

High Aspect Ratio (> 5:1) - Non-Contact / Tapping Mode - High Resonance Frequency - Reflex Coating

NANOSENSORS™ AR5-NCHR AFM tips are designed for non-contact mode or tapping mode AFM. This AFM probe type combines high operation stability with outstanding sensitivity and fast scanning ability.

For measurements on samples with sidewall angles approaching 90° **NANOSENSORS™** produces specially tailored AFM tips. These AFM tips are FIB (Focused Ion Beam) milled to achieve a high aspect ratio portion better than 5:1 at the end of the common silicon AFM tip. This subtractive method of producing the high aspect ratio needle offers the advantage of high lateral stiffness and rigidity of the AFM tip.

The AFM probe offers unique features:

- length of the high aspect ratio portion of the AFM tip > 2 µm
- typical aspect ratio at 2 µm in the order of 7:1 (when viewed from side as well as along AFM cantilever axis)
- half cone angle at 2 µm of the high aspect ratio portion typically < 5°
- guaranteed AFM tip radius of curvature < 15 nm
- highly doped silicon to dissipate static charge
- high mechanical Q-factor for high sensitivity

The reflective coating is 30 nm thick aluminum coating on the detector side of the AFM cantilever which enhances the reflectivity of the laser beam by a factor of about 2.5. Furthermore it prevents light from interfering within the AFM cantilever. As the coating is nearly stress-free the bending of the AFM cantilever due to stress is less than 2 degrees.

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]	330	204 - 497
Force Constant [N/m]	42	10 - 130
Length [µm]	125	115 - 135
Mean Width [µm]	30	30 - 45
Thickness [µm]	4	3 - 5

Order codes and shipping units:

Order Code	AFM probes per pack	Data sheet
AR5-NCHR-10	10	of all probes
AR5-NCHR-20	20	of all probes
AR5-NCHR-50	50
AR5-NCHR-W	370