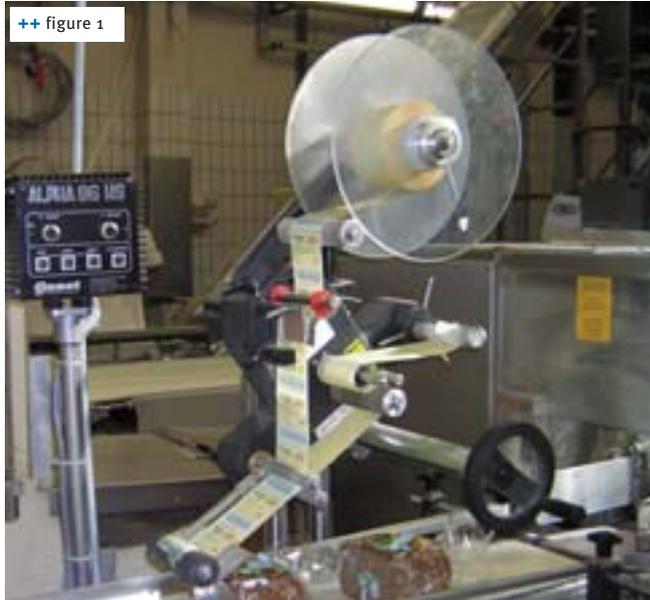


# Harsh conditions

THE ENVIRONMENT IN BAKERIES POSES A SPECIAL CHALLENGE FOR PRINTING CONSUMER INFORMATION ON THE PACKS



++ figure 1  
Alpha 86 label dispenser by  
Bluhm Systeme



++ figure 2  
Linx 6800 inkjet technology by  
Bluhm Systeme

**+** The air in bakeries carries moisture, dust and fat particles – not ideal conditions for the clean application of labels showing batch numbers, dates, times and best-before dates. But it can work, for example in the Landbäckerei Ihle in Friedberg, Germany, there are seven special InkJet printing systems by the German company Bluhm Systeme from Unkel are used to print the required information on the packages in which frozen dough pieces are placed. To prevent flour dust from entering the printing head, a pump delivers a slight over-pressure inside the head's cover to keep the undesired dust particles out.

The printing head is simple in design and sturdy. It has no open parts that need to be adjusted. The design allows clean ink application and minimizes ink contamination. The ink's viscosity is checked at the printing head, because here any change has immediate effect on the printing quality. The time of flight of the ink stream is the important parameter for proper application. Variations in temperature, which are very common in production environments, are taken into consideration to achieve a reliable and uniform printing quality allowing for all circumstances. According to the developers, the physical properties of the new printing head allows a more precise control of the flow speed and droplet formation and thus a shorter time of flight for the ink droplets. The result: a more uniform and pre-

cise positioning of the droplets.

The InkJet printer applies two, three or four lines of text. The standard printing option features up to 16 fonts. A high-performance printing option for high-speed applications is also available. All printers are equipped with two character sets; one of them is a space-saving proportional face. A so-called Linx-Flexi-Font provides for easy adjustment of size and speed of the printed text. The character height can vary between 1.8 and 12 mm, the font types can be up to 34 droplets high, including text, bar code and graphics. The printers can either be controlled via a personal computer or integrated into production control systems. The software enables communication and networking via industrial standard interfaces.

At Ihle bakery, the frozen dough pieces are placed into bags and then coded with ink and in addition two labels are applied to the top and bottom of the bag. A multi-colored, pre-printed sales label (primary label) is applied on the top of the packaging while at the bottom a second label contains variable codes (product name, list of ingredients, best-before date and EAN 13 bar code). The bottom label is printed in real-time and applied.

To master this task, a special system for applying the labels to top and bottom was designed. The top label application is done by a proven label dispenser. The wipe-on unit of the label

dispenser Alpha 86 is located in the center above the packages and is able to adjust automatically to varying product heights excluding any mismatched labels.

The pre-printed primary labels are removed from a carrier belt. A stepper motor makes sure that the label is positioned on the packages precisely where it should be. Application errors such as double labels or skipping a product are excluded. The labels on the reels can be rolled up facing either the inside or the outside.

Adjustment at the system is done with one flick of the wrist. The maximum label passage width is 300 mm and the label length can be adjusted from 8 to 1,000 mm. The drive is infinitely variable up to 60 m/minute. Thanks to the strict separation of label dispenser and control, the unit requires only a little floor space and facilitates integration into existing production lines. The basic set-up is symmetric thus allowing use of the dispenser in the left and right version.

The labels at the bottom are printed by the thermo-transfer and thermo-direct printer

and applied by a fully automatic label dispenser. This printing module is equipped with an extended wipe-on unit which applies the labels, printed in real-time, to the bottom of the packages.

With this technology, up to 40 packages per minutes can be labeled. The printed label is removed from the carrier belt immediately after printing, taken over by the dispenser's stamp by vacuum and then blown onto the passing or standing product via air jet. The preciseness of positioning of the labels is about  $\pm 1$  mm.

To improve adhesion of the labels on the different and irregular package surfaces, a pressure system is provided. The pneumatic drive of the dispenser's stamp was designed considering all criteria related to safety at work so that no additional protection measures (e.g. protective grating or housed-in stamp) are required. The dispenser's stamp retracts immediately upon touching an obstacle. This label dispenser system is used to label up to 30 different products each day. +++

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