SEEPEX.
An Ingersoll Rand Business

EXPANDING WITH SEEPEX

APPLICATION DETAILS

- Transporting spent grain 200 feet to the top of a tank in a piping containing 90 degree turns and a 37 feet vertical incline

KEY SPECIFICATIONS

- Needed a system to keep up with the expanding brewery's demand
- Old system required an extensive amount of manual labor
- Safety concerns due to manual labor
- Frequent maintenance required
- Inefficient energy use on compressed air

Like plenty of breweries, Allagash Brewing Company started out small. In 1995, Rob Tod brewed his first beer in the corner of a warehouse. Twenty-five years later, his brewing operation looks a little different. Over 140 employees spend their working days at Allagash, which has now expanded to two brew houses that cover 75,000 square feet and produce 101,000 barrels of beer per year.

BACKGROUND

Allagash is a premier brewing company always looking to enhance their brewing process with the best equipment. Scaling up through the years has taken extensive planning and consideration as their business and operation evolved. In the early 2010s, the demand for Allagash products greatly exceeded the capacity of their existing brew house – which was capable of producing 35-barrel batches. Sean Diffley, Engineering Director, was brought on in 2012 to devise a plan to greatly expand and enhance Allagash's brewing capabilities.

SOLUTION

In 2013, Allagash was able to triple their brewing capacity by adding a new brew house capable of producing 70-barrel batches. BrauKon was the manufacturer of choice for the new custom brewing system, complete with a SEEPEX BTQ 35-12 progressive cavity pump to handle spent grain.

RESULT

Sean and other staff members monitored the SEEPEX pump handling the spent grain. It ran great from the start and was a tremendous improvement over the spent grain handling system on the original brew house. They decided to retrofit the original brew house spent grain handling system with an identical SEEPEX BTQ 35-12.

Allagash Brewery expanded to producing 101,000 barrels of beer per year.

IMPROVING SPENT GRAIN REMOVAL

COST SAVINGS

INCREASED EFFICIENCY AND SAFETY

DECREASED MAINTENANCE

ELIMINATED COMPRESSED AIR

INCREASED RELIABILITY

DECREASED DOWNTIME

SEEPEX PRODUCTS

Open hopper pumps T Range

- 1x BTQ 35-12
- Conveying capacity: 0.22 -440 US GPM
- Pressure: up to 24 bar (350 psi)
- 2x BT 10-12

The SEEPEX BTQ 35-12 is an open-hopper pump with an auger feed screw. It has a wide, square, open hopper to easily guide the viscous spent grain into the auger. The hopper also has a 2-sided inspection port to safely view the spent grain during operation. It has a conveying capacity of 0.22 – 440USGPM with pressure of up to 24 bar (350psi). The SEEPEX BTQ35-12 is well suited to handle viscous spent grain without any problems.

With the two brew houses running the same SEEPEX pump for spent grain handling, this added in a “working back-up” to their process. If the large-brewhouse pump was to ever require maintenance, the team could easily swap in the pump from the original brew house – mitigating the risk of drastically decreasing production. In the seven years since the SEEPEX pump was installed on the larger brew house, Allagash has only had to perform standard maintenance. The stator is replaced once a year during scheduled preventive maintenance times.

Both brew houses are structured and piped similarly with the pump positioned under the lauter tun. After the mash, the spent grain is pushed from the lauter tun into the hopper which feeds into the pump. The pump then pushes the highly viscous spent grain through 200 feet of pipe containing eight 90 degree turns with a vertical incline of 37 feet to the top of a tank located outside the facility. At normal operation, the grain is being pushed out at 150-160 psi. The team briefly evaluated a Pondorf pneumatic system during the initial design process for the larger brew house, but quickly realized that it didn’t make economic sense.

Sean comments, “We went from a 20-minute grain push down to a 6-minute grain push. These savings help us be more efficient and use less energy.” It is also a great improvement over Allagash’s original method of spent grain removal. Like many small breweries, when Allagash began production in 1995, they relied on manual labor for certain operations. Founder Rob would have to climb into the lauter tun to shovel the spent grain out into a push cart. Allagash has expanded and evolved tremendously since the early days and the SEEPEX

The hopper of the BTQ 35-12 can be easily cleaned thanks to inspection flaps on both sides.

EFFICIENT YEAST REMOVAL

pump was part of this evolution. Spent grain removal is now more efficient and much safer with less manual human interaction.

In another part of the brewing process, diaphragm pumps used to be used for yeast removal. Allagash grew tired of the frequent maintenance the pumps required and were looking to improve upon their process. Sean commented, “The diaphragm pumps were a general pain. We were constantly repairing them and we were wasting a lot of energy on air.”

Due to the success Allagash experienced with the SEEPEX pumps on their spent grain application, they knew they wanted to pursue a SEEPEX pump for their new yeast removal system. In 2017, Allagash contacted a company to supply a centrifuge for their new yeast system. Allagash specified a SEEPEX pump and the engineers worked with SEEPEX to design the best pump to work in conjunction with the centrifuge for the spent yeast application.

SEEPEX prescribed a BT 10-12 with an NBR stator to handle the spent yeast with additional specifications from the centrifuge supplier. Allagash now has two of these pumps as part of the spent yeast removal process.

Prior to entering the pump, the yeast and other particulates are mixed in with the beer. The beer goes into the centrifuge which separates the yeast and other particulates. The remaining beer is then drained and the spent particulates are scraped from the walls of the centrifuge into the SEEPEX progressive cavity pump where it is pumped to a holding tank. Sean comments, “The SEEPEX pump with the electrical VFD control is much more efficient to use compared to the continuous air driven diaphragm pumps.” The VFD gives Allagash the ability to easily control when the pump is in operation and eliminates the need for compressed air.

Allagash Brewing Company started with one SEEPEX progressive cavity pump in 2013 on spent grain and has expanded to incorporate SEEPEX pumps into other areas of their brewery. Critical Spares Specialist, Eric Meader comments, “We are very happy with the SEEPEX brand. It is a top of the line brand that we rely on and trust. We’ve standardized our brewery to only have SEEPEX progressive cavity pumps. We don’t plan on moving to any other brand of progressive cavity pump.”