Cost-Competitive, Short-Run, Narrow-Web Rotogravure for Publications

K.K. Puri*

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Abstract: The rotogravure printing process is dominant in high-circulation magazines, mail-order catalogues, newspaper weekend supplements as well as advertising leaflets, packaging, and specialty products; because of its "Traditional Advantages" in cost, quality, and delivery. There are only three publication rotogravure printers in the USA and Canada!

Recent, yet proven, advances in both hardware and software-digital Pre-press, engraving and galvanic; Press-A totally integrated automation in controls and drives of a narrow-web press; finishing in-line with zone changes and personalization have created new market opportunities for gravure printing requiring lower entry level investment for a new start-up.

The paper attempts to establish innovative approaches to further enhance the colour reproduction quality on the lowest cost of paper and board; in marketing new products to assist a client's global needs with shorter runs and short lead times. The paper attempts to add value to the importance of print industry and a boom to the suppliers for Offset, Gravure, and Flexo consumables: press, engraving and finishing equipment manufacturers as well as the dynamic software industry for continuous improvements not only for G-7 countries but also for Brazil, China, India, Australia, and New Zealand.

Introduction

A small window of opportunity exists for Offset Printers to profit from the Gravure process. It is also a challenge to Gravure press and allied equipment manufacturers to capitalize in marketing models of entry-level, low-cost Gravure equipment to satisfy a market niché on a global basis. This paper should enable the investment decision-makers to be aware of informed choices about Gravure as an alternate process to Offset. The key to success for the first prototype installation is in defining the real needs of the printer's customer, i.e. overall cost and lead-time reduction without diminishing the quality.

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*Canadian Rotographics Limited

Publication Gravure Market Trends among the G-7 Countries

The Gravure process is dominant in high-circulation (1-million plus) magazines, Sunday supplements, retail flyers, and mail-order catalogues. The process is capital-intensive and requires long-term printing contracts. Out of the 15 consumer magazines in the U.S. 11 are printed by Gravure. There are only three Publication Gravure printers in NAFTA.

In EU Countries, with a single currency Euro, Germany alone has 98 presses, followed by Italy, Netherlands and France, U.K., Spain, Switzerland, Sweden, Finland, Belgium, and Austria. (Source: KBA.) Note: Most innovations in Gravure Technology have come from Germany, Italy, Switzerland, and the U.K.

In the EU Countries there is the challenge of increased capacity due to the installation of very wide 3,600 mm or 143" presses. Some printers are lowering their profits to maintain the market share, but for how long? There could be further mergers/acquisitions. The second problem is the magnitude of investment in new 143" presses with accompanying wider engraving units, may NOT provide sufficient return on investment (ROI) due to the falling demand in printed advertising and the reading habits of the younger generation; and yet to stay competitive the printer is obliged to install "Jumbo" presses.

The situation in NAFTA is a bit different. The three printers: Quebecor World, Inc., R.R. Donnelley & Sons Company, and Quad Graphics, Inc. are also Offset Printers who are cost-efficient, global market/customer-need oriented and are profitable.

With only three suppliers there should be an economic opportunity for a smaller independent Offset/Gravure Printer to best serve the needs of customers for smaller runs 170,000 to 300,000. In EU, 10 countries with 75 million people will soon be joining the EU, and around the globe, lower capital investment in narrow-web Gravure may provide ROI to justify a start-up! Narrow-web Gravure is profitable only in Japan. The entry-level model is a turnkey operation which includes pre-press, press, and finishing but with or without galvanic.

Advantages of Gravure

The advantages of Gravure are superior tone-reproduction & colour-saturation on low-cost uncoated paper with no additivity and proportionality failure, most consistent colour throughout the run, trimming and printed waste during the run is 2-2.5% while Web-Offset is 5.5% (Source: KBA.), it is the fastest process available, is very flexible in pagination and format, has any cut-off, there is a minimum possibility of wrinkles at high speed since moisture is added after drying the ink in each printing unit, it was the first process to introduce total digitalization in colour reproduction, page make-up and pagination; and direct engraving from digital storage devices and also the first process to introduce frequency modulation screens thus increasing fine detail in highlights (1-2%) and reducing tooth –edge effect in text and line drawing, it has lower energy and labour cost compared to Offset, 100% solvent recovery with closed loop system, Web-width of 3,600 mm, more pages for the same fixed cost; whereas Offset 2,000 mm- lower pagination, and finally lower training costs.

Disadvantages of Gravure

The first disadvantage of Gravure is longer lead-time, 8-10 hours for chrome-plated 8 cylinders read-to-print, engraved directly from the digital input of the database, as compared to the same size, 8 Offset plates written by computer. Note: Up to digital contract proofs and pagination, the lead-time is the same for both processes. In a long run, 1-Million plus, the higher speed of the gravure press catches up with the lost lead-time of 8-10 hours; but in short-run, narrow-web entry-level gravure this advantage does not apply.

Secondly, there is extra capital and space outlay for galvanic (copper and chrome tanks, grinding and polishing lathes, overhead cylinder transport system, storage of ready-to-engrave cylinders). To an Offset Industry executive the preparation of the printing surface for Gravure is very involved and backward! To overcome this hurdle, the printer can outsource the galvanic service to a local Gravure Packaging company or a Trade Service House. If engraving in-house, start with only one or two lathes instead of four and for a press run of only 200,000, the chrome plating of the cylinder may not be necessary.

Thirdly, being capital-intensive, the Gravure Industry is controlled by large corporations. The management style is “command & control”; let the market adjust to the Gravure parameters where as Offset/Flexo is very fast to innovate and adapt to the market needs. Also many print buyers, advertising executive, investment bankers, and Offset executives have the impression that Gravure needs a minimum 1-Million run and must have long-term contracts to be profitable! Globalization and computers have made the management of most Gravure companies, large and medium size all over the world, to be extremely responsive to market changes and demands. The management knows that the market will not change to their Gravure plant; instead they have to change to the market in order to be competitive and profitable. One Million minimum run is another myth or half-truth and mind-set!

A study commissioned by ERA in 1986 concluded, “There is no doubt with existing cylinder engraving technology and presses (PONY), Gravure can compete with Web-offset on pagination of 48 pp and above on print runs of 200,000 copies or below. These figures can further be reduced by 50 to 60,000 if no in-house gravure press proofs are required.” (Source: ERA Annual Meeting Elsinore, Denmark, June 4, 1986.) Between 1986 and 2003, all printing processes have leapfrogged in technological innovations. Example, for the past 25 or more years, Dr. Hell of Germany was the only supplier of engraving (EMG) cylinder technology. Now, a new but proven laser technology developed by Max Daetwyler Corp. offers speed and economics to cylinder engraving as an alternative supplier.

Before we get to the economic and technical viability of the model for short-run Gravure let's consider End-user/Reader profile and products in the market place among the G-7.

Demographics

People over 50 years of age are loyal readers. The median age of a *New York Times* subscriber is over 50 Lets not write them off because they have their savings and purchasing power

Baby Boomers, 38-50 years of age, are very comfortable using print but also TV, Cable, Internet, Computers; are competitive, idealistic, the "me" generation.

Generation X – early 20's to mid-30's

Millennials-Late Teens or below – These groups, about 1/3 of the population, find that newspapers and magazines are passé. They trust information over the Internet, Cable, TV, etc. because the information is updated every 2-3 hours. They build portable/parallel careers through the expansion of technology, are cyber literate, are more interested in computer games, chat rooms, information over the web, can read but will not read, experienced the fall of the Berlin Wall, and the school violence. This has very serious implication for the Print Industry.

Products

Out of 15 consumer magazines, 11 are printed by Gravure in the U.S. General interest magazines are declining in circulation and advertising pages are NOT growing. During 2002, the loss of Ad Pages: *Newsweek* lost 15.6%, *The Economist* 19.8%, and *Time* 5.6% (Source: CMR.) *"Talk"* magazine printed by Gravure went out of business. However, magazines with smaller circulation for specialized interest groups, split-editions are growing. To reduce the overall cost of production, these Internet-generation magazines are positioning themselves for the X-Generation with well-researched but short content. The reader can explore content in-depth on the website of the magazine. Another important issue pointed out by Mr. Robert Pyzdrowski, President Operations of R.R. Donnelley Print Solutions, and immediate past President of G.A.A. at the 2002 ERA Annual Conference in Spain: "60% of all magazines at retail outlets or newsstands are never sold. E-Mail is replacing the first-class mail; this is driving up the cost of postage by 40%!! This paper attempts to find a solution to this problem, please see below.

Newspaper Sunday Supplements and Retail Flyers are holding but they are not growing either in numbers or frequency. When the demand is low, the retailer wants to print flyers to boost demand, but when consumers are buying, the retailer still wants to print flyers to increase market share.

Mail-order Catalogues are another story. Montgomery Ward, an icon in the U.S. retailing, is no longer in business. In Jan. 2003, J.C. Penny announced a reduction in catalogue pages and some more job losses! On March 18, 2003, Spiegel, Inc., a very famous catalogue retailer in the U.S., filed for bankruptcy protection! IKEA, Sweden, and Otto Verstand, Germany are success stories for Gravure. They seem to cater to the needs of the X-Generation who are starting their first home to provide quality merchandise at very affordable prices.

Daily newspapers are printed by Offset but could assist in the expansion of Gravure. Overall circulation figures continue their long, steady decline along with a fierce advertising slump. Newspapers in the English-speaking world have dropped one-third of their readers, i.e. X-Generation and Teens! A new generation of free Tabloids for commuters called *Metro* and free Tabloids for special interest groups such as Auto, Employment, Housing, etc. produced by non-professionals have added to the damage. The Philadelphia *Metro* is the No. 1 daily tabloid with a circulation of 158,000 copies.

On March 4, 2003, PLC Publishing of the *Financial Times*, London announced a profit drop of 92%! Ms. Marjorie Scardino, CEO, said, “There is no recovery in sight!” How do newspapers re-invent themselves along with magazines and stop any further bleeding? Another proof of overall decline in print advertising and the falling demand for print is that both Abitibi-Consolidated, Inc., the No. 1 paper manufacturer in the World, based in Montreal and Bowater, Inc., No. 2, based in N. Carolina, USA, had their debt rating cut to Junk Status by Standard & Poor, stating, “Paper prices have slumped more than 20% during 2000 and 2001, low prices that are not likely to increase with more demand during 2003.” (Source: Bloomberg News.) If paper, ink, and other consumable industries including printing machinery manufacturers are not profitable and healthy, the Print Industry could loose further its market share to the Electronic Media!

The Proposal

What innovative tools and approaches do we need to “re-invent” rotogravure and attract the young segment of our population with products that compliment Electronic Media?

(A) Latest Design, Entry-level 9-Unit Gravure Press with in-line Finishing

(B) A new Joint-Venture between Publishers of Newspapers and Magazines.

Latest Design

The new narrow-web press offers an economic opportunity if the cost and lead-time are comparable to Web-offset and is offered along with or without galvanic and engraving equipment to Offset/Flexo printer as a turnkey start-up; as stated earlier the galvanic function can be outsourced. The market potential is worldwide because of the savings in low-cost paper and the fast speed of the new Gravure press. Offset offers Heidelberg DI, KBA's Karat Press, and MAN Roland's Dicoweb "Offset". The narrow-web Gravure presses in Japan are built by Toshiba. Maybe Mitsubishi, Komori, Toshiba and others assess the risk to adventure in the global market with an entry-level prototype Gravure press. One more point, during DRUPA '95, MAN Roland introduced digital imaging Dicoweb "Gravure". The Gravure cylinder was imaged directly from a database and after the press run the image was erased and the same cylinder was prepared to write the image for the next job. Dicoweb Offset is up and running since DRUPA 2000, but no news about the future of Dicoweb Gravure from MAN Roland in Germany. *We came so close to short-run narrow-web Gravure!*

The PONY Press: A narrow-web PONY press consists of only four units and therefore needs only four cylinders. Half of the cylinder width is used to print the top side of the web and then turning the web around to go back to print the bottom side of the web on the other half of the cylinders. The last two PONY presses operating in Switzerland and Germany were phased out in the last 80's because they were not competitive and were designed and built almost 30 years ago. In the new design of a new entry-level Gravure press, the PONY concept is worth exploring. Both 9-unit web and 5-unit PONY are viable by incorporating a total automation in Controls and Drives using AC and shaftless technology, Web guiding and tension conditions, compensation for web stretch and shrinkage, impression systems, doctor blade, cylinder engraving standards for ink coverage and drying, folder and all other requirements for in-line finishing. The parameters are the same as 143" wide presses. Why 9-units or 5-units? The extra unit will apply coating first, selectively on the page wherever colour reproduction is required in order to close and seal the voids in the newsprint…this should further enhance the tone-reproduction and the colour saturation! Offset applies clear coating after printing four or more colours. The challenge to build a prototype for the world market is not only to German and Japanese printing machine manufactures but also to Italian, Swiss, U.S., and Austrian builders.

Presently, the research dollars are flowing into press designs for Offset and Flexo processes. Here is why:

2001 Global Market
Offset Sheetfed = Euro 4.3 Billion
Web-Offset = Euro 1.3 Billion
Newspaper (Offset) = Euro 1.3 Billion
Publication Gravure = Euro 80 Million
Gravure/Flexo Packaging = Euro 800 Million
(Source: Mr. J. Boppel, KBA, Germany)

Gravure has a lot to catch up although it has been a commercially viable process since 1880. It seems that Offset is a giant and publication Gravure is a pygmy! We all know that there is a difference between costs and pricing. Offset Industry leaders claim (private communication) for print runs between 180,000-300,000 Web-offset is 20-30% more cost efficient than the same run by Rotogravure. Taken at face value, the challenge to Gravure equipment manufacturers is that publication Gravure for short-run badly needs 21st Century style automation in designing an entry-level, narrow-web press with in-line finishing and reducing the engraving lead-time from 8 hours to 3-4 hours, so that the cost spread between Offset and Gravure drops 5-10%. This should offer new economic opportunities to Web-offset printers all over the world who are phasing out an old Web-offset press. The cost of re-training a Web-offset press operator for Gravure could be least costly because the Gravure process is so simple and completely automated. The short-run products could be all those products described earlier for city and state distribution, including special-interest short-run magazines.

A new Joint-Venture

Since free *Metro* newspapers, a Swedish enterprise, have proven to be a financial success, in such a short period after the start-up, in major cities in EU, NAFTA, and other countries, the inference can be made that most Metropolitan daily newspapers will be distributed free of charge. A major reason for the success is *Metro* management operates with local journalists and administrators between 50-60 employees whereas *The Los Angeles Times* employs over 1,000 in editorial offices alone. The *San Francisco Examiner* announced on March 7, 2003 that it will go free!

The opportunity may be for both newspaper and magazine (general-interest) publishers to team-up together to insert different magazines on different days in the local daily newspaper and avoid completely the post office; as a start in the metropolitan areas. The household simply pays for the delivery charges to the delivery company. It is not just dumping a newspaper and a magazine. It has to be done in harmony with the members of the household and his family.

Mr. Robert Pyzdrowshi of R.R. Donnelley could trigger exploration and negotiations between the Newspaper Publishers Association and the Magazine Publishers Association under the auspices of GAA, NPES, or TAGA. The idea is to keep Print alive before the young members of the family, find homes for the unsold magazines, and keep Gravure presses running!!

For Print to re-invent itself, we need the assistance of global advertising agencies, controlled by the U.S. Media. Most ad agencies advise global brands to advertise ONLY on TV because X-Generation and teens do not read newspapers and magazines. Global corporation who own these brands like to reach the young generation for brand loyalty at an early age. The Print Industry has to convince the global Ad. Agencies that the same TV ad repeated in a daily newspaper or a magazine can effectively increase product market share and product awareness. Here is why:

(a) in the new digital TV technology the viewer can choose to avoid commercials during a move or a pre-taped Opera, etc.

(b) the moment the commercial appears the viewer can switch the TV channel using a hand held converter and there goes a million dollar commercial, whereas a print ad provides in-depth information, stays for a week on the table, and provides a quick reference for a toll-free number or website address.

Conclusion

Electronic/Visual Media is fast becoming a dominant force among the young. Once the youth get loyal to this media, it will cause a further loss in the Print Media! The cost of the Print Media has not come down at the same rate as the Electronic Media. The retention of the subscribers and finding new ones is becoming an up-hill battle, even when the publisher offers 75% off from the price of a single copy or a digital camera, carry-on leather bad, CDs, lipsticks, etc. as free give aways!

As we see it, there is a market need for printed products on low-cost paper with the quality of reproduction that rotogravure offers to a web-offset printer. The short-run products are for large cities, state, or county and are offered along with the magazine/newspaper web page for in-depth quality information. Note: There will be a nominal charge for this Internet service, if offered free it may end up like the dot.coms.

Finally, the promotion of the real and pervasive value of print can transpire if we all became aware of the following:

- Print Advertising – Done the right way can promote greater market-share with or without TV or Internet advertising

- A message for the Parents of children from age 1-17 – For a professional career as a knowledge worker, Print is far more helpful than computer games, chat rooms, or TV soap operas.

- Japanese, Swiss and Germans – Are light TV watchers, look at the innovations and patents issued.

- Total Advertising Budget – Sony Corp. & Nintendo Co both of Japan and Microsoft of the U.S. to promote video games and virtual comics during 2002 was U.S. $1.5 Billion (Source: National Post.)

- Print – Has to promote its value-added qualities in learning and knowledge otherwise millions of jobs around the globe from forestry to delivery could slowly erode.

Like TAGA, Print should survive and Rotogravure can be of help.