



Novel Printer Technology Ideal for Museums & Archaeological Sites





Caption for front cover photograph:
Maya ruins of Copan, Honduras.

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Introduction

A new technology development in wide-format inkjet printers offers museums and archaeological sites the opportunity to print their educational posters and exhibit materials directly onto rigid materials.

Since most Maya archaeological sites and museums in Latin America need educational signage for visitors, we at FLAAR felt it would be good to investigate the potential for using this printer technology. But there is more, we realized that archaeologists, art historians, architectural historians, and museum curators would be able to recreate ancient sculptures, artifacts, and even entire building facades with this new technology.

For example, you could recreate ancient mural segments at life-size; you could recreate all the stelae of Tikal, Copan, or even of Quirigua, at full original size (no matter how large). So we felt that researching this new digital printer technology was a fascinating opportunity to assist studies of Latin American anthropology.

You are no longer limited to printing on paper. With the new printer technology you can print directly onto exhibit signage materials up an inch or more thick, such as.

- ABS, acrylonitrile-butadiene-styrene
- Acrylic (see Plexiglas)
- aluminum composites such as AluBond, Dibond
- banner materials, can be film, mesh
- board, display board, foam board, FoamX, Gatorfoam, Fom-Cor
- canvas
- fiberglass
- film
- HDPE, high density polyethylene resins
- Lexan and other polycarbonates
- MDF (medium density fiber board)
- mesh
- paper
- PETG, Polyethylene Terephthalate Glycol
- polycarbonate (see Lexan)
- polyester, such as Mylar
- polyethylene, polypropylene (Olefinic plastics) such as Coroplast
- PVC in forms in addition to vinyl
- Sintra, PVC foam sheeting
- Styrene, polystyrene
- tarps (nylon, vinyl, polyester, and canvas)
- textiles (same as for soft signage as for textiles for interior decoration)
- vinyl, self-adhesive vinyl

We have now worked on immersing ourselves in this exciting digital technology for four years. We have reached the point where we have been able to publish over 50 technical descriptions of the inkjet technology involved. Our knowledge has come from attending specialized conferences (such as IMI seminars) and inspecting the printers at industrial trade shows in Germany and across the US.

Our four years of teaching ourselves the potential of UV-cured inkjet printers was vindicated in 2004 when we read an article on the success of this technology. It quotes a print shop owner who said: "for museum work...the flatbed is the perfect solution. I made the mistake of taking samples of the flatbed-printed substrates to them [museums], now we are printing everything under the sun on the flatbed for them. In the past, the shop had done much of its museum work via screen printing; now the museum panels [including those with very fine type] can be directly printed onto rigid media." (Middendorf 2004:40).

Potential for Museums & Archaeological Sites is Virtually Endless

Because architectural history is a major component of the study of archaeology of Latin America (Inca architecture, Aztec, Toltec, Teotihuacán, Mixtec, Zapotec, and Mayan architecture), we find further encouragement for the study of UV-cured ink flatbed printers. Namely that these printers can print directly onto building materials.

This means that archaeological parks can more easily create reconstructions of ancient buildings.

Museums can more effectively decorate their display areas. Here are a few of the architectural materials that can be printed upon.

- Aluminum, including AluBond or Dibond from Alcan
- other metal
- ceiling tiles
- ceramic tiles
- cork board
- flooring of material other than ceramic tiles
- laminate flooring
- other laminates, everything from Formica and other tabletops to wall veneer
- rug and carpets
- foam material (sponge-like) without stiff covering
- glass
- Masonite and other wood chip materials
- mirrors
- plasterboard
- Plexiglas, Lucite, and other acrylic sheet material
- leather
- light switch covers
- marble
- stone other than marble
- textiles
- toilet seats and lids (seriously, decorators actually print on these)
- Venetian blinds
- wood, hence doors, shutters, cabinets

A few printers accept material 4 cm (1.58 inches). Some accept material 5 cm thick. Imagine taking a Maya stela, lintel, or other monument, and recreating it at 1:1 original life size, on stone, and putting this “print” back at the archaeological site.

As an example, look at the site of Bilbao (Escuintla). The ballgame stelae are in a museum in Berlin. With technology advances that FLAAR has access to, it would be possible to make full-size 1:1 printers, either from photographs or drawings, and put these in a museum at the site, or in the Museo Nacional.

The potential for traveling exhibits is endless. It would help if traveling exhibits, for each country, could express to the local population that these artifacts are part of their national patrimony, and that they should not be looted and sold to foreign countries.

Too many originals have been left, abandoned to acid rain, looters, and vandalism (such as most of the stelae of Belice). It is time to replace monuments that are out in the rain, and move them to secure museums, and leave replicas at the sites. Although casts have their value, a good photograph, with professional lighting of the kind that FLAAR specializes in, would result in an image more easy to view than the original. FLAAR has all the necessary digital camera and lighting equipment, we have years of experience working in the field (as demonstrated at Lubantun, for example).

The next stage is for FLAAR to obtain a UV-curable ink flatbed printer so we can experiment directly. Since these machines cost about \$75,000 for a model that can print 60” wide, to \$250,000 for a more robust model that can print 72” wide, we will understandably seek to obtain access to one from a manufacturer. It is more realistic to expect such a printer to be provided when we are recognized as a leading source in independent evaluation on this technology. Thus we feel it is valid to continue research into UV-cured inkjet printing technology so that we can serve as a conduit of factual information from the trade shows to museum personnel and archaeological site curators who on their own might not have the time, funds, or background to attend an industry trade show.

In the process FLAAR is available as a professional consultant for museums, universities, parks, botanical gardens, zoos, cultural and scientific organizations, and archaeology institutes who wish to learn about which UV-curable inkjet printer technology is best to suit their needs. Please contact the Associate Director for the Large Format Digital Imaging Division, Sheila Irving, at sirving@bgnet.bgsu.edu.

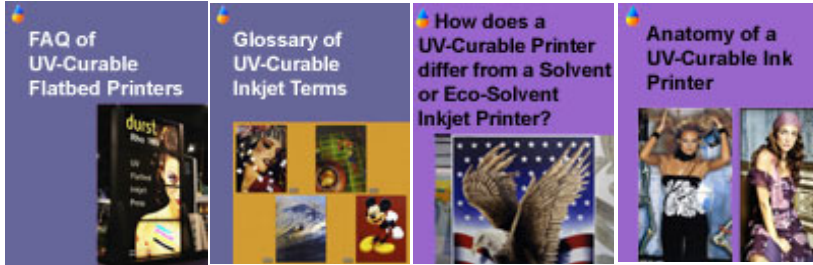
Bibliography

MIDDENDORF, Peggy

2004 Road to Flatbeds: Why and how to add a wide-format flatbed printer to your workflow. The BIGPICTURE magazine, Nov/Dec 2004, pp. 36-40.

FLAAR Reports on UV-Curable Ink Flatbed Printers by Nicholas Hellmuth

UV-Curable Inkjet Flatbed Printers



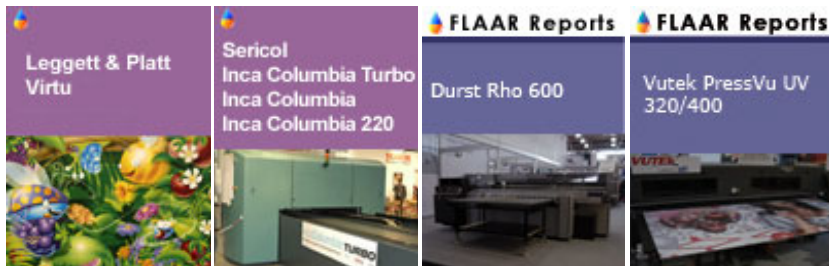
2005 Updates on UV-Flatbed Printers



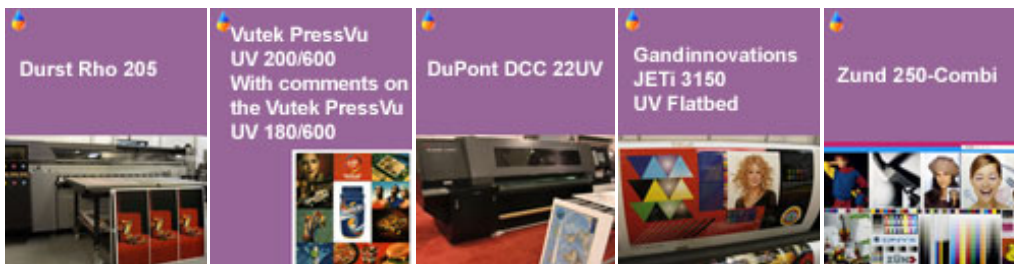
Applications and Tips



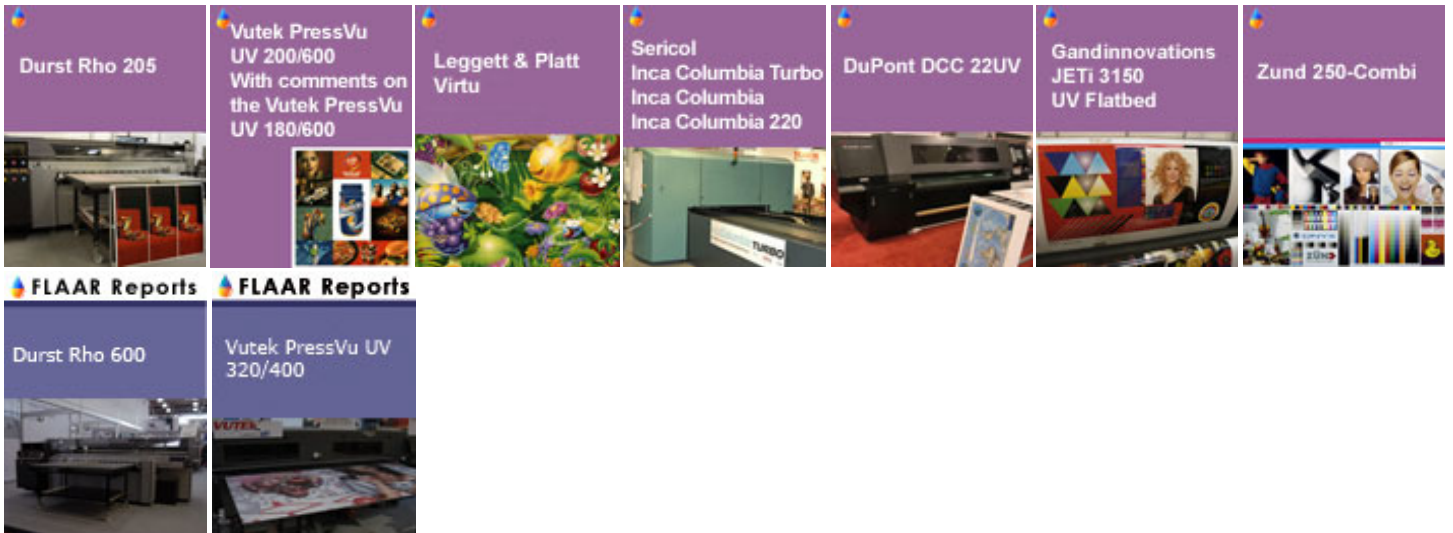
Top of the Line Production Machines



Serious Production Machines



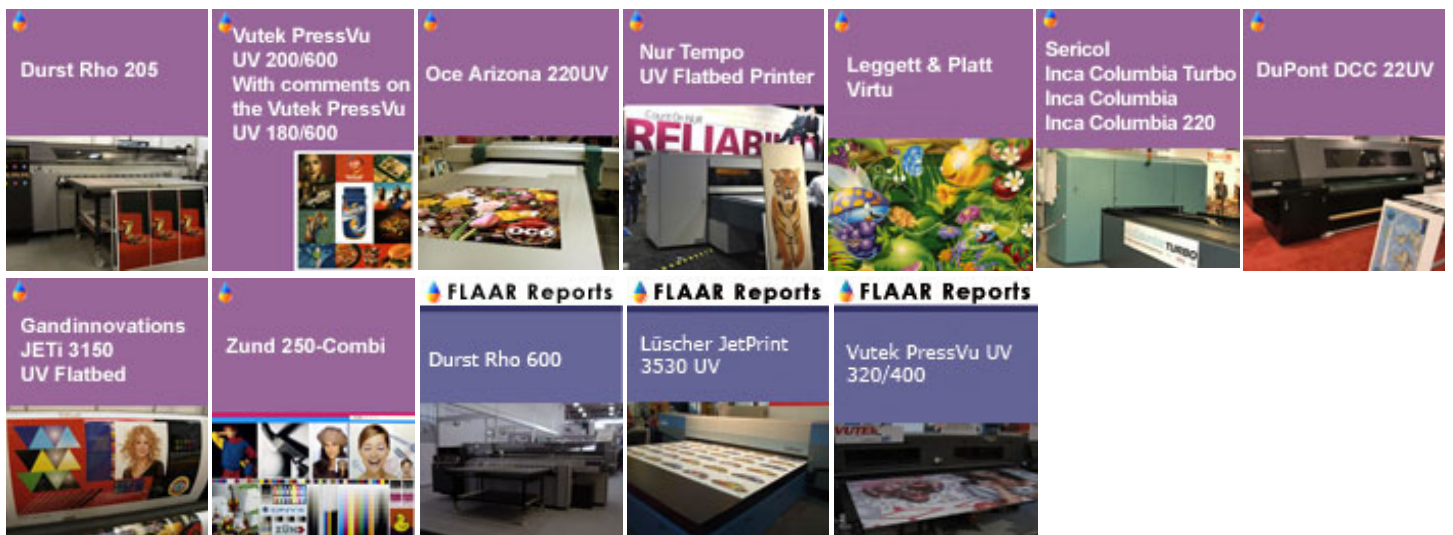
Top of the line and serious production machines



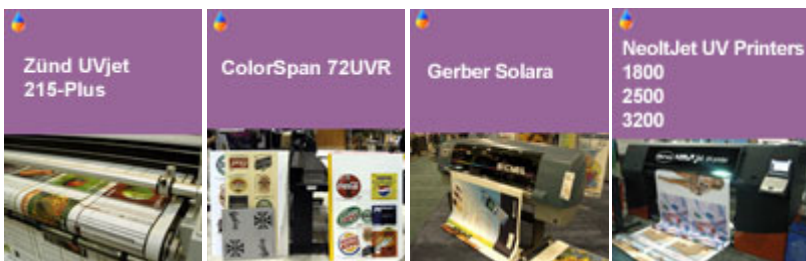
True, dedicated flatbeds



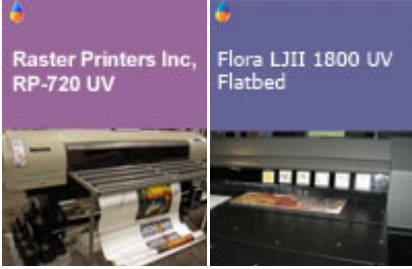
Top and serious production and dedicated flatbed



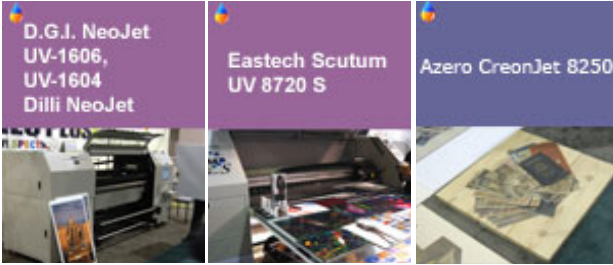
Entry level / mid-range price, but sturdy



Entry level budget



UV printers from Taiwan and Korea



Mimaki series



Chinese UV printers




 **FLAAR Reports**


**Printing directly onto a Door
With a Wide-Format
Inkjet Printer**




 **FLAAR Reports**

**What are your Options
for Inkjet Printing on
Table Tops?**



 **FLAAR Reports**

**What are your Options
for Inkjet Printing on
Ceramic Floor Tiles?**



DP 101 : Achieving Quality in Digital Photography

SLR 35mm
Digital Cameras



Glossary of Digital
Photography



Evaluation
& Review Nikon
D70 and D100



Evaluation & Review
of the
Canon Digital Rebel



Sigma SD9
and SD10
Foveon Cameras



Lens Reduction
Factors: Chart



Hybrid Digital
Cameras



Lenses and
Filters



Professional
Results from
Budget-Priced
Cameras



Practice &
Critique



Pros and Cons of
Digital and Film
Photography



CCD and CMOS
Image Sensors



History and
Timeline of Digital
Photography



Aperture
and
Shutter Speed



Composition The Key
to Prizewinning
Photography



Nature
Photography with
Digital Cameras



Portrait
Photography
with 35mm SLR
Digital Cameras



Architectural
Photography
with digital
cameras



Lighting Digital
Photography



QuickTime
Virtual Reality



QuickTime
Virtual Object
3-D Views



Shooting on
Location with
Digital Camera
Equipment



How to Organize
an Exhibit of Your
Own Photographs



Computer
Equipment for
Digital Imaging



Camera and
Computer Memory
Storing Digital
Files



Adobe
Photoshop
for Photographer



Additional
Software for
Digital Imaging



File Formats for
Digital Images



Worthwhile
Tradeshows
for Digital
Photographers



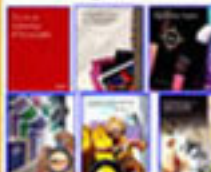
Digital Cameras at
the Photokina
Tradeshow in
Germany, 2004



New Photography
Equipment at the
PhotoPlus Tradeshow
in New York, 2004



FLAAR Reviews:
Photo & Camera
Magazines



FLAAR Book Review
on:
Digital Photography



DP 201 : Taking Digital Photography to the Next Level

Digital Image Resolution



Pros and Cons of Digital vs Film Photography (Medium and Large Format)



Digital Backs for Medium Format Cameras



Evaluation & Review of the Leaf Valeo 22



Cameras to hold Medium Format Digital Backs



Evaluation of the Hasselblad H1



Recommended Equipment for Creating a Digital Studio



Lighting for Profitable Portrait Photography



Lighting Modifiers for Portrait Photography



Hybrid Digital Cameras to hold Medium Format Digital Backs



Evaluating Cameras for use in Museums



Lighting Techniques for Plants & Flowers



Portrait Photography with Medium Format Systems



Architectural Photography with Medium and Large Format Cameras



Nature Photography with Medium and Large Format Cameras



Landscape Photography with Medium and Large Format Cameras



Panoramic Photography for Digital Cameras



Portability: Which Digital Camera is best for Out on Location?



Product Photography with Professional Digital Cameras



Lighting for Product Photography



Taking Photographs with a Repro Copy Stand



Large Format Digital Architectural Photography



Panoramic Photography with the Betterlight System



Gray Balance for Professional Digital Photography



Computer Workstations for Digital Photography



Color Management for Digital Photography



Increasing Depth of Field



Shooting On-location with Medium and Large Format Cameras



Professional Software for Working with RAW File Formats



Workflow Summary for Medium and Large Format Digital Photography



Trade Shows for New Camera and Printing Technologies



FLAAR Book Reviews: Adobe Photoshop



FLAAR Book Reviews: Medium and Large Format Cameras



Glossary of Digital Photography Terms



Workflow for Medium and Large Format



DP 101 and DP 201:
Online Courses in Digital Photography

Online Courses in Fine Art Giclee
AUTUMN 2005

- **DP102-202:** Achieving Success with Fine Art as Giclee.
- **DP203:** Preparing Images for Fine Art Giclee Printing.

EARLY 2006

- **DP204:** Giclee Printers & Printing.

