



Eco-Solvent
Mild-Solvent
Full Solvent
Wide Format Inkjet Printers
at
Viscom Düsseldorf 2005





Caption for front cover: Print test for the Gandinnovations solvent ink printer.

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Introduction

Here is the list I made from the Reed website, the organizers of Viscom trade shows. This was a pre-show list of what I might expect.

3M
3P Inkjet Textiles
Alcan Composites
B&P Lightbrigade Group Ltd. (they did not appear under their own name at the show itself)
BASF
Bordeaux Digital Printink Ltd
Cadillac Plastic
CADlink Technology
Canon
Cgate
CHROMA
ColorGate
Colormy
Digirex
Eastech
Gandinovations
GCC
Infiniti-Europe
Intelicoat
Keundo
Lüscher
MacDermid ColorSpan
Matan
Mimaki
Mutoh Europe
Neolt
Neschen
NUR
Oce
Perfectjet
R. Rauch
Roland
ScanvecAmiable
Sihl
Tara
Teckwin
Tepede
Triangle Digital
Universal Laser Systems
Vutek
Zünd



Once we got to Germany, we found that there were plenty of UV-cured ink printers to study even though neither Sericol/Inca nor Durst exhibited.

Trends

More UV printers, and solvent ink printers, than any other inkjet technology. Eco-solvent seems to have reached a dead-end, as customers are fed-up with false and misleading advertising year after year.

In general the official list of exhibitors was not helpful whatsoever in understanding, before the show, which printers would be available for study. For example, Seiko I&)*()& as a company was conspicuously not present in the list, yet once you arrived you found there were more Seiko printers in booths of distributors and dealers than any other printers.

Missing

No HP corporate booth, no Epson booth, no Kodak presence (so no Encad except for two dealers). So not really any water-based inkjet technology except for Canon. But the HP 5500 was the most frequently exhibited water-based printers. Practically no Epson printers and no Canon printers outside their own booth.

Durst, Inca (and Sericol), conspicuous by their absence. Scitex Vision: not present under their own name; only one printer through a dealer.

Only one laminating company was in the original list: Neschen. GBC, Seal and others were not present under their own name. But at the show itself at least one other brand of laminators was present.

Agfa was conspicuous by its total absence.

Almost no Chinese presence

If you had relied on the Viscom exhibitor list, you would have thought that only two Chinese manufacturers would exhibit, Infiniti and Teckwin (twice, own booth and OEM via Matan). But once you got to the trade show you found that a few other Chinese printer manufacturers were indeed present.

There was only one Taiwan manufacturer, Eastech.

Almost no Korean presence

Only Keundo. Dilli (D.G.I) were conspicuously missing in the pre-exhibit list yet in the actual show both were present: D.G.I. showed four solvent ink printers; Dilli had a separate booth and showed their UV-cured flatbed printer. Dilli and D.G.I. are either sister companies, divisions of each other, or D.G.I. is the distributor for Dilli the manufacturer.

Solvent Ink Printers (in the original list on the Reed website)

Digirex
Infiniti-Europe
Keundo
MacDermid ColorSpan (but they showed only their UV printer)
Matan
Mimaki
Mutoh

NUR (but they showed only their UV printer)
Teckwin

Eco-Solvent Ink Printers

Mutoh
Roland

After-market Inks

3M
BASF
Bordeaux Digital Printink Ltd
Triangle Digital
Plus about five “no-name” makers of after-market ink for HP 5500.

UV-cured Ink Printers

We have a separate FLAAR Reports on UV-cured inkjet printers at Viscom Düsseldorf. But here is the quick list of what was in the website before the show.

Digirex (at last minute did not bring their printer)
Eastech
GCC
Infiniti-Europe
Lüscher (no actual printer present)
Mimaki
Neolt
NUR
Techwin
Vutek
Zünd

Water-based Printers

Canon

RIP Software

CADlink Technology
ColorGate
ScanvecAmiable

Laminators

Neschen

Media & Substrates

3P Inkjet Textiles
Alcan Composites
Cadillac Plastic
Cgate
CHROMA
Intelicoat
Perfectjet
R. Rauch
Sihl
Tara
Tepede

Textile Printers

Not much in the original list, but actually many actually at the trade show (see later in this report).

Miscellaneous

Universal Laser Systems
And a healthy number of other manufacturers of laser engraving machines.

Solvent Printers

The **Algotex** RainbowJet RB 325 was displayed in the Sihl booth. This was a typical example of a manufacturer that was present, but not listed in the pre-show list. Algotex is an Italian company. So you get European quality. So far, this printer is available only in Europe, though Algotex textile cutting plotters are sold worldwide: there are several of them in Guatemala. The Algotex Rainbow comes in several sizes; all use Xaar printheads. A month or so later Algotex introduced a smaller solvent ink printer.



Algotex Rainbow

ColorSpan handed out brochures on their two widths of solvent printers, but exhibited only their UVX hybrid—no actual solvent printers were in their booth.

D.G.I. showed two large MegaJet models; one was the MJ-3206. D.G.I. also showed some smaller model solvent ink printers. D.G.I. is a distributor or partner company for the Korean manufacturer Dilli. Dilli often has a separate booth of their own. D.G.I. has distributor(s) for the US. It used to be S.I.M., but has changed this year.

Digirex is a large distributor of solvent ink printers in Turkey. They had a substantial exhibit at DRUPA and FESPA. They had three or four of their made-in-China solvent printers at Viscom. These are manufactured by



D.G.I.

Yishan. I have not seen this brand anywhere else. The **EuroJet** printer from China was exhibited in the Flex-Europa booth. It uses a Xaar 126 printhead.

Gandinnovations had a 3.3 meter model in their booth; Oce had a 5.x meter Gandy model in their booth. The primary difference between a printer designed by James Gandy, and a printer from Korea, Taiwan, or China, is that most Asian printers copy what they find elsewhere, then keep the price down by using cheap labor, low-bid parts, and not that much follow-up tech support. A Canadian-American company such as Gandinnovations develops the kind of technology that Asian manufacturers copy a year or so later. But Gandinnovations can, and does, provide factory-trained tech support throughout the world.

Infiniti Europe showed their European versions of their Chinese printers. Infiniti Europe is organized in a different manner than Infiniti for the US and Latin America. We cover Infiniti for the US and Latin America each year in our reports on Graphics of the Americas.

Keundo had two units. The main competition to Keundo would be Gandinnovations.

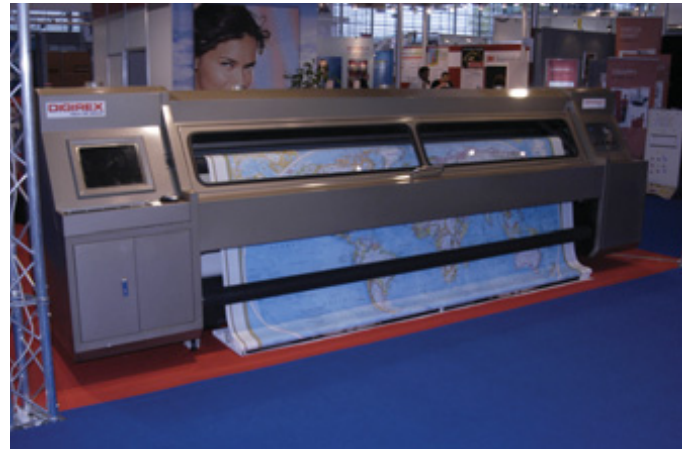
The **Lyric** solvent ink printer was in the booth of Optimum Digital Planet. That is a company headquartered in Turkey. Germany and Turkey are major trading partners and many people from Turkey travel to Germany for trade shows. The manufacturer in China is Anhui LIYU Computer Equipment Manufacturing Co., Ltd,

The booth had brochures for the Lyric PC and Lyric Mars series. These printers cranked out giant banners all day every day: very colorful and from a distance they looked attractive. The questions naturally are: how long will these printers hold up?

This question is all the more pertinent because Lyric is a very simple printer: when a printer is that light-weight we would need a site-visit case study to document how long it holds up. This is tough, since no one in Guatemala or near in the US has one.

Matan showed one rebranded Teckwin Chinese printer as the Matan JetSet P 3.2.

The **Mutoh** PH-2646NX was shown at a dealer, Tepede. It is confusing when they don't use the traditional name. Tepede also showed a Seiko 64S and a Mutoh Spitfire.



Digirex



Gandinnovations



Infiniti

Oce had none of their own solvent ink printers at the show. Oce has tried to buy a variety of solvent printer manufacturers, but Oce is not in the signage business. Oce is a successful traditional seller of copiers and reprographic equipment to large corporations. Oce is a huge multi-national company, with an organization so complex that it is a challenge to know who is really in charge of their solvent ink printer program. About half of the printers that Gretag Imaging and Oce have tried to produce have failed in the market. Since Oce has a good sales force, Oce is trying to make up by selling the printers of others, such as Seiko. But HP bought the rights to distribute Seiko printers recently, so that golden goose disappeared. Oce now rebrands the ColorSpan printers for Europe and sells the Gandin-novations printers in those countries where the Gandy brothers have no direct distributor of their own.

Scitex Vision (now part of HP, but showing no HP banner or anything) was represented by one lone printer, the XLJet 5 Premium 8C, and in the booth of a reseller, not the manufacturer itself.

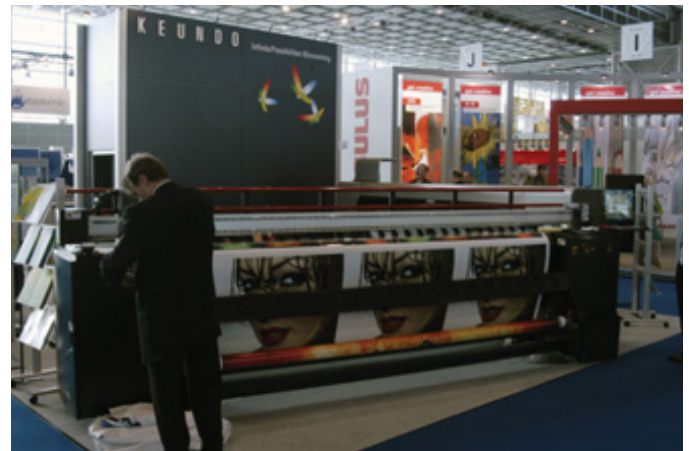
Seiko itself had no booth: they did not have to: Seiko printers were in about six different booths, including Oce. Oce still sells the Seiko until HP takes over next year. To regain the business that will be lost to HP, Oce now sells the ColorSpan Gator in Europe.

Solger showed a solvent ink printer based on a drum-design.

TechnoPlot showed a Chinese printer but declined to identify who the manufacturer was. So we will assign a FLAAR staff to search our data base and eventually we should be able to identify the manufacturer. Why do resellers try to hide the origin of their printers? This just encourages us to find out the truth ourselves. The two-color design, angled look, and design of the cabinet doors is similar to the Digirex Camelon from Yishan, but not the same printer by any means. Even Chinese manufacturers copy among themselves. But if we had to wager, we would bet it comes from Yishan. If any of our readers can identify the precise model of the original Chinese printer, and can show us a web page where the Chinese (or Digirex) version is shown, we would greatly appreciate receiving a note at fax 419 372 8283

Teckwin showed one of their solvent ink printers; another was in the Matan booth. The Gerber version was not shown because Gerber Europe (Spandex) did not exhibit, or at least not under a name that we recognized.

At Print '05 **Vutek** showed both their current UV printers, and if I remember correctly, no UV printer; at Viscom Vutek featured their solvent ink Ultra Vu II 3360 and one UV, their model 320.



Keundo



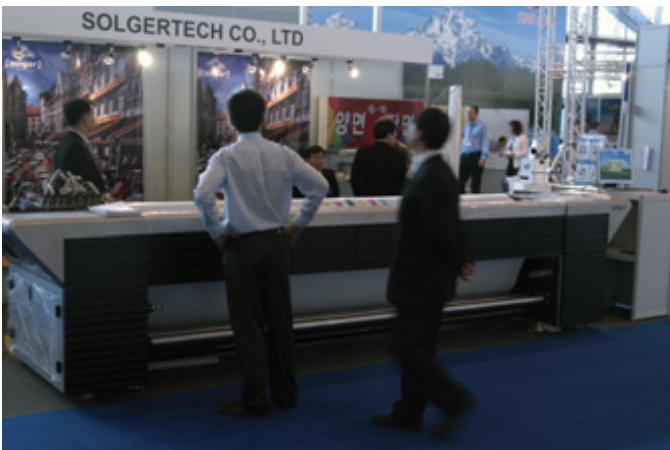
Mutoh Spitfire



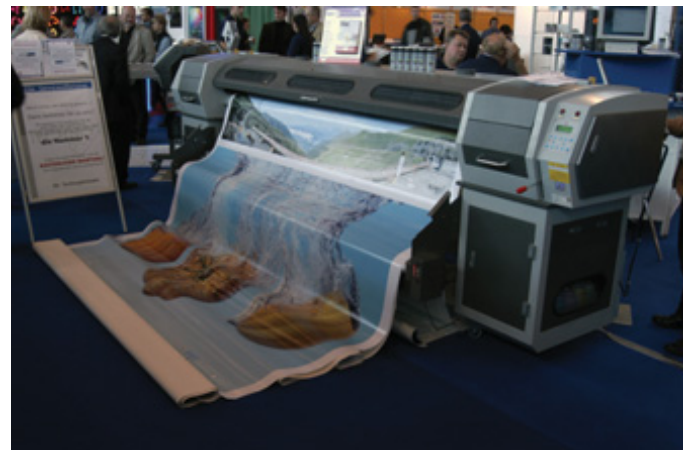
Scitex Vision



Seiko



Solger



TechnoPlot

Eco-Solvent Printers

The third generation eco-solvent ink has appeared, after the total failure of the first generation eco-solvent ink of 2002-2003, and the insufficient performance of the eco-solvent inks #2 foisted on the public during 2004-early 2005. It is a wonder there have not been massive class-action lawsuits based on wholesale misleading advertising during 2002-2003, and equally misleading claims of 2004-into mid 2005. The fact that each new ink was necessary at all is the proof of the inadequacy of the earlier inks. Complaint after complaint about misleading advertising have resulted or simply people who were completely unsatisfied was the legacy of these misguided attempts at creating a stink-less solvent ink. The idea was ingenious, but the advertising claims were actionable.



Roland eco-solvent

Today, in 2005, the new generation ink puts to rest most earlier problems and FLAAR reviewers are considering lifting our buyer advisory. We feel that the new ink deserves to be tested by our process. As soon as sponsored research funding is available, our university staff can go to work.

The present third-generation ink is no longer ecological of course, since each successive recipe had to include stronger chemicals in order to work, at all, on un-coated materials. Thus the original pretense of an ecological ink is long ago been exposed. This is not the original conclusion of FLAAR alone: if you go to any technical industry conference, and mention "eco-solvent ink," the chemists, technical people, and industry executives snicker, because no one (outside those trying to sell eco-solvent products) really accepts the pretense.

The other problem was that the printers that attempted to use the first two generations of eco-solvent ink were as jerry-rigged as were the inks. The heaters were inadequate and overall it was clear that the printers were not really designed from the ground up to handle serious solvent inks.

Now, by late 2005, the new generation of inks are called mild-solvents. Indeed Seiko has used a mild-solvent all along. Reportedly some of the inks for Mimaki JV3 are mild solvent (Mimaki is one of the few companies whose executives were honest enough not to foist a pseudo-solvent ink on the public in 2002-2004).

Mutoh has come a long way in overcoming the problems of weak and inadequate eco-solvent inks of 2002 into early 2005. Indeed Mutoh Europe's advertisements for their nice Mutoh Spitfire 100 has footnotes to specify its actual performance in real-world situations. We give high marks to Mutoh Europe for honesty in advertising in this respect (this is not yet a recommendation for the printer; we have to undertake site visit case study first, but at least we have respect for Mutoh Europe as an ethical company).

Mutoh Europe has their own design staff and their own factory. So Mutoh Europe printers are different than products produced by Mutoh Japan. Some Mutoh Europe printers are not available in the US; and some Mutoh US printers are not sold in Europe (the Mutoh Toucan LT is one example).

Roland DGA is probably stronger in Europe than it is in other parts of the world. As we witnessed at Visual Communications Milan in November, Roland Europe (which is evidently the name of what is really Roland Italy), had the largest single exhibit at the entire trade show.

Roland has many models, though there are really two basic designs:

- The Pro II
- VersaCam

Keep in mind this is looking at Roland from the outside; the company itself may classify the situation differently.

We recently visited the Roland USA headquarters and are interested in learning more about Roland options and capabilities.

The main versions of the Pro II, listed in Roland ads, for example, are:

- SJ-645EX
- SJ-745EX
- SC-545EX, printer cutter

The actual number of individual models in Europe, listed in a German trade show magazine handed out at the show, Desktop Dialog, adds to the above list:

- SC-545EX
- SP-300V (VersaCAMM)
- SP-540V (VersaCAMM)
- FJ3-300
- FJ-500
- SJ-1045IS

These are mostly the V-series, which just means they replaced Wasatch RIP with their own RIP, which they happened to name "V". The reason, among other considerations, to offer their own RIP is to be sure that customers have canned ICC profiles for Roland substrates and media only. This means if you have a Roland-sanctioned RIP, you can't easily get ICC profiles for any other substrate or media besides Roland. The only way around this is to get your own full-version Wasatch RIP (or ColorGate, Shiraz, etc) and then use a Gretag-Macbeth or X-Rite spectrophotometer to generate custom ICC color profiles.

Many companies have their own RIP for effectively the same reason. This system to encourage you to use only the manufacturer's brand of media is not restricted to Roland.

A fair review will point out both sides of the situation: when you have the manufacturer sanction and promote one set of media, then at least they stand behind it, and then do provide canned ICC profiles. But most astute printer operators, who like to be able to understand and operate things on their own, prefer to do custom in-house ICC color profiles. If you do not yet do your own color profiles, and would like to learn the basics, check out the FLAAR Series on color management.

In the Milan trade show, the official Roland distributor had a huge booth. At Duesseldorf, a reseller, TechnoPlot, had more Roland printers than did the official German Roland booth.

Thermal Dye Transfer

In small desktop printers, thermal dye transfer is popular: Kodak and other companies are surviving okay, now that the prices of the printers have dropped dramatically. But at wide format sizes, thermal dye transfer technology is all but dead. Matan showed fabulous wide format thermal transfer technology at DRUPA 2000, Photokina 2000, CeBit 2001, but by 2003 this technology had faltered. One reason is the extremely high cost of the inked transfer colorants. But the real reasons were the costs of all the materials wasted during start-up. If you ran the machine all day, the costs were okay. But this was not a technology where you could print one or two images and then wait to



Gandinovations dye sublimation

print some more when business came in. The other problem was seemingly in the printheads (this was not an inkjet, since no ink was jetted, but there was still a print"head" that resulted in a color being transferred from the roll of colorant onto the material (which was another problem, since you could only transfer to a limited range of materials).

So no wide format version of the Matan has been shown at any trade show in Germany or the US in 2004 or 2005. Summa is the only company that still tries to market a variant of this technology. The downside of the Summa manner of printing is their styled structure, like offset printing only a larger and more noticeable pattern. This is totally unacceptable for anything that you can hold in your hand and view up close, such as labels. And labels are precisely what this printer is sold to print.

Any technology that shows the structure of the laydown pattern is not acceptable for photo-realistic image quality.

Of course at a far-away viewing distance, the output of the Summa DC3 is just fine. It is instant dry (since there is no water and no "ink" in that sense). And it has no smell like solvent, mild-solvent or eco-solvent (and yes, eco-solvent does need ventilation despite what misleading ads claim to the contrary). And surely this technology was created for specific niche applications, so if you do such a niche application perhaps this is a printer you should check out at the next trade show.

Textile Printers

After so many textile printers presented their products at FESPA, I was not surprised that the original Viscom Düsseldorf list was weak in digital textile printing booths. But in the actual show, there were textile printers of many sizes and shapes.

The largest and most productive textile printer at Viscom Düsseldorf was the dye sub system of Gandinnovations. Their 3.3 meter wide dye sub printer was paired with a calendering machine from Klieverik in Holland. For further information on learning about printing on textiles, check out www.klieverik.com, or www.gandinnovations.com.



"Direct dye sub" means you print with disperse ink directly onto the fabric. There is no dye sub transfer paper. But you still need heat and some pressure to fix the colorants into the fibers. This is achieved by passing the cloth through a calendering machine. As the Klieverik brochure points out, the ink is fixated, since it no longer has to travel, via sublimation, from a paper transfer over onto the fabric: the image is already on the fabric. So in a sense, it sublimates on itself.

Direct dye sub has been around for a few years, but became more visible starting in 2004. FESPA is a Mecca for this kind of textile printing systems. Indeed we have a separate report on this.

d-gen had large booths at DRUPA, Photokina, FESPA and at Viscom was represented by MultiPlot. D-gen is a Korean company that retrofits a variety of printers,



especially from Roland, to print directly onto textiles.

The Fast T-Jet Jumbo was printing white T-shirts directly: Karl Groener GmbH, www.groener.de.

Lotus offered textile transfer materials.

BASF had a booth with information on their dye sublimation inks for printing on polyester. You can now print via transfer paper, or direct onto polyester (if you have a printer that can direct-heat sublimate, such as the printers by Gandinnovations combined with a calendering machine).

CIBA partners with Scitex Vision and Reggiani Macchine to produce the DReAM textile printer. The printer itself is rather large; so it was not present at FESPA nor at Viscom. But they had a brochure. This is a serious industrial machine.

Several heat transfer machines (calendering machines) were exhibited. Multiplot is the distributor for Heatjet. These heat transfer machines can also do fixation of direct-print dye sub inks.

Microsoft Word's automatic spelling correcting system can't spell heat transfer calendering machines properly. It automatically changes the "e" to an "a." The proper way to spell the process is calender, and calendering machine.

Water-based Printers

Neither HP, Encad (nor Kodak), nor Epson had a stand. Half a dozen HP 5000 or 5500 printers were shown (all at stands promoting cheap after-market ink to replace HP's official ink).

I saw one lone Epson 4000 somewhere. Perhaps six stands had an HP 5500 to show after-market media; a few stands were trying to sell after-market ink. One lone Kodak 1200i printer was in the Tepede booth. Several Kodak 1200i printers were exhibited at distributors or resellers: but no official Encad or Kodak stand. This is the same printer as the Encad NovaJet 1000i; just a different name, which is misleading if you think it has any improvements. Xerox sells the identical Encad printer under a different name.

Canon Germany was the only water-based printer manufacturer that we saw with their own company stand.

Laminating Equipment

Neschen had a giant booth, as would be expected for a company of this size and that is a German company, so a large exhibit in a German trade show would be logical.

Keundo exhibited their SupraCoater. This liquid lamination equipment comes in two widths, 1.6 meters and 3.3 meters. A company in the US that we spoke with has a Keundo SupraCoater, and is content with it.

GMP-Germany is a German distributor for GMP laminating equipment from Korea. They have laminators of all sizes and shapes.

Laser Engravers and Cutters

FLAAR has expanded its coverage of digital imaging equipment to include laser engravers and cutters because this technology can be useful to museums, to architects and architecture departments at universities,

and even to archaeologists who wish to recreate ancient art in bas-relief or art that was incised.

The brand of laser engraver that we have at BGSU is a Universal, series 300. FLAAR now offers a separate report on laser engravers in general.

GCC showed a wide range of laser cutters. GCC is a manufacturer in Taiwan.

Acknowledgements

As you can expect, American universities do not provide funds for professors to do research in Germany. Thus I thank Gandinnovations for covering airfare, hotel, and meals so that I could attend Viscom Düsseldorf. Like thousands of other people, we were intending to go to SGIA, but when New Orleans got wiped out by a hurricane, we still wished to keep up with our studies on printers. Since FLAAR is interested in UV, solvent ink and dye sub technology, we felt having an opportunity to scrutinize all three printers inside the Gandinnovations booth would be valuable for our learning process. It was especially helpful to be in the booth the two days before the show opened, to see how the printers arrive at a destination, and to see the installation process.

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Solvent Ink Printers from Korea

