

## Product description

# uniqprobe™ BioAC with Rounded AFM

## Tips for Cell Imaging

NANOSENSORS qp-BioAC-CI AFM probes are based on NANOSENSORS qp-BioAC AFM probes.

For the qp-BioAC-CI type the AFM tips have been rounded to a nominal AFM tip radius of 30nm for Cell Imaging applications. This AFM probe is dedicated to measurements on soft and life science samples only.

These AFM probes feature three different rectangular AFM cantilevers on one side of the support chip.

The uniqprobe BioAC AFM cantilevers unite fairly high resonance frequencies with low force constants.

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.

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 AFM probes of the uniqprobe series are especially adapted for molecular biology, biophysics and quantitative nano-mechanical studies.

### The AFM probe offers unique features:

- typical AFM tip radius of curvature about 30nm
- circular symmetric AFM tip shape with a hyperbolic profile
- typical AFM tip height 7µm
- stress free AFM cantilevers
- reduced drift for applications in liquid environments
- small dispersion of force constant and resonance frequency

- AFM tip and AFM cantilevers are made of a quartz-like material
- alignment grooves on backside of silicon holder chip
- AFM 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 [ $\mu\text{m}$ ]	CB1: 40 CB2: 60 CB3: 80	CB1: 35 - 45 CB2: 55 - 65 CB3: 75 - 85
Mean Width [ $\mu\text{m}$ ]	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-CI-10	10
qp-BioAC-CI-20	20
qp-BioAC-CI-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.

