

*Large Format Printers at **DPI Trade Show** (April 2001)*



IT Technologies at DPI Trade Show

Awards

The purpose of the FLAAR Information Network and FLAAR Reports is to find which is the best solution for your printer needs. Since there are 1001 different needs, and close to 101 different printers, it's tough to figure out which printer is best for which task. After all, if the selection were straight forward, you would not have made the effort to track down all the substantive info, tips, and help from FLAAR.

For the DPI trade show we sought winners in the following categories:

Best grand format solvent ink printer (answers within the following article).

Best output quality for any solvent inkjet printer

Best new model

The printer(s) that we most want in our own studio

Nicest inkjet prints on textiles

Nicest backlit

Best new products

Fastest production printer with top quality

Only continuous tone at the entire show

Most potential for a prototype

Grand Format Printers

Vutek, Nur, and Gretag all had various grand format printers. The Gretag Arizona 1100-3 had by far the most attractive output. The Vutek was next, then Nur. Did not notice anything from ScitexVision.

The **Gretag Arizona 1100-3** is the big brother of the Arizona 180 which at virtually every trade show has been the top quality for a solvent ink printer.

The Gretag ads deserve a compliment for their reserve. They advertise an expected dpi, namely 360, rather than an imagined "apparent dpi" of 720. They specify the viewing distance for 2-pass printing, namely 15 feet. They specify the viewing distance for 4-pass printing, namely 6 feet. I stuck my head close to the print and I still liked the quality.

This is the first grand format solvent ink printer that we really accept, though Vutek does also make some tempting models.

Seiko oil-based printer

Current Seiko ads claims "fastest printer in its class" but nowhere explains that there aren't really any other printers in its class other than the outmoded XES Xpress, which is

now discontinued. The Seiko ad came out before the XES ColorgrafX X2.

Seiko also claims "amazing quality...and photo-like output quality." But we inspected the output at DRUPA and judged it to be poor. At Photokina or some other trade show the quality was also poor, indeed as bad as that of the Fuji Hunt Brady printer. The only other printer which was worst was the XES Xpress. Today (2001) the Seiko output looks a bit better, at CeBIT for example, but is not photo-realistic.

Our notes from DPI read: *"map looked okay, even small letters were okay. Aerial photo was awful (they claimed it was because it was scanned by a sheet-fed scanner). Noted banding on one print."*

Why do multi-million dollar printer manufacturers print out lousy images and then display them at their booth? At least they should find an image that looks nice and concentrate on that.

Kodak, HP, Roland, ColorSpan, and Mutoh are photo-realistic, but not Seiko. Comparative ratings of advertising hype is not something that any manufacturer can do much about. This is where FLAAR offers a useful, and valuable, service.

There are many reasons to still buy a Seiko: it prints with oil, so the images hold up outdoors with no lamination. The printer is relatively fast. But you would first wish to compare directly with a XES ColorgrafX printer.

Several printers with Xaar-based piezo heads claim "true 720 dpi." Seiko ads make this claim. Yet the specs on those printheads have never been subjected to independent outside analysis. It may very well be that a Seiko printer achieves "true 720 dpi" but why then is the image so unattractive. Why is there no resemblance to a Roland print, which is actually true 720 dpi? Roland looks great at 720 dpi.

XES oil-based printer

We first saw the new ColorgrafX X2 printer at CeBIT trade show (late March, Hannover, Germany). This new printer from Xerox Engineering Systems is fast, and hence immediately begs the question, which is faster the Seiko or the Xerox? We will have to get them into our testing facility to know for sure. Virtually every savvy buyer realizes that most specs in ads are inflated.

But Xerox is striving to be ethical. It realizes that most advertising hype is bait and switch. Bait the user with "blazing speed" but the switch is that at draft speed the output is unusable. So Xerox uses only the speed at which the output would be usable to an average client. I have no way to check what speed was actually used at the trade shows, but the output was definitely attractive considering the printhead is based on Xaar technology and the ink is oil.

Xerox has been able to overcome the main drawbacks of oil-based inks: first, "the ink never really dries." While I can't measure how dry the ink is with my hands, it is true that the print does not smudge when it comes off the printer. That makes this better than most water-based ink printers, such as Encad, where the image smudges even up to half an hour afterwards. That is why the new Encad printers need the dryer.

Second traditional drawback is "you can't laminate some oil prints." Well you get

several months outdoor without lamination anyway, so lamination is not always an issue. Until we actually get the ColorgrafX and do some lamination tests ourselves we can't judge the lamination issue. The new printer, however, is supposed to be more laminator friendly.

Third drawback is "you can't use oil-based inks on photo-glossy media." XES has worked hard to overcome these drawbacks. They want users to feel confident with their printers. So now a few better photo media are available.

Nonetheless, there are only two main oil-based printers in existence (Seiko and XES). And since neither is a best-seller (as compared with Encad, HP, or Epson), the natural result is that few media companies offer after-market media.

If you need to print photo-realistic quality, then any oil-based printer as well as any printer with a Xaar-based printhead is not yet reached this level of quality. The images are rather fuzzy, sort of out of focus.

But to print signs or banners for outdoor use, with no lamination, that will be 10 feet away from a viewer, or up in the air (like a banner) then the image quality is acceptable from a distance.

XES offers two models: a 36" wide unit with software for CAD; and their wider 54" unit for signs and banners. Since for CAD you will tend to view the image close-up, be sure you get the fine-line definition that you need.



Xes ColorgrafX X2 printer

The lingering downside of the XES printer line is the excessive cost of the RIP. The EFI Fiery hardware RIP for the earlier Xpress was overpriced at \$7,000. Today you can get a software RIP at \$1,500 and a really good one at \$3,000. There is no excuse to paying any higher than \$3K. And no reason to pay for a printer driver, and especially not \$2,000. That is supposed to be included in the base price of the printer.

Other downside is the cost of the ColorgrafX X2. The prices we were told at CeBIT were way out of line with what other printers cost, \$23,995 for 36" and \$44,995 for 54". I suspect that does not include the \$4,500+ for the RIP. You still have to laminate prints from the XES if you want more than a few months longevity. These are NOT solvent ink printers; oil prints do NOT hold up x-years outside without lamination (nor does XES make that claim either).

A positive feature of the XES printer is that you get two media holders. Epson offers a bait-and-switch version (you can hang two rolls onto the machine but you have to change them by hand). With Xerox, and if I remember correctly, also with Canon BJ-W9000, you get true dual-roll capability. Unfortunately, the Canon USA web site has no mention of their large format printers; it's as though they don't exist in America.

All printers need to be calibrated from time to time. This takes time and wastes lots

of ink and media. At CeBIT the pleasant person in the XES booth said the calibration can take several hours and uses quite a lot of media. We naturally published this observation. XES at DPI booth stated that the calibration did not take 4 to 6 hours at all. However XES never sent us the actual information by e-mail. Thus it is fair to say that the amount of time, media, and ink which a calibration takes is undefined at present. You will find out soon enough if you park one of these handsome printers in your office. The printer does, however, apparently like to be calibrated whenever you change media type, or whenever you change lot number. After all, it's for your benefit that the machine is calibrated.

Summery: this printer was awarded the "best improvement of a new model over an older model" award by FLAAR. The earlier Xpress was an outmoded, overpriced machine which produced dreadful output. The ColorgrafX X2 is new, still high priced (RIP is overpriced) but the quality is dramatically improved.

FLAAR also feels that Xerox deserves a commendation for "truth in inkjet advertising." They are one of the few inkjet printer manufacturers to admit that you can't sell the junk that a printer spits out at draft speed. Hence using those speed specs is both misleading, as well as blatant bait-and-switch.

FLATBED PRINTERS

DPI is a small trade show, 2500 attendees. Thus it was naturally that the heavy artillery of flatbed printers did not exhibit here. There was one UV curable ink machine, for close to a million dollars.

Leggett & Platt Digital Technologies, Virtu

Leggett & Platt Digital Technologies showed a brand new piezo printer, accepts UV curable, pigmented, dye, and solvent inks. Available models are their Virtu MX, 92", Virtu RS, 98", Virtu TX, 138." Looks like the most innovative new design ever conceived (probably the top price as well, but printer looks worthwhile). I believe this printer was primarily for textiles (?).

What I liked most about this printer was that every aspect was designed from scratch to accomplish its task. This was not some old traditional model which was jerry-rigged to attempt to do something else than what it was really originally made for.

Mimaki Flatbed JF-0604

All the other flatbed printers that can take thick or rigid material cost over \$100,000. Actually most cost over \$250,000 (we don't know how much the Gradco Mammoth costs). Thus the "under \$50K" price tag of the Mimaki looks good, as long as you need only to print on small items up to 16.5 x 23.5.

This printed nicely on rug material. I can see all kinds of applications for short-run items



Mimaki Flatbed JF-0604

such as doormats with your personal name on them, or with your company logo. Overall this was the most innovative printer in its class. For further information contact Conrad "Sy" Simoneau, sy@mimakiusa.com fax (678) 475-1846.

Evidently a longer and wider flatbed is also available in the Mimaki JF series.
Regular Large Format Inkjet Printers

Mimaki 12-ink printer

This 12-printhead printer is still a prototype. The engineers have been unable to get rid of the banding, the generic problem with piezo printheads, whether Epson or Xaar. However the concept of a 12-printhead system has already been perfected by ColorSpan. Thus surely eventually the capable Mimaki engineers should be able to produce a system that works without banding. Dual 6-colors or 6-pigmented and 6-dye, or triple CMYK are the most beneficial features of this kind of printer.

Thus printer can use both dye and pigmented inks. Even has an auto wash-cycle so that when you get ready to change the ink you don't have to clean things by hand. The designers worked overtime figuring out clever features and options. As a result this Mimaki prototype deserves the award for the most innovative prototype, that we wish well as it gets refined into a finished product.

Other Mimaki printers

Mimaki printers of the JV2 series use more or less the same Epson piezo printheads as do the Epson 9000, the Roland Hi-Fi, and the Mutoh. We don't report as much on the Mimaki because we don't know many people who use them and FLAAR does not have one in-house.

Mimaki is a respected name in the industry and we have not heard of any systematic design flaws in their printers. At DPI trade show the output looked great.

Mimaki seems like sort of a shy company that is not as aggressive as Roland or Epson. Mimaki does not OEM as much as Mutoh. You find the Mutoh via Agfa, Kodak, and many other rebranding situations. Stork rebrands Mimaki printers for the textile industry and Mimaki itself offers the Mimaki TX-1600S. Otherwise, not too many house brands use Mimaki.



Mimaki TX-1600S printer

A distinct advantage of Mimaki is that they do not engage in the shameless advertising of other companies. No false claims of "continuous tone" which was first attempted by Epson and now by Roland. Yet their printers are not continuous tone, not by a long shot. Thus we feel Mimaki deserves recognition.

Roland

Roland won three prizes at DPI for top quality in various categories.

After about five trade shows in a row with banding or grainy dithering pattern on Roland prints at their booths, now its been almost three trade shows with no-banding. Of course by now they now FLAAR checks for banding deficiencies. The printer at DPI was a HiFi Jet Pro, running at 720 x 720 dpi, all eight colors, 8 passes (the printer will do up to 32 passes). The speed was relatively fast.

Kodak

Kodak has now taken over distribution of BetterLight scan back systems for large format studio photography. BetterLight consistently beat's PhaseOne in jury tests at PMA trade show.

Kodak also distributes the impressive laser light digital imager, the Durst Lambda. This professional wide format digital photo printer is for photo labs who want continuous tone. The only two large format printers which produce close to continuous tone of a darkroom print are the Durst and the Cymbolic Sciences LightJet from Gretag.

A. Ronald Waters, in the Kodak booth, showed me a wide variety of new photo paper that is available for the Durst line of printers. Since I am a photographer myself, I like anything that makes my photos look great.

Kodak also offers two complete lines of inkjet printers, one with thermal technology; the other with piezo technology. Kodak definitely recognizes that both kinds of printheads have their advantages; that no one printhead can accomplish everything for every user. Kodak thermal models are fast and thus good for signs, banners, and posters. Kodak piezo models are higher dpi, can accept dye sublimation inks, and are generally more flexible, albeit a bit slow.

Since Kodak was making photo paper long before digital printing existed, you can count on Kodak to have experience. Indeed most printer manufacturers don't even attempt to make their own media. Kodak and Ilford, however, are each knowledgeable about what photographers need and want.

Neither Roland, nor Epson, produce continuous tone (nor does HP or ColorSpan, but they are ethical and don't claim continuous tone that I know of). Indeed many professional photo labs do not accept inkjet prints for their prime customers at all. So be wary of potentially false and misleading advertisements. With an inkjet printer you may get dotted, grainy dithering patterns. You escape most of this with a Durst or LightJet.

With some Roland, some Epson, and some other inkjet printers, you may get horizontal banding or streaking in areas of solid color, especially solid black backdrops. Thus the ad campaign of Roland and Epson, in this Internet age, will ultimately backfire. By causing people to check the validity of the claim, their ads merely remind users how dotted an inkjet print really is. The result is that more photo labs will realize they need a LightJet or Durst Lambda. Sounds like claiming continuous tone by the two inkjet was sort of stupid. The main result is sending lots of informed buyers to Gretag, Durst, and Kodak.

Digital Painter

Am always curious about the various companies that you see on the Internet but seldom

at a trade show. Thus it was nice to meet the capable engineer behind Computer & Control Solutions, who market the Digital Painter, their house brand for the popular Mutoh printer. If I understand it properly, they employ the Onyx PosterShop incorporated into a closely tuned system with their piezo printer (all Mutoh printers use Epson printheads; same generation as the Epson 9000).

The samples displayed in the booth looked attractive.

Accuplot

Accuplot is the house brand name for the Mutoh printers sold by Mile High Engineering Supply Company. They sell printers for everything, and nationwide. They specialize in printers for screen positives (for screen printers), printers for fine art giclee, and for textiles.

Accuplot does well in precisely the same markets that Kodak ought to be addressing. Kodak also sells the identical Mutoh printer, but has not positioned it into all the markets that this nice printer is capable of serving.

I see the Accuplot people at almost every trade show. They know the inks, media, printers, and everything inside out.

Improved Technologies

I have seen the Improved Technologies folks at PMA, at Seybold, and even in their facilities in New Hampshire. IT offers the Ixia, the improved version of the Iris Gprint (which itself is no longer manufactured). The Ixia is what professional galleries now use instead. It's a large machine, so none was present at DPI.

Improved Technologies' house brand of the Mutoh is the I-Jet. They utilize the popular Wasatch RIP to accomplish photo-realistic prints and fine art giclee quality.

The advantage of working with IT is that many of their top people were trained for years with the Iris giclee equipment from Scitex. So they know service, technology, proofing, and fine art giclee from A to Z.

IT also sells the complete line of CreoScitex EverSmart scanners. You can't get an acceptable image with an entry-level flatbed scanner. Thus we prefer to recommend a company that includes top quality equipment for input.

IT also offers the Tarsia repro stand system. You can't photograph your paintings by pointing a camera at them, with the camera on a tripod and the print hanging on the wall.

Think of it. How can you possibly get your camera at the proper height without distorting the view? How can you not distort from left to right, or up and down? The way that professionals do this is with a copy stand.

If you really are a big time studio you will want the Cruse repro stand scanner, a dedicated turnkey solution. But if you prefer to work with a PhaseOne or BetterLight (which beat PhaseOne two years running at PMA trade show) then you can use your scan back in a Tarsia repro stand system.

For more information on the giclee printers, on scanners, on digital camera systems, inks and media for photo-realistic or art printing, contact Peter Webster, e-mail iris@itnh.com, or at sales@itnh.com.

Hewlett-Packard

HP showed more attractive images at DPI than at other trade shows. The HP 5000ps is capable of outstanding output and it's unfortunate that they don't reveal these features at the trade shows. A wide format printer should not be sold as though it were a common office laser printer.



HP 5000ps printer for UV Inks

The new HP media for the UV pigmented inks for the HP 5000ps really look attractive. These inks have reached a 150-year rating by on-going tests by Wilhelm (no, not on the web site yet; that's because it takes months for him to do the careful lab tests). It is expected that the HP inks may well reach a higher rating.

Thermal printheads do an especially good job with backlit. HP had some backlit of autumn leaves that looked beautiful.

Our information on the HP 500ps and 800ps are in the *FLAAR report on printers for CAD and GIS*.

Facts, tips, and general comments on the *HP DesignJet 5000ps* is already available in the report of that name.

The report that is crucial for anyone who is about to invest in a large format inkjet printer is the FLAAR report on "*Piezo vs thermal, pros and cons, fact vs fiction.*"

Epson

On the subject of Epson piezo printers, they showed their standard line of printers. Hard to say much that's new. The quality is nice; printers are slow. There is more variety of media than last year. The 10000 model is now being shown. When it enters production we will work out a manner of testing to see if we can run it without banding striations. Surely their engineers can eventually design a machine that escapes this generic defect of Epson piezo printheads.

It was interesting to note that the new Mimaki, the first OEM to also use the new wide Epson variable dot system, also had a severe banding problem with them. The banding was more pronounced on the Mimaki prototype. The Epson 10000 at CeBIT trade show (Hannover, March 2001) had more subtle banding, but 100%, everywhere across the image, horizontal piezo printhead tracks.

Encad

On the subject of banding, that's one defect you can't often find on any Encad printer. The output may be a bit grainy, but seldom with horizontal tracking path banding.

Since I had already seen all the Encad models at CeBIT trade show two weeks previously there was not much new.

One person I spoke with at DPI said he had media feeding problems with his Encad 700. He finally got a second 700 and it also had the same problems. Encad claimed the skew was within specs. The user said that was meaningless because on a long print the image skewed noticeably. He finally got all his money back.

We also got a more detailed description of some of the minor yet multiple design quirks of the Encad 850 when it was first rushed to completion in the final quarter of last year. Most of the problems, including evidently skewing of some media, were eventually solved. Thus we have not had any current user of a newer Encad 850 voicing any concerns whatsoever. Overall the newer Encads seem considerably improved over the ill-fated 600 series.

Encad had already dropped their development of their "Sheffield" solvent ink printer prototype. This is because of a new European law banning solvent ink printers as a health and environmental hazard without a hood and/or ventilation system. Instead Encad is concentrating on bringing a UV curable ink printer to market. Encad also seems to have dropped their plans for a fine art giclee printer, which they also had under development two years ago. Ilford or Kodak could perhaps make a go in that market, but it's tough for a printer developed for 300 dpi CAD or 300 dpi signs. Fine art giclee is a snooty market, where the "name" is as important as the actual output.

One of the Encad printers was doing textile samples. The textile prints looked lovely.

MacDermid ColorSpan

ColorSpan now offers four roll-fed models and one model with drum construction for giclee prints. The models they tend to exhibit are the FabriJet for printing textiles and their three regular printers: DisplayMaker XII, Esprit, and the new DisplayMaker Mach 12.

The Esprit offers 8 colors at under \$15,000 which is a fair price for a printer as sophisticated as this. It's a new model so won't become obsolete. The Esprit can print on relatively thick material, up to and including the thickness of corrugated cardboard.

The DisplayMaker XII is the production workhorse of the MacDermid ColorSpan family. This is the next printer we are considering to add to the FLAAR arsenal.

The DisplayMaker Mach 12 is new (hence we will start with the XII first). The Mach 12, however, can be ordered now. You get up to 72" wide and a host of features to facilitate unattended printing.

Over all the new Mach 12 seems to include every professional end-user's "wish list" for what they wish their present printer could actually accomplish.

For further information, contact productinfo@colorspan.com.



ColorSpan DisplayMaker March 12

Gerber Scientific Products

Gerber Orion is an entry-level solvent ink printer. Entry level means it's slow but costs only 40,000, as opposed to \$150,000 and up for others. But if you are printing signs I can't see how such a slow speed would be productive over a year's use. Besides, the output looks sort of out of focus (typical for some Xaar piezo printheads in low-budget printers).

The Gerber Maxx is still being retrofitted evidently. It was unclear whether the printer was released, recalled, and then re-scheduled for release in May 2001. This type of thermal transfer is mainly useful for spot colors, uses up to six of them in 4" ribbons. Prints on 36" vinyl.

My favorite printer of this technology is the Matan Sprinter, but that's because I don't have to pay its price tag. The Matan is rarely seen at regional trade shows (and is not made by Gerber).

Inks

DayGlo now makes fluorescent inks for many Epson and Encad printers. This shows one of the many benefits of an open ink system; you can use anyone's inks. If you have a Hewlett-Packard, can't use hardly any aftermarket inks. Staedtler inks are the only ones I know that work.

Staedtler offers refill kits for Hewlett-Packard DesignJet 2000, 2500, 2800, 3xxx series as well. This makes Staedtler about the only after-market ink that works in those printers. Other Staedtler inks work in early Encad printers up to the model 700, in Roland, Epson, Mimaki, and Mutoh printers. You can get Staedtler inks at Mile High Engineering, e-mail crieple@accuplot.com.

Media

Several companies make electro-luminescent backlit fixtures. You load your image onto the front of these ultra-thin panels and you have the equivalent of backlit light source but without the thick bulky back lighting equipment. Rexam sells their system as the "Magic-Light."

3P Inkjet textiles had an attractive exhibit and demonstrated that virtually all inkjet printers can print on textiles.

RIPs

Several RIP companies exhibited. The most visible company was Wasatch. This is also the RIP used by Improved Technologies, so you can get information from them, sales@itnh.com. Wasatch RIPs run all major printers. It has many more options than EFI Fiery RIP, and you can run several printers simultaneously (can't do that with EFI). Wasatch RIP can be upgraded to run any newer model of printer, so a Wasatch RIP is never obsolete (EFI RIPs cannot run any other printer, so are obsolete the minute you buy a new or even a second printer).

Best grand format solvent ink printer that we saw: well deserved by the Gretag Arizona 1100-3.

Best output quality for any solvent inkjet printer: Roland with after-market adaptation to accept Lyson solvent ink.

Best new model when compared to an earlier model from the same company: XES ColorgrafX X2. We are still not entirely convinced about oil printing, but the output looks better than that of the Seiko.

"The printer that we most want in our own studio," the flatbed Mimaki has all kinds of interesting potential. We still lust after a ColorSpan.

Nicest inkjet prints on textiles: too close to call. The output from Mimaki, from Mimaki at Stork, from ColorSpan FabriJet, and actually from an Encad NovaJet 850 were all beautiful.

Nicest backlit was the autumn leaves by an HP DesignJet 5000ps.

Best new products: the fluorescent ink from DayGlo and the iridescent ink-jet printable substrate from Engelhard Corporation.

Fastest production printer with top quality was the ColorSpan Mach 12. Not much competition since none of the faster solvent ink printers can match the quality of a ColorSpan thermal printhead. The output from Roland, Epson, Mimaki, and Mutoh are lovely, but not fast enough. HP is great output, and fast, but Mach 12 has dual sets of the same HP printheads.

Only continuous tone at the entire show: it's easy to claim "our inkjet produces continuous tone" but none of them do. The only printer at the trade show that produced the quality of a darkroom print was the Durst digital printer, distributed by Kodak.

Most potential for a prototype is the Mimaki JV4-130. If the engineers can get rid of the banding they have a winning printer. It takes dye and pigmented inks and even has an auto-wash cycle for when you need to clean the system of one ink to put in the other. No chip on the system so you can use anyone's inks. Will take dye sub inks without clogging, accepts media up to .276 inches, accepts foam core with inkjet receptive surface, has special ink for screen positives. Contact Conrad "Sy" Simoneau, sy@mimakiusa.com, fax (678) 475-1846.

Other FLAAR reports on Trade Shows

DRUPA printer trade show (world's largest, held every 4 years in Duesseldorf, Germany, conveniently near the FLAAR office in Germany). The Epson 7500 and Epson 9500 were premiered here.

Seybold San Francisco (2000); the HP 5000ps, 500ps, and 800ps were premiered here, as well as several other printers; I believe the Roland V8 also.

Photokina trade show (world's largest photography trade show, Cologne, Germany, held

every two years; conveniently less than 2 hours from the FLAAR office in Essen-Werden, Germany). Revealing information about the Roland V8.

Big Picture Show, small but very informative. Since there were not too crowded, was easier to see the exhibits and speak with the technicians.

SGIA + Photo East (two trade shows held simultaneously, one in New Orleans, the other in New York). Lots of large format printers.

PMA (Photography trade show, 2001) and Graphics of the Americas (2001), combined information from these two.

CeBIT trade show, Hannover, late March 2001. Lots of factual observations about large format printers, inks, media, RIPs. The solvent ink system for the Roland was showcased here.

ISA sign trade show, Las Vegas, identical days as CeBIT, so FLAAR sent another of our editors.

The present DPI trade show report will be updated as soon as we visit B.I.G. trade show in Columbus in early May.

We even visited the sign trade show in Mumbai, India to gather information. Fortunately the expenses for this were graciously paid by TechNova India so that Dr Hellmuth could lecture there.

As you notice, FLAAR goes to considerable effort to bring you the latest factual information. That's the job of a research professor, to do research.

It would be nice, however, if you told other people about our report series. Please invite your friends, family, and colleagues to visit our web site, www.wide-format-printers.org.

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