

HQ:NSC36/Co-Cr/Al BS

Magnetic AFM Probe with 3 Different AFM Cantilevers

AFM probes of the HQ:NSC36 series have three different soft tapping mode AFM cantilevers on one side of the holder chip. They can be used in various applications.

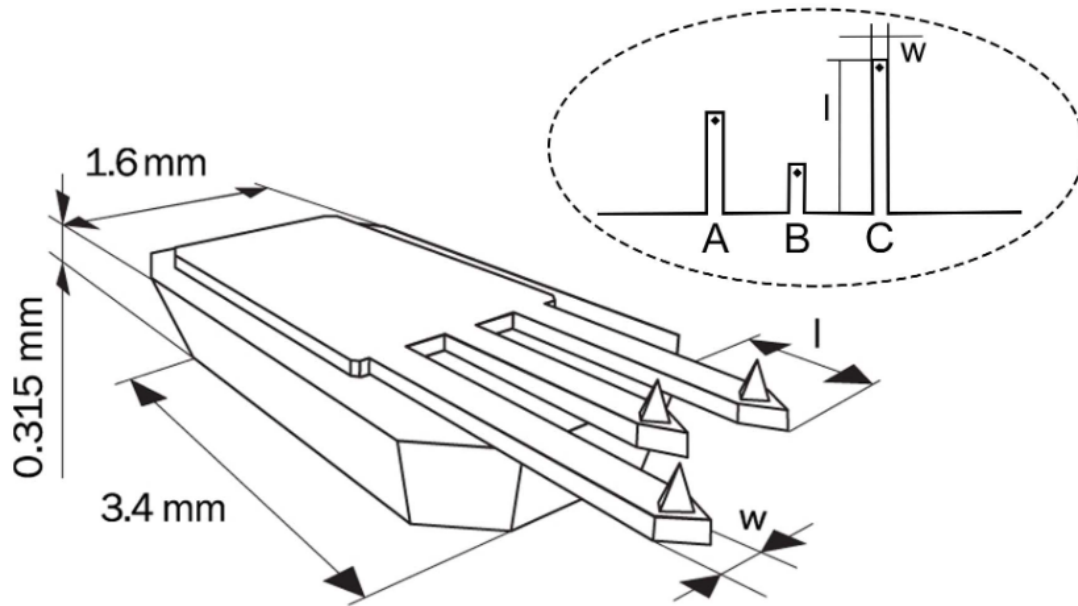
The HQ AFM probes offer high consistency of the AFM tip radius, the AFM cantilever reflectivity and the quality factor.

The coating consists of a cobalt layer on the tip side and an aluminum reflective layer on the back side of the AFM cantilevers. 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 cantilevers 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	1 N/m (0.1 – 4.6 N/m)*	60 kHz (30 – 160 kHz)*	110 μm (1 – 115 μm)*	32.5 μm (29.5 – 35.5 μm)*	1 μm (0.5 – 1.5 μm)*
Cantilever B	Beam	2 N/m (0.2 – 9 N/m)*	130 kHz (45 – 240 kHz)*	90 μm (1 – 95 μm)*	32.5 μm (29.5 – 35.5 μm)*	1 μm (0.5 – 1.5 μm)*
Cantilever C	Beam	0.6 N/m (0.06 – 2.7 N/m)*	65 kHz (25 – 115 kHz)*	130 μm (1 – 135 μm)*	32.5 μm (29.5 – 35.5 μm)*	1 μm (0.5 – 1.5 μm)*

* typical values