



BREWERY FILTRATION APPLICATIONS

Process Filtration

In the brewing business, the right ingredients make all the difference. The right filtration does too. Donaldson has been providing the food and beverage industry with high-quality, standards-compliant sterile air, steam, and liquid filtration products for over 100 years. From feeder water to filling machines, our solutions help you consistently deliver the highest quality, best tasting product possible.



A SUCCESSFUL PARTNERSHIP

1 Process and Rinse Water

Water is used both as an ingredient in the mash and also as process water to rinse the sugar from the grain in the lauter tun. In both cases, the water needs to be filtered to remove particulate.

2 Larger Sterilizing in Place (SIP Skid)

Larger breweries may have steam fed SIP systems to sterilize equipment without disassembly. Filtered steam is essential to avoid product contamination and equipment downtime. Contaminants found in steam can include rust, scale, dirt and sediments carried over from the water source or piping. Donaldson's P-EG housing and P-GS 5 micron steam element ensures clean steam for your SIP system.

3 Boiler Feed Water

Feed water consists of both returned condensate and fresh make-up water, and should be filtered. Any contaminant – including pipe scale, sludge, organic matter, sediment and suspended solids – in the feed water can be introduced into the steam distribution system. Clean water produces clean steam and helps maintain high boiler efficiency. Donaldson's P-FG housing and P-GSL N filter element are designed to handle the high temperatures and solids loads associated with feed water filtration.

4 Steam Heated Mash and Lauter Tun

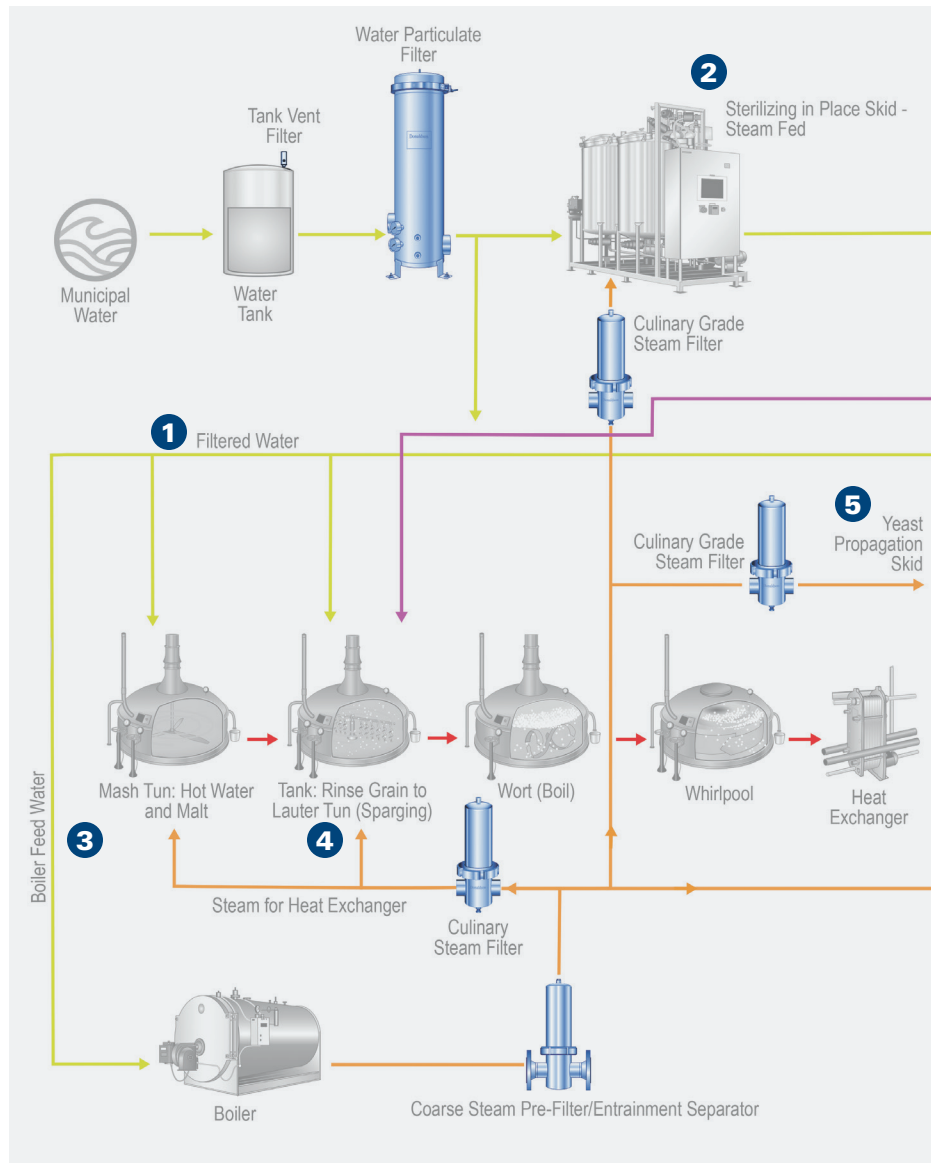
Steam can be in-directly used in the mash or lauter tun as a consistently, reliable heat source. Removing rust, scale, and dirt from steam is essential so that heat transfer equipment operates without issue. Donaldson's P-EG housing and P-GS 5 micron filter element removes contaminant that could reduce heating efficiencies over time.

5 Yeast Propagation Systems & Wort Aeration

Wort aeration and yeast propagation systems require sterile air and oxygen to aid in the start of fermentation. Hygiene is critical in ensuring that the yeast remains viable. Steam Filtration is used to sterilize the equipment between batches. Oxygen is used to "kick start" the fermentation process; specifically, filtered oxygen ensures that nothing is compromised during this critical step. Using Donaldson culinary steam and sterile air filtration ensures that yeast growth is done effectively and consistent each time.

6 Plant Compressed Air

Contamination in compressed air systems can come from many sources. Dust particles, hydro-carbons and humidity are collected from the environment and concentrated by the air compressor. Oil aerosols from the compressor lubricant and rust particles from the piping can break free and enter the compressed air stream. Donaldson's DF series filtration ensures equipment continues to run without disruption as well as provide essential pre-filtration for sterile air elements.



FOR THE BREWING INDUSTRY

7 Product Push Out

At times, CO₂ may be used to push out product and clean processing lines. Donaldson's PG-EG housing and SRF filter element ensures that the CO₂ is sterile and will not contaminate the finished beer or equipment.

8 Centrifuge Seal Water

Seal water is used to provide a hydrohermetic seal that ensures minimal O₂ intake in the clarified beer. Five micron filtration ensures that the seal is effective.

9 Counterbalance Filter

Counterbalancing is used as an alternative to tank ventilation when designing to minimize oxygen ingress. A sterile air filter placed in the balance line will prevent cross-contamination and further undesired fermentation from occurring. Donaldson's PG-EG housing and P-SRF V sterile air filter is an ideal combination for this application.

10 Trap Filter / Guard Filter

Donaldson trap filters ensure stable, contaminant-free beer while maintaining the unique characteristics and flavor. This type of filtration is installed to capture any migrating diatomaceous earth (DE) from entering the bright tank. Donaldson's PP100 N 5 micron element, along with our sanitary PF-EG filter housing, is a recommended filter combination.

11 Cold Stabilization

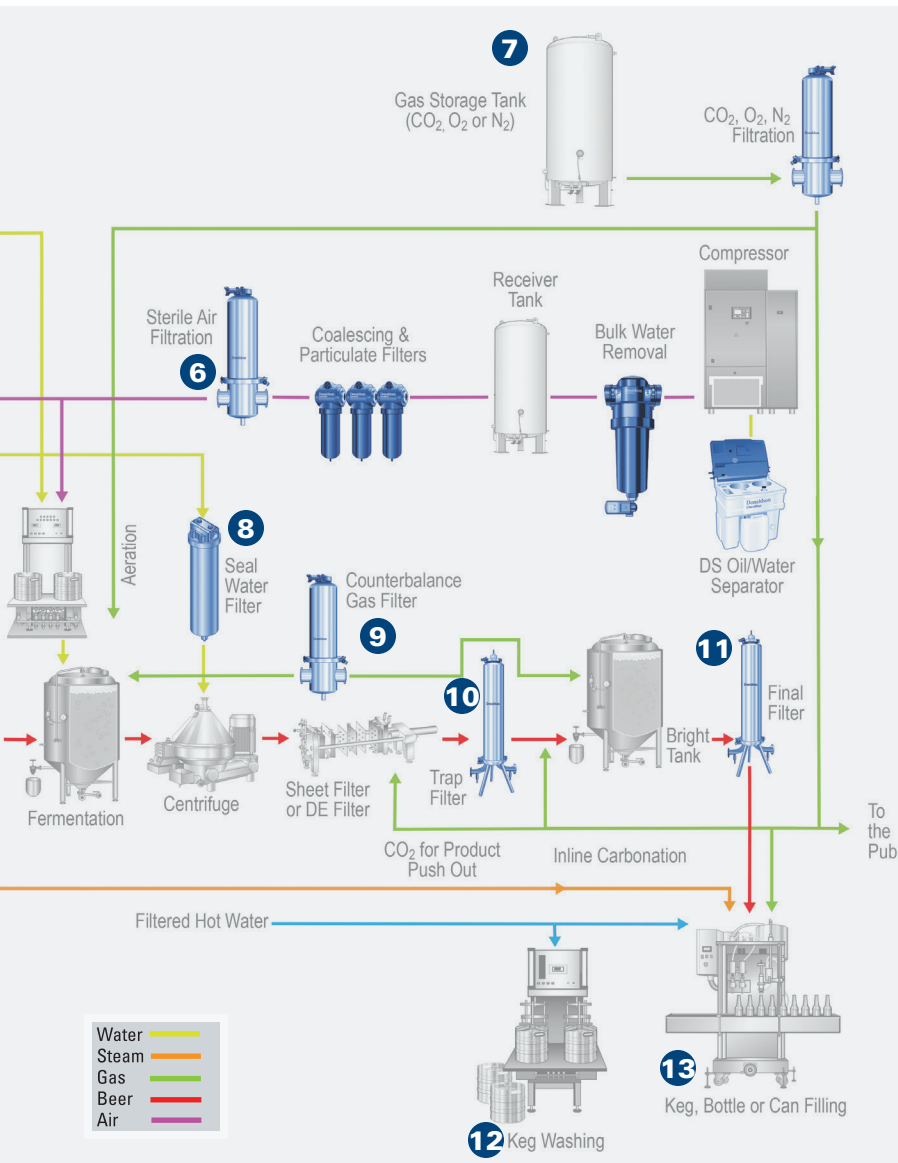
A cold stabilization or final filter should be used between the bright tank and filling line. Use a LifeTec PES BN A 0.45 micron element to remove excess yeast and other spoilage organisms from the final product and improve shelf stability.

12 Keg Washing / Sterilization Equipment

Ensuring that finished beer is put into clean containers is essential in protecting your investment. When cleaning and sterilizing kegs, it is important for the rinse water to be properly filtered in order to remove critical contaminant. Donaldson's P-FG housing and nominal filter element can provide the necessary point of use filtration. Some breweries use filtered compressed air for purge or drying the kegs after the CIP process.

13 Filling Machine

Today's high speed short-tube filling machines afford brewers a high degree of flexibility. Donaldson's PG-EG housing and sterile gas filter is used to clean bottles and purge oxygen before filling. Some brewers also use filtered CO₂ for level correction in order to optimize fill levels. Donaldson's filtration helps ensure integrity of these processes.



SUPPORTING PROCESS AND PRODUCT INTEGRITY

Extensive Product Portfolio

- Process air, steam and liquid filtration products
- Performance engineered to sanitary guidelines
- Wide range of filtration media for any application
- Housings, elements, and parts in-stock, ready to ship

Advanced Technology

- Optimized filtration performance and efficiency
- Extensive research and development capabilities
- Advanced design and testing capabilities
- Over 1,000 engineers and scientists worldwide

Unrivalled Support and Expertise

- Expert technical specialists available as resource
- Comprehensive pre- and post-sale support
- Extensive filter analysis and trouble-shooting
- 100 years of successful global manufacturing



Registered



Standard No. 10-04*



Member of



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The L48™ PP100 Series is Tested and Certified by NSF International against NSF/ANSI Standard 42 for material requirements only.

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The L48C Series with PP ring is Tested and Certified by NSF International against NSF/ANSI Standard 42 for material requirements only.

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The L48™ PP N and PP100 N Series is Tested and Certified by NSF International against NSF/ANSI Standard 42 for material requirements only.

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