

Producing a broad assortment of frozen dough pieces

Reliable handling of raw materials with vacuum weighing systems generating very little dust

Consummate quality and flexibility

A maximum of product safety

Compliance with international standards

High plant availability

Production rooms with a minimum of dust

The requirements

- Maximum, consistent quality
- Maximum versatility, on account of at least two new product cycles each year
- High availability seven days a week in 3-shift operation
- Rapid changeover of recipes due to very wide variety of products
- 24h operation demands a maximum of reliability in production
- Little generation of dust in production, resulting in fewer allergies
- Careful handling and protection of raw materials
- Compliance with international standards such as IFS and BRC

The customer

Hiestand, part of the Aryzta group, is the global market leader for frozen baked goods and with 500 different products, it offers the widest range of baked goods. The production site in Gerolzhofen was established in 1989 and has been continually expanded since then. The latest expansion, new kneading lines for making biscuits, was completed with an automatic feeding line for raw materials from AZO.

Hiestand is a pioneer and stands for both tradition and for innovation. The company constantly adjusts

the range of products and services to the ever-changing requirements of customers and consumers and wants to be considered as the best company for oven-fresh baked goods. The baked goods guarantee a real freshly baked treat, made in accordance with methods used by professional bakers and using high quality raw materials, supported by ultramodern technology. The result: the very best product quality and maximum taste.

THE SOLUTION



„We have been persuaded by the quality of AZO's process engineering and the user-friendliness of their control engineering. We feel very well advised and receive excellent service from AZO's main factory and the expert, local sales force.“

Walter Drews, Head of Technology, Hiestand Deutschland GmbH

The task

Construction of a modern plant, based on the latest approaches and findings regarding provision of the raw materials in the production of biscuits: flour, sugar, cocoa and other ingredients. A maximum of flexibility and reliability was paramount. The plant was installed in a new extension to the building.

Other requirements were to reduce generation of dust in production and to comply with international standards and specific hygiene regulations. A separate line for cocoa was needed in order to keep cleaning processes to a minimum.

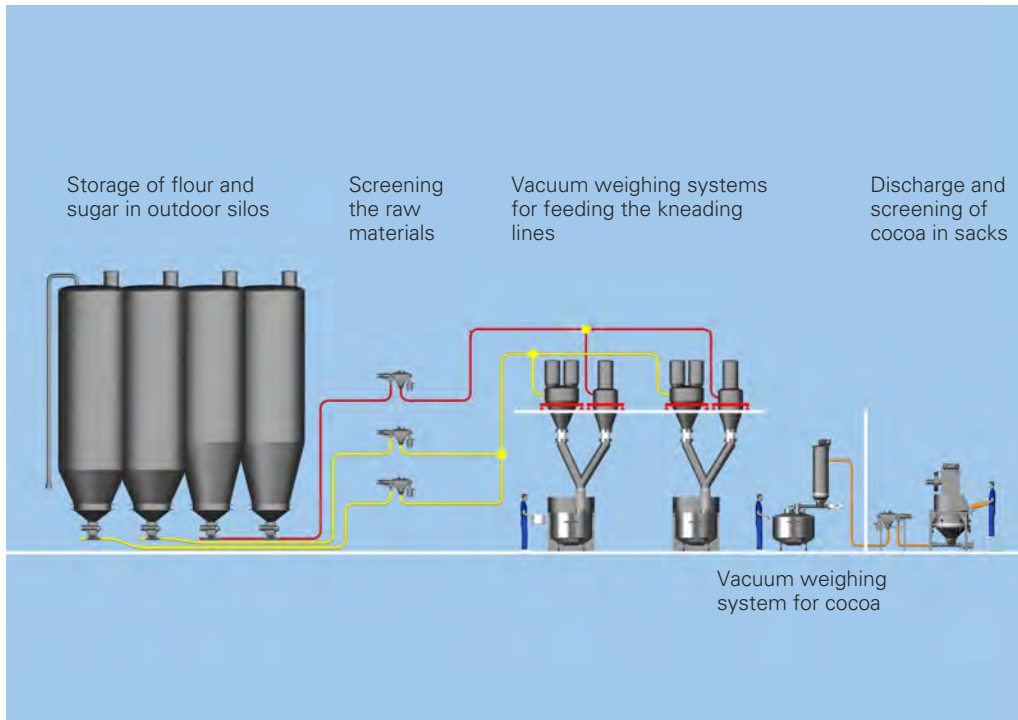
Apart from the process engineering, user-friendly control

of the plant, to include recording of performance indicators and connection to the existing ERP system, was required.

This resulted in an end-to-end solution from a single supplier – one point of contact, few interfaces, no potential for loss of efficiency.

AZO SOLIDS Solution

Product quality and fail-safe production thanks to reliable process engineering and intelligent process IT



Material flow



„We were looking for a partner for raw materials handling who would supply us a total package for the process and control engineering – everything from a single supplier. Another priority for us was a high vertical range of manufacture and uncomplicated, rapid support from the plant engineering and construction firm. That’s why we chose AZO.“

Walter Drews, Head of Technology,
Hiestand Deutschland GmbH

The AZO solution

Delivery and storage of bulk quantities

Four outdoor silos were installed to store flour and sugar. They have been fitted in accordance with the very latest standards, ensure reliable discharge, ‘first in – first out’, and supply the downstream vacuum weighing systems without generating dust. The weighing systems in the silos allow continuous monitoring of filling levels and the built-in

head-room drying prevents a build-up of condensation inside the silo. In addition, built-in explosion protection has been installed in the sugar silos. These silos are fitted with steep-angle cones to improve discharge of products. In order to avoid formation of lumps, conditioned and dried air is used to convey the sugar.

The couplings for the silo fill lines are installed in a closed, central



Coupling cabinet at outdoor silos



Supply of sugar to the vacuum weighing system with conditioned air



Outdoor silos to store flours and sugar

housing. Limit switches monitor the tank truck couplings so that only the silo released by the controls can be filled. Once the high level indicator in the silo has been reached, an alert signal will sound in order to halt conveying. In the case of the sugar silos, pressure is also monitored during filling to prevent accidental destruction of the rupture discs.

„Thanks to the ultramodern outdoor silos, we have acquired additional storage capacity, and with the silo weighing system we know the level of our stocks exactly. Thanks to the “Comprehensive worry-free package” we have a future-proof solution and can undertake standardisation of raw materials.“

Walter Drews, Head of Technology,
Hiestand Deutschland GmbH

Vacuum weighing system – one system, three functions: simultaneous conveying, dosing and precise weighing



Secure feeding of the kneading lines and little generation of dust as a result of vacuum weighing systems

„It is evident that as the inventor of the vacuum weighing system, AZO has the most experience in this field. In addition to the high accuracy in dosing and weighing, we generate less dust during production and have hardly any flour dust allergies any more.“

By separating the lines for dark and light products we save ourselves a lot of time and effort in cleaning and thus improve availability of the plant.“

Walter Drews, Head of Technology, Hiestand Deutschland GmbH

Vacuum weighing systems with minimum generation of dust

The kneading machines are fed via energy-efficient vacuum weighing systems that generate very little dust. There is one set of conveying scales each for flour and for sugar per kneading machine. They are fitted with large filters that are self-cleaning, thus resulting in uninterrupted operation. Due to the partial vacuum generated by the vacuum pumps, the product is sucked from the outdoor silos onto the conveying scales and weighed precisely at the same

time. The valve speed on the silo can be decreased from coarse to fine dosing using frequency converters. This will result in a reduction of feeding in the flow. This makes it possible to achieve very high levels of accuracy when weighing. As soon as batches have been deposited on the conveying scales, flour and sugar can be discharged into the kneader pan without generating dust. Prior to this, the cocoa is weighed using a separate vacuum weighing system and filled into the mobile kneading pan. Other ingredients can

be added manually directly at the kneading machine. Future automation of these raw materials has already been included in the planning.

Discharge of cocoa and ingredients

Cocoa and other ingredients are delivered in sacks and fed into the closed system via a feeding hopper in a separate room outside the actual production area. A choice was made here for a clear separation of the lines in order to keep the effort needed for cleaning to a minimum.



Vacuum weighing system with conveying scales for cocoa



Vacuum weighing systems with conveying scales for flour and sugar



Feeding of cocoa and ingredients with control screening via a separate line

Compliance with IFS and BRC standards thanks to systematic control screening of all raw materials

Control screening of all raw materials in the flow

The raw materials flour, sugar and cocoa are systematically screened using cyclone screeners in the flow. This ensures that no contaminants enter the conveying scales and consequently the kneading process. Any contaminants are eliminated automatically and collected in the coarse material hopper. The screen cylinder and the screen fabric can be inspected via a flap on the screener housing.



Cyclone screener in the flow for control screening of flour and sugar

„As a result of control screening of all raw materials we have ensured that no contaminants enter production and subsequently our products, and we therefore comply with IFS Higher Level.“

Walter Drews, Head of Technology,
Hiestand Deutschland GmbH

Intelligent process IT: Plant controls, recording of performance indicators and connection to a host system

Concept for operation and controls from AZO CONTROLS

In line with customer specifications, the operator terminals are in hygienic design. In the kneading machine area, the kneading pans can be assigned to the correct kneading line at the touch panels using a barcode scanner. Similarly, manual addition of pre-weighed small quantities are recorded and documented with a barcode.

With the process control and visualisation system, the machine operator has a clear picture of the entire feeding process for raw materials both in the control room and from every line PC and can thus control the plant. Thanks to the connection with the host, the AZO controls are sent jobs from

the higher-level PDC system and feeds back the actual data. The integrated tele-service allows remote diagnosis and maintenance of the plant, meaning downtimes are kept to a minimum.

In conjunction with the firm's own data capture system (PDC), the control system from AZO CONTROLS supplies key performance indicators for drill-down into production data and thus allows for ongoing improvement to processes. This is a crucial advantage in view of the broad assortment of products. Thanks to the user-friendliness, acceptance by machine operators on site was soon achieved.



Hygienic design for the operator terminals in the kneading lines

„The synergies realised by AZO really delivered results here especially: process and control engineering – all from a single supplier, with a single point of contact.“

AZO CONTROLS broke new ground for us in this case: decentralised control units in hygienic design, integrated remote diagnosis and maintenance, through to recording of performance figures to achieve peak production.“

Walter Drews, Head of Technology,
Hiestand Deutschland GmbH