

Power Upgrade & Service^{next level}:

Brewery optimization for highest quality and maximum energy efficiency.



How can you improve the efficiency of your brewhouse?

In every brewery plant from GEA Brewery Systems the engineers apply the latest know-how and innovative technology in order to produce high quality beers with optimum energy utilization. This is what our customers expect and they are right to do so.

We offer comprehensive modernization and expansion services to ensure your high level of product quality, plant efficiency and plant availability for many years.

Our service begins with a detailed analysis. Your brewery equipment is thoroughly checked and evaluated in an audit. This audit can be conducted for individual plant sections or for the complete brewery including refrigeration and process automation. All important process parameters as well as safety aspects, energy consumption etc. are taken into account. Special attention is paid to value creation: quantities of raw materials used, energy expenditure, yield and output.

Upgrade and expansion possibilities for your brewhouse:

Combining all advantages: the MILLSTAR™.

Using a MILLSTAR™, the malt is optimally prepared for the lautering process. Due to the steep conditioning process the mill is not subject to explosion protection regulations. So it is possible to install the MILLSTAR™ in the brewhouse area. In addition, the MILLSTAR™ ensures an optimum mashing-in process.

Quality

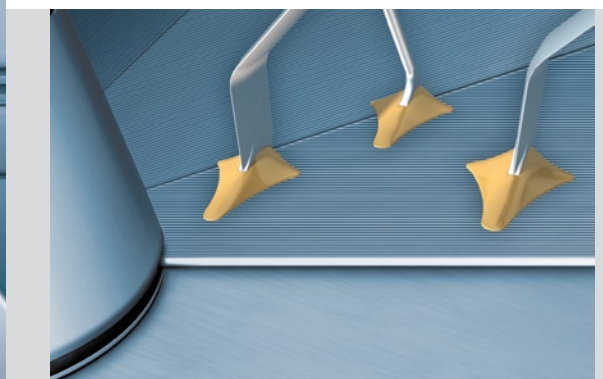
- conditioned wet milling reduces the release of aging components.
- prevention of oxygen uptake.
- both effects lead to improved flavour stability in the sales beer.

Capacity

- MILLSTAR™ technique and performance results in a lauter tun capacity increases of up to 20 %.

Bring your lautering system to LAUTERSTAR™ performance levels.

GEA Brewery Systems has always been at the forefront of lauter tun design and performance. Whether it is the wort run-off system, the raking geometry or the false bottom design – we bring your lauter tun to the performance level of the LAUTERSTAR™ technology. The upgrade can easily be executed step by step.



FACTS & FIGURES

Yield

- yield increases of up to 2 percentage points.

Capacity

- optimizing the lauter tun shortens the lautering process as well as the ancillary process steps.
- more brews per week.

JETSTAR™ – for minimum total evaporation.

The JETSTAR™ boiling system divides the wort boiling process into two distinct steps: the thermal conversion step and the evaporation step. This improves the efficiency of wort boiling, saves primary energy and the wort quality improves.

Energy

- with JETSTAR™ boiling, total evaporation can be reduced to figures below 4 %.
- immediate impact on fuel consumption, particularly in atmospheric kettles without energy storage system.

Quality

- due to gentle heating and homogeneous wort treatment, the thermal load on the wort is reduced.
- improved flavour stability of the beers and conservation of the foam-positive protein fractions.

Efficient use of heat with an energy storage system.

The thermal energy required for evaporation during wort boiling can be easily recovered with an efficiency of more than 90 % and directly reused in the brewhouse. Low-pressure boiling in combination with our design of the energy storage tank allows a wide range of evaporation rates. The system is balanced at 4.5 % total evaporation and no hot water surplus is produced.

Energy

- Savings of up to 60 % with a retrofit of energy storage systems.

Quality

- the hot water produced is used to heat the wort by means of a plate heat exchanger.
- gentle conditions reduce the thermal stress due to a low interfacial temperature.



Customized solutions for the cold process area.

Experience shows that over the years the installed plant processes and equipment are subjected to certain adaptations and modifications. Thus, plant efficiency is reduced in the course of time.

Main reasons for this decrease in efficiency:

- change of raw materials
- change of work routines
- change of plant characteristics
- undocumented tuning of plant parameters

Additionally, external factors have changed our customers' view on benchmark figures of consumables, e.g. the specific water consumption in certain production areas, the overall CO₂ demand for the production or the amount of CIP media consumed.

With customized audits, GEA Brewery Systems and its dedicated team of experienced brewers and process technology specialists are focusing on the improvement of the efficiency and consumption figures of your brewery.

We offer the following technical and technological services:

- CO₂ audit
- Water audit
- CIP audit
- Plant performance audit
- Technological audit

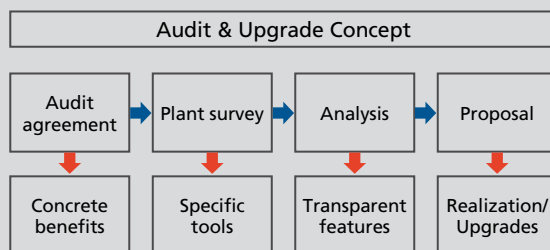
Audits in the cold process area of breweries are value engineering services provided by our highly qualified and competent technicians.

As your instant benefit, audits

- generate instant value to the customer
- reduce operational costs
- improve plant efficiency
- create reliable and optimized working conditions
- resolve problems

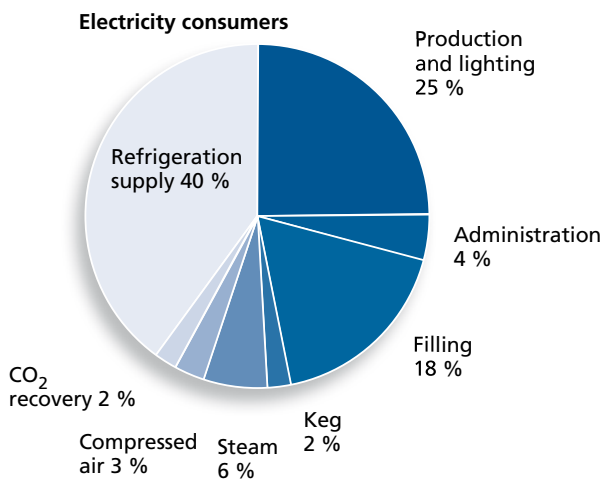
It is particularly noteworthy that audits in the cold block cost a fraction of the potential savings they generate and in most cases they pay off in 3–12 months.

FACTS & FIGURES



Refrigeration and CO₂ recovery.

Besides production and lighting, refrigeration is one of the largest consumers of electricity in the brewery with a share of 40 % of total power requirements. Therefore, efficient and energy-saving systems are required in this section of the brewery. Such investments are particularly appropriate and sustainable. Even simple and inexpensive measures can result in a noticeable reduction of energy costs.



We determine your refrigeration requirements, inspect the existing refrigeration equipment and identify cost savings opportunities.

CO₂ recovery advantages

Quality

- with a CO₂ recovery plant you can actively influence the quality of your products.

- with state-of-the-art technology the carbon dioxide recovered from fermentation always meets the highest quality requirements.
- you always know the origin of your carbon dioxide – from the beer for the beer.

Costs

- modern, highly efficient components combined in an optimized system.
- reduced consumption of electrical energy and water for the treatment of fermentation carbon dioxide.
- very high availability and very low maintenance requirements.
- a more economical solution than purchasing CO₂ from outside sources.

Availability

- you achieve a degree of independence that will be invaluable to you in the next few years.

Climate protection

- excessive CO₂ emissions destroy the natural balance.
- using carbon dioxide from your own production process is a significant contribution to climate protection, because this is carbon dioxide from the balanced natural cycle.
- no need to purchase fossil CO₂ that is mostly produced by combustion.

Influence of temperature levels

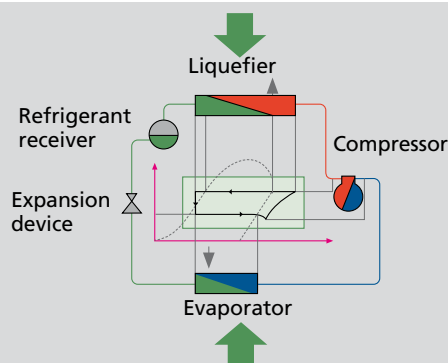
Reducing the condensation temperature by 1 °C means

- approx. 1 % more refrigerating capacity
- approx. 2.5 % less electrical power consumption

Increasing the evaporation temperature by 1 °C means

- approx. 6 % more refrigerating capacity
- approx. 3 % less electrical power consumption

FACTS & FIGURES



Service^{next level} – Partnership for efficiency.

Our Service^{next level} is more than just after-sales service.

Together with our customers we develop intelligent solutions in order to take full advantage of their brewery's potentials. For this purpose, we have designed flexible service modules, which can be individually adapted to specific production conditions to keep production costs at an optimum level. We are convinced that there is no better team than you as plant operators and us as plant manufacturer.

You will see that we don't just talk about Service^{next level}, we live it. You can determine your individual service level yourself, depending on the equipment, the degree of capacity utilization and the convenience they want.

Technical service modules – High plant availability for increased production safety



Service module "REPAIR"

For rapid resumption of production after a breakdown.



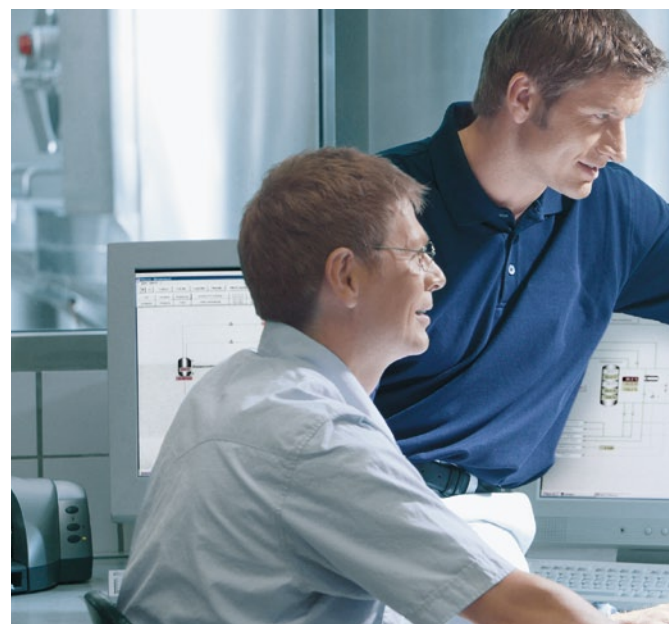
Service module "ATTENTION"

Gives you a thorough overview of the current plant condition.



Service module "CARE"

For maximum plant availability now and in the future.



FACTS & FIGURES

Emergency service: Any time, any place.

Our service contract includes a 24 hour emergency service, which guarantees fast and efficient help – all around the world. Many problems can be solved immediately on the phone or by remote diagnosis. Otherwise, our service team is on site within few hours. Because maximum plant availability has top priority.

Training: Highly qualified staff ensures efficiency and safety.

Modern brewery management is based on smooth knowledge transfer. In our training programs, we address not only technological issues, but also plant engineering as well as energy and environmental technology. Therefore, faults can be detected by your own staff at an early stage, raw materials used can be properly assessed and technological brewing processes can be adapted accordingly.

Technological service modules – High efficiency for optimized production costs



Servicemodul “CONNECTION”

Get back to an optimum production level fast when technological conditions have changed.



Servicemodul “RESPONSE”

Learn how to bring your plant up to date.



Servicemodul “EFFICIENCY”

Ensure the efficiency of your plant in the long run.

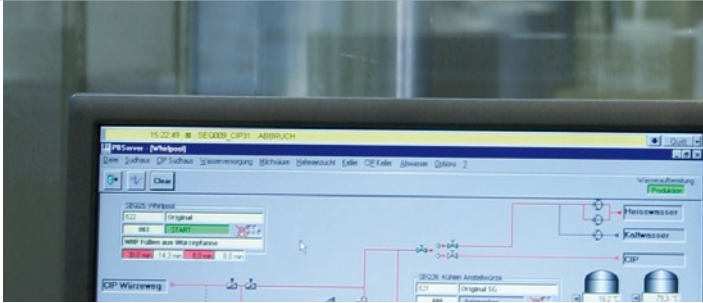
Spare parts can be purchased anywhere. Professional service means much more than providing spare parts at reasonable prices. Professional service aims at optimizing your operating costs and assuring product quality. Contact us! We always strive to find the optimal solution together with you, true to the motto: Service^{next level}. We always want to be at the highest level.



FACTS & FIGURES

Spare parts: Reduced storage requirements, higher flexibility, guaranteed plant availability.

Optimized spare parts management requires the precise classification of important wear parts according to their impact on current production. Our experienced maintenance specialists can be of great assistance to you in this task. With our modern and efficient spare parts logistics we deliver the required parts to you as quickly as possible. This minimizes on-site storage and lowers production costs.



Power Upgrade & Service^{next level}!

Highest quality and maximum efficiency

With GEA Brewery Systems you can benefit from increased efficiency and higher capacity due to optimization, modernization and expansion of existing plants. In combination with technological and energy efficiency audits we can even offer a guaranteed return on investment. We provide intelligent service concepts – flexible and future-oriented.



Process Engineering

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