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LATEST TRENDS IN NEWSPAPER TECHNOLOGY

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ABSTRACT

Screening technology makes acquainted with the numerous aspects of transforming continuous tone image into printable
As the basic requirements of newspaper industry are paper, ink and Machine.
In this article, I have discussed the latest trend in the machine configurations and basic required properties of Paper, Ink and Machine for the best printability and run ability of Newspaper Industry. In this paper all the latest technologies, new trends and the possibilities of improvement in future are explained.

PAPER FOR NEWSPAPER ORGANISATION

The Newspaper Industries are running paper of 40 GSM and 42 GSM. The Moisture content should be 8% of the web to ensure the no register variation in circumferential and lateral and smooth run ability.

Web tension in the Press has emerged as an especially important run ability parameter.
Fault like holes, splinters or other non-paper components, reel damage, Reel out of roundness, poor winding quality or moisture welt, glue on the face of reel, wrinkles are the common problem faced by the newspaper industries. The quality of Newsprint has improved considerably in the course of time after the intervention of Newspaper Organization demand to reduce the web breaks that causes wastage of production hours and increased the cost of final product.

Different methods for compiling web break statistics were used at the different printing plants visited. The majority of these printing plants compile web break statistics, but the scope of these statistics varies. A problem in relation to web break statistics experienced at all the visited operations is how to motivate the press operators, on whose careful production of the reports (listing reel number, cause of web break, waste volume) the accuracy of the statistics depend.

PRINTING QUALITY

Quality is an important driver of performance. Poor quality severely damages profitability, market value, and Corporate reputation. In an excellent quality culture, quality behaviors are apparent on a daily basis. Employees consider quality when making every decision in production.

As far as quality in the Newspaper industries are reflected by the Grey Tablets that are printed at the bottom of every page of the newspaper. The operator has learned to print with the matching of grey bar. Human eye is a very good discriminator of color and can immediately spot the difference between two colors placed side by side. But human eye finds difficult to discriminate between colors that are shown one by one. That's why we have a 3-color gray bullet and a single color gray bullet side by side. A slight increase in density in any one color immediately affects the hue of the gray and we can spot immediately by the difference between the 3-color and 1-color gray. If we run the standard density values provided for the gray, we'll automatically achieve excellent gray balance.

Generally all the Newspaper organization has set the Dot Gain to 26%. It ensure that if we run the prescribed densities of C, M, Y & K, then there will not be any printing defect in the printing and the colours in the pictures shows the entire colour gamut as per the quality drawn in respect of paper, ink and machine.

Latest standard of Print Quality in Newspaper Industry:-
The ISO 12647 standards

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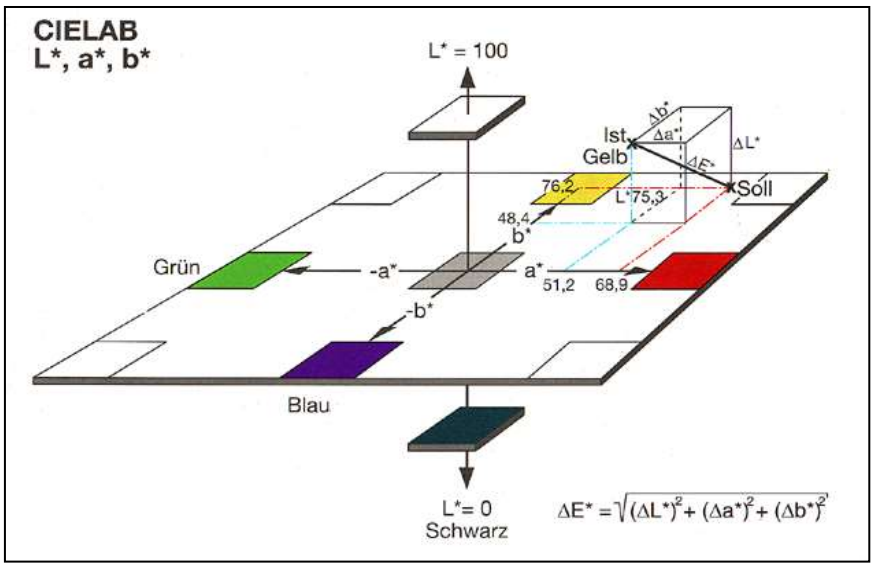
- ISO 12647 – 3:2005

Coldset Offset Lithography on Newsprint

Paper according ISO 12647

Newspaper **L* 82 - a* 0 - b* 3**



Tone value reproduction limits

- **Printable tone range (visual only)**
  3% to 90% (newspaper)
- **Tolerance for image positioning**
  Print register
  - < 0.15 mm

Newspaper specifications

- 100 LPI
- Max tone-sum 240% black min 85% (GCR)
- Dotgain 40% 26 and 80% 14.3

LATEST MACHINE CONFIGURATIONS IN THE NEWSPAPER ORGANISTION AND THE COMPARISON OF 2 X1, 4 X 1, 4 X 2 & 6 X 2 PRESSES & ADVANTAGES IN 4 X 1 PRESS OVER OTHER PRESSES

Here I would like to discuss the different Machine configurations and to conclude that which the best machine configuration for the Newspaper's Organization.

Types of Presses

2x1 : single width single circum
2x2 : single width double circum
4x1 : double width single circum
4x2 : double width double circum
6x2 : triple width double circum

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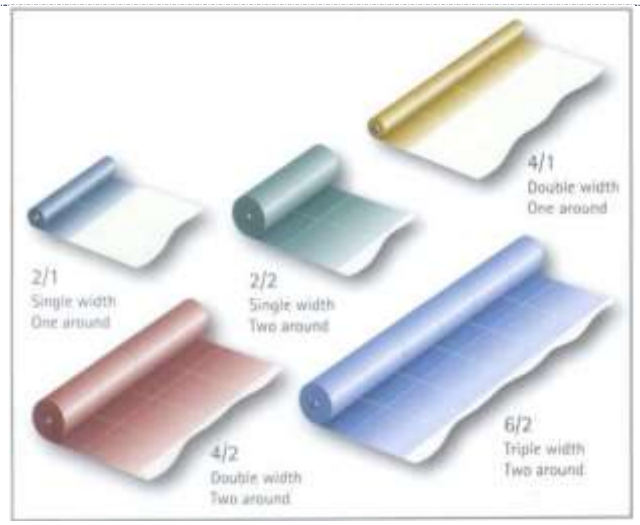
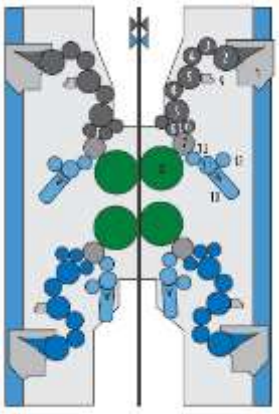


Comparison: Here I would like to show the comparison in between the consumption of Plates. If the Plate cylinder have double circumference then it means more number of plates required for every change over and it takes more time to fix the plates. So in the double circumference there are loss material and time of production.

PRESS TYPE	2/1	2/2	4/1	4/2
PLATES PER TOWER	16	32	32	64
BROAD SHEET PAGES PER FULL WEB	4	4	8	8
TABLOID PAGES PER FULL WEB	8	8	16	16

Cylinder arrangement: Machine configuration of 4X1 Press:



Advantages of 4x1 press
Occupies less building space,
Less initial cost,
Saves cost of plates and number,

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Reduces Start up waste,
Less make ready time,
Printing plates can be quickly and easily changed,
Reduces change over time,

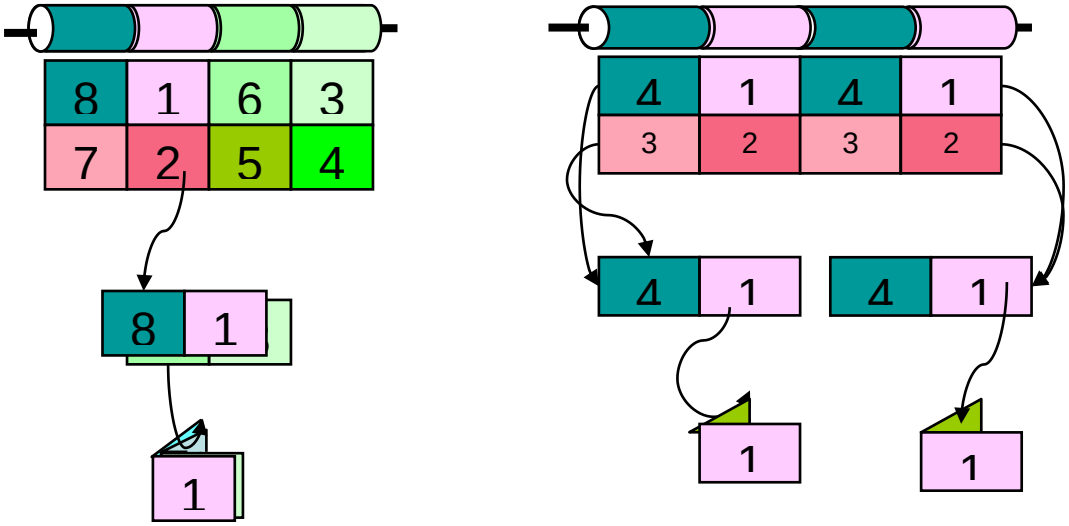
Double-diameter blanket cylinders stabilizes deflection of single-diameter plate cylinders and contributes to high-quality printing

Variable web widths : Depending on the specific configuration, several web widths can be implemented in one system (55", 41.25" , 27.5" & 13.75")

Diverse and flexible press utilization. Best fit for companies where some of their titles have a great number of editions and circulation.

Pagination:
The 4x1 press also provides significant flexibility in pagination and color.

SINGLE & DOUBLE PRODUCTION



Double former
More output in double production (Reduced running time),
Optimum maintenance intervals,
Saves on operation and spare components (Cost),
Reduced energy consumption,
Required less man power, and
Reduced CTP work flow process
For double production & insertion

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ROLE OF INK

Bring pigment to a printable form
Exhibit good flow in the press
Split well in the rollers - inking system, plate Cylinder and blanket
Good adhesion to the substrate
Anchor the colorant on the print substrate
Must set/dry immediately
Penetration and oxidation
Should assist in defect free printing
Roller marks, set-off, show- through
Printing inks can be classified according to its three main properties that are VISCOSITY, TACKINESS and DRYING

These three properties controls not only ease of ink transfer but also the Print Quality

Viscosity
Ink viscosity is the measure of resistance to flow.
Viscosity is also referred as the body of ink

Tackiness
Ink tackiness is that property of printing ink that allows it to stick to the printing substance, most commonly are paper. It also refers as “Stickiness property”.

Stickiness directly affects the image transfer, run-ability and delivery of paper through the printing machine.

In multicolor process jobs tackiness of printing inks plays a very important role as tack can cause adhering or sticking of printing substrate to the blanket of offset machine.

For run-ability of printing, we should decrease the amount of tack on successive print runs to avoid paper picking.

Drying
Chemistry of molecules is totally responsible for extent of drying, further the presence of various salts like phosphate in dampening solution and acidity in paper are also responsible for slow drying of printing inks.

CONCLUSION

To summarize, it can be stated that, the latest trend in the newspaper organization is to get the best efficiency by cutting the cost without affecting the quality and production. The News paper industry requires the machine

which can deliver the good quality product with less wastage, minimum change over time, versatile in the handling different kinds of advertisements or jobs, with less maintenance that can be operated by the minimum staff and with fully automated in terms of ink leveling and auto pasting of reels. That is the reason of research to fulfill the need of this industry.

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REFERENCES

[1] Mechanical properties in the thickness direction of paper, Niclas Stenberg , Coating for performance in print and packaging, page-78. Apr, 2004.
[2] Paper testing and strength characteristic." D.E. Gunderson, Resources, Conservation and Recycling 76, 41-49. Feb, 1999.
[3] Applications of ISO-13660, A new International Standard for Objective Print Quality Evaluation, John C. Briggs, Packaging Technology and Science 2001, Page 207-216.
[4] Measurement and control of the tension distribution across the web in a Newspaper Printing Press, L.G Eriksson, Journal of Pulp and Paper Science 26, Jun , 2010.
[5] Newspaper Recycling, Paul D. Luyben , Published in Journal Citation Reports, Aug ,2012 and Improvement of surface Properties of newsprint, Dr. Y.V. Sood. Research.
[6] The Problems of Newsprint and other Printing Paper, by the Intelligence Unit, THE ECONOMIST, Publication No 594 of the United Nations Educational, Scientific and Research.
[7] Newspaper Production Using Improved Newsprint, Gunner Borg, Innventia and the Swedish Media Publishers' Association Stockholm. Mar, 2010.
[8] Recycling of paper and Bulk Properties recycled fibers L. Silveri, In Proceeding of 92nd Annual Meeting of the pulp and paper Technical Association of Canada , 6-9 February, Canada, pp. A161-A174, 2006.
[9] Handbook in Newspaper Production using Improved Newsprint, Gunnar Borg, Innventia and the Swedish Media Publishers' Association, Atockholm, pp-132-146, Nov,2010.
[10] ISO 12647-3. Graphic Technology - Process control for the Production of half- tone colour separations" and Production prints-part3: Coldset offset Lithography on newsprint Mar, 2001.
[11] Analysis of Newsprint Color Reproduction wit in the Newspaper Association Of America Solid Ink Density and Color Gamut Standard, Dr H. Naik Dharavath, Journal of Industrial Technology, volume 22, Number -4, December 2006.
[12] Handbook of Print Media, Technologies and Production Methods, Helmut Kipphan, ISBN 3-540-67326-1, Springer – Verlag Baelin Heidelberg, New York.
[13] Offset Lithographic Technology By Kenneth F. Hird Goodheart - Willcox Co., 2000
[14] Graphic Technology: Process control for production of half-tone color separations, proof and production prints: ISO 12647-7:2007.
[15] Printing Technology By J. Michael Adams, David D. Faux, Lloyd J. Rieber.