

# Filtration of well water at Thatchers Cider

## Three steps to purified water

| Cider | Filtration | Purification | Thatchers | Water |

*Thatchers Cider, a renown British cider producer, has installed a purification system for well water. As a part of the company's sustainability strategy, the water from its own well can now be used for cleaning processes in the production. A three-stage filter system from Donaldson with backflush systems creates a high level of operational safety and, at the same time, low operating cost.*



Thatchers Cider is a top ten global cidemaker

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Cider, Cidre, Siideri: In many countries like Great Britain, France and Finland, cider is a much loved and popular drink. In English pubs, for example, no bar is complete without a cider tap!

Somerset based Thatchers Cider is a top ten global cidemaker. The family-owned company – which was founded in 1904 and is now led by the fourth generation – has always striven to keep the highest quality standards and has won, over decades, many prestigious awards for outstanding ciders.

### Use of well water for cleaning processes

In terms of sustainability, Thatchers is also aiming high. The company continuously succeeds in saving energy and natural resources. In a current project, the management has looked for new applications for the well water that is sourced from their bore hole. Up to now it has only been used for tasks that needed no purification – washing the truck fleet, for instance. The aim has now evolved to install reliable, highly effective and at the same time cost-efficient purification which makes it possible to use the well water for the cleaning of machines and equipment within the plant.

Thatchers Cider approached the purification experts from Donaldson with their proposal, having worked with the company in previous years with the supply of compressed air and steam filtration systems.

### Three-stage purification – cost-efficient and reliable

The Donaldson engineers proposed the installation of a three-stage purification systems, and Thatchers agreed to that solution. In the first stage, filters of the type P-GSL N remove particles with a diameter of more than 5 µm. The second stage also consists of P-GSL N filters, but with a smaller nominal pore diameter of 1 µm. In the third stage, LifeTec™ filters from the series PP N are employed. These absolute cartridge filters ensure that the purified water is of highest quality standard.



Donaldson P-GSL N filter cartridge. The pleated stainless steel filter material ensures the reliable retention of the various particulate contaminations in well water.

### Stages one and two: All-metal filter cartridges and backflush

Why did the Donaldson project engineers use the P-GSL N series for the first two stages? This has both quality and cost reasons. At first, the pleated filter medium made of a very fine stainless steel wire mesh ensures a reliable removal of the various contaminations and particles in the well water. Furthermore, these cartridges offer a very high retention rate at the surface of the filter. This is the pre-requisite for the purification with a backflush system. And the backflush is a real advantage in terms of operation and lifetime cost because the user does not need to change the cartridges regularly: just one backflush, and the differential pressure



*Two stainless steel PF-IG housings contain eight P-GSL N 30" cartridges each.*

– created by the removed particles – is reduced to a nearly-new status.

In the application described (and in many other applications as well) it is important that the P-GSL N series is FDA listed for food contact use, and that all filters are fabricated without the use of binders, adhesives, additives or surface-active agents. So there is no risk that the filters emit particles to the media that are purified and, in consequence, to the food or beverages that are produced.

### Low service cost

In the Thatchers cidery, the first two filtration stages are integrated into an automated backflush with clean water. The backflush is initiated either in fixed intervals or triggered by a certain level of differential pressure (500 mbar). As the all-metal cartridges are very robust, low service costs are ensured. Two housings of the series PF-IG contain eight 30" cartridges each.

The filtration of water and other liquids is just one of several applications for the P-GSL N filters, and not the most frequent one. These filters are often employed to purify gases or saturated steam for sterilisation processes. Here, the backflush option is important and also the resistance of the filters to high temperatures of up to 200 °C.

### Stage three: Absolute cartridges for complete product integrity

The filters of the LifeTec™ series that are employed in stage three make use of a different filtration technology and different cartridge materials. They were developed for the pre-, fine- and sterile filtration of liquids in the food and beverage industry – with very low pore diameters in the

sub-micron range, in this case 0.4 µm. They also differ from the previously known filter design through a much more robust PP filter liner, whose rhombus-shaped structure not only optimizes the static, but also improves the flow conditions. The structure of the liner results in a considerably improved pressure stability and torsional stiffness.

Four different sizes - 10, 20, 30 and 40 inches - with application-specific, pleated filter media are available. The elements can be equipped with seven different connections so that they can be used in all common housings. A high safety factor and a positive economic effect arise when using multi-tier housings, which allow, as usual, an easy exchange of individual filter elements.

Apart from their high particle-holding capacity, the LifeTec™ PP N filters excel by their broad compatibility to many chemical materials and their immunity against sudden changes of pressure. Another characteristic feature is the ability to withstand up to 100 cycles of steam sterilisation.



*The new LifeTec™ filters with pleated filter media are available in four sizes 10, 20, 30 and 40 inches – and with seven different connections.*

### A clean and cost-efficient solution

All three filtration stages are compliant to the FDA regulations for food contact according CFR (Code of Federal Regulations) Title 21 und EC/1935/2004. The purification system is in operation and completely fulfils the demands of Thatchers Cider: The well water can be used for cleaning processes in the plant, the resource of drinkable water is saved, and the backflush capability of the stainless steel filters keep the purification costs at a low level.

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