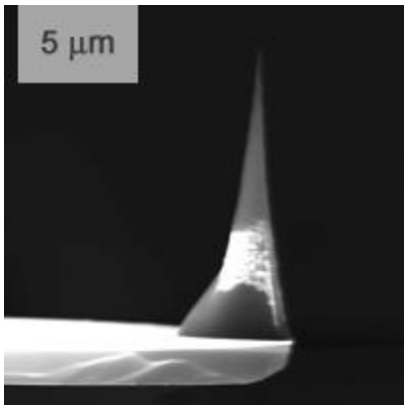
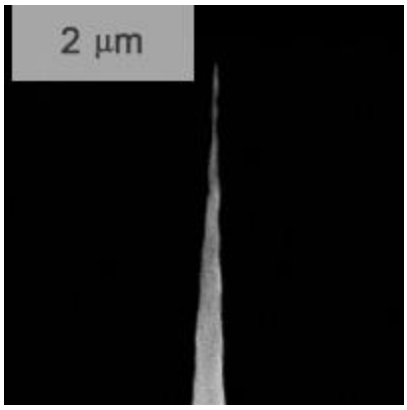
K-TEK NANOTECHNOLOGY

SINGLE CRYSTAL DIAMOND PROBES

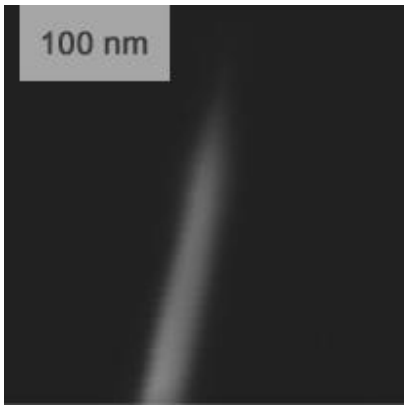
The Single Crystal Diamond (SCD) probes have tips specially grown in a CVD process and glued to silicon cantilevers for use in AFM. SCD tips usually have a sharp edge at the apex which makes it applicable for imaging flat surfaces with high resolution. The typical SCD tip radius is less than that of silicon AFM tip, which makes it applicable for general purpose AFM imaging. The advantage of SCD is that the tip is extremely robust in any scanning mode and cleanable from contaminants.



SEM image of the SCD probe tip.



SEM image of the tip aspect ratio over 2 microns from the end.



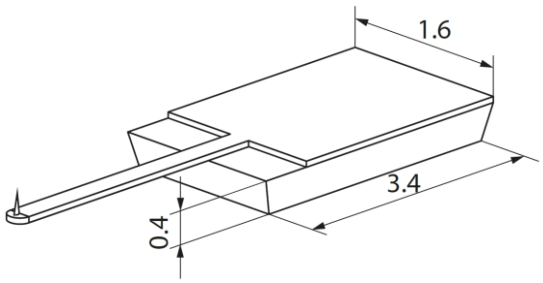
SEM image of the SCD tip end.

SPECIFICATIONS

SKU	Cantilever length, l±5, µm	Cantilever width, w±3, µm	Cantilever thickness, µm			Resonant frequency, kHz			Force constant, N/m		
			Min	Typical	Max	Min	Typical	Max	Min	Typical	Max
D10	460	50	1.5	2	2.5	8.5	10	15	0.05	0.15	0.3
D80	230	40	2.5	4	4.5	60	80	90	2	3.5	5.5
D160	125	25	1.5	2	2.5	110	160	220	1.8	5	12.5
D300	125	35	3.5	4	4.5	265	300	400	20	40	75

Tip material	Single Crystal Diamond (SCD)
Tip radius	5-10 nm
Tip aspect ratio*	about 5:1
Tip full cone angle*	about 10°
SCD orientation	<100> along the tip axis
Glue type	Non-conducting
Glue temperature stability	70°C (160°F)

*When measured at least on the last 200 nm of the tip end.



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