

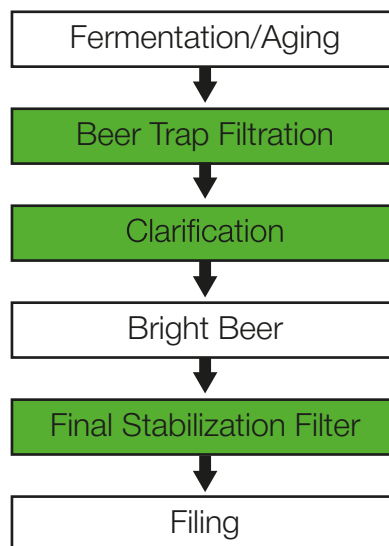
Filtration In The Beer Industry

Filtration is a crucial step in beer production. While there are many types of beer, the basics of brewing beer are shared across national and cultural boundaries and requires critical process operations to ensure integrity of the brewing process and to consistently produce the perfect brew. A proper filtration system is critical in ensuring the biological safety, quality, and shelf-life of the product, as well as protecting process equipment. Global Filter designs and manufactures vessels and filter elements used in the beer industry. Our expertise enables us to optimize your manufacturing process.

- We operate on three key stages of beer production: First, a bulk filtration step, after fermentation and aging, to remove all unwanted large particles (coarse filtration) making the beer visually clear. For the process step, we recommend using a pressure leaf filter offered by Filtration Group, Process Systems.
- For the clarification step, depending on beer composition (solid content, turbidity, micro-organisms contents), we recommend using Global Filter's pleated microglass cartridges (FG & HFFG series) and/or pleated polypropylene cartridges (PP & HFPP series) with a pore size rating of 1 to 3 microns. The FG-Series cartridge offers a low pressure drop, high load capacity and efficiency while assisting in haze removal due to the media's inherent positive charge. This step also protects the membrane filter from being overloaded with particles and prematurely clogging.
- Before bottling, the third and final filtration step provides clarity to the beer while removing residual yeasts, haze and microbial contaminants that can potentially induce bottled fermentation, haze reformation, and that would interfere with beer preservation. For microbial contaminant removal, 0.45 or 0.8 micron rated PES membrane cartridges are recommended. Removing the microorganisms provides a stable product, free from microbial contaminants.

- Global Filter's products can ensure sterile effluent free of microbial contaminants, providing cleanliness to wash/ rinse water and fluid utility lines.
- Fermentation and holding tank vents should utilize filtration to removal contaminants from ambient and process air.

Typical Beer Process Flow



Our Solutions For Beer Filtration

Filtration Group produces best-in-class filtration solutions that enable productivity and help make the world safer. Since 1930, our businesses (Eurofiltrec, amafilter, LFC Lochem, now Global Filter) are known for filtration and separating solids from liquids. We find the best solutions for our customers' most challenging applications. Beer purification requires many separation techniques, and in particular, mechanical filtration. Global Filter designs and manufactures filtration elements (filter cartridges, bags) and vessels for the beer industry.



Filters for clarification:

For coarse particulate retention, fiberglass pleated cartridges are an optimal choice. With a pore size rating from 0.45µm to 40µm, our FG-Series is suitable for colloid filtration, food contact and does not interfere with the organoleptic properties of beer. The FG-Series elements also protect membrane cartridges. As a result, they promote less maintenance and production downtime. In addition, Global Filter's short lead times limit the amount of on-hand inventory required by the user.

Filters for tank vents and utilities:

We provide optimal solutions that limit the contamination of your products by offering filtration products to service process fluid lines. Global Filter's WCPES filter cartridges are able to remove sub-micron particulate from process water. Our range of PTFE membrane cartridges allows for removal of microbial contaminants by filtering tank vents and process air/gas.

Filters for microbial filtration:

Our solutions are designed to ensure the performance and quality. Our range of PES membrane cartridges, such as, GFPES, GBPES and GDPES, are 100% integrity tested prior to leaving the manufacturing facility to ensure they adhere to bacterial removal standards. A validation guide can also be provided to convey operating and performance specifications. The end-user's process and operating requirements will dictate which Global Filter PES product and what micron rating is most optimal. This is often determined by the type of beer produced.

Global Filter Main Advantages:

- Production in 5 days
- Manufacturing facilities in North America and Europe
- Competitive prices and highest value in the industry
- The design, development and manufacture of all our products meet the construction standards D.E.S.P 2014/68/EU, NSF, USP, FDA, CE 1935/2004
- Technical support from initial conversations to implementation and continued process assistance
- Our solutions are based on our expertise as well as laboratory and industrial certified testing
- We are able to offer products for small-scale production as well as higher volume operations

Product Advantages:

- Production in North America and Europe (France)
- Production in 5 days
- Rating down to 0.01 micron
- Range from prefiltration to sterilizing grade
- Manufactured according to EU and US standards
- Large choice of media for a wide range of applications



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