Process technology for beer mix beverages:

For the perfect mix.

generation for a better world
Thanks to interesting flavor combinations and a low alcohol content, beer mixes are very popular and widely accepted particularly among young consumers. The new beer creations can be produced from all types of beer. They are made of beer mixed with lemonade, fruit juices, soft drinks or other additives in any proportion. Besides the well-known mixtures, additional fruity notes also provide a completely new taste experience.

Technical solutions for all kinds of requirements
We offer a complete range of products for mixing and dosing in the brewery, including all components, units and systems required for the process chain. We ensure a consistent plant concept. Our high quality standard for plant design prevents ingress of air into the product and guarantees constantly high product quality.
With our equipment, we integrate all beverage components in the product flow. We process the individual ingredients as bulk materials, small components or smallest quantities in powder or liquid form.

The modular design allows easy and inexpensive expansion as well as a gradual increase in the degree of automation. Our innovative process control with state-of-the-art technology provides very high dosing accuracy for each beverage component. By consistent application of in-line technology we minimize the product quantity in the process and thus enable fast product changes. Product losses are reduced to a minimum.

Impressive growth rates:
Since the middle of the 1990s, the segment of beer mix beverages has been growing. In Germany, it has now stabilized at about 4 million hectoliters. But also in the rest of the world, the demand for beer mixes and new flavors in beer is increasing.
Step by step to the finished mixed beverage.

Batch or in-line: The selection of the appropriate technology is not a question of belief, but depends on the requirements in practical operation.

**Overview of the two basic procedures:**
1. Production of a finished syrup from simple syrup (liquid sugar), flavors and beverage bases in a batch process.
   Mixing with beer and subsequent carbonation.
2. Continuous production of the beer mix beverage from simple syrup, flavors, beverage bases and beer with subsequent carbonation.

Based on these two procedures, lots of variations are possible.

**Beer mix beverages – top quality batch by batch**
The simple syrup is delivered by tank truck, transferred into storage tanks and stored until further use. Different technical solutions reliably prevent condensate formation and thus the growth of microorganisms in the headspace of the tank. The beverage bases are provided in bulk containers, emptying takes place according to the recipe data. Depending on the recipe, one or more bases can be processed. Due to automatic switchover, bases from one or more bulk containers can be used. Flavors and other smallest quantities are supplied from special containers.

Simple syrup, flavors and beverage bases are pumped into the blending tanks one after the other. Dosing of small quantities (up to 1 l/h) is effected according to a method developed by GEA Brewery Systems with a positive displacement pump and a mass flow meter.

**Step 1:**
Production of a finished syrup from simple syrup (liquid sugar), beverage bases and concentrates in a batch process.

**Step 2:**
In-line blending for continuous production of the beer mix beverage from finished syrup, water and beer.

**Step 3:**
Flash pasteurization and carbonation of the finished beverage.
The individual components are mixed with a special mixing nozzle that is centrically installed in the mixing tank and ensures gentle and energetically favorable mixing. Agitators and additional tank connections for transfer equipment are not required so that cleaning times can be reduced to a minimum.

**Fully automatic, fast and continuous**

With the continuous method, all beverage components are simultaneously mixed in a multi-component blender directly in the pipe. A mixing tank is not required. There is no technical limit to the number of components.

With in-line blending, the main focus is on product change. The product quantity in the process can be minimized with consistent in-line technology. This innovative process management allows fast product changes with very little product losses and consistently high product quality.

The finished syrup is now mixed with degassed water and beer to form a finished beverage. Flash pasteurization and carbonation of the finished beverage follow.

The individual components are prepared similarly to the batch method. Thanks to the modular design, the equipment can also be upgraded later for continuous operation.

With this technology, large quantities of, for example, water, liquid sugar and beer as well as very small quantities can be dosed with the same accuracy.
Larger flows are dosed with frequency-controlled centrifugal pumps, highly viscous materials with positive displacement pumps in combination with mass flow meters and control valves.

Monitoring of the dosing flows can be realized by means of an additional mass flow meter connected in series or a calibration vessel in the dosing line. After that, flash pasteurization and carbonation of the finished beverage take place.

To start with the production of beer mix beverages, it is advisable to choose batch production of the finished syrup from simple syrup, flavors and a beverage base. For plants with a large annual production volume, a combination of batch operation and continuous operation is recommended. Depending on the quantity used and the capacity, the processing of crystal sugar and dissolving of powder bases directly on site can be appropriate. The individual design and configuration depends on your special specifications and requirements as a producer. Contact GEA Brewery Systems for more information.
A lot of base materials for lemonades and other ingredients of non-alcoholic and alcoholic beverages are supplied in powder form. For perfect dosing, most of these substances need to be dissolved in water. In some cases, quasi-continuous dissolving is not possible or often uneconomical due to the physical dissolving properties of the substances. Therefore, GEA Brewery Systems has developed a system with excellent dissolving properties for different powders, like for example artificial sweeteners (aspartame, acesulfame K, saccharin), acidifiers (citric acid), thickeners (pectin, xanthan), salts, preservatives (benzoates) or anti-oxidants (ascorbic acid). The system is based on mixing and dissolving in vertical tanks provided with a central inlet nozzle with optimized flow properties and a central outlet. Its hygienic design ensures perfect cleanability. The energy input is almost completely used for dissolving. Mixing and stirring actions in the tank are reduced accordingly. Dosing of delicate dry substances is effected using inert gases like nitrogen or CO₂.

**Beer additives – never miss a trend**

Traditionally, beer types are defined in the brewhouse. Today, the number of types and variations in the market is constantly increasing and consumer demands are changing faster than ever. Against this background, many breweries now adjust the beers before or after filtration. Here it is possible to adjust, for example, the color, bitterness, original gravity and carbonation and thus to produce individual products. This allows the economical production of small batches and changing products and variants. With its modern in-line blending systems, GEA Brewery Systems provides the necessary technology.

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**FACTS & FIGURES:**

- GEA Brewery Systems uses modern technology enabling the flexible and efficient production of high-quality beer mixes.
- The combination of proven and well-engineered process steps, a sophisticated tailored control system and precision measuring instruments ensures a consistently high quality.
- Our customized plant concepts are individually tailored to the needs of our customers and the space available on site.
- The brewery benefits from full automation of the core processes of dosing and mixing, high mixing accuracy, minimum product loss.
We live our values.
Excellence • Passion • Integrity • Responsibility • GEA-versity

GEA Group is a global engineering company with multi-billion euro sales and operations in more than 50 countries. Founded in 1881, the company is one of the largest providers of innovative equipment and process technology. GEA Group is listed in the STOXX® Europe 600 index.