- guaranteed AFM tip radius of curvature < 30 nm
- magnetic resolution better than 35 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
- excellent mechanical Q-factor under UHV conditions for high sensitivity
- 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
Quality Factor	30000	30000 - 50000

Order codes and shipping units:

Order Code	AFM probes per pack	Data sheet
PPP-QLC-MFMR-10	10	of all probes