

HQ:NSC18/Co-Cr/Al BS

Magnetic Force Microscopy AFM Probe

AFM probes of the HQ:NSC18 series are suitable for soft tapping and Lift mode operation AFM (e.g. EFM and MFM) since they provide high stability in tapping mode as well as high sensitivity to magnetic and electric forces that may be weak. These AFM probes are also used for mapping of materials properties in Force modulation mode and true topography imaging of soft samples in Soft tapping mode.

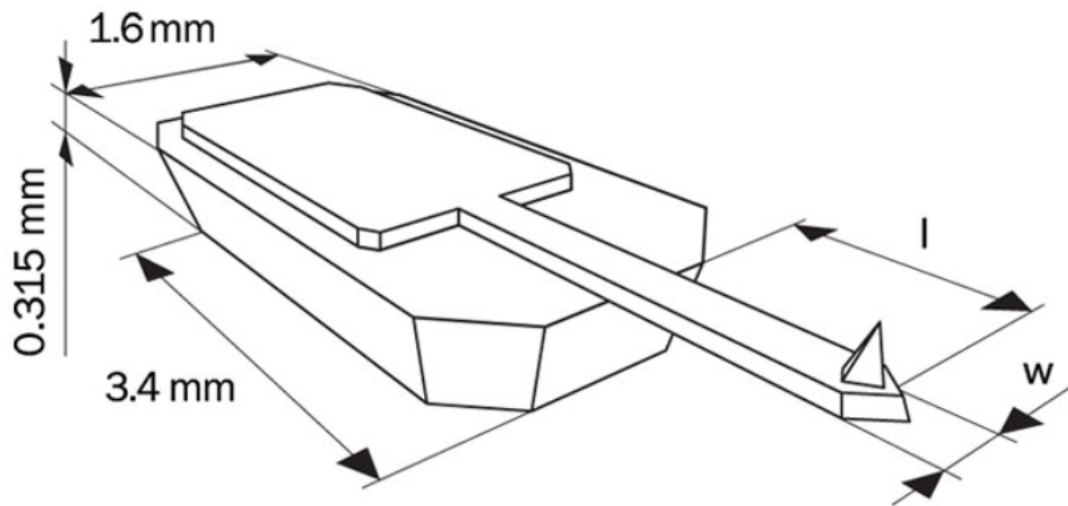
The HQ AFM probes offer high consistency of the AFM tip radius, the AFM cantilever reflectivity and the quality factor.

The coating consists of a cobalt layer on the tip side and an aluminum reflective layer on the back side of the AFM cantilever. The cobalt layer is formed as a polycrystalline film, which allows steady permanent magnetization in the direction of the tip axis.

All AFM probes are pre-magnetized at the facility before shipping to end users. In some cases additional magnetization by an arbitrary strong magnet is required, e.g. SmCo or NdFeB. The cobalt coating is protected from oxidation by a thin chromium layer, resulting in longer AFM tip lifetime. The aluminum reflective coating enhances the laser reflectivity of the AFM cantilever by approximately 2.5 times.

Coating

Magnetic



AFM Probe Specifications

AFM Tip

SHAPE	HEIGHT	FULL CONE ANGLE	RADIUS
Rotated	15 μm (12 – 18 μm)*	40°	< 60 nm

AFM Cantilever

CANTILEVER	SHAPE	FORCE CONST.	RES. FREQ.	LENGTH	WIDTH	THICKNESS
Cantilever A	Beam	2.8 N/m (1.2 – 5.5 N/m)*	75 kHz (60 – 90 kHz)*	225 μm (1 – 230 μm)*	27.5 μm (24.5 – 30.5 μm)*	3 μm (2.5 – 3.5 μm)*

* typical values