



FLAAR Reports

Digital Imaging, Software, Media, and Inks

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Quick Peek at What New Printers to Expect in 2004





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Caption for front cover: Print from Epson 4000 in the PerfectProof booth, Graphics of the America. This print certainly suggests that the Epson printer does an excellent job and works fine.

Quick Peek at What New Printers to Expect in 2004

People keep asking us for help deciding what printer they should consider. Often they say, "Nicholas, I don't want to buy old-technology that is already obsolete."

Every one of our 80 titles is a response to someone's question. So this month we are issuing this new FLAAR Fast Facts to answer all the people who have asked for "What is coming out that's new?"

You can use basic intuition to estimate what new printers are likely to appear this year.

How?

Just look at how long a particular printhead technology or overall print engine has been around.

- After one year their competition has something new
- After two years more competition has newer (and/or better) products
- After three years they are stale and the competition is better at lower price too.

Then look at where the market is going: fine art, giclee, and décor are hot markets right now. Mild-solvent is a booming business. Flatbed printers with UV-curable ink are rising stars since last year.

Manufacturers want to produce new printers for the hot markets. So estimate which company might most likely produce the needed printers. You can also use the process of elimination: neither Canon nor HP are likely to produce their own solvent ink printer, or even mild solvent (can't get it through thermal printheads anyway). Epson is unlikely to go into the solvent-ink market either.

Plus, DRUPA 2004 trade show will be held in Germany this year. DRUPA is held only every four years, so many companies will work hard to get some new product ready to show here. DRUPA occupies about 24 giant trade show buildings of Germanic proportions. So by May there should be quite a lot of new printers to talk about.

Add up all these factors, and you too can predict what will appear this year.

Kodak-Encad

There has not been any new printer from Encad for years other than the innovative VinylJet last year. Hence this year we can expect, either a wider model of VinylJet or possibly a Kodak attempt to get into the healthy market for high-quality photo printers. The other option would be a printer for the reprographic, quick print, print-for-pay market. The advantage of the print-for-pay market is that output does not have to be the close-up quality of Epson or Canon. Most POP signs are viewed from several feet away, where Encad quality looks attractive due to its deep saturation caused by heavy ink laydown.



Encad VinylJet UV curable printer

Holding them back is primarily lack of a top notch printhead. Encad uses Lexmark printheads which are made for pie charts and bar charts. Epson, Canon, and HP heads offer higher print quality. But Encad does not have access to any of these printheads. All the printhead patents are owned by their competitors. The only high quality printhead available is from Brother; but the last one Kodak tried had too many banding defects. Kodak did recently buy Scitex digital press company, but their printing technology would take gazillions to move into the mass market for desktop or office printers.

Since they can't easily achieve the dpi of Canon or Epson, Encad is working on speed. The last one they tried on speed failed because of a quirky system trying to pull the media through rather than feeding it and lack of enough media that would dry fast enough. So this time it appears they are beefing up the drying system.

So at PMA '04 Kodak unveiled the new Encad NovaJet 1000i printer from Encad. We wish Kodak and Encad well, since they need a star printer to replace their previous line of older printers.

It is sad that Lexmark has taken so many years to update their printheads. The other downside of Encad printers was lack of any totally new and improved ink delivery system. Each new NovaJet was sort of a tweaked version of the previous one. So today all current Encad models have essentially the same basic ink delivery system from the 1990's, with improvements patched here and there.

A totally new design, and a drastically updated printhead, has combined to produce something worth looking at. Before we certify the new Encad we need to see how it performs in real life in our own print shop (testing facility at the university). We need to be absolutely sure that there is no heritage from the 5260, which looked fabulous at trade shows but did not function adequately in a real production environment. We estimate that the Encad 1000i will do quite well. Although the picoliter size is probably about 8 to 12, the quality appears to be about the same as a HP DesignJet 5500, though we would need to do side-by-side jury tests to certify this.

Hewlett-Packard

There has not been a new wide format (over 24") from HP for several years now. Yet their more recent desktop-sized printers offer amazing quality. Tests in the FLAAR evaluation facilities suggests the 20ps and 120nr can produce prints of notable quality too. Since Epson has really done a great job with new printer models for '04, and as the quality of the new Canon bubble jet printhead is now becoming known, it would be logical to expect something new from HP. We sure hope so.

In the meantime, the one advantage of HP DesignJet printers available already today is that they work well. If you need a production workhorse, might as well be producing all February, March, April, May and summer, because that way you can earn enough now to buy the next new printer later this year. Besides, new products sometimes get delayed. It is not always a good idea to wait for bleeding edge technology.



HP 5500 at GOA 2004 trade show printing panoramic photography of Antigua Guatemala by Dr. Nicholas Hellmuth

At PMA trade show in mid-February, HP introduced their DesignJet 30 and DesignJet 130. Here are some notes we took at this trade show.

Piezo printheads allow for small picoliter size, so Epson features picoliter size in its ads, as if that is what defines quality.

Thermal printheads allow for more nozzles; nozzles are the horsepower of inkjet printers, so HP can achieve more speed than any piezo printer.

Each company tries to convince buyers that its features are crucial.

The job of FLAAR is to sort through all this and assist the end user into figuring out which printer technology and which model is good for the application at hand.

If you wish a production printer, made for sustained commercial production, you will tend to find that HP printers are higher quality in design and longevity as a machine than Epson printers. This is a fact seldom mentioned in ads or reviews. Indeed Epson itself considers its desktop printers to be "disposable."

HP tends to be more friendly to after-market media. With an Epson the system is arranged to work primarily with Epson branded consumables. They work great, but you pay the price. With HP, they work best with HP branded inks and media too, but it is easier to utilize after-market media. As a result a wider diversity of after-market media is available for HP than is available for an Epson.

The new HP 30 is a desktop sized 2400 x 1200 dpi printer for discerning photographers and graphic designers. The HP 130 is 24" size with an option for roll-fed media. Both use printheads which offer notably higher quality than the HP 5000 or HP 5500. This is a polite way of saying that the grainy dot pattern of those printers is now overcome. We will have to do a jury test, but at normal viewing distance, the new HP printheads produce a quality comparable to that of Epson and Canon (Epson was the previous top quality; Canon's new printhead now matches Epson in image quality; the new HP printheads effectively match Canon and Epson both).

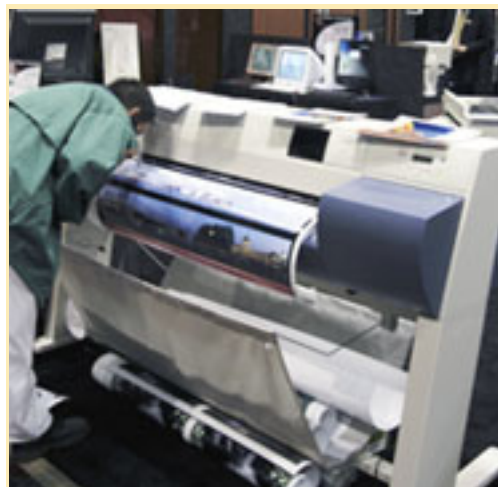
The new HP 30 and 130 use a long-life dye ink to achieve higher color gamut than a pigmented ink can offer. My estimate is that the new HP dye ink is longer-lasting than the Ilford, ColorSpan, and Encad dye inks, which previously held the record. I am not aware of any long-life dye ink from Epson.

Canon

Canon had three new products within the last year, 7200, 7250 and 8200. What is to expect now is this same superior type of technology moved into a 24" and/or tabloid size for the desktop. We understand a 24" model is already available in Japan. In fact people were already talking about this new Canon printer (the imagePROGRAF 6200) at Graphics of the Americas.

7250 and 7200 is dye; 8200 is pigmented. Output is quite impressive. We have full reports on the 8200 and 7250 (valid for the 7200 which is same technology, just wider).

In effect, Canon offers futuristic technology already today.



Canon W8200 printer at GraphExpo 2003 tradeshow

Epson

Epson has been the most innovative and has produced the highest “wow” factor.

Their hot product is the Epson Stylus Pro 4000.

Yet the Epson R800 is the product to really watch. As soon as this appears in wide-format size, Epson will gobble up the market. Epson does its homework, listens to what people ask for, and then develops these features as quickly as possible. Epson is the best example of a company that interacts with its faithful public supporters. It is like the Macintosh phenomenon. People just love their recent model Epson printers.

The Epson 4000 has been delayed. There are two usual reasons for a delay: one is that the printer does not fully function as planned. A second possibility is that the company can't manufacture them to spec, or can't manufacture enough to meet demand. Thus when I visited Graphics of the Americas trade show in late January (2004) and found the lone Epson 4000 non-functioning, it raised immediate questions. Why was it not printing?

The booth attendant said “ there are no (device) drivers.” This means the software is not finished. I would also guess that another reason was that after-market media is not yet prepared either.

Somewhat worried that the star of year 2004 had some software glitches (think of the NASA rover on Mars, the engineering achievement of the century, stalled with a minor glitch).

I finally found someone I trusted, who actually had an Epson 4000 (yes, there are people who get them in advance, and naturally we have the experience to find them). He said the Epson 4000 was great and that it worked just fine. Why did he not have the software problem? Probably because he was a software manufacturer, so he drove the Epson with his own software. We saw the pictures, and if your eyes could become unstuck from the physical assets of the model in the photo, you could see that the Epson 4000 is coming along just fine. The photo looks quite healthy indeed.

But to reassure our readers, we are working at finding an Epson 4000 so we can try some of our own files on, since a reviewer should not accept PR photos from the manufacturer. The HP 30 and HP 130 are already being shipped to us, as is the Canon 6200, but wrangling an Epson takes forever. The printer is already old by the time we get them. But since we evaluate what comes in first, now you know why you see HP and Canon quicker, because they ship them faster. Besides, the Epson 4000 is reported to be delayed again. So that means we won't see one until summer by which time the HP 30, 130 and Canon will be well established (in our review system and in people's homes and business).

And for digital camera fans, the Epson has their P-1000 LCD viewer, “Photo Viewer P-1000.” Here both Compaq and Dell missed the boat totally. A photo viewer is an intelligent product. If you do professional digital photography, you need one of these Epson photo viewers for sure. FLAAR recom-



(Above) Print from the Epson 4000 printer at Perfect-Proof booth. (Below), the actual Epson 4000 printer, at another booth, stated by booth attendant not yet to function. But we now know it does.

mends the Epson P-1000 as the best pocket viewer available today. If you are a pro, or prosumer, a viewer-storage system like this can be an asset in your daily photography, especially if you shoot out on location.

Oce

Some of the Arizona printer concepts date back to the 1990's. We like Océ products in general and hope they can come out with something new and innovative for 2004. Otherwise the low-price Chinese, Taiwan, Korean, and Japanese companies will trample the slow and high-priced Arizona models one by one.

By CeBIT 2001 we learned that Océ had their own printer in development. This printer went through countless modifications over the years. By late 2002 it was an oil-based printer. But since this market never took off (as XES found out), by late 2003 the Océ prototype morphed into a UV-curable inkjet printer. And at Graphics of the Americas it was first shown widely to the American public as the Arizona 60. We discuss this in more detail in the FLAAR Series on flatbed printers with UV-curable ink.

At under \$40K, the Océ Arizona 60UV is the first UV-curable ink flatbed printer under \$140,000. Yes, this is not a misprint, the Arizona 60UV is \$39,995, with software. Wow, what a great price to get into printing on thick and rigid materials.



OCE arizona booth at trade show

Other companies

There will be at least one more mild-solvent printer (eco-solvent or lite-solvent) later this year. But it takes more than just a "new printer" to be a success. If the company itself is on shaky grounds, you never know how long they will be around to provide tech support and spare parts.

At present, from the current crop of mild-solvent printers, the one you should take a serious look at is from Seiko ColorPainter 64s. Seiko is a solid company (it owns Epson).

How to measure Image Quality

Last year you could tell which prints were from an inkjet process: banding, grainy dot pattern, and differential gloss revealed that it was "an inkjet print, not a darkroom photograph."

Today Canon, HP, and Epson have gotten rid of the dot pattern, have minimized banding. The only remaining feature that alerts a cognoscenti that it's an inkjet print is differential gloss reflection pattern.

What Printers would FLAAR Like to Have?

We would enjoy having the ColorSpan X12, but the two older ColorSpan (XII and Mach 12) do quite well as is. The X12 has the advantage of being a mature technology. Trust me, you do not always want to be on the bleeding edge. For any commercial print shop where you need your printer cranking out tons of images, the ColorSpan X12 sounds like an ideal solution.

The HP 5000 and 5500 are our main production workhorses. We use them for pigmented ink and the two ColorSpans for dye ink (long-lasting dye). FLAAR has a full-scale print shop at the university. This way our tests are realistic. We also do lab-type testing, but we prefer the real-life usage evaluation best.



HP DesignJet 5500 at Photoplus 2003 trade show

We will be switching some jobs over to the Canon 8200 since it has the same visual quality as the Epson 7600, 9600, 10600 but the Canon ink and media cost less. And the Canon is appreciably faster. But the Epson R800, Epson 4000, and P-1000 digital photo viewer are products that everyone will desire.

We hope to add at least one mild-solvent printer this year.

Our dream printer would be with the quality of the Epson 4000, but at wider size, with 9 colors (with option for CMY l_m, l_c, and four levels of black). We use the ColorSpan Mach 12 with quad-black together with 7 distinct other colors (total of 11 colors). We use the ColorSpan Mach 12 with 12 distinct colors (but only one black).

A Canon with light black would be a market winner too.

And any photo-quality printer that can avoid differential gloss defect (bronzing is its most serious manifestation) will win our vote.

Plus, if you read our reports, you know we will give a well-deserved blessing to any printer that can produce consistently with no banding defects and no roller-marks (media feeder scratch marks).

If you need to buy a printer now, and just can't wait, then acquire our free catalog of all FLAAR Reports. We have reviews for everyone, at every level. All FLAAR reports can be accessed on www.wide-format-printers.NET.

As a courtesy, FLAAR has a policy of not releasing specific information on printers prior to the actual company first showing the printer. But as you expect, we know about the printers anyway, even down to their new model designation. But this report, to be fair, and to be ethical, does not use "insider information." Instead this report is based on inherent intuition, so that you too can learn the process of estimating what printers are about to be released. Actually they are shown to many people before the first trade show, so the details become known rather quickly. As soon as a printer is spoken about openly at a trade show, even if not presented in physical presence, it is fair to comment on it. At Graphics of the Americas (late January 2004) there was an abundance of fresh information readily available all over the floor. We include in this report only the aspects that were openly discussed.



We like really good new printers, such as the imagePROGRAF Canon technology (introduced in 2003). This gives our university lab and professors benchmarking and evaluation projects that we all enjoy. It is no fun, and not much value, to test a printer that is a dud.

If my company depended on a single printer for my success, I would rather depend on a printer with proven technology in a mature product (ColorSpan X12, Canon imagePROGRAF 7200 or 8200 for pigmented ink, HP 5500ps, or Mimaki JV4) than risk my survival on fancy advertising claims for a printer that no one knows how long it will hold up, or what its quirks may be.

Two years ago Contax claimed to have produced a full-frame CCD digital camera. They offered them for sale even.

But the camera actually never functioned. Pentax had already cancelled their attempt with the same sensor chip a few months before. But Contax paid no heed and produced years of loud advertising claims, and, after painful delay, a sort of too-little, too-late camera, that won the lowest rating a French review panel had available on its charts. But before people found out the truth, Lots of people got squewered by the misleading advertising. It is also worth mentioning that Contax allegedly refused to provide any cameras to astute reviewers in the US after the French review.

So if a printer manufacturer knows their printer will work well enough to convince the professors and graduate students who will examine it, then these tend to be the brands we ask for or are offered. You don't see printer manufacturers offering us printers that they themselves know won't pass our scrutiny.

So beware of a printer that is "too good to believe." You may find out that an advantage of a mature product today is that the newest splash of tomorrow may be a dud. The CrystalJet printer was a monumental failure, as was the Kodak 5260. Yet hundreds and hundreds and hundreds of sign shops, repro shops, and photo labs actually ordered these printers. The manufacturers even sold these models, even when they did not physically function and/or could not be manufactured to perform to spec. Obviously (we assume) that all monies were returned to the eager-beavers who bought them prematurely, but what about all the business plans that collapsed because the promised product never materialized?

We hope that you have enjoyed not only the vision of what to expect in 2004, but more useful for the long run, how you yourself can predict what new printers may appear, and which companies are likely to produce each new class of printer.

And more importantly, this report brings out the benefit of a mature product, especially a product that has survived testing and evaluation in the FLAAR facilities at Bowling Green State University.

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