



(Ink-Jet Printing continued from Page 2)

From the previous table, it is apparent that droplet volume must decrease dramatically as spatial frequency is increased.

### Marking Technology

Continuous ink jet has demonstrated the capability to produce droplets of the required size. However, the products in which this size droplet has been produced are low-speed plotters (eg, Iris) rather than high-speed printers. Scitex Digital's high-speed continuous inkjet printers have more than requisite speed (100 KHz firing) but droplet size is apparently too large for commercial-quality printing. Scitex rolled out a four-color version of its high-speed Versamark printer at DRUPA 2000. However, it targets the utility printing market, allowing users to add full-color invoices, credit card statements, and similar material.

Calcomp and Topaz Technologies had jointly developed a Piezo-electric Drop-on-Demand (DOD) printhead (Crystaljet) with a 20 pl droplet size, and an impressive 50 KHz firing rate. This was used in their short-lived Crystaljet plotter, which printed 2 square feet per minute. If a full-width head could be fabricated, the 50 KHz firing rate ensures a process speed of over 1 meter/sec at 1200 DPI. It would be necessary to significantly reduce the droplet size for the commercial-quality printing market. Unfortunately Calcomp has disappeared, and there is a matter of patents held by Xaar which appear to address technology used in Crystaljet.

Xaar and its Swedish subsidiary, MIT, which manufactures printheads, produces piezo-electric DOD printheads.

However, none of their current products have near the required speed nor resolution. They are reportedly developing a full-width printhead, in conjunction with Kyocera, for Agfa.

### Conclusions

While ink jet technology is not yet ready for commercial-quality printing, it appears that this capacity will be available in the near future. We have discussed some of the factors which must first be addressed in order for this to become a reality. v

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