

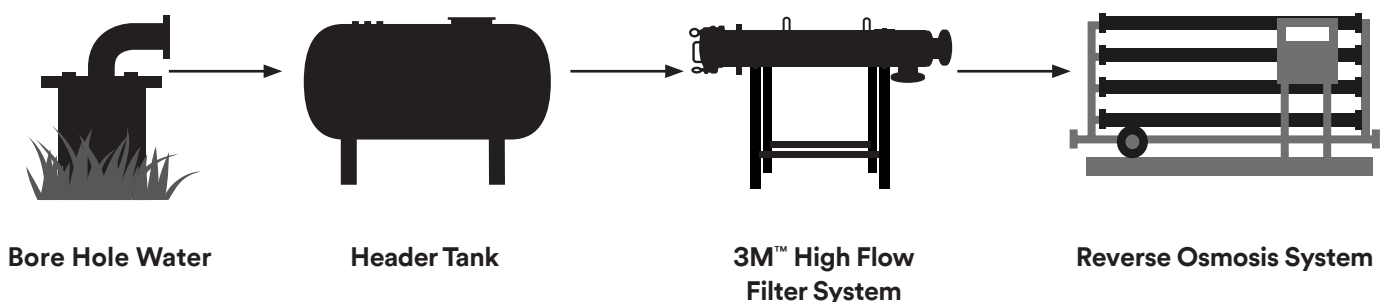
Global brewery invests to save by using 3M™ High Flow Filter System for water treatment.

The problem

Bore hole water contains sands and sediments from the earth that can cause degradation to pump and plumbing systems. If left untreated over time erosion can rack up thousands in capital expense costs, repairing or replacing piping and systems. To eliminate this uncertainty, incoming water from bore holes, well water and municipal streams should be filtered. Filtering the water with a depth filter removes impurities, creating a cleaner and clearer downstream process reducing the potential for damage. Input water in breweries is used for a variety of applications including bottle/keg washing and sanitising water, so optimum quality is important. But most importantly, quality water is the building block for quality beer as this water will make up 90-95% of the final product in form of blending or dilution water, so it is imperative that impurities are filtered to manage flavour profiles.

With this in mind, a global brewery expressed their concerns over sediment damage within their pumps and plumbing, as this ultimately led downstream to an expensive Reverse Osmosis (RO) system. The brewery draws in 130 m³/hr of water from an on-site bore hole which is then pumped to the top floor of the brewery, before passing through a depth filter. However, as the afore mentioned sediment was still breaching the pipework and because they had an active interest in creating a sustainable process through reducing energy consumption, they were looking for a solution.

The new process



The solution

A 3 cartridge 3M™ High Flow Filter System was installed downstream of the bore hole and the header tank to filter out the sediment.

This 3 cartridge system has a full capacity of up to 340 m³/hr, leaving a redundancy of 62%, vital for maintaining the low differential pressure values required. Also, as the 3M High Flow filter system would simplify their current process from two stages to one, extra consideration was needed due to the additional demand for particle retention.

Finally, given the brewery's stance on sustainability, a decision was made to place the 3M High Flow filter system vertically and partially gravity feed the water. This was made possible due to the location of the inlet and outlet ports on the 3M High Flow filter system, and the water storage tank providing 18 metres head pressure from the top floor of the brewery.

The result

The 3M High Flow filter cartridge was proven to reduce particulate load to within the specification required by the reverse osmosis plant. The brewery could be confident that there was now adequate protection from extraneous sediments to prevent damage to pumps, plumbing or the RO system.

Furthermore, the small adaptation of operating the 3M High Flow filter system vertically meant that the pump power could be reduced by over 40%. This provides lower energy costs and a lower carbon footprint; an extremely important factor for this company's long-term sustainability goals. The partially gravity fed system also resulted in a lower dpi (differential pressure), offering a longer service life and ultimately less filter change-outs.

Brewery operatives calculated that by proactively investing in their process before erosion damage had become detrimental, and by removing a step in the process they could reduce their long-term damage, and capital expenditure.

Application Engineering

The cornerstone of 3M's philosophy is service to customers, not only in product quality and prompt delivery, but also in validation, application support and in the sharing of scientific information.

Our Application Engineering (AE) group is a market-orientated group of scientists and engineers who work closely with customers to solve difficult separation problems and aid in the selection of the most effective and economical filtration systems. 3M Application Engineers routinely provide end users with:

- ▶ Validation and regulatory support
- ▶ Extractable and compatibility analysis
- ▶ Filter systems optimisation studies
- ▶ 3M™ 101 Series Integrity Testing Device

Get in touch

Contact us to find out how 3M could help you save on the true cost of filtration in your brewery and help you create a clean and clear beer. Or, if you have a complex process problem that requires expert help and would like to schedule an appointment with a 3M Application Engineer, send us a message at 3M.co.uk/foodandbeveragecontact or www.3Mireland.ie/foodandbeveragecontact.

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