Vacuum weighing systems and outdoor silos in the filtration of beer

Operator protection

Closed kieselguhr handling

Continuous high quality

Constant dosing

Less dust more hygiene

Customer

The Karlsberg Brewery GmbH & Co. KG. at Homburg (Saar-Palatinate), the largest brewery in the Saarland, had the following objectives in the automation of its production:

- Less accumulation of dust when opening sacks without cover
- More safety in the workplace and an increase in hygiene
- Uniform quality by excluding errors such as confusion of raw materials, faulty batching, wrong timing - problems which may always arise with manual operation

After a detailed analysis of kieselguhr handling in the filtration sector it was decided to set up an automated AZO materials handling system.

THE SOLUTION

Task

For the Karlsberg Brewery AZO's task was to store the filtering agents coarse and fine kieselguhr, which are delivered in silo vehicles, in outdoor silos and to transfer them to the mixing vessels in exactly weighed quantities. In addition, there should be the possibility to integrate special ingredients in the automated process. The task was made more difficult by the restricted headroom above the mixing vessels.

Outdoor silos for kieselguhr

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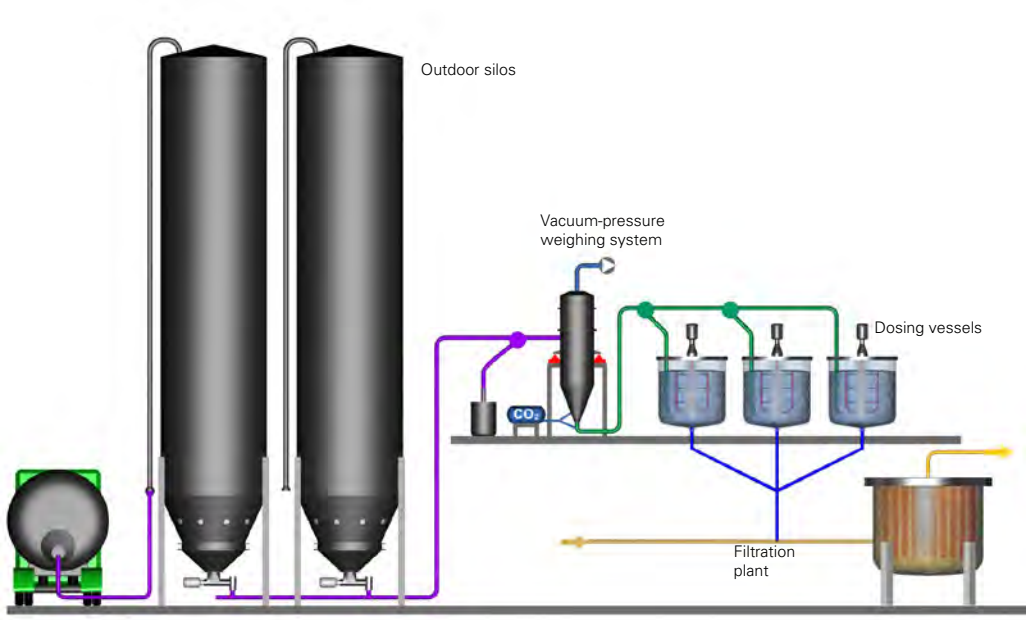
AZO solution



Special advantages

- No more hard graft due to automated feeding
- Enclosed system
- More humane workplaces
- The operating personnel has no contact with kieselguhr and stabilizing agents
- Exactly weighed batches even with high throughput
- Fast and flexible reaction to changes in the filtration characteristics
- No disposal of empty packaging
- Reproducible filtration with documentary evidence

Outdoor silos for kieselguhr

Coarse and fine kieselguhr is delivered in silo vehicles and filled into the outdoor silos with a capacity of 120 m³ by means of pressure conveying. The stainless steel silos are equipped with over- and underpressure valves, filling level indicator systems, filter systems as well as aeration nozzles and vibration bottoms to ensure reliable discharge. Climbing ladders and roof edge railings with walkways are provided for the inspection of the filters and the other super-structures.

Reliable discharge and dosing

Vacuum-pressure weighing systems for batch supply

Coarse and fine kieselguhr is precisely dosed into the conveying line by means of vibration dosing screws. The ingredients are drawn into the vacuum-pressure conveyor scale one after another and weighed at the same time. In addition, it is also possible to draw in special ingredients via a pipe diverter. The gas which is used for conveying is cleaned by the large dimension filter in the conveyor scale and then discharged into the open.

Vacuum-pressure weighing system with CO_2 pressurization

Addition of special ingredients

Pneumatic feeding of the dosing vessels

When the exactly weighed quantity of product is ready in the conveyor scale, it is transferred to the respective dosing vessels via pipe diverters by means of the CO_2 pressure system. Injection of the kieselguhr takes place below the liquid level. This new system ensures that there is no oxygen enrichment of the degassed water. The dosing and weighing operations are controlled by a production pilot system which is integrated in the overall concept.

Feeding of dosing vessels

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