

Danish mixing-technology significantly improving processes at Carlsberg

In future, fermentation- and mixing tanks at Carlsberg generally will be equipped with a different mixing technology from the Danish Iso-Mix. A 2-year testing cycle has produced remarkable results.

After 2 years of meticulous full-scale tank tests, Mr. Erik Juul Rasmussen, Production Manager, Carlsberg Denmark, has no doubts that the use of Iso-Mix technology will bring significant process advantages to the beer production at Carlsberg.

- The technology is not a new invention and I know that a similar principle has been used in the former DDR. But in corporation with the Danish company Iso-Mix, we have now further developed and refined this technology to fit our own needs. In our test facilities, we have obtained remarkable process improvements in a number of areas, says Erik Juul Rasmussen.

Faster and better

- First of all, Iso-Mix helps in the fermentation process, as the technology assures that the yeast always is in contact with the medium we want to ferment. – The yeast must transform the sugar into alcohol, but as the yeast is slowly sinking to the bottom, some kind of mixing is needed in order to distribute the yeast as good as possible in the tank.

The Iso-Mix technology, in short, is a pump loop which distributes the yeast evenly in the tank and thereby speeding up the fermentation process says Erik Juul Rasmussen.

- Typically, a fermentation process takes 14 days, but with the Iso-Mix technology, we can cut this time down to half. As we, at the same time, achieve a more efficient control of the fermentation temperature, we have experienced a more homogeneous product - and consequently a quality improvement.

From the outlet of the tank, the liquid is pumped through a heat exchanger before being injected into the tank through the Rotating Jet Head liquid distributor. The entire tank is being mixed steadily with a simultaneous cooling or heating if needed.

Geothermal cooling under consideration

We reduce the reaction time - both in our mixing- and fermentation processes. Furthermore, the Iso-Mix technology gives us more flexibility in our tanks.

A cylinder-conical tank has a number of cooling jackets on the side, and therefore traditionally seen there has been a limit to how little you can fill it, if the cooling effect is to be utilized. With the Iso-Mix, Carlsberg can fill very little liquid into a large tank, as the mixer head is located in the cone right above the cooling jacket.

According to Erik Juul Rasmussen, Carlsberg also looks at whether you can use air or water cooling of fermentation tanks via the Iso-mixer in the winter period and thus gain a great energy saving.

Among other things they look at exploiting well water, which has a temperature of about 12° C.