FLAAR Reports

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11 Inks for Giclee & Fine Art Photography

Epson Stylus Pro 7900

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Introduction

Most of the material for this FLAAR Report is based on seeing the Epson 7900 at Sign Africa in Johannesburg (mid-September 2008). The booth personnel were helpful and there was time to look at the model 7900 inside out.

I first saw the new Epson printers at DRUPA 2008 in May and June, but even with 14 days in Duesseldorf, there was too much else to inspect.

At Photokina '08 there were plenty of Epson 7900 and 9900, but the booth personnel were not really keeping them running all day long. But it was possible to take notes.

This is a "First Look" description. The next step is to inspect this printer. The third step is to test it in person.

The next step after this will be to obtain one of these models and print some of my photo exhibits. I would also print my images from the Better Light and from the Cruse scanner, as well as from Phase One, Nikon, and Canon. Since FLAAR is a testing institute we have all these digital photography systems available.

But to get started, here is a First Look at the Epson Stylus Pro 7900. Please return later for an update.

THE BASICS

Epson Stylus Pro 7900 at Sign Africa 08.

1. Brand name, model?

Epson Stylus Pro 7900.

2. What is the nature of the company behind the brand name? Is this company the manufacturer, distributor, or re-branding?

Epson designs the printheads, the chassis, and print engine. Ink is made by someone else and re branded as Epson; the actual factory for most Epson large-format models used to be Mutoh in Japan (unless the manufacturing has been moved to China, as with the 3800). The tag at the back said "Made in China."

3. What other printers are the same or similar chassis from this manufacturer or distributor?

In the past Epson has tried to market CAD versions with only CMYK but these have not been very successful competing against Canon and HP in the CAD and GIS market. Epson is more successful in fine art, giclee and proofing.

4. When and where was this model first introduced?

Reportedly this was shown at DRUPA but the 14 days I spent there were primarily to record and evaluate UV-curable flatbed inkjet printers, so I did not spend much time working with water-based printers at that show. I studied this printer during several days at Sign Africa in Johannesburg and Photokina in Cologne: both in September 2008.

5. Is this printer mature technology or still in alpha-stage or beta-stage?

Epson has been making printers long enough that the printer aspects are mature. What is new for Epson is the SpectroProofer system on board. This kind of technology was new for HP as well, since previously only ColorSpan did on-board color measurement.

6. How does this model compare with comparable previous printers?
The new versions offer more speed, better and more inks, and color management.

7. Is there enough new on this printer to make it worthwhile buying it if I already have another recent model?
For a while at least, Epson will keep the older models 7880 and 9880 in production.

8. What comes with the printer: stand, network connection already installed, take-up reel?
There is no take-up reel for the model 7900; only for the model 9900 is the take-up reel available as an extra-cost option.

9. What accessories are extra charge? Are these same or similar accessories included with other printers at no extra cost? Explain why this is any different than selling a car without tires, or a computer without a monitor?
The spectrophotometer system is an extra charge.

SET-UP OF THE PRINTER: PRACTICAL CONSIDERATIONS

10. What is the delivery time, between the time I order the printer and it is delivered?
Initial delivery is anticipated to be "early winter 2008."

11. What is the connectivity? Network, SCSI, FireWire, or other?
USB 2 and also standard network connection.

12. What about altitude? Some cities such as Guatemala City are at a high altitude?
Quote: "Not known to be any major issue up to 1500 meters."

Almost no spec sheet and not even many User Manuals mention anything about altitude. But Guatemala City is about 1500 meters above sea level (which is rather high; there are four volcanoes visible out my window as I write this), and other parts of the world have even higher elevation.

13. What about dust and cleanliness of the air?
"You have to keep dust off the media."

Dust in the printing environment is an aspect that is often neglected. It is crucial that if a sign shop, that no sanding, sawing, routing, sandblasting, or grinding operations be nearby. The dust and debris from sawing and comparable operations are extremely unhealthy for a UV printer.

In other words, you need to ventilate away more than ozone and ink odors; you need to ventilate away everything

14. What is the size and weight of the printer?
1.356 x .667 x 1.209, weight 80 kg (for the 7900)

CONSTRUCTION: BUILD QUALITY

15. What is the solid-ness of the construction of the outer body? Is it plastic? Metal? Heavy gauge?
This Epson printer feels (to the touch) more solid than the plastic-fantastic HP printers of the last several years (though I will say that none of the HP plastic has broken on ours). But I hear many people complain that the recent HP printers look, feel, and act "plasticy."

16. How would you describe the overall workmanship of visible parts? Clean (Swiss made), or flimsy and uneven (several Chinese-made printers)?
Although made in China the printer looks well manufactured. It is not cheap looking.

17. Does the printer wobble back and forth when printing?

Yes, there is noticeable shock and wobble when the carriage stops at the end of its path to turn around. This kind of wobble is common on most water-based printers, but it is not excessive on these models. In the past there were one or two models of Epson, or Canon, and of HP that had excessive back-and-forth wobble. But the Epson 7900 and Epson 9900 are at acceptable limits, however I will mention that neither at Johannesburg trade show nor even at Photokina were the printers actually turned on and printing most of the time.

18. What are the specifications for the supports?

There is a single wide upright support at each side, but no actual long legs. The four sets of wheels are off a lower frame, but on the base of a leg-like structure.

19. Is there both a front hood and a back hood?

There is no back hood because Epson prints at the back of the inside so you could not open that back side anyway.

20. Does the hood have a frame?

Yes, the front hood has a frame across the top and bottom (not no frame on the sides).

21. Does the hood have a window? Is it clear or smoked material?

You can't really see through the window to check on possible errors, printhead problems, etc. This could be considered a negative feature that should and could be easily fixed. But perhaps the spectrophotometer needs to have light from the room removed so as not to influence the readings?

AESTHETICS

22. How would you describe the design of the printer?

The design is attractive and functional, actually better than earlier models which were a bit clunky looking.

23. Can you easily distinguish which is the "front" and which is the "back'?

Yes, I call the front the area where the LCD and operator panel(s) are situated. This usually means that the other side is where you feed the material in. I call that the back. But many printer companies call the feeding area the front. It makes no difference as long as you define what you mean in advance.

Some UV-curable printers have a moveable control computer that can be situated at one end, or at the feeding area (whichever location the operator prefers). But the standard arrangement is that the LCD and keyboard are on the output side. I call this the front.

Epson Stylus Pro 7900 front and back.

STRUCTURE OF THE PRINTER: Media Transport Mechanism

24. How is media held flat? Vacuum table? Pinch rollers?

It is unclear from speaking with booth attendants whether there is a vacuum system. One attendant suggested not; another suggested yes. Since there are holes drilled into the platen, and since a vacuum is normal on many other printers, it is possible that it has a light vacuum created by suction fans.

25. Describe the platen.

Epson has a unique platen system; it is vertical and not horizontal. Actually it is slightly diagonal, perhaps 25º.

26. What size? What positions are the rollers relative to each other?

There are 24 individual pinch rollers.

27. Are the grit rollers continuous or individual?

The grit roller bar itself is continuous.

28. Can you raise an individual pinch roller, on only the entire row?

On some printing systems it helps to raise any pinch roller that is over the edge of the media. This can help alleviate skew. So sometimes you would need to raise two individual pinch rollers (one at the left, one at the right). Of course this depends entirely on the width of the material and whether, by coincidence, a pinch roller happens to overlap the edge of the media at one side or the other, or both.

STRUCTURE OF THE PRINTER: Media Path

29. Where do you load the media? Front, back, top, lower down?

Loading can be considered at the top. It is towards the back but you do not need to walk around to the back to load; the printer is small enough and rolls are light enough to simply lift up over the front and over the top and set the roll into the attachment features. The attachment features are two large plastic spike-shaped protuberances that are called the "core holder."

30. How is the roll held at the feeding position? On a spindle? On a saddle?

The Epson is trying a unique system to allow dropping the media in without having to feed a spindle through the core. By having no spindle you can switch media more often. This also uses up more media, so you can understand why Epson wishes to create a user-friendly media changing system.

A saddle is formed of two roller bars with a slight space between them. You rest your roll of substrate on the saddle created by the two adjacent rolls. You don't need to run a spindle through the roll. You don't need to fumble loading the end of the spindle into two holders (one at each end). Loading a saddle is quicker as a result. But a saddle is primarily used on heavy-duty industrial printers 3.2 meters or wider where the weight of a roll may cause a spindle to sag. Plus, it's a headache to thread a spindle through a 5-meter long core.

31. How is the roll media handled at feeding position? For example, is there a dancer bar? If there is no dancer bar, is there at least a tension bar?

No added bar. The media feeds directly down onto the platen. Tension bars are used for back-situated bottom-feeding systems.

A tension bar goes up and down. A dancer bar tends to move diagonally. Each one flexes as tension is needed.

32. After the feed roller (or spindle) is there a set of two fixed bars, one above either other (a tension set)?

Again, because the media is situated immediately before the platen printing area, there is no need for intermediate rollers.

33. At the front, is there an extra roller bar(s) near the platen or transport belt? Is it a bar to roll under the media, or over the media, or are there both (in addition to pinch roller/grit roller arrangement).

Since this is a 24" printer and a 44" printer there is no need for sophisticated extra roller bars.

34. Is there a take-up reel? If not, how is media collected?

If I remember correctly (I am writing up my notes from Johannesburg and Cologne in Beijing), there is no take-up reel on the 24" model and surprisingly none on the model 9900 that were exhibited at Photokina either. But I have a cryptic note saying that a take-up bar is available on the 9900 (probably not needed at a trade show).

The material (once cut) simply falls into the collection "basket" which is a synthetic cloth-like "cather" out in front. This catching system is intended to keep the freshly printed material from falling on the dusty floor.

35. Describe the overall path of the media through the system?

Diagonally straight down; simple and direct. This saves the cost of a complex dancer bar or tension system.

36. How much media is wasted during loading and feeding?

With some brands of printers you suspect that they are deliberately designed to waste ink and media since this is how those companies get their profits. Media is moved too far out before you can cut it, resulting in media being wasted before and after cutting, etc.

One excuse for feeding out a meter or so of unused media is that the sensor needs to see the end of the media.

37. Can you print on more than one roll of substrate simultaneously?

Being able to print on several different rolls of material simultaneously is common on grand format solvent-based printers but almost unknown (and unavailable) on printers less than 104 inches. The Durst Rho 351R offers an option to allow printing on two different rolls simultaneously. The NUR Revolution allows printing on three different rolls simultaneously. But these are half-million dollar printers.

38. For handling ink that passes through the weave of fabrics or mesh, is there a trough? Or other mechanism to catch the ink?

A trough is possible only on a printer with a fixed platen; there is no easy way to put a trough on a combo style printer. If you need to print on fabric or mesh with a UV combo printer you need a liner or you need to put an intermediate sheet onto the surface of the conveyor belt (or clean up the ink that passes through the weave).

39. Is there a cutter? Is it manual or automatic.

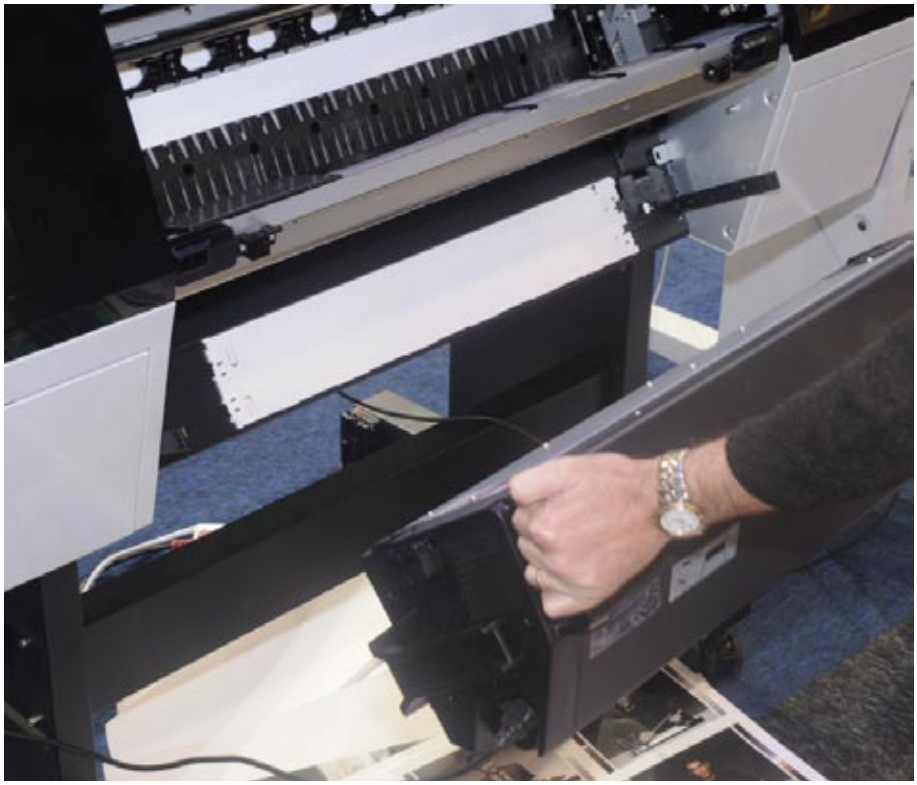
The rotary cutter is automatic.

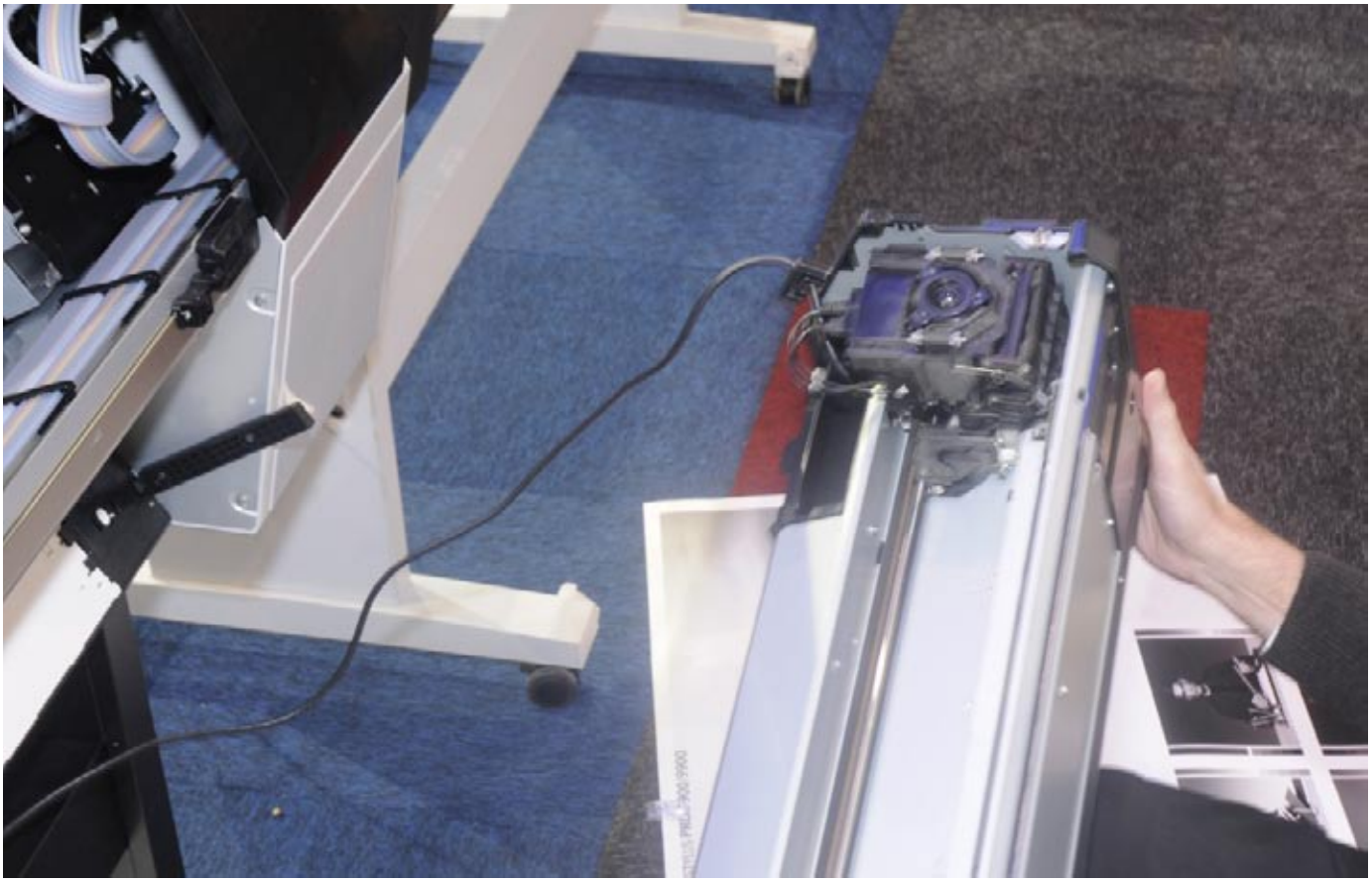
40. Is the cutter up near the platen (where cutting residue can eventually clog the printhead nozzles), or is the cutter further out, where detritus is not as much an issue?

Almost no matter where a cutter is located, if the media is cheap, there will be too much detritus created when you cut it. But now in the new model Epson 7900 and 9900, the cutter is further down and is a rotary cutter, not a knife-like cutter.

41. Can the on-board cutter cut all normal materials, or only thin materials? Can you cut canvas?

Most other fine art printers are not able to cut canvas. With the Epson you can cut some canvas.





One of many differences between the spectrophotometer-like system of the Epson, compared with that of the HP Z3100 or Z3200, is that the Epson system is optional. Plus it can be removed for cleaning.

STRUCTURE: Miscellaneous

42. Does the printer have levels built into the structure of the printer?

The only entry-level or mid-range hybrid or combo printer where I have noticed levels actually incorporated into the structure of the printer are the UV-curable printers of Dilli.

43. Does the printer have leveling supports? How many, and how strong?

Most basic water-based printers do not have leveling supports. Leveling supports are found primarily on UV-cured printers, since they need to be absolutely level.

44. Does the printer have wheels? How many, and how strong? Are the wheels double or single per unit?

Yes, the stand has four sets of double wheels. The front wheels have a brake lever that locks the wheels. The locks are the kind that you attempt to find with your foot, so you can press down to lock the wheel. But you may need to go down with your whole body and use your finger to really lock it down. There are no wheel locks on the rear wheels.

OPERATING THE PRINTER

45. How many operators or operator assistants does this printer require?

For the model 9900, an informational warning sticker suggests that you need two people to lift and move the SpectroProofer module (for those instances when you need to move it). This is because the handles are too far apart for most people to carry it conveniently by themselves. But in the normal work day, you would probably not tend to need tomove the SpectroProofer very often.

46. What is the size of the LCD panel?

Epson has finally broken away from the old-fashioned and unimaginative 2-line LCD panel of all other water-based and all entry-level solvent printers. The Epson LCD is user-friendly and even reveals the ink-remaining situation via colors. Epson is closer to Macintosh in it's user-friendly interface than the PC-like doldrums of other water-based printers.

47. Is the position of the LCD screen or monitor user-adaptable?

All LCD panels are fixed to the front of the printer to keep costs down.

The LCD panel is finally larger than an unfriendly 2-line panel that you get on Mimaki, Mutoh, or Roland solvent printers. Plus you can see the ink-remaining nicely in full color. In general Epson has done a good job of making this printer use-friendly.

PRINTHEAD TECHNOLOGY

48. Is the brand and model of printhead clearly identified in the published specifications?

It is assumed you know these are Epson printheads.

PRINTER DRIVERS & RIP SOFTWARE: WHAT SHIPS WITH THE PRINTER?

49. What software is optional, at an additional price?

EFI Colorproof XF and Fiery XF are available. In it's day, BEST was an excellent German RIP, one of the best proofing RIPs available. But once taken over by EFI, more than half of the key people vacated very quickly, and the company was simply no longer the same any more.

Fiery is EFI's own RIP from years ago. I have tested two Fiery RIPs, and both were unsatisfactory in every respect. This was years ago, and hopefully they are better now, but if they still have their policy of "absolutely no tech support whatsoever from EFI; all tech support has to come from the store that sold you the RIP" then this is not an adequate solution (because too often the store that sold them is a box pusher and does not know a RIP from a trip).

So I hope that both these RIP products are improved. I am sure they have good features, after all, EFI is a giant technology company, but HP dropped Fiery years ago. Epson dropped Fiery after many many years of lockstep with them. Encad dropped Fiery. Yes, HP is back with them, as is Epson, but these are political choices and financial choices, not always based on which is the absolute top RIP.

I will have to check to learn why the other RIP favored by Epson was dropped, and why they are back with EFI. If you like EFI or Fiery, please do not let me dissuade you. You should select what you prefer not what I prefer. But my experience with two EFI Fiery RIPs did not impress me, as compared with my experience with Wasatch and recently with Caldera (though Caldera is a grand format RIP for serious production and not really intended for entry-level water-based printers). But Wasatch or ErgoSoft would be the ideal RIP for a printer such as an Epson, HP, or Canon printer.

Onyx is the other RIP currently favored by Epson. Again, why they switched to Onyx and EFI appears to be more a political move to appear associated with the "big names" rather than with the more user-friendly RIP that an Epson owner would wish to have. Unfortunately Shiraz RIP (from the UK) never got their US office opened fully and has not had much trade show presence in 2008, though I did see one of their key people at Photokina 2008.

Possibly Epson is trying to get away from the 1-person or family-run giclee, hobby fine art photography, or basic photo study and pro photographer and into major Fortune 500 companies. Of course HP and Canon are already in this corporate and industrial arena, and it will be tough for Epson to gain much market share here. Epson survived all these years because of their ardent fans (sort of like Mac fans). There are thousands of people who would not let the letters HP cross their lips much less allow an HP

printer in their door. Of course they are not aware of how many professional giclee ateliers have been using HP printers all along, but that's another issue.

FLAAR uses Macs and PCs, and we use Canon, HP, and Epson too (since we need to understand the pros and cons of each brand).

Onyx has the reputation of being very difficult to use (a polite way of saying not intuitive and not user friendly to a first-time printer operator). And Onyx has not been able to shake its reputation as having the roughest dithering pattern around (inother words, the most inkjet-like dot pattern bar none). Since Epson has the reputation of having the best dithering pattern in the world (something not even Canon's billions of dollars has been able to come close to), I don't see why Epson would feature a RIP which has even a past history of visible dot structure in its dithering pattern. But politics is politics and Onyx is the big name for Corporate America and so on.

But as with EFI and Fiery, if I were a one-person printshop, a family-run business, and got a headache even thinking of any RIP software at all, I would rather look at Wasatch or ErgoSoft than a complex RIP like the ones Epson is pushing. I would add that neither Wasatch or ErgoSoft are sponsors nor provide any funding whatsoever. Just that I speak with giclee producers around the world, and they are very content with ErgoSort. And FLAAR has used Wasatch for years because the students could learn it quickly.

The other thought that occurs is that the reason Roland offers a "free" RIP software has nothing to do with being a nice and wanting to provide good software. Roland simply wants to lock their users into buying Roland ink and Roland media. By offering a software with pre-designed ICC profiles ONLY for Roland ink and Roland media, Roland hopes that owners of their pritners will not learn to use a real RIP from another company. Because if a printshop owner or operator uses a Wasatch or ErgoSoft or Shiraz or Caldera RIP, they can learn to use less costly media and even eventually use after-market inks.

50. Is the bundled RIP from the manufacturer, or otherwise related to the manufacturer of the printer?

The primary purpose of any printer manufacturer offering any RIP is so that they can pre-package ICC profiles with it in advance. The purpose of the manufacturer offering canned ICC profiles is so that the end-user will stick with materials sold by the manufacturer. Since these materials are more costly than after-market materials, the end-user pays heavily for having a canned RIP solution.

PRINTER DRIVERS & RIP SOFTWARE: FEATURES

51. What after-market RIPs are featured by the printer manufacturer?

For years Epson was the only printer company to continue with EFI RIP software. Every other manufacturer eventually dropped EFI RIPs due to many factors, one being user indifference or displeasure (users prefer Wasatch, Ergosoft or Shiraz).

But, politics and pricing sometimes count more to a printer manufacturer than what the typical end-user wishes. So now in 2008, Epson is back with EFI.

52. Is your printer and/or RIP Pantone certified?

It has been suggested that Epson can hit 91% of the Pantone colors.

COLOR MANAGEMENT FEATURES

53. What color management tools are included within the printer?

The color management aspect of the new Epson printers has the advantage that they could study all the pros and cons of the HP system and try to produce a slightly better or more flexible system.

The color management system of the Epson 7900 and 9900 are not something that I can appropriately write about until I have used this printer for a reasonable period of time.

The essential color reading instrument is an X-Rite ILS20EPUV.

54. Can you read against a black background only, or also against a white background? How do you switch between the two?

Epson has intelligently created a system whereby you can read against black or read against white. Each plate is magnetic. Very clever.

55. Does the printer manufacturer try to lock you into preferring their own house brands?

Yes, this is natural with most printer manufacturers. Roland is a master at this system: Roland even offers a 2-year warranty hoping that you will prefer their warranty (which implies using Roland ink and Roland media), rather than jumping to after-market ink and after-market substrates.

56. Can you clean the color reading instrument and system?

Yes, you can even take out the X-Rite unit to clean it (carefully).

INK

57. How many different kinds of ink are available?

Only one kind of ink, "UltraChrome HDR pigmented ink."

58. If there are several kinds of ink available, can you switch from one to another?

Eight years ago pigmented inks were less vibrant and for proofing and other needs you had to select dye inks. Today the color gamut of pigmented ink is sufficiently improved so that you don't often need a dye ink. The result is that most Epson printers and about half the HP printers no longer offer options to switch ink.

59. What company makes the inks? Choices include DuPont, Jetrion (Flint), Sericol, Sun, Triangle, Konica Minolta, Tetenal and several others.

Epson prefers that no one know who actually makes their ink. HP also prefers that people think they make the ink too. These companies spec out, and test the ink, but rarely own the ink factories (though HP does own one ink factory in South Africa, Tech Ink).

60. How many sizes of replacement ink container are offered?

You can buy ink in 350 km or 700 ml containers.

61. Does the printer have a dryer? If not, why not? If not, how can you explain that other printers are adding dryers and that several after-market companies are now making dryers?

There is a fan only; on the spectro profiling unit to accelerate the drying. You need to dry the media so that the color shift is over. You do not want to do an ICC color profile on the media before the color shifting is finished. The color shift during the drying process is fully normal. Once the media is try the color does not shift appreciably any more.

INK: LONGEVITY

62. What is the longevity of your ink outside in the sun? No lamination, no glass.

Longevity claims are not considered very realistic except if you store your material in a sealed closet with no incoming light. No one in their right mind accepts a claimed longevity as meaning the image will hold up this long outside in the sun.

INK: COLOR GAMUT

63. How many colors are used in the ink-set being evaluated here?

Photo Black, matte black, Light Black, Light light Black
Cyan, Light Cyan
Vivid Magenta, Vivid Light Magenta

Yellow
Orange
Green

In the mathematics I learned at school, this looks like six colors and not 11. Plus of course you will use either Photo Black or Matte Black (not both together) which means no more than 10 ink lines at once.

I do not see any gloss optimizer. Someone suggested that the gloss optimizer was now inside the pertinent ink formulae. This I would need to have more information on before I could comment one way or another.

64. Please indicate what colors your inks cannot achieve?

The HP Z3100 became infamous for not being able to adequately produce some reds on some fine art papers (reportedly the colors came out orange). As a result the first HP recall of a major printer has taken place, and the HP Z3200 is being issued. It is unprecedented for HP to have a printer need to be replaced so quickly. Canon had a similar issue with their first iPF series: the noisy dot pattern and other issues required a completely new series be designed and launched.

MEDIA: size

65. Can the printer print edge-to-edge?

Yes, several years ago already Epson was one of the first to offer border-less printing capability. But to print borderless entails printing over the edge. This naturally gets ink onto the platen. So there are sponges in set positions (set into the platen). So edge to edge printing is available only for certain widths.

66. How do you switch from one core size to another?

The Epson system intelligently allows you easily to switch from a 2 inch to a 3 inch core.

67. Some printers advertise that they accept "two rolls of media" but in fact it is only one roll that can actually be feed. The other bar is merely a storage device. Yet a few printers can switch media from one roll to another with the touch of a button. What does your printer offer?

Some early models of Epson printers at 44" widths used this ruse, but in reality one of the rolls was just parked there; it was not in a position from which it could be printed. There is no fake second roll-holding system on the Epson 7900.

68. Do you have media length-remaining sensors on your printer? Is it manually set or automatic?

When you wish to withdraw a roll that still has media remaining on it, the Epson system intelligently prints a bar code which tells the sensors (when you insert this same roll into the printer again sometime later) how much media is remaining. The bar code is horizontal so does not waste an excessive amount of media.

MEDIA: FEED

69. Can the pinch of the pinch rollers be varied?

Yes, but no more lever; you vary the pinch in the software.

70. How is the roll held at the feeding position? On a spindle? On a saddle?

There is no more spindle and definitely no saddle. Instead there are features on the printer that simply fit into the end of the cardboard cores. This assumes that the cores are not damaged from shipping or harmful storage situations.

71. When you take one roll of media out, and need to put another different kind of media in, how does the software keep track of how much media remains on the roll you are removing (so when you put it back on it knows when this roll will run out)?

The software prints a bar code onto the media before it ejects the material, so when you put this roll back in, the bar code can be read and the software knows at least approximately how much media remains.

IMAGE QUALITY ISSUES

72. What is the situation with metamerism?

Six years ago the professor at BGSU with a MS degree in printing from RIT called the Epson inks of that era "metameric inks: you can see the color change as you walk from one room to another with different lighting."

Epson gained a reputation in these years for having the most issues with metamerism. But in the last several years they have done as much as possible to avoid the most eye-catching aspects, so it is not as much in your face. But still, be careful with matte media, as it may be more prone to metamerism.

73. Does glossy media scratch easily, even just running through the printer?

Canon printers three years ago scratched glossy media merely running it through the printer.

Six years ago Epson had to slyly laminate media to make it look glossy because in those days they also could not handle glossy media.

Encad's last printer manual simply said not to try to run glossy media through it's printers.

One Epson person said "glossy media is okay but don't try with low quality glossy material."

APPLICATIONS

74. Does the manufacturer address the overall workflow, or do they just try to sell you the printer and then sort of abandon you?

Epson now addresses the ICC profiling aspect of the workflow, which previously they avoided (by providing canned ICC profiles for Epson-branded media). Epson may also announce a photographic alliance with Nikon (rather obviously not with Canon!).

75. Can you print fine art photos, giclee, or décor?

All Epson printers with six or more ink lines can print fine art photos, giclee, or décor.

76. Can you print on textiles or fabrics? How do you handle the ink that gets through the weave?

Epson itself has not concentrated on the textile printing market.

77. What other kinds of applications can you print?

Epson printers are used in probably 80% or more of proofing situations.

78. What kinds of applications are not something you should try? What applications print mediocre, or poorly, and why?

Most people complained that previous Epson printheads (including in Mutoh, Mimaki, and Roland) were not good for backlit. So this is something that should be tested.

PRODUCTIVITY & ROI (Return on Investment)

79. What productivity claims does the printer manufacturer made?

Claims a probably unreasonable 40 sq meters an hour.

Nicholas holding one of the test prints, a thousand-year old jaguar effigy of the sacred ceiba tree. The photograph is taken with a Phase One P25+ medium format digital camera and printed on the Epson 7900 at Sign Africa in Johannesburg.

COMPARISONS WITH OTHER PRINTERS

80. When people are considering buying this printer, what other printer(s) are they also looking at?

Most people would be weighing options with HP Z3100 or newer HP Z3200, or maybe Z2100 or comparable Canon iPF printers. Some people might still be looking at the older Epson 7880. Lots of people are hanging on to their Epson 7800, 4800, or 9800, unsure whether it is essential to upgrade. My answer would be yes, you should consider upgrading at least if you have an 7800.

81. What features on the other printers turn them off?

HP uses a lot of plastic. Even if this plastic survives daily use, most artists decry plastic anywhere. Plastic is for corporate office printers, not for a photo studio or fine art atelier.

82. What aspects of the selected printer help decide in its favor?

The brand name Epson is probably the primary reason that most people who do buy an Epson choose it.

It's like with Macs and PCs. Some people will only buy a Mac, and would never consider a PC. Some people prefer an Epson and are not interested in even hearing about an HP or Canon. But in reality, many successful giclee ateliers use Canon iPF printers (several who read FLAAR Reports, and they are content). Many more giclee ateliers use HP printers, and they are content. Quite a few of them read FLAAR Reports and realized that FLAAR uses HP to print on canvas (since you don't need variable droplet or any of that on the rough surface of artist's canvas)). And naturally lots of people use Epson printers (FLAAR has used all through, but we discontinued using Canon printers because the early versions did not feed sheet material adequately, an issue with some HP printers as well). But as soon as we receive a newer Canon for testing, we can update our comments.

In short, no one single printer can do everything (for example, most of these are not made to handle textiles, though HP in the past did backed fabrics acceptably). None of these brands is perfect: the HP Z3100 had unacceptable red on matte artist's materials; the leading giclee producer in the East Coast got rid of his Epson printers first because they wasted too much ink purging, all the purging caused the heads to deteriorate, and then the Epson 9880 had issues with neutrality in gray (black and white fine art photos).

All that said, each of these printers today is significantly better than any model the same company produced even one year ago. So now is a good time to upgrade your fine art, giclee, décor, photo lab, or proofing printer.

ADVERTISING CLAIMS: realistic, exaggerated, or misleading?

83. What do these ads claim?

Claims durability up to 200 years, which is like believing in the tooth fairy.
Claims unrealistic speed of 40 square meters an hour.
Claims 11 colors when there are only six colors. There are 11 inks but not 11 colors. But this minor issue is pedantic and occurs with Canon and HP as well.

GENERAL CONSIDERATIONS

84. What is the market share of this printer in various markets?

Most industry people suggest that Epson has about 70% of the proofing, fine art photography and giclee markets. Their market share was higher before Canon and HP each brought out their 12-ink systems.

85. Is there enough new on this printer to make it worthwhile buying it if I already have another recent model?

There was not really enough new on the Epson 7880 to make it worthwhile buying that if you already had a model 7800 (which is our situation at FLAAR). But a 7900 is something that is definitely worth upgrading from your 7800 to obtain the added benefits of the 7900.

Pros

The color management system is optional; this is a good idea, because an on-board color management system implies you have to wait for the ink colors to stabilize.

One major benefit of a color management system is that you can use after-market media. Many other competing printer companies work hard to discourage you from using any hardware or software that allows you to use after-market media. Roland even gives you a free Roland RIP software, with all the ICC profiles for their own media already loaded. The idea is to encourage you to use Roland-branded media, substrates, and ink.

Epson dithering pattern has always had the reputation of being the best in the world.

Epson has in the past been one of the few wide-format printers that did not absolutely need a RIP.

The printer is considered faster than the 7800 models.

This new model requires no spindle. It is "spindle-less."

Since both HP and Canon had more than 8 ink lines long ago, it is nice to see Epson catching up.

Cons

No gloss optimizer.

It would be nice to see Epson being first at something new. Here they are copying HP's on-board color management (of course ColorSpan had this years ago already). And they are copying Canon's "12-color" concept. I would prefer to see Epson contributing something that is a true first.

At Photokina I asked several pros about whether they felt you could do ICC color profiles before the media had dried, and they all said they prefer to wait overnight.

Comments

One of Epson's long range goals is to suggest that you use eco-solvent ink to produce giclee (GS6000 printer). They hope for one printer platform to hold on to the giclee market and simultaneously take over the signage market created by Roland, Mimaki and Mutoh (using Epson printheads). But franchise printshop owners, managers and printer operators read the FLAAR Reports. These sign printing people also attend ISA, where the Epson eco-solvent booth was literally empty every day. The same thing happened at FESPA Digital in Geneva (May 2008): the Epson booth showcasing their eco-solvent printer was empty.

But at Photokina '08, where Epson had primarily their water-based printers, and actually at DRUPA '08 as well, the Epson booth was popular. But the Canon and HP booths were equally popular, and HP introduced some impressive software and hardware for the giclee market at Photokina: "Artist Software."

Since this is Epson's first try with an on-board color management system, it will take a while to see how well it works in the real world (outside a lab).

When you are faced with the decision of whether to go Epson, HP or consider what Canon offers in comparison, it helps to interact with a place

- That knows giclee, décor and fine art photography
- That can assist on color management and RIP software selection

And most importantly, a place that knows all three brands: Epson, Canon, and HP. This way, they have less incentive to push one printer over the other. Plus it helps to look for a company that has installations all over continental USA and even Hawaii.

FLAAR obtains its Epson, Canon, and HP printers from printer dealers or distributors who are not box-pushers. They are at the top professional level and also work with photographers and artists who are just learning about all this. I have visited their demo center many times.

Appendix A: Comments on the unfortunate Digigraphie concept

The DIGIGRAPHIE concept by Epson is a doomed attempt by another company to convince someone, anyone, that only a piezo printhead can produce acceptable giclee.

"Trugiclee" attempted this ruse years ago, and failed. They tried first to have only prints made on a Roland be true "giclee." This was silly because Mimaki and Mutoh used the identical printheads and often the identical ink. So why was a print from a Roland any different? Of course it turned out that the promoter of this scheme sold Roland printers and himself owned Roland printers.

Then the same group accepted ColorSpan printers (but not HP). Rather dubious since ColorSpan printers of that era also used HP heads (indeed an older printhead model that was great in its' day, but that day had long passed).

Earlier, back around 2001 there were attempts by some trade magazines to claim that you had to use a piezo printhead to achieve true artistic quality. This was the most pathetic ruse

of all, because seven years later some of the best giclee art in the US is still produced by Squirt, the top giclee atelier in California: they use exclusively HP printers.

These same years (2000-2002) every printer manufacturer who used piezo printheads claimed they were permanent! They had to figure something to claim to differentiate Epson heads from HP thermal heads (which required replacing frequently). But again, even the inventor of the word "giclee" himself preferred to use the HP 130 and an aging ColorSpan DisplayMaker. He said he tried an Epson but much preferred the HP Designjet 130. This is a rather pointed way of saying that art is art and any good artist can use any acceptable printer to create giclee.

A piezo printhead is one way to do this; a thermal printhead is another. The Canon printhead today and the newest HP thermal printheads have considerable advantages over Epson printheads. Actually piezo technology stagnated during 2005-2007 because in effect piezo heads (from Epson that is), simply did not offer many new features any more.

During these same years Canon invested one billion dollars in new printhead and printer technology. HP invested more than a billion. Their new printheads made significant technological advances. So the hollow claim (in every Roland and Epson booth circa 2000-2002) that "piezo printheads are modern, have more potential; thermal printheads are old and leftover technology" was disproven once again. And to set history right, piezo was an ancient technology before bubble-jet (thermal) printheads were accidently discovered.

But another fake French word (Digigraphie) and pseudo French title on a "Certficat de DIGIGRAPHIE" is just another way to rebrand an inkjet print.

And what I really fail to accept, is how you can have "original art work" which is reproduced by an inkjet printer. It is still a print, a copy of the painting or whatever work of art (photo). No matter how much paint the arist adds (usually added by an art student…..) it's still a copy merely retouched to pretend it's original. I don't mind the copy aspect; if it's a nice image, it's good as is. Why go to all the effort to create more phony French?

The Epson printer should be presented on its merits of ink chemistry, mechanics, printhead quality, dithering pattern, and results. To add a smoke screen of pretend-French as smoke and mirrors just raises the question, of, why all the effort to cloud the issue with pretense?

I am perfectly content to have the quality of an Epson reproduce my fine art photographs. I don't need some pseudo-French word on a piece of paper. That does not make my fine art photograph any better.

Besides, there never has been any way to guarantee the limited aspect of an edition. An honest and ethical printmaker will keep an honest count. But there is no way for Epson Incorporated in Japan to know what Artist Quick Bucks in Las Vegas is cranking out weekends and late at night. There is no one in the world who can possibly know how many prints of any one image actually were printed. Plus there are endless ways to trick the number count, with "artist's proofs" as the immediate way to get around the limited edition with tons of extra prints with more fancy French designations.

Epson won the hearts and souls (and pocketbooks) of fine art photographers and artists between DRUPA 2000 and DRUPA 2004. By that time they had earned by hard work the lion's share of the proofing, giclee, and photography market. The Epson booth was synymous with chic.

Concluding comments

In comparison the booths of other companies were simply traditional corporate trade show stands locked by edicts from management who had won their titles by selling to Fortune 500 companies. The only time an HP booth came close to appealing to photographers or artists were the years that John Witashek (formerly of HP) and Andy Wood (Squirt Printing) collaborated to create stunning booths to showcase HP printers at Art Expo and Décor Expo two years in a row.

Now that Epson's printers are not so obviously behind-the-times compared with Canon and HP, Epson should be able to hold onto its 70% market share in fine art and giclee. It can possibly gain share against Canon in giclee and décor applications.

I am very picky in what printer I use for my exhibits because I wish my photos to look both gorgeous and professional. I use a 22-megapixel Phase One P25+ digital camera, a 48-megapixel BetterLight, and an 80-megapixel Cruse. FLAAR is probably the only photographic and art oriented institute in the world with all three.

I have many Epson printers, many HP printers, and have exper-

imented with several Canon printers, most recently the iPF5000. On canvas or many kinds of watercolor paper (or any other rough surface) you can't see the advantage of a small picoliter drop size below about 15 picoliters. So all three printer brands are fine.

For exhibiting photos an Epson dithering pattern and small picoliter drop size is an advantage. But if your photos themselves are exceptional (composition, lighting, subject matter, color) then again, I can show you the comments book to an exhibit with an HP 5000 printer with its perhaps 15-picoliter drop size. If people look at the subject and not at the paper, the quality of the image overwhelmes the vehicle that did the printing.

But many artists and photographers simply prefer the Epson and don't want to hear of anything else. It is the same with Macintosh lovers. They don't want to hear the word "PC" or "Dell." But at FLAAR we use both Dell and Mac computers (the pixels can't tell the difference). I myself use Macintosh, because this is simply what I am accostumed to, but 75% of the FLAAR graphic designers prefer a PC.

The comments in this discussion are based on many years as a photographer (my images already in the 1970's were published by National Geographic). Still today in 2008 I actively attend Photokina every two years, the Mecca for fine art photography. I inspected the Epson 7900 and 9900 in Johannesburg and Photokina, but I do not have one in-house at my studio in Guatemala (where I do 90% of my photography and most of my exhibits). So this FLAAR Report is literally that, a report. It is not appropriate for me to recommend that you buy the Epson until I have used it myself in-house. After all, if a printer is what I use personally, that in itself is the ultimate statement.

First issued January 2009

As soon as you have your UV-flatbed printer, your printshop will desire to have a cutter or trimmer.

First you need to trim. Simple cutting of the edges of your board so the edges are neat and clean. Then of course some clients will ask if you can do contour-cutting. This means you can offer additional services and earn additional income.

The best way to learn about trimmers is to ask a distributor who has more than one brand. This way they do not push their house brand and denigate brands that they do not carry. Also, you want a real person that actually has experience. Otherwise you get a "box pusher" who is simply an Internet sales person, who does not know trimmer from dimmer.

The person we suggest is **Mike Lind** because his company, **Reprographic Designs**, handles all leading brands: KeenCut, Neolt, Meteor Metoschnitt, RotaTrim, etc. You can contact him at 1 281 492 2714 or malind@msn.com.

His company is also the Master Distributor for Cruse reprographic scanners in the US and adjacent countries.

We have seen Gerber cutters at work during major trade shows, both in Europe and in the US. Gerber has dealers all across the US and Canada, and in Europe is served by Spandex.

XY Cutter Options

In a period of economic recession printshops will tend to ask about options that are priced lower than high-end prices. Thus we suggest a possible solution at mid-range price: Gerber M class cutters. I have inspected two huge factory complexes of Gerber Scientific in 2008 (especially their cutters for fabrics) and will be visiting their facilities again in 2009.

To contact Gerber:
Phone (US): 800-222-7446, email: cservice@gspinc.com
Fax: 800-227-6228 or 860-648-8064
Phone (Intl): 860-648-8028, email: gspinternational@gspinc.com

When you acquire a UV-curable wide-format printer you will eventually learn that an XY flatbed cutter is a useful accessory for thick rigid materials. The advantage of having an XY cutter is that you are selling not just the print, but a finished work. To stay ahead of the competing printshops in your city it helps to offer your clients a solution for every step of the printing workflow.

Dr. Hellmuth shows a sample processed by the Gerber M Series cutter exhibited at GraphExpo '08.

Gerber M Series cutter at ISA '08.

Reality Check

Being a university professor for many years does not mean we know everything. But intellectual curiosity often leads us to enter areas that are new to us. So we do not shirk from entering areas where we are obviously not yet expert. If in your years of wide format printing experience have encountered results different that ours, please let us know at ReaderService@FLAAR.org. We do not mind eating crow, though so far it is primarily a different philosophy we practice, because since we are not dependent on sales commissions we can openly list the glitches and defects of those printers that have an occasional problem.

FLAAR and most universities have corporate sponsors but FLAAR web sites do not accept advertising, so we don't have to kowtow to resellers or manufacturers. We respect their experience and opinion, but we prefer to utilize our own common sense, our in-house experiences, the results from site-visit case studies, and comments from the more than 53,000 of our many readers who have shared their experiences with us via e-mail (the Survey Forms).

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Update Policy

Starting in 2008, updates on UV-curable wide-format inkjet printers are available for all individuals and companies which have a subscription, or to companies who are research project sponsors. If you are a Subscriber or manager in a company that is a research sponsor, you can obtain the next update by writing ReaderService@FLAAR.org. If you are neither a Subscriber or a research sponsor, simply order the newest version via the e-commerce system on www.wide-format-printers.NET. Please realize that because we have so many publications and many are updated so frequently that we have no realistic way to notify any reader of when just one particular report is actually updated.

There is a free PDF that describes the UV-curable inkjet printer Subscription system. Subscriptions are available only for UV-related wide-format printer publications.

FLAAR Reports on UV-curable roll-to-roll, flatbed, hybrid, and combo printers are updated when new information is available. We tend to update the reports on new printers, on printers that readers ask about the most, and on printers where access is facilitated (such as factory visits, demo-room visits, etc).

Reports on obsolete printers, discontinued printers, or printers that not enough people ask about, tend not to be updated.

FLAAR still publishes individual reports on solvent printers, and on giclee printers, but subscriptions on these are not yet available; these FLAAR Reports on solvent, eco-solvent, and water-based wide format printers have to be purchased one by one.

Please Note

This report has not been licensed to any printer manufacturer, distributor, dealer, sales rep, RIP company, media, or ink company to distribute. So, **if you obtained this from any company, you have a pirated copy.**

If you have received a translation, this translation is not authorized unless posted on a FLAAR web site, and may be in violation of copyright (plus if we have not approved the translation it may make claims that were not our intention).

Also, since this report is frequently updated, if you got your version from somewhere else, it may be an obsolete edition. FLAAR reports are being updated all year long, and our comment on that product may have been revised positively or negatively as we learned more about the product from end users.

If you receive any FLAAR Report from a sales rep, in addition to being violation of copyright, it is useful to know if there is a more recent version on the FLAAR web site, because every month new UV printers are being launched. So what was good technology one month, may be replaced by a much better printer elsewhere the next month.

To obtain a legitimate copy, which you know is the complete report with nothing erased or changed, and hence a report with all the original description of pros and cons, please obtain your original and full report straight from www.FLAAR.org.

Your only assurance that you have a complete and authentic evaluation which describes all aspects of the product under consideration, benefits as well as deficiencies, is to obtain these reports directly from FLAAR, via www.wide-format-printers.NET.

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The material in this report is not only copyright, it is also based on years of research. Therefore if you cite or quote a pertinent section, please provide a proper credit, which would be minimally "Nicholas

Hellmuth, year, www.FLAAR.org." If the quote is more than a few words then academic tradition would expect that a footnote or entry in your bibliography would reference the complete title. Publisher would be www.FLAAR.org.

If you intend to quote any portion of a FLAAR review in a PowerPoint presentation, if this is in reference to any product that your company sells or promotes, then it would be appropriate to license the report or otherwise notify us in advance. FLAAR reports are being updated every week sometimes, and our comment on that product may have been revised as we learned more about the product from end users. Also, we noticed that one company cited the single favorable comment we made on one nice aspect of their printer, but neglected to cite the rest of the review which pointed out the features of the printer which did not do so well. For them to correct this error after the fact is rather embarrassing. So it is safer to ask-before-you-quote a FLAAR review on your product.

Legal notice

Inclusion in this study by itself in no way endorses any printer, media, ink, RIP or other digital imaging hardware or software. Equally, exclusion from this study in no way is intended to discredit any printer.

Advisory

We do our best to obtain information which we consider reliable. But with hundreds of makes and models of printers, and sometimes when information about them is sparse, or conflicting, we can only work with what we have available. Thus you should be sure to rely also on your own research, especially asking around. Find another trustworthy end-user of the same make and model you need to know about. Do not make a decision solely on the basis of a FLAAR report because your situation may be totally different than ours. Or we may not have known about, and hence not written about, one aspect or another which is crucial before you reach your decision.

The sources and resources we may list are those we happen to have read. There may be other web pages or resources that we missed. For those pages we do list, we have no realistic way to verify the veracity of all their content. Use your own common sense plus a grain of salt for those pages which are really just PR releases or outright ads.

We are quite content with the majority of the specific printers, RIPs, media, and inks we have in the FLAAR facilities. We would obviously never ask for hardware, software, or consumables that we knew in advance would not be good. However even for us, a product which looks good at a trade show, sounds good in the ad literature, and works fine for the first few weeks, may subsequently turn out to be a lemon.

Or the product may indeed have a glitch but one that is so benign for us, or maybe we have long ago gotten used to it and have a workaround. And not all glitches manifest themselves in all situations, so our evaluator may not have been sufficiently affected that he or she made an issue of any particular situation. Yet such a glitch that we don't emphasize may turn out to be adverse for your different or special application needs.

Equally often, what at first might be blamed on a bad product, often turns out to be a need of more operator experience and training. More often than not, after learning more about the product it becomes possible to produce what it was intended to produce. For this reason it is crucial for the FLAAR team and their university colleagues to interact with the manufacturer's training center and technicians, so we know more about a hardware or software. Our evaluations go through a process of acquiring documentation from a wide range of resources and these naturally include the manufacturer itself. Obviously we take their viewpoints with a grain of salt but often we learn tips that are worthy of being passed along.

FLAAR has no way of testing 400+ specifications of any printer, much less the over 101 different UV printers from more than 46 manufacturers. Same with hundreds of solvent printers and dozens of water-based printers. We observe as best we can, but we cannot take each printer apart to inspect each feature. And for UV printers, these are too expensive to move into our own facilities for long-range testing, so we do as best as is possible under the circumstances. And when a deficiency does become apparent, usually from word-of-mouth or from an end-user, it may take time to get this written up and issued in a new release.

Another reason why it is essential for you to ask other printshop owners and printer operators about how Brand X and Y function in the real world is that issues may exist but it may take months for these issues to be well enough known for us to know the details. Although often we know of the issues early, and work to get this information into the PDFs, access to information varies depending on brand and model. Plus with over 300 publications, the waiting time to update a specific report may be several months. Plus, once a printer is considered obsolete, it is not realistic to update it due to the costs involved.

For these reasons, every FLAAR Report tries to have its publication date on the front outside cover (if we updated everything instantly the cost would be at commercial rates and it would not be possible to cover these expenses). At the end of most FLAAR Reports there is additionally a list of how many times that report has been updated. A report with lots of updates means that we are updating that subject based on availability of new information. If there is no update that is a pretty good indication that report has not been updated! With 101 models of UV printers, several hundred solvent printers, and scores of water-based printers, we tend to give priority to getting new reports out on printers about which not much info at all is available elsewhere. So we are pretty good about reporting on advances in LED curing. But glitches in a common water-based printer will take longer to work its way through our system into an update, especially if the glitch occurs only in certain circumstances, for example, on one type of media. With several hundred media types, we may not yet have utilized the problem media. While on the subject of doing your own research, be sure to ask both the printer operator and printshop owner or manager: you will generally get two slightly different stories. A printer operator may be aware of more glitches of the printer than the owner.

If a printer is no longer a prime model then there is less interest in that printer, so unless a special budget were available to update old reports, it is not realistic to update old reports. As always, it is essential for you to visit printshops that have the printers on your short-list and see how they function in the real world.

But even when we like a product and recommend it, we still can't guarantee or certify any make or model nor its profitability in use because we don't know the conditions under which a printer system might be utilized in someone else's facility. For ink and media, especially after-market third-party ink and media, it is essential that you test it first, under your conditions. We have no way to assure that any ink or media will be acceptable for your specific needs in your specific print shop. As a result, products are described "as is" and

without warranties as to performance or merchantability, or of fitness for a particular purpose. Any such statements in our reports or on our web sites or in discussions do not constitute warranties and shall not be relied on by the buyer in deciding whether to purchase and/or use products we discuss because of the diversity of conditions, materials and/or equipment under which these products may be used. Thus please recognize that no warranty of fitness or profitability for a particular purpose is offered.

The user is advised to test products thoroughly before relying on them. We do not have any special means of analyzing chemical contents or flammability of inks, media, or laminates, nor how these need to be controlled by local laws in your community. There may well be hazardous chemicals, or outgassing that we are not aware of. Be aware that some inks have severe health hazards associated with them. Some are hazardous to breathe; others are hazardous if you get them on your skin. For example, some chemicals such as cyclohexanone do not sound like chemicals you want to breathe every day. Be sure to obtain, read, and understand the MSDS sheets for the inks, media, and laminates that you intend to use. Both solvent, eco-solvent, and UV-curable inks are substances whose full range of health and environmental hazards are not yet fully revealed. It is essential you use common sense and in general be realistic about the hazards involved, especially those which are not listed or which have not yet been described. FLAAR is not able to list all hazards since we are not necessarily aware of the chemical components of the products we discuss. Our reports are on usability, not on health hazards.

Most inks are clearly not intended to be consumed. Obviously these tend to be solvent inks and UV-curable inks. Yet other inks are edible, seriously, they are printed on birthday cakes. Indeed Sensient is a leader in a new era of edible inks. Therefore the user must assume the entire risk of ascertaining information on the chemical contents and flammability regulations relative to inks, media or laminates as well as using any described hardware, software, accessory, service, technique or products.

We have no idea of your client's expectations. What students on our campus will accept may not be the same as your Fortune 500 clients. In many cases we have not ourselves used the products but are basing our discussion on having seen them at a trade show, during visiting a print shop, or having been informed about a product via e-mail or other communication.

Results you see at trade shows may not be realistic

Be aware that trade show results may not be realistic. Trade shows are idealized situations, with full-time tech support to keep things running. The images at a trade show may be tweaked. Other images make be "faked" in the sense of slyly putting on primer without telling the people who inspect the prints. Most UV inks don't stick to all materials; many materials need to be treated.

Or the UV prints may be top-coated so that you can't do a realistic scratch test.

Booth personnel have many standard tricks that they use to make their output look gorgeous. In about half the cases you will not likely obtain these results in real life: in most cases they are printing unidirectional, which may be twice as slow as bi-directional.

Trade show examples tend to be on the absolutely best media. When you attempt to save money and use economy media you will quickly notice that you do not get anywhere near the same results as you saw in the manufacturer's trade show booth, or pictured in their glossy advertisement. Five years ago we noticed Epson was laminating prints to show glossy output because their pigmented inks could not print on actual glossy media. The same equipment, inks, media, and software may not work as well in your facility as we, or you, see it at a trade show. All the more reason to test before you buy; and keep testing before you make your final payment. Your ultimate protection is to use a gold American Express credit card so you can have leverage when you ask for your money back if the product fails.

Images printed at trade show may be in uni-directional mode: so you may not realize the printer has bi-directional (curing) banding defects until you unpack it in your printshop. Bi-directional curing banding is also known as the lawnmower effect. Many printers have this defect; sometimes certain modes can get rid of it, but are so slow that they are not productive.

You absolutely need to do print samples with your own images and the kind provided by your clients. Do not rely on the stock photos provided by the printer, ink, media, or RIP manufacturer or reseller. They may be using special images which they know in advance will look fabulous on their printer. Equally well, if you send your sample images to the dealer, don't be surprised if they come back looking awful. That is because many dealers won't make a serious effort to tweak their machine for your kind of image. They may use fast speed just to get the job done (this will result in low quality). Check with other people in your area, or in the same kind of print business that you do. Don't rely on references from the reseller or manufacturer (you will get their pet locations which may be unrealistically gushy): find someone on your own.

Factors influencing output

Heat, humidity, static, dust, experience level of your workers (whether they are new or have prior years experience): these are all factors that will differ in your place of business as compared with test results or demo room results.

Actually you may have people with even more experience than we do, since we deliberately use students to approximate newbies. FLAAR is devoted to assisting newcomers learn about digital imaging hardware and software. This is why Nicholas Hellmuth is considered the "Johnny Appleseed" of wide format inkjet printers.

Therefore this report does not warranty any product for any quality, performance or fitness for any specific task, since we do not know the situation in which you intend to use the hardware or software. Nor is there any warranty or guarantee that the output of these products will produce salable goods, since we do not know what kind of ink or media you intend to use, nor the needs of your clients. A further reason that no one can realistically speak for all aspects of any one hardware or software is that each of these products may require additional hardware or software to reach its full potential.

For example, you will most likely need a color management system which implies color measurement tools and software. To handle ICC color profiles, you may need ICC color profile generation software and a spectrophotometer since often the stock pre-packaged ICC color profiles which come with the ink, media, printers and/or RIPs may not work in your situation. Not all RIPs handle color management equally, or may work better for some printer-ink-media combinations than for others.

Be aware that some RIPs can only accept ICC color profiles: you quickly find out the hard way that you can't tweak these profiles nor generate new ones. So be sure to get a RIP which can handle all

aspects of color management. Many RIPs come in different levels. You may buy one level and be disappointed that the RIP won't do everything. That's because those features you may be lacking are available only in the next level higher of that RIP, often at considerable extra cost. Same thing in the progression of Chevy through Pontiac to Cadillac, or the new Suburbans. A Chevy Suburban simply does not have all the bells and whistles of the Cadillac Escalade version of this SUV.

Don't blame us… besides, that's why we are warning you. This is why we have a Survey Form, so we can learn when you find products that are inadequate. We let the manufacturers know when end users complain about their products so that the manufacturers can resolve the situation when they next redesign the system.

Most newer printer models tend to overcome deficiencies of earlier models. It is possible that our comparative comments point out a glitch in a particular printer that has been taken care of through an improvement in firmware or even an entirely new printer model. So if we point out a deficiency in a particular printer brand, the model you may buy may not exhibit this headache, or your kind of printing may not trigger the problem. Or you may find a work-around.

Just remember that every machine has quirks, even the ones we like. It is possible that the particular kind of images, resolution, inks, media, or other factors in your facility are sufficiently different than in ours that a printer which works just fine for us may be totally unsatisfactory for you and your clients. However it may be that the specific kind of printing you need to do may never occasion that shortcoming. Or, it may be that your printer was manufactured on a Monday and has defects that are atypical, show up more in the kind of media you use which we may not use as often or at all during our evaluations. Equally possibly a printer that was a disaster for someone else may work flawlessly for you and be a real money maker for your company.

So if we inspect a printer in a printshop (a site-visit case study), and that owner/operator is content with their printer and we mention this; don't expect that you will automatically get the same results in your own printshop.

In some cases a product may work better on a Macintosh than on a PC. RIP software may function well with one operating system yet have bugs and crash on the same platform but with a different operating system. Thus be sure to test a printer under your own specific work conditions before you buy.

And if a printer, RIP, media, or ink does not function, return it with no ands, ifs or buts. Your best defense is to show an advertising claim that the printer simply can't achieve. Such advertising claims are in violation of federal regulations, and the printer companies know they are liable for misleading the public.

But before you make a federal case, just be sure that many of the issues are not user error or unfamiliarity. It may be that training or an additional accessory can make the printer do what you need it to accomplish. Of course if the printer ads did not warn you that you had to purchase the additional pricey accessory, that is a whole other issue. Our reviews do not cover accessories since they are endless, as is the range of training, or lack thereof, among users.

The major causes of printer breakdown and failure is lack of maintenance, poor maintenance, spotty maintenance, or trying to jerry-rig some part of the printer. The equally common cause of printer breakdown is improper use, generally due from lack of training or experience. Another factor is whether you utilize your printer all day every day. Most solvent and UV printers work best if used frequently. If you are not going to use your printer for two or three days, you have to put flush into the system and prepare it for hibernation (even if for only four or five days). Then you have to flush the ink system all over again.

Also realize that the surface of inkjet prints are fragile and generally require lamination to survive much usage. Lamination comes in many kinds, and it is worth finding a reliable lamination company and receiving training on their products.

Also realize that no hybrid or combo UV printer can feed all kinds of rigid materials precisely. Some materials feed well; others feed poorly; others will skew.

Although we have found several makes and models to work very well in our facilities, how well they work in your facilities may also depend on your local dealer. Some dealers are excellent; others just sell you a box and can't provide much service after the sale. Indeed some low-bid internet sales sources may have no technical backup whatsoever. If you pay low-bid price, you can't realistically expect special maintenance services or tech support later on from any other dealer (they will tell you to return to where you paid for the product). This is why we make an effort to find out which dealers are recommendable. Obviously there are many other dealers who are also good, but we do not always know them. To protect yourself further, always pay with a level of credit card which allows you to refuse payment if you have end up with a lemon. A Gold American Express card allows you to refuse payment even months after the sale. This card may also extend your warranty agreement in some cases (check first).

Most of the readers of the FLAAR Reports look to see what printers we use in our own facilities. Readers realize that we will have selected the printers that we like based on years of experience and research. Indeed we have met people at trade shows who told us they use the FLAAR web site reports as the shopping list for their corporate purchases.

Yes, it is rather self-evident that we would never ask a manufacturer to send a product which we knew in advance from our studies was no good. But there are a few other printers which are great but we simply do not have them in our facilities yet.

So if a printer is not made available by its manufacturer, then there is no way we can afford to have all these makes and models in our facility. Thus to learn about models which we do not feature, be sure to ask around in other print shops, with IT people in other corporations, at your local university or community college. Go to trade shows…. but don't use only the booth…ask questions of people in the elevator, in line at the restaurant, anywhere to escape the smothering hype you get in the booth.

Realize that a FLAAR Report on a printer is not by itself a recommendation of that printer. In your local temperature, in your local humidity, with the dust that is in your local air, with your local operator, and with disorientation of the insides of a printer during rough shipment and installation, we have no knowledge of what conditions you will face in your own printshop. We tend to inspect a printer first in the manufacturing plant demo room: no disjointed parts from any shipment since this printer has not been lifed by cranes and run over a rough pot-holed highway or kept in smeltering heat or freezing cold during shipment.

Taking into consideration we do not know the conditions in which you may be using your hardware, software, or consumables, neither the author nor FLAAR nor either university is liable for liability, loss or damage caused either directly or indirectly by the suggestions in this report nor by hardware, software, or techniques described herein because.

Availability of spare parts may be a significant issue

Chinese printers tend to switch suppliers for spare parts every month or so. So getting spare parts for a Chinese printer will be a challenge even if the distributor or manufacturer actually respond to your e-mails at all. Fortunately some companies to have a fair record of response; Teckwin is one (based on a case of two problematical hybrid UV printers in Guatemala). The distributor said that Teckwin sent a second printer at their own expense and sent tech support personnel at their expense also. But unfortunately both the hybrid UV printers are still abandoned in the warehouse of the distributor; they were still there in January 2009. But Teckwin has the highest rating of any Chinese company for interest in quality control and realization that it is not good PR to abandon a client or reseller or distributor all together.
Recently we have heard many reports of issues of getting parts from manufacturers in other countries (not Asia). So just because you printer is made in an industrialized country, if you are in the US and the manufacturer is X-thousand kilometers or miles away, the wait may be many days, or weeks.

Lack of Tech Support Personnel is increasing

The book of sales in the third quarter of 2008 resulted in many tech support problems.

The recession resulted in even more: some manufacturers may need to skimp on quality control during a recession, or switch to cheaper parts suppliers. Plus they are not hiring enough tech support during a recession. So the bigger and more successful the company, in some cases the worse these particular problems may be.

Any new compiled printer may take a few months to break in

Any new printer, no matter who the manufacturer, or how good is the engineering ane electronics, will tend to have teething issues. Until the firmware is updated, you may be a beta tester. This does not mean the printer should be avoided, just realize that you may have some downtime and a few headaches. Of course the worst case scenario for this was the half-million dollar Luscher JetPrint: so being “Made in Switzerland” was not much help.

Counterfeit parts are a problem with many printers made in China

Several years ago many UV printers made in China and some made elsewhere in Asia had counterfeit parts. No evaluation has the funding available to check parts inside any printer to see if they are from the European, Japanese, or American manufacturer, or if they are a clever counterfeits.

Be realistic and aware that not all materials can be printed on equally well

Many materials don’t feed well through hybrid (pinch roller on grit roller systems) or combo UV systems (with transport belts). Banding, both from poor feeding, and from bi-directional (lawnmower effect) are common on many UV-curable inkjet printers.

It is typical for some enthusiastic vendors to claim verbally that their printer can print on anything and everything. But once you unpack the printer and set it up, you find that it requires primer on some materials; on other materials it adheres for a few weeks but then falls off.

And on most hybrid and many combo printers, some heavy, thick, or smooth-surfaced materials skew badly. Since the claim that the printer will print on everything is usually verbal, it is tough to prove this aspect of misleading advertising to a jury.

Not all inks can print on all materials. And at a trade show, many of the materials you see so nicely printed on, the manufacturer may be adding a primer at night or early in the morning: before you see the machine printing on this material.

We feel that the pros and cons of each product speak more than adequately for themselves. Just position the ad claims on the left: put the actual performance results on the right. The unscrupulous hype for some printers is fairly evident rather quickly.

Be sure to check all FLAAR resources

Please realize that with over 200 different FLAAR Reports on UV printers, you need to be sure to check the more obscure ones too. If a printer has a printhead issue, the nitty gritty of this may be in the FLAAR Report on printheads. The report on the model is a general introduction; if we discussed the intimate details of printheads then some readers might fall asleep. And obviously do not limit yourself to the free reports. The technical details may be in the reports that have a price to them. Our readers have said they prefer to have the general basics, and to park the real technical material in other reports that people can buy if they really want that level of information.

So it may be best to ask for personal consulting. The details of the problems with the ColorSpan 5400uv series are rather complex: namely the center row of the Ricoh printheads. This would require an expensive graphic designer and consultants to show the details. And the design of the printhead would probably be altered by the time we did any of this anyway. So it is essential to talk with people: with other end-users, and with FLAAR in person on a consulting basis.

Acknowledgements

With 19 employees the funding has to come from somewhere, so we do welcome project sponsorship, research grants, contributions that facilitate our educational programs, scholarships for co-op interns and graduate students, and comparable project-oriented funding from manufacturers. The benefit for the end-user is a principle called academic freedom, in this case,

- The freedom of a professor or student to speak out relative to the pros and cons of any equipment brought to them to benchmark.
- The freedom to design the research project without outside meddling from the manufacturer.

Fortunately, our budget is lean and cost effective as you would expect for a non-profit research institute. As long as we are not desperate for money we can avoid the temptation to accept payment for reprinting corporate PR hype. So the funding is used for practical research. We do not accept (nor believe) and certainly do not regurgitate corporate PR. For example, how many manufacturer’s PR photos of their products have you seen in our reports or on our web sites?

Besides, it does not take any money to see which printers and RIPs

function as advertised and which don't. We saw one hyped printer grind to a halt, malfunction, or otherwise publicly display its incapabilities at several trade shows in a row. At each of those same trade shows another brand had over 30 of their printers in booths in virtually every hall, each one producing museum quality exhibits. Not our fault when we report what we see over and over and over again. One of our readers wrote us recently, "Nicholas, last month you recommended the …… as one of several possible printers for our needs; we bought this. It was the best capital expenditure we have made in the last several years. Just wanted to tell you how much we appreciate your evaluations…."
FLAAR is a non-profit educational and research organization dedicated for over 36 years to professional photography in the arts, tropical flora and fauna, architectural history, and landscape panorama photography.

Our digital imaging phase is a result of substantial funding in 1996 from the Japanese Ministry of Public Education for a study of scanning and digital image storage options. This grant was via Japan's National Museum of Ethnology, Osaka, Japan. That same year FLAAR also received a grant of $100,000 from an American foundation to do a feasibility study of digital imaging in general and the scanning of photographic archives in particular.

The FLAAR web sites began initially as the report on the results of these studies of scanners. Once we had the digital images we began to experiment with digital printers. People began to comment that our reports were unique and very helpful. So by 1999 we had entire sections on large format printers.
FLAAR has existed since 1969, long before inkjet printers existed. Indeed we were writing about digital imaging before HP even had a color inkjet system available. In 2000 FLAAR received an educational grant from Hewlett-Packard large format division, Barcelona, Spain, for training, for equipment, and to improve the design and navigation on the main web sites of the FLAAR Network. This grant ran its natural course, and like all grants, reached its finishing point, in this case late 2005.

In some cases the sponsorship process begins when we hear end-users talking about a product they have found to be better than other brands. We keep our ears open, and when we spot an especially good product, this is the company we seek sponsorship from. It would not be wise of us to seek sponsorship from a company with a sub-standard or otherwise potentially defective printer. So we usually know which printers are considered by end-users to be among the better brands before we seek sponsorship. After all, out of the by now one million readers, we have heard plenty about every single printer out there.

We thank MacDermid ColorSpan (now part of HP), Hewlett-Packard, Parrot Digigraphic, Color DNA, Canon, Gandinnovations, and other companies for providing funding for technology training for the FLAAR staff and our colleagues at Bowling Green State University in past years and for funds to allow us to attend all major international trade shows, which are ideal locations for us to gather information. We thank Sun LLC, Caldera, EskoArtwork, Raster Printers (EFI Rastek), DEC LexJet, DigiFab, Barbieri electronic, Seiko II, Mutoh Europe, IP&I, Dilli, Yuhan-Kimberly, GCC, Grapo, Durst, and WP Digital for providing funds so that we can make more of our publications free to end-users. During 2000-2001 we had grants to cover all the costs of our publications, and all FLAAR Reports were free in those early years. As that early grant naturally expired after a few years, we had to begin charging for some of our reports to cover costs. Now (in 2009), we are seeking corporate sponsorship so we can gradually make another 20% of our publications free to our readers.

Since 2006 we do a major part of our evaluations at a factory and headquarters demo room. Since the university does not fund any of these trips, it is traditional for the manufacturer to fund a research sponsorship. In the US this is how most university projects are initiated for decades now, and it is increasing. In fact there is a university in Austria that is not an "edu" but is a "GmbH", funded by the chamber of commerce of that part of Austria. In other words, a university as an educational institution, but functioning in the real world as an actual business. This is a sensible model, especially when FLAAR staff need to be on the road over a quarter of a million miles per year (roughly over 400,000 km per year total for the staff). Obviously this travel is hosted since unless money falls from heaven there most realistic way to obtain funding to get to the demo rooms for training is direct from the source.

It has been helpful when companies make it possible for us to fly to their headquarters so we can inspect their manufacturing facilities, demo rooms, and especially when the companies make their research, engineering and ink chemistry staff available for discussions. When I received my education at Harvard I was taught to have a desire to learn new things. This has guided my entire life and is what led me into wide-format digital imaging technology: it is constantly getting better and there is a lot to learn every month. Thus I actively seek access to improving my understanding of wide format printer technology so that we can better provide information to the approximately quarter-million+ readers of our solvent and UV printer web site (www.large-format printers.org) and the over half a million who read either our wide-format-printers.org site or our roughly half million combined who read our digital-photography.org and www.FineArtGicleePrinters.org sites.

Barbieri electronic (color management), Caldera (RIP), ColorSpan, DEC, Durst, EskoArtwork, Gerber, Grapo, IP&I, Mimaki USA, Mutoh, Dilli, GCC, NUR, Oce, Shiraz (RIP), Sky AirShip, Sun, Teckwin, VUTEk, WP Digital, Xerox, Yuhan-Kimberly, Zund have each brought FLAAR staff to their headquarters and printer factories. Bordeaux, InkWin and Sunflower ink have brought us to inspect their ink manufacturing facilities and demo rooms. We have visited the world headquarters and demo rooms of HP in Barcelona and received informative and helpful technology briefings roughly every two years. We are under NDA as to the subjects discussed but it is important that we be open where we have visited. Mimaki Europe has had FLAAR as their guest in Europe to introduce their flatbed UV printer, as have other UV-curable manufacturers, again, under NDA as to the details since often we are present at meetings where unreleased products are discussed. Xaar has hosted an informative visit to their world headquarters in the UK. You don't get this level of access from a trade magazine writer, and I can assure you, we are provided much more detailed information and documentation in our visits than would be provided to a magazine author or editor. Companies have learned that it's a lot better to let us know up front and in advance the issues and glitches with their printers, since they now know we will find out sooner or later on our own. They actually tell us they realize we will find out on our own anyway.

Contributions, grant, sponsorships, and project funds from these companies are also used to improve the design and appearance of the web sites of the FLAAR Information Network. We thank Canon, ColorSpan, HP, ITNH, and Mimaki for providing wide format printers, inks, and media to the universities where FLAAR does research on wide format digital imaging. We thank Epson America for providing an Epson 7500 printer many years ago, and Parrot Digigraphic for providing three different models of Epson inkjet printers to our facilities on loan at BGSU (5500, 7600, 7800). We thank Mimaki USA for providing a JV4 and then a Mimaki TX-1600s textile printer and

Improved Technologies (ITNH) providing their Ixia model of the Iris 3047 giclee printer.

We thank 3P Inkjet Textiles and HP for providing inkjet textiles so we could learn about the different results on the various textiles. IJ Technologies, 3P Inkjet Textiles, ColorSpan, Encad, HP, Nan Ya Pepa, Oracal, Tara and other companies have provided inkjet media so we can try it out and see how it works (or not as the case may be; several inkjet media failed miserably, one from Taiwan, the other evidently from Germany!). We thank Aurelon, Canon, ColorGate, ColorSpan, ErgoSoft, HP, PerfectProof, PosterJet, Onyx, Ilford, CSE ColorBurst, ScanvecAmiable, Wasatch and many other RIP companies for providing their hardware and software RIPs.

We thank Dell Computers for providing awesome workstations for testing RIP software and content creation with Adobe Photoshop and other programs. We also appreciate the substantial amount of software provided by Adobe. As with other product loaned or provided courtesy of ProVar LLC (especially the 23" monitors which makes it so much easier to work on multiple documents side by side).

We thank Betterlight, Calumet Photographic, Global Graphics, Westcott, Global Imaging Inc. Phase One, and Bogen Imaging for helping to equip our archaeological photo studios at the university and its archaeology museum in Guatemala. Heidelberg, Scitex, CreoScitex (now Kodak) and Cruse, both in Germany, have kindly provided scanners for our staff to evaluate.

We really liked some of the results whereas some of the other products were a bit disappointing. Providing samples does not influence the evaluations because the evaluators are students, professors, and staff of Bowling Green State University. These personnel are not hired by any inkjet printer company; they were universities employees (as was also true for Nicholas Hellmuth). The testing person for the HP ColorPro (desktop printer) said he frankly preferred his Epson printer. When we saw the rest results we did not include this Heweltt-Packard ColorPro printer on our list of recommended printers, but we love our HP DesignJet 5000ps so much we now have two of them, one at each university.

Sometimes we hear horror stories about a printer. The only way we can tell whether this is the fault of the printer design, or lack of training of the operator, is to have the printer ourselves in-house. Of course some printer manufacturers don't understand the reasons we need to have each make and model; they are used to loaning their demo units for a week or so. That is obviously inadequate for a serious review.

Some of the media provided to us failed miserably. Three printers failed to meet common sense usability and printability standards as well (HP 1055, one older desktop model (HP Color Pro GA), and one Epson). Yet we know other users who had better results; maybe ours came down the assembly line on a Monday or Friday afternoon, when workers were not attentive. One costly color management software package was judged "incapable" by two reviewers (one from the university; second was an outside user who had made the mistake of buying this package).

So it's obvious that providing products or even a grant is no shield from having your products fail a FLAAR evaluation. The reason is clear: the end user is our judge. The entire FLAAR service program is to assist the people who need to use digital imaging hardware and software. If a product functions we find out and promulgate the good news. If a product is a failure, or more likely, needs some improvement in the next generation, we let people know. If a product is hyped by what an informed user would recognize as potentially false and misleading nonsense, then we point out the pathetic discrepancies very clearly.

This is what you should expect from an institute which is headed by a professor.

Actually, most of our reviews are based on comments by end users. We use their tips to check out pros and cons of virtually every product we discuss. You can't fool a print shop owner whose printer simply fails to function as advertised. And equally, a sign shop owner who earns a million dollars a year from a single printer brand makes an impact on us as well. We have multiple owners of ColorSpan printers tell us that this printer is their real money earner for example. We know other print shops where their primarily income is from Encad printers. Kinkos has settled on the HP 5000 as its main money maker production machine, and so on.

Yet we have documentation of several print shop companies whose business was ruined by specific brands that failed repeatedly. It is noteworthy that it is always the same brand or printer at both locations: one due to banding and printheads then simply no longer printing one color; the other brand due to pokiness of the printer simply not being competitively fast enough. Same with RIPs, we have consistent statements of people using one RIP, and only realizing how weak it was when they tried another brand which they found substantially better. Thus we note that companies which experiment with more than one brand of product tend to realize more quickly which brand is best. This is where FLAAR is in an ideal situation: we have nine RIPs and 25 printers. Hence it is logical that we have figured out which are best for our situation.

Grant funding, sponsorship, demonstration equipment, and training are supplied from all sides of the spectrum of printer equipment and software engineering companies. Thus, there is no incentive to favor one faction over another. We receive support from three manufacturers of thermal printheads (Canon, ColorSpan and HP) and also have multiple printers from three manufacturers of piezo printers (Epson, Seiko, Mutoh, and Mimaki). This is because piezo has definite advantage for some applications; thermal printheads have advantages in different applications. Our reviews have universal appeal precisely because we feature all competing printhead technologies. Every printer, RIPs, inks, or media we have reviewed have good points in addition to weaknesses. Both X-Rite and competitor GretagMacbeth provided spectrophotometers. Again, when all sides assist this program there is no incentive to favor one by trashing the other. Printer manufacturer ad campaigns are their own worst enemy. If a printer did not make false and misleading claims, then we would have nothing to fill our reviews with refuting the utter nonsense that is foisted on the buying public.

It is not our fault if some printers are more user friendly, print on more media than other brands. It is not our fault that the competing printers are ink guzzlers, are slow beyond belief, and tend to band or drop out colors all together. We don't need to be paid by the printer companies whose products work so nicely in both our universities on a daily basis. The printers which failed did so in front of our own eyes and in the print shops of people we check with. And actually we do try to find some redeeming feature in the slow, ink gulping brands: they do have a better dithering pattern; they can take thick media that absolutely won't feed through an HP. So we do work hard at finding the beneficial features even of printers are otherwise get the most critique from our readers. Over one million people will read the FLAAR Information

Network in the next 12 months; 480,000 people will be exposed to our reports on wide format printers from combined total of our three sites on these themes. You can be assured that we hear plenty of comments from our readers about which printers function, and which printers fail to achieve what their advertising hype so loudly claims.

An evaluation is a professional service, and at FLAAR is based on more than 11 years of experience. An evaluation of a printer, an ink, a software, laminator, cutter or whatever part of the digital printing workflow is intended to provide feedback to all sides. The manufacturers appreciate learning from FLAAR what features of their printers need improvement. In probably half the manufacturers FLAAR has dealt with, people inside the company did not, themselves, want to tell their boss that their pet printer was a dog. So printer, software, and component manufacturers have learned that investing in a FLAAR evaluation of their product provides them with useful return on investment. Of course if a printer manufacturer wants only a slick Success Story, or what we call a “suck up review” that simply panders to the manufacturer, obviously FLAAR is not a good place to dare to ask for such a review. In several instances it was FLAAR Reports that allowed a company to either improve their printer, or drop it and start from scratch and design a new and better one.

And naturally end-users like the opportunity to learn about various printers from a single source that covers the entire range from UV through latex through all flavors of solvent.

We have also learned that distributors often prefer to accept for distribution a printer or other product on which a FLAAR Report already exists.

We turn down offers of funding every year. These offers come from PO Box enterprises or products with no clearly visible point of manufacture. Usually the company making the offer presumes they can buy advertising space just by paying money. But that is not what our readers want, so we politely do not accept such offers of money.

Contributions, grants, sponsorships, and funding for surveys, studies and research is, however, open to a company who has an accepted standing in the industry. It is helpful if the company has a visible presence at leading trade shows and can provide references from both end users and from within the industry. Where possible we prefer to visit the company in person or at least check them out at a trade show. Obviously the product needs to have a proven track record too. Competing companies are equally encouraged to support the FLAAR system. We feel that readers deserve to have access to competing information. Competition is the cornerstone of American individualism and technological advancement.

FLAAR also covers its costs of maintaining the immense system of 8 web sites in three languages and its facilities in part by serving as a consultant such as assisting inkjet manufacturers learn more about the pros and cons of their own printers as well as how to improve their next generation of printers. It is especially useful to all concerned when manufacturers learn of trends (what applications are popular and for what reasons). For example, manufacturers need to know whether to continue designing software for Mac users, or concentrate software for PC users. So the survey form that you fill out is helpful to gather statistics. You benefit from this in two ways: first, you get the FLAAR reports in exchange for your survey form. Second, your comments bring (hopefully) change and improvement in the next generation of printers. When we do survey statistics, then the names, addresses, and telephone numbers are removed completely. A survey wants only aggregate numbers, not individuals. However, if you ask about a specific brand of printer, and do not opt out, we forward your request to a pertinent sponsor so you can obtain follow-up from that brand, since we ourselves do not have enough personnel to respond to each reader by telephone. But we do not provide your personal information to outsiders and our survey form has an opt out check-off box which we honor.

FLAAR also serves as consultants to Fortune 500 companies as well as smaller companies and individuals who seek help on which printers to consider when they need digital imaging hardware and software.

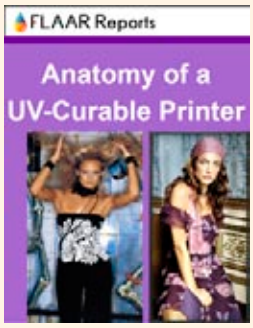
A modest portion of our income comes from our readers who purchase the FLAAR series. All income helps continue our tradition of independent evaluations and reviews of inkjet printers, RIPs, media, and inks.

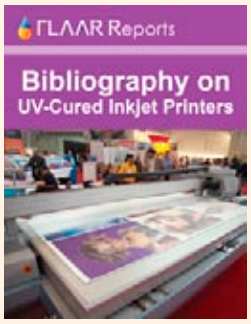
These are some of the most

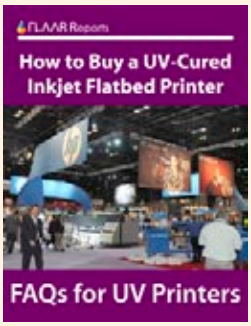
Recent FLAAR Reports (2007-2009)

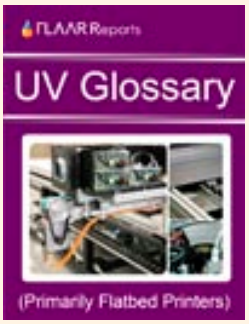
You can find these and more reports at: www.wide-format-printers.NET

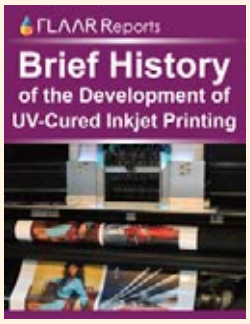
Introduction to UV Curable Inkjet Flatbed Printers

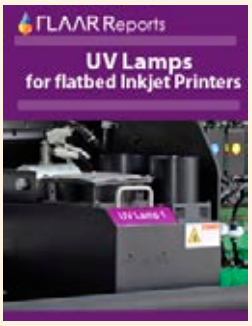


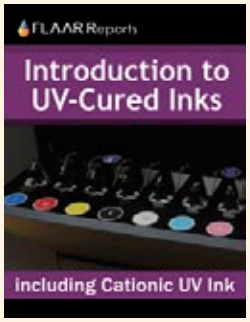




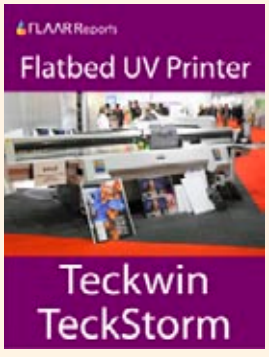








Most recent UV Printers



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UV Printers Manufactured in China, Korea and Taiwan