

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

NANOSENSORS™ AR5-NCLR AFM tips are designed for non-contact or tapping mode AFM. The NCL probe is designed for SPM systems requiring a minimum AFM cantilever length > 125 µm or a resonance frequency of less than 400 kHz. Compared to the high frequency non-contact type NCH the maximum scanning speed is slightly reduced. This AFM cantilever 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 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
- 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**

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]	190	146 - 236
Force Constant [N/m]	48	21 - 98
Length [µm]	225	215 - 235
Mean Width [µm]	38	30 - 45
Thickness [µm]	7	6 - 8

Order codes and shipping units:

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