

# Automated weighing

At Bäckerei Götz, technology from Daxner International provides dry and liquid raw materials for two receiving stations.

**B**äckerei Götz can look back at over one hundred years of company history at Waldbüttelbrunn near Würzburg in Germany. In 1891, master baker Michael Götz laid the foundation for the company as it exists today.

Wolfgang Götz has been heading up the bakery since 1985. He represents the fourth generation of the family to run the company and for the past two years he has been supported by his daughters Christina Götz, who is respon-

sible for production, and Kathja Götz as sales manager. In 2002, the successful development of the network of shops under the name “Kiliansbäck” and a busy delivery business called for plans for a new production facility at the

Three fermentation containers with shell cooling and a volume of 2,500 litres are available for the wheat pre-dough.





[2] The Dax Dou pre-dough mixer is based on the principle of a continuous flow mixer and is equipped with kneading tools which were developed especially for dough production. [3] Eight silos each are provided for weighing the small components. The ingredients fall through a pipe and directly into the kneading bowl after dosing. [4] After a short mixing phase under ten minutes the liquid yeast is ready to be used and can be pumped into the adjacent storage tank.

current location in Waldbüttel-brunn. Based on the experiences with the previous silo facilities, the owner worked with Daxner International to create a raw material weighing system which was tailored to the individual requirements of the bakery. The main focus was on a high degree of automation in raw materials provision to ensure the quality

of the baked goods and also on a clear structure of the dough production area with particular attention to the essential issues – primarily hygiene.

### Silos

The silo facility, equipped with suction pneumatics for flour transport, consists of four exter-

nal silos with 30 tons capacity each and four internal silos with around five tons of flour each. The containers in the cylindrical silos are welded in one piece using strong aluminium sheet segments. The flour is blown into the silos through a central filling station in the external area and then conveyed by two encapsulated aspirator fans into the two



[5] Liquid yeast (right) and the finished creamy mass made from bread residue and water are stored in the two tanks. [6] Dough residue from production is first mixed with water and then added to the pre-dough mixer. [7] The brine has a temperature of approximately -7 °C so that no flaked ice is required for most doughs.



[1] Large, medium and small components are weighed in a room located directly above the dough production area. [2] All supply lines for liquid components are routed centrally through the wall and enter into the fixed covers. [3] The four external silos with a capacity of 30 tons each can be seen from far away.

Photo: BT / Gregor Vogelböhl

[4]

### Facts

**Götz Brot KG**  
 Industriestraße 2  
 97297 Waldbüttelbrunn  
 Germany

Telephone: +49 931 46941  
 Email: kontakt@kiliansbaeck.de  
 Internet: www.kiliansbaeck.de

Proprietor: Wolfgang Götz  
 Production management: Christina Götz  
 Sales management: Kathja Götz  
 Year founded: 1891  
 Branches: 62 and delivery customers

Employees:  
 Production: 90  
 Sales: 370  
 Administration: 10  
 Logistics: 20  
 Number of vehicles: 20  
 Delivery radius: approx. 100 kilometres  
 Certifications: IFS, Bio, RSPO

weighing containers – each with a capacity of 200 kilogrammes – which are installed in a room directly above the dough production. This is also where dosing stations for small components are installed. They are each equipped with eight stainless steel containers which are easily filled with goods from bags from an access platform with steps and a safety rail. They contain dry ingredients such as salt, raising agents as well as caraway and coriander, the bread spices typical of the Frankenland region. Each of the funnel shaped storage containers is equipped with its own frequency controlled conveyor screw in the lower section. This initially rotates at a higher speed to dose the main amount of the ingredient and then with slow rotations to carry out the fine measuring. The screw can achieve a weighing accuracy of about ten grams. The weighing units described are installed in duplicate and each supplies one receiving station in dough production – one for the bread range and the other for small baked goods and pastries. The dosed ingredients

are transported through smooth downpipes, which offer little surface for dust to adhere, and the fixed extraction hood and finally into the vat. All supply lines for the liquid ingredients such as water, brine, liquid yeast and a creamy mass consisting of bread residue or wheat pre-dough are installed on the cover. The water mixing and dosing system as well as the other storage containers for liquid components are housed in side rooms, leaving the rear wall of the dough production area to look very tidy. All supply lines exit from the wall in one central location which is clad with stainless steel. Only the swivel arm brackets for the two operator touch screens as well as the plug sockets for the telescopic Diosna spiral kneaders are visible on the tiled rear wall.

### Liquid components

At Bäckerei Götz, the room for pre-dough production and storage is located underneath the silo room, directly behind the dough production. The complex, fully

automated plant essentially consists of three stainless steel proving and storage containers and the continuous Daxner pre-dough mixing system Dax Dou. This is used for intensive mixing of flour, water and additional ingredients – in this case the dough residue. The pre-dough mixer is based on the principle of a continuous flow mixer and is equipped with kneading tools which were developed especially for dough production. The mixing tool can be moved out of the housing completely to facilitate cleaning. Wet cleaning is performed using an integrated high-pressure system via high-pressure flat-spray nozzles. A container scale and a differential dosing scale are installed for continuous gravimetric flour addition. The dosing screw attached there continuously supplies the pre-dough mixer with the precise amount of flour and the water is dosed with a flow meter. All systems are monitored and coordinated by the electronic control system. To ensure constantly fermented pre-doughs at any time of year, the double wall storage containers with 2,500 litres capacity each are equipped with a cooling water shell which is connected to a cooling water circuit. This allows precise control of all important dough parameters such as temperature, consistency and proving time using the computer control of the pre-dough mixing system. A durable stainless steel mixer is attached to each of the proving containers. These mix the wheat pre-dough at fixed intervals and also allow processing of pre-doughs with low dough yield (dough yield of approx. 170). The tanks are filled from underneath so that no dough encrustations or flour dust can accumulate in the upper section. Recently Bäckerei



Photo: BT / Gregor Vogelpohl

[5]



Photo: BT / Gregor Vogelpohl

[6]

[5] The large external silos with vibration floor are connected to the weighing units via the pipe system. [6] Caraway is a commonly used ingredient in the Frankenland region – and not only for making bread – and is therefore weighed in the small component system.

Götz has also been processing bread residue into a ready-to-use creamy mass. A special process is used to liquidise the bread residue in the Dax Rex with a minimum amount of water and then crush the mixture in a rotor stator system using a special fine grinding technology. This creates a suspension which can be pumped and will not separate again, greatly facilitating storage in a cooled container.

Daxner International which has its headquarters only 35 km away in Lauda-Königshofen. Not only the close proximity but also the good experiences with the system supplier were crucial to the successful cooperation. Those involved did not simply rest on their past laurels but are always ready to invest in new technical equipment to improve the production process and the quality of the products.

Gregor Vogelpohl

## Conclusion

A tour of the bakery clearly shows that specialists were involved in the planning of the production area. Clear structures were created from raw materials receipt through to delivery and the individual production plants are set up in line. The compact size of the entire raw material supply section is also impressive. It was implemented in cooperation with

## Technology

- four external silos 30 tons
- four internal silos 5 tons
- two identical small component dosing stations
- Dax Dou continuous pre-dough mixer
- Dax Rec for processing bread/dough residue
- Dax Sol brine system
- yeast dissolver
- Three fermentation containers with shell cooling and a volume of 2,500 litres