The background of the cover is a stylized, colorful illustration of a city street. The top section shows a blue sky and a yellow sun. The middle section features a light yellow background with faint, stylized buildings. The bottom section shows a more detailed street scene with colorful buildings (red, orange, yellow, blue), a street lamp, and several people walking. The text is overlaid on these sections.

# Glass Decoration Inkjet Printing & Laminated Glass Decoration

# Glass Decoration at Glasstec 2012

Nicholas Hellmuth · November 2012



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## Contents

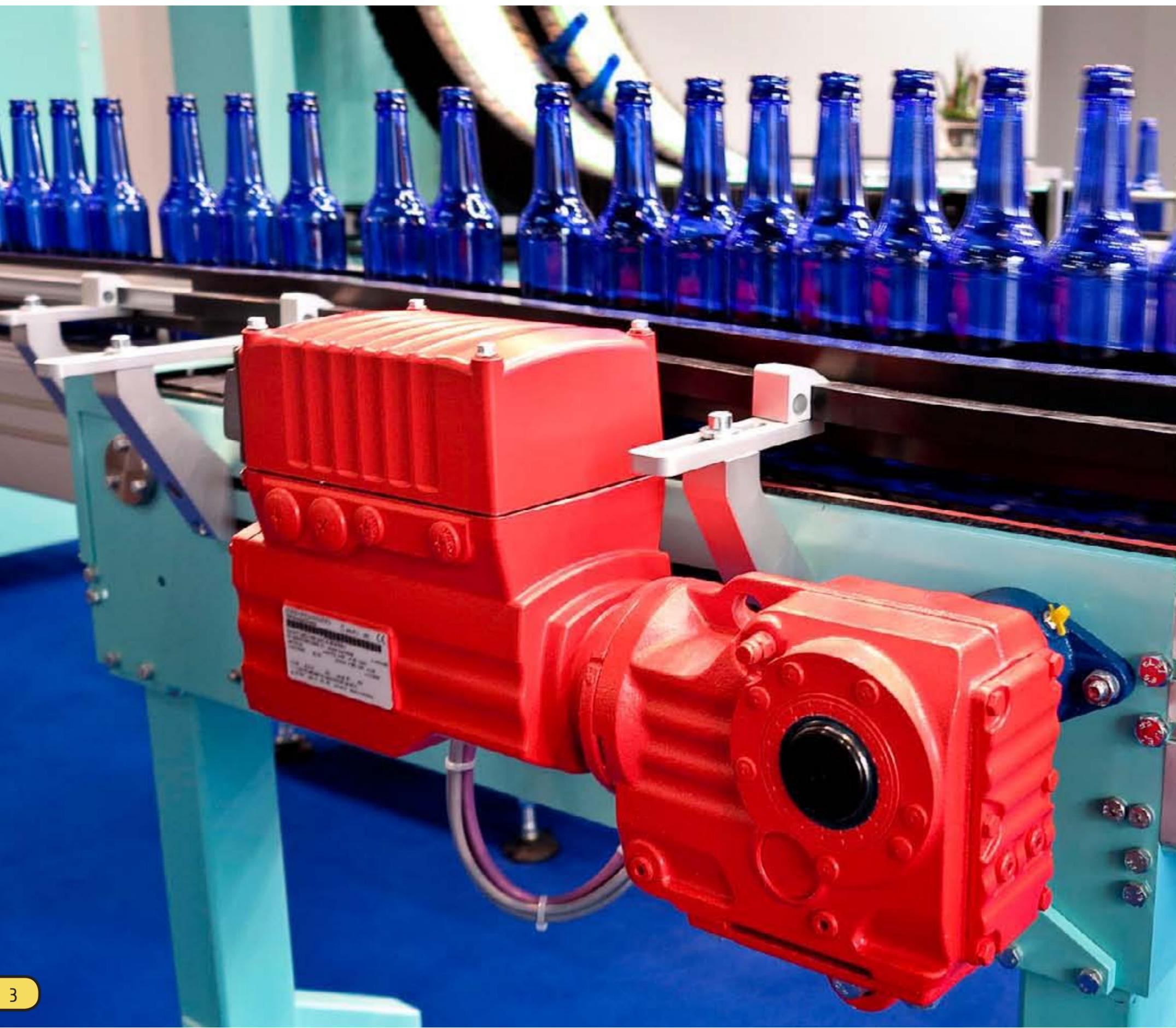
As an architect by original university training, I am interested in all aspects of glass decoration	1	3D laser engraved images inside a glass block	33
Two levels of FLAAR Reports on glass decoration and inkjet printers for glass	5	Exhibits of decorated glass	35
Wide-format Inkjet Printers for Glass	7	Finally, digitally printed interior decoration	37
Your company might like to know about:	14	Trade magazines	39
Glass printing workflow: Primers	15	What products stood out as memorable?	41
Innovative “stained glass” effect	16	My favorite booth decorations	43
North Western Lead Co.	17	Excellent photographs as samples	45
RegaLead	19	Hall Layout at Messe Duesseldorf	47
Spectrum Glass Company	21	What other options exist for glass expos elsewhere in the world?	49
VIDRIArte	21	Welcome to AirBerlin	52
Additional displays of faux stained glass	23	Climate, temperature	53
Furniture and Interior Decoration with printed glass	25	Who and what is FLAAR	55
Decoration with Laminated Glass	28	Certification, documentation, recognition visit	56
Other artistic glass decoration techniques	29	Summary and Conclusions	57
More artistic glass decoration techniques	32	Hall by Hall	59
		I am not sure what this booth has to do with glass	60

## As an architect by original university training, I am interested in all aspects of glass decoration

I have been studying printing on glass since the first wave of UV-cured printers in 2000-2003 kept claiming they could “print on everything.” I have visited one of the larger glass decoration factories in Asia (not in China; elsewhere in Asia). I have been in the printer factories on every continent where large-format printers are made. Plus I regularly speak with companies who seek to learn how to print on glass (they come to FLAAR for advice).

So part of my continuing research involves attending the main glass expos. I also attend the leading ceramic printer expos since to print on glass and ceramics the ink used is similar. Increasingly innovative new inks are replacing UV-cured for printing on glass and for printing on ceramics. So alone in this year I have attended two of the largest ceramic tile expos in the world and now Glasstec.





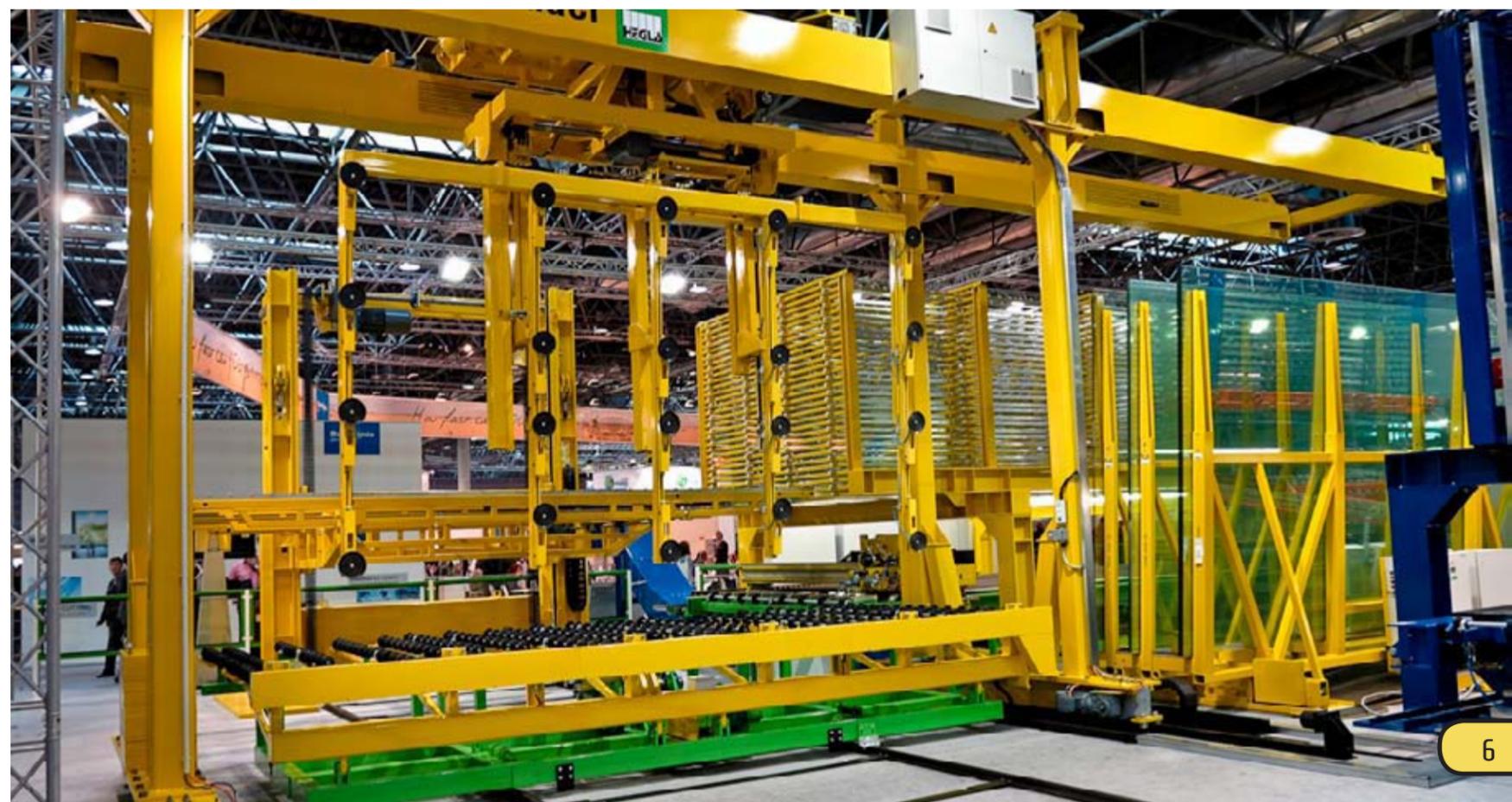
- ▶ Glasstec is nine halls of glass making machinery. Glass bottles, architectural glass, decorative glass: anything and everything made out of glass.
- ▶ Glasstec is over 800% larger than GlassBuild America. I estimate that Glasstec is larger than most other glass expos put together.
- ▶ Glasstec is the “drupa” of the glass industry.
- ▶ Drupa is the Glasstec of the printer industry.
- ▶ In other words Drupa is NOT a wide-format printer expo.
- ▶ And Glasstec is NOT a wide-format printer expo.
- ▶ Glasstec is primarily glass manufacturing, glass handling. Glass decoration is included but only a fraction is inkjet.
- ▶ Drupa is primarily offset, flexo, office copiers, narrow format inkjet presses. So only a fraction is wide-format inkjet.



Inkjet printers are present at both expos but are a minor component of both. Nonetheless, if you wish to learn about all the options for printing on glass, you need to attend Glasstec. There is no other expo in the world which has as many glass printer manufacturers as here (even if this quantity is only a fraction of ceramic printers).

Glasstec is the largest expo in the world for glass EQUIPMENT, glass manufacturing, glass handling, and everything related to making glass.

- ▶ this is an architectural glass expo (but mainly how to MANUFACTURE the glass),
- ▶ an art glass expo: windows and doors with decorated glass (but mainly how to manufacturer and handle the glass)
- ▶ and glass as art expo: glass sculpture, for example (but mainly as space filler to fill the halls and to provide visual entertainment in an expo otherwise mainly on machines).



We cover all the artistic aspects of glass decoration on following pages. The present page is to show **the core of this expo: equipment to make, and move, glass.**

## Two levels of FLAAR Reports on glass decoration and inkjet printers for glass

The PDF you are looking at now is a courtesy copy of our free edition. This is a photo essay which is made available as a fast and easy download, at no cost whatsoever, to our growing multitude of readers:

- ▶ Architects
- ▶ Printshops
- ▶ Fortune 500 companies of diverse products
- ▶ Distributors around the world
- ▶ Manufacturers on every continent

We also send this PDF directly to our growing mailing list. However primarily our FLAAR Reports are downloaded by thousands of people, every month, all year. There are so many readers that there is no specific need to focus only on a mailing list as a delivery system. During the last 15 years we have learned that pertinent readers find our reports all over the Internet and enjoy reading all that is available.

For corporations who wish more information, we have a separate top level TRENDS report. There are several ways to obtain these:

- ▶ Subscription (either an annual Subscription or a per-individual-report request)
- ▶ Consulting (we provide TRENDS reports to individuals and companies who request information in-private, in-person with Dr Hellmuth, by Skype, telephone or a meeting at your company anywhere in the world).
- ▶ Certification, documentation, recognition visit. Some manufacturers, and distributors, ask for FLAAR team to visit their company so that we can add a dedicated page on your company to our popular web sites on wide-format industrial inkjet printing on architectural materials.
- ▶ If your Subscription is at introductory level, yet you realize that you also need the TRENDS, you can simply upgrade your level to TRENDS by asking to be invoiced for the price difference. Then you will receive the TRENDS level.

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*Reports about media and inks available via subscription (write to frontdesk "at" FLAAR.org)*

*Reports on UV-Cured printers available via subscription (write to frontdesk "at" FLAAR.org)*

*Free reports (click on images to download)*



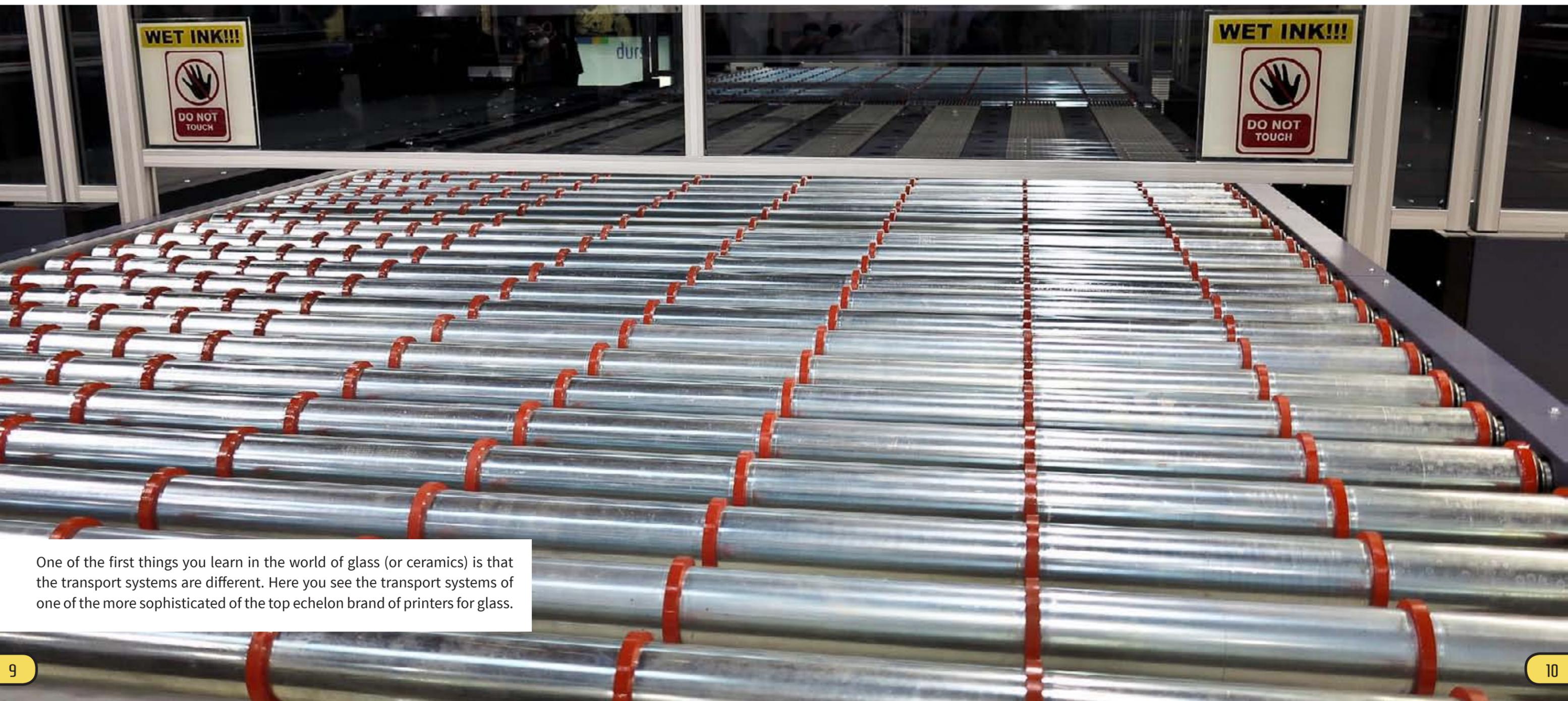
## Wide-format Inkjet Printers for Glass

My primary reason for visiting Glasstec 2012 (and GlassBuild America 2011 and Glasstec 2010) is to provide an independent coverage of advances in wide-format inkjet printing workflow for printing on glass. More and more our readers write and ask for assistance in what printer to buy. But the real question is first, what kind of ink is best. Once you know about ALL the options with diverse kinds of inks, then you can select which printer(s) to consider.

Or, if you already have a UV-cured printer and wish to expand away from only signage and add new applications (glass, metal, ceramics) then we can assist this evolution for your printing company.

We have FLAAR Reports for over fourteen years and on glass and ceramics for at least a decade. Now, since 2010, we are achieving even more coverage. Because a single PDF is best kept at below 5 megapixels (so it can more easily be sent via e-mail attachment or download), instead of putting the entire expo into this single free download, we have several different separate PDFs, each one covering specific aspects of glass printing workflow, and/or each one covering different aspects of Glasstec 2012 expo.

The wide-format printers we cover in detail in the TRENDS. The inks, primers, and coatings we cover in a separate report on those subjects (the three together: inks, primers, coatings). Here now we show the wide-format printers which we discuss in the TRENDS:



One of the first things you learn in the world of glass (or ceramics) is that the transport systems are different. Here you see the transport systems of one of the more sophisticated of the top echelon brand of printers for glass.

You can tell by looking at this printhead carriage that this is a serious printer. This is not entry-level.

This is not a UV-cured printer either. Yes, UV-cured printers were in 75% of the manufacturer's booths at Glasstec 2010. But we are now in the era of 2012. Ink chemistry has evolved and improved. At Glasstec 2012 more than 85% of the booths of printers for glass had ink other than UV-cured (but keep in mind, these are the printers at a quarter-million dollars and up; to start at the under-\$100K level, UV is still where you would tend to start).

The changes in ink preference, and the use of one ink at entry-level and a completely totally different ink at the high end (as seen in this photo) is why we call our primary level of reports TRENDS.

The ink used in the printer you see here has improved in color gamut noticeably since I inspected it in 2010.

The advantage of having more than one brand of printer at an expo is that you can see diverse options. This brand (shown here) is new: first time I have seen them. But wow, they are innovative and really do things in a remarkable manner. We show close-up photographs (and explain what's new and different) in the TRENDS.

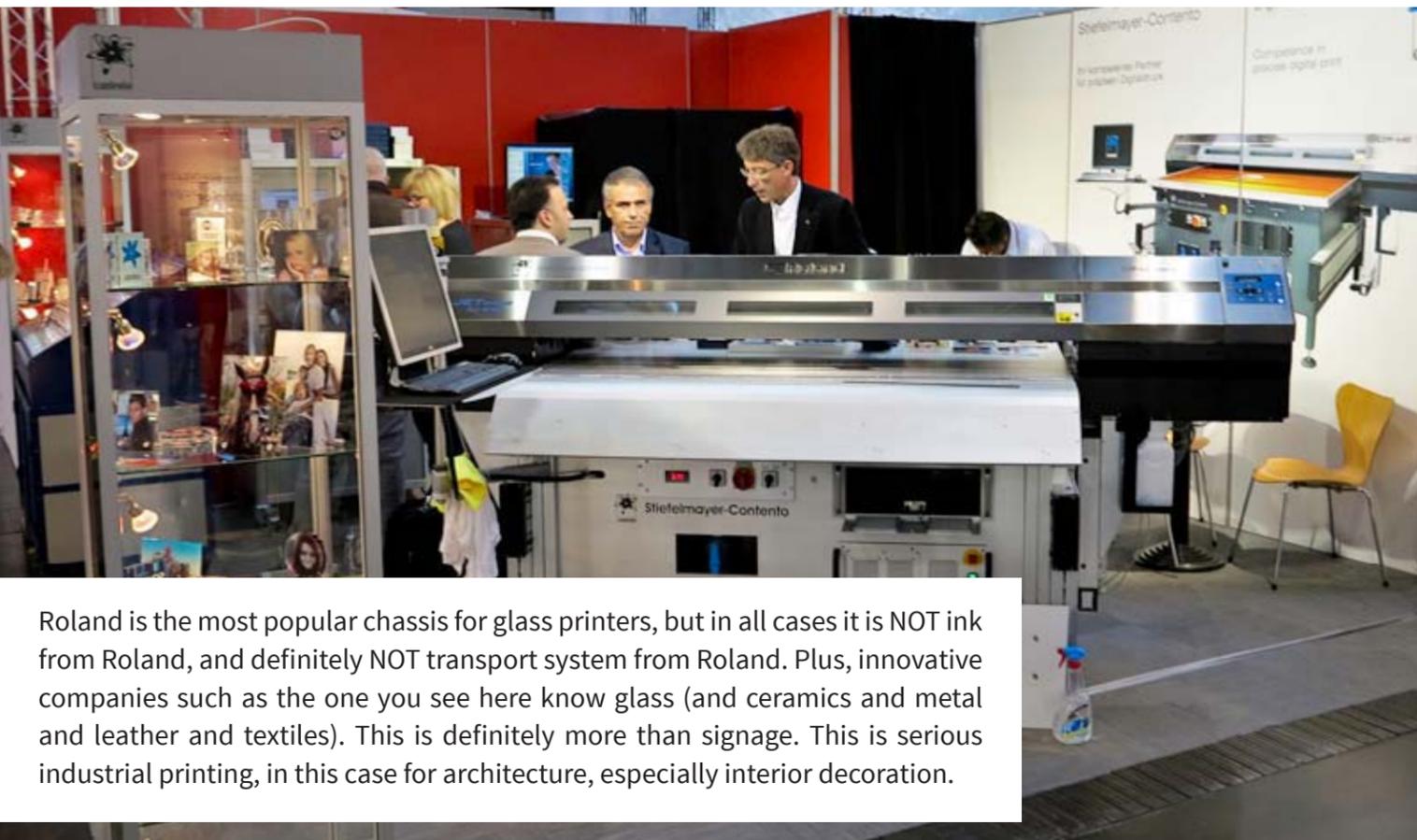


Some of the printers shown at Glasstec 2012

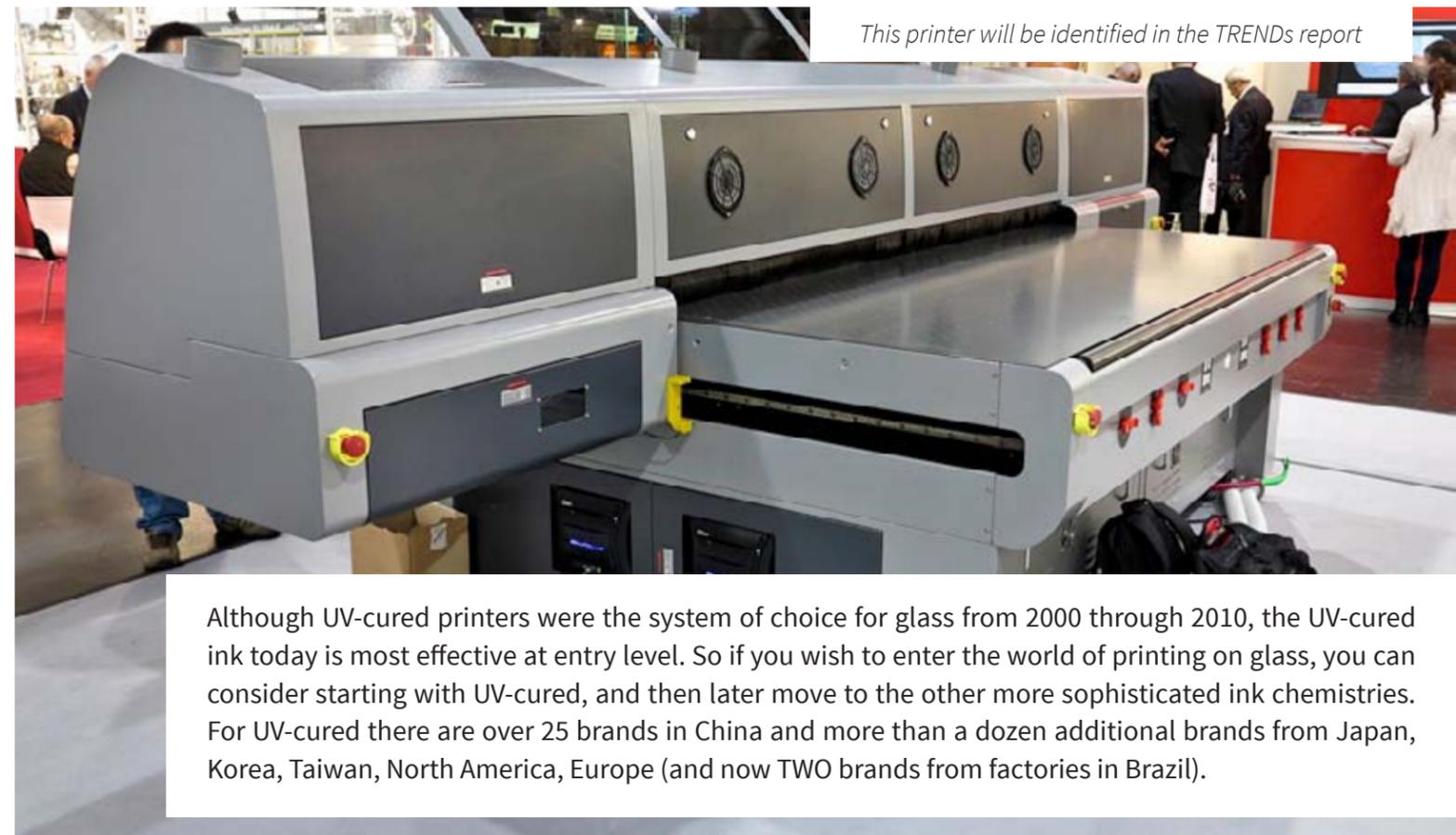
There are many different kinds of companies offering printers for glass. Some adapt a Roland (or Mimaki or Mutoh), and set it atop their own dedicated flatbed. Others start from scratch and make the entire printer chassis (and transport system) themselves. There are advantages in both approaches: when the chassis is a Roland you know precisely how to handle it.



MuchColours booth

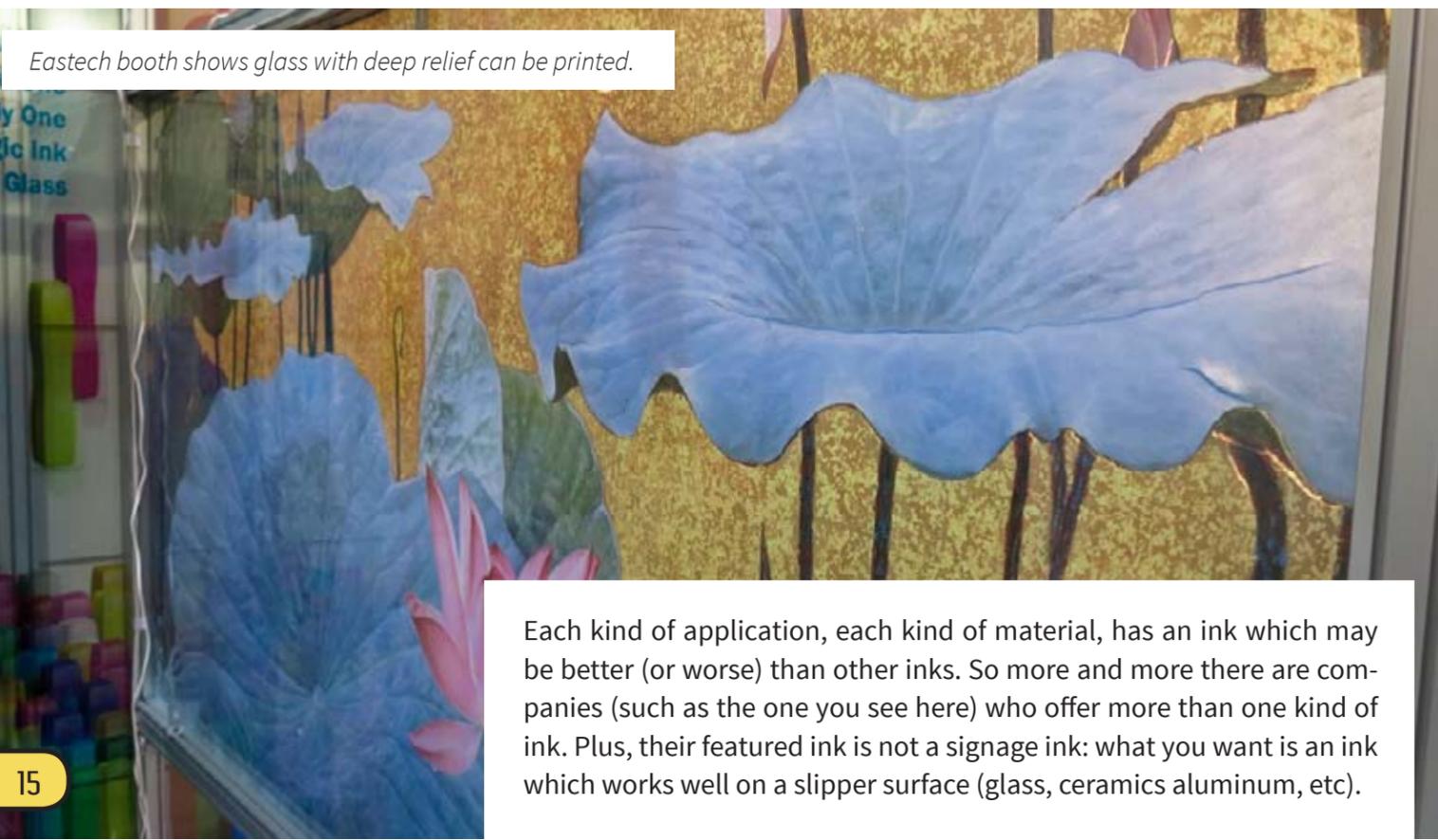


This printer will be identified in the TRENDS report



Roland is the most popular chassis for glass printers, but in all cases it is NOT ink from Roland, and definitely NOT transport system from Roland. Plus, innovative companies such as the one you see here know glass (and ceramics and metal and leather and textiles). This is definitely more than signage. This is serious industrial printing, in this case for architecture, especially interior decoration.

Although UV-cured printers were the system of choice for glass from 2000 through 2010, the UV-cured ink today is most effective at entry level. So if you wish to enter the world of printing on glass, you can consider starting with UV-cured, and then later move to the other more sophisticated ink chemistries. For UV-cured there are over 25 brands in China and more than a dozen additional brands from Japan, Korea, Taiwan, North America, Europe (and now TWO brands from factories in Brazil).



Eastech booth shows glass with deep relief can be printed.

Each kind of application, each kind of material, has an ink which may be better (or worse) than other inks. So more and more there are companies (such as the one you see here) who offer more than one kind of ink. Plus, their featured ink is not a signage ink: what you want is an ink which works well on a slipper surface (glass, ceramics aluminum, etc).

## Your company might like to know about

- ? What glass printers are being built behind the scenes (so you did not see them in any booth)? We list these printers in the FLAAR TRENDS report on Glasstec.
- ? Why are some printers using FOUR INK CHEMISTRIES; other printer's THREE inks; other printers TWO inks. One manufacturer focuses on ONE ink primarily. What are all these inks?
- ? What are the pros and cons of each kind of ink for glass?
  - ▶ "Flatbed" may have combo belt?
  - ▶ Flatbed may have physical flat bed
  - ▶ Flatbed may have continuous series of rollers (like in a factory)
  - ▶ Flatbed may have unique transport system that you have never ever seen before! This was clever, innovative, and only one single glass printer offers this option.
- ? What Korean printers were present? Which were conspicuously missing?
- ? What Chinese printer brands were present? Which were conspicuously missing?
- ? What Taiwan printer brands were present? Which were conspicuously missing?



order by writing to  
frontdesk "at" FLAAR.org

## Glass printing workflow: Primers



Showing a Primer at Glasstec 2012

## Innovative "stained glass" effect

Many companies offer colored glass with a stained glass effect. The stained glass effect is achieved by applying a strip of lead. This lead comes already sized and in a roll. It is self-adhesive, so you simply place the lead strip along the border of each color area and from a distance it looks like stained glass from a Gothic cathedral.

This kind of decoration is not done with an inkjet printer. Although our primary interest at FLAAR is wide-format inkjet, since there are many alternative ways to decorate glass we show them here.

CRI uses instead a flatbed printer with a single "nozzle" which extrudes a raised edge. Later you fill in between the raised edges with the colors that you desire. Creative Resins International, Hall 9, [www.Creative-Resins.co.uk](http://www.Creative-Resins.co.uk)



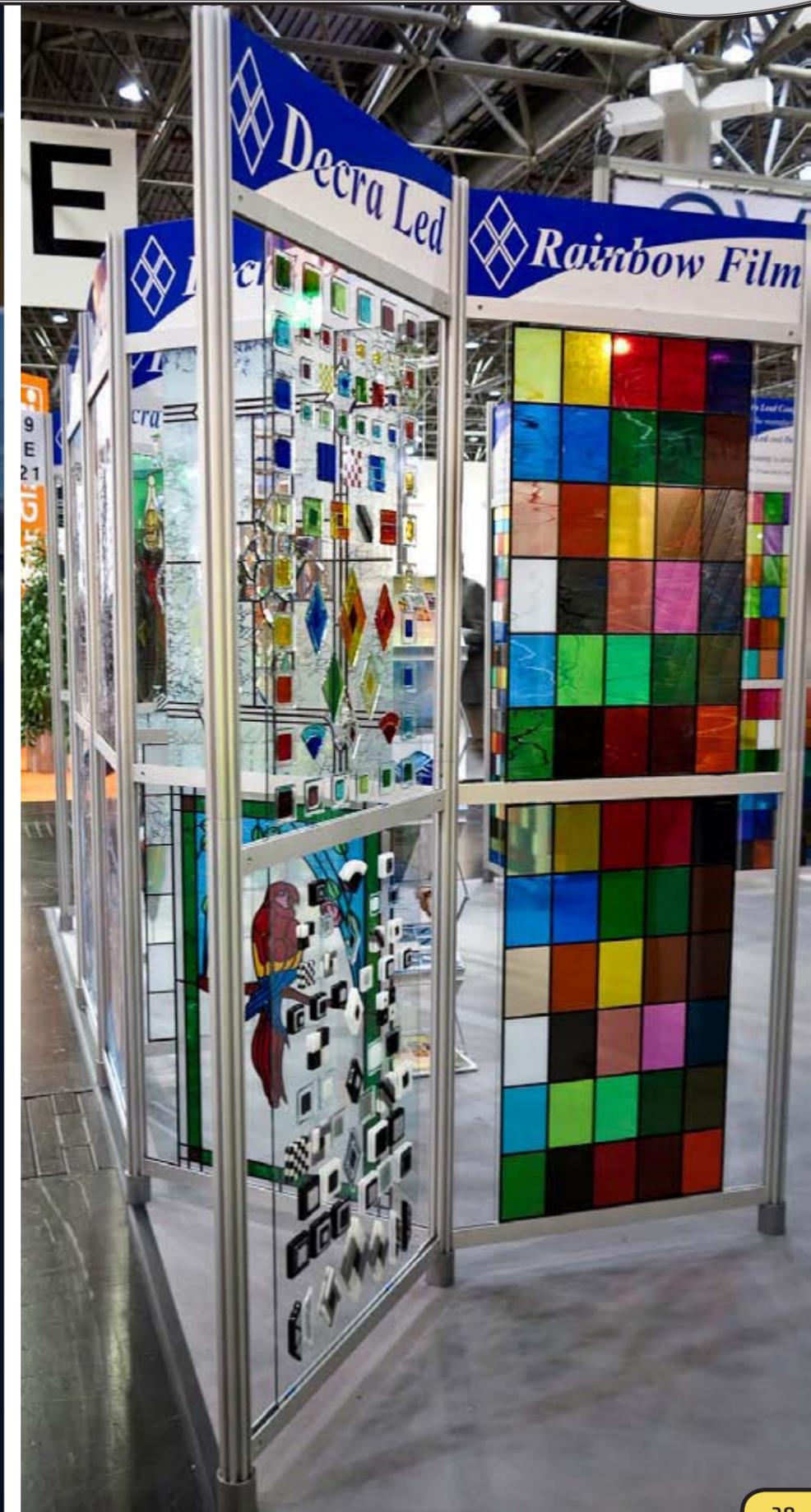
Every kind of ink has its own workflow. Do you need to flame treat? Do you need to prime?

After printing do you need an oven?



Creative Resins stained glass effect

**North Western Lead Co.** offers self-adhesive lead strips (Decra Led (sic)) and self-adhesive color film. Their booth definitely attracted my eyes (and curiosity). [www.DecraLed.co.uk](http://www.DecraLed.co.uk)



Decra Led exhibited samples attractive to the eye.

**RegaLead** also offers self-adhesive lead strips and self-adhesive color film. Like CRI, they also offer a flatbed system which dispenses resin. [www.Regalead.co.uk](http://www.Regalead.co.uk) They call this resin stained glass.



RegaLead booth



**Spectrum Glass Company** offers a wide range, of which faux stained glass is only one component. [www.SpectrumGlass.com](http://www.SpectrumGlass.com) They show their resultant glass art on their [www.System96.com](http://www.System96.com)



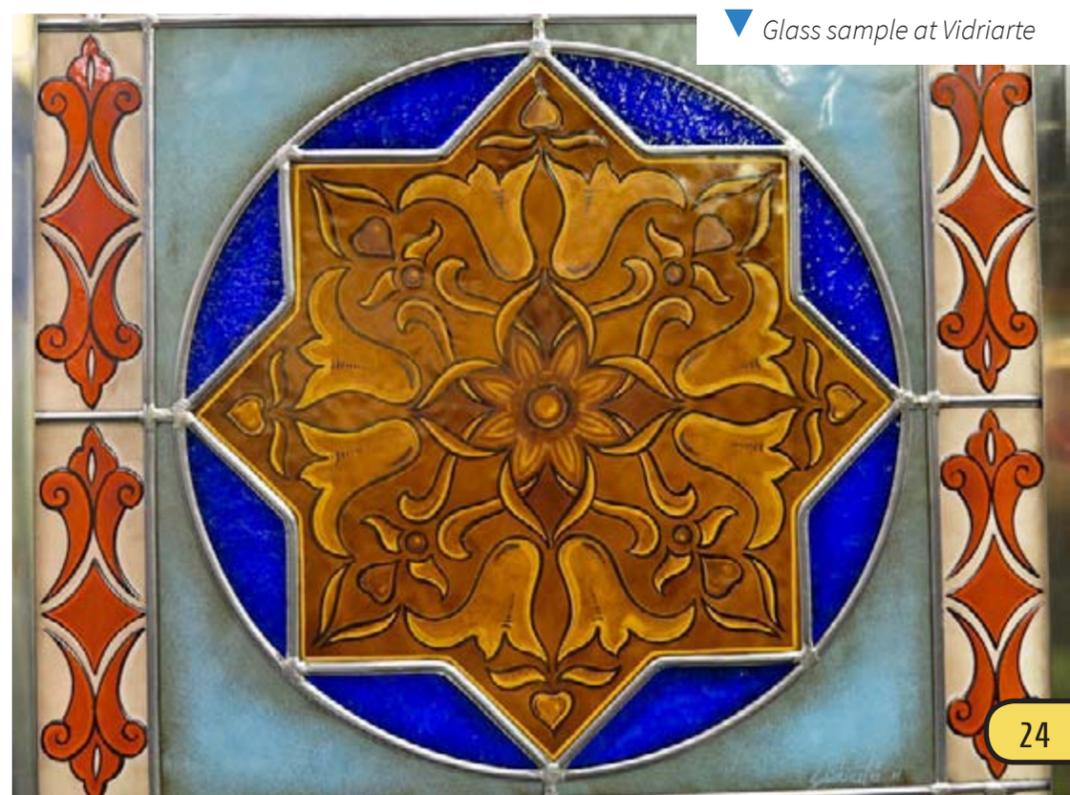
Spectrum Glass booth



▲ Vidriarte booth

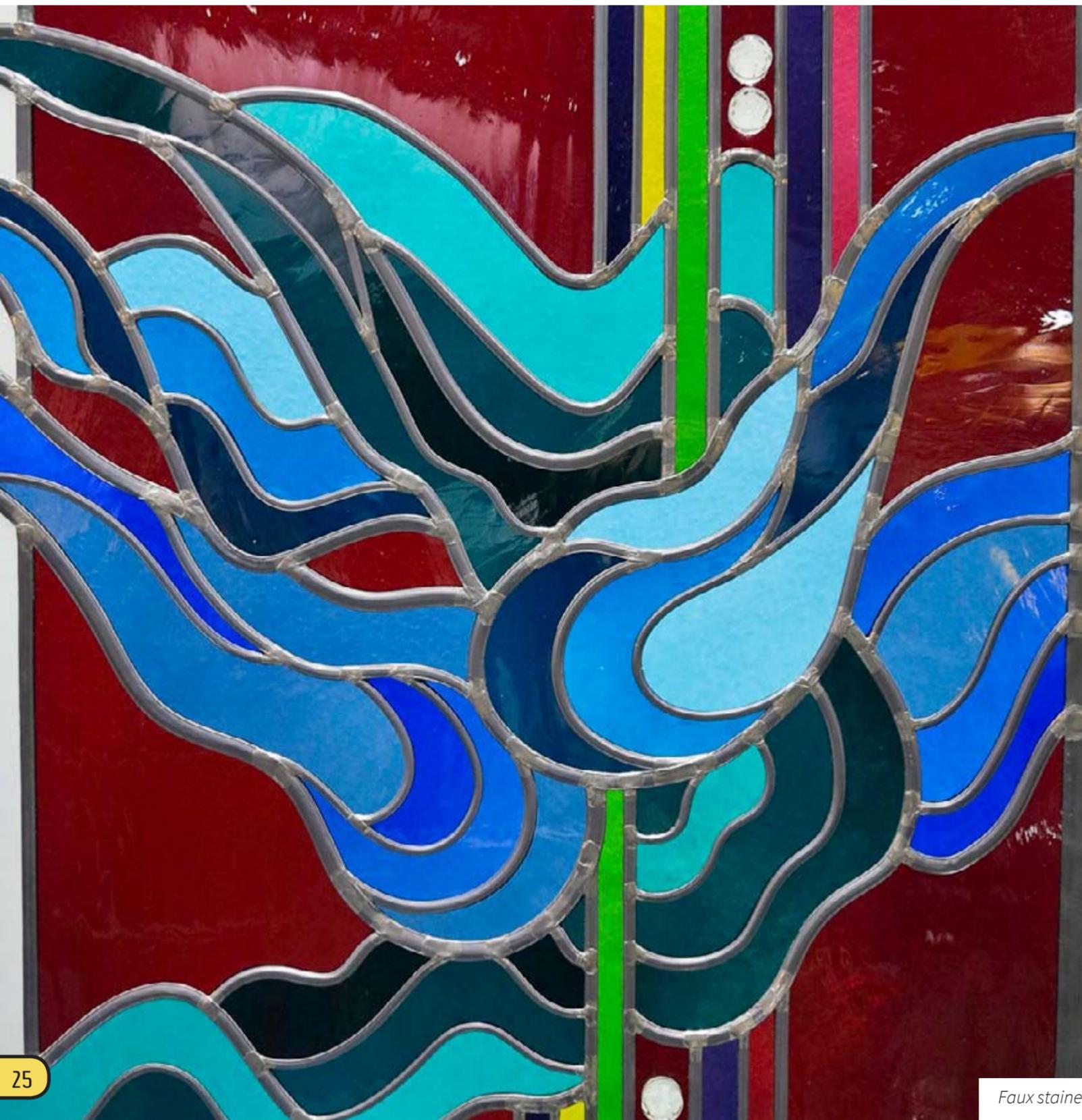
▼ Glass sample at Vidriarte

**VIDRIArte** also offered faux stained glass as well as other kinds of decorated glass. Although I came to Glasstec to study digital printing, once I was here (and saw only about six inkjet printers in the entire seven halls), I started to look at other kinds of glass decoration. [www.VidriArte.com](http://www.VidriArte.com)



## Additional displays of faux stained glass

In addition to examples in booths which sold the self-adhesive lead strips, there were also other nice examples of faux stained glass in the main exhibit area of Hall 9.

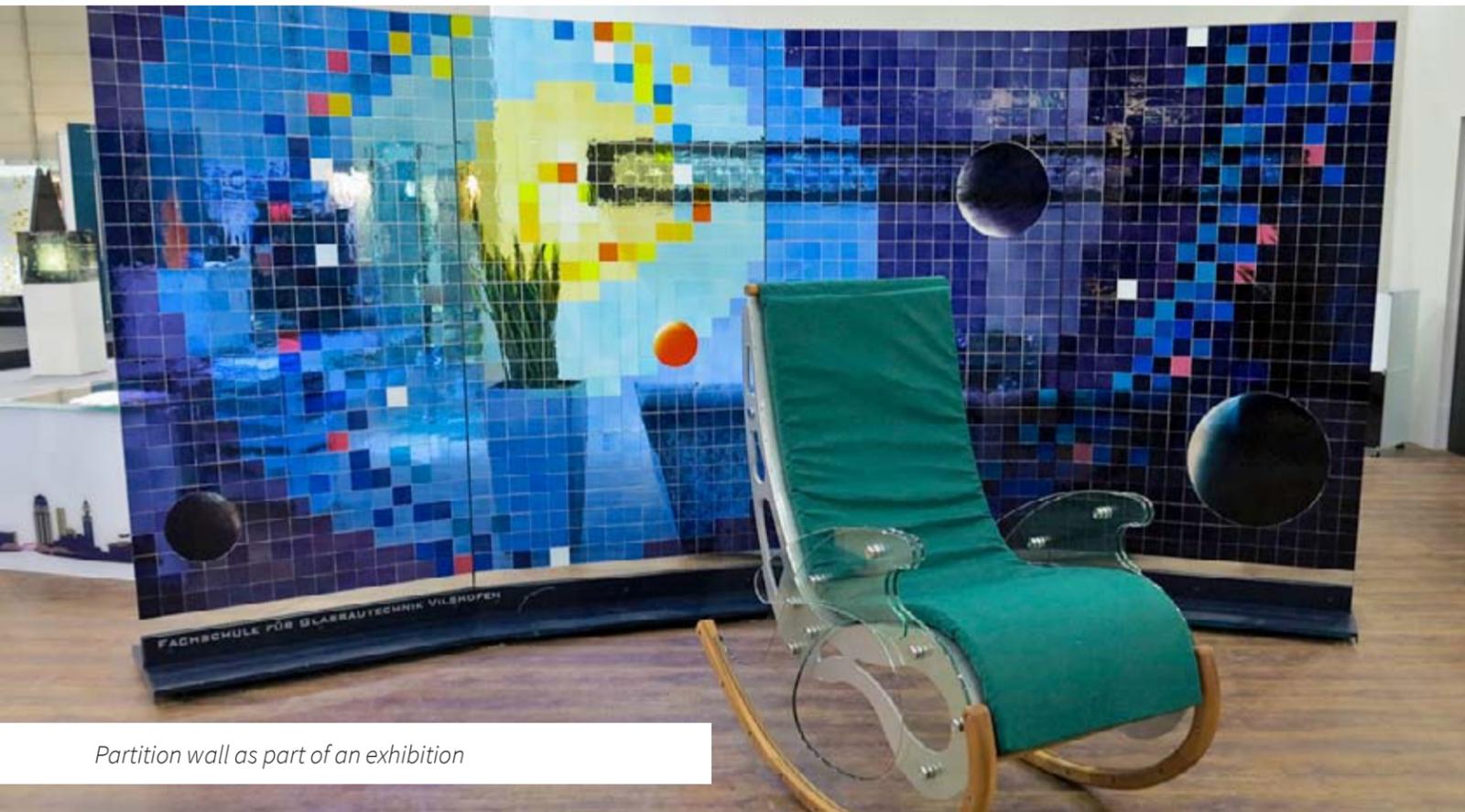


Faux stained glass samples



FLAAR  
Trade Show Reports  
Glasstec 2012  
Hall 9

## Furniture and Interior Decoration with printed glass



Partition wall as part of an exhibition



Kitchen and dining room glass art



GlassExpert cubicle sample

## Decoration with Laminated Glass

ADEVI offered PVB, polyvinylbutyral, design film for laminated glass (Hall 10, between rows C and D). They suggest 10 years outside longevity.



A different company exhibited the actual laminator, in flatbed structure.

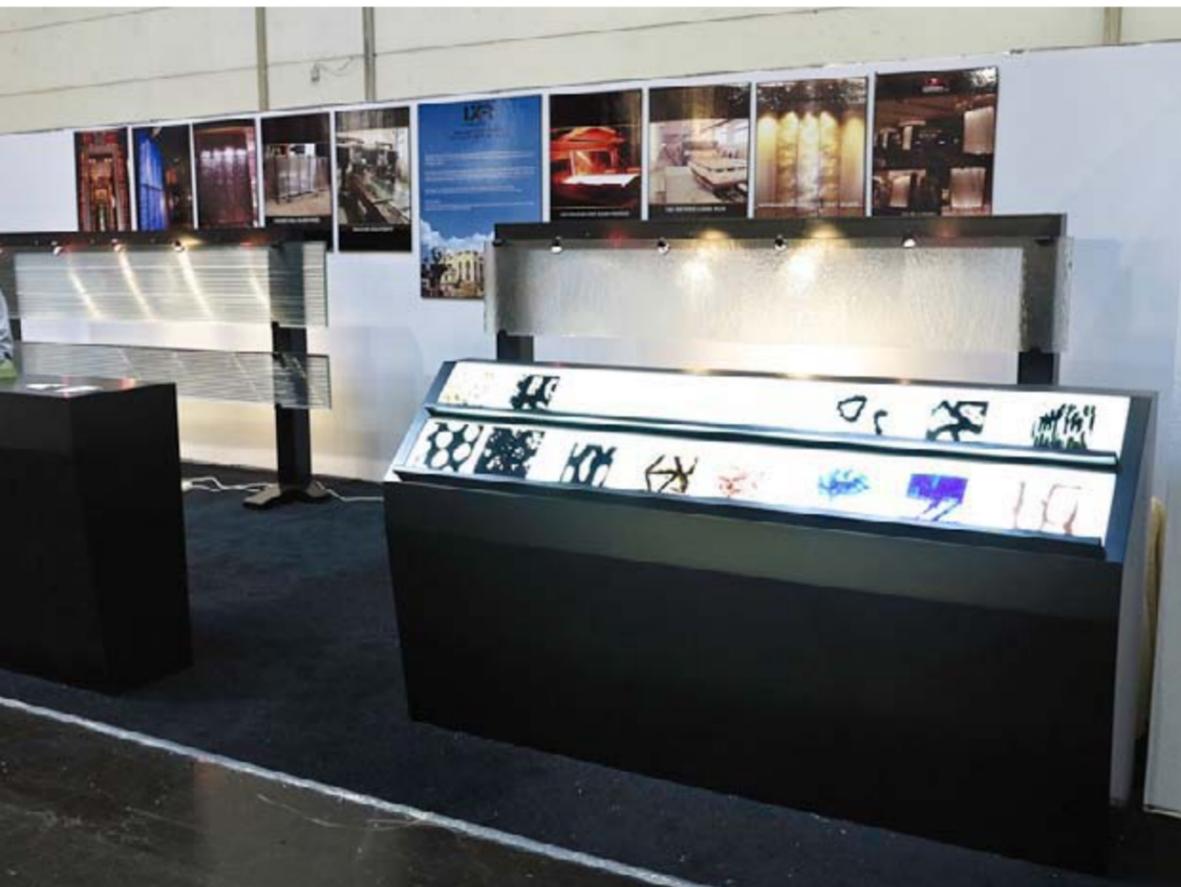


Laminated glass film by ADEVI

- IN-STORE PROMOTION
- WANDGESTALTUNG
- GLASRÜCKWÄNDE
- DUSCHKABINEN
- TRENNWÄNDE
- GLASTÜREN
- SCHRÄNKE
- KACHELN
- SPIEGEL
- TISCHE
- \*etc.

[www.prints-glas.de](http://www.prints-glas.de)

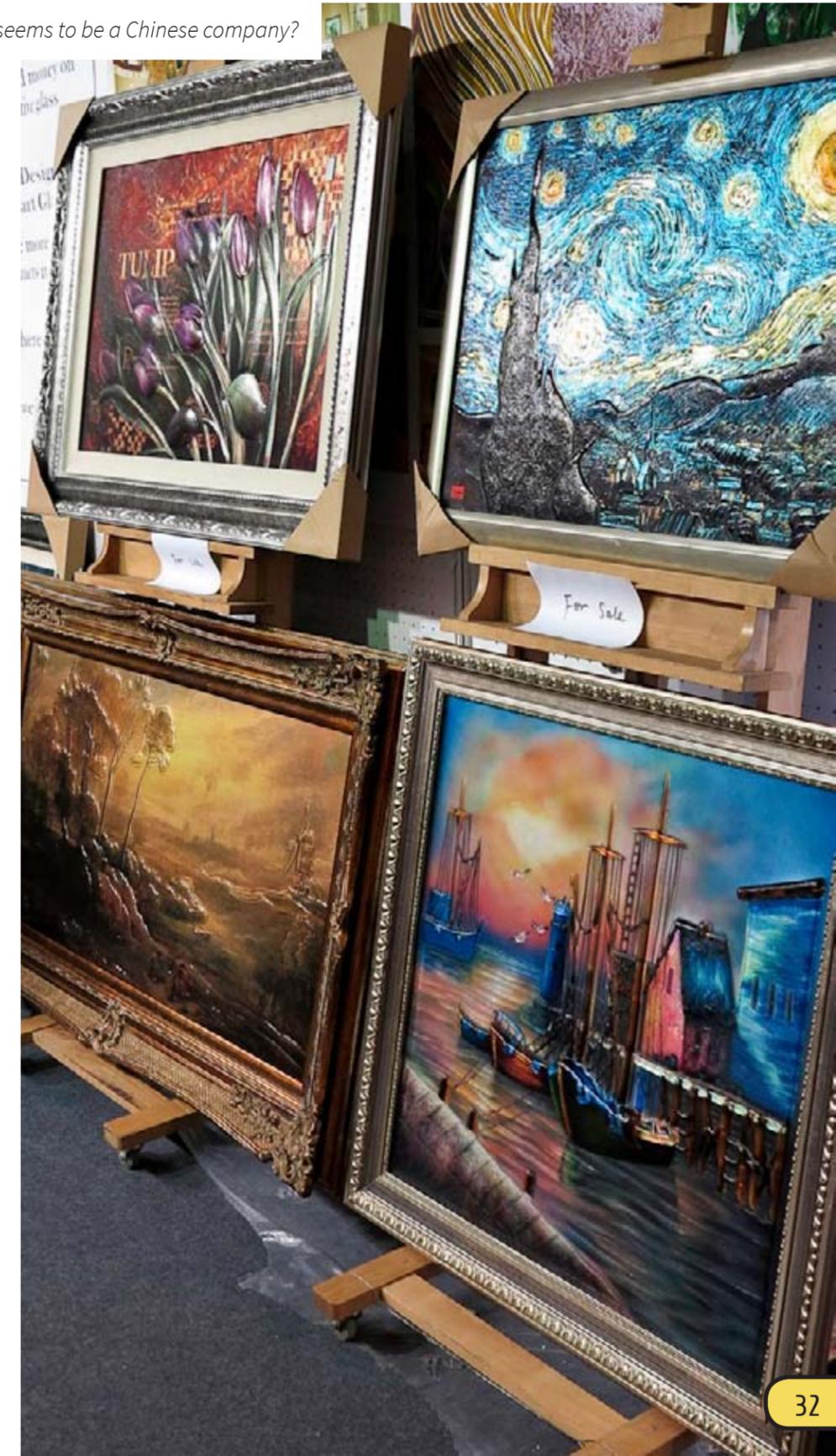
## Other artistic glass decoration techniques

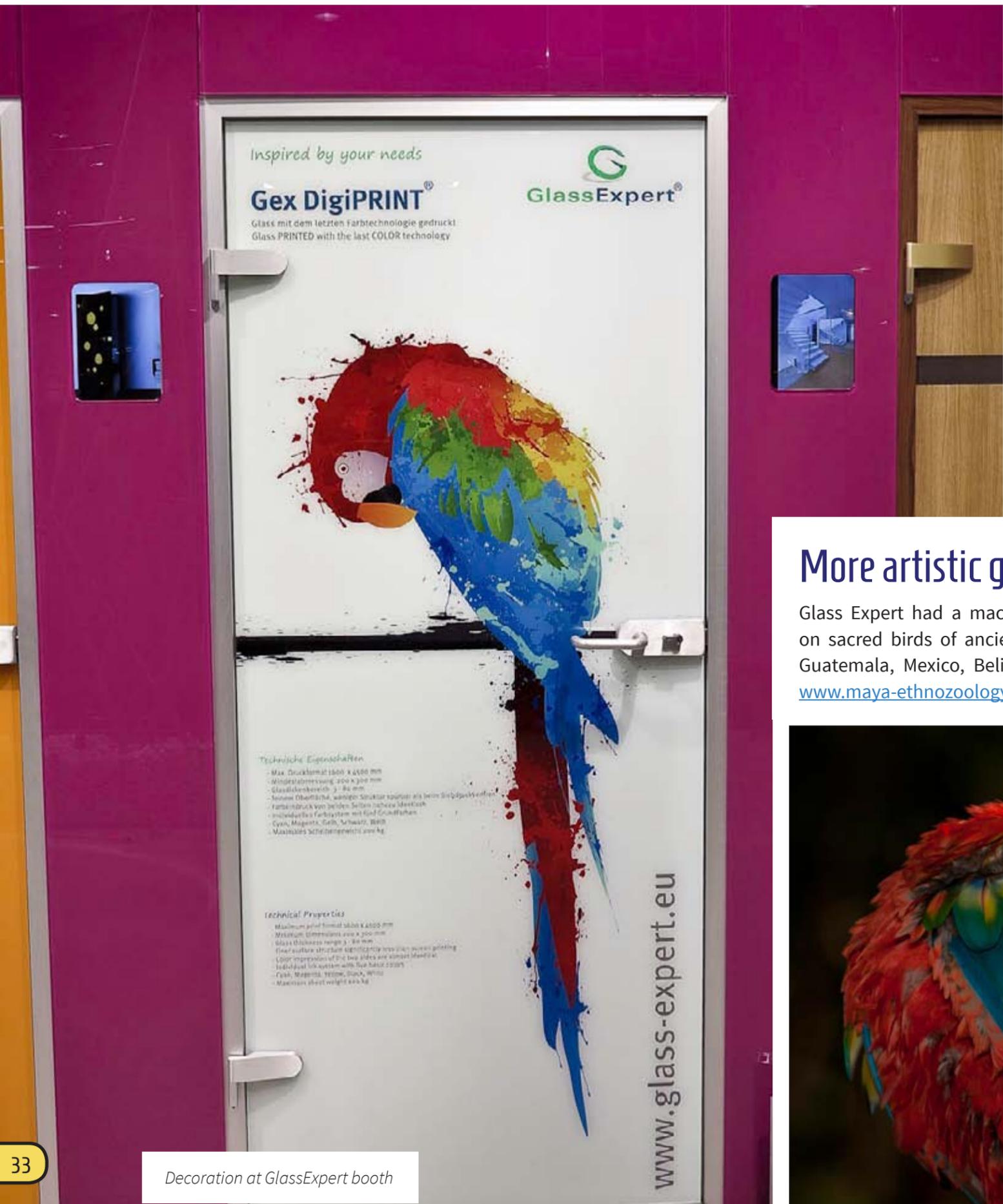


The booth of Shanghai Kangyu-Jiesen Cast Glass Artwork Co., Ltd had several examples of decorated cast glass blocks which were impressive. [www.kygroup.com](http://www.kygroup.com)



"Mr Glass" touted Italy but it seems to be a Chinese company?





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Technische Eigenschaften

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- Mindestabmessung 200 x 200 mm
- Glasdickenbereich: 3 - 10 mm
- Keine Oberseite, sondern Struktur spürbar als beim Berühren
- Farbeindruck von beiden Seiten nahezu identisch
- Individuelles Farbsystem mit fünf Grundfarben
- Cyan, Magenta, Gelb, Schwarz, Weiß
- Maximales Schutergewicht 200 kg

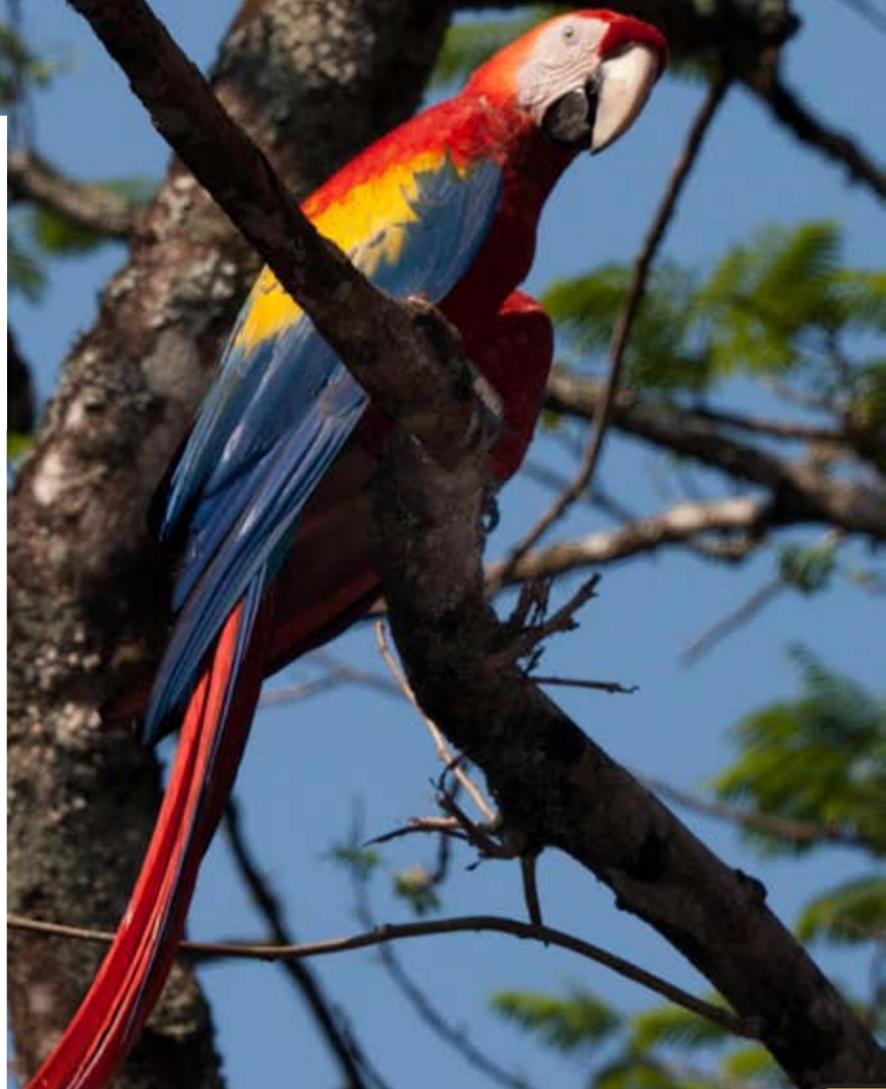
Technical Properties

- Maximum print format 1600 x 2400 mm
- Minimum dimensions 200 x 200 mm
- Glass thickness range 3 - 10 mm
- Two-side structure significantly improves printing
- Color impression of the two sides are almost identical
- Individual ink system with five basic colors
- Cyan, Magenta, Yellow, Black, White
- Maximum sheet weight 200 kg

www.glass-expert.eu

## More artistic glass decoration techniques

Glass Expert had a macaw as featured decoration. Since I do research on sacred birds of ancient Maya religion, I study the scarlet macaw of Guatemala, Mexico, Belize, and Guatemala. You can see these on our [www.maya-ethnozoology.org](http://www.maya-ethnozoology.org) and our [www.maya-archaeology.org](http://www.maya-archaeology.org).



Macaws photographed by FLAAR team at Copan, Honduras.

## 3D laser engraved images inside a glass block

At Glasstec 2010 the nice folks at Stiefelmayer-Contento scanned the FLAAR graphic designer who was with me, and then created her image in 3D inside a glass cube.

At Photokina 2012 I saw even more of this technology, with larger glass blocks. At Glasstec 2012 Stiefelmayer-Contento had their system again, as did several other companies, one being Looxis.



Vitro Laser booth at Glasstec



Sample of 3D laser engraved glass

## Exhibits of decorated glass

Hall 9 and others had exhibits of decorated glass. Some of these exhibits were space-fillers (to fill hall space to have the hall appear “booked”) but some were acceptable exhibits.

A few had art of dubious quality, but every art is probably considered good by someone. My background at both Harvard and Yale is in art history, so I have a bit of experience in judging art. Hall\_9\_exhibits\_to\_fill\_space\_ugly\_glass\_art 2763.JPG But nonetheless, I feel that every kind of art should be allowed. The viewers can then decide whether to spend time with each theme.



I prefer architectural glass art (so not stuff to decorate your bookshelves). And in architectural glass art I like bright saturated colors; or if otherwise, at least an eye-catching design.



Paul Wissmach booth



Glass art display in Hall 9

## Finally, digitally printed interior decoration



## Trade magazines

ESMA and SPECIALIST printing worldwide are the principal trade magazines related to inkjet printing and glass. They also focus on screen printing a lot. Most other glass magazines are on glass per se, not on printing per se.

ESMA seems more to have focused magazine-sized issues and conferences. SPECIALIST printing worldwide is more a regular trade magazine. Both tend to have articles by the sales managers of the manufacturers, speaking about their own products.

SPECIALIST printing worldwide is the only trade magazine exhibited at Glasstec that I read on a regular basis. SPECIALIST printing worldwide covers other topics besides glass, such as textile printing.



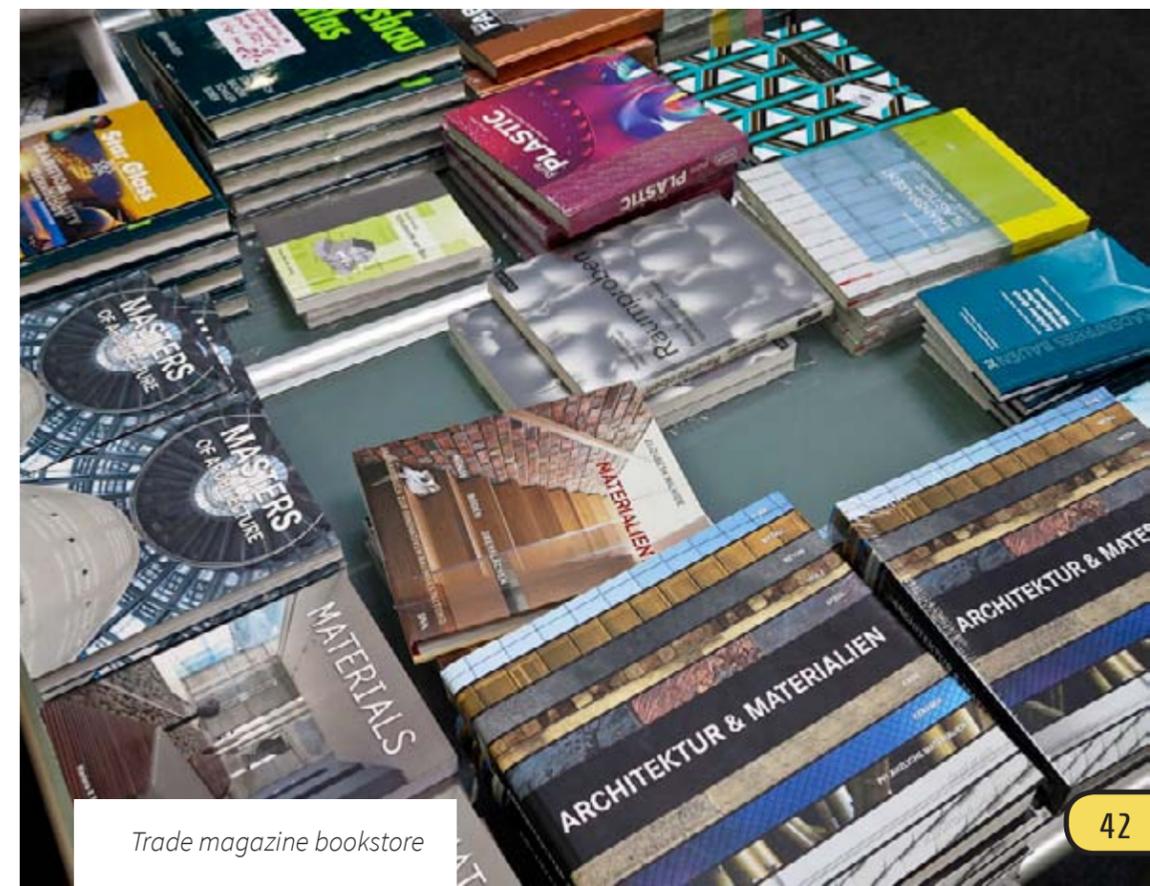
Architektur aktuell trade magazine



Middle East Glass Magazine booth



Trade magazine distribution center



Trade magazine bookstore

## What products stood out as memorable?

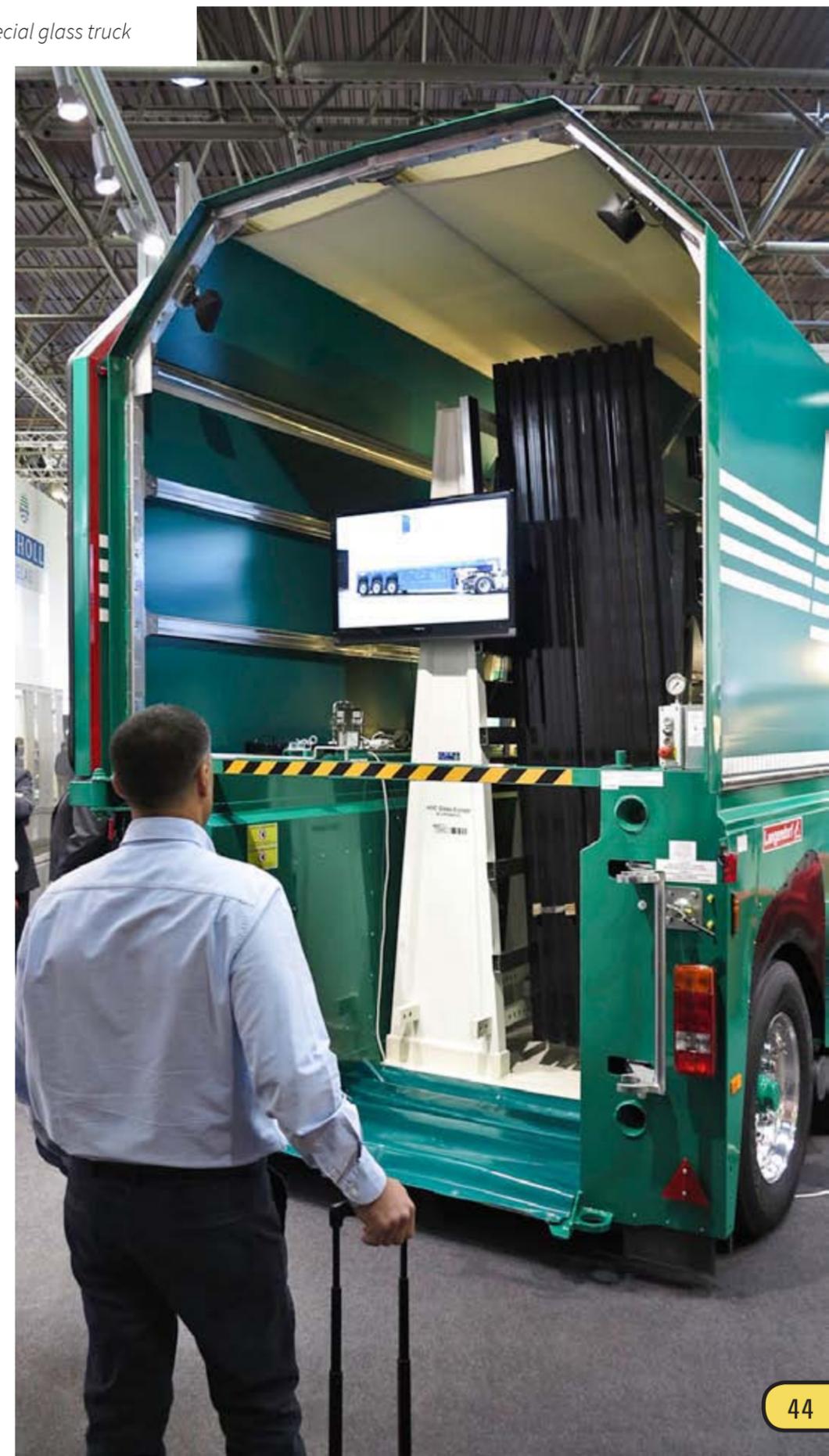
The huge trucks looked like transport for aliens.



Van Huet special glass truck



Lanutti special glass truck



Similar truck in parking lot outside

## My favorite booth decorations

My favorite booth decoration at FERRO booth



There is also a separate FLAAR Report (on every expo that we attend) on good booth design and inadequate booth design (plus some really bad booth structures; enough to keep visitors out and uninspired). You can order this report by asking to be invoiced; write [FrontDesk@FLAAR.org](mailto:FrontDesk@FLAAR.org).



Butterflies at Groglass booth



I enjoyed seeing this pumpkin at the expo (while visiting Stella Hu).

Because of all the harsh lighting, you can't take photos without glare (unless I bring my studio from my home office, and with polarizing filters). So only part of what you see at an expo can be photographed without glare. But these butterflies are really pretty.

## Excellent photographs as samples

It is remarkable how more than 30% of the booths at printer expos use cheap quality photos as print samples. Manufacturers spend a fortune to set up a booth, and to ship a multi-ton printer to a distant expo, and then use so-so photos as print samples.

Thus I would like to single out photographs which are not low-end; the photos we show here are of good quality, and this deserve mention. These are from the booth of Dip-Tech.

*Dip Tech samples used good quality photos*

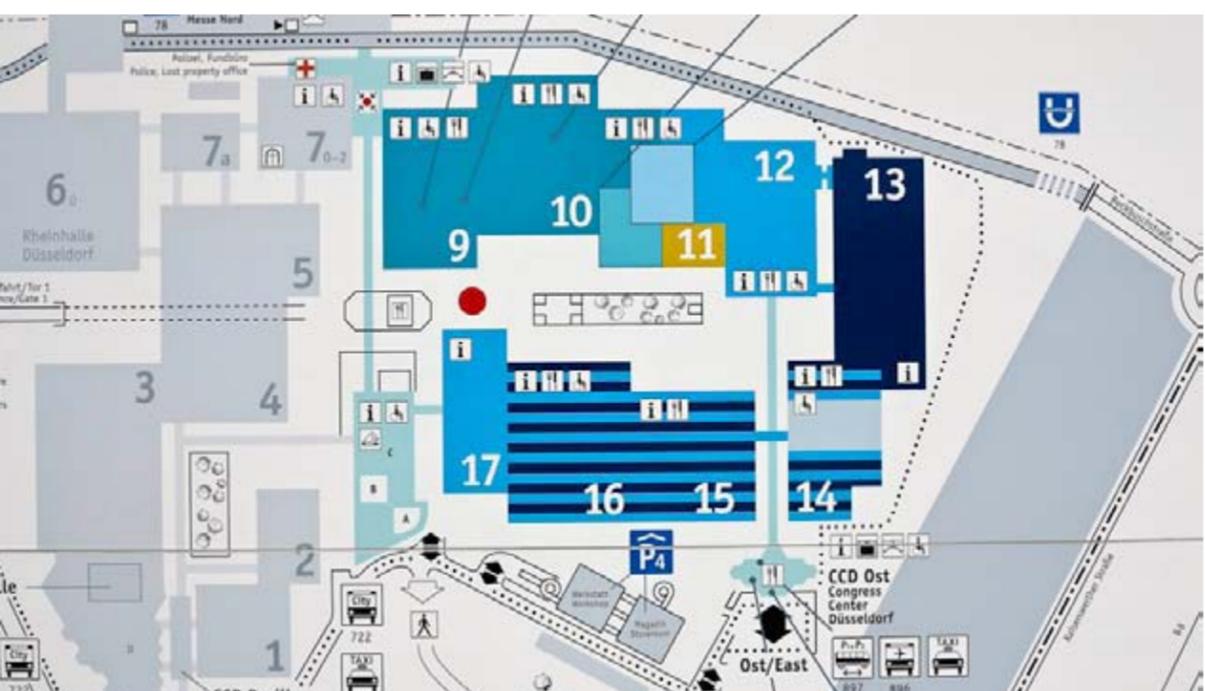
I like the leaves with ants of Dip-Tech because in Guatemala I study leaf-cutting ants which cut and carry flowers (so not always just leaves).



I was fortunate that already by age 30 my photographs were published by National Geographic, and in Hasselblad Magazine. Currently (2012) an exhibit of 75 of my photographs of tropical flowers of Guatemala (sacred to the Maya culture) are on exhibit at one of the largest botanical gardens in the world (MOBOT, in my home town, St Louis).

These reports are available on our [www.maya-ethnobotany.org](http://www.maya-ethnobotany.org).

## Hall Layout at Messe Duesseldorf



We provide hall-by-hall discussion in the separate additional FLAAR Reports; the free download you have now we need to keep file size to 5 megabytes. All FLAAR Reports are visible on [www.wide-format-printers.net](http://www.wide-format-printers.net), and new reports on [www.FLAAR-Reports.org](http://www.FLAAR-Reports.org).

## What other options exist for glass expos elsewhere in the world?

GlassBuild America tries hard to be relevant, but the day I attended in 2011 revealed this was the least-attended trade show I have been to in the last fourteen years anywhere in the world. GlassBuild America is perhaps better than nothing, but there are simply not enough inkjet printer booths to make it worth attending (if you need to learn about printing on glass).

If you are an architect, Glasstec in Germany is much better. If you are a wide-

format printer person, GlassBuild America was a huge disappointment. But if you live in Atlanta or Las Vegas, you can at least see a sample of the glass companies in America. And you can see the experienced glass printing team in the Dip-Tech booth.

I doubt I would be inspired to waste the airfare, flight time, hotel and meals, and ever visit GlassBuild America again, unless they can attract a significant

and diverse range of glass decoration options. But if you are an architect and need to see a lot of window and glass door options, GlassBuild America is a place to start.

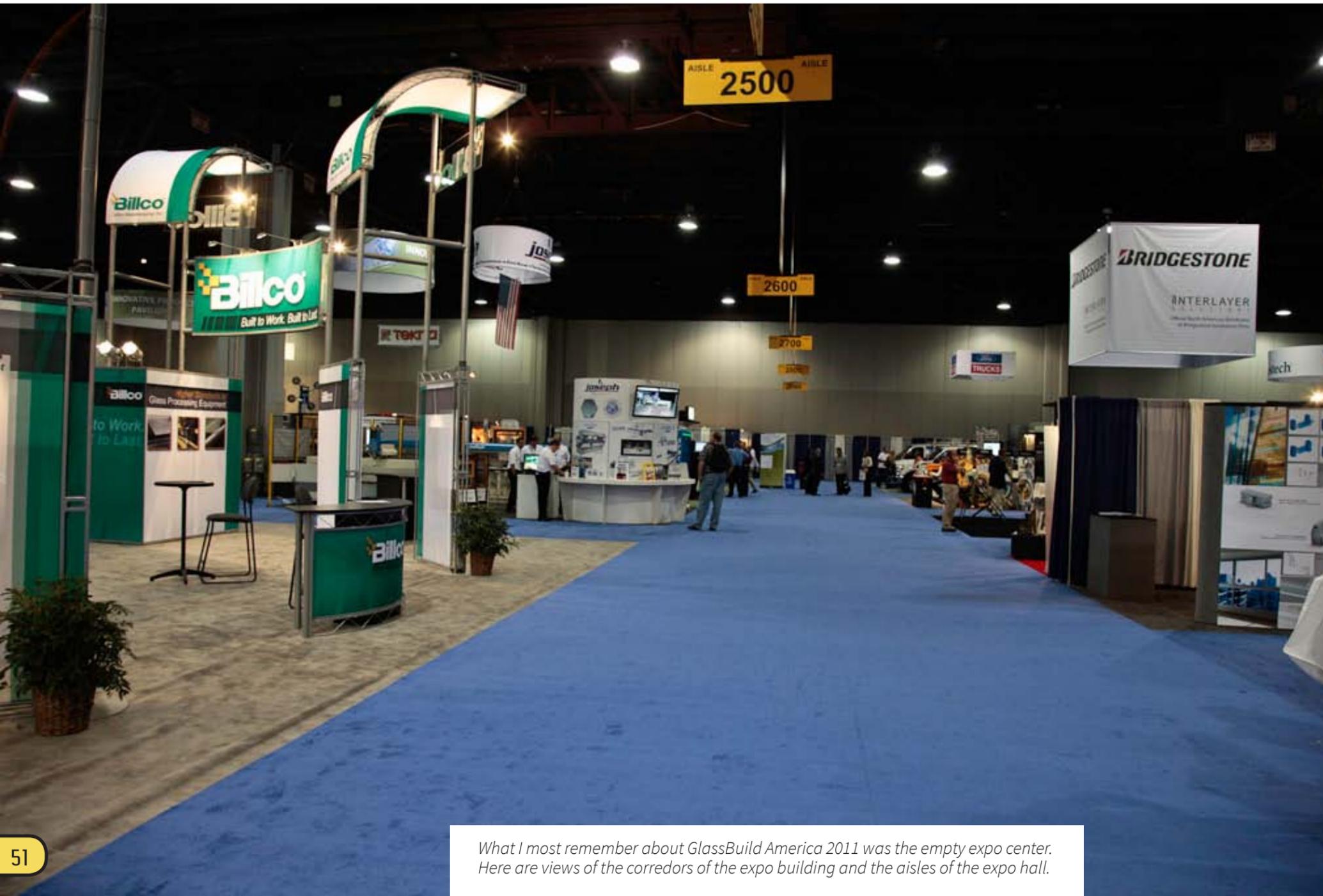
I hope this expo in America can improve for glass decoration, and since digital printing is one option, I hope they can develop a digital printing pavilion. Since our Hellmuth family for three generations have been architects, I have a tad of experience with architecture (and architects). And a tad of experience with wide-format inkjet printing. I enjoy assisting expo organizers to improve their programs, but glass expositions seem so content with their glass manufacturing aspect they have lost track of the digital printing aspect.

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*What I most remember about GlassBuild America 2011 was the empty expo center. Here are views of the corridors of the expo building and the aisles of the expo hall.*

myself would tend to want to attend whichever Chinese glass expo would exhibit Chinese-made inkjet printers for glass. I already attend:

- ▶ China Sign
- ▶ Sign China (two separate expos, copying each other's names, and literally across the street from each other, with their expos back to back).
- ▶ APPPEXPO, every July in Shanghai
- ▶ Beijing Sign Show, a smaller regional expo in Beijing.

But all of these are signage printer expos: none are focused on glass. What I am looking for is a Chinese glass expo comparable to Ceramics China.

I attended Ceramics China and found all the key inkjet printer manufacturers from China (plus half of the Italian and Spanish ceramic printer manufacturers).

## GlassPrint 2013

GlassPrint is also in Duesseldorf, is organized by ESMA. This is a lecture conference; next venue is 27-28 November 2013, [www.GlassPrint.org](http://www.GlassPrint.org).

## Welcome to AirBerlin

- ▶ AirBerlin does not give adequate privileges of Frequent Flyer status. (so if you have status with another member of OneWorld alliance, you may not receive benefits with AirBerlin).
- ▶ AirBerlin does not welcome even Platinum members of OneWorld alliance in their lounge (in Miami). You must have full-fare full BusinessClass ticket before they offer hospitality.
- ▶ AirBerlin seat reservation system is a mess.
- ▶ Check-in personnel at Duesseldorf airport are NOT AirBerlin staff. They are merely hired hands from an outside company. So they can't make adequate decisions to help you when you check in. I wasted over 17 minutes at check-in because there were not really any actual AirBerlin staff on duty to assist. It took that long for the check-in person to find a real life AirBerlin person (and when she arrived she refused to provide any of the things that American Airlines provides, such as a second bag checkin at no cost). Indeed when she realized I was filing a complaint, the AirBerlin lady demanded that all my carry-on luggage be weighed down to the gram and they hit me with a ridiculous charge for the baggage that American Airlines accepted courteously at no cost whatsoever.
- ▶ Altogether it took over 45 minutes at the check-in counter since there was no one who could make adequate decisions.
- ▶ AirBerlin seats are worse than even Lufthansa (which are among the the most cramped in the world).
- ▶ I rate the AirBerlin seat as the worst in the world (no space to even squirm)

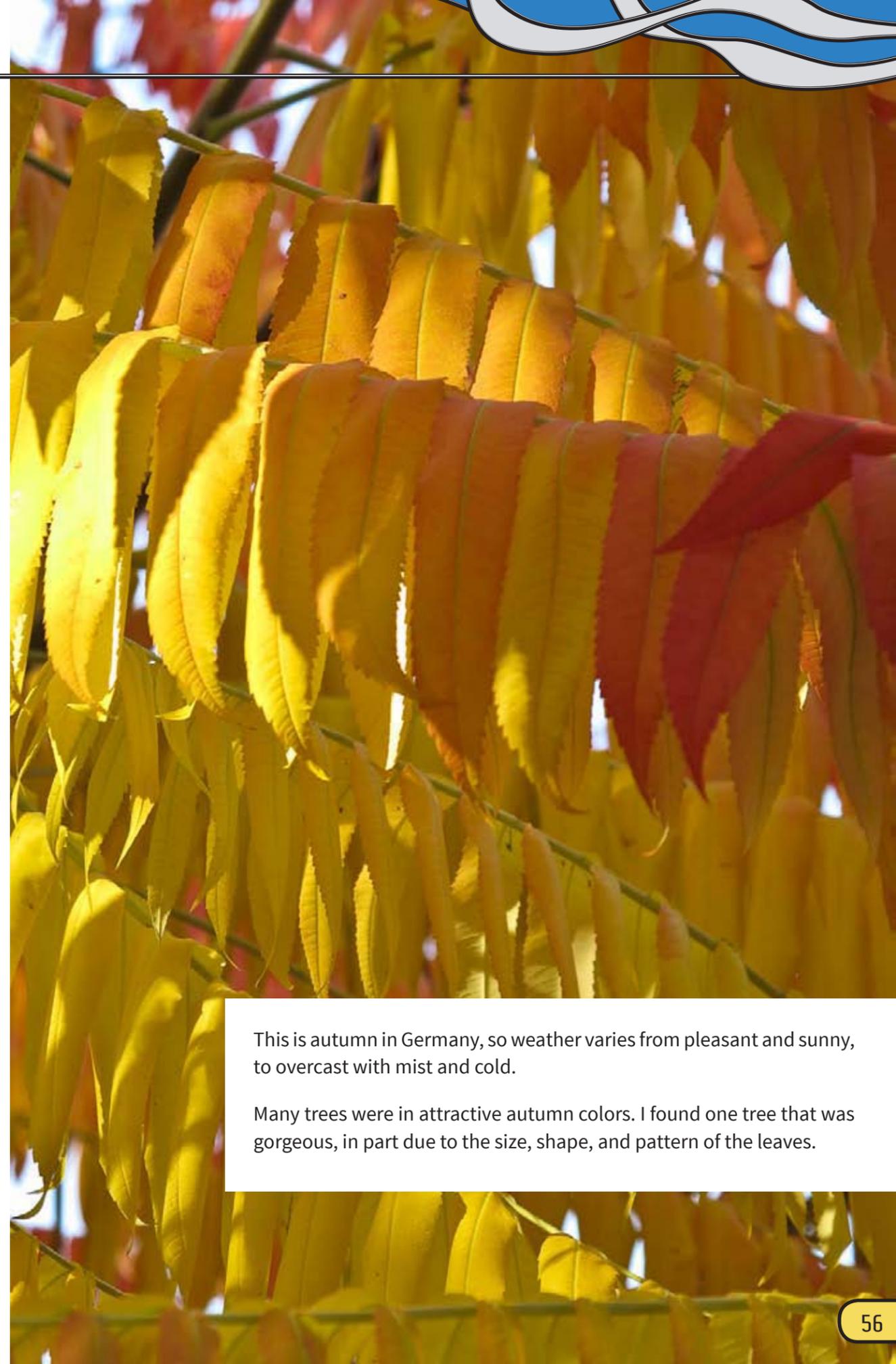
So to fly to DRUPA or to fly to Glasstec in the future, if you buy your ticket on AirBerlin you get all the above benefits!

*What is also hard to forget is a printer manufacturer booth with not one single solitary printer in the booth! And not one single attendant, sales rep, or even a hostess in the booth either (the entire day).*



## Climate, temperature

First two days relatively sunny so temperature was pleasant. Third day: overcast and chilly ("sweater weather" with scarf needed). I flew home 4th day as I have been attending expos the entire year around the world so needed to be in home office occasionally.



This is autumn in Germany, so weather varies from pleasant and sunny, to overcast with mist and cold.

Many trees were in attractive autumn colors. I found one tree that was gorgeous, in part due to the size, shape, and pattern of the leaves.

## Who and what is FLAAR?

FLAAR is read by over one million people a year precisely because we are not a PR agency. We do not regurgitate PR releases; we phrase our comments in our own words based on making the effort to get out of our office and get to printer (and glass and ceramic) expos around the world.

No PR agency personnel could afford to be away from their family that much of the year. No trade magazine could afford to send their staff to expos literally around the world the entire year. We do this, not because we are floating in money, but because we are interested in research, and education (as you would expect from a former professor). So we write and publish about every aspect of wide-format inkjet printing.

Plus we write for SIP magazine in Germany; for PUBLISH magazine in Russia; for Practical Publishing in South Africa; and for Sign & Digital Graphics Magazine in USA.

We enjoy helping printshops learn what is new in inks, printer technology, substrates, cutters, laminators, etc. Distributors around the world use our FLAAR Reports to decide which inks, which substrates, and which printers to distribute in their part of the world.



Nicholas Hellmuth inspecting booth at ITMA Shanghai 2012

## Certification, documentation, recognition visit (available for your company)

Some manufacturers, and distributors, ask for a FLAAR team to visit their company so that we can add a dedicated page on the company to our popular web sites on wide-format industrial inkjet printing on architectural materials.

If your company would like a dedicated web page to be included in our FLAAR network, in the section on architectural decoration, plus listed in our index under industrial printers, you host two of us to visit your company so we can better understand your project.

This is not a project; this is an initial visit. A project (which results in specific FLAAR Reports in PDF format) is a sponsored research product, just like we did for six years while FLAAR was the organizer of the digital imaging technology centers at two universities. We grew to over a dozen staff and nowadays no university can handle that large a staff, so we returned off campus to be completely independent. But we now have plenty of experience in sponsored research products. These projects can be discussed during a recognition visit, but the purpose of the initial visit is to get your company included in our web pages network.

With over 72 manufacturers of wide-format inkjet printers around the world, and with a few of them in disarray, several in the equivalent of Chapter 11 (close to bankruptcy) and with a few companies clearly not producing new or significant technology, and with over a dozen companies being primarily assembly plants of standard components, we tend not to add a web page unless we know the company is of solid standing, has adequate technology, and has adequate funding to not only survive the economic slowdown, but has adequate funding to expand their worldwide presence. So one good test is to be hosted to visit a company; this says rather quickly that at least the company has adequate funding.

Two are needed because the graphic designer who prepares the web page(s) needs to personally see what the web page is going to feature. And obviously Dr Hellmuth would be head of this team. A hosted visit implies round trip airfare and associated travel costs, hotel in your city, reasonable meals, and local transportation from airport to company, etc.

The visit can either be to your headquarters, or to a printshop anywhere in the world who is using your printer. Many companies opt for us to visit both: corporate headquarters (usually including the factory) plus a printshop using their product(s).

Bar bill and mini-bar costs not needed. Personal expenses not charged. Airfare is economy fare (Business Class appreciated but definitely not required). However we do use airlines which are FULL members of one of the three international airline alliances; and we do avoid certain airlines which do not provide adequate service (we will not use AirBerlin as much any more).

Fee is standard flat fee: \$3200 in North or South America; \$3400 in Europe or Middle East (because of longer travel time away from our office); \$3600

in Asia due to much longer travel time; jet-lag recuperation. Fee and airfare must be paid in advance; you book your own hotel selection in host city.

The resulting web page is a recognition which documents we know the company, that we know their products, and that we feel this company brand name is of a quality within the printing industry that it would be helpful to our thousands of readers to know about these products and about the applications where these products are useful.

Just last week another Fortune 500 company wrote to ask us which UV-cured printer to buy. The two they selected as a Short List were both manufacturers which have FLAAR Reports based on visiting the respective factory of each company. We can best assist in-house printing services, or printshops, when we know the printer manufacturer from an in-person visit, and especially to a printshop(s) who are using their printer(s).

We will be inspecting a printshop using ATPColor textile printers in Munich in three weeks, as but one of dozens of examples.

Nicholas Hellmuth visiting a distributor in Brazil



## Summary and Conclusions

Glasstec is so much larger than any competing glass expo there is no comparison. The only other expo that I would consider would be a glass expo in China (if it has as many inkjet printers for glass as Ceramics China had inkjet for ceramics).

Glasstec has every product for glass production and moving glass around a factory.

But if you need to learn about inks, primers, coating, lamination (sandwiching PVB between glass); if you need to learn in depth about wide-format inkjet printers, then Glasstec is a first step.

Hopefully Glasstec 2014 will have more printer brands (in 2010 they had more brands than in 2012). But it was definitely worth the miserable flight on Cattle Class AirBerlin, and worth the time and expense, to be there.

Many courteous booth personnel and lots of insights make Glasstec 2012

a good experience. My best summary and conclusions that I can provide in a single sentence is that “the era of UV-cured printers for glass is still essential at entry-level” (so you build up a client base). Once you have a good client base, return in two years to the next Glasstec, and look for a mid-range printer (which in 2014 will have a different ink).

As your success continues, by Glasstec 2016 you can be at the high-end, and “take home” one of the really sophisticated printers that become even better with each new generation (for example, Dip-Tech is clearly already in a further generation already now; other companies are still at their own first generation this year).

A final observation would be: every ink, every printer, every level, is good for someone, and not appropriate for a different person. There is no one single printer which everyone should buy. If there are x-hundred companies needing a printer, some will best be at entry level; others at mid-range; others are ready to move to high end.



Glasstec has every product for glass production and handling in a factory

## Appendix A Hall by Hall



Glasstec had NINE halls. Even if two of the halls were mostly filler-booths or filler-areas, this is still a significant world-class expo.

Whereas drupa splatters inkjet printers helter-skelter in far away halls and widely separated halls, at least the system at Glasstec kept about 90% of the printers in Hall 12 and the rest in adjacent Hall 11! So in this respect Glasstec 2012 was better than Glasstec 2010 (where there were a few printer booths in the “wrong” hall).

The other seven halls were filled with diverse other projects. We cover each hall, one by one, in separate FLAAR Reports on Glasstec 2012.



## Appendix B I am not sure what this booth has to do with glass



Since I lived in Switzerland three years, Austria eight years and am often in Munich, I found this booth entertaining.

However I think the cute hostess was disappointed that I took a photo of the plastic cow and not her.

# glasstec

INTERNATIONAL TRADE FAIR FOR GLASS  
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## FLAAR Reports on Glass and Ceramic

