



CASE STUDY COLLECTION: BREWERIES

COMMONLY CONVEYED PRODUCT

SPENT GRAIN DRAFF

From Irish whiskey to Kentucky bourbon, German bier to US microbrews, and from California to French wineries, SEEPEX is helping these crafts increase productivity and yields in new ways. Whether it is conveying viscous mash, ingredients, or low shear pumping of the end product, SEEPEX can do the job.

The distilling/brewing process produces several by-products, one of which is spent grain and draff which typically contains 75-80% moisture. Over the years, the handling of spent grain and draff from the lauter/mash tun, mash filters, or collection hoppers has been carried out the traditional way, using an expeller unit and vast amounts of uncontrolled compressed air.

This method of conveying the grain or draff has two issues. First, it utilizes high amounts of energy from compressed air usage. Second, as the spent grain or draff can vary in moisture content, the time needed to empty a lauter or mash tun can vary dramatically. Time can range from 40 minutes up to 75 minutes.

SEEPEX progressive cavity pumps are the solution for breweries and distilleries to optimize the process of spent grain or draff removal. BT range pumps are well suited for this type of application with their open hopper design. Pumps with SEEPEX's Smart Conveying Technology feature have a small footprint, are easy to disassemble, inspect, and service in place without removing piping, all beneficial, especially in confined spaces. These pumps can rapidly and efficiently remove spent grain in a hygienic enclosed pumping system, having a positive impact on a company's bottom line.

The following are three case studies showcasing how SEEPEX pumps have been utilized in the removal of spent grain at breweries. These studies discuss the challenges involved with each customer and the end beneficial results from their SEEPEX pump.

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RINGWOOD BREWERY REALIZES COST SAVINGS WITH SEEPEX PUMP COMPARED TO CONVEYOR SYSTEM

CONVEYED PRODUCT

SPENT GRAIN

PREVIOUS SYSTEM

CONVEYORS

SEEPEX PC PUMP SOLUTION

T RANGE

Ringwood Brewery had an incline conveyor system where spent grain would be discharged from the mash tun onto the conveyor, which then discharged the product into a tractor-trailer for off-site removal. This was not environmentally friendly. Due to the limited angle of incline at which conveyors can operate effectively, spillages were occurring, causing an unsightly mess and subsequent disposal problems.

Bob Marvin, Ringwood's Senior Brewery Engineer states, "We didn't think using a pump would provide a solution – but it did. We installed a pump on a trial basis and it really did the business." The trial pump from SEEPEX had an open hopper dropping the spent grain onto an auger feed screw, which in turn carried the non-flowing spent grain into the pump itself.

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BOB MARVIN, SENIOR BREWERY ENGINEER

Bob Marvin comments, "It's been great. The pump saved us all the costs SEEPEX said it would – the unit recovering its costs well inside the first year. What was more, the SEEPEX pump brought other benefits. As well as making the production area a lot cleaner, the mash tun is now emptied in half the time it took before, almost doubling our capacity. The savings all round have really been tremendous."



IRISH DISTILLERS INCREASES PLANT PRODUCTIVITY WITH SEEPEX PROGRESSIVE CAVITY PUMPS

CONVEYED PRODUCT

SPENT GRAIN

PREVIOUS SYSTEM

AIR EXPELLERS

SEEPEX PC PUMP SOLUTION

T RANGE

Irish Distillers was experiencing a vast increase in demand of their product. They needed to increase the number of mashes from 30 to 45 per week to keep up. They identified their spent grain handling system as a bottle neck in their process. The average time required to empty the lauter tun was 55 minutes.

SEEPEX proposed replacement of their air expeller units with a BT open hopper progressive cavity pump. BT pumps transfer a fixed amount of product with each revolution irrespective of moisture content with the added benefit of no blow back through the pump, which is a common problem when using expeller units.

The initial target was to empty the lauter tun within 25 minutes...quite a challenge. SEEPEX exceeded this target and the pumps have averaged a transfer time of 22 minutes. Irish Distillers are able to meet their demand of 45 mashes per week.

PROJECT DETAILS:

- Pump engineered to fit space constraints
- Spent grain is transferred at 50 tonnes/hr at a distance of 80 meters
- Lauter tun emptying time reduced by more than 50%
- Plant productivity increased by 50%
- Reduced air consumption, resulting in cost savings



BUFFALO RIVERWORKS FINDS SPACE CONSTRAINT SOLUTION IN SEEPEX PUMPS

CONVEYED PRODUCT

SPENT GRAIN

SEEPEX PC PUMP SOLUTION

T RANGE SCT

Buffalo RiverWorks brewery is a \$2.3 million facility constructed entirely in an abandoned grain silo. Head brewer, Chris Herr, and his team had to seek creative, tailor-made solutions for almost every application, including the handling of spent grain. Due to the unique nature of building inside a grain silo, elevation and limited floor space were two key factors in finding a suitable solution.

Various solutions were reviewed, but were far too large and cost prohibitive for the brewery. SEEPEX provided the perfect solution, a progressive cavity pump at the right size to fit inside the brewery and equipped with Smart Conveying Technology. This gave the brewery a space-saving footprint, a cart for mobility, and a simple plan for maintenance in the future.

Buffalo Riverworks uses a SEEPEX BT 10-6LS with Smart Conveying Technology to move the spent grain through a 4-inch stainless-steel tube to carry the grain to a tank at ground level. The pump, which has a split stator and two-piece rotor, sits on a custom, portable sanitary cart about 70 feet above ground in the silo.

The SEEPEX pump primes the grain with water and rapidly removes it in a hygienic, enclosed pumping system that is simple to disassemble, inspect, and service in place without removing the piping. Plus, the pump handles the spent grain with efficiency and care.

“The repurposed semisolids pump can handle anything with a thick, granular texture –from cake batter to peanut butter,” Herr says. “We didn’t want to liquefy the grain, because we wanted to see this grain make it to our farmers.”