



Specialized units by WILD-INDAG

Innovative process technology for top-quality non-alcoholic beverages

The broad spectrum of non-alcoholic mixed beverages continues to grow, whether they are carbonated drinks, fruit-enhanced products or malt soft drinks. At the same time, formulations for soft drinks and juices are constantly becoming more complex, which places higher requirements for process technology. Flexible units with high levels of automation — the kind of machinery that WILD-INDAG develops for its customers around the world — are a perfect match for the specific needs of the beverage industry.

When it comes to mixing beverages, a processor consisting of the Heidelberg Inline-Mixer combined with a pasteurizer is a multi-faceted option that is perfectly designed for the task. This unit by WILD-INDAG from Heidelberg, Germany, can dose and mix both uncarbonated and carbonated beverages. The special feature of this equipment: all beverage ingredients are individually and accurately dosed according to the formulation into a continuous flowing water stream.

Combined mixing and pasteurizing for sensitive beverages

The Heidelberg Inline-Mixer is available as a two- or multi-component mixer. For the two-component mixer process all ingredients are mixed up to a syrup which is finalized with water. The multi-component mixer allows all of the ingredients to be dosed simultaneously and inline.

Sensitive beverages such as juice-enhanced products or the increasingly popular malt beverages require especially careful production and pasteurization. Usually, mixing and pasteurization are two separate process steps. However, WILD-INDAG has developed a unit which merges both phases in one unit. First the water is completely de-aerated in the inline mixer, which uses a two-phase de-aeration process involving vacuum and CO₂-stripping. This significantly reduces the carbon dioxide content. A further CO₂-stripping makes it possible to achieve lowest oxygen values, as they are required for oxygen sensitive products such as malt beverages, sports or wellness drinks. Having a lower oxygen level enhances the flavor and color of the drink as well as its stability. In the next phase, all of the raw materials such as fruit compounds, flavors or fruit acids are continuously added to the finished product inline via frequency-controlled dosing pumps and flow meters.

The drink is then pasteurized by plate heat exchangers before it is carbonated. This is a necessary step especially in terms of ensuring the microbiological safety of beverages which contain juice and malt, although it also cools the finished product down to the



temperature needed for carbonization and filling. Beyond that, it makes it possible to achieve high levels of cost-effective heat recovery and gentle heating of the products. A sterile overpressure ensures microbiological product safety. The product can be filled with or without heat treatment. An automated control of the pasteurization temperature and the related flow-meter and filling capacity prevents the product from under- or over-pasteurization, even if there are fluctuations on the filling speed or interruptions in the filling process. The pasteurization steps and parameters are part of the beverage recipe and controlled by the automation system of the unit. The WILD-INDAG pasteurizer thus provides the highest standards in terms of product quality and flexible usage.

Homogenization is a mandatory step if the goal is to manufacture beverages with juice, including those which contain concentrates. To achieve the best outcome, a homogenizer can be integrated into the pasteurization process at a temperature of around 55 degree Celsius.

After flash pasteurization, the desired CO₂ content is generated directly downstream in the carbonization phase. A static mixer homogeneously dispenses the CO₂ in the drink and creates fine bubbles. The mixed beverage is then buffered in a pressure tank until it is sent to the filling line. The buffering tank can bridge up to 30 minutes of production time. To satisfy the high hygienic standards required for both malt beverages and uncarbonated juice-enhanced beverages, the manufacturing conditions are ultra-clean and can also be done in aseptic conditions.

A rapid overview with convenient operation

The entire unit is operated using a touch panel. It has integrated maintenance and alarm systems as well as recipe administration that ensure consistently high-quality production. Since the entire unit is shown in detail on a screen, the operator has a full overview of every step and phase of production. The integrated recipe administration system – which handles both product mixing as well as controlling the cleaning-in process (CIP) – allows all of the processes to be started conveniently. Each phase is fully automated, from de-aerating and dosing to carbonization including a process control system for the finished product.

Specific solution for Bakhresa Food, Tanzania

WILD-INDAG developed such a system for Bakhresa Food in Dar-es-Salaam, to meet their production requirements. The food and beverage manufacturer produces carbonated soft drinks, juice-enhanced beverages and mixed beverages with malt, which are growing in popularity in African and Arab countries. There is a growing demand for both, pure and flavored malt drinks.

Bakhresa Food places a high priority on microbiological safety in manufacturing malt drinks. It wanted to avoid using a complex flash pasteurization unit for carbonated beverages, however. In addition, its unit also needed to be adaptable so it could produce



both traditional carbonated soft drinks (CSD) as well as uncarbonated juice-enhanced products and malt drinks. Last but not least, the process had to have a compact layout that could be set up near the filling lines. WILD-INDAG's combined mixing and pasteurizing process made it possible to implement all of the customer's specifications perfectly.

The first unit of this kind was successfully installed and operated at Bakhresa Food in 2011, and this year the African company started a second line and ordered three additional units.

Box (if possible)

Combined inline mixing and pasteurizing – the advantages at a glance:

- Features the classic inline process for manufacturing traditional carbonated beverages
- Integrated plate pasteurizer to guarantee microbiological stability of sensitive products with malt or juice
- Minimal effort: pasteurizing the drink before carbonization
- Automated and monitored carbonization and filling temperatures for carbonated beverages
- Optimal de-aeration for manufacturing oxygen-sensitive beverages such as non-alcoholic beer and malt beverages
- Ideal use of operators

Author:

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Images:

Image: WILD-INDAG Bakhresa ILM.jpg

Caption: The Inline-Mixer with a pasteurizer at Bakhresa Foods.

Source: WILD-INDAG (can be reprinted for free if source is cited)

Image: Bakhresa Food_Azam Malti.jpg

Caption: Flavored malt drinks become increasingly popular in Arabic and African region. Bakhresa Food, Tanzania, has noted rising demand for these beverages.

Source: Bakhresa Food (can be reprinted for free if source is cited)

Image: WILD-INDAG ILM-KZE.jpg

Caption: The Heidelberg Inline-Mixer with a pasteurizer offers the perfect process for blending malt beverages.

Image: WILD-INDAG_Blockdiagramm_ILM_LC_u_KZE.PDF



Caption: Schema: The product pathway through the Inline-Mixer and pasteurizer. As needed, individual process phases can be added or subtracted.

Source: WILD-INDAG (can be reprinted for free if source is cited)

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