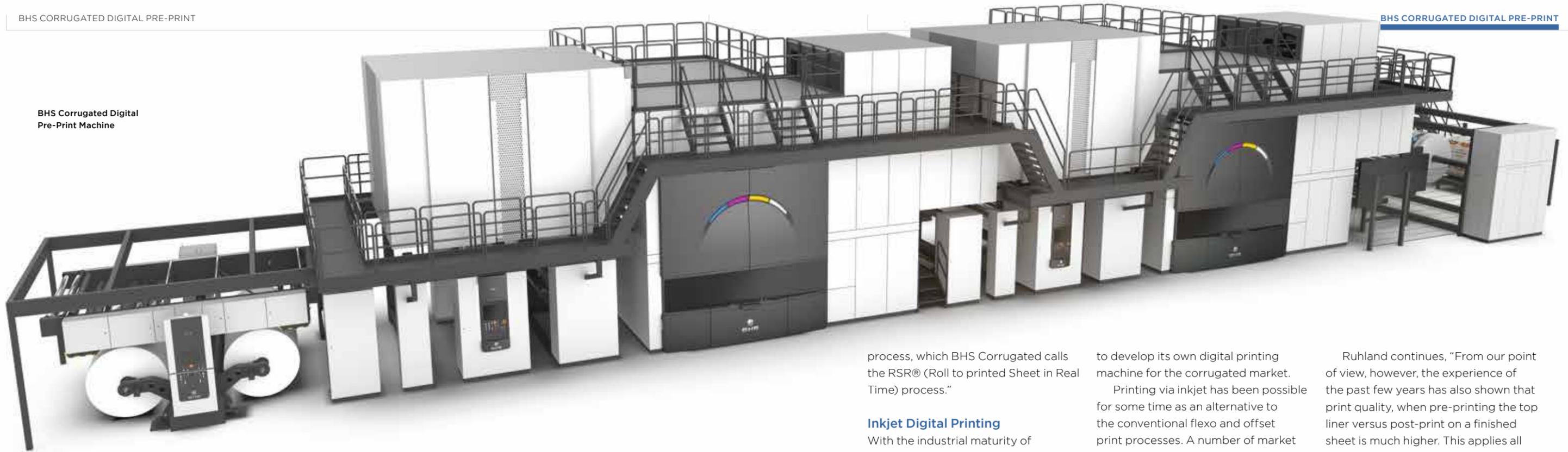


BHS Corrugated Digital Pre-Print Machine



DIGITAL PRINTING IN-LINE WITH THE CORRUGATOR

BHS CORRUGATED WILL DELIVER THE PROTOTYPE OF IT'S DIGITAL IN-LINE PRINTER TO THE FIRST CUSTOMER IN THE 3RD QUARTER OF 2020



Karl Ruhland, Digital Print Research & Development Manager

With the development of a digital printing machine that can run inline with the corrugator, BHS Corrugated has set a milestone in the field of digital printing in the corrugated industry, delivering an integrated technology that could revolutionise the industry.

As a comprehensive global partner of the industry, BHS Corrugated is well placed to develop a solution with which digital printing can be integrated near or in-line with the corrugated board production process.

New Territory

The integration of digital printing with the corrugating process is currently one of the central development projects for BHS Corrugated. "We are entering completely new territory here, both in terms of developing our own new solutions and the current situation on the market," explains Karl Ruhland, Digital Print Research & Development Manager.

According to Ruhland, the corrugated industry is on the move towards digital printing, but almost

solely in the postprint sector, namely printing on corrugated sheets. "Our development project will be the first to integrate large volume digital print into the corrugated manufacturing process. We are taking digital print for corrugated packaging a significant step further in our development work by going beyond reel-to-reel operation and allowing the web to run directly into the corrugator.

"Our vision is the complete integration of the digital printer into the corrugated board production

process, which BHS Corrugated calls the RSR® (Roll to printed Sheet in Real Time) process."

Inkjet Digital Printing

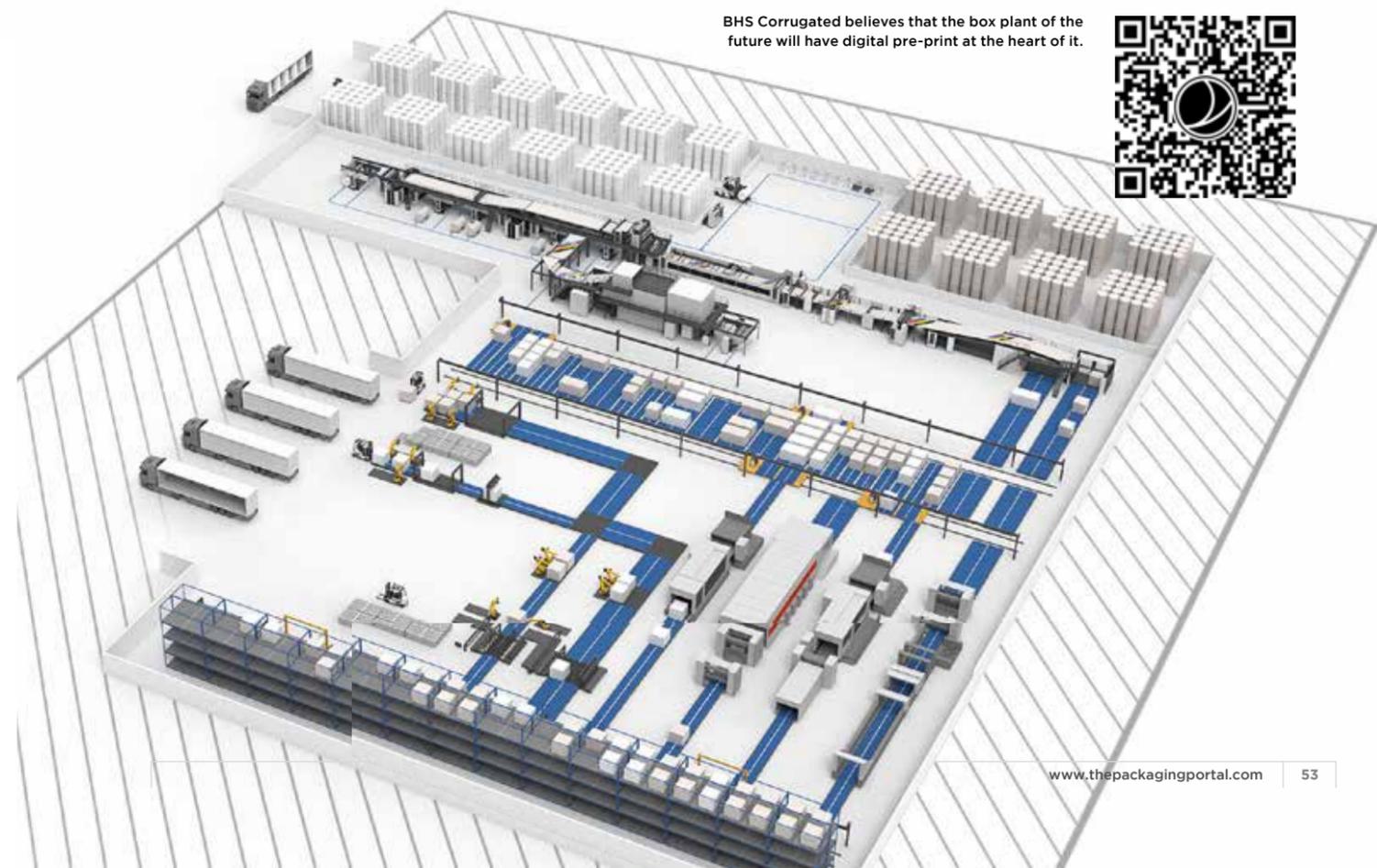
With the industrial maturity of inkjet technology, digital printing is developing into a serious alternative to traditional printing, according to Ruhland and this is why BHS Corrugated took the opportunity

to develop its own digital printing machine for the corrugated market.

Printing via inkjet has been possible for some time as an alternative to the conventional flexo and offset print processes. A number of market participants already offer inkjet printing solutions, particularly referred to as single pass and this is performed directly on the sheet (post-print as we know it).

Ruhland continues, "From our point of view, however, the experience of the past few years has also shown that print quality, when pre-printing the top liner versus post-print on a finished sheet is much higher. This applies all the more to the inkjet printing process, as this works without contact and requires a consistent minimal distance between the print head and substrate. This level of accuracy is only possible

BHS Corrugated believes that the box plant of the future will have digital pre-print at the heart of it.





BHS Corrugated HQ in Germany

“IF WE SUCCEED IN DEVELOPING A COMBINED RSR (ROLL TO PRINTED SHEET IN REAL TIME) DIGITAL PRINTING SOLUTION UP TO SERIES PRODUCTION READINESS IN THE COMING YEARS, WE WILL BE ABLE TO BUNDLE A MULTITUDE OF ADVANTAGES.”

KARL RUHLAND, DIGITAL PRINT RESEARCH & DEVELOPMENT MANAGER

in the pre-print process. By developing the RSR® (Roll to printed Sheet in Real Time) digital printing solution, in conjunction with the strong pedigree of BHS corrugating equipment we will be able to bundle a multitude of advantages.”

One limitation of the analog print process is flexibility. Both traditional printing methods can only process one length of printed image and can therefore only print one job across the entire width. With the inkjet process, on the other hand, the length of the printed image is not decisive; accordingly, the waste can be minimised here in contrast to flexo or offset print and the corrugator works much more efficiently in terms of material utilisation.

With pre- or post-print, flexo, offset or inkjet technology, a wide variety of printing technology is available on the market. While digital printing

currently plays a very minor role in the corrugated board sector, Ruhland believes that its share will increase in the coming years.

“We rely on inkjet technology because, in combination with our RSR® process, it promises the highest quality and individuality of print results as well as maximum process efficiency,” he says. “To date, however, hardly any printing press manufacturer has been willing to invest in this technology, as the challenges involved are technically complex and development is correspondingly costly”.

Important Factors

The BHS Corrugated solution combines the following factors:

- Central advantage of ‘digitalisation’: Unlike conventional printing processes, the digital printing process facilitates a fully digital

workflow from original PDF document input to printed sheet.

- Central advantage of ‘Inkjet’: This technology creates the conditions for each sheet to be printed individually. Variable information such as numbers, names or barcodes can be printed and, if necessary, changed at will.

Reducing the size of the factory

The RSR® process by BHS Corrugated enables an enormous advantage which is the potential of a reduction of space for a box plant. In the course of a complete integration of RSR® digital printing into the production process of Corrugated Board, it is assumed that the required factory space for Greenfield projects can be reduced significantly.

Ruhland adds, “In a corrugated box plant, depending on production output, we have a large number

“BHS CORRUGATED HAS SET ITSELF A TIME WINDOW OF FOUR YEARS IN WHICH TO DEVELOP THE INTEGRATION OF THE DIGITAL PRINTING PRESS AND CORRUGATOR INTO A COMPREHENSIVE SYSTEM UP TO FINAL MARKET MATURITY.”

KARL RUHLAND, DIGITAL PRINT RESEARCH & DEVELOPMENT MANAGER

of converting machines that print corrugated sheets in parallel. In each of these conventional printing machines, there are several printing units. With the integration of a RSR® digital printing press, these printing units would then be completely eliminated, along with the associated lead times and intermediate storage that currently have to be set up because the corrugator is generally more productive than conventional printing machines.”

Moreover it also results in the elimination of the printing plate storage and conventional printing

units in the converting department, as well as significantly leaner inventory management due to shorter order throughput.

Outlook

Ruhland believes it is also clear that coupling the digital printing press with the corrugator risks limiting the availability and speed values for the process flow in the corrugator. “We are aiming for speeds of up to 300m per min with high availability,” he confirms. After the newly designed printing unit goes into test operation at a pilot customer in 2020, BHS

Corrugated will further develop the integration of the digital printing process with the corrugator process into a comprehensive system up to final market maturity.

Ruhland concludes, “the number of companies interested in implementing such a solution is high. This of course gives us additional impetus.” ■



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- Repairs to Wet End & Dryer Section of Paper Machines
- Piping for Steam & Process
- Installation of Generators, Pumps, Tanks, Agitators, Conveyors, Clarifiers, & Heat Exchangers

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