Brewmasters have only limited possibilities to optimize and speed up fermentation and maturation processes. Pressure and temperature influences lead to considerable changes in the flavour and taste of the finished beer.

With ECO-FERM™, GEA Brewery Systems has developed a system that optimizes the process and reduces the fermentation time by supporting the natural convection processes during fermentation. Significant time savings can be achieved without compromising beer quality.

ECO-FERM™ is the revolutionary system for gentle jet mixing in fermentation tanks. A mixing organ without any movable parts ensures stable support of the natural bubble column in the tank resulting from the formation of CO₂ during fermentation. Thus, much more active yeast cells are kept in suspension, conversion processes during fermentation are accelerated and temperature homogeneity in the fermentation tank is increased considerably.

The jet mixing principle requires only low pump capacities and thus only minimal energy expenditure – gentle product transport was the top priority during the development. The mixing jet stabilizes and speeds up the circulation processes in the tank, provides for even and constant fermentation temperatures throughout the vessel and improves the convection-dependent heat transfer on the tank’s cooling elements. Yeast vitality is enhanced by the gentle pump process.

ECO-FERM™ provides you with more fermenting room capacity without increasing the tank volume

Cleaning of the ECO-FERM™ system is carried out automatically together with the cleaning and disinfection of the fermentation tank. The circulation pump is linked to the cleaning return line and thus guarantees perfect hygienic conditions for the mixing organ and the connected circulation line.

ECO-FERM™ is easy to retrofit. The simple piping requires only minimal installation effort. No welding on the tank and no scaffolding or crane is necessary. We preferably use the hygienic VARIVENT® housings to connect the ECO-FERM™ technology to your fermentation tank.

Fermentation and maturation with ECO-FERM™ vs. reference tank
ECO-FERM™
Process optimization during fermentation

Reducing fermentation time by supporting the natural convection – ECO-FERM™ provides numerous advantages:

- Shorter fermentation and maturation time; the total occupation time of a tank is thus reduced by up to 25%.
- Consistently high degrees of final attenuation.
- Uniformity of the fermentation means better scheduling of tank occupancy.
- Homogeneous temperature distribution in the fermentation tank during warm maturation and cooling.
- Improved yeast vitality due to reduced sediment formation in the tank cone.
- Constantly high beer quality and unchanged flavour profile.
- More fermenting capacity with the same number of tanks.

Comparison of the times required to reach the final attenuation of 80% and an apparent extract of 3% to start the yeast crop.

ECO-FERM™: Installation in the fermentation tank.