GEA LAUTERSTAR® 2.0

Lauter tun technology: excellent technology, optimum processes, up to 14 brews per day
GLOBAL TESTIMONIALS

Since 2003, GEA has manufactured and installed more than 100 LAUTERSTAR® units and lauter tun upgrades all over the world, ranging from 30–1,600 hL and with filling charges from 1–28 tons of malt. Furthermore, as proof of our comprehensive performance and diversity, we even manufacture the LAUTERSTAR® drives.
Always one step ahead

Whether to use a closed LAUTERSTAR® 2.0 lauter tun system or an open mash filter one is a much debated and controversial issue in the brewing industry.

However, the fact remains that, in terms of hygiene, quality, flexibility and economic efficiency, the GEA LAUTERSTAR® 2.0 represents excellent value for money and a wise investment.

Optimizing extract yields and, at the same time, minimizing operating costs, it’s no surprise that when it comes to total cost of ownership (TCO) considerations, the LAUTERSTAR® 2.0 performs much better than mash filters.

Innovative technology

For decades, GEA has invested a significant amount of time and effort to enhance lauter tun performance. Our combined technical know-how and expertise has enabled us to develop more effective solutions for the complex lautering process.

From wort run-off and raking machine geometry to mash transfer and spent grain removal, GEA lauter tuns have been continually developed and improved to benefit customers and breweries all over the world. The LAUTERSTAR® 2.0 is always up-to-date and continues to set and maintain high standards of profitability, functionality and hygienic design.

Designed to meet your requirements

Lauter tun performance depends on many factors, including the number of brews per day (brew cycle), as well as the raw materials, milling method, cutting technique, wort concentration and weak wort management – all of which play an important role in the lautering process.

As such, GEA customizes the design of the LAUTERSTAR® 2.0 according to the specific requirements of the customer. Important parameters such as diameter, bed loading or wort concentration are key considerations as we combine maximum efficiency with the highest possible quality to produce very low-turbidity wort. As a result, operating under optimal conditions and with suitable raw materials, up to 12–14 brews per day can be achieved with the LAUTERSTAR® 2.0.
Safety first
Although high throughput rates and productivity are imperative, operator safety is paramount. With its innovative safety system, the LAUTERSTAR® 2.0 provides maximum protection against accidents.

Optimized design, higher yields
Economical beer production means obtaining maximum yields with the available resources. Therefore, we have further optimized the number of run-off points and their geometry in the LAUTERSTAR® 2.0 (1).

Comparative analyses show that, simply by retrofitting the run-off cones, considerable improvements in terms of lautering time, extract yield and wort quality can be achieved.

More run-off points
Owing to the higher number of run-off points, the vacuum above the spent grains bed is subsequently reduced and local compaction of the spent grains can be avoided. Thus, the filter bed can be leached more evenly and completely, even if so-called “cut-off gravities” have to be considered.
A higher number of run-off points with optimized cone geometry results in a further reduction of flow rates in the inlet area. Extract recovery can therefore be achieved more quickly and efficiently.
GEA LAUTERSTAR® 2.0: The efficient generation

Maximum performance every day
The results of independent brewhouse acceptance tests show that optimized wort run-off increases the efficiency of the LAUTERSTAR® 2.0 in several respects. The improved extract curve during lautering leads to uniform leaching of the filter bed (2). And, owing to the reduced compaction of spent grains, variations in raw material quality can be better compensated, leading to a more consistent process (3).

The filtration and leaching process is supported by the proven and highly efficient double-shoe raking knife (4).

The flow-optimized design maintains a minimal distance between the knives for effective and gentle treatment of the spent grains bed. As a result, low turbidity values and high extract yields are obtained. Even when retrofitted to third-party lauter tuns, the upgrades provide valuable benefits.

Uniform spent grain leaching (2)
Analysis of the spent grain press water shows very consistent extract values across the whole LAUTERSTAR® 2.0, which ensures optimum extract production.

Measuring points at a lauter tun segment (soluble extract in °P)
Shorter lautering times with new cones (3)
Even in retrofitting examples, optimization effects are obvious: lautering times as well as variations caused by varying raw material quality are significantly reduced. This means that consistent brew cycle times are easier to maintain.

Double-side knife (4)
Specially designed for optimized flow, the close arrangement of the double shoe knives on the raking machine ensures an intensive, uniform and, at the same time, gentle treatment of the grain bed.
Expertise in every detail

Comprising a drive, worm shaft and non-return flap valve, the LAUTERSTAR® 2.0’s cost-effective spent grains flap ensures that no mash or wort loss occurs during conveying. Fitting flush to the upper edge of the false bottom when closed, it features easy to replace gaskets, no dead spaces and requires minimal maintenance.

The bottom seat valve (5) for mash intake is also manufactured by GEA. Mash transfer from below facilitates the fast formation of a uniform spent grains layer with almost no oxygen pick-up – our contribution to your flavor stability.

Contemplating the design of the false bottom, GEA has taken the technology a significant step forward. The special wedge-wire false bottom (6) has a much lower tendency to clog and is much easier to clean. Our specially designed spent grains removal blades – as well as the optimally arranged spray nozzles under the false bottom – reduce flushing and cleaning times to a minimum. Naturally, all product contact parts of the LAUTERSTAR® 2.0 are built to comply with hygienic design standards.

LAUTERSTAR® 2.0 Performance optimization

In terms of lautering upgrades, GEA can bring your existing system up to the performance standards of the LAUTERSTAR® 2.0.

Customers can choose between higher yields, faster throughput speeds (capacity) or a mixture of both. For example, yield increases of up to 2 percentage points have been achieved. Likewise, optimizing the lautering process (and ancillary steps) and leads to a higher brewhouse capacity.
Bottom seat valve (5)
Ensuring no oxygen pick up during mash transfer, the formation of the spent grain layer is not disturbed, enabling turbid wort pumping at the same time.

Wedge wire false bottom (6)
Owing to the tilt profile, less spent grain particles are deposited in the slots. At the same time, cleaning after spent grain removal is improved.
The lautering process

Convincing profitability: MLM
Excellent results are no accident, but the result of consistently applied know-how. The Multifunctional Lautering Management (MLM) system provides intelligent control technology for the complex and sensitive lautering process. You profit from shorter lautering times, higher yields and lower turbidity values. Variations in raw material quality are quickly detected and automatically balanced.

The MLM can be fully integrated completely into all our automation solutions. Of course, it can also be retrofitted to Siemens S7-300, S7-400 and RSLogix Rockwell-based systems. It’s a retrofit that pays for itself very quickly.

MLM optimizes the lautering process
You specify the technological target parameters (lautering time, turbidity and yield) and the MLM automatically adjusts the parameters to the current conditions and optimizes the process. An algorithm that is constantly working in the background monitors the process parameters and boosts your lauter tun to maximum performance.

UPGRADE PROJECT: BREWHOUS YIELD
4 DIFFERENT BEER TYPES (IN %)

Adjusting lautering parameters is a thing of the past. MLM enables automatic process adjustment to compensate for variations in raw material quality. There's no need for the brewmaster to spend time making recipe changes.

High extract yield
Compared with plants without intelligent process automation, MLM-controlled lauter tuns provide much better results in terms of extract yield.
Facts & figures

TCO: Advantages of the LAUTERSTAR® 2.0 compared with a mash filter
• Less expense associated with the acquisition
• Energy savings during milling
• Lower clean-in-place (CIP) costs
• Operator-free spent grains removal and cleaning
• Fully automatic
• Significantly reduced maintenance costs

Typical features of the LAUTERSTAR® 2.0
• Safety system that complies with EU directives
• Indestructible spent grains flaps with no wort loss
• Mash intake through the bottom seat valve with little oxygen pick-up
• Seal-free center column with gentle central intake of the wort during circulation
• Spent grains removal blade with mechanical actuation
We live our values.
Excellence • Passion • Integrity • Responsibility • GEA-versity

GEA is one of the largest technology suppliers for food processing and a wide range of other industries. The global group specializes in machinery, plants, as well as process technology and components. GEA provides sustainable solutions for sophisticated production processes in diverse end-user markets and offers a comprehensive service portfolio.

The company is listed on the German MDAX (GiA, WKN 660 200), the STOXX® Europe 600 Index and selected MSCI Global Sustainability Indexes.