



## ***TEXTILE PRINTERS & TEXTILE INKS***

**SUBLIMATION & CURING EQUIPMENT  
FOR TEXTILE PRINTING WORKFLOW**

# ***ITMA 2015 TEXTILE EXPO***

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## INTRODUCTION TO ITMA 2015

At most printer expos in the Americas, the textile printers are for soft signage. At ITMA most of the textile printers are for mass production of anything and everything which is a decorated fabric (especially women's clothing).

At most sign printer expos the textile printers are under \$40,000. At ITMA most of the printers are \$200,000 to over a million dollars. Yes, there were several entry-level textile printers at \$20,000 (or less), but the focus of ITMA is serious textile decoration. This is not an expo for sign shops in strip malls (though owners and managers of print shops of all sizes can learn a lot at ITMA). But, since the next ITMA is 2019, the best place to learn is from FLAAR Reports.

The present PDF that you are looking at is a general introduction (and we provide this as a courtesy at no cost). If you wish to have the full-scale FLAAR Reports at TRENDS level, you can order these by asking to be invoiced: e-mail FrontDesk "at" FLAAR.org



If you request consulting (on any inkjet topic) from Dr Nicholas and Maria Renee Ayau (both can assist you together), then you will receive all of the ITMA 2015 textile printer TRENDS reports, plus all the ITMA 2015 ink reports. So you receive everything, plus can speak with Dr Nicholas and textile printer specialist Maria Renee Ayau by telephone, Skype, e-mail. You can ask all your questions directly.

## TEXTILE PRINTERS AT ITMA

ITMA is a trade show where you can find million-dollar reactive dye and acid dye printers. At ISA, SGIA, and FESPA, probably 90% of the textile printers use disperse dye or dye sublimation inks (primarily for flags, banners, or other soft signage).

Yes, there were also basic dye sub printers for flags and soft signage at ITMA, but ITMA is for mass production, especially fashion and home (decoration) textiles. ITMA is the elite expo, especially for printers Made in Italy (or printers made elsewhere trying to compete with the Italian originals).

To show all printer brands and models in one PDF causes the PDF to be too large in MB file size (and thus tough to send as an attachment to an e-mail). If you need to have a complete list of every single brand and printer at ITMA, we have these lists in the TRENDS series.

Here in the general introduction we tend to show the printers where the booth personnel or company executives and managers invite us into the booth and assist by discussing their new features, etc. We also feature in the general introduction brands where their managers have invited us and taken care of a visit to their factory (such as RTZ Flora).

But 100% of the brands are pictured and described in the TRENDS reports, since these are several volumes in size.

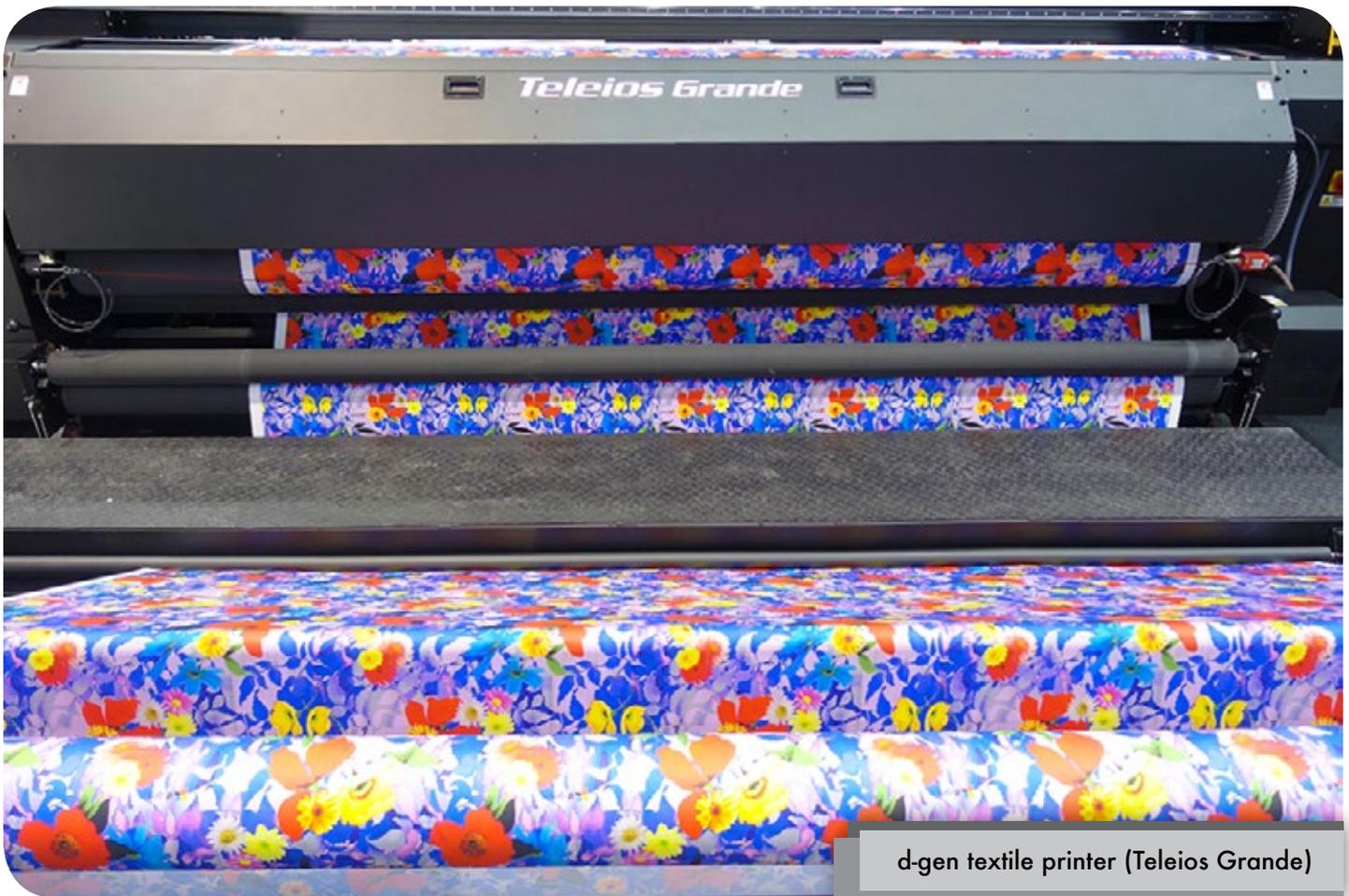


RTZ Flora booth

## D-GEN

d-gen is a Korean company though their principal team is from Italy. I have been to the Keundo facilities in Korea (to inspect the ill-fated Yuhan-Kimberly textile printer). It is notable that Keundo was conspicuously absent at ITMA 2015. Although I have been to the Dilli factory in Korea for a nice long visit, and to the DGI factory twice, I have never been inside the d-gen facilities in Korea (nor to their demo center in Italy).

I mention these brands because Korean technology is impressive. Thus it was good to see the d-gen. In past years they retrofitted Roland printers. But their access to Roland printers was cut off by Roland Europe or Roland Japan about two years ago, so now the d-gen printers are made elsewhere in Asia (unlikely in Japan any more).



d-gen textile printer (Teleios Grande)

## DIGIFAB

I have been to DigiFab headquarters in Los Angeles many years ago, and know this family owned and operated company for at least 15 years. They had the best color results from textile printing equipment even in the days of Encad (over a decade ago).

The other advantage of DigiFab is that they know inks, media, printers, workflow equipment, and even have a special RIP software focused on textile printers. DigiFab is increasingly an international company and we see their team at all the leading expos around the world.

You can learn more about their products on [www.DigiFab.com](http://www.DigiFab.com)



DigiFab booth



DigiFab sample

## FLORA, DIGITAL PRINTING SYSTEM

Flora brochures are helpful by mentioning which printheads are actually in the model of printer.

Too many other brochures hide the brand of printhead.

If a printhead is good, it should be mentioned. Flora uses an brand of printhead favored by many manufacturers and appropriately lists both the brand and the specific model (TX-3200DS Printer and also brochure of TX200DS Printer).

I have been to the Flora factory in Shenzhen many years ago. It was impressive then and I can imagine that it is even more sophisticated now.

You can explore all the options of RTZ Flora by looking at [www.chinainkjetprinter.com](http://www.chinainkjetprinter.com)

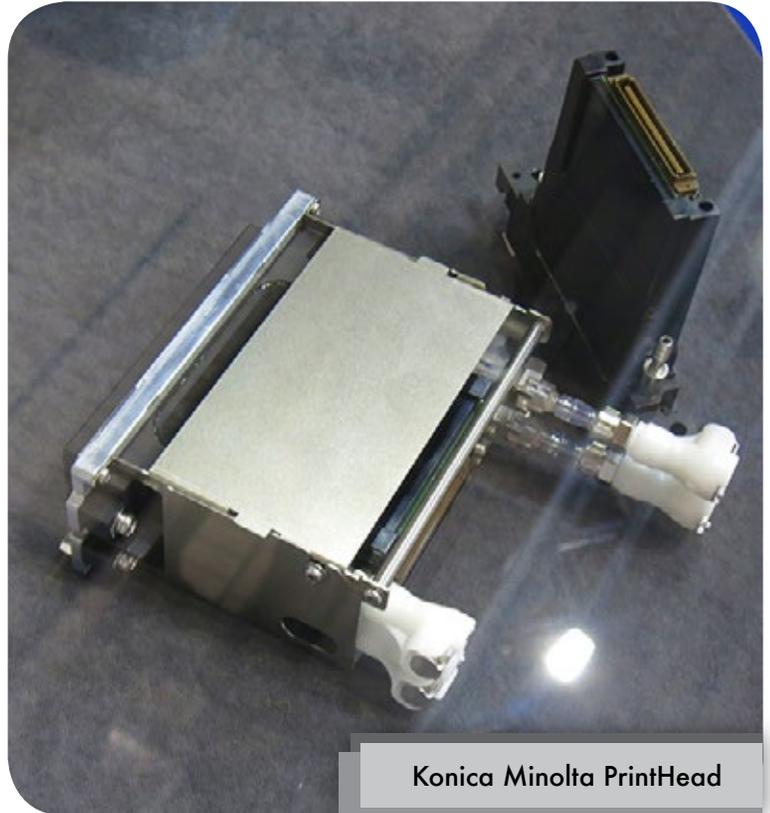


Flora printer

## KONICA MINOLTA

Konica Minolta is known worldwide for office copiers. But they also have a division which manufactures printheads, which are especially popular in UV-cured printers. But KM print heads are also used in textile printers. While visiting the Konica Minolta booth Mr. Akiyoshi Ohno, President Konica Minolta IJ Textile Europe S.r.l. came over to say hello and we had an informative discussion.

It will be interesting to see the market share of printheads for one-pass technology textile printers. Both Konica Minolta (..model... ) and Fujifilm Dimatix (Samba) printheads are competing for this crucial market. As soon as we can be provided demo room experience with one of these print head brands in a one pass printer we can issue more information for our half-million readers around the world.

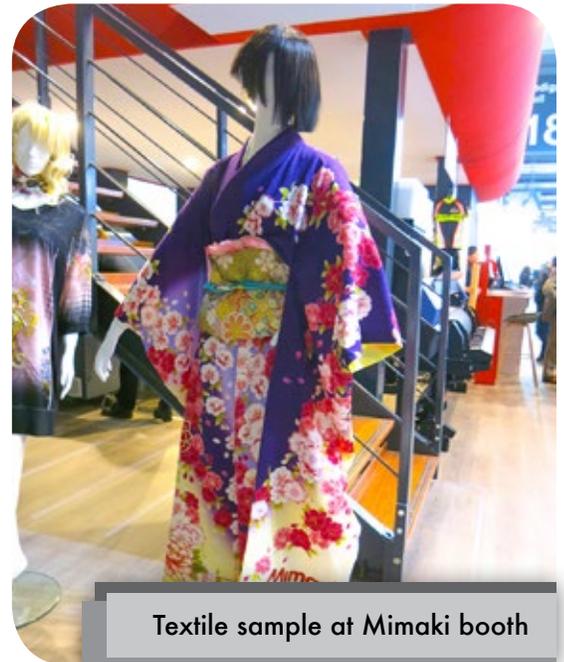


Konica Minolta PrintHead

## MIMAKI

The Mimaki teams from Japan and Europe were in full presence. Since there were so many halls for me to do research in besides just the main Hall 18, I regret that I did not have more time to speak with the Mimaki team in the booth.

Mimaki has gone beyond making entry-level printers. An entry-level textile printer is really just a normal water-based printer or eco-solvent printer with textile ink added. For transfer paper this is normal. But to actually move a fabric through pinch rollers and grit rollers you can achieve better results if most of the printer is specially engineered specifically for woven materials.



Textile sample at Mimaki booth

## OPTIMUM DIGITAL PLANET

I have been hospitably received in their booth at expos around the world. Unfortunately, while I was in Turkey attending Sign Istanbul several months ago, I did not get their invitation to visit their factory until I was a week back in my office after Sign Istanbul.

But I hope they can get me to their facilities in Istanbul long before Sign Istanbul 2016!



Optimum Digital Planet print sample

## PIGMENT.INC

This is a focused company led by a capable team who realizes that ink is the key. I would add that a printhead appropriate for that ink is definitely also crucial, but a good printhead with an iffy ink is an incomplete solution. And clearly some inks are definitely better in some respects than others. In the Americas you can find out about textile printers from PIGMENT.inc at Graphics One, an international distributor (for USA and often also for Latin America) in California.



PIGMENT.INC booth

**EFI-REGGIANI**



Exhibit of curtains, chair upholstery



Clothing for women at Reggiani booth

The big news at ITMA was understandably the union of REGGIANI with efi VUTEk. Their press conference was helpful as a follow-up.

They cleverly had both a high-end printer and an "entry into sophistication" level printer. EFI has done the same with UV-cured printers: they have the high end (competitors of Durst) yet they offer mid-range models as well (which Durst has not been as successful with this concept). For latex printers HP has a good range: high-end with the 3.2meter models, and lots of low-price entry-level models in the HP Latex 300-series.

Someday it would be good to be flown to the REGGIANI headquarters so I can better understand each of their models.



Textile printer



Efi Reggiani DD-HF 180



Efi Reggiani DD-HF 180

**MTEX**

MTEX continues to advance. I was at their facilities in Portugal several years ago. But most of their printers at

ITMA 2015 are newer models than I do not yet know.

Recently their distributors in Turkey and Dubai have changed, so I would need to revisit the MTEX factory and learn more about their distribution network for 2016 before we can comment further. Eloi Ferreira and Marco Sousa are pleasant and knowledgeable about the world of textile printers, so I hope their distribution situation is resolved. As soon as we learn more, we can discuss this company. In the meantime, with even Mimaki buying an Italian textile company (after ITMA), things are really changing in the world of textile printers.

We discuss the TRENDS of textile printers in our Textile TRENDS report series.



MTEX textile printer

We have comparative tabulations of all brands at the major textile expos to show the trends. You can order these tabulations to help you and your company keep track of the changes within the industry.

There were many brands at ITMA 2015, which did not exist in 2011 at ITMA Barcelona. One of the brands that most impressed me was the PACO Pro-1 from Pyung An Textile Co. Ltd. The son of the owner was courteous and hospitable in the booth. We would need to be flown to the factory to be able to write a FLAAR evaluation on the potential of this remarkable printer.



Pyung-An textile printer

## COMMENTS ON ENTRY LEVEL TEXTILE PRINTERS

It is common for sales brochures to make silly exaggerations on speed. “Blinding speed” or “lightning speed” are an embarrassing clear statement that the actual true speed is rather slow (so the PR agency has to use fluff and puff to make the printer sound acceptable).

Since many of the printers at ITMA use industrial-strength printheads, to have a brochure of Epson claiming high speeds is okay at a normal printer expo, but since at ITMA other printers in the adjacent booth were really fast, claiming their small printhead footprint speed was fast is not very realistic.

Each company is good at what it is good at: these aspects should be championed. Speed is not one of them.



## TEXTILE PRINTERS MADE IN CHINA

It has been common for over a decade for entry-level printers to be Made in China. At another expo a booth manager said that they dropped trying to sell their printers from Taiwan since the printers from Mainland China were so much cheaper.

There were indeed two or three basic entry level printers at ITMA, the kind of printers you see at APPPEXPO in Shanghai every year (APPPEXPO has grown to become the largest printer expo in the world; PR splatter tries to claim every single expo is the largest. APPPEXPO does not need PR blather: APPPEXPO has scores of entry-level textile printers plus more UV-cured printer brands than every other printer expo in the world put together).

Low-bid printers at entry-level are already well documented. Most have issues because the components are either too weak, or the nuts and bolts vibrate off and the good parts fall off. But in the last several years, at least 10% of the brands in China have made substantial progress in overcoming the past decade of issues. What was noticeable at ITMA was the number of \$150,000 to \$250,000 printers which were also Made in China.

What was even more remarkable were the printers with European brand names, which were Made in China. Zimmer deserves an honorable mention for clearly stating, with no smoke and mirrors, that its new model is made in China. Plus they even put the original Chinese brand name on the front of the machine. This is a level of honesty not visible in several other booths where their printers were clearly Made in China but neither the brochure nor the brand name or manufacturing tag of the printer itself documented this reality. So a clear trend at ITMA was the substantial number of mid-range printers which were Made in China.



Zimmer Austria Colaris textile printer

## FONT IN SOME BROCHURES IS TOO SMALL.

And when font is white (and small) on black background, the text is even harder to read.

This is a polite suggestion to printer manufacturers. After they spend millions of dollars to engineer and manufacturer their printers, why do they allow graphic design team to ruins this by font that is a size so small that it looks out of place.

One brochure, back page, had 25% of the page totally empty; totally blank. Yet above the font was so tiny it looked ridiculous.

This is a multi-million dollar Japanese printer manufacturer; indeed one that I respect for their printer technology. Kind of a surprise to see the back cover of their dye sub printer with such reader unfriendly graphic design.

In distinction, the brochures of Optimum Digital Planet were a professional high-level graphic design.



Brochures of Optimum Digital Planet



Brochures of Optimum Digital Planet

## PRINTHEADS FOR TEXTILE PRINTERS

We had helpful discussions with Howard Baldwin from Fujifilm Dimatix at ITMA, and a helpful discussion with the Akiyoshi Ohno of Konica Minolta printheads. The potential for one-pass printhead market growth is clearly a goal for both companies.

Surely plenty of people of Kyocera printheads were at the expo, but I have never met anyone from this company whatsoever. With Ricoh, also, no contacts. So we tend to know more about Fujifilm Dimatix printheads and Konica Minolta printheads since their key people are available for informal meetings either in the aisle or at their booth (or as I am boarding the flight to Milano!).

- If a majority of one kind of textile printers use Kyocera printheads.
- If a majority of entry-level (simple basic) textile printers use Epson heads.
- If no textile printer used Xaar heads (because these are not for water-based ink)
- If only one single solitary textile printer uses a Seiko printhead?
- If good range of printers use Ricoh, Fujifilm Dimatix Spectra, or Konica Minolta printheads?

It is fairly obvious which print heads are industrial strength and speed (and which printheads are entry level). It would seem that if you know which brands, which models, which inks, which level (or lack of) sophistication uses which brand of printheads, this is a good general introduction to recognizing which printhead you should consider when you are trying to make your decision of which printer to buy for your company.

For this reason we have a list of every single brand and as many models as we could get the information on. It is obvious who uses Epson heads: Epson itself. It is obvious who uses the expensive brand: the expensive top-of-the-line brands. If you have a nice neat tabulation (as we provide in FLAAR Reports) you can more easily figure out which printhead you should consider for your next textile printer investment.

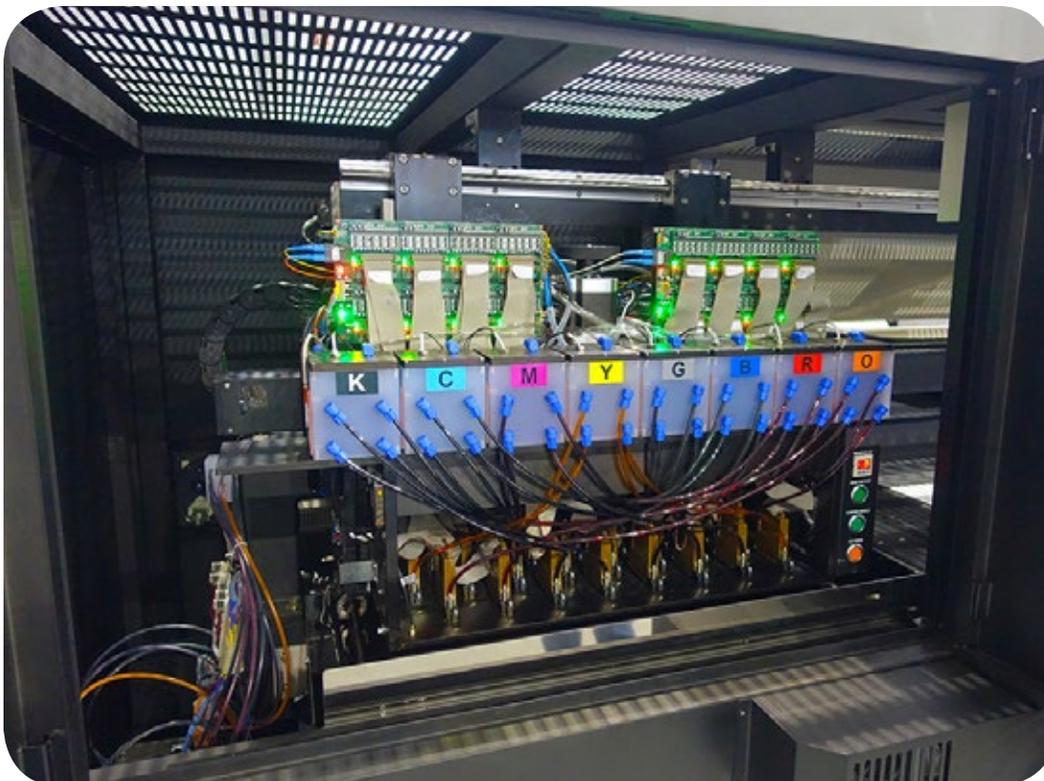


There were several manufacturers of textile printers at ITMA 2015 which were clearly working hard to avoid needing to use any Epson print head whatsoever. Actually there are now two other print head brands which are potentially actually lower price than Epson.

Epson keeps their best print head models for their own printers. Old old old models such as DX4 and DX5 are used in cheap entry-level low-bid textile printers. We saw the same trend at Chinese expos: even Chinese printer brands are realizing it is often a good idea to use heads which are not Epson. But since Epson DX4, DX5, and now even DX7 heads have been around for a long time, all the ink and printer engineer people know how to use them. DX6 heads are rarely seen (present, but not often).

Nonetheless, Epson printheads (years ago) had the advantages of being cheap and readily available. Nowadays they are expensive (for the same identical heads) and Epson has "officially" cut off supply (so price via the gray market is double or triple what these heads cost a decade ago).

So why do low-bid Chinese printers still use Epson heads? Because the engineers know how to do the ink supply lines, the ink cartridge system; know what ink works in these heads; everything is easier for the design and manufacturing of cheap heads. Mimaki was the first Japanese company to recognize the multiple benefits of using print head brands other than Epson. Nonetheless, many models of Mimaki printers still faithfully do use Epson heads. So clearly someone somewhere still favors Epson print heads. Actually when the heads are not failing due to nozzle clogs and when the heads are not causing constant horizontal banding lines, an Epson head produces a nice giclee or fine art photo print, albeit rather slowly.



You can purchase the FLAAR Reports printhead list, tabulation, and commentary by writing FrontDesk "at" FLAAR.org

## TEXTILE INKS

Both original inks and after-market inks were exhibited. This traditional distinction (OEM inks and after-market inks) is not entirely valid since many companies are OEM for some printer brands but after-market for other printer brands. So whereas it is true that low-bid third-party inks are nowhere near as good as original OEM inks, there are indeed plenty of after-market inks which are as good as the original. Actually in a few cases you could probably find an after-market ink which had better color gamut and other features lacking in the OEM original!

And, many ink factory brands sell additional kinds of inks that they themselves do not manufacture (obviously they do everything possible to obscure this reality).

We list all 23 brands of inks which either had a booth or were known to be in the booth of a printer manufacturer in our separate FLAAR Report on textile inks of ITMA 2015.

We also have a special discussion of which textile inks are trending, and which inks are falling out of favor.

This ink-focused FLAAR Report also lists which ink brands which were absent (did not exhibit).



MS textile inks

# PRE-TREATMENT, POST-TREATMENT NEEDS TONS OF ADDITIONAL EQUIPMENT

If you use reactive dye or acid dye you need do have tons of equipment to prepare the cloth, then process the printed cloth. If you use reactive or acid dye, the printer is in the middle of a “kilometer long” line of expensive items of additional equipment.

We visited a textile printing company which had all this equipment, so we have seen the reality close up. This is why it helps to consider a brand of printer which also offers the pre-printing and post-printing equipment.

Most of the big-name Italian brands of printers (which use reactive or acid dye ink) had at least a few of the pre- and post-printing machines on display. But the Australian brand of workflow pre-and post-processing of inkjet printable fabrics was conspicuous by its total absence.

Zimmer does a professional job of clearly showing what pre-treatment was necessary.



Zimmer booth

The brochure of COLORJET (for the FABJET DUO) deserves honorable mention for its two-page spread on inks-applications-fabrics. In other words, which ink for which fabric for which application.

If a chart such as this also had clear and specific tabulation of workflow needed, especially pre-coating, this would make this the most informative brochure possible.

Indeed the other half of the same brochure had the workflow, and listed the equipment needed for pigment, for reactive dye, and comparable for acid dye. I would only ask about whether pre-treatment of the cotton would make a difference? There was no mention of pre-treatment for the pigment ink.

We at FLAAR Reports emphasize the importance that a printer is only one part of a workflow. The entire workflow is what produces your finished product (not just the printer).

At either ITMA 2011 or one of the Chinese textile expos, another booth (perhaps MS) had a really helpful diagram of all the workflow necessary for each kind of ink.

For over a decade brochures on UV-cured printers deliberately omitted admitting that their printers and their inks needed a primer. The brand of best-selling UV-cured printers was infamous in this. The booth attendants put primer on before the trade show opened. This way no one saw it (we did not know about this until other people told us). After we suggested it would be more ethical to mention primer, the brochures changed and the ink issues almost were mentioned in a reasonable manner.

The same is true about the need for coating or other pre-treatment for textile printers. Use of pigmented ink is where the ethics get rather cloudy (good examples of smoke and mirrors to avoid clearly pointing out the need for pre-treatment of cotton...).

This is why it is helpful to have Zimmer show the workflow diagrams. And even more essential for a potential buyer to visit an actual textile printing place. I could hardly believe the football field sized space needed for reactive dye ink (when I saw this ink actually at work, and all the auxiliary machines (and personnel) needed to handle printing with reactive or dye ink).

Gradually and eventually pigmented ink (and printers) will either be able to pre-coat in-line, or offer more-or-less acceptable quality with no coating.

But what about the potential need for heat setting the pigment ink after printing?

## WHAT ABOUT PIGMENTED INK WORKFLOW REALITY?

It was clear that more people spoke about pigment ink at ITMA 2015 than at any other textile expo that I have attended. At ITMA 2011 in Barcelona I do not remember any such focus on pigment ink. Yes, pigment ink has been offered in the past, but the colors were not bright enough.

There was so much emphasis on pigment ink for fabrics at ITMA 2015 that we have a full discussion in our separate FLAAR Reports on inks at ITMA.



ITMA 2015 general view

## **BE CAUTIOUS ABOUT CLAIMS FOR PIGMENT INK (ESPECIALLY FOR MATERIALS OTHER THAN COTTON)**

15 years ago manufacturers of UV-cured ink had PR blasts worldwide that “UV cured ink prints on anything and everything!”

Then why do so many print shops and printing companies come to FLAAR to ask how to print on glass, on leather, or on ceramics?

Yes, you can jet ink on anything (even on water), but that only proves you can click the ON switch and run leather, glass, and ceramics through the printer.

But a day later, a week later, a month later?

Why has the ink peeled off the glass and ceramics?

Why has the leather decoration cracked?

So yes, you can print “on any and every material” with pigment ink (or any ink). But do you really seriously want to?

There was a second booth, selling printers not inks, which claimed that their printer with pigment ink, could print on eight other kinds of fabric in addition to cotton.

None of these need treatment whatsoever different than cotton?

If there really was a miracle ink which “prints on all fabrics” then efi Reggiani and MS would no longer be offering reactive dye or acid dye printers.

And why did a noticeable percentage of the printer manufacturers (and even ink companies) not mention pigment ink whatsoever in their brochures much less in their offerings?

And, if pigmented ink were really bright enough, why are people still using dye sublimation with heat transfer?

Yes, pigment ink is indeed more colorful than in past years, but we did notice a few dim and weak results, both at SGIA and at ITMA.

Are PR releases too often either wishful thinking or delusional?

Summary: Try to be realistic.

Fabric, even cotton, may be better if coated, may result in better color (and color fastness).

And, what about curing after printing?

## TRANSFER PAPER

Nowhere near all the brands of transfer paper were noticeable. Yes, Coldenhove was present but we never found the Cham paper booth.



Coldenhove booth at ITMA 2015

## ROLL TO ROLL CALENDERING MACHINES

Monti Antonio, Klieverik, Transmatic and other brands were exhibiting. We list all 11 brands in our TRENDS level report.



Monti Antonio booth at ITMA 2015



KLIEVERIK booth at ITMA 2015

## HEAT PRESSES

SGIA and FESPA are T-shirt trade shows; ITMA did have a few T-shirt exhibits, and also had screen printing equipment (specifically for T-shirts). But ITMA did not have many desktop heat presses, used by Mom and Pop print shops especially in USA.

ITMA is a textile expo, not a signage expo nor a “sublimation expo” so no booths for sublimating on coffee mugs, plates, aluminum sheets, etc. But I estimate these facets of graphics, signage, and decoration will come in the future. But in the meantime, SGIA and FESPA are specifically screen printing organizations. Yes, they have diversified well into the world of inkjet, but are nonetheless still heavy into screen printing.

## COLOR MANAGEMENT

We found four booths with color management tools (for inkjet, not for dye colorants in vats or other traditional (non-inkjet) coloring methods).

When you consider a color management brand, realize that doing ICC profiles of printed fabrics is not as easy as doing profiles of PVC or normal inkjet media. So be sure that your brand has a background in the textile industry.



X-rite is a traditional color management company. PANTONE is the industry standard for color references. Barbieri is the industry leader in high-end spectrophotometers. Durst was showing “their own” spectrophotometer. I would estimate that the insides are most likely rebranded from Barbieri (though this is only an educated guess).

When you are viewing your textile print samples, the color of the sample will appear different to your eyes depending on what kind of lighting you have in your office. So it helps to have a neutral light, or at least a standardized reference light. JUST NORMLICHT and other companies provide such viewing boxes.

DATACOLOR had a large booth. This brand I do not know (even though I have been a professional photographer for decades: I use only a MacBeth ColorChecker. The SpyderCHECKR 24 looks pretty much like the old MacBeth ColorChecker.



DATACOLOR booth at ITMA 2015

20 years ago the Kodak color chart was the norm. This was the combined Gray Scale chart with Color Control Patches. I would not use that for digital photography whatsoever. For digital photography, the norm is MacBeth ColorChecker (now part of X-Rite). There are now other brands of color checkers, but I must admit I am a traditionalist and prefer the MacBeth over other concepts.



MacBeth ColorChecker

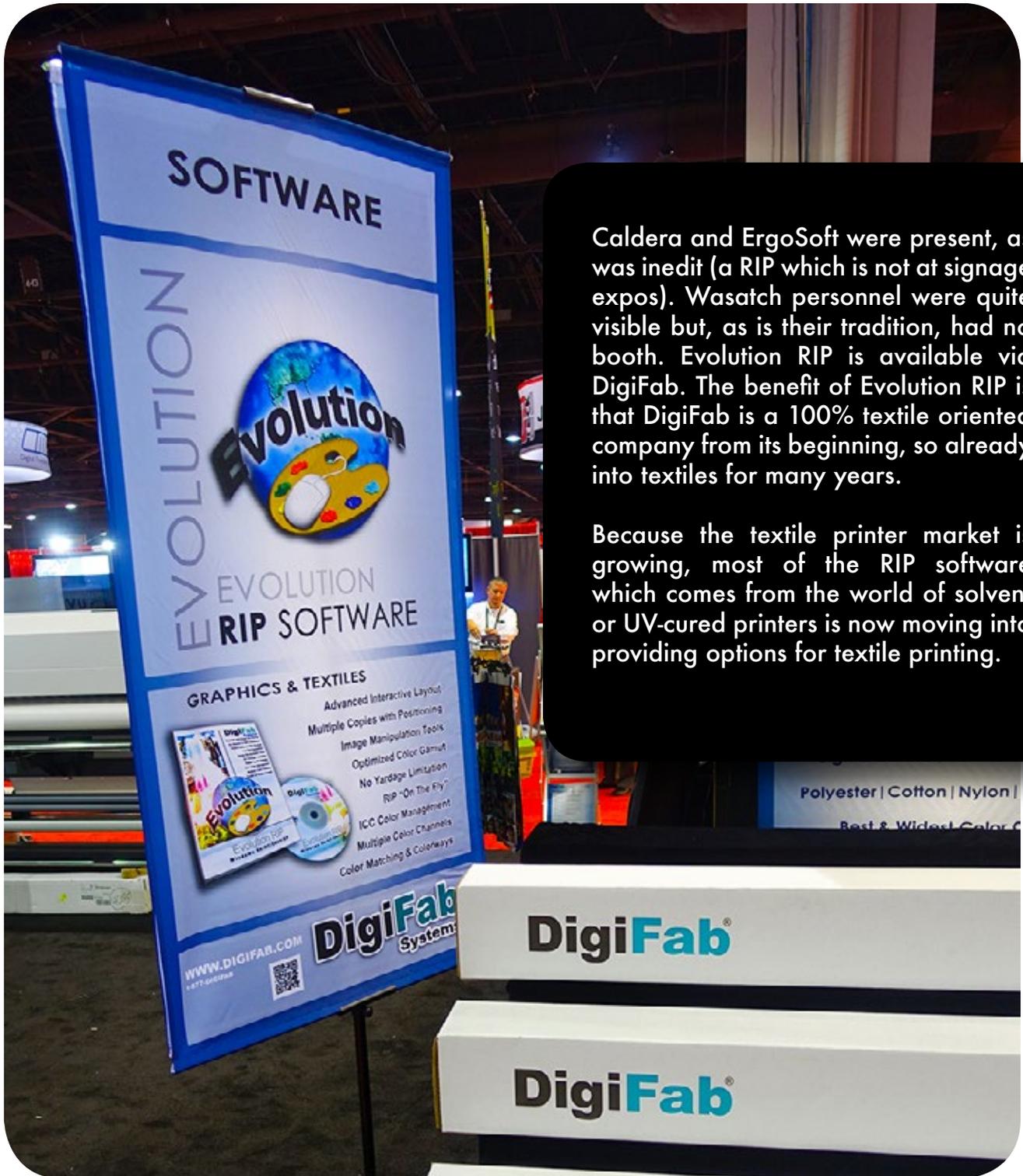


Barbieri booth at ITMA 2015



DATACOLOR SpyderCHECKR 24

**RIP SOFTWARE**



Caldera and ErgoSoft were present, as was inedit (a RIP which is not at signage expos). Wasatch personnel were quite visible but, as is their tradition, had no booth. Evolution RIP is available via DigiFab. The benefit of Evolution RIP is that DigiFab is a 100% textile oriented company from its beginning, so already into textiles for many years.

Because the textile printer market is growing, most of the RIP software which comes from the world of solvent or UV-cured printers is now moving into providing options for textile printing.

## CUTTERS

Gerber was not visible nor discussed, unfortunate, since they have a background in textile cutting. Zund also comes from a textile background and they were present in Hall 14.



ZUND booth at ITMA 2015

## MISCELLANEOUS WORKFLOW EQUIPMENT

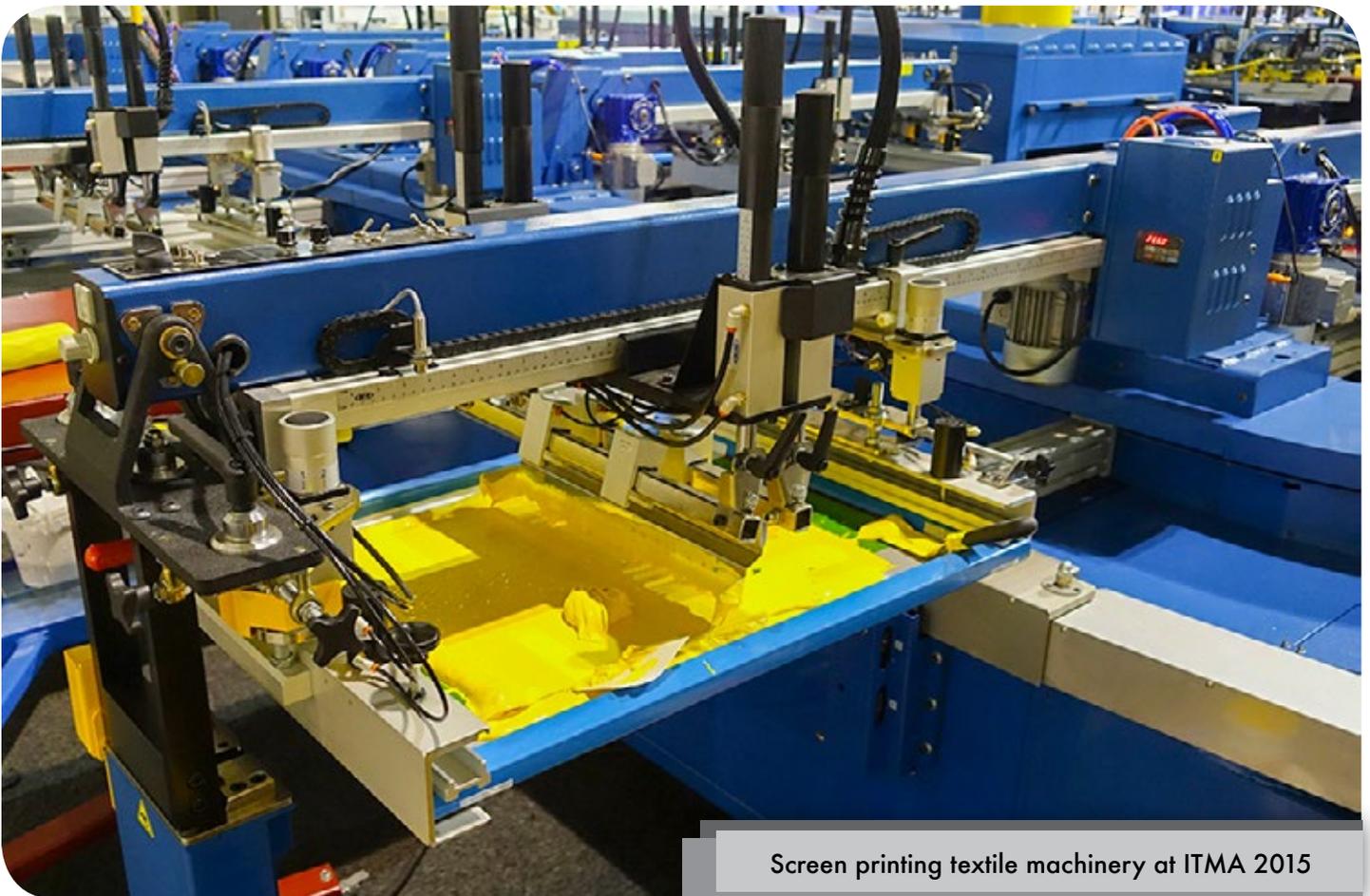
Achroma had an ink delivery system available to study. And there was a CAD CAM software booth in Hall 18 (AVACADCAM).



Avacadcam booth at ITMA 2015

## SCREEN PRINTING EXHIBITS

ITMA is not a screen printing expo per se. For screen printing, that would be FESPA in Europe or SGIA in USA. Each of these is a screen printing association (Federation of European Screen Printing Association and Screen Graphics International Association). SGIA has tried to cover over their screen printing origin by renaming themselves Specialty Graphic Imaging Association, but it is still a screen printing trade show even though there are plenty of nice exhibits of digital inkjet printers.



Screen printing textile machinery at ITMA 2015

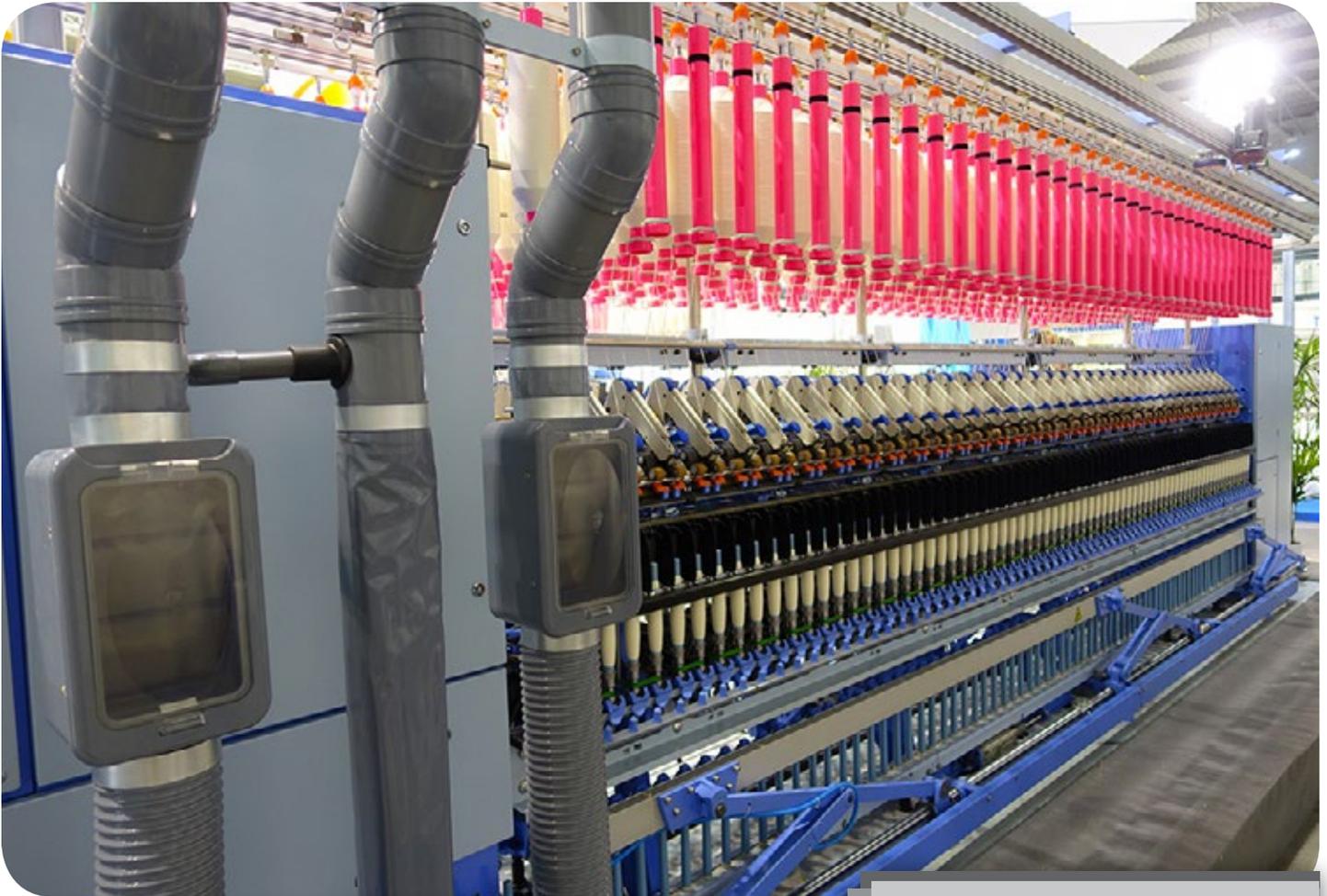
But, even though ITMA does not have a screen printing focus, there were plenty of screen printing booths, especially for T-shirts.

## FACTORY EQUIPMENT FOR WEAVING, KNITTING, AND DYEING FABRICS

The focus of ITMA in past years was on the machines used in factories for weaving or knitting of fabrics and carpets. Glasstec is a trade show for manufacturing equipment for glass factories. Tecnargila is a trade show for equipment for manufacturing ceramic tiles (floor tiles, wall tiles, etc). But all of these expos: textiles, glass, and ceramic factory expos, now have wide-format printer factory and distributor booths (but also have traditional printing, with rotary cylinders for ceramics and other materials). But each year the segment of each expo which features wide-format inkjet grows.



Textile machinery at ITMA 2015



Weaving machinery at ITMA 2015





Textile machinery & samples at ITMA 2015



This year ITMA 2015 had significantly more focus on wide-format inkjet printers than in past years (but still had other non-digital traditional printing machines as well). And by far the focus of ITMA are still the weaving, knitting, and dyeing machines for textile production factories.

## **THIS IS HOW WE ARE ABLE TO DO EVALUATIONS OF A BRAND AND ITS POTENTIAL**

When a printer distributor or manufacturer flies our team to their demo room, this is how we can really learn about their printers.



Here is Dr Nicholas many years ago at MTEX (but we do not know any of the new model printers).



Here is Dr Nicholas at the Dilli factory in Korea. Although they do not make textile printers, they sure do have good engineering capability for UV-cured printers.



Here is Dr Hellmuth at the former Mutoh factory in Belgium, studying their wave-form anti-banding software. But we have not been to the Mutoh Japan factory (nor the Mimaki Japan factory).

**WE ALSO DO EVALUATIONS OF INK FACTORIES AND INK BRAND DEMO ROOMS.**



Here is Dr Nicholas at the nice Hongsam facilities. We have been to their impressive factory as well as their separate demo center outside Shanghai.



**AND WE DO WRITE-UPS OF MEDIA AND SUBSTRATE BRANDS.**



Here is Dr Hellmuth in the multi-story, multi-building PE factory of YJ (who make ARIA for signage with UV-cured inks).

## PRESS CONFERENCES

My primary interest is to learn about trends in inks and printer technology by studying the actual printer systems. Thus I rarely attend any press conference, but I do enjoy the press conferences of EFI, so we do attend these. At ITMA of course it was efi REGGIANI. The week before I attended the efi press conference at SGIA in Atlanta.





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