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IT IS DOUBTFUL THAT SHAKESPEARE'S PLAY WAS THE BASIS FOR THE CONSTRUCTION OF THE NEW ROLLS PLANT "EVOLUTION" BY KEMPER



Nevertheless, the resulting equipment which is now in operation in the Schneider bakery in Elsdorf situated between Cologne and Aachen in Germany is remarkable. The general difference between the new line when compared with all other roll plants from WP/Kemper is the high degree of flexibility and the upgradeability.

Up until 2007, the Schneider bakery used to be a typical German bakery with 27 outlets but that was before it was taken over by Wilhelm Kühne, Andre Kunkel and Jörg Aprath. The three men had previously been working in management positions in the chain bakery Kamps: Kunkel in distribution, Aprath in controlling and Kühne in production. The expansion of the Schneider bakery was target oriented and the number of sales outlets was increased to 56, with 11 of them situated at supermarket entrance areas. Rhenish-style hard rolls are key products and added to this are numerous specialty rolls such as the so called 'cluster' rolls. These are sweet buns that are placed close to each other on baking trays and during proofing and baking they adhere to each other. In total, about 100,000 rolls are produced in the bakery each day although at the weekend the number may rise to 140,000 pieces. The production runs seven days a week with the dough being allowed a long floor time. The rolls made up over the day are refrigerated until they can be transported to the outlets. The dough pieces are placed on special boards which are able to maintain their temperature during the transportation in non-refrigerated trucks.

The sales persons in the outlets then take the pieces from the refrigerated storage and bake them upon demand in the in-store baking ovens. The process of long chilled floor times is basically an easy method. The sales personnel are trained in order to correct any possible minor deviations. According to Kühne, the new rolls line has reduced the manual work in the production department significantly. About 80% of the rolls are made on this line which is operated by four persons. Their most important task is to position the boards at one end of the line and to remove them at the other end. Kühne deliberately decided against automation of this step in order to provide for a visual final control in production. Production of the rolls on the new line has reduced the required production time and eliminated the need for night shifts.

The new rolls line by Kemper was named "Evolution" because it will not only grow with the bakery's development in terms of capacity and performance but also in terms of variety. Due to its modular design, it can be expanded to yield higher outputs. The proofing cabinet, for example, can be opened at certain points, expanded by one or more modules and then put back into operation after the transport belts have also been enlarged. Expansion can be performed within a few hours because the modules and joints can be prepared in advance. Kemper equips its proofing cabinet with a UV degermination. Alternatively, infra-red degermination is possible. The proofing cabinet is available as an Evolution



++ figure 1
Evolution – The new modular roll line by Kemper



++ figure 3
Dough divider with transparent dough funnel

++ figure 2
One important feature is the positioning of the boards at one end of the line and the removal at the other end

compact in a split version for e.g. 6 minutes proof time followed by stamping and then another 6 minutes of proofing, or it is available as a continuous version called the Evolution line. The proofing troughs are not lined with felt as is usual but rather with gauze. The fine fabric is less susceptible to mould and can also be changed at any time for cleaning or replacement. The new doors of the proofing cabinet are also remarkable. They are pushed with special sealing against the frame. This is different from most other roll plants where the doors are designed as sliding doors which are much more difficult to keep clean.

Modular design is also a key word for all make-up tools. All modules, whether for stamping (the selection of stamping patterns is almost infinite), slashing, sprinkling or the different ways of sheeting (baguette sheeting, coiling, rolling and folding for hot dog buns or vertical pair of rollers) can be easily exchanged, replaced or added.

Upstream of the line, there is room for an optional dough divider. At the Schneider bakery, this is a six row Softstar

which scales and subsequently moulds 2,400 dough pieces per row. Of course, other dough dividers can be integrated as well. One example is the Softstar plus with a maximum of 16 rows and a capacity of 3,000 pieces per hour for industrial production, or the Quadro or the Tewimat. The Softstar also features a number of new details. The dough funnel is no longer made from Teflon coated steel but rather from plastic materials which can be oiled if necessary. The opaque plastic allows the filling level to be seen from the outside. This dough divider is a piston machine where the dough is sucked in, while at the same time, blades at the edge of the suction chambers divide the dough. No more pressure is applied at this stage. The standard Softstar dough divider is offered for three weight ranges: 25-60g, 40-80g and 55-140g while the Softstar plus features a multi-measuring piston which is able to handle weights from 25 to 140g. After scaling, the dough chunks fall into the moulding drum where moulding speed and with this the degree of moulding can be infinitely adjusted via the controls of the outer and ►



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inner moulding drum. Here, the dough pieces are either sprinkled with flour or flushed with air. For the processing of very sticky dough, it is recommended that the division piston is oiled in order to prevent the dough from sticking.

From here, the dough pieces are then moved either into the proofing cabinet or via bypass directly to the module responsible for the retraction of the boards. An adjustable

stage can be integrated to ensure that the dough pieces are turned around so that the seam points upwards.

Wherever the dough pieces are transferred from one module to the next, their position is corrected so that the dough pieces are finally arranged in neat order on the boards. Different density patterns can be programmed. Wilhelm Kühne appreciates the level of quiet that the Evolution has introduced into the production due to the elimination of a lot of the manual work. At the same time, the line provides for expansion of the production capacity, if needed. The three managers at the Schneider bakery plan to increase the number of sales outlets to between 70 and 75 within the next few years.

Interview with Adrian van Dillen, managing director production and technology, and Ken Weekes, product manager roll lines, both at Kemper.

+ bbi: What kind of bakeries did you have in mind when you developed the Evolution? Who are the target groups?

+ van Dillen: We focus on innovative and successful bakers with whom we all can grow. We have discussed the needs of these bakeries and come up with a modular design – a toolbox from which to choose so that growth rates are realistic and on a controlled basis with discussions between the bakeries and us.

+ bbi: Ultimately do you think you will come up with what we call in Germany 'eierlegende Wollmilchsau' – an all-round talent for everything?

+ Weekes: Not at all! We are talking about a reasonable and controlled expansion of the line. The Evolution is already highly flexible due to its modular design. However, nobody can foresee the trends for the rolls markets in the years to come. Therefore, we are not only open for extension in terms of suitability for the ranges to be produced but also for technical developments in the future.

+ bbi: What kind of technical developments are you thinking about? Could you please give us an example?

+ van Dillen: Let's take cutting technology. Currently, we are using sickle-shaped blades just as we always have, but there are different cutting technologies available, for example with water, ultrasound and many more. We monitor development, we constantly conduct tests and if, one of these days, a sensible alternative comes up, we will think about whether we will offer it or not. Our goal is not to offer everything possible but rather to drive through development in cooperation with our customers. The bakers keep up with the consumer and consumption trends while we are closer to the technical development.

+ bbi: What are the limits of your approach, for example, regarding dough hydration?

+ Weekes: This cannot be depicted in figures. A line, as the one available in the Schneider bakery, can be easily used with German flour with 65% dough hydration and when using American flours even up to 68%. When replacing the dough divider Softstar by Quadro, the dough absorption can be significantly increased. At the same time, it reduces the weight preciseness for such types of dough that have been subjected to prolonged batch proofing prior to portioning. The limits can only be determined based on the targets and specifications that the bakers define.

+ van Dillen: Naturally, the change-over times also play a role here. The combination of the line with different dough dividers and modules must also be reasonable in this context. It is like a puzzle where all parts have to fit.

+ bbi: Can you image increasing the weight ranges?

+ van Dillen: Certainly! Currently, we are experiencing the trend towards smaller products with piece weights of 15g instead of 25g. Alternatively, a product with a weight of 200-250g may be feasible if someone has the market for it. However, we do not follow every rumor! Our goal is the targeted and controlled further development.

+ Weekes: Combined with a Tewimat dough divider, I could image the Evolution being used in pizza production.

+ bbi: Let's get back to the modular design. Will this make the price of the line more economical? How about delivery times – will they be shorter?

+ van Dillen: Compared to common lines, the investment is less and we are striving for a delivery time of less than four weeks.

+ Weekes: The modular design of the plant allows us to produce modules. In this way, we are of course much faster in delivering a line in the specified configuration.

+ bbi: Gentlemen, thank you for the interview. +++



++ Adrian van Dillen



++ Ken Weekes



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