

DNA Probes and Inkwells: Passive Multi-Probe Arrays For Use in DNA Depositions

This datasheet summarizes the basic physical and dimensional specifications for NanoInk's customized consumable items for fabricating DNA arrays.

Because of the viscous nature of DNA, Dip Pen Nanolithography® methods for deposition require a very stiff cantilever exhibiting high spring constants relative to standard contact probes. Also, it is desirable to have a system where multiple cantilevers may be loaded with different inks improving throughput. NanoInk has developed a system which extends our offering to include a 12 cantilever array, specifically designed for multiple DNA arrays.

The passive cantilever array consists of 12 A-frame style Silicon Nitride cantilevers which are 1 micron thick and have a spring constant of .5 N/m and a pitch of 66 microns between the tips. The cantilevers are 100 microns long.

NanoInk has coupled this array with a special multiple inkwell design, with matched pitch to these tips. Up to six different DNA inks may be loaded into the special microfluidic reservoirs and thus a single inkwell chip is capable of loading one 12-tip array with 2 tips of each DNA ink. Alternatively, use of 2 of the six reservoir chips allows each of the 12 tips in the array to be loaded with a unique material.

Figure 1: A drawing of the cantilever array with dimensions

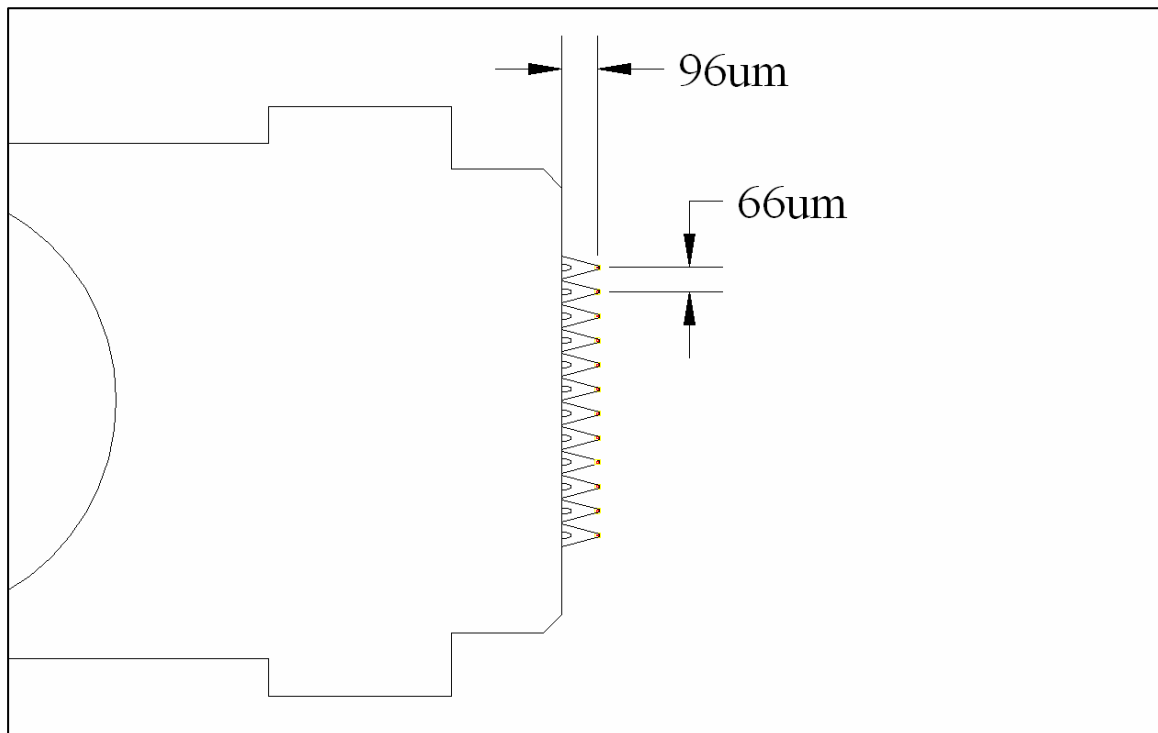


Figure 2: An optical microscope image of the cantilevers and SEM of the individual SN₃ tip, showing the 20 nm radius.



Figure 3: An optical microscope image and expanded area of the inkwell.

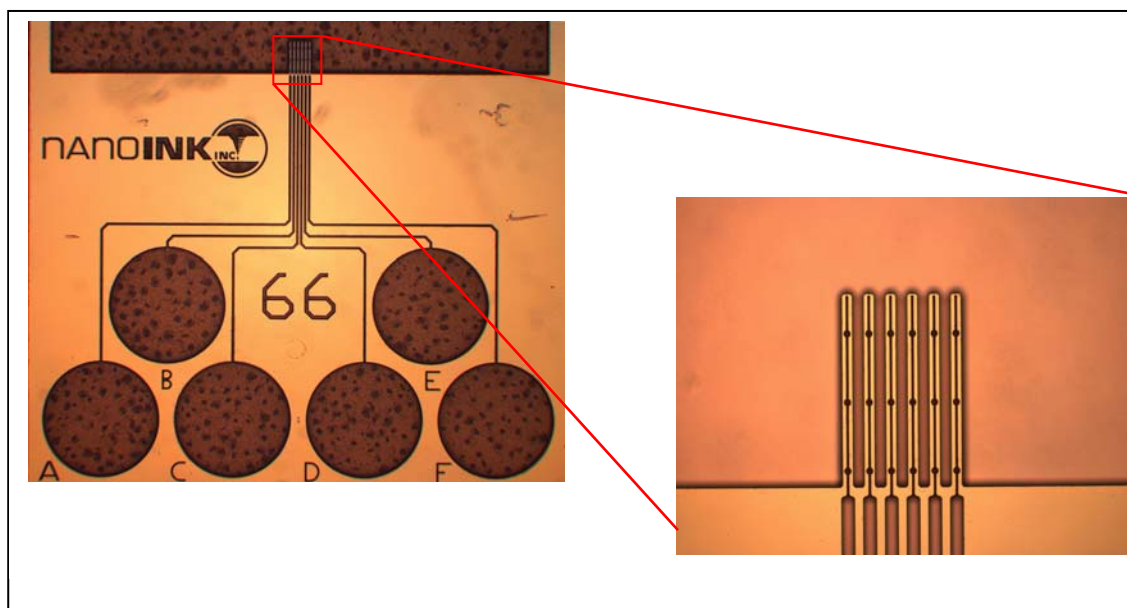
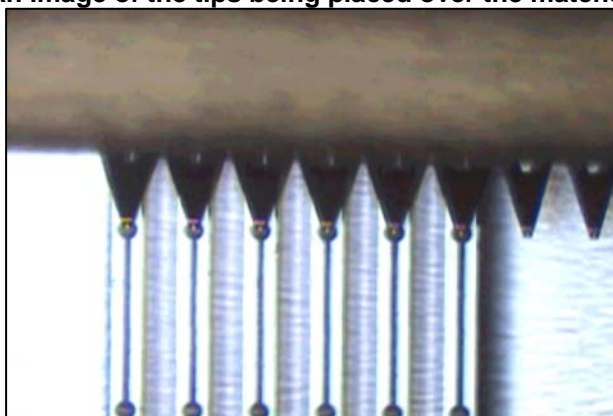


Figure 4: An image of the tips being placed over the matched inkwells.



For more information including pricing, please contact NanoInk Sales Department at sales@nanoink.net or 1-847-679-NANO.

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