

## ISO-MIX creates a stir at Harboe

**Tough competition and a need for optimized production processes pave the way for a faster mixing technology in the soft drink business.**



To stay competitive in the challenging soft drink market, Harboes Brewery in Skælskør, Denmark, found it necessary to fully optimize their production.

The brewery is the second-largest manufacturer of soft drinks and beer in Scandinavia. The company produces approximately 200 million liters of soft drinks per year in a growing market. Both traditional soft drinks and new types like energy drinks etc. are produced at the brewery as both private labels the retailers as well as Harboes own brands.

The market is characterized by large-scale production and competitiveness and a highly efficient and economically optimized production is necessary in order to be able to make a profit.

### **Mixer for new tank**

This is why Harboe contacted ISO-MIX A/S, a Danish company who has developed a new technology for mixing, a technology based on rotary jet heads. – We need a mixing solution which will reduce the mixing time on our new soft drink concentrate vessel to one third. Furthermore the energy consumption must be reduced by the same factor – as we are very much aware of the environmental influence of our industry, Frank Andersen, technical manager at Harboes Bryggeri says.

ISO-MIX was asked to design a mixing solution for the new concentrate vessel in the soft drink plant. In this tank syrup – typically consisting of 2/3 sugar and 1/3 water, is mixed with different ingredients such as aromas, colour, etc. – some of which are in fluid form and some in powder form. Today, the mixing is performed by a traditional propeller agitator mounted on the top of the tank, which takes 15 minutes to mix the tank. Water and carbon dioxide are added at a later stage in the process after which the soft drink is ready for bottling.

### **The ideal mixing task**

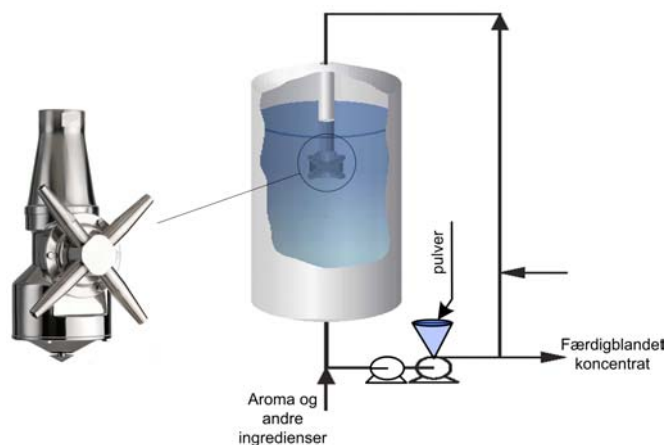
Seen from the viewpoint of a mixing company, the task at Harboes was ideal, says sales engineer Jens Blach from ISO-MIX. Furthermore, we have recently successfully implemented similar solutions at the soft-drink producer Aqua D’Or for ice tea production in a similar application.

Of course we take the specifications prepared by the customer very much into consideration, but further to this we always try to place ourselves in the customer's place in order to be able to offer the best solution – also if this means that we end up offering a solution that surpasses the original enquiry from the customer. We like to be mixed up in our customers' businesses, Jens Blach continues smilingly.

We decided to offer a solution which reduced the mixing time to the required five minutes, however, we extended the solution with a powder mixer at the recirculation loop. This solution eases the feeding of the powder which is normally poured manually into the tank from the top.

The rotating jet head is driven by the fluid which recirculates in the loop from the bottom of the tank via a pump to the ISO-MIX rotary jet head positioned under the liquid surface. When the fluid flows through the rotating jet head, the four jet nozzles are driven slowly around in the horizontal and the vertical level. This causes the fluid to be injected into the remaining fluid in the tank by means of the ISO-MIX machine resulting in a very effective hydraulically balance agitation of the entire tank volume.

This technology eliminates the risk of “fish eyes” – powder which is not dissolved and remains as lumps – and wetted crust at the wall of the tank or the mixing shaft. We designed the system to have a lower energy consumption than the existing agitator used at the plant. This means that the energy consumption is now less than 1/3 of the energy consumption of the existing plant.



*Figure showing the principle of the new juice concentrate mixing tank at Harboes. The ISO-MIX rotary jet head is placed in the tank below the fluid surface and the four jet nozzles inject the recirculated liquid into the tank again. The powder mixer is placed in the recirculation loop where it draws the powder into the loop.*



*The new juice concentrate tank at Harboes Brewery - the powder mixer to the left. The ISO-MIX rotary jet head is placed inside the tank and can not be seen at the photo*

### **An easy choice**

I found it easy to decide on the ISO-MIX solution, Frank Andersen says. The solution offered by ISO-MIX met all the technical specifications, the price was competitive and – not least – by adding the powder mixer we achieved a better working environment. The fact that the ISO-MIX machine can be used as a CIP-unit in the empty tank was an added value for us. We do not have to invest in a separate CIP-unit, and a sanitary system is ensured.

The system was implemented in April 2005 and has fully met our expectations. In fact we are now considering to install the ISO-MIX system on two further mixing tanks which are not able to keep up the speed with the production, Frank Andersen concludes.



*Technical manager at Harboes Bryggeri,  
Frank Andersen.*

Due to the fact that the ISO-MIX mixing technology offers a faster mixing time than many other systems, combined with lower investment costs and an improvement of the sanitary level in the tank, ISO-MIX has been well received by the food industry – especially within mixing of liquid food

The range of application goes from soft drinks mixing as the Harboe case over mixing of cocoa milk or alkopops to in-mixing of aromas in vodka and schnaps (ISO-MIX conforms with the ATEX-specifications).

This success has caused the mixing company to sign up for a stand at Drinktec in Munich in September 2005. Drinktec is the world's largest exhibition and forum for the beverage industry, and in Ishøj, the event is looked very much forward to.

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