

All-In-One-DD

AFM Tip

SHAPE	HEIGHT	SETBACK	RADIUS	HALF CONE ANGLE
Rotated	17 μm (15 – 19 μm)*	15 μm (10 – 20 μm)*	250 nm	20°–25° along cantilever axis, 25°–30° from side, 10° at the apex

4 AFM Cantilevers

Cantilever A – Contact Mode		Cantilever B – Force Modulation	
Shape	Beam	Shape	Beam
Force Constant	0.5 N/m (0.2 – 0.9 N/m)*	Force Constant	6.5 N/m (3 – 12 N/m)*
Resonance Frequency	19 kHz (16 – 24 kHz)*	Resonance Frequency	110 kHz (80 – 140 kHz)*
Length	500 μm (490 – 510 μm)*	Length	210 μm (200 – 220 μm)*
Width	30 μm (25 – 35 μm)*	Width	30 μm (25 – 35 μm)*
Thickness	2.7 μm (1.7 – 3.7 μm)*	Thickness	2.7 μm (1.7 – 3.7 μm)*
Cantilever C – Soft Tapping		Cantilever D – Tapping Mode	
Shape	Beam	Shape	Beam
Force Constant	18 N/m (8 – 35 N/m)*	Force Constant	100 N/m (48 – 190 N/m)*
Resonance Frequency	200 kHz (140 – 260 kHz)*	Resonance Frequency	450 kHz (230 – 600 kHz)*
Length	150 μm (140 – 160 μm)*	Length	100 μm (90 – 110 μm)*
Width	30 μm (25 – 35 μm)*	Width	50 μm (45 – 55 μm)*
Thickness	2.7 μm (1.7 – 3.7 μm)*	Thickness	2.7 μm (1.7 – 3.7 μm)*

* typical range

Coating

Boron doped polycrystalline diamond tip coating, 100 nm thick; Aluminum coating on detector side of the cantilever, 30 nm thick.

Alignment Grooves

none

Additional Info

Versatile monolithic silicon AFM probe with 4 different AFM cantilevers on a single AFM holder chip for various applications: contact mode, force modulation mode, soft tapping mode and high frequency tapping / non-contact mode and electric modes such as: scanning capacitance microscopy (SCM), electrostatic force microscopy (EFM), Kelvin probe force microscopy (KFM), scanning probe lithography and conductive atomic force microscopy (C-AFM).

The doped polycrystalline diamond AFM tip coating provides unprecedented hardness and durability, as well as electrical conductivity for demanding electrical applications. The resulting AFM tip radius is in the range 100–250nm.

The rotated AFM tips allow for more symmetric representation of high sample features.

The AFM holder chip fits most commercial AFM systems as it is industry standard size.

The main advantage of this product compared to regular, single-cantilever AFM probes is the freedom to choose the right AFM cantilever for each application in the very last moment. You do not need to stock various AFM probe types any more. Nevertheless, this product is not meant as a substitution to comparable single-cantilever AFM probes, because the geometry of each one of the All-In-One AFM cantilevers differs from the geometry of the comparable specialized single-cantilever AFM probes.

Please note that the aluminum back side coating is not suitable for measurements in liquids!