

3M Separation and Purification Sciences Division

# Brewery reduces costs and increases efficiency with 3M™ High Flow Series Filters.

## The Problem

Beer is typically over 90% water. Facilities that produce it know preparation of this key ingredient is critical. With that in mind, a leading European brewery planned to upgrade its water system. As a high-volume facility producing over 500 thousand litres of beer each day, the brewery knew careful planning and design were crucial.

Before the upgrade, the brewery employed a filter housing containing 15 conventional 2.5" (63.5 mm) diameter, 40" (1016 mm) long filters. Though this filter system was sufficient in removing particles from the water, it was cumbersome to change the filters on a frequent basis. The system was also unable to provide a high water flow rate at peak production periods without suffering significant differential pressure buildup.

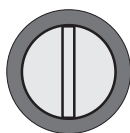
## The Solution

As companies and government agencies are building ever-larger water treatment plants for both industrial and commercial use, demand for high capacity fluid filtration is growing.

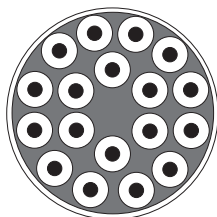
In response, 3M has developed an extremely efficient, high-capacity filter that's easy to use and saves time, money and space for customers. The 3M™ High Flow Series Filter System features a compound radial pleat design that efficiently arranges a significant amount of filter media surface area in a compact cartridge. The large diameter core allows a flow rate of up to 3991 ft<sup>3</sup>/hr (113 m<sup>3</sup>/hr) through a single 60" (1524 mm) filter element. The compact filter housing is 33% to 50% smaller than filter housings for conventional 2.5" (63.5 mm) outer diameter cartridges for a given flow rate.. The cartridge also has an ergonomic handle that makes installation and filter changes easy.

3M worked with the engineering firm contracted by the brewery to include parallel 3M High Flow filter housings prior to the new RO membrane filter in the water system. The example provided below demonstrates this benefit by comparing the number of 40" (1016 mm) length filter cartridges and their housing diameter required for a 200 gpm (80 m<sup>3</sup>/hr) flow rate.

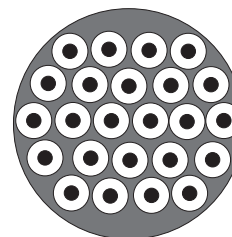
80 m<sup>3</sup>/hr system



3M™ High Flow series filter system  
1 cartridge in a 8.6" (218.4mm)  
diameter housing



2.5" (63.5mm) pleated cartridges  
18 cartridges in a  
14" (355.6mm) diameter housing



2.5" (63.5mm) depth cartridges  
24 cartridges in a  
16" (406.4mm) diameter housing

**3M™ High Flow Series Filter System vs. conventional 2.5" (63.5mm) cartridge systems**

## The Result

Installing the 3M High Flow Filter System has cut maintenance time at the brewery by 90% and reduced the cost of replacement parts and filters. The system also provides the potential for increased water flow capacity of up to 60%.

The lead brewery engineer on the project noted, “The system supplied by 3M has provided significant advantages for us. It has ensured that we have continuous high-efficiency filtration to protect very expensive reverse osmosis membranes.”

The engineer continues, “This, coupled with cost savings on consumables and the opportunity to accommodate a future increase in water requirements, meets all the criteria for the adoption of a new technology installation within the brewery.”

## 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 create and maintain your unique tasting flavor. Or, if you have a complex process problem that requires expert help, schedule an appointment with a 3M Application Engineer here:

[3M.com/beverage](https://www.3m.com/beverage)

## Application Engineering

Service to customers, in product quality and prompt delivery, as well as in application support and the sharing of scientific information, is a cornerstone of 3M’s philosophy.

Our Application Engineering team is a market-oriented group of scientists and engineers who work closely with customers to solve difficult separation problems. They also help customers choose the most effective and economical filtration systems. 3M Application Engineers routinely provide end users with:

- ▶ Regulatory support
- ▶ Extractable and compatibility analysis
- ▶ Filter systems optimization studies
- ▶ 3M™ 101 Series Integrity Testing Device

## Important Notice

### Product Selection and Use:

Many factors beyond 3M’s control and uniquely within user’s knowledge and control can affect the use and performance of a 3M product in a particular application. As a result, customer is solely responsible for evaluating the product and determining whether it is appropriate and suitable for customer’s application, including conducting a workplace hazard assessment and reviewing all applicable regulations and standards (e.g., OSHA, ANSI, etc.). Failure to properly evaluate, select, and use a 3M product and appropriate safety products, or to meet all applicable safety regulations, may result in injury, sickness, death, and/or harm to property.

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