



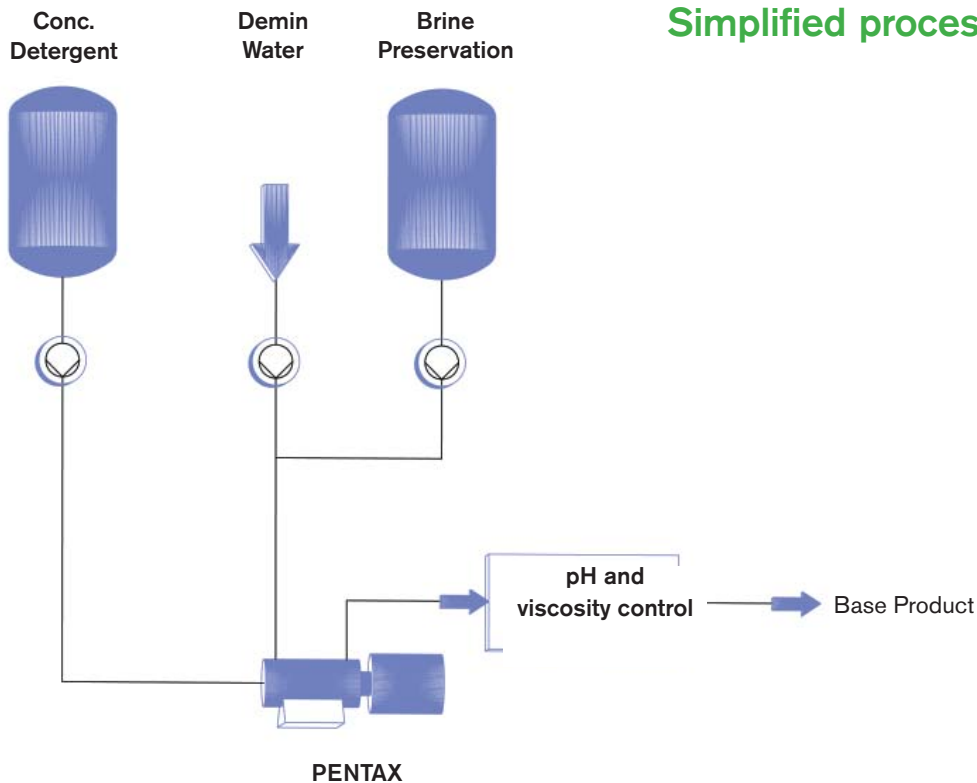
# AutoBlend Systems

## The Bran+Luebbe Master Batch Concept

Bran+Luebbe is a worldwide leading manufacturer of continuously operating production units specifically suitable to produce liquid detergents and household cleaners, as well as personal care products.

Various products like fabric softener, floor cleaning and multi-purpose liquid cleaner, liquid detergent as well as shampoos, bubble baths and shower gels are being produced continuously today.

Marketing decisions of market leaders and non-branded manufacturers have to be executed fast in order to gain as much market share as possible. Internationally operating companies have built up centralized production in order to use the production unit most effectively.





This concept results in a variety of benefits that pay out immediately:

- Outstanding flexibility in production.
- “Just in Time” order management.
- “Just in Time” production and delivery to the customer.
- No buffer tanks for finished product and no excess product.
- Pre-dilution of raw materials is in most cases not necessary, resulting in reduced preservative usage and reduction in costly transport of pre-diluted materials.
- Automatic change of formulation with minimal product losses.
- CIP cleaning resulting in only minimal amounts of wastewater.

Bran+Luebbe fulfills these requirements with the specifically designed production concept -

### “Master Batch Concept” and “Finishing Concept”

The “Master Batch Concept” is the continuous or discontinuous production of the common base product of a formulation. By injecting in the next production step the necessary additives, the final product is formed (see “The Bran+Luebbe Finishing Concept”).

The advantages of this concept is e.g.:

- Optimally mixed base product.
- Use of concentrated base materials e.g. LES paste saving the pre-dilution step.
- Direct neutralization of alcan-sulfo-acid with caustic and direct dilution.
- Space saving compact design.
- Saponification of fatty acids with potassium hydroxide.
- Direct feed of raw material from the storage tanks saving mostly additional feed pumps.
- Space saving compact design.
- High flexibility by automatic change of formulations.
- Documentation of the production run by flow meter control.
- Continuous pH- and viscosity measurement and control.
- Automatic production run.
- Automatic CIP cleaning resulting in only minimal amounts of wastewater.

Systems that are designed and built according to the Bran+Luebbe Master Batch Concept will not only include metering based on the Bran+Luebbe metering pumps, but pumps and measuring systems which are most suitable and proven for the component to be metered.

Water is usually pumped and measured by a frequency controlled centrifugal pump plus a flow meter and the relevant control system. Higher viscosity and concentrated raw materials are pumped with e.g. Waukesha rotating displacement pumps which show high efficiency and

constant flow even at high discharge pressures, as well as excellent CIP cleanability. Every pump is equipped with frequency controlled drives and a suitable flow meter to control the flow according to the formulation. This design minimizes the number of components, reduces cost and guarantees excellent CIP cleanability.

In the Bran+Luebbe Master Batch System highly efficient static and/or dynamic mixers are used.

Specifically the outstanding performance of the dynamic PENTAX mixer is used to dilute LES paste in-line to the required concentration on shampoos neutralized alcy-benzene-sulphonic acid with caustic for the use in dish washing liquid saponification of fatty acids with potassium hydroxide to be used in liquid detergents.

To secure the right concentrations of components the mixer is equipped with a large volume pre-mixing chamber and a small volume highly efficient stator/rotor area to perform difficult diluting or reaction tasks. In most cases only one pass through the mixer is required to finalize the reaction of dilution. Equipped with a frequency controlled drive the mixing action can be optimized.

For typical example how to use a PENTEX mixer in a Bran+Luebbe Master Batch System see "Continuous Production of Liquid Detergent".



*Pentax Mixer*



The dynamic mixer in the finishing unit has the following advantages:

- All additives are introduced directly into the flow of the pre-mix chamber of the dynamic mixer by special injection valves.
- Minimized waste as only mixer and connecting line to the filler have to be cleaned.
- Minimized start-up and shut-down losses.
- Product recovery possible by blow-out.
- Start/Stop or capacity controlled operation in a wide range.
- Fast change of formulation manually or automatically.
- Each additive line to the dynamic mixer can be drained and cleaned separately to save costly raw materials (e.g. perfume).
- Manifold on the suction side of the metering pump allows fast changeover of products.

The Bran+Luebbe Finishing Concept is one of the typical solutions of this industry that characterizes the continuous development and increasing know-how of Bran+Luebbe. It has substantial advantages over other solutions such as:

- Use of highly precise Bran+Luebbe double diaphragm pumps for the valuable raw materials.
- Specifically designed and adapted dynamic PENTAX mixer.
- Special design reliable, easy to clean injection points.
- CIP and SIP cleanable system design with high sanitary standard.
- Pre-mounted, fully cabled, pre-tested and small floor space consuming compact design.
- Easy to integrate into existing installation and fast start-up Production of dish washing liquid, shampoo, shower gels and bubble baths within the B+L Master Batch Concept.
- Feed of main components directly from the storage tanks in the tank farm.
- Formulations with up to 13 raw materials.
- Integration of existing buffer tanks for dish washing liquid and fabric softener into the process design.
- Pigging of feed lines between internal buffer tanks and tanks in the tank farm.
- Finishing units handle up to 9 different additives.
- Basic design of color diluting system to handle three colors (red, yellow, blue) in order to produce every required color by relevant metering and mixing.
- Pigging of the finished product line between finishing unit and filler.
- Design and installation of a centralized CIP system.



Your local contact:



Bran+Luebbe, An SPX Brand

611 Sugar Creek Road, Delavan, WI 53115

Phone: (800) 252-5200 or (262) 728-1900, Fax: (262) 728-4904

E-mail: [bl@spx.com](mailto:bl@spx.com)

For more information about our worldwide locations, approvals, certifications, and local representatives, please visit [www.branluebbe.com](http://www.branluebbe.com).

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