

Variable web widths mean greater production flexibility and are especially interesting concerning the semi-commercial business. In practice, there are various possibilities for their realisation.

More options due to variable widths

Newspaper printing companies are re-thinking their situation. Increasing the level of utilisation of newspaper presses is a precondition for working efficiently. Suitable commercial printing jobs for newspaper-type products that could be used to fill the available production windows are few and far between, so that consideration is given frequently to entering the semi-commercial market. Production flexibility is a basic requirement for success in this market segment – in relation to the materials used, processing, and last but not least, formats.

Consequently, the capacity to process variable web widths is being included increasingly in the specifications for new newspaper presses. KBA puts the share of orders for new presses currently at 40 percent; Goss reports a level of 40-50 percent for double-width presses.

But it is not only new presses that offer this option, it is mostly possible to retrofit existing installations, in which case the amount of labour and costs invested depends also on the desired level of automation.

Convert permanently or flexibly

If the intention is to reduce the web width in order to narrow the format permanently, as is frequently the case in North America (from 50 to 48, or lately also 46 inches), then it is a once-off affair. The press is converted to suit the new format width.

It is a different matter – and this is what we will focus on in this article – if it should be possible to vary the web width on

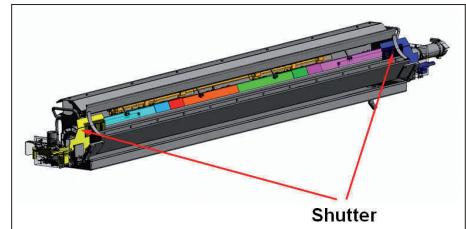
demand – theoretically for every production run.

Cost of the conversion

With single-width presses, the use of variable web widths is a great deal simpler and frequently belongs to the standard characteristics. "The wish for web width variability is even one of the main reasons why single-width presses are bought," says Eric Bell, marketing manager Europe at Goss International.

In contrast, the cost of converting a double-width or triple-width press to a different web width can differ considerably, depending on whether or not the press was designed from the start for a variable web width. Another influence is which particular process is applied, something that in turn must be made dependent on factors such as the number of webs used, the range of variation and frequency of use.

A web width conversion affects all aggregates – from the autopaster to the printing couples and from the turner bars to the folder – and is a lot more costly if this possibility was not taken into account already at the time of buying the press. In addition to the web and ribbon lead, the printing units with inking and damping systems must also be converted to suit the changed width, as the ink zones on the pages are no longer identical with those of the printing couples. Naturally, the entire prepress must also be designed to accom-



The MAN Roland jet damping system with steplessly variable web width uses motorised, divided shutters. These can be closed in the marginal areas, thus avoiding technical printing problems – mainly in non-printed areas.

modate flexible product widths. The scope of what the operator must carry out in the way of manual interventions at the press, or how much can be switched automatically from the control desk respectively, is exten-

"Variable web widths require special control desk solutions to simplify the adjustment of the ink zone values by the printers. These solutions ensure that the printers do not have to concern themselves with any lateral shifting of the pages in relation to the ink zones on the press. But it can be confusing ..."

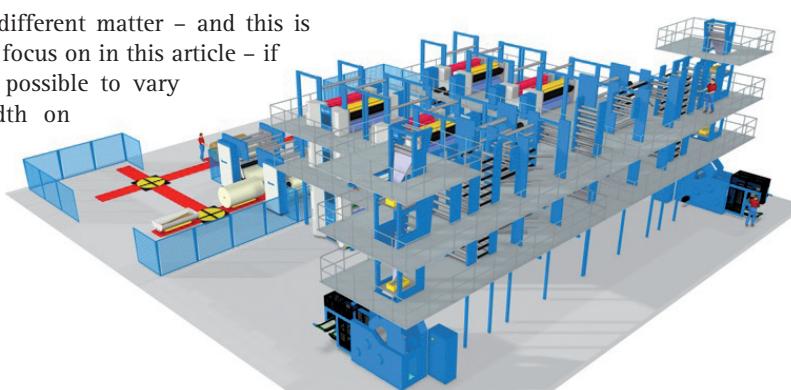
» Stephen Kirk

Head of Print Marketing Division, ABB

sive. According to MAN Roland, every variation is possible between the two extremes, manual and full automation.

Different processes

Newspaper presses are usually built for a specific product format, i.e. the measurements of the newspaper page determine the cut-off length as well as theoretically the web width. The fact that it is nevertheless possible to vary the web widths is due to the developers who have set out to resolve this design-related "problem."



The triple-width KBA Commander press, designed for variable web widths between 500 and 2400 mm to be delivered in a few months to Dansk AvisTryk in Glostrup near Copenhagen, will be exceptionally flexible. It offers unusual technical features, e.g. a single-width superstructure and folders arranged at right angles to the printing towers.

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- » Interview with MAN Roland (5302) and variation comparison (PDF-Download)

The press therefore defines a maximal reel width. In order to be able to process narrower webs, either the webs that are split into ribbons must be aligned with the middle of the former or the formers themselves must be moved together to suit the narrower web width. There are basically at least four different methods in widespread application (setting out in each case from a double-width standard newspaper press):

> Web diverter. The web is cut into two ribbons in the middle after the autopaster and before entering the infeed unit. These are then guided through the press as individual webs and aligned with the former centre in each case.

> Turning in the superstructure. The web is not divided until after it leaves the printing tower. The ribbons are then guided via turner bars to the formers.

> Moveable formers. The formers are moved together to suit the narrower web. The web runs through the printing units in a normal way (undivided) and is divided in the middle immediately before the former infeed.

> 90° turn. Printing unit and folder are not aligned, but instead arranged at right angles to one another (folder or printing units plus autopaster are turned). The web runs through the printing tower, slit, and each ribbon runs via a separate turner bar and aligned individually with the former middle. The formers can be arranged side by side or stacked. This process has various advantages (see page 33).

This EAE control desk (presented at IFRA Expo 2004) is equipped with a variable ink zone keyboard especially for processing variable web widths (as an alternative to the classic ink keys with fixed ink zone geometry). Instead of the rigidly assigned keys, there is a row of light-emitting diodes that show the ink zones of the selected page for the current production. The web width is usually imported from the EAE Print production planning and presetting system that defines the entire press imposition.



Most manufacturers offer the above alternative solutions – with variations – and possibly more.

According to Klaus Schmidt, KBA marketing director, the process of preference in each case is determined largely by factors such as “the frequency of producing with variable web widths, the variance of the required web widths and the number of webs used.” In the past, moveable formers were mostly used in KBA presses, but recently the right-angled arrangement of the superstructure or folder has been growing in importance.

Variable page or plate width

One way if not to eliminate but at least to circumvent to a certain degree the rigid page arrangement of a newspaper press into two, four or six plates across, is to use double-truck plates (or even wider plates respectively) on which a variable

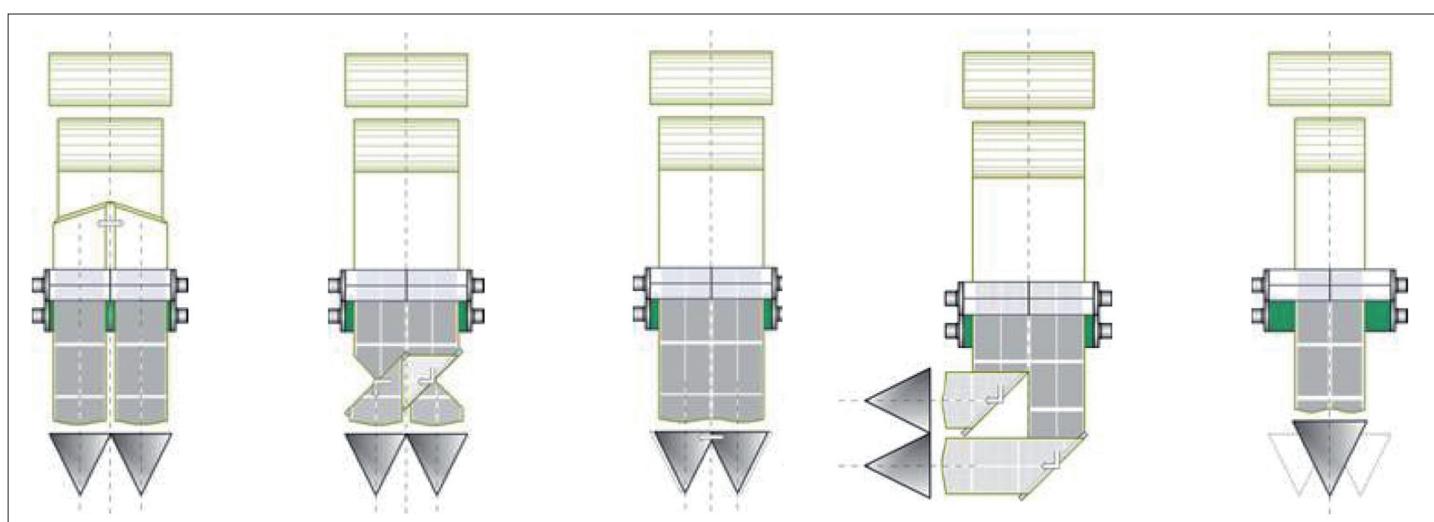
number of pages can be positioned side-by-side. This principle has been copied from commercial printing, where several pages are always arranged on one big plate. It implies that no single pages can be exchanged, only the complete set in all cases.

As opposed to this, there is a significant gain in flexibility in relation to the various formats that can be produced on the same press (see page 32). Another, similar approach is to use correspondingly narrower plates that, taken together, cover the entire width of the cylinder. Naturally, this is possible only if the plate cylinders are equipped with continuous plate lock-up systems capable of accepting different width plates.

The role of the control desk

With a highly-automated press, web width change can be carried out automatically.

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The drawings (source: MAN Roland) show five methods of realising web width variability in double-width newspaper presses (from left to right): web diverter at the autopaster, turner bars in the superstructure, moveable formers, folder arranged a right angles to the printing unit, and an additional former at the press centre for processing part-wide webs (this method reduces the number of pages per web by half).

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Significantly more flexibility with the multi-format press

An interesting and unusual concept for newspaper presses that greatly facilitates working with different web widths has been realised on a KBA Colora press in the United States. Since May 2006, Independent Newspapers in Dover, Delaware, has been printing newspapers and semi-commercial products in a wide range of formats on a flexible-format installation.

Whereas the basic configuration of conventional newspaper presses (2/2, 4/2, 6/2) commits them to a certain number of pages per plate cylinder – a double-width, double-circumference (4/2) press can accommodate four plates (= broadsheet pages) across and two around the cylinder – a press in the multi-format design offers the possibility to freely select the number of pages across as required.



The KBA Colora at Independent Newspapers in Dover, Delaware, U.S.A., is designed for variable formats. It combines the productivity of a 4/2 press with the flexibility of a single-width press. The two folder formers are set at a 90° angle to the direction of web travel.

Thus it is also possible, instead of the usual four pages across the web, to accommodate three wider or five narrower pages. (If one adds the format variations in tabloid production, there is an almost unbelievable range of format variability.)

Before entering the folder, the web is slit into individual ribbons in the superstructure that are then guided individually via single-width turner bars towards the centre of the former folder.

The decisive characteristics

Certain preconditions, not part of a "normal" newspaper press, must be satisfied for this concept to work:

First and foremost, plates must be used that cover the complete cylinder width (possibly only half the width in the case of extremely wide presses). Seamless

says Sam Wagner of Web Offset Service in the United States who was extensively involved in developing the press configuration for Dover.

"The control system is extremely important. Such a press offers enormous flexibility. ..."

» Sam Wagner
Web Offset Service



rubber blankets continue to be used that must be exactly as wide as the plates, as well as plate cylinders with a continuous lock-up gap across the full cylinder

Another press built in the same design is destined for delivery to Dansk Avistryk in Denmark. This is a triple-wide (2.40 m) KBA Commander equipped with four satellite printing towers, two folders (two stacked formers each) arranged at right angles to the direction of web travel and a variable web width between 500 and 2400 mm. It is scheduled for installation in mid-2008 (see configuration diagram on page 30)

"The idea is actually not new, as large-sized plates for several plates have always been used in commercial production. What is new, however, is the application in newspaper printing, especially in conjunction with the right-angled folder arrangement. That is an intelligent solution," says Moritz Schwarz, iMedia consultant.

Potential drawbacks

It should be noted that the enormous advantages in relation to the range of products that can be printed on one and the same press also involve certain limitations or conditions respectively:

The entire prepress infrastructure must be designed for these large-sized plates: imager, developing system, plate punch/bending system and plate conveyor. If several pages are accommodated on one plate, it is not possible to swap a single page, but always only the entire set. For newspapers having to deal with large numbers of jobs and makeovers, this would represent a drawback for time reasons (longer exposure times) as well as due to material wastage.

A subsequent change of a plate belonging to set of colour plates (e.g. the black plate) could possibly lead to register differences in large-size plates due to the differences in temperature between the plates remaining in the press and the new plate. The control desk engineering must satisfy the requirements for processing variable web widths.

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cally at the control desk. It is there that press presetting is done for the new production run and a possible web width change carried out. The settings can be stored for repeat jobs.

"Whether it is plates with a fixed or different width that are used influences the position of the page image on the plate and affects the relationship between the ink keys of the press and the plate geometry," says Stephen Kirk, head of the Print Marketing Division of ABB Switzerland.

"Variable web widths," he continues, "require special control desk solutions in order to simplify the adjustment of the ink zone values by the printers. These solutions ensure that the printers do not have to concern themselves with any lateral shifting of the pages in relation to the ink zones on the press. But it can be confusing if there are in addition control panels directly at the printing units, as these are often of a simpler design and 'unaware' of the web width in current use."

The ABB MPS Control Console uses the production data from MPS Production to calculate the web width used for the product as well as the dynamic assignment of the ink and water keys to the relevant press control components.

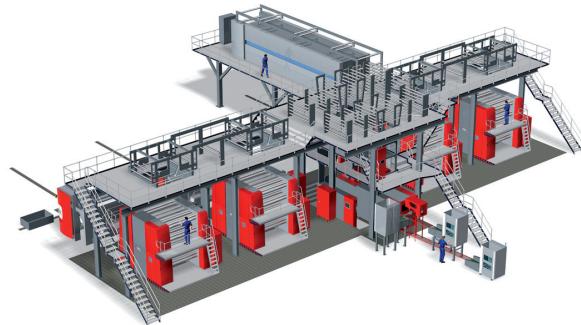
Benefits of a right-angled arrangement

Arranging the folder, or superstructure respectively, at right angles to the printing units is a configuration that is becoming increasingly popular in modern newspaper press installations. This arrangement not only creates good preconditions for processing variable web widths because

The Goss Flexible Printing System- 4/2 and 6/2 in one press

The Goss FPS compact newspaper press is designed with web width variability as a standard feature. To achieve this, the web is divided into ribbons above the printing tower and led through turner bars at right angles to the centre of the former folder. This is facilitated by the 90° position of the printing units (in relation to the folder) that allows a highly flexible turning of the individual webs.

One interesting example for flexible page widths (with unchanged web width) is the planned installation of a Goss FPS at The Free Lance-Star in Fredericksburg, Virginia, U.S.A., which will be used to print various products either with six, 305 mm-wide pages or four 457 mm-wide pages. Therefore the press can be operated in both the 6/2 and 4/2 configuration, where the web width is divided into four, 18-inch or six 12-inch pages. The 18-inch configuration is intended also for semi-commercial production runs (with heatset drying).



Another special feature of the Flexible Printing System is the changeable cut-off. A FPS printing tower consists of three detachable modules: one central module with the plate and blanket cylinders as well as one inking/damping module each for both sides.

Cut-off change is realised by replacing the complete cylinder module with a module equipped with cylinders having a different circumference. But this is highly labour-intensive, so that changes of cut-off are not a feasible option for constant production changes.

the production conditions remain largely constant but also has additional benefits: besides ergonomic reasons (accessibility, short distances), this arrangement can be recommended also for simple integration into limited space conditions in existing press halls (due to the more compact, shorter installation).

KBA Cortina – width variation without changing the printing unit

The KBA compact waterless web offset press also offers special benefits in relation to variable web widths. Klaus Schmidt, head of marketing for KBA, explains the reasons as follows:

"Because the Cortina does not work with ink keys and damping systems, this press is predestined for processing variable web widths. The changeover times for frequently changing or many different web widths are reduced dramatically."

"This is additionally supported by the solution in the turner bar and former area developed by KBA," Schmidt continues. "In this process, the webs are slit after leaving the printing units and the individual ribbons led by one turner bar each to the centre of a former arranged at an angle of 90° to the longitudinal press shaft. An automatic cutting register control installed in the former infeed monitors and controls circumferential and lateral register."

Thus the confined space conditions (in both area and height) were the main reason for the 90° configuration of the double-width MAN Roland Colorman installation that is scheduled to start production in February at the Spanish Artes Gráficas del Atlántico (Editorial Prensa Iberica) newspaper printing plant in Gran Canaria where it will be used to print a number of European newspapers in a wide range of different formats (both broadsheet and tabloid). Four different web widths must be processed every night.

Almost a must for semi-commercial

Although web width variability is not standard in today's newspaper presses, demand is growing as the semi-commercial market grows. The press manufacturers are reacting accordingly and now offer not only suitable solutions for every demand and level of automation, but also retrofit older installations correspondingly.

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