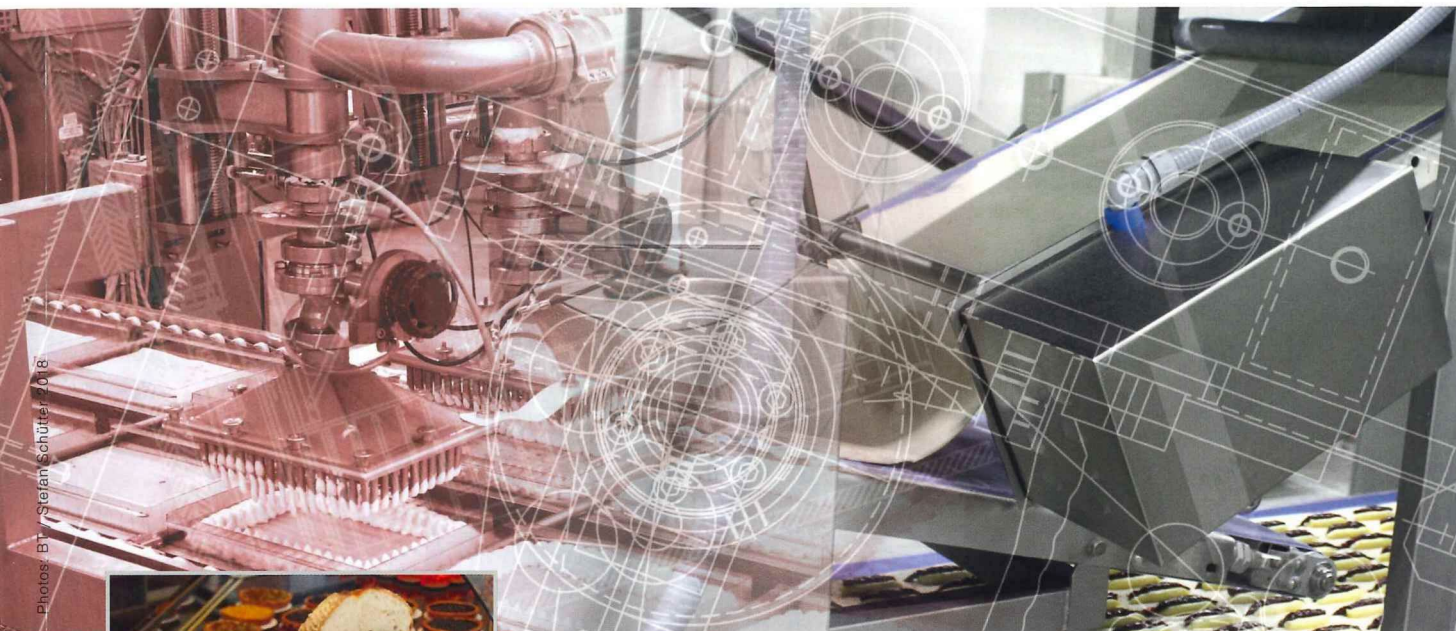


Backtechnik europe

Edition 2 2019

OFFICIAL ORGAN OF VDB AND AIBI



Photos: BT / Stefan Schütter 2018

7KZ58225

Volume 18

ISSN: 1860-7799

Inger Verlagsgesellschaft mbH, Luisenstr. 34, 49074 Osnabrück, PVST



Photo: Trosche 2019



Photo: BT / Stefan Schütter 2019



Photo: BT / Stefan Schütter 2019

08

Technology –
Rethinking
wheat-and-rye bread

12

Production of the year –
High-tech and tradition
at erlenbacher

20

Automation –
The conference of the
Weihenstephan Institute

Various
cooling
solutions from
Debag

page 5

ENGLISH

Für deutsche
Übersetzung bitte
wenden!



WISSEN, WAS ZÄHLT
Geprüfte Auflage
Klare Basis für den Werbemarkt

GOGREEN

Klimaneutraler Versand
mit der Deutschen Post



vdb
Vereinigung
Der Backbranche

High-tech and craftsmanship

In theory, everything is relatively simple. There are on the one side the big bakers - also called the bread industry. The work is largely automated. And there is craftsmanship. Where the work is done by hand. In practice, the matter is not quite so easy to separate. Not least, because there is also wholesale craftsmanship. In particular, one scrutinises the proportion of automation and manual labour. It's not just about rationalization, but also about the question of where manual work actually ensures quality improvement that the customer pays for. Sometimes, fortunately, you do not have to choose one option or the other. It suffices to question the processes that have been cherished for example the production of volume baked goods in many countries par excellence: wheat and rye bread. Read more about the new approach starting on page 8.

erlenbacher, the largest German manufacturer of frozen cake and cream products for the home market, has been doing the balancing act between craftsmanship and high-tech for many years. Responsible for this is not only the production philosophy, but also the love of the raw material. For example, erlenbacher not only identifies the best growing regions for the processed fruit, but also the optimal state of maturity and the most suitable type of fruit. An attempt is

made to keep delivery routes as short as possible by contract cultivation in Europe wherever possible. In addition, the industrial production lines are extremely versatile thanks to many highly variable modules and integrated production steps that employees perform by hand. In this way, the company can react promptly to customer requirements and also quickly incorporate product innovations or current trends into its own product range. While in the meantime generally more versatile industrial plants are in high demand instead of high-performance mono lines, as was also the case at iba 2018, erlenbacher was a long way ahead of the times. For this there is deservedly the award Production Company of the Year 2019 of Baking Technology Europe. **More on page 12.**

You are thinking of the dwindling supply of labour and doubt the importance of manual labour? No problem. Of course, there are plenty of ideas involving automation - from intralogistics to robotic equipment - in this issue, for example in the report on the automation conference of the Weihenstephan Institute for Cereal Research. **More on page 20.**

Enjoy reading
The editorial team



1 In the traditional process rye and wheat flours are kneaded together for doughs for wheat and rye bread. By separating the processing of the two raw materials, significantly better results can be achieved.
2 Automatic multihead scales dispensing the different mixtures of TK fruits into the right portions for the individual cakes. **3** The Automation Conference took place again in 2019 at the TIG of the Technical University of Munich in Freising, immediately after the Spring Meeting.



Managing Director Harald Lochmann in the impressive atrium of the factory with a striking double flight of stairs and the company philosophy on the wall.



High-tech and tradition

At **erlenbacher backwaren GmbH** premium quality products are manufactured with relatively **traditional methods** and **great flexibility**. The company was awarded **“Production of the Year 2019”** by Backtechnik europe for this.

Stefan Schütter

Erlenbacher backwaren GmbH is the largest German manufacturer of frozen cakes and cream products for the catering market. Bernhard Neumeister, Chairman of the Management Board, sums up the philosophy of erlenbacher with a sports metaphor: “There are great decathletes, but there are also specialists for running, javelin and jumping who are better in the individual events than the all-rounders. Accordingly, we have specialised in cakes and gateaux and are better in this field than many others.” The focus is on innovation with stability. Consequently, products that are no older than three years generate more than 15 per cent of the turnover. This includes, for example, the “Triple delight!” product concept with a gluten-free brownie, a vegan apple cake or a spelt slice.

And the standard erlenbacher range is already anything but one-sided – it comprises almost 200 products, mainly tray bakes, round cakes, cream slices and gateaux. The total production range even includes over 500 different items. The items going beyond the standard range are usually special products for specific customers. From a certain production volume, customised branded products can also be manufactured.

Retailers as customers

Sales focus on the food service industry, i.e. restaurants, cafés, hotels, coffee shops and bakeries. “We practically supply all customers in the catering industry. We are not actively engaging with retailers, though, because the requirements there differ greatly and professional users in the

Abstract

With a special combination of industrial production lines and traditional manufacturing steps, erlenbacher has become the largest German manufacturer for frozen cakes and cream products for the catering market. Some of the reasons for success are the high product quality, the meticulous selection of raw materials and the very flexible working methods.

catering market do not have the same requirements as consumers. But we also want to be a quality leader and not a price leader. We also have the objective of being recognised as the number one for frozen cakes, cream products and desserts in the Europe-

Backtechnik-europe

Backtechnik-europe

Production of the year

13

The jury's reasons

Business consultants often advise smaller traditional bakeries to focus on the particularly high-margin areas of bread and rolls. Another frequent piece of advice from the experts is to streamline the range to ideally about 80 items or even significantly fewer. Looking at it that way, erlenbacher has its concept completely wrong. The manufacturer of frozen products specialises in cakes and cream products, which are quite complex to manufacture and involve a relatively high cost of ingredients. erlenbacher also has a standard range of 200 products and manufactures around 500 different items in total. But the company is very successful with this concept and has long since evolved to become Germany's largest manufacturer for the catering market. The products are not sold through price, but through quality, which in this case any business consultant would encourage smaller traditional bakers to do.

To ensure the in-house premium quality, erlenbacher uses its possibilities as a larger player consistently, though. The company spares no expense or effort, for example, and does not only determine the best cultivation regions for the fruit used, but also the optimum ripeness and ideal variety in each case. The objective is to keep the delivery routes as short as possible through contract farming in Europe. In addition to this, the industrial processing lines are highly versatile thanks to the large number of variable modules and the integrated production steps, which employees carry out manually. This allows the company to react to customer requests within a relatively short time and to also quickly add product innovations or current trends to its own range. While more versatile industrial systems are generally more popular on the market now, rather than powerful mono lines, as the iba 2018 showed, erlenbacher was quite a step ahead in this regard. The company already opened the way for the greatest possible flexibility in its own production many years ago. The editorial team of “Backtechnik” magazine therefore selected erlenbacher backwaren GmbH as “Production Company of the Year” in 2019.

All photos: BT / Stefan Schütter 2019

an catering market,” explains Babette Schmidt, Head of Communications. The only exception to the strict focus on food service is the “Erlenbacher Selection” product range for retail, which includes lactose-free cream slices and other products. This product range makes up only a small part of the total turnover, though. Overall, erlenbacher products are intended not as a replacement for in-house products at bakeries, but rather as practical additions to the existing range. “High quality apple cakes with fresh fruit, for example,



1 All doughs and mixtures are produced at the dough mixing centre. The fruit for the lines is also prepared here. 2 A double planetary agitator like this one has a capacity of 600 litres. The photo shows a ready-to-use sponge mixture for gateau bases. 3 To avoid destroying any fruit pieces, the doughs and mixtures are not pumped but moved to an intermediate level in the bowl using a lift. 4 Due to the low height of the intermediate level, special lift/tilt devices are used there to fill the mixtures into the hoppers of the metering systems in the level below.

Advertisement

Cool Technology

slowProofing | Aromatic flavor out of the cooling | Cool proofing process only with **softSteam** | and only available from iceCool...

www.ice-cool.eu/proofing



5 Automatic multi-head scales weigh the different mixtures of the frozen fruit accurately into the correct portions for the individual cakes.
6 Cream slices are manufactured in plastic frames – with different colours for different products – in which the individual layers are assembled.
7 A line of pressure mixers is positioned next to the cream line, providing the product-specific whipped cream for the individual filling stations.
8 To ensure even filling into the corners, the cream is first applied around the edges and then, in a second step, in the centre.

can only be cut properly while frozen. We can do that. This is usually quite difficult for bakeries, though,” knows Schmidt. “Many bakeries never calculate their patisserie products correctly. Due to the special hygiene requirements, the expensive raw materials and the complicated processes, they often end up making no money from these. With our products, on the other hand, they can calculate accurately and focus fully on their core skills.”

Eventful company history

The company was founded by Klaus Fischer in Nieder-Erlenbach, a suburb of Frankfurt (Main), in 1973, and initially only worked to customer orders. The company moved to Groß-Gerau in 1977, and in the 1980s Südzucker AG acquired a 25 per cent share in erlenbacher. In 1998, the company was bought by Schöller Holding, which included different manufacturers for frozen products in Europe

and used to be erlenbacher's largest customer. Südzucker had the majority stake in the holding and in 2002 finally sold this to Nestlé S.A., the world's largest food company. Since 2016, erlenbacher has been part of “Froneri”, a joint venture between Nestlé and the French affiliate PAI partners. Today, erlenbacher exports to 45 countries and achieves about half of its turnover abroad. During a large factory expansion between 2008 and 2011, the entire manufacturing process was restructured to ensure a smooth flow of production. This included the introduction of a zoning concept to prevent cross contamination, new social rooms and the introduction of new cutting and production technology. “In short – we prepared erlenbacher to be ready for the future and today it is certainly the state of the art for the production of frozen cakes and gateaux,” explains Neumeister. A separate mixing centre for dough and other mixtures was also established at that time. One area

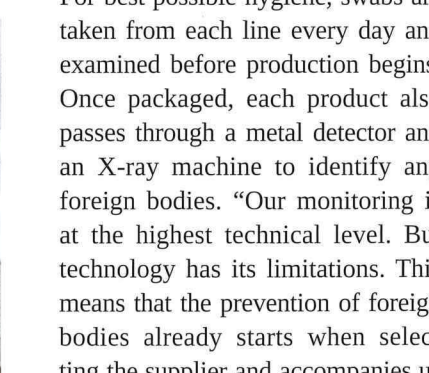
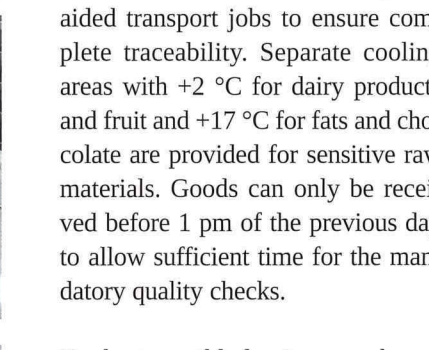
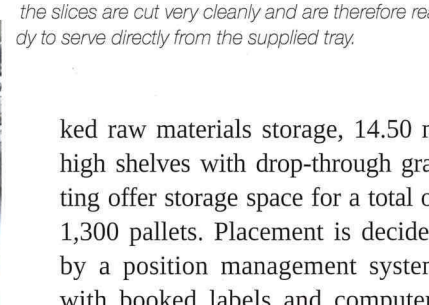
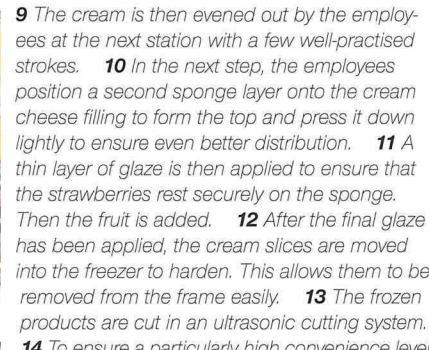
can be separated with roll-up doors to enable processing of allergens with as little cross contamination as possible. Every Monday, lactose-free and gluten-free products are manufactured in the separated area.

To allow for the growing awareness for healthy eating among consumers, erlenbacher already reduced the sugar content in all doughs and batters four years ago. In the meantime, the fat and/or sugar content was also reduced in many other items. All future product developments will follow a “reduced sugar” aspect. The reductions then undergo a product-specific testing process, because taste and technological properties are always the highest priorities.

Highest hygiene standards

A pallet turning system is installed in goods receipt, because only the in-house easy-to-clean hygiene pallets are used in production. At the lin-

All photos: BT / Stefan Schütter 2019



9 The cream is then evened out by the employees at the next station with a few well-practised strokes. 10 In the next step, the employees position a second sponge layer onto the cream cheese filling to form the top and press it down lightly to ensure even better distribution. 11 A thin layer of glaze is then applied to ensure that the strawberries rest securely on the sponge. Then the fruit is added. 12 After the final glaze has been applied, the cream slices are moved into the freezer to harden. This allows them to be removed from the frame easily. 13 The frozen products are cut in an ultrasonic cutting system. 14 To ensure a particularly high convenience level, the slices are cut very cleanly and are therefore ready to serve directly from the supplied tray.

ked raw materials storage, 14.50 m high shelves with drop-through grating offer storage space for a total of 1,300 pallets. Placement is decided by a position management system with booked labels and computer-aided transport jobs to ensure complete traceability. Separate cooling areas with +2 °C for dairy products and fruit and +17 °C for fats and chocolate are provided for sensitive raw materials. Goods can only be received before 1 pm of the previous day to allow sufficient time for the mandatory quality checks.

For best possible hygiene, swabs are taken from each line every day and examined before production begins. Once packaged, each product also passes through a metal detector and an X-ray machine to identify any foreign bodies. “Our monitoring is at the highest technical level. But technology has its limitations. This means that the prevention of foreign bodies already starts when selecting the supplier and accompanies us

DER ANTRIEB

Reliable. Versatile. Global.

NORD
4.0
READY!



THE GEAR UNIT

- Strong bearings
- Quiet running

THE MOTOR

- High efficiency
- Global standards

THE DRIVE ELECTRONIC

- Universal interfaces
- Compact design



Getriebbau NORD GmbH & Co. KG
Fon +49 4532 289-0
info@nord.com

nord.com

through the entire manufacturing process," explains Lochmann. In addition, every product remains blocked after manufacturing until the internal or external laboratory has confirmed its safety. For products containing cream, it takes up to 14 days before they are released for sale. erlenbacher provides an ingredients guarantee for its products.

Best raw materials

All products contain no colourants and no preservatives. "Raw material quality is very important to us, especially when it comes to fruit. We only use fresh apples for our apple cakes, for example. Other fruit is bought frozen, with the exception of yel-

low fruit – which is bought tinned because the quality of frozen fruit in this area is not good enough for us," Lochmann offers an insight into the raw materials selection. To ensure that the fruit does not release its juices, for example, only special varieties from selected countries of origin are used. Depending on the harvest season, the countries of origin can change throughout the year. An erlenbacher employee, who specialises in agriculture, audits the different production facilities and farms for quality assurance, worldwide if necessary. "That means we can influence ripeness directly with the producer. If a plum is too ripe, for example, it releases too much juice when the cake is baked. In these cases, firmer fruit

are the better choice." The strawberry variety "Senga Sengana", for example, used to be the first choice for erlenbacher. It was the only strawberry that was suitable for freezing, and one of the most cultivated varieties in the 1970s. Today, newer versions of the Camarossa varieties are used for cakes and gateaux. "While the Senga Sengana resembled a cooked strawberry after defrosting, a Camarossa comes pretty close to a fresh strawberry." For raspberries, Erlenbacher has chosen the smaller "Heritage" variety with very sweet and fruity berries, which the company used to buy from Chile. "These raspberries only have a very small hole from the hull. This ensures that we get whole fruit on our gateaux, rather than bro-



15



16



17



18



19



20

15 Finally, the strawberry cheesecake slices are manually pushed from the conveyor belt and into the parallel-running folding boxes with great care and precision. 16 The mixing station for the cream only ever produces relatively small batches. This ensures that no leftover mixture remains. 17 These are the very evenly baked sponge bases, which exit from the thermal oil tunnel ovens at the end of line 3. 18 The sponge mixture for the gâteau bases is filled into the tins automatically. The tins are cleaned and regreased in each cycle. 19 For the "Country Bakehouse" products, a topping is added to the shortcrust pastry base. Thus is usually a batter, but it could also be a cream cheese mixture, sponge or cream custard. 20 Even distribution and careful pressing down of the frozen fruit are carried out by hand, which is still superior to any machine for this task.

All photos: BT / Stefan Schütter 2019

ken pieces. We now work with a producer in Serbia who cultivates this variety especially for us in contract farming. This allows us to significantly reduce the transport distances and the eco balance." Dairy products are not supplied as dried powders, which have to be manufactured with great energy input, but as fresh products in containers.

Traditional production steps

"We work just like pastry chefs or ambitious home bakers, only at a significantly larger scale," explains Lochmann. Many stations at the erlenbacher production lines are therefore still manned by employees. Modern technology is mainly used for production steps which are not visible on the finished product. Finishing and applying decorations, on the other hand, are still done manually. "We want our baked goods to look the same, but not uniform." Production is conducted in two shifts. The first shift starts at 5 am and ends at 1:30 pm. After the shift change, the second shift starts at 2 pm with new products.

"Theoretically, anything can be automated, if the production run is large enough. But a traditional artisan appearance can then usually only be simulated. If some products are only manufactured once a month and the lines have many product changes, maximum automation is not very practical." Filling processes or pressing out of moulds, of course, are machine processes at erlenbacher. Robots for placing whole raspberries, on the other hand, would require a highly accurate definition of the processes and this is not possible, as the fruit grow how they grow and are consequently not all the same, explains Lochmann. "To stick with the sports metaphors, we

try to manage the balancing act between degree of automation and flexibility." Accordingly, a cream line produces 200 different products, for example. The mixing station for the cream only ever produces quite small batches, for example with yoghurt, sugar and lemon juice, so only relatively small amounts will be wasted in case of a malfunction. Pressure mixers are then used for beating the cream in batches. Back pressure generated in the machines controls the dwell time of the cream, while the added sterile air allows the desired litre weight to be adjusted. Cream with lower litre weights is particularly light and fluffy, while cream with higher litre weights remains stable for longer.

The variation options for the products on the cream line range from light or dark sponge bases and light or dark cream, items with and without fruit, different edge garnishes and decorations, to items with or without shortcrust base or two to five intermediate sponge layers. The different product sizes also required different shapes, cutting settings and folding boxes. To allow this flexibility, the individual modules on this and other lines are mounted on castors or cradles so they can be moved quickly and easily as required.

Example: strawberry cheesecake slices

The strawberry cheesecake slices are assembled in several steps using easy-clean plastic frames. The employees start by placing a sturdy coated tray into each frame and then the first sponge base. Then the cream cheese mixture is added in two steps to ensure even coverage into the corners. First, the outer edge of the tin is filled with the cream cheese mixture and then the centre. Then the employees use a pal-

let knife to smooth the cream cheese mixture with a few swipes. They then add another layer of sponge and press it down lightly so it adheres better to the cream cheese mix-



21



22



23



24

21 These are the very evenly baked sponge bases, which exit from the thermal oil tunnel ovens at the end of line 3. 22 The "Country Bakehouse Rhubarb & Strawberry" cakes consist of a shortcrust base and a soft filling, decorated with rhubarb and strawberry pieces and sprinkled with almonds. 23 This image shows line 1 running into the spiral freezer. The still hot "Country Bakehouse Rhubarb & Strawberry" cakes are shock-frozen as soon as possible. 24 The packaging department is automated as much as possible. Manual labour is only used where it contributes to increasing product quality.



25



26

25 The transition to frozen storage is also the so-called *i-point*. This is where data is transferred to the inventory management system. **26** A pallet turning system is also installed in goods receipt, because only the in-house easy-to-clean hygiene boards are used in production.

ture. A thin layer of glaze is added to this sponge to ensure the required adhesion of the halved frozen strawberries. The tins with the strawberries added then run through a flood box with glaze, which is added as an even, complete layer. After the final glaze has been applied, the cream slices are moved into the freezer to harden. They can subsequently be easily removed from the frame.

Seven lines in total

The factory is equipped with seven lines in total. Three for baked products, two for patisserie products with cream, one for semi-finished products (e.g. sponge bases) and another one for packaging single packs. Line 1 runs products such as the Country Bakehouse cakes. First, a pre-baked shortcrust is manually placed into the half-round tins. The line then automatically adds the first layer, which is a blended mixture for "Country Bakehouse Rhubarb & Strawberry" and a cream cheese mixture for "Country Bakehouse Blueberry". After this, the frozen fruit – weighed with a multi-head weigher – are metered into the tins and spread evenly by hand. To ensure consistent quality, the tins then run through a belt weigher and

an employee adds a little more fruit if necessary. Line 3, which is used for producing sponge bases, among other things, is equipped with automatic tin greasing, as the tins are washed and regreased in each cycle for hygiene reasons. Lines 1 and line 3 are each equipped with a thermo-oil heated conveyor oven, as this heating system ensures particularly even browning. In addition to this, there is a third conveyor oven with a convection system which, for example, can produce appealing browned fruit tips on apple pies.

From oven to freezer

After baking, the still hot products are immediately transported into a shock freezer. To ensure the best possible quality for the finished baked goods, it has proven successful to freeze these directly from the oven with a core temperature of still 75 °C. "While this uses a relatively large amount of energy, it allows us to ensure the freshness and quality of our products. A cheesecake, for example, would collapse during a longer cooling period. In addition to this, the ageing process starts as soon as the product comes out of the oven. Quick freezing is therefore essential." A freezing technology with high air speed is used to prevent larger ice crystals from forming in the cakes. These would destroy the cell structures in the cake or in the baked or unbaked fruit. Furthermore, the compact spiral freezers are equipped with vertical air flow, a self-stacking conveyor belt, an automatic lubrication system with only a few lubrication points and an energy efficient drive. An automatic ventilation duct additionally reduces absorption of water from the steam emitted by the hot products, limiting energy consumption and formation of ice on the products. The cold is not generated by erlen-

bacher, but obtained from the large cold storage unit at a neighbouring company. In addition, the ovens are equipped with a heat recovery system. The waste heat is used to generate 10,000 litres of hot water every day, which is used for cleaning. The waste water, on the other hand, runs through the buffer basins in the in-house pre-clarification, where solids are separated from the water with a centrifuge. A farmer uses these for generating biogas. Furthermore, erlenbacher has been using certified green electricity exclusively for three years.

Facts

erlenbacher backwaren GmbH

Wasserweg 39
64521 Groß-Gerau
Germany



E-Mail: kontakt@erlenbacher.de
Internet: www.erlenbacher.de

erlenbacher backwaren GmbH
Chairman of the Management Board:
Bernhard Neumeister
Managing Directors: Harald Lochmann and Wolfgang Thul
Marketing and Corporate Communications: Babette Schmidt
Output 2018: 23,000 t/a
Employees: over 600
Flour consumption/year: 2,700 t
Exports: Focus on Europe
Certifications: BRC, IFD/IFS, OHSAS, 14001, 50001, ZNU Standard - driving sustainable change (Food)



Photo: erlenbacher 2019

All photos: BT / Stefan Schütter 2019