

Product description

uniqprobe™ uniform quality SPM probe – Contact or dynamic mode for Biology in dynamic (AC) mode

The NANOSENSORS™ uniqprobe combines the well-known features of the other NANOSENSORS™ AFM probe series such as high application versatility and compatibility with most commercial SPMs with the additional advantage of a strongly reduced dispersion of force constant and resonance frequency. The unsurpassed uniformity of the mechanical characteristics of the uniqprobe series is particularly important for applications, where a large number of AFM probes with known and near identical force constants or resonance frequencies are needed. The sensors of the uniqprobe series are especially adapted for molecular biology, biophysics and quantitative nano-mechanical studies.

The reflective gold coating deposited on the detector side of the AFM cantilever covers only the free end above where the AFM tip is located. Main advantages of the uniqprobe coating are considerably less AFM cantilever bending and reduced drift particularly for measurements in liquid environments.

NANOSENSORS™ qp-BioAC AFM probes are designed for mainly dynamic mode AFM imaging in air or liquid environments, but can also be used in contact mode. These AFM probes feature three different rectangular AFM cantilevers on one side of the support chip. The uniqprobe BioAC type unites fairly high resonance frequencies with low force constants. The combination of these characteristics leads to stable, low noise and fast measurements with reduced AFM tip-sample interaction.

The AFM probe offers unique features:

- small dispersion of force constant and resonance frequency
- typical AFM tip height 7µm
- typical AFM tip radius of curvature smaller than 10nm
- stress free AFM cantilevers with considerably less bending
- AFM tip and AFM cantilevers are made of a quartz-like material
- reduced drift for applications in liquid environments
- tip repositioning accuracy of better than $\pm 8 \mu\text{m}$ (in combination with [Alignment Chip](#))
- chemically inert

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]	CB1: 90 CB2: 50 CB3: 30	CB1: 65 - 115 CB2: 35 - 65 CB3: 24 - 36
Force Constant [N/m]	CB1: 0.3 CB2: 0.1 CB3: 0.06	CB1: 0.15 - 0.55 CB2: 0.06 - 0.18 CB3: 0.03 - 0.09
Length [μm]	CB1: 40 CB2: 60 CB3: 80	CB1: 35 - 45 CB2: 55 - 65 CB3: 75 - 85
Mean Width [μm]	CB1: 20 CB2: 25 CB3: 30	CB1: 18 - 22 CB2: 23 - 27 CB3: 28 - 32
Thickness [nm]	CB1: 400 CB2: 400 CB3: 400	CB1: 370 - 430 CB2: 370 - 430 CB3: 370 - 430

Order codes and shipping units:

Order Code	AFM probes per pack
qp-BioAC-10	10
qp-BioAC-20	20
qp-BioAC-50	50

Special handling information for NANOSENSORS™ uniprobos

Due to their unique geometry the tips of the uniprobos are more susceptible to tip damage by electrostatic discharge (ESD) than other Silicon-SPM-Probes.

Electric fields near the probe chip may lead to field evaporation which can blunt the tip apex of the probe tip. Therefore the NANOSENSORS™ uniprobos are shipped in specially designed ESD-safe chip carriers.

NANOSENSORS™ recommends to their customers to take appropriate precautions to avoid tip damage due to electrostatic discharge when handling the probes. This can for example be done by using anti-electrostatic mats, wrist bands and tweezers.

