



**COURIER
PRINTING**

A CONSOLIDATED GRAPHICS COMPANY

UNTANGLING THE WEB— PRINTING FROM THE LONG ROLL

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SPECIAL DELIVERY

INFORMATION YOU CAN USE

Here's an homage to the much maligned web press and all of its inherent confusion.

After all, you've been printing sheetfed (the perceived higher-quality format for offset printing) for years, and now a printing guru is telling you that your press run size and page count qualify you for printing from the long roll.

Lucky you.

The thought of taking your magazine, brochure, or viewbook to the web press is fraught with mixed emotions. Moving your magazine over to a web press is almost a sign of maturity for your publication—it has grown in quantity to the point where you can now go to a press check and watch the paper, pages, type and photos whiz by in a highly mechanized multi-colored blur. The conventional wisdom, however, is that you won't get the same quality you've been achieving on slower sheetfed presses.

The overt advantage in the web press is that you are printing faster from the continuous roll—35,000 to 50,000 impressions per hour on most commercial web presses. And you are printing both sides of the sheet at once. Time is money in printing, and the web press holds the advantage here.

But the biggest advantage of printing on the web press is in-line finishing. Printing sheetfed requires rolling the printed sheets over to the bindery to fold them down before stitching. Product from the web press, however, comes off in folded signatures. Not only do you get the speed advantage from the web press, but you save a lot of bindery time.

But, what about the quality issue? What about the impression that web presses are for lower-quality printing and not suitable for high-end print production? Well, as in many things, web presses are made for many different applications, and the quality runs the gamut from low-end newspaper publishing to high-end exacting catalog quality. Before you make a judgment on whether or not the web press is right for your project, here's a primer on the various types and applications of web printing.

Coldset and heatset webs

Printing from the long roll brings to mind those old movies where the newspaper guy wearing a

fedora with a press pass in his hatband runs into a pressroom, newsprint racing through loud machinery, and yells, "Stop the presses!" (That doesn't happen much in the real world, and when it does it costs a lot of money.)

But when you mention web printing, newspaper printing is usually what comes to mind first. And that makes us think of ink smudging on lower quality newsprint stock, and photos printed in low-resolution halftones.

Most newspapers and other publications on newsprint are produced on coldset web presses, where the ink is applied but doesn't go through any kind of drying process. The ink air-dries on the paper's surface, thus the easy smudging of the oil-based ink. While there's a significant place in the world for coldset web printing, however, it isn't of interest to us in this discussion—we need a better-quality application than that.

In order to print high-end, commercial-resolution multicolor work where high-resolution images in multiple layers create ink buildup, there has to be a way to significantly dry the ink. On a sheetfed press, there are mechanisms to accomplish this, including simply running the press slower. But, most multi-unit presses incorporate an oven to aid in drying.

Enter the heatset web press where the printed paper passes through a long oven to dry the ink before it ascends into the folding machinery. When the press is running at 35,000 to 50,000 impressions an hour and some photos contain nearly 300 percent ink coverage in some places (equivalent buildup of all inks totaling solid coverage three times over), the oven has to be very hot in order to dry the inks as quickly as possible. The heat "sets" the ink quickly to keep it from smudging down the finishing line.

Heatset web printing allows for higher-end publications to take advantage of what the web press has to offer. Still, there are things to consider as to whether or not a project is a good fit for the web press.

Haste, or speed, makes waste, and a lot of it...

When a job goes on any press, whether sheetfed or web, adjustments have to be made

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to bring color and quality to acceptable specifications. Densities for all inks have to be adjusted. Plates have to be brought into register. Then everything has to be fine-tuned according to the pressman's or customer's eye. The procedure is called "makeready."

In the case of the sheetfed press, makeready is reasonably simple. The pressman will make adjustments, start the press, allow the inks to even out, pull a press sheet to check things, and shut the press down. He'll examine the sheet, make color and registration adjustments, and start the press again, allowing it to run for a few minutes to let things settle in, and then make another pull, shutting the press down again. The process is repeated until everything is exact. Then he starts the run in earnest.

The waste from makereadies is simply a part of the printing cost, figured into the estimate at the beginning. On the multi-unit sheetfed presses at Courier, the pressman usually runs 200 or so sheets through the press before making the next pull. You can go through a lot of makeready paper to fine-tune color.

Web presses are, however, much more paper hungry by nature, and making adjustments isn't as simple as on a sheetfed press. For one thing, the pressman doesn't shut the press down between pulls—he can't. Every time the press is stopped and started the amount of waste is more than if he simply keeps the press running between pulls. And, at 30,000 impressions per hour during makeready, a lot of paper goes through between adjustments. And, he's going to make several adjustments.

Thus, when an estimator for web printing looks at a job to see if it's a good fit, he's going to weigh a lot of factors in addition to physical fit. Is the job large enough for a web paper order (minimum orders apply)? How much is the projected makeready waste? How much overall savings will there be on the web as opposed to going sheetfed by keeping the job off of a folder in the bindery?

Technology has helped lower minimums in recent years. Color monitoring—like closed-loop color available on Courier Printing's Heidelberg M-600 web press—allows ink fountains on-press to be preset using the plating data from the prepress department. As the paper exits the drying oven, sensors check ink densities and registration on the fly, constantly making adjustments during makeready, and maintaining consistency during the press run. As a result of the automation, the pressman's makeready role comes into play more in fine-tuning the product. Makereadies are faster than ever before, lowering startup costs.

And, with lower startup costs, the overall run is cheaper than in the past, opening the door for more publications to move onto more economical web presses. Thirty years ago, a web-printed publication of fewer than 30,000 48-text-pages was unthinkable. Now, a 32-page 18,000 run is a good fit.

And, the in-line folding advantage many times offsets paper waste during makeready so much that on some multi-signature books (say a 288-page college course catalog with 18 16-page signatures), a web run as small as 10,000 or fewer is more cost-effective than running the project sheetfed—even though the makeready waste exceeds the paper used in good copies. (And for the eco-concerned, have no worries—the makeready waste is recycled.)

Even with those cost advantages, many print buyers still avoid the web press until economics force them to take a fresh look. The perception is still that heatset web presses are inferior in quality to the sheetfed press. And, depending on where you shop, there is some truth to that. But, once again, it's a matter of understanding the specialties involved—whether the quality is publication grade or commercial grade.

Publication grade v. commercial grade

Publication-grade heatset web printers are focused on doing one thing within trade-accepted parameters—many of them doing it well. They produce standard-sized publications (8 3/8" x 10 7/8" vertical-format) only. They offer limited paper stocks in limited grades. They rigidly schedule the work on their presses—if you miss your files-in date and put your press date in jeopardy it may be two or three weeks before they can shoehorn you back into the schedule. Many print four-color publications only.

They do this to master one market. By doing only four-color work, they avoid the requisite press wash-up from job to job. By holding to the standard page size/format, they avoid set-up time on the folding machinery from job to job. By limiting the stocks on their presses, they have two advantages: If they have a huge warehouse, they will stock up in advance on papers they can get a deal on—paper comes cheaper by the truckload if not by the boxcar. If they are well color-managed, the variances in whiteness (whether a paper is blue-white or standard white) won't affect their own streamlined color management.

There are downsides to a publications printer, though. Many I know of eschew color contract proofing—Matchprints®, Waterproofs®, etc. They

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will produce an inkjet or plotter proof (usually color inaccurate) to check their own imposition, and—in the days prior to online soft proofing—would only send out those bound imposition proofs for you to do your final continuity and type proofing. They usually aim for “pleasing” color by both the pressman’s eye and their own “closed loop” densitometer-controlled color. In the case of most publications, the color is just fine for the huge percentage of applications. If you are looking for tight color accuracy, however, they may not be the right choice.

Also, because they eschew tight proof-controlled color-accuracy standards, many discourage press checks. If you have nothing to compare color accuracy against, why not leave it to the printer? Sometimes in publications shops the press check is looked at as a nuisance by the attending pressman. Learning the politics and nuances of communicating color during a press check is important lest the customer get himself into trouble making color moves.

But, just because a publication is on a web press doesn’t mean color quality has to suffer. This brings us to commercial-grade web printers where color control is extremely important. Contract, color-accurate proofs are an integral part of the process and the pressman is adept at making the moves to get the color as close to the proof as he can.

Commercial-grade printers will print almost anything on a web press as long as the job fits the minimum page count and quantity requirements in addition to the size limitations inherent with the mechanical cut-off and finishing specifications of the press. Between jobs, they are constantly re-setting the folding configurations in the folding equipment to fit the many different jobs that run on the press—thus, finishing setups are a part of the usually-higher price. They tend to be more flexible with scheduling, in most cases.

They will run whatever stock the job requires—meaning that while the printer may keep popular stocks in the inventory, your selection of papers is extremely broad and they will order paper when you deliver your purchase order.

And, while many still have the same closed-loop color, densitometer controlled approach as the publication-grade printer, they use those measurements to get the job close to color and rely on the color proofs and pressman’s judgment to nail the color to the customer-approved proof. And, a commercial-grade shop will welcome customer press checks, and usually the lead pressman is adept at listening to the customer’s color judgments and making adjustments.

And then come the caveats...

Even with commercial-grade web printing, there are a few trade-offs to keep in mind. For example, when press checking on a web press, time is paper and paper is money. Makeready paper costs are built into the price, but the amount of paper used to bring color up is a quickly closing window. Color judgments have to be made quickly to assure there’s still enough paper after the signoff to make count. As a result, when press checking on the web press, the customer should understand that the pressman needs to start the counter on saving acceptable copies before you finish your final color moves—when it’s close, but while you’re working on perfect. So, when you get to the point that the sheet looks pretty good—even though it’s not exact—tell the pressman to start the counter. Usually this means that maybe 10 to 15 percent of a finished, shorter run will be a little less than perfect. But things are so close when the counter starts, the layman will never notice.

Another problem with web presses is web growth. This is a phenomenon where sheetfed-printed covers are married to web-printed text, and a few days after binding it looks like the covers were slightly under trimmed, usually by about 1/32 inch. What has actually happened is that the text has swelled slightly after absorbing moisture from the air. The oven on the heatset web is the culprit, sucking the moisture out of the stock, the folded signatures being baled tightly shortly afterward. For ease of handling, the bales are not cut until just before binding. So, the bales are cut, the signatures bound and trimmed, and then the growth begins.

The best remedy to web growth is to print the covers on the same press, but this isn’t always possible, especially on short quantities where the amount of stock falls below minimums or where special coatings come into play only available on the sheetfed press. Sometimes, the better remedy is to recognize that web growth is going to happen and design around it, placing a dark or coordinating color on the bleed edge of text page one, so that when it occurs it’s not noticeable.

Finally, understand that with web presses you are more limited in size than with sheetfed projects. First, the cutoff, or cut sheet size at finishing, is limited by the mechanics of the press. The average cutoff is around 22 3/4". When you figure head and foot bleed into the specifications, this limits the page size to 10 7/8" instead of the customary 11" page size. Reducing the standard 8 1/2" x 11" sheet to accommodate web printing,

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the average web-printed publication measures 8 3/8" x 10 7/8".

Also, with web printing, it's all about efficiency and limiting unnecessary waste. So, when a job with a non-standard page width is estimated and planned, the web printer is going to use a roll width that best fits the job—and the mill will make the paper according to the job. Understand, however, that this is mostly the purview of the commercial web printer since most publications printers limit available size formats to control costs. Also, understand that where non-standard-width rolls come into play, ordering time enters in. You have to think a lot farther ahead with web printing, especially when paper markets are tight and certain stocks are harder to get.

You may be closer to web printing than you think

The caveats to printing on the heatset web have

less to do with color quality than other physical and schedule restrictions. Quality from commercial web printers can be extremely close to sheetfed quality, and in some cases indistinguishable.

At Courier, for example, we once ran a side-by-side comparison, taking a complex color subject and running it on our Heidelberg web on one side of the page, outputting the job to sheets and running them back through our sheetfed press with the same image next to the first. Comparing the two images, most can't tell which was sheetfed and which was web printed—even among long-time printing professionals. And on the day of the test, the web press matched the proof better than the sheetfed press.

Printing a qualifying publication sheetfed because of quality concerns is more and more a questionable judgment where commercial-grade heatset web printing is available. Why spend money you don't have to?

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