

High Security Printing Solutions

..for banknotes



GOEBEL



Processes

All processes in one pass

- ▶ simultaneous offset printing
 - rainbow technology
 - Orlof technique
 - wet-offset and/or letterset
- ▶ intaglio printing
 - direct
 - indirect
 - Orlof technique
- ▶ silk screen printing
- ▶ flexo printing (varnishing)
- ▶ numbering
- ▶ automatic security numbering and counting

Automatic Processing

- ▶ automatic splice in register with located watermarks
- ▶ automatic security and quality inspection
- ▶ automatic water wiping or paper wiping
- ▶ quick change wiping units for off-line set-up
- ▶ automatic washing devices for blankets, collecting cylinders and stencil plates
- ▶ automatic inking systems
- ▶ automatic register and ink-key pre-setting



non-stop splicer



intaglio printing (Orlof)



Options

Finishing

- ▶ non-stop rewinder for reel-to-reel production
- ▶ non-stop sheeter with absolute accuracy automatic counting for reel-to-reel production
- ▶ single note cutter for off-line finishing
- ▶ automatic storage system for reels
- ▶ automatic pile delivery
- ▶ automatic robot transfer system to BPS (Banknote Processing System)



non-stop rewinder



robot transfer system



non-stop sheeter



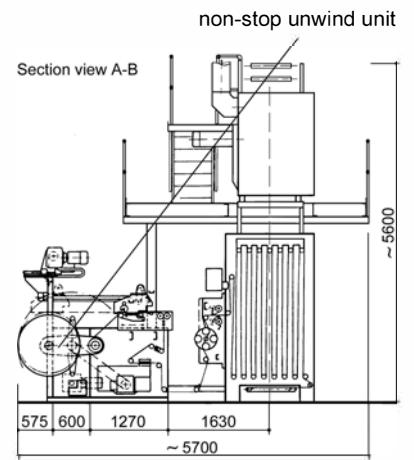
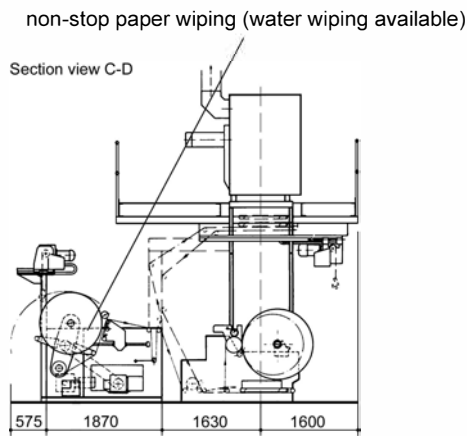
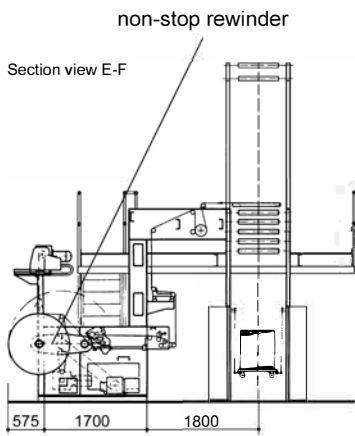
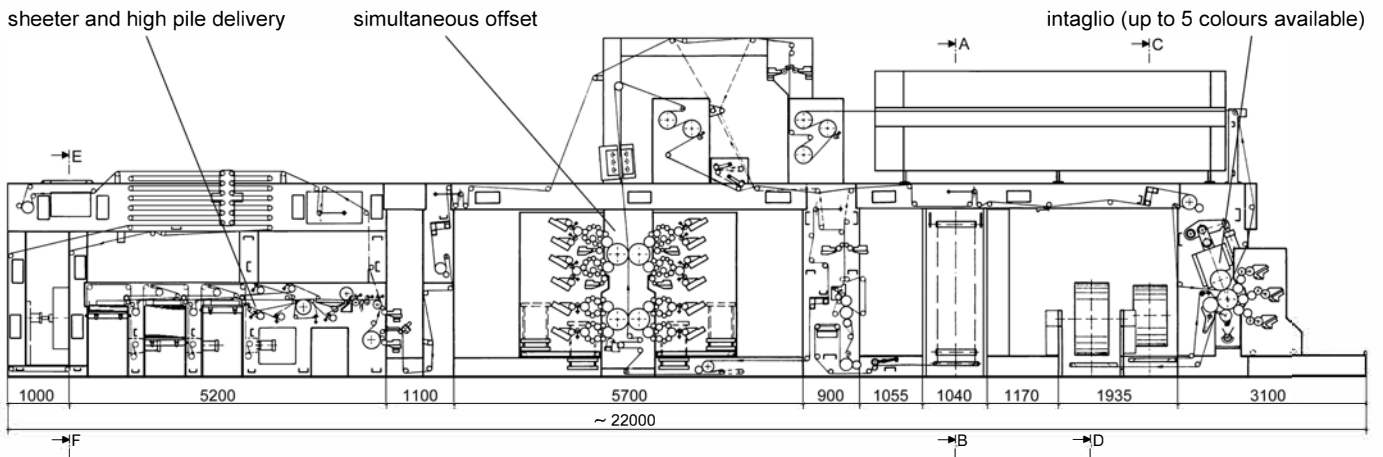
single note cutter

web width (mm)	production time (hours/day)	utilisation rate	banknotes (per year)
520	24	70%	1.250.000.000
680	24	70%	1.700.000.000
1.000	24	70%	2.500.000.000

production capacity



Specifications



Technical Data

web width 520 - 1000 mm
 max. speed 120 m/min



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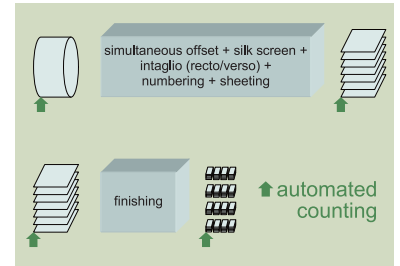
Web-fed Banknote Printing

Significant advantages

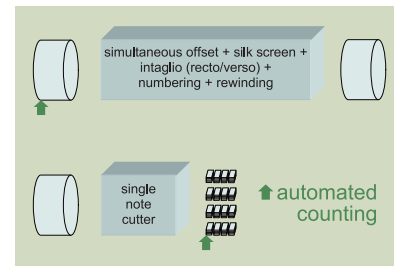
Banknote printing is a traditional manufacturing process with highest volumes of equal products and very long runtimes. These are best requirements for web-fed production. Banknote printing requires latest state-of-the-art security measures in order to protect currencies from counterfeiting. All state-of-the-art technologies, which are applied today in banknote printing, are available on Goebel web-fed banknote production lines. Security in banknote printing is created by combining different kind of highly sophisticated printing and processing technologies, applied on special substrates. In web-fed printing the security level can even be improved, as print-to-print register is perfect between all printing technologies and also recto to verso. Goebel develops very efficient web-fed printing machines for banknote production with maximum productivity, complete cycle security and best return on investment.

All in one pass

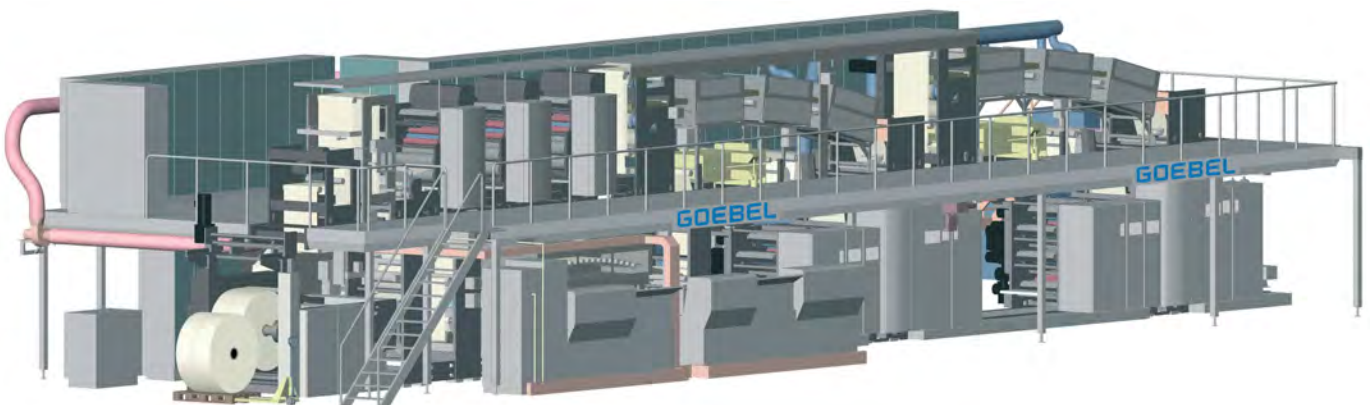
A special feature of Goebel web-fed presses for high security printing is their capability of printing all processes both sides in one pass. The different printing techniques to be applied are determined according to the information content and security requirements involved. Typically, banknote printing will start with a multi-colour background. In most cases, this will be simultaneous offset printing. Security is further enhanced by a special plate design and the option to use rainbow printing for the background. This type of background printing is usually combined with intaglio. Like no other printing process, this technique is suitable for the application of a tangible, multicolour ink layer that can be physically felt, which is achieved by using high pressure and a printing plate or sleeve for deep engraving. The simultaneous printing and embossing process intensifies the relief on the substrate.



option 1



option 2





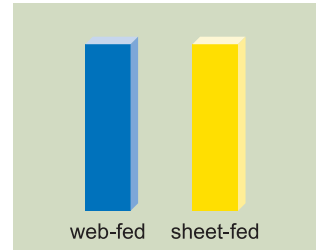
Maximum Productivity – Lowest Cost

Advantages of web printing

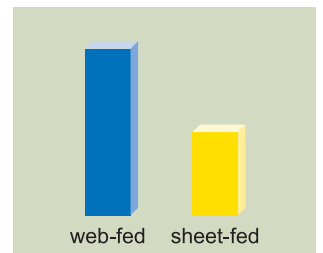
Web-fed production has several decisive advantages over sheet-fed operation. The most important advantage is the clearly higher productivity, with fewer operators on the press and no need for intermediate storage, counting and transportation. The total investment into a web-fed banknote production line is much lower compared to necessary cost for an according sheet-fed banknote line. Additionally the cost of operation is also much lower, because of lower need for operators, storage rooms and counting and logistical services. And the third advantage of web-fed banknote production is an increased security level resulting from the uninterrupted in line production process. All state-of-the-art anti-counterfeiting methods are available. All latest state-of-the-art high security printing technologies are applicable in web-fed operation. Register accuracy print to print is much higher compared to off line sheet-fed operation. Operators work much more efficiently, and less space is required. In general, stock reels are less expensive than substrates in sheet format.

Web-fed functionality

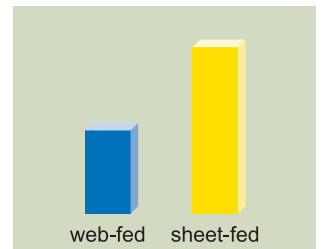
It is not only easier to feed a continuous web through print towers than single sheets, but it is also more efficient. A continuous web is to a great extent self-guiding, as it is drawn by pulling groups and it is under constant web tension. There is no fluttering of sheets. And there is no “trapezoid effect” in intaglio printing, which creates large register deviations in sheet-fed banknote printing. Curling or raising up of front ends of sheets, caused by loss of moisture when drying during the pass from print unit to print unit, is unknown. The web is optimally guided without any negative impact on register colour to colour. In fact higher quality can be achieved in print to print register accuracy, even in intaglio printing recto to verso - “intaglio see-through register”. Print quality is at least the same compared to sheet-fed printing, and register accuracy is much higher in web-fed printing, because of the continuous in line process.



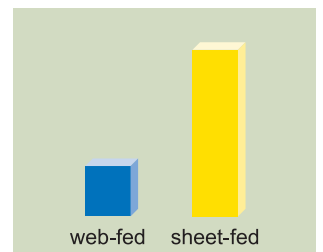
quality



productivity



cost of operation



security expenditures

