

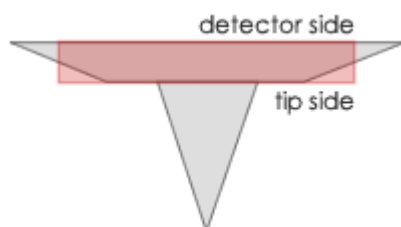
Cantilever Data	Value	Range*
Resonance Frequency	75 kHz	60 - 90 kHz
Force Constant	2.8 N/m	1.2 - 5.5 N/m
Length	225 μm	220 - 230 μm
Mean Width	28 μm	22.5 - 32.5 μm
Thickness	3 μm	2.5 - 3.5 μm

NanoWorld® Pointprobe® S-MFMR AFM probes are designed for the measurement of magnetic domains in soft magnetic samples. Due to the low coercivity of the soft magnetic AFM tip coating the magnetisation of the AFM tip will easily get reoriented by hard magnetic samples.

All AFM probes of the Pointprobe® series are made from monolithic silicon which is highly doped to dissipate static charge. The AFM tip is shaped like a polygon based pyramid with a typical height of 10-15 μm .

Additionally this AFM 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
- AFM tip radius of curvature of the coated AFM tip < 30 nm
- magnetic resolution better than 35 nm



A trapezoidal cross section of the AFM cantilever and therefore 30% wider (e.g. NCH) AFM cantilever detector side result in easier and faster laser adjustment. Additionally, because there is simply more space to place and reflect the laser beam, a higher SUM signal is reached.

Tip shape: Standard

Coating: Magnetic

Soft Magnetic Coating / Aluminum Reflex Coating

The soft magnetic coating consists of a thin soft magnetic layer deposited on the tip side of the AFM cantilever. The coercivity is app. 7.5 Oe and the remanence magnetization is app. 225 emu/cm³ (these values were determined on a flat surface). We recommend magnetizing the AFM tip by means of a strong magnet (e.g. a NdFeB magnet, a few millimeters in size) prior to the measurement.

The aluminum reflex coating deposited on the detector side of the AFM cantilever enhances the reflectance of the laser beam and prevents light from interfering within the AFM cantilever. As the coating is almost stress-free the bending of the AFM cantilever due to stress is less than 2 degrees.

Order Code	Quantity	Data Sheet
S-MFMR-10	10	yes
S-MFMR-20	20	yes
S-MFMR-50	50	no