UV-cured Flatbed Printers at VISCOM Frankfurt 2010





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Introduction

There were more UV-cured printers here in VISCOM Frankfurt than last week at Reklama Moscow. And here in Germany there was just one Chinese printer; only one single machine. In Moscow there were Chinese brands everywhere in every aisle.

Here in Germany (and at SGIA a few weeks earlier) many dye sub printers are on display. In Moscow hardly any dye-sublimation printers.

The aisles were crowded at the Frankfurt Messe all three days. Cleverly most aisles are narrow, so anyone in the aisle makes everything look full.

There are not photographs of every booth because if there were people in the aisles, it was awkward to take a photo of the booth because the people blocked the view.

For the same reason there are not photographs of every printer. Often there were many students clustered around a machine. So if I happened to be with my camera near a booth that had students everywhere, I could not photograph the printers in that booth.



Close-up of the Jetrix 2030 UV printer samples at their booth.

Awards: Worst Logo

Whereas at VISCOM Milano there were many contenders working hard to have produced the most illegible logo, there were only one or two German firms who did a great job producing a logo whose letters were so over-designed that you could not decipher them.

Awards: worst booth design

Most booths were acceptable, so no one booth stood out as deserving of the worst-booth-design award. Several booths tried a bit, but were okay as is, so we will give out this award in 2011.

Award: best booth design

Booth design was not very daring, so no one booth really impacted me. One reason is because the aisles are really narrow here at VISCOM Frankfurt, so you don't get much of a view of any booth from afar. In VISCOM Italy the aisles were the width of 9-lane highways! So you could see the large booths from a distance.

However there were individual designs within some booths which were really eyecatching for their graphic design. I especially liked the two bananas with their arms around each other.



Outside view of the set up of Hall 3, VISCOM Frankfurt 2010



List of UV-cured printers at VISCOM Frankfurt 2010

Agfa: Anapurna M2050, one lonely UV printer in the minimalistic booth of Agfa.

Anderson (from Taiwan) had two UV printers, in the booth of Giben. But instead of using the original Taiwan name for the printer, they created the Giben name as the model designation. It is never a good idea to conjure up new names for a printer that already has a name in its home country.

DYSS Lasco UV printer in the booth of Farben-Frikell Berlin.

Fujifilm Acuity Advance HS, which is a rebranded Oce Arizona 550.



Acuity Advance HS UV printer.

Gerber CAT UV was printing nicely in their own booth. Cationic ink can produce some colors that are difficult to impossible to produce with the searing heat of mercury arc curing lamps used by other manufacturers.



Gerber CAT UV printer.

GRAPO Manta Slim, with white. This is a Manta cut in half, and priced at 52,000 Euros.

GRAPO Gemini is the new flatbed that replaces the full-sized Manta.



Grapo Gemini UV flatbed printer.

HP FB700 in HP booth, combo with moving transport belt. HP Scitex FB500 in booth of IGEPA, combo with moving transport belt. HP Scitex FB500 in booth of Kisters

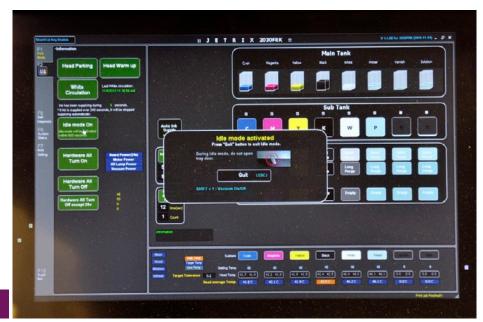


HP Scitex FB 700 in HP booth.



HP Scitex FB500 at IGEPA booth.

Jetrix, 2030 FRK, in the booth of a company named Outdoor. This is a new model with Konica Minolta printheads, with higher resolution. Jetrix now uses Spectra Q class heads only for printers for industrial markets. For signage clients expect better resolution, hence the switch to KM heads.



Close-up of Jetrix 2030 FRK monitor.



Jetrix 2030 FRK at Outdoor booth.



Mimaki UJV-160 as roll to roll (no tables to attempt to make it a hybrid)

Mimaki JFX-1631 plus

The Mimaki UJF-3042 was the single most commonly exhibited UV-curing printer at the expo.

two Mimaki UJF-3042 in the booth of Mimaki itself

UJF-3042 in booth of Bruner (a company related to Gerber)

UJF-3042 in booth of IVM SignTEX

UJF-3042 in booth of SignLab CADlink

UJF-3042 in booth of bm, Borchert + Muller

UJF-3042 in booth of Geonit GmbH.

UJF-3042 in booth of Wespitec GmbH

UJF-3042 in booth of Deutsche adp, which occupied space in the booth of

Printcolor Screen



Mimaki UJF-3042 printer at Mimaki booth.



Mimaki JFX-1631plus printer.

Oce Arizona 550XT plus the aforementioned Acuity Advance HS which is a repainted Oce.

Roland LEC 540, in Roland booth Roland LEC-330 in Roland booth. Roland LEC-300, the first model; in booth of a dealer Roland LEC-540 in booth of Technoplot CAD Vertriebs GmbH.

Sun from Russia showed one of their NEO UV-LED Evolution printers.



SUN Neo UV-LED printer.

SwissQprint Impala in the booth of Sihl. This is a dedicated flatbed that can also handle roll-fed material. If you wish to print on roll-fed material, then you have to pull the roll-fed material by hand across the entire top, and then attach it to the wind-up roll at the other end.

Then you print on the roll-fed material without the material moving. This is also how roll-fed material is handled by the Mimaki flatbed and by the Gandinnovations flatbed that was inherited by Agfa.

In distinction, the Oce and other dual-structure printers do roll-fed material in a normal roll-fed attachment at the front of the flatbed.

The **HP** booth was the smallest I have ever seen. The GRAPO booth was larger than the HP booth.

Conspicuously missing

Not one single Jeti flatbed in the Agfa booth. The only remnant from Gandinnovations was their AquaJet textile printer.

Mutoh had a booth but not a hint of the Zephyr UV printer of Mutoh Europe.

I saw two booths; one definitely with GCC CO2 laser engravers and the other I thought also advertised GCC products. But not one single solitary GCC StellarJet UV-cured printer.

Not one single solitary Chinese UV-cured printer.

Teckwin did not exhibit, even though the Teckwin office for Europe is in Germany. This is surprising. Teckwin was conspicuously absent from Glasstec expo also. Teckwin was listed in the Glasstec exhibitor guide but did not show up; no printer, no Teckwin personnel either. For VISCOM Germany Teckwin posted a notice on their web site that trade shows were too expensive.

A dozen other UV printer brands were not present, such as efi and VUTEk both; but they don't tend to exhibit at VISCOM Germany.



Mutoh Bio-Lactite.

Will UV-cured ink really print on everything?

Almost two years ago a Korean printer manufacturer sold one or two dozen (yes, a huge number of printers) to LG or comparable manufacturer of LCD screens. The idea was to custom print the colors on the frames of the monitors.

Unfortunately, allegedly, the ink fell off after the LCD monitors had been used for a while. Evidently the heat caused the ink to fall off (maybe the metal contracted and then expanded every time it got hot or cooled?).

Rumor is that at least one LG manager was fired. The manufacturer of the UV-printers is now in somewhat of a bind: this is the largest single order of UV-cured printers that I know of in the world sold to a single company. And the ink does not stick!

Hmm

Sooner or later we will know the-rest-of-the-story. But in the meantime I hope LG is trying other inks and other technologies.

That is over a million dollars worth of UV-cured printers; maybe two million dollars worth.

Moral of the story: any printer manufacturer whose brochure still lists "prints on everything" is setting themselves up for clients to be seriously upset.

Note that more and more UV-cured printers are now offering to jet primer. If you need primer, does this not admit that in fact UV-cured ink can't really print on "everything."

UV-cured printers are the greatest advance in wideformat printing in this decade, but they got a bit over-advertised. It would be helpful to be more realistic in the future.

Some UV-cured inks even need a primer for basic signage materials such as Coroplast, so be a bit wary about over-enthusiastic advertising claims. Of course you can print on glass without a primer, but will the ink stick? So printing on a material is only the beginning.

Whether the ink will print on glass, or Coroplast, is irrelevant. What counts is adhesion and abrasion.

Sorry, you don't always get an accurate story at a booth

At one booth (a major manufacturer), a client asked about the obviously strong odor of the UV ink. The printer operator said it would dissipate in three hours.

Whoa, no way.

I have known UV-cured printers to exude unacceptable odor for several weeks. Over and over again I have heard of clients who have rejected UV prints and refused to pay for them because of the odor.

Fortunately, odor is not always an issue:

- depends on the brand of ink (some brands stink worse than others)
- Odor depends on what settings the printer operator select, speed, and other factors.

But in a worse case scenario, I would never tell a potential client that odor goes away after three hours. This is asking for a client who later feels gullible for falling for such a potentially erroneous claim.

Be careful about saying your printer is first in anything

There are over 45 manufacturers of UV-cured printers, and more than 101 current models, plus another hundred models of UV printers in the previous ten years. So please don't make a claim in your brochure that you are first in anything. Chances are that one, two, or even more printers long ago had the same feature(s) that you would like to single out.

Sorry, we at FLAAR are trying to help suggest that you find features of your printer that will produce great output and make printshop owners, and their clients, happy. Being a dubious first with features that a dozen other printers have, is not a way to capture savvy clients.

We do not mention the brand name, because we realize that everyone is trying to survive in whatever way they can. As consultants, we can suggest more innovative advertising slogans.

Greenwashing

FLAAR does not accept UV-cured inks as "green" or eco-friendly. Be wary of any such claims. I was very disappointed to see still another UV-cured printing company claiming their UV-printer was a green solution.

Flatbed printers other than UV

Four to six booths had Epson desktop or Epson-like printers perched atop flatbed platforms. Most of these were for printing on T-shirts. One or two booths had desktop Epson printers jerry-rigged over small flatbed tables that were not for T-shirds. Two booths had large-format flatbeds, using Epson printheads but perched over industrial-sized flatbed tables..

esb digidirect had their viS-Processor and viS-Printi machines, with Ormojet ink from Prof.Dr.-Ing Trier. They appear to make the printers themselves; these are not stripped down Mutoh, Mimaki or Roland machines.

Stiefelmayer-Contento exhibited their modified Roland printer atop a custom-made flatbed printer. They used ink (probably from Ormojet) to do beautiful printing on glass and other materials. The Roland they used was a SolJet Prolll XJ-640.



Stiefelmayer-Contento's modified Roland SolJet Pro III XJ-640 printer with custom made flatbed.

Buth Graviersysteme had an **Azon** dts (Direct to Substrate) printer using Sepiax inks. This was a modified Epson desktop printer.



DP Solutions had Epson-like printers, printing on aluminum and other materials. But these were really only desktop sized machines. Most other booths had a real Epson housing and changed only whatever added flatbed base they perched the printer on. In distinction the printers from DP Solutions looked mainly home-made, and not a gutted or jerry-rigged Epson. The advantage of a jerry-rigged Epson is that at least you know who designed and manufactured the printer. With a custom-made printer, the logical question is to ask whether they are made in Taiwan, Korea, China, or Germany?



DP Solutions desktop flatbed printer.

A sidebar in the catalog of one company that was selling specially made desktop-sized printers with Epson-like print systems was cleverly worded. After I read it I did not know whether to laugh or cry. Here it is so you can decide yourself:

The downside (of UV-systems) is that when they harden the colours, ozone is released and the substrates produce a very strong smell which remains for a while. The printed items may also lose their form, if hardened with UV-lamps instead of LEDs.... the choice is ultimately yours.

Aside from the stilted English, the claims are confusing. Of course ozone is released but if you counted all the other things that release ozone in your home or office you would ban many machines from our modern world. So ozone is just smoke-and-mirrors to make UV-curing sound terrible. Besides, if this company uses solvent inks, what about the ecological consequences of solvents? But let's continue.

Yes, of course UV-cured ink smells. FLAAR evaluations point this out every year. But we are not using this odor to attempt to sell anyone a competing kind of ink. We are not trying to dissuade anyone from using UV-cured inks: we simply want those who buy this technology to know in advance what to expect.

And as to deforming the material, yes, if you have super thin plastics, of course the heat will melt and deform them. But there are plenty of LED-curing machines nowadays. These emit no strong heat so don't cause the problems that DP Solutions is claiming.

I would like to rewrite his sidebar:

Hello ladies and gentlemen. For whatever reason we have decided not to sell UV-cured printers, perhaps while a dozen other competitors are already successful with UV-cured printers, especially the desktop UV-curing models from Mimaki.

So, since we don't (because we can't) sell the popular Mimaki desktop printers, we offer you instead a solvent-based system. And to make sure you are not tempted by competing UV-cured machines, let me list all the awful things that UV-printers do, such as overheating the materials to cause them to distort in shape, ozone everywhere, and wretched odor. Of course our competitors don't sell that kind of UV-cured printer: they sell LED-curing Mimaki desktop printers, which have no heat so don't do any of the distortion that we claim, but since you probably don't know the difference between LED curing and mercury-arc curing we decided to make you nervous anyway.

So, since we have decided to warn you about downsides of UV-systems, let's now offer you our solvent systems. And of course we will not indicate whether our inks have the kinds of solvents which are not user-friendly since we would rather you be nervous about UV-cured inks and not worry about solvent fumes.

Whether this company uses pigmented solvent ink, dye solvent ink, or non-solvent ink was not clear. The colors were nice but I found the one side-bar in his catalog a bit exaggerated.

RIP Software

Caldera had a booth that showed clearly the success of their product. Their RIP is pretty much the market leader at the high-end.

SAI had a booth. This was a signage software years ago but they never made the transition to the digital era other than for mom and pop kind of print-and-cut shops. But it is always good to have options at entry level.

Other RIP companies lacked booths, but of course were walking the floor.



Caldera booth attracted several visitors during the show.

Workflow software

The two workflow software packages that I know are

i-Suite by EskoArtwork

flow+ by Caldera

Each was exhibited in their respective booths. I have spoken with print shop owners; one used EskoArtwork workflow software and was content. Another had recently acquired flow+ and for his printshop it was a good first step into the world of workflow software.

Flatbed cutters

Kongsberg XP 24 in **EskoArtwork** booth. Many German print shop owners came up to introduce themselves to me because they read the FLAAR Reports. I asked one if he was looking at a flatbed cutter and he indicated he had an interest in the Kongsberg brand and an interest in their i-Suite workflow software. So clearly EskoArtwork has done a successful job in the transition from a cutter known primarily in the packaging industry to a cutter that now is known in the sign and display industry

There are several FLAAR Reports on Kongsberg cutters and EskoArtwork workflow software.











Esko Artwork has plenty of experience building XY flatbed cutters. Recently the company launched the i-Suite, a software suite especially designed to improve the workflow in print businesses.

Two **Zund** cutters in the Zund booth: G3 3XL-1600 and M-800CV. Word on the street is that sales of Zund cutters have been impacted by rise in sales of Kongsberg cutters.



ZUND G3 3XL-1600 cutter.



ZUND M-800 CV cutter.

One Zund cutter was in the Oce booth rebranded as Oce ProCut L2500.



Oce ProCut L2500 cutter.

MultiCam Digital Express in the booth of Igepa (who is also an HP dealer)

Aristo in the GRAPO booth. These two companies have an alliance.

FlexiCAM had one machine in their booth. It made a huge mess cutting inch-thick Plexiglas. I have never seen a CNC router outside China made this much mess. And why they did not clean off the mess so visitors did not have to notice it, I don't know.

The person who answered my questions admitted he did not know much about the machine. He said that the machine on exhibit was not shown or described in the catalog but it was "similar to the Stealth" model in the catalog.

vhf had two cutters in their booth. One vhf machine was milling a standard signage material. The other machine had an oscillating knife and was cutting Reboard (honeycomb sandwich board).



FlexiCAM cutter, you can see the mess made by the cutter after cutting Plexiglass.

Anderson is a multi-national company with manufacturing done in Taiwan. They exhibit in APPPEXPO every summer in Shanghai. Their flatbed CNC routers are made primarily to cut wood. But now they see a market for sign and graphics shops, so they have developed a new cutter, the Acut. The model here at VISCOM Frankfurt 2010 was a prototype.

Whereas the cutter gantry cutter head area of vhf brand is simple and compact, the Anderson is the most convoluted and complex I have every seen anywhere outside Mainland China. Kongsberg and Zund are neat and basic in comparison. Not even the old-fashioned MultiCam routers are this complicated. But if it works, probably it makes no difference.

Plus a few other brands which are rarely seen outside local or regional shows. We tend to list those models which are available or known internationally.



Anderson Giben booth displaying their flatbed cutter.

Textile Printers

We cover textile printers at VISCOM Frankfurt 2010 in a separate FLAAR Report.

Eco-solvent printers

Eco-solvent printers are so common that we no longer make a list of every printer in every booth.

Epson GS6000 in Epson booth and perhaps a few distributors' booths, such as one in the booth of Spandex Group. There were so many Mimaki printers in booths of dealers that I did not try to count them all, but here I list a few:

Mimaki eco-solvent in booth of bm Mimaki CJV30-130 in booth of Spandex Group. Mimaki CJV30-100 in booth of Wespitec GmbH. Mimaki CJV30-60 in booth of IVM SignTEX

Roland printers in booths of several distributors, or as demo units, such as in the booth of Sihl, Zaro, etc.



Mimaki CJV30-130 in Spandex Group booth.

Chinese Solvent printers

Not one single solitary Chinese solvent printer was visible the first time I went up and down the aisles. Then I finally found one solitary Chinese solvent printer. It has Epson printheads: dual CMYK.

From the outside, this is the most professionally designed and cleanly manufactured Chinese solvent printer I have seen in this entire decade.

The output quality, and the clean lines of the chassis, are as good as any Japanese, Korean, American, or European printer. Whether the printer holds up I have no idea: I would need to visit a printshop after they have had the printer six to eight months to find out.

This printer is, on the surface, significantly more mature, more "finished" looking, and more professional in both design and manufacturing neatness than any other Chinese solvent printer I have seen outside China or at any Chinese sign expo.

Obviously the German distributor is not telling anyone which Chinese factory made this printer, but I should be able to find out in a few hours of checking my sources.

Just imagine what the world of wide-format inkjet would be like if every Chinese UV-cured printer looked this professionally designed and manufactured!

And, just imagine what the world of wide-format inkjet will be like when a printer such as this holds up as well as a Japanese, Korean, American or European-made printer.

Water-based printers

HP exhibited a Designjet Z5200 and Designjet Z6200 printer. An HP Z6200 was also in the booth of Igepa.

Epson had a few printers in their largely empty booth. Not many visitors either.

Canon had several printers in their booth, but nowhere as many models as at VISCOM Milano.



Canon IPF 8300 printer.

Latex ink printers

HP displayed their Designjet L25500 and HP Scitex LX800 latex ink printers.

Two or three HP dealers displayed a Designjet L25500 printer such as Ipega, Sihl, etc.

There was another HP Scitex latex printer sandwiched inside one of the dealers' booth. It was so surrounded by other products you could not see it from the aisle.



HP Designjet L25500 printer.

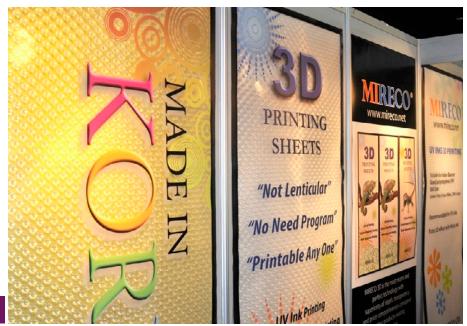


HP Scitex LX800 printer.

Inks and Substrates

Not many Chinese media companies nor many Chinese ink companies (at least not under their own Asian names).

A Korean company, Mireco, had an impressive both display of 3-dimensional signage that was not lenticular. It was a special material that simply looks three-dimensional. But a German print shop owner told me he tried this material and the edges curled and in general he would not bother to try it again. Nonetheless, the display in the company's booth was eye-catching.

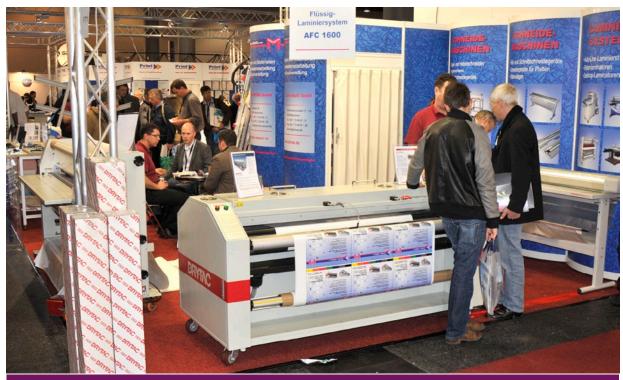


MIRECO 3-dimensional signage close-up.



Coaters and Laminators

Drytac had an AFC 1600 in the booth of Richter & Menzel GmbH.



DRYTAC AFC 1600, Richter & Menzel booth.

Bükle coater was in the booth of Welte GmbH.



Búkle coater at Welte booth.

LCD monitors for advertising

There were a dozen or more companies offering LCD monitors for advertising. Most had excellent color; a few had okay color but with one or two weak presentations. But one booth had LCD monitors only with weak color: Seo Kyoung Tech Co. Ltd. Perhaps the photos were bad to begin with, but no pop to the color and fuzzy images too.

Reprographic scanners

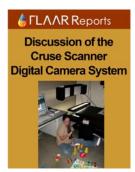
It is always nice to see the booth of Cruse GmbH. Their scanner produces some of the finest detail in the world. No matter how good your new printer is, unless the images are of high quality, a good printer will merely produce a mediocre image beautifully: will show every mediocre aspect!

A cheap printer, given an outstanding image, will produce a better print than an expensive printer with a poor image. In other words, what counts is the quality of the scanner, more than the quality of the printer.

The FLAAR evaluation of the Cruse reprographic scanners have been read by thousands of people in recent years. We hope to be able to update our reports on the newer ST Repro Décor technology which captures an even more 3D-like effect.



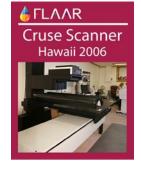


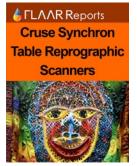












FLAAR Photos available for exhibitors as test prints

The Mutoh booth used a FLAAR photo as a test print.

The Durst booth used two FLAAR photos as test prints.



FLAAR allows ink, media, printer, and RIP manufacturers (if we know the company, their products, and the personnel) to utilize FLAAR photographs as samples in their booth. There is no cost to use a FLAAR Photo, and yes, you can put your own logo on it and indicate what product was used to produce the image.

Photographs available for you to use in your booth include

- Archaeological artifacts
- · Pyramid temples of Maya culture
- Tropical flowers
- Interesting and photogenic reptiles, birds, amphibians, and animals of Guatemala
- Indigenous Mayan textiles
- brightly colored handicrafts
- · panoramas of Lake Atitlan
- landscapes
- photographs of Bangkok
- photographs of Chinese historical architecture

Sorry, we don't photograph people, cars, or motorcycles, so no babes on bikes (as in the days of ColorSpan test prints).

It was notable how many lousy photographs were used in booths of billion-dollar companies. In the HP booth, for their Z6200 or Z5200 printer, they used a photo of a woman's head lying on or adjacent to many flowers. Aside from the fact that the flowers were all out of focus, the worst part of the photo was that the flower colors were over-saturated, as is typical of digital images. Plus the color of the skin of the model was inaccurate. Overall it was a second-rate photo and was a discredit to Hewlett-Packard printer division.

In the Mimaki booth the sample print for the textile printer was of a macaw. The features of one wing were in perfect focus: the detail was impressive. But the bird's head and rest of his body were out of focus. Plus, as is usual, the red was totally over-saturated (meaning it glowed red with no detail visible whatsoever; just a red blob.

Issues with trade shows

CO2 laser engravers create a wretched odor that should not be allowed. The sei booth created a stink that was noticeable many meters away. This is not fair for attendees nor for booth attendants nearby.

LED lighting companies created an eyesore for anyone within 20 meters. LED lighting companies should all be grouped at one end or one corner, and allowed to blind each other. It is not fair that a normal booth have an LED company in front or alongside. The LED lighting will drive all the clients away.

VISCOM Frankfurt: another trade show shrinks a bit more

The aisles were crowded all three days in the morning and early afternoon. Cleverly most aisles are narrow, so anyone in

the aisle makes everything look full.

However VISCOM Frankfurt has shrunk, but VISCOM Milano shrunk even more. VISCOM in Italy is still overall larger (even after having shrunk) than VISCOM Frankfurt.

VISCOM Paris was smaller this year than last year, but it was the smallest of the four VISCOM expos already. VISCOM Madrid imploded in the year before so I did not even bother to consider attending here in 2010. But surely it was not as vacant as the year before.

Yet SGIA had 22,000 visitors on the first day and Gerber said they sold many of their UV-cured printers at SGIA. Jetrix was also selling well at SGIA (their booth was next to that of FLAAR, which was good luck for Jetrix). So hopefully trade shows will continue, but clearly FESPA is the leader in Europe for attracting an international audience.



VISCOM Frankfurt signage.

VISCOM Frankfurt: organization

The people at the check-in counter were pleasant and helpful.

The people in the VIP lounge were pleasant and hospitable, though there was only soup and nibbles, not a full meal (VISCOM Milano provided a full meal every day). But the VIP lounge was a nice place to escape for a few minutes and rest while having a Coca-Cola or glass of water.

Unfortunately too many companies were not in the Exhibitor List catalog. For example, I could not find Buth Graviersysteme in the catalog. There were several other company names that were also missing.

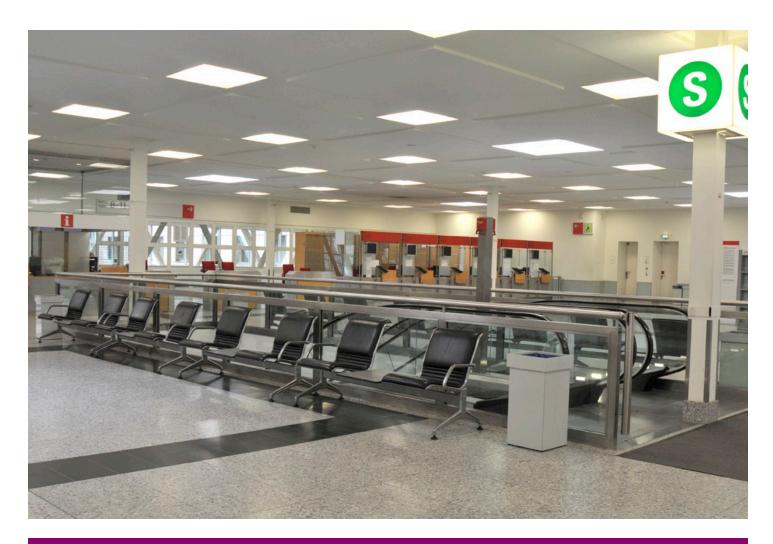
Frankfurt as a venue

Frankfurt is easy to reach from any country in the world since the Frankfurt airport is one of the larger in Europe. The hotels in Frankfurt are reasonably priced and there are many hotels within easy walking distance of the Messe Frankfurt area.

In comparison, for DRUPA, the hotels are nowhere near the Duesseldorf expo center, and hotels have exhorbitant prices that gouge anyone attending any expo in Duesseldorf.

To reach the Frankfurt Messe from the airport take any train from the airport train station and several stops later you are at the Hauptbahnhof. Then go to Track 104 and take any S-Bahn or regional train two stops to Messe.

From here it is a long walk though the fairgrounds to reach the hall where VISCOM is held. Everything is empty and looks a bit sad because there are two entrances to the fair ground, and the one from the Messe S-Bahn station is sort of the back entrance.



Here is where you come from the Messe S-Bahn station. Note that it is totally empty. Clearly this is not FESPA! And not Photokina either (which have HUGE crowds of visitors that pack the transport stations).



VISCOM Frankfurt organizers have done a professional job of having arrows to point the entire way from the tram station to the hall (a long long long walk away). But the entire expo area is so absolutely and totally empty and abandoned that it sort of sets the tone during the long walk where you see almost nobody. "First impressions are what count" and the first impression upon arrival is that this is a non-event. But as I mentioned, this is probably the back entrance. Most people probably enter via taxi-cab or from the U-Bahn (underground metro station) where I hope at least you see a few other visitors. But once inside the hall, there are plenty of visitors until about 4:30 pm in the afternoon. By 5 pm the hall is getting empty fast.

But I am glad that I came, and occupied myself all three days, though I will admit that next time two days will be plenty.

But once you are inside Hall 3, everything is busy.

This year it was reduced to one large hall, but what was present was well attended the first two days.

The hotel had a notice for all guests to be wary of thieves on the street who posed as plain clothes police. The hotel told hotel guests to carry their money and valuables well hidden. This reminded me of crime in Atlanta, except that there the thieves shoot you while robbing you. At least German cities are not that bad yet.

Frankfurt is a boring city, but not as boring or dangerous as Atlanta, and not as over-priced as Duesseldorf.