

Lautering Technologies

Maximum efficiency, short brewing cycles and highest yields



The brewhouse is the heart of every brewery, and the interaction of its individual components is of utmost importance.

Ziemann Holvrieka supplies technically and technologically sophisticated brewhouse plants that are tailored to the specific needs and requirements of the customer. Each brewhouse plant is designed for a maximum efficiency, short brewing cycles and highest yields.

Three lautering technologies from a single source

Lauter tun, mash filter or continuous mash filtration system?

The answer depends on the overall concept and the market environment in which the brewery operates.

Our customers can choose between three alternatives for the lautering process:



NESSIE

continuous mash
filtration system



LOTUS

lauter tun



BUTTERFLY

membrane
mash filter



DRAGONFLY

chamber mash
filter

The right choice depends only on selecting the technology that meets your requirements and fits better in your brewery environment. We have been and continue to be the right partner. Together we can develop and implement individual and tailor-made solutions for your specific requirements.

We have always given priority to individual and tailor-made solutions. In this way, we can develop concepts that allow the brewery optimally to respond to market developments.

We have been offering mash filters and lauter tuns for decades. This range is now complemented by a third procedure, which is revolutionizing the entire brewing process. Each one developed to demonstrate our well known innovative strength at the highest level of efficiency.

Lotus

The Lotus by Ziemann lauter tun fulfills the requirements in terms of speed, yield and flexibility like no other.

Fastest lauter tun

With Lotus you are able to brew up to 14 brews a day. This is possible by combining sophisticated engineering, optimized lautering technology and our intelligent "Dynamic Lautering Mode". The "Dynamic Lautering Mode" (DLM) is an integrated process control that reacts dynamically to the changing raw material and grist qualities. For this purpose, the lautering parameters (e.g. flow rate) are adjusted depending on the suction pressure so that the maximum lautering performance is achieved and the filter layer (spent grains cake) is protected from compression. DLM guarantees the optimal operation of your plant with your raw materials.

Less measuring instruments and simpler control technology

Due to the optimized false bottom design, the filtration area for every outlet can be easily increased to 2.5 m². This significantly reduces the number of run-off pipes. Even with large lauter tuns it is possible to use only a single lauter ring. This results in water savings, less measuring instruments and a simpler control system.

Higher yields

Less pipes reduce the water volume by up to 55%. This volume is now available as sparging water for extraction, resulting in a higher yield.

Flexible in terms of brew size and raw materials

The Lotus lauter tun processes a great variety of grist loads (+10%, -50%) and therefore a high flexibility.

The choice of raw materials also offers many possibilities: up to 70% of wheat malt can be processed, up to 50% of sorghum or up to 40 % of other alternative starch sources. The Lotus lauter tun processes worts with an extract content of up to 21°P. Thus, particularly strong special beers can be brewed or high gravity brewing can be used.

Fast and easy adjustment of the knives

A special feature of the Lotus is the fact that the knives can easily be adjusted. This allows you to change their position to the requirements of the lautering process.





Dragonfly & Butterfly

Ziemann Holvrieka is the only supplier offering both mash filter technologies: the Dragonfly chamber mash filter and the Butterfly membrane mash filter. Although they differ in details, they have common advantages.

Fastest mash filter

Mash filters from Ziemann Holvrieka are considered the fastest. With Dragonfly up to 16 brews per day are possible, with Butterfly up to 14 brews per day. This is due to many reasons: the press frame is equipped with a high-performance mechanical system allowing extremely short idle times for "opening", "removal of spent grains" and "closing" and leaving more time for the lautering process. Furthermore, each side of a chamber is equipped with a filter cloth, resulting in a double filtration area leading to a higher filter performance in a shorter time.

Flexible in terms of brew size, first wort concentration and raw material selection

Mash filters from Ziemann Holvrieka offer great flexibility in terms of the brew size: thanks to a separation set, which is positioned manually, even smaller batches can be processed. Furthermore, first wort concentrations of up to 25° Plato are possible. With regard to the raw material selection, you are free and can use more of your local resources: even 100 % of unmalted cereals (such as rice) and a wide variety of other starch sources can be processed.

Spent grains removal without manual intervention

The spent grains removal is fast and fully automatic. The dry and compact spent grains cake drops off easily with no manual intervention.

High extract yield even at high number of brew cycles

The high extract yield is also achieved due to the fact that Ziemann Holvrieka relies on a sophisticated sparging technology, which is carried out diagonally through the spent grains cake from bottom to top, or from top to bottom.

More brews possible between the CIP cycles

Two features of our mash filters make sure that the filter cloths do not have to be cleaned as often:

- From brew to brew, the sparging water direction alternates and is set in the opposite direction. This leads to a self-cleaning effect of the mash filter cloths.
- Mash filters from Ziemann Holvrieka withstand greater internal pressures. This supports a longer service life.

Both mash filter are equipped with a fully automatic cloth cleaning device, cleaning each filter cloth down to the pores within the shortest amount of time. The system is patented and a Ziemann standard.

Minimized space requirement

Compared to a lauter tun, mash filters require significantly less space. Even grist loads of up to 24 tons of malt equivalent can be processed with only one Dragonfly.

Long service life

The filter cloths have a guaranteed service life of 2,500 brews whereas the membranes, 12,000 brews.

Dragonfly

The mash filter Dragonfly is designed as a thin-layer chamber mash filter. Thanks to the sophisticated technology, a single Dragonfly can be loaded with up to 24 tons of malt equivalent. In combination with the possible 16 brews per day, Dragonfly is the largest and fastest mash filter.



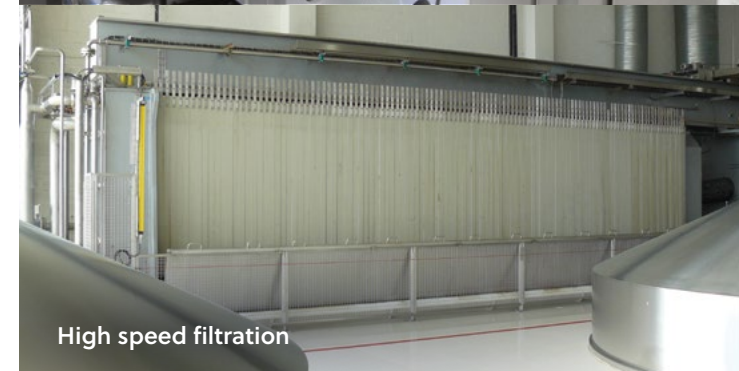
Butterfly

Butterfly uses a so-called "mixed" plate package, where the chamber plates and the membrane plates are alternately arranged. This means that every second plate is equipped with membranes. The membranes are made of a newly developed thermoplastic elastomer (TPE), which ensures a very long service life.

The membranes are moved with the pressing medium water. The first wort is pressed out from the spent grains cake in both directions. This is one of the reasons why you can achieve higher yields with our mash filter. Our technology allows you to obtain your remaining extract even with the least amounts of sparging water and there is little to none weak wort produced.



"Mixed" plate package



High speed filtration



Nessie

With the continuous mash filtration system Nessie, the mash is separated, in a dynamic process, into wort and spent grains and the spent grains are sparged in order to obtain the extract.

The mash transfer time corresponds to the lautering time. The separation of the mash is carried out via four filter units in cascade arrangement, in which the rotary disk filters perform the separation of wort and spent grains. The sparging of the extract is carried out in parallel using a turbulent counterflow extraction. The sparging water is injected via fine nozzles in the transition between the filter units. The flow direction of the water is principally opposed to the flow direction of the solids.

Freedom of choice

- Nessie even allows the use of regional cereals that are unsuitable for modern industrial brewing, which strengthens your local sourcing.
- All types of starch sources can be processed, which offers cost advantages and the ability to use alternative local starch sources.
- Your existing mill system can be easily integrated and reused; the grist composition plays a secondary role for Nessie.

Improved wort quality

- Due to the short contact time of the mash in Nessie: the wort contains less polyphenols from the malt. In addition, Nessie preserves natural ingredients in the wort, while undesirable ingredients remain in the spent grains.

Shorter process time

- Nessie reduces the process time by up to 30%. This means less washing out of undesirable ingredients, up to 40% less polyphenols, longer shelf life, improved flavor stability and higher beer quality.

Higher Yield

- A more efficient extraction and separation ensures higher yields of the grains resulting in cost savings.

More flexibility

- Nessie provides the basis for the decoupling of the wort streams, which can be subsequently optimized and the brewmaster has a new space for creativity.
- The brew sizes no longer depend on the size of the lauter tun: the brewmaster can brew even the smallest batches.
- A hitherto unachieved first wort concentration is possible: up to 32°P!
- An enormous variety of beers can be brewed.





The main advantages of Nessie are:

- Freedom to choose between all kinds of grains as starch sources
- More flexibility during the brewing process
- Shorter process time
- Higher yields from the starch sources
- Less undesirable ingredients, such as polyphenols
- Improved wort quality due to the preservation of natural and valuable ingredients and trace elements, such as zinc and fatty acids
- More vital fermentation



Technologies

The following table provides an overview of the individual lautering technologies, whereby the two mash filter types are considered separately

Parameter	Dragonfly	Butterfly	Lotus	Nessie
Operating time	> 90 min.	> 102 min.	> 104 min.	45-90 min.
Building & statics	low space requirement, high load	low space requirement, high load	high space requirement, high load	low space requirement, low load
Flexibility in terms of brew size	high, due to separation set, otherwise $\pm 10\%$	high, due to separation set, otherwise $\pm 10\%$	high + 15 % , - 50 %	very high
Percentage of adjuncts	up to 100 %, e.g. rice	up to 100 %, e.g. rice	approx. 40 %, wheat malt: up to 70 %	up to 100 %, e.g. maize grits
Variables of process control	flow rate, pressure	flow rate, pressure, membrane pressure	Suction pressure, flow rate, height and speed of raking unit	Flow rate, rotation speed, counter current flow, sparging management
Yield	high, depending on the grist mill	high, depending on the grist mill	limited, depending on the grist composition	high, independent of the grist mill and composition
Max. first wort concentration	$\sim 25\text{ }^{\circ}\text{P} +$	$\sim 25\text{ }^{\circ}\text{P} +$	$\sim 21\text{ }^{\circ}\text{P} +$	up to $\sim 32\text{ }^{\circ}\text{P}$
Cleaning	CIP volume = filter volume	CIP volume = filter volume	CIP volume corresponds to the vessel cleaning	low CIP volume



Thank you for your time.

For all enquiries, please contact one of our sales team at a Ziemann Holvrieka office near you.

Scan the QR code or visit www.ziemann-holvrieka.com

