

Trends of Technology at DRUPA 2008

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Abstract

DRUPA 2008, Dusseldorf, Germany, the largest trade show for printing products worldwide which occurs once every four years using new product introductions as a bench mark to measure digital printing technologies development progress and commercialization potential. Examination and analysis of the two major technology groups, ink jet and electrophotography. Comparisons of products demonstrated in the major categories of digital presses, wide format printing and label presses, will be examined for strengths and weaknesses, concerning processes, substrates, compatability, light fastness, reliability and running cost, concluding with future estimates of projected technology product embodiment potential successes and failures.

Trends of Technology at Drupa 2008

Inkjet had been billed as the theme of digital printing at drupa, and sure enough it captured plenty of the limelight. At this drupa inkjet established itself as a credible and legitimate production printing technology, having moved far beyond its consumer roots.

Many of the products shown will take some time to get to market in terms of widely adopted commercialization, but none of the vendors was claiming otherwise. This was the innovation of drupa 2008—less unnecessary drama and more self-confidence on the part of all technology providers.

At drupa 2008 inkjet technology is best compared to digital color press electrophotographic (EP) technology at drupa 1995; it is a leading indicator of where the momentum and focus of the production graphic arts industry is headed. Inkjet technology has a great future as a complement to existing analog and digital print technologies. But unlike some of the impressions generated at the tradeshow booths, inkjet is not a pure replacement for either analog or electrophotography.

The analog and digital sides of the printing industry seem to run comfortably along parallel tracks and are not directly competitive with each other yet. The digital suppliers are able to create volume as well as add value through specialist and batch/variable data printing, while the analog suppliers continue to sustain themselves with technology enhancements enabling shorter, more cost-efficient job run lengths than ever before.

The Digital Highlights

The following pages provide a listing and description of new or otherwise notable products exhibited at drupa 2008 under six product groupings or sectors:

1. Inkjet Digital Presses
2. Inkjet Label Presses
3. Wide Format Inkjet
4. EP Color Digital Presses & High-end MFPs

Inkjet Digital Presses

The Inkjet Digital Press sector appeared during the last two to three years, enabled by advances in fixed-array inkjet technology. There were two principal reasons for its development:

1. In the very high-volume print area of transactional printing: A need for spot- and full-color print technology with reasonably good quality that was faster and cheaper than electrophotography (offering running costs at levels of two million AMPV of <\$0.01/color page vs. \$0.02-\$0.04 for an EP Digital Press), and that was less expensive to acquire at around the (\$1M-\$2M range) than continuous inkjet technology. The marketing pitch for these printers was the ability to leverage the new demand for customized color on transactional documents, called “Transpromotional Printing.”
2. Manufacturers of core inkjet technology were happy to find a platform on which to demonstrate the real long-term capabilities of their technologies against both electrophotography and analog printing.

The next challenge (already many vendors were talking about this being the theme for drupa 2012) is the creation of near-offset print quality at these now-established linear throughput speed levels. This is likely to drive fixed-array inkjet technology to slower linear speeds, but wider print widths (30”+). Once throughput levels reach in excess of 15,000 A4 impressions an hour (about 250 ppm), at print quality rivaling HP/Indigo-type output, and economics nearing offset, the question of whether there can be co-existence between digital and analog technology becomes more in doubt.

Comparison of Inkjet Digital Presses

There is a stunning lack of accurate detail on the specifications of the inkjet presses. I.T. Strategies has attempted to contrast and compare to the best of our knowledge some of the specifications of the various presses; in addition to a lack of information, the manufacturers themselves often provide conflicting information stating one specification in text but pointing out a different specification in accompanying illustrations. Please use the data in the tables below as a guide, with the knowledge that many of the details are subject to change as the products are commercialized.

Inkjet Label Presses

The label market has been targeted for many years by digital printing technology but until about three years ago with limited success. What changed is the relatively spectacular success of HP’s Indigo EP label press (through heavy usage of market development resources provided by HP) in leveraging the short run market which analog conversion technology handles poorly.

The label market has now seized the interest of many an inkjet integrator and the icing on the cake is that the applications

only require narrow webs. As a result we saw a burst of inkjet label press offerings at drupa, many of which were to be fair positioned as concepts.

However, although the argument for inkjet is as strong as for electrophotography, and although demand for short run solutions is far from satisfied, so far there has not been a breakthrough in selling any noteworthy volume of color inkjet label presses.

It is still the early days and the potential buyers are a conservative group of a few thousand converters, ones who are hard for small companies to establish trust among. As HP/Indigo found out, meeting minimum technology requirements is important, but helping buyers with market development and business models is a far larger hurdle.

Wide Format Inkjet

The wide format sector is the sector for printing graphics with inkjet at widths over 24". Drupa is NOT a wide format graphics nor CAD show, but nevertheless a number of wide format vendors were offering new products which deserve mention in light of the huge size and importance of this sector in digital printing.

It also deserves mention here because many of the analog print providers are newly developing an interest in adding inkjet wide format offerings to their product portfolios as their existing customers need it and it is very profitable.

EP Color Digital Presses

This sector is analyzed mainly in coverage of digital presses: color devices costing \$200,000 and above and capable of monthly duty cycles of 300,000 pages and above.

I.T. Strategies characterizes the digital color press market as a market of relatively small revenue size (vendor revenues worldwide are in the range of \$1.5B), but made up of many highly profitable specialties often utilizing some form of batch printing or, in about 20-25% of the cases, true Variable Data Printing in page-to-page form.

Conclusion

Will be covered in the presentation with discussion of products most likely to be successful by reviewing key strengths and weaknesses.

References

[1] IT Strategies – DRUPA 2008 Show Review

Author Biography

Roger's Hill Associates was formed in 1991 to serve the electronic digital printing industry in product and market development. He travels extensively around the world, helping technology developers and OEM manufacturers achieve industry success.

Mr. Case brings over 35 years of industry experience to the company. He has an extensive background in ink jet and electrophotographic technologies, and is a recognized authority on imaging technology, as well as a frequent speaker at industry events in the United States, Europe and Japan.

Mr. Case co-founded CAP International, Inc. in 1985, a market research and consulting firm. Prior to co-founding CAP, he was Vice President and General Manager of Philip A. Hunt Chemical Corporation, a NYSE company. Mr. Case managed for 12 years the development and manufacturing of dry and liquid toners and ink jet for OEM, color, black and white copiers, printers, facsimile and industrial automation hard copy producing devices.

Inkjet Digital Presses											
Product	Fuji Film Jetpress 720	HP Inkjet Web Press	Kodak Color Stream Concept	OCE Jetstream 3000 (twin engine)	Miyakoshi MJP600 UV	DN Screen True Press Jet SX Sheet Press	DN Screen True Press Jet 520	Kodak VL2000	SUN Fastjet	Graph-Tech DP600	Olympus OP- 1cd
Head Technology	Mems Piezo	Thermal IJ	Stream CIJ	Piezo	Piezo	Piezo	Piezo	Piezo	Piezo	Piezo	Piezo
Total Monolithic Heads	64	96 in 12 units	Unknown	80	40	100 est	40	58	420	336	64
Total IJ Nozzles est.	136,000	126,720	Not fixed	212,480	106,240	n/a	57,600	46,400	61,400	43,008	20,352
Ink Type	Aqueous	Aqueous	Various	Aqueous	UV	Aqueous	Aqueous	Aqueous	UV	UV	Oil
Gray Scale/Variable Drops?	4 levels	No	Yes	4 levels	4 levels	?	?	No	No	No	8 levels
Throughput A4 Pages/Minute	180 simplex	2600 duplex	Not fixed	2865 Duplex	1090	100	840 duplex	1026	N/A	1080	317
Linear Speed	0.445M/sec	2.03M/sec	>0.508M/sec	3.3M/sec	1.3M/sec	0.3M/sec	1M/sec	1.2M/sec	1.6M/sec	2.25M/sec	.55M/sec
Printable Width	720mm	762mm	Not fixed	541mm	541mm	530mm	520mm	474mm	1040mm	648mm	317 mm
Printable Length	520mm	Cont.	Cont.	Cont.	Cont.	740mm	Cont.	Cont.	1700mm	Cont.	n/a
Printable Area	0.374M2	Cont.	Cont.	Cont.	Cont.	0.34M2	Cont.	Cont.	1.8M2	Cont.	n/a
Resolution	1200 DPI	600 DPI	600DPI	600DPI	600DPI	1440x720	1440x720	600 DPI	300 DPI	600 DPI	300 dpi
# Colors	4	4 & pre-coat	4+	4	4	4	4	4	4	4	4
Monthly Max. Duty Cycle	Unknown	70Mi duplex	Not fixed	86Mi duplex	66Mi duplex	2M simplex?	10M simplex?	10M simplex?	N/A	?	n/a
Acquisition Cost US\$	\$2M+?	\$2.5M	Not fixed	\$5M?	\$2.5M?	\$2.5m?	?	\$2M?	\$3m+?	\$1.9M	\$0.3M??

Inkjet Label Presses

Product	Caslon/Nilpeter Label Press	Epson Label Press	Konica Minolta SPL2130	JF Machines Picocolor 70/140	Jettrion 4000	Beijing Founder Eaglejet	Konica Minolta SP-S0720	Mimaki IPH300L	DN Screen Concept	XenJet X-Plore 8000
Manufacturer	FFEI	Epson	KonicaMinolta	JF Machines	Jettrion	B Founder	KonicaMinolta	Mimaki	DN Screen	Xennia
Head Supplier	XAAR (1001)	Epson	KonicaMinolta	XAAR (1001)	XAAR (1001)	XAAR (1001)	KonicaMinolta	TTEC?	TTEC?	XAAR (1001)
Total Monolithic Heads	20/24	17	24	6/10	8/12	12	4	24?	24?	20
Total IJ Nozzles est.	20000/24000	100096	12288	6000/10000	8000/12000	12000	4096	15264?	15264?	20000
Ink Type	UV	Aqueous	UV Cationic	UV	UV	UV	UV cationic	UV	UV	UV
Linear Speed	up to 0.9M/s	0.2M/sec?	0.5M/sec	0.3M/sec	0.25-0.5M/sec	0.3M/sec	0.3M/sec	0.25M/sec	0.25M/sec?	0.3M/sec
Printable Width	310/420mm	230mm?	213mm	90/160mm	100/200mm	210mm	72mm	300mm	300mm?	280mm
Acquisition Cost US\$	\$1.5M+?	Unknown	Unknown	Unknown	?	?	N/A	?	N/A	?
Resolution	up to 720x360	1440x720	360 DPI	360 DPI	up to 900 DPI	360 DPI	360 DPI	1200 DPI	600 DPI?	360 DPI
# Colors	4	4	4	4	4/6	4	4	4	4	4

Wide Format Inkjet

Product	Meital 3000-10	HP DJ L65500	Efi/Vutek DS series	Gandi Nano Jet	Agfa XLS	Mimaki UVJ-160
Manufacturer	Meital (B)	HP	Efi-Vutek	Gandi	Agfa	Mimaki
Print Format	Flatbed Serial	R2R Serial	Moving Flatbed Fixed Array	Flatbed Serial	Flatbed Hybrid Serial	Flatbed Hybrid Serial
Head Supplier	XAAR (1001)	HP Edgeline	?	Dimatix	Agfa UPH	TTEC
Total Monolithic Heads	8/16	3	80-160?	24	8	n/a
Ink Type	UV	Latex	UV	UV	UV	UV flexible ink
Ink \$/liter	EUR45/l	?	?	?	EUR123/l	n/a
Throughput SF/Hour	210/410M2/h	35-70 M2/h	557 M2/hour	20.4M2/hour	44M2/hour	140 Sq/ft/hr
Printable Width	1.25M	2.64M	1.6M	1.2M	2.54M	1.62M
Printable Length	2.5M	Cont.	2.4M	2.4M	4M	n/a
Printable Area	3.125M2	Cont.	3.84M2	2.88M2	10M2	
Acquisition Cost US\$	EUR 500K	\$80,000?	\$1.5M?	?	EUR 235K	\$80K USD
Resolution	360 DPI GS	1200 DPI	1200 DPI	1200 DPI	1440 DPI	1200x1200 dp
# Colors	4	4	4/8	6	6 +6 GS	7
Engine Origin	Own	Own	Own	Own	Own	Own
Max. Thickness	?	N/A	50mm	50mm	50mm	7mm

EP Digital Presses & Highend MFPs

Product	Canon 6000/7000	Xeikon 8000	Nexpress S3600	Xerox iGen3	Xerox iGen4	Xerox Concept 220	Indigo 7000	Miyakoshi MD 1260	Xeikon 3300
Manufacturer	Canon	Xeikon	Kodak	Xerox	Xerox	Xerox	HP	Miyakoshi	Xeikon
Toner Type	Dry	Dry	Dry	Dry	Dry	Dry	Liquid	Liquid	Dry
Throughput Pages/Minute	60/70 Simplex	230 Duplex	120 Simplex	220 Duplex	270 Duplex	>400 Duplex?	120 Simplex	180 Simplex?	60 equiv
Printable Width	330mm	504mm	340mm	364mm	364mm	364mm	317mm	487mm	330mm
Printable Length	487mm	Cont.	504mm	572mm	572mm	572mm	1240mm	Cont.	Cont.
Printable Area	0.16M2	Cont.	0.171M2	0.208M2	0.208M2	0.208M2	0.39M2	Cont.	Cont.
Acquisition Cost US\$	\$150-220,000	\$450,000	\$350,000	\$550,000	?	Concept	\$350,000	\$450,000	EUR 500K?
Resolution	1200 DPI	1200 DPI	600 DPI	600 DPI	600 DPI	600 DPI	600 DPI	1200 DPI	1200 DPI
# Colors	4	4/5	4+1	4	4	4/8	4/5	4	5
Monthly Max. Duty Cycle	300,000	5Mi	5Mi	3Mi	3.75Mi	?	2Mi	3mI	2M/mo equiv.
Remarks	Constant speed at all paper weights		Enhanced Speed For 2009		2009?	Double Engine	From June 2008		New Label Press only