



Multifunctional mixing system helps extend commercial success in Boston

Harpoon Brewery, Boston, USA

Case story

Brewing great beer - better

Harpoon Brewery is an American craft brewery with roots in a driven passion for beer, along with a determination to make more high-quality beer choices available to the enthusiastic consumer. Harpoon was started in 1986 on the Boston waterfront – the first brewery to commercially brew and bottle beer in Boston in more than a quarter of a century.

Harpoon puts a lot of energy into developing a wide range of tastes and styles, including limited-batch specialty beers, seasonal brews and innovative beers. One notable example is Imperial Pumpkin, a decidedly unconventional stout brewed with pumpkin, nutmeg and cinnamon.

After the usual challenges of a start-up brewery, Harpoon's refreshing approach and high-energy marketing brought them considerable commercial success and impressive growth rates. Having reached full 24/7 capacity in Boston in 1999, the company needed to expand to meet demand.

In 2000, they therefore acquired a defunct craft brewery in Windsor, Vermont, and brought it back on-line. In 2010, Harpoon followed this up with a major expansion project at its



Harpoon vice-president and Chief Brewing Officer Al Marzi.



original Boston brewery, aimed at extending annual capacity here to 250,000 barrels.

Multipurpose mixing marvels

In its existing Boston production set-up, Harpoon Brewery had adjusted alcohol and/or CO₂ levels by adding brewing water and CO₂ into the bright beer tanks using simple diffusers. However, if a similar approach were to be used in their big new tanks – featuring 500 and 1200-barrel capacities – such adjustments would take a prohibitively long time.

Harpoon Brewery therefore went on an enthusiast's technology search, investigating a whole range of different alternative solutions, and ended by selecting the revolutionary Alfa Laval Iso-Mix system. For Harpoon, one of the big advantages of this system lay in its versatility. This multipurpose functionality is a great match for the distinctive Harpoon approach to brewing beer.

The Iso-Mix system is ideal for quickly and effectively mixing CO₂ and adjustment water into the beer, as well as for blending in the natural flavours characteristic for many Harpoon products. Using the same Alfa Laval Rotary Jet Mixers that are the heart of this patented system, the Iso-Mix system is also able to safely deal with the effective cleaning (CIP) of the tanks.

Better control, better quality

The Harpoon Brewery engineers decided to install the Alfa Laval Iso-Mix system, based on the revolutionary Alfa Laval Rotary Jet Mixer technology, in all the new bright beer tanks.

A skid-mounted pump module draws beer from the bottom of the tank and returns it back into the tank through the nozzles of the Alfa Laval Rotary Jet Mixer, which rotates on two axes to churn the entire volume in the tank with maximum effectiveness. Operators can add water to the circulation loop on the suction side of the pump in order to adjust gravity, and natural flavours can also be added here to adjust the flavour profile. Meanwhile, CO₂ can be added in appropriate amounts on the pressure side of the pump to adjust the carbon dioxide content of the beer.

The Iso-Mix system enables Harpoon Brewery to introduce the required amounts of both water and CO₂ very quickly and with accurately set specifications, thereby ensuring beer of consistently high quality. The same technique is used for adding the spices and natural fruit flavours so important in many Harpoon products.

Another big advantage of the Iso-Mix system is that the Alfa Laval Rotary Jet Mixers also serve as a tank cleaning system that's safe and extremely effective, as well as having a minimal environmental footprint. This has all had a big impact on Harpoon Brewery operations. According to Cellar Manager

Aaron Moberger, "Since the Alfa Laval Rotary Jet Mixer is also a very efficient tank cleaning machine, it has allowed us to redesign our Cleaning-in-Place procedure such that it has become much safer to operate."

Technology builds business payoffs

The technical advantages of this patented Alfa Laval technology have already added up to big commercial benefits for the new Harpoon Brewery set-up in Boston.

Firstly, the Iso-Mix system proved easy and straightforward to implement, paving the way to rapid turnaround during installation and commissioning. This kept any product disruption during the transition to a bare minimum, and also allowed Harpoon to quickly reap the full spectrum of practical improvements and quality boosts during production and cleaning.

Furthermore, "the Iso-Mix system provides us with a fast, consistent way of adjusting CO₂ content and gravity as well as making other additions that ensure less manual labour and reduced risk of delays in our packaging operations," points out Harpoon vice-president and Chief Brewing Officer Al Marzi.

These are the kinds of practical benefits that help any brewery improve product quality as well as providing practical payoffs and better profit margins.



Alfa Laval Rotary Jet Mixer blends in the natural flavours and mixes CO₂ and water into the beer.



Unique, flavourful beers.

Alfa Laval reserves the right to change specifications without prior notification.

How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at www.alfalaval.com