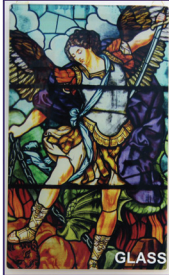


## Advantages of UV-cured ink flatbed printers

- You can print signage directly on rigid material, without having to mount it.
- You can print on glass and on marble (with primer and care in handling).
- You can print on doors and other architectural features.
- You can print on fabrics, table tops, and other items of interior decoration.
- In addition to printing signs you can decorate a whole room, or an entire building, with prints from a UV-cured ink flatbed.



Introduction to Printers that will “print on anything”:  
Glass, Marble, Leather, Wood, Plastics, Paper,  
Textiles... up to 5 cm thick.

**Dr Nicholas Hellmuth, FLAAR,**  
Director, Large Format Digital Imaging Division,  
Center for Applied Technology, BGSU.

UV-lamp curable inkjet printers can print on glass, marble, textiles, doors, window shutters. These are ideal printers for architects, interior decorators, or for museums to recreate art on rigid materials (wood, stone, leather). Over 50 different models of UV-curable inkjet printers are available from more than 30 manufacturers. With so many different printers available today how do you begin to understand the differences among them? Some cost \$75,000; others cost \$750,000. This lecture introduces the basic technology and explains the differences among the various kinds of UV-curable ink printers.

Every printer is very good at something, but not so appropriate for other tasks; this is why you need to become savvy about the different inks, various kinds of UV-lamps, and curing processes. But how do you match printers with the specific material and applications that you need? Dr. Nicholas Hellmuth will examine the technology differences between UV cured, solvent, and eco-solvent ink flatbed printers. He will then discuss the different classes of flatbed printers from entry level to industrial strength giants and share his standardized evaluation formula with you so you can cut through advertising claims and learn what you need to know before you select which printer, which ink, and which technology.

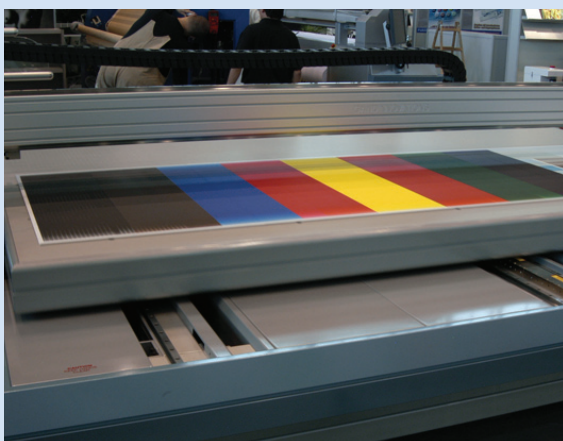
Because this UV-printing technology is so new, architects, interior designers, students of design, and museum personnel can get a head start by learning about this technology today.



## How to Determine the Right UV-Flatbed Printer for Your Needs

**Dr Nicholas Hellmuth**  
President, FLAAR

**Director**  
Large Format Digital Imaging Division  
Bowling Green State University  
Bowling Green OH 43403-0156



## All the Materials you can Print on with UV-Curable Inkjet Flatbed Printers

Emphasis on Architectural Applications

### Applications, UV-cured inkjet flatbed printers



Door being printed on with UV ink technology.



Tabletop printed on with UV ink technology.



Ceramic tiles printed on with UV ink technology.

**Nicholas Hellmuth, PhD, FLAAR,**  
Director, Large Format Digital Imaging Division,  
Center for Applied Technology, BGSU.

There are several reasons why Professor Hellmuth and FLAAR have published more than 53 titles on UV-curable inkjet flatbed printers. FLAAR is a university-based institute dedicated to providing public education on the ancient civilizations of pre-Columbian Mesoamerica. Digital imaging technology is an ideal way to assist archaeologists to record ancient heritage and digital printing is a perfect way for museums and universities to present their findings to the general public. So by means of our research on digital imaging hardware and software, we fulfill our stated goals to provide research and education.

UV-cured ink is the best way to print the kind of educational displays that museums need for indoor display: for example, you can print directly onto museum glass cases.

UV-cured ink is the optimal way to print the outdoor displays that archaeological parks need. You can print directly onto semi-permanent signage materials, even onto stone. If you need to show an ancient sculpture, you can print the sculpture at full life size, on wood, on stone, or on synthetic material that will hold up outside. You can even cut to the precise contour and shape as the original sculpture was a thousand years ago.

And architects can print directly onto doors, tables, even fabrics for furniture. Again, this can help museums, but also has wider applications for interior decoration in all kinds of buildings.

This lecture is pertinent for anyone curious about UV-lamp cured inkjet printers, what materials you can print on (such as marble, leather, banner materials), and what applications such prints can be used for. You will learn that you can print on almost every part of your home or office, from the wall sections, floor tiles, window shutters, curtains, furniture upholstery. Most printers take objects as thick as a door; some printers accept objects over 1-foot thick.

This lecture is appropriate for almost any university class (in graphic design, art, architecture), museum groups, interior decorators, printshop personnel, or the general public who are curious about how to apply technology to the world around them. Artists will enjoy learning about the possibility of printing on materials as direct as silk to concrete. You can also print on mixed-media. If you print over the same area several times, you can print in slight relief. You can use white ink, and spot varnish, to create additional effects.





## Garbage IN = Garbage OUT

A recent visit to the Xerox iGen3 demo center in Rochester by five of us from FLAAR and BGSU revealed how important it was to have outstanding images to input into the iGen3 variable data short run digital press.

We learned the same when Xeikon used their model 5000 printer to test print our FLAAR photos.

For both printer technologies, if your original image was color balanced and had appropriate exposure, the results were spectacular. The same would be true on other digital short run presses.

We witnessed what happened when the original image was low quality: the digital press reproduced all the flaws and weaknesses of the poor original image.



4.

## Advantages of Digital Photography Over Scanning

- No dust, scratches, or hair on your images (keep your CCD cleaned)
- You get perfect color balance, easily (color balance was illusive with film)
- No scanning artifacts like film grain, which can ruin enlargements from scans of 35mm negatives
- Plus digital photography is easier and more convenient
  - You can create better B&W prints from a color digital original than from film
  - You can create better lighting with features in Photoshop CS2
  - By bracketing you can obtain better exposures with less stress
  - You see your results immediately; don't have to wait to have your film developed.



15.



## Recent improvements in medium format

- Downsides of medium format digital cameras in earlier years used to be
  - inability to capture wide angle views (due to small sensors)
  - only 6, 11, or 18 megapixels (due again to small sensors)
  - high cost
  - quick obsolescence

But today the larger sensors offer possibility to capture wide angle.

- A 22-megapixel camera, even dating back to 2004, will still be an excellent camera 5 years from now.

Yes, naturally I want one of the new generation of 39 megapixel cameras. But 22 megapixels is plenty.

So today, any of the good 22-megapixel digital backs is a good investment.

- We have achieved ultimate professional results with a Leaf Vario 22 in a 6-month test period
- We only had the Hasselblad Imacon 22-megapixel for 6 days, but it definitely showed promise.
- We recently tested a prototype of the new 22-megapixel MegaVision e-series.



25.

# Digital Photography: How to Improve Input for Digital Printing

**Nicholas Hellmuth, PhD, FLAAR,**  
Director, Large Format Digital Imaging Division,  
Center for Applied Technology, BGSU.

Wide format inkjet printers can produce photographic or artistic images at almost any size. We print our panoramic photographs 4 feet high by 15 feet long. But what kind of camera produces that many pixels?

To achieve a better end product one must be sure that that original input is the best that it can possibly be. How can you be sure that the original image is of the highest quality and resolution? Dr. Hellmuth will present the facts on available camera options and how to select a digital camera system or scanner that in the end will create improved image quality.

Based on many years of experience in testing large format digital camera backs, medium format digital camera systems, 35mm digital SLRs and even the entire range of zoom-lens cameras of 5 through 8 megapixels, we explain the blunt facts of how best to select a digital camera system to create impressive input for wide format printers (and for variable data short run digital presses too).

The presentation differentiates doing traditional 35mm photography using slides (and then scanning them), or using medium format or 4x5 chromes (and then scanning them), as compared with doing direct digital photography.

## What you will learn during this presentation:

You will learn how to get the best digital image as well as the best output when printing. You will also learn about cameras available in the market today that will give you the required resolution for large format printing sizes.

