



Learning about UV-Curable Flatbed Inkjet Printers

By visiting the factory where they are
designed and manufactured



UV-Curable Printers: Factory Visits as a Learning Experience

When you visit a trade show, often it's rather hectic in a booth. The person that you end up with may be a sales rep with limited practical experience with actually operating the printer. In some cases there are personality differences. We receive many e-mails where printshop owners tell us they simply left the booth because they could not find someone that could communicate on their wave length.

So some printshop owners buy the printer from the booth that treats them the nicest. In one instance this led to not only the wrong purchase, but the purchase of a UV printer that fell apart and was a disaster for the sign shop that bought it. I asked them why they did not buy a better brand; they replied that the people at that other booth "did not give them the time of day."

This can happen if the booth is very busy, or if there are distractions.

One way around this is to arrange a factory demo-room visit. In some cases the demo-room is physically at the factory. In most cases the demo room is at another location. Gandinnovations has a demo room in San Antonio, Texas, but has a larger demo room at their manufacturing plant in Toronto.

If the manufacturer is in Europe or Japan and especially if the printer is made in China, then their demo room in the US will obviously not be at the factory. But a few Japanese companies also have factories in Europe, such as Mutoh Europe, in Belgium.



Inspecting Grapo Manta in the Czech Republic



Inspecting the core structure of a Gandinnovations Jeti flatbed inside their factory in Canada



Inspecting the "gull wing" 4x8' model of the Jeti UV flatbed inside it's factory



Inspecting the Nur Expedio 5000 inside their factory in Israel



FLAAR inspection as part of training on Mutoh mild-solvent and eco-solvent at the factory in Belgium

MacDermid ColorSpan UV Printers

I have been to the factory of MacDermid three times. The second time was to inspect the 9840uv a week before it was introduced to the public, at FESPA Digital in Amsterdam.

My most recent visit was to inspect an early pre-production beta version of the new 5400uv series three months before it was announced to the public. I was under so many layers of Non-Disclosure Agreement that I could not even tell my own staff what I had seen. The NDA was released on Feb 12th, and our FLAAR Reports was on www.wide-format-printers.NET by late afternoon.

The first visit was many years ago to get training on the DisplayMaker water-based printers. We received two of these for evaluation at our university. Of course today (2007) ColorSpan is concentrating on UV printers exclusively. They no longer manufacturer water-based printers. However tech support, and parts and ink, are still available for all their earlier giclee printers, water-based sign printers, and solvent machines.

The main benefit of my last two visits was to notice that even the beta-stage pre-production prototypes function. In comparison, the first Chinese UV printers tend not to function well their first year or so after being released.



ColorSpan 9840uv

This \$150,000 printer can print on concrete, wood, and office cubicle partition walls. In other words, this kind of printer should be of interest to artists, architects and interior designer faculty on campus.



ColorSpan 9840uv site visit



ColorSpan 9840uv site visit



ColorSpan 9840uv printing on wood



ColorSpan 9840uv printing on concrete

This is because UV-curing technology is complex, and it takes their engineers a while to realize that you can't just put UV lamps onto a former solvent printer chassis.

A printshop where we do site-visit case studies has also made at least two trips to MacDermid ColorSpan headquarters in Minneapolis. They have bought a ColorSpan 72UVX as a result. Site-visit case studies of both these models reveal that printshops that own them are content because these printers are productive.

If your local dealer or distributor has a fully-equipped demo room in your home town, this may be more convenient than traveling to Minneapolis. We at FLAAR have also visited local ColorSpan dealers, such as Queen City Reprographics (Resource Imaging Supply, tel 800 INK-JETT) in Cincinnati.

MacDermid ColorSpan has expanded into new offices and new headquarters: still in Minneapolis. The new address is listed on their website, www.ColorSpan.com.

They have a demo room and here potential customers can see various models of UV-curable inkjet printers by appointment. Contact is Product Info@ColorSpan.com.



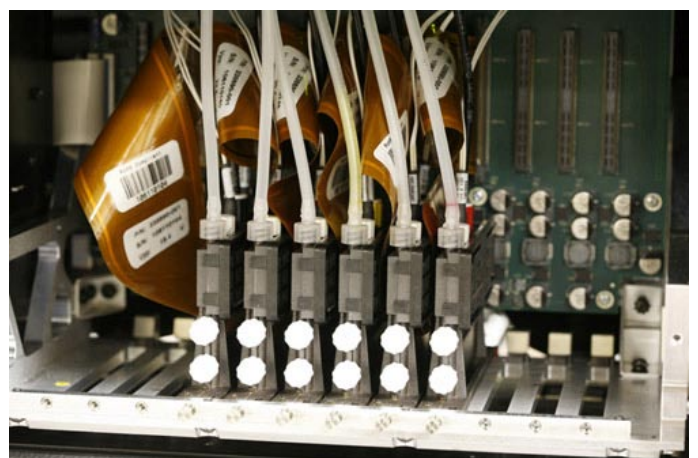
ColorSpan 5400uv



ColorSpan 5400uv



ColorSpan 5400uv



ColorSpan 5400uv

When you have a private showing of the new technology, without the hectic and distractions of a trade show, this is an ideal time to take snapshots that will enhance PowerPoint presentations for seminars, workshops, and conferences.

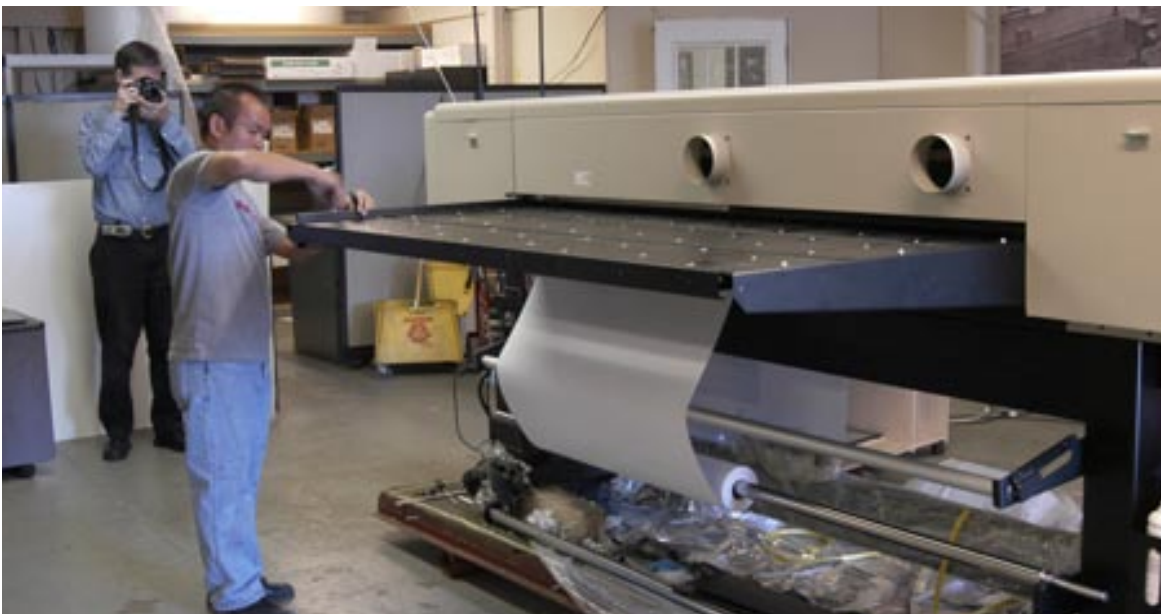
With the availability of these photos FLAAR is in a unique position, indeed that's why FLAAR is increasingly invited to speak at international trade shows and conferences.

Raster Printers Demo Room, California

FLAAR spent one week in the Raster Printers headquarters in summer 2005 and made an additional visit in 2006. Although these printers are manufactured in China (by the same company that makes Flora and DuPont Cromaprint 22uv) they are remanufactured in California. The Chinese printer comes in, a dozen parts are removed and replaced with sturdier parts made in Europe, the US, or Japan. So we will consider this as a factory visit.

If you spend an entire week inside the headquarters building of a printer company you can't help but learn a lot about them. And I mean more than just the machines; you learn about the people, whether they are capable or not. It turns out that most of the managers and owners of Raster Printers company each have more than 12 years experience in wide-format inkjet printers. Although this by itself may not make a printer's mechanical parts and software work flawlessly, it does point in the right direction. The model 720UVX and Daytona have become progressively better as everyone involved has gained more experience in UV printers.

The next generation Raster Printers machine is being manufactured entirely in the US, and we anticipate being invited to see this other factory in the future (as soon as they are ramped up to produce this new model, a 4x5-foot dedicated flatbed, the Daytona T600UV). The current Chinese-made UV printer is a hybrid design (platen, pinch rollers working together with grit rollers).



Gandininnovations Factory, Toronto, Canada

Notice I classify them as the fastest growing: other companies are larger because they have been around longer. But Gandinnovations sells more UV-cured printers than Agfa, HP-Scitex, Mimaki and Neolt put together. For 2007 and definitely by 2008, Gandinnovations will reach par with Vutek and could potentially gradually outsell them.



When you visit the company headquarters in Toronto you can see why they are so successful. Everyone here is excited about their constantly developing new technologies, new products, new ink chemistries. So attire is what you expect at the highly successful Silicon Valley companies: informal, definitely no suits or coats-and-ties.

The dedication of each individual was noticeable. Even late into the evening many of the people, of all levels, technical engineers and management both, were still doing their thing. Not because someone told them to, but because they enjoy working with such top notch technology.



You constantly read about American car manufacturing plants being shut down because everyone prefers a better-made Japanese car. In this inkjet printer plant they are growing every month; no one is going to shut this place down. Indeed there are more orders for their Jeti printers than can be fulfilled. The printers are selling faster than they can be manufactured (probably because they are all hand made, which insures each part is done nicely).

I guess no printer is perfect, but it would be a challenge to find something about these printers that fails to function. Since each machine is modular, improvements can easily be added. You are not stuck having to buy an entirely new and different model. With other printer brands, once they find out what is iffy on a current model, they have to completely redesign the entire system to overcome the issues. So people get stuck with an old model with minimal resale value. And only people that buy the new and different model get the improvements.



With L&P Virtu and with Gandinnovations Jeti printers, the new features can usually be added to older current models. Chinese printer models get confusing because they change them too often: this makes finding spare parts unrealistic even a year afterwards.

Every minute in this Gandinnovations factory was a new learning experience. The staff at all levels were pleasant and helpful in answering questions. Every minute in this factory was a new learning experience. The staff at all levels were pleasant and helpful in answering questions. They let me take photographs all through the factory; only in one place they asked that I not photograph a particularly unique assembly processes.



This is the demo room; the factory is behind the doors. It is so much easier to take useful photos to illustrate our FLAAR Reports in the demo room than at a hectic trade show



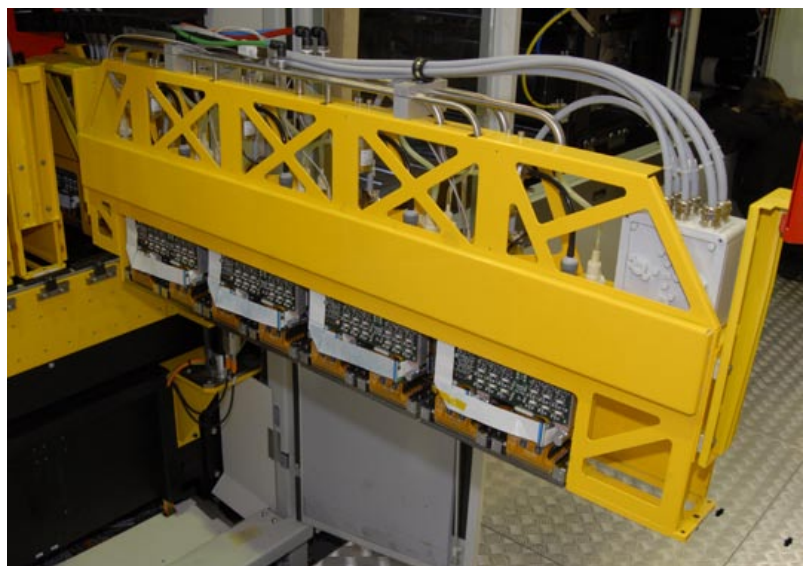
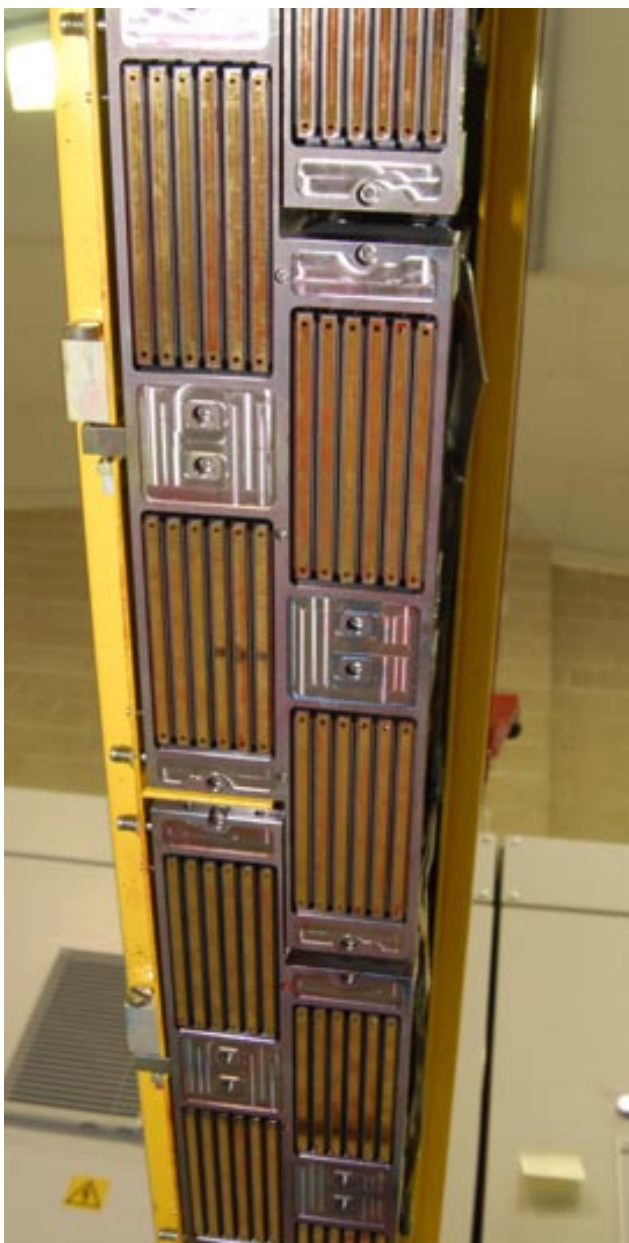
This is the new enclosed version of the Gandinnovations Jeti 3.3 solvent ink printer. Enclosures help with air quality control, especially in countries or states such as California that have stricter rules than other places

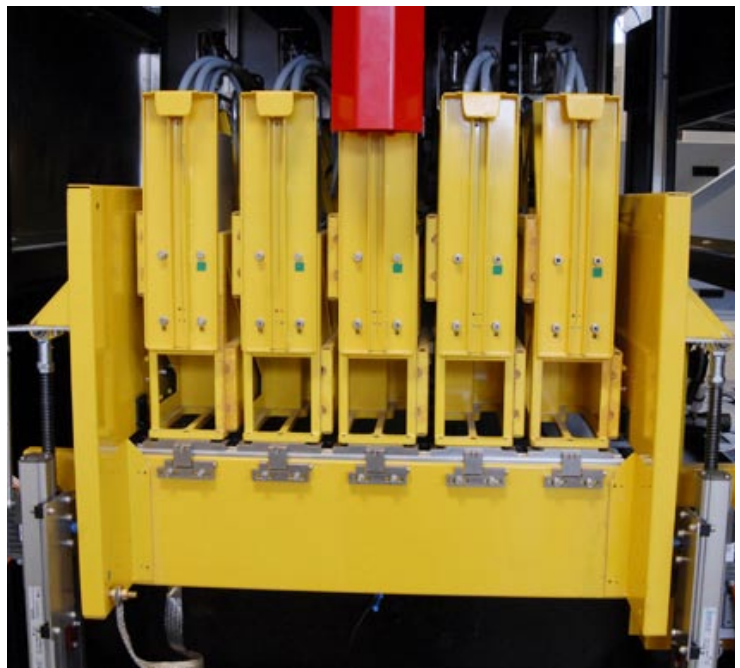
Page-Array UV Printer Factory Visit

By late March we added this new UV printer factory visit. This was quite an experience, especially because this is a million-dollar UV printer with a page-array of printheads.

“Page-array” means that the printheads don’t move; there are so many of them that they go across the entire width that the printer can do. Page-array is the new technology. Within two years you will find it in more desktop office printers, and \$30,000 60” photo-quality printers. You can already get inkjet presses that use page-array technology.

There is now a separate report on this printer after our visit.





Initial Factory visit to NUR world headquarters

NUR Macroprinters was a leader in grand format solvent printers for years. Their BlueBoard and current Fresco III solvent printers are known for holding up for years of productive output. NUR has now for several years gone full force into UV-curable printing and was the first company to produce a production-class roll-to-roll UV printer.

Since their headquarters is far away not many people are familiar with the company other than their nice trade show booths. So when an opportunity was available, I went to Israel to learn about NUR, and their UV-curable inkjet printing hardware, software, and ink chemistry first hand. With my background in archaeology and history, visiting Israel was also of personal interest to me.

Here are some initial snapshots of the NUR factory. It is clean, well-organized, and clearly looks prosperous. Their main discussion was that they have more orders for new Tempo flatbeds and Expedio roll-to-roll than they can produce.



It is not appropriate to reveal or publish on their proprietary technology and UV ink chemistry, but one thing I can say clearly: my impression of NUR, as a company and as a family of products, was dramatically changed by being here an entire day, indeed far into the evening at a follow-up business dinner that night overlooking the Mediterranean Sea.



I learned a lot about their UV inks and why they don't use UV inks from Sun any more (Sun are not bad inks, but the rest of the story of why NUR's new inks are better is best left under NDA).

Being able to spend time, in a relaxed atmosphere, and meet the people behind the printers, is a huge asset for FLAAR as we continue to maintain our position as the #1 de facto international resource for comparative information on UV-curing inkjet printers.

Even if a trade magazine had the time and staff to send to all the printer manufacturers, when you visit as a university professor you end up learning and experiencing more than if you are a journalist. Besides, to us at FLAAR, UV printers are not just a job; we don't write about these because some editor tells us an article is needed. We write about UV-curable printers because we have a passion for learning and for sharing our knowledge with our readers: we hope to surpass 300,000 readers on our solvent+UV pages this year. Last year we were about 270,000 readers on www.large-format-printers.org (if my memory still functions). Our other printer review sites, together, had close to a million readers in addition to the readers of our UV+solvent pages.



Here the inspection goes through the R&D facilities, in this case testing white ink and double-sided (including block-out materials). When you see how much is put into R&D you see why so many new versions of the Tempo and Expedio are being launched in 2007



In the factory you could see that the NUR Tempo as well as both the NUR Expedio 3200 and NUR Expedio 5000 are so popular that the factory has to work overtime

Other UV Printer Factory Visits

A factory visit makes it possible for FLAAR to accomplish the following:

- We can more easily write a FLAAR Reports on the printer, because we can learn more about its capabilities in the peace and quiet of a factory visit.
- It is possible to learn more about what makes a particular printer good when we can see inside. At a trade show you can't really see what makes a printer tick.
- A sloppy factory, sloppy welds, cheap components are easy to spot. But if the assembly is professional, you see high-tech quality (which is what we saw at Grapo, Gandinnovations, NUR, VUTEK, and MacDermid ColorSpan).

Trade show booths are rather hectic; it's a lot more practical to do a factory visit. Besides, if you go to the effort of flying all the way to the factory, then the manufacturer recognizes that you are a serious potential, and (hopefully) treats you accordingly.

Since our university does not provide travel funds, we rely on the manufacturer to provide airfare and hotel. So the factory visits tend to be with manufacturers that are general sponsors of our research programs. MacDermid ColorSpan and Gandinnovations would be examples (though being a sponsor is not a requirement; Grapo is not a sponsor, for example). For the major universities, for example Rochester Institute of Technology, their printing programs include sponsorship by manufacturers. The same is true of many other of the equally prominent and highly regarded printing programs at other universities: they have corporate sponsors. Indeed the programs that are not in the top tier often lack sponsors. Frankly without sponsorship it's not realistic to obtain all the training, experience, and access to the equipment.

For 2007 we anticipate perhaps seven additional factory visits (Matan in Israel, Sun LLC (Neo LED) in Russia, and IP&I in Korea are the first three pending). A site-visit is preferably part of a company familiarization visit (FLAAR gets to know the company; the company management get to know FLAAR and our programs). The manufacturer often asks FLAAR to provide consulting services, though this is not required. A factory visit is normally part of an evaluation project (to evaluate and write a review on one or more specific models).



and

UV-Curable Printers: Market Share, Market Potential, and Pros & Cons of Individual Brands and Models

Dr. Nicholas Hellmuth
FLAAR Digital Imaging Resource Center

Director,
Large Format Digital Imaging Division,
Center for Applied Technology,
Bowling Green State University

A visit is a minimum of an entire day (not inside the factory, whew, no, most of the time is needed in the demo room). But we prefer two days+ (one day general familiarization, one day for each individual printer in the demo room). Mutoh Europe requested an entire week because there we undertook a planned project of evaluation and testing. Four FLAAR publications resulted plus mention in several trade magazines.

The factory visits that have taken place since this was written will be added to separate additional reports.

If requested, we sign a Non-Disclosure Agreement (NDA) prior to entering the factory, so we can't report the intimate details of their 2008 generation of new technology, but we do have permission to document the features of their current printers in a way that no trade magazine or anyone else has made the effort to do. We are proud that FLAAR uses initiative to get out and bring back documentation so that print shops can have realistic and factual information.

And the factory staff, headquarters staff generally are very pleasantly surprised how much they learn from FLAAR when we are at their factory. That's why some visits are two or three days long or if only a day, then we get invited back year after year.

At a recent factory visit, I could not help but notice how many managers and business analysts from the company came to sit in on my PowerPoint presentation on the general state of the UV economy worldwide.



Dr. Hellmuth at Mutoh factory, Belgium, May 2007



Dr. Hellmuth at VUTEk factory, June 2007

Wasatch, Visit to their Main Headquarters

What to look for during a visit to a RIP software company

When I visited the international headquarters of BEST (RIP company) in Krefeld, Germany, on two occasions, I noticed they were growing and had many technically capable people. When I visited the USA headquarters and demo room of BEST outside Cincinnati, again I saw they had top people. Their US offices looked top notch.

When I visited the headquarters of another RIP company in Belgium, I saw a large building (a good start), but I noticed that 90% of the offices were completely empty. Indeed I found only about three or four employees still at work in the entire building. Naturally my evaluation of their RIP software suggested that they might not be able to provide much tech support in the future.



BGSU professor with two managers of Wasatch at their world headquarters in Utah



The reason you see so many different printers at a RIP headquarters is that they need to fine-tune their RIP for each brand and model of wide-format printer. This is also why a testing institute needs to have diverse printers readily at hand if testing is part of their intended program.

About three weeks later this company went either bankrupt or otherwise was bought out by someone else.

Yet another year I visited the headquarters of Perfect Proof (ProofMaster RIP software) in Belgium. I saw a capable and dedicated crew. It was not a huge building like BEST, but you don't have to be big to be good. Size does not always matter. Perfect Proof is an excellent proofing RIP. The owner has decades of experience and knows ICC profiles inside out; indeed he knows them so well that he realizes there are more precise ways to handle color management.

Yet two other European RIP companies appear to be waning. One used to have a large trade show booth at all the major European trade shows. But now they don't have their own booth any more, or if so it's a lot smaller. And they no longer have a US office; their US distributor is not itself a RIP company; only a reseller. The other European RIP company also has a reseller as their representative in the US; very capable (I have been there), but not in themselves a RIP software company. In distinction ErgoSoft, also a European RIP company, has full-time RIP specialists as their management and tech support in the US.

When you visit the world headquarters for Wasatch, you can see they are a prosperous and growing company. Indeed Wasatch is the #3 or possibly the #2 RIP nowadays. This means they have the financial resources to invest in new products. So it should be no surprise that Wasatch was the first to produce variable data capability for wide-format inkjet printers.



AIT Shiraz RIP, Visit to their Main Headquarters

Their color management specialist is from Denmark and knows ICC color profiling from A to Z. The owners of the company that makes Shiraz RIP have been in pre-press for decades and know all aspects of this industry. They don't have a major presence in the US, but are a respected software provider in the UK and throughout Europe and the Middle East.

When you visit the Shiraz headquarters you know you are dealing with a company that is experienced, capable, successful, and will be around for a long time.



World headquarters of AIT, the company that develops Shiraz RIP software for wide-format inkjet printers.

The RIP is the brains that runs your wide-format or grand-format printer, so it is worthwhile selecting a RIP that has capable people standing behind it. The best way to learn who is standing there is to visit the international headquarters. AIT (Applied Image Technology) is the company that makes Shiraz RIP software.

I find it well worthwhile to visit the headquarters of RIP software companies. You get a broader perspective than you can see at a trade show. Besides, in their headquarters you can quietly sit down and test their software. A successful RIP company has all the major printers all in their demo room (except obviously the huge grand format solvent and UV printers since these printers work best when kept running 10 hours a day every day).



To test products you need one of every major printer.



BGSU professor with two of the owners of AIT/Shiraz.



You notice when a RIP company is competent, when you see capable specialists on their staff. Here, for example, is a full-time color management at Shiraz headquarters



Again, you judge a RIP company by their headquarters facilities: here is just one out of several rows of the printers that can be managed by Shiraz RIP software. Based on our inspection of Shiraz over several days, we rate them as an internationally capable software development company.

BetterLight, Photographic Equipment Factory Visit

This is obviously not a printer factory, but it is the place that the most sophisticated large format digital camera backs are designed and manufactured. BetterLight is the leading brand of tri-linear scanning backs for large format cameras.

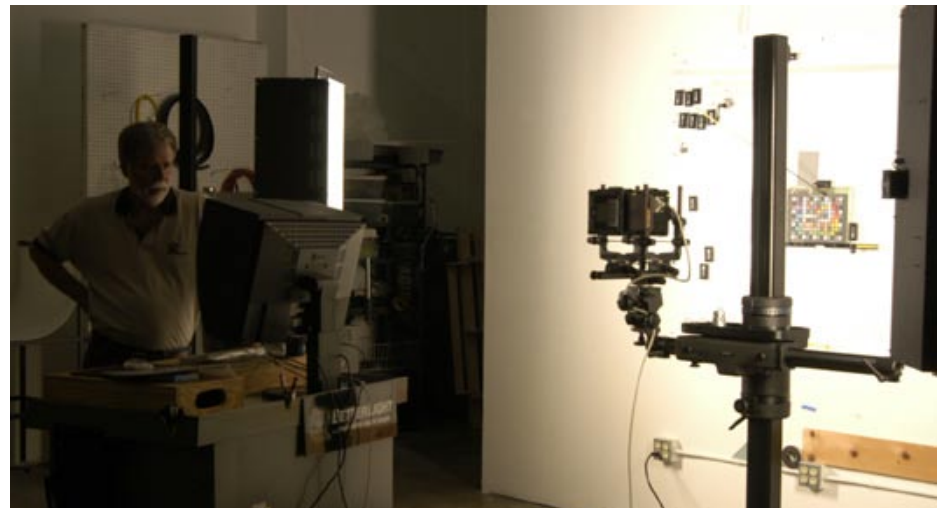
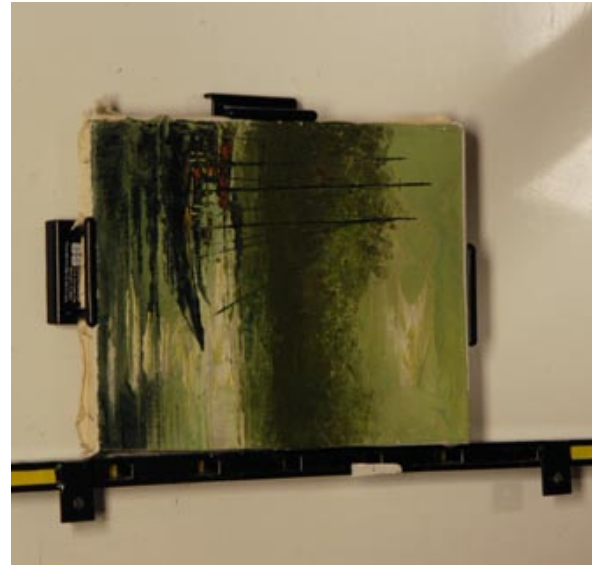
Here you can meet Mike Collette, owner and developer of the camera, and Robin D. Myers, their color management specialist. He was part of the scientific team of Apple Computers when they first did their color management.

In the headquarters of BetterLight you will also find David Christensen, North Light Products. Their digital fluorescent lights, their SunSpots (these are the ones we have), and their HID (High Intensity Discharge lights; the ones we would like to have but as a non-profit institute we don't have the funding) are all state of the art. Christenson works together with BetterLight both in the factory and at trade shows.



When funds are available we try to send pertinent personnel other than Hellmuth for training. Here we have sent Eduardo Sacayon for training. He was selected for several reasons: he has already demonstrated the ability to learn how to use all the sophisticated cameras and software that we have made available to him. Plus, he has worked for FLAAR already for over 5 years and has expressed interest in continuing with us. So it is understandable that we in return are keen to invest in his further training. Eduardo is in charge of evaluation and educational projects at FLAAR's office in Guatemala. He is a graduate student at Universidad San Carlos, Guatemala City.

The circumferential rollout on the wall of the headquarters of BetterLight is taken by the FLAAR team in Guatemala. Hellmuth has been a beta-tester for Better Light since 1997, before coming to BGSU.



BetterLight testing facilities, Silicon Valley area, California.



MegaVision, Photographic Equipment Factory Visit

MegaVision is one of about six remaining manufacturers of CCD backs for medium format cameras (for Hasselblad, Rollei, Mamiya, etc). MegaVision is the only one of these six manufacturers that also makes a dedicated black-and-white digital back for a medium format camera. We have borrowed one twice for testing. Very impressive because with no Bayer Pattern and no moiré filter, you get a crisper sharper image.

In earlier years I also visited the headquarters of Phase One in Denmark, and ColorCrisp (subsequently bought out). So I have been doing factory visits long before coming to BGSU.



Xerox iGen3 Factory Visit & Familiarization

We started evaluating dye-transfer printers in 1997. Next we evaluated A3-size (11x17" tabloid size) laser toner printers during 1999-2001. Our first wide format inkjet evaluation was an Encad NovaJet Pro in 1998-1999. We received our first HP printer (2800cp) circa 2000.

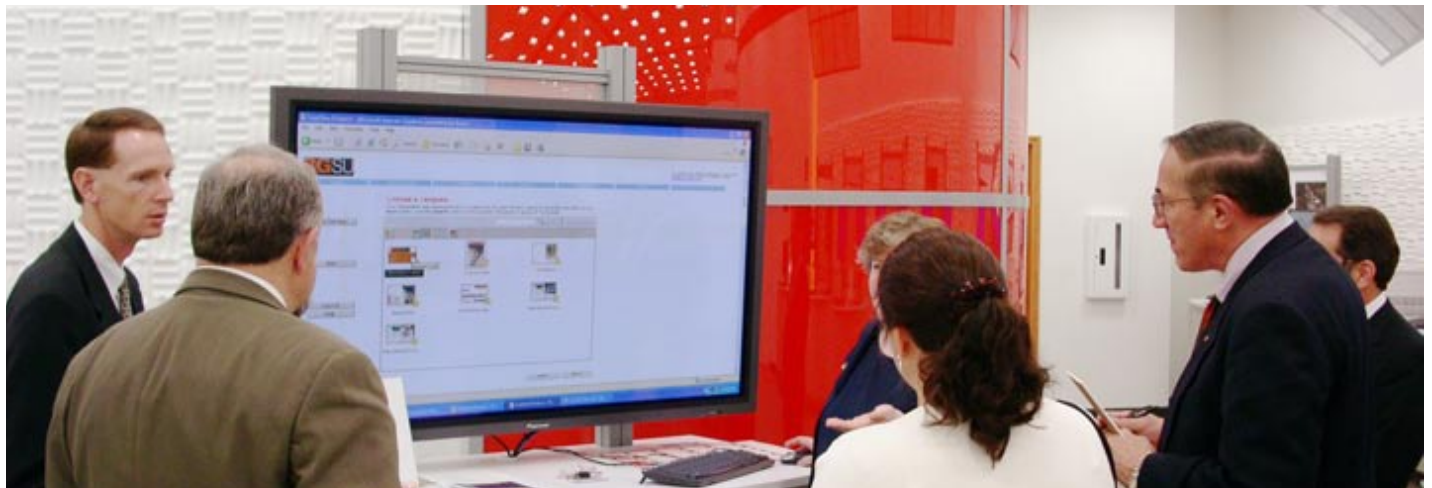
By 2003 we had moved away from stagnated laser toner technology and were firmly into wide format inkjet. We began looking at UV-cured printers at DRUPA 2000 and Photokina 2000 and moved full-time into covering UV-cured flatbed printers at DRUPA 2004.

During 2004 we also began to look closely at variable-data short run digital presses. Nicholas won the Kodak DRUPA 2004 digital press prize which was a trip to the Kodak technology center at the Athens Summer Olympics that year (ticket for two, very nice). There it was possible to learn about Kodak Versamark and Kodak nexPress.

By 2005 Xerox noticed our presence and invited five of us to their factory and demo center in Rochester to inspect the iGen3. We have a separate report on this visit, so here we show just a few sample pictures. Obviously most of the actual assembly was off-limits to photography, but what counts is that we spent hours in the factory, with each technical manager explaining his or her part of the overall system.

Very impressive, not only the variable data short run machine, but impressive how Xerox skillfully arranged the visit.

As an added benefit, as a result of this trip a BGSU student received multiple job offers.



Site-Visit Case Studies

There are three kinds of special ways to learn about UV printers,

- one is factory visits,
- another is a site-visit case study
- the third manner is trade show visits.

A site-visit means that FLAAR goes into a print shop, franchise sign shop, major photo lab, digital printing company, screen printing company, etc and inspects how their UV-curable flatbed printer actually functions.

Or, in the case of some printers, we obtain a precise list of how their parts wear out, the combo-belt causes skew, the UV lamps are too hot, the ink does not adhere.

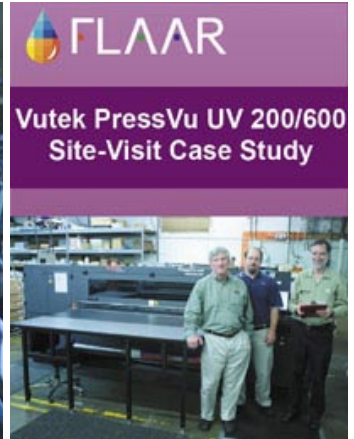
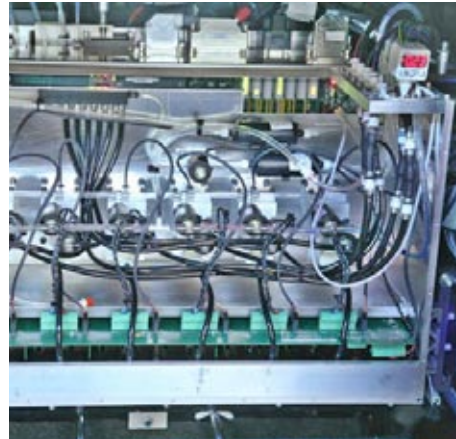
In most (but not all cases), the printers work just fine. In some instances it turns out that the printer brand they selected is better than they anticipated.

Printshop owners indicate whether their printers are making money, or whether they wish they had bought another brand instead.

It costs us an average of \$1000 to fly to these locations, hotel, rental car, then all the costs of preparing the full-color PDFs (total between \$4300 and \$4800 for a site-visit and report preparatin costs). So our institute appreciates it when readers consider purchasing these reports from www.wide-format-printers.net.



Lisbon, Portugal. Gandinnovations site-visit case study



St. Louis, MO, US. Vutek PressVu 200/600 site-visit case study



Athens, Greece. Lüscher JetPrint 3530 UV site-visit case study



St. Louis, MO, US. Infiniti-UV site-visit case study

Inspecting UV-Cured Printers at Trade Shows

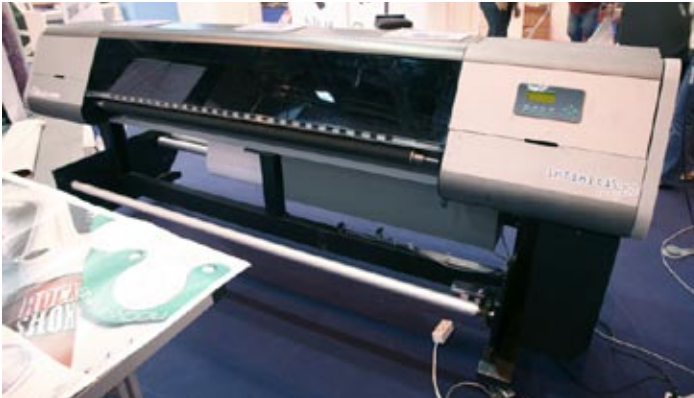
The third manner of learning about UV-curing wide-format inkjet printers is by visiting trade shows. FLAAR offers a completely free report that lists all the trade shows and suggests which ones are worthwhile visiting. We then offer free trade show summaries for individual trade shows by year (as separate reports, such as DRUPA 2004, or whatever). To attend a trade show in foreign countries cost us about \$3,000 and even when the show is in Orlando the hotel bills, rental car and time devoted to studying the printers adds up. So for some of the trade show reports, especially on UV flatbed printers, we do ask for a contribution for the resulting report, since otherwise it would not be possible to provide this documentation.

Trade show reports are lists of what printers appeared, by brand, model, and classification (what kind of ink, what size class, etc). If you need extensive discussions in detail of any particular printer, then you also would need the one-by-one FLAAR Reports on each individual model. Where trade show reports are especially helpful is to find out when (what year) each model was introduced so you can learn whether you are buying cutting edge, bleeding edge, or old-fashioned technology. Plus trade show reports are a good way to obtain a general overview of the flatbed UV printer industry.

UV printers have been shown at trade shows since about 1999, with the most early UV printers being at DRUPA 2000. Naturally since then even more UV printers have been exhibited.



Graphics of the Americas, 2007



Infiniti Xterius 16UV at Sign Madrid 2006



DGI UV at VisCom Italy, 2005



Mutoh Phoenix at Dubai 2006

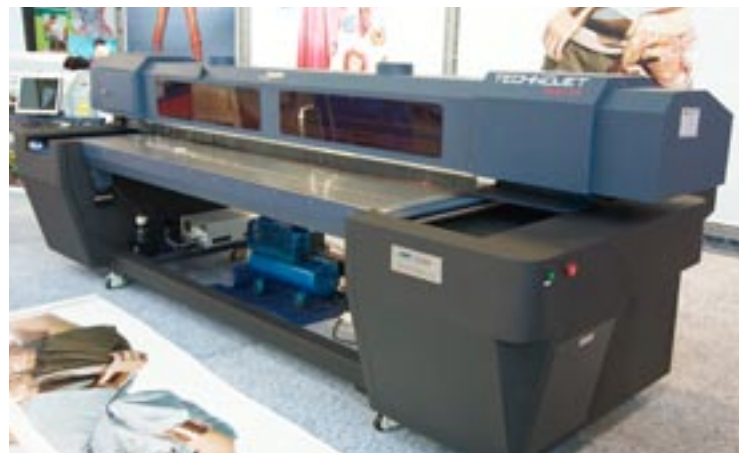


Anhui Liyu Eureka at Sign Istanbul 2006

Since FLAAR Reports are read around the world, we do our best to inspect UV-printers at trade shows in as many countries as possible

Most recently updated May 2007.

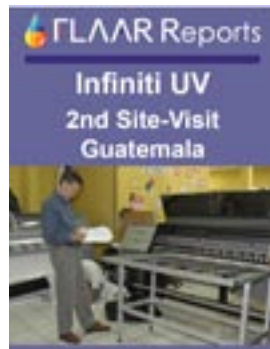
First Issued April 2007



Yishan TechnoJet UV Munich FESPA, 2005



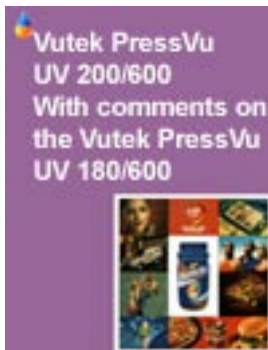
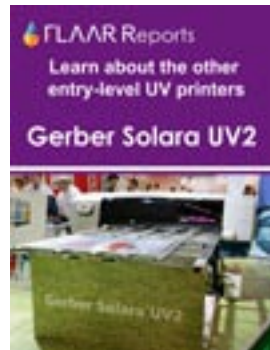
Site-Visit Case Studies



These reports and more are available at www.wide-format-printers.net



Evaluations



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