

Diamond Coated Tip - Non-Contact/Tapping Mode - High Resonance Frequency - Reflex Coating

NANOSENSORS™ DT-NCHR probes are designed for non-contact mode or tapping mode AFM (also known as: attractive or dynamic mode). This AFM probe type combines high operation stability with outstanding sensitivity and fast scanning ability.

For applications that require hard contact between AFM tip and sample this SPM probe offers a real diamond tip-side coating. This coating features extremely high wear resistance due to the unsurpassed hardness of diamond. The typical macroscopic AFM tip radius of curvature lies between 100 and 200 nm. Nanoroughnesses in the 10 nm regime improve the resolution on flat surfaces.

The AFM probe offers unique features:

- real diamond coating
- AFM tip height 10 - 15 μm
- high mechanical Q-factor for high sensitivity

The DT Diamond Coating is an approximately 100 nm thick coating of polycrystalline diamond on the tip-side of the AFM cantilever leading to an unsurpassed hardness of the AFM tip. The raman spectrum of the coating verifies the real diamond.

The reflective coating is an approximately 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] | 400 | 225 - 610 |
| Force Constant [N/m] | 80 | 23 - 225 |
| Length [μm] | 125 | 115 - 135 |
| Mean Width [μm] | 30 | 22.5 - 37.5 |
| Thickness [μm] | 4 | 3 - 5 |

Order codes and shipping units:

| Order Code | AFM probes per pack | Data sheet |
|------------|---------------------|---------------|
| DT-NCHR-10 | 10 | of all probes |
| DT-NCHR-20 | 20 | of all probes |
| DT-NCHR-50 | 50 | |