



CHEESE FILTRATION APPLICATIONS

Process Filtration



A SUCCESSFUL PARTNERSHIP

1 Pre-Filtered Water

Water used to feed boilers, cleaning, and general use comes from municipal or well sources that have contaminants that will reduce the life and reliability of plant systems. Coarse filtration will purify incoming water and prolong the life of systems by removing dirt, rust, and scale that can corrode and clog. Use a P-FG housing with a PP-N or P-GSL N element for pre-filtration in accordance with the FDA Pasteurized Milk Ordinance and 3-A guidelines.

2 Pre-filtration for RO

System Ingredient water can also be supplied from a Reverse Osmosis (RO) system. Pre-filtered water to the RO system improves the longevity and efficiency of the system by removing larger containments that will add additional wear to the system. Pre-filtering the incoming water through a P-FG housing with PP100 1 micron elements will ensure longer life and better performance from the RO system.

3 Steam Pre-filter

The heat energy contained in steam contributes to accelerated degradation of system components such as carbon steel pipes, sealing elastomers, and mechanical components like pressure reducing valves. Use a P-EG housing and P-GSL N 25 micron element as an entrainment separator and pre-filter, which meets the FDA Milk Ordinance and 3-A requirements for steam pre-filtration.

4 Culinary Steam Filter

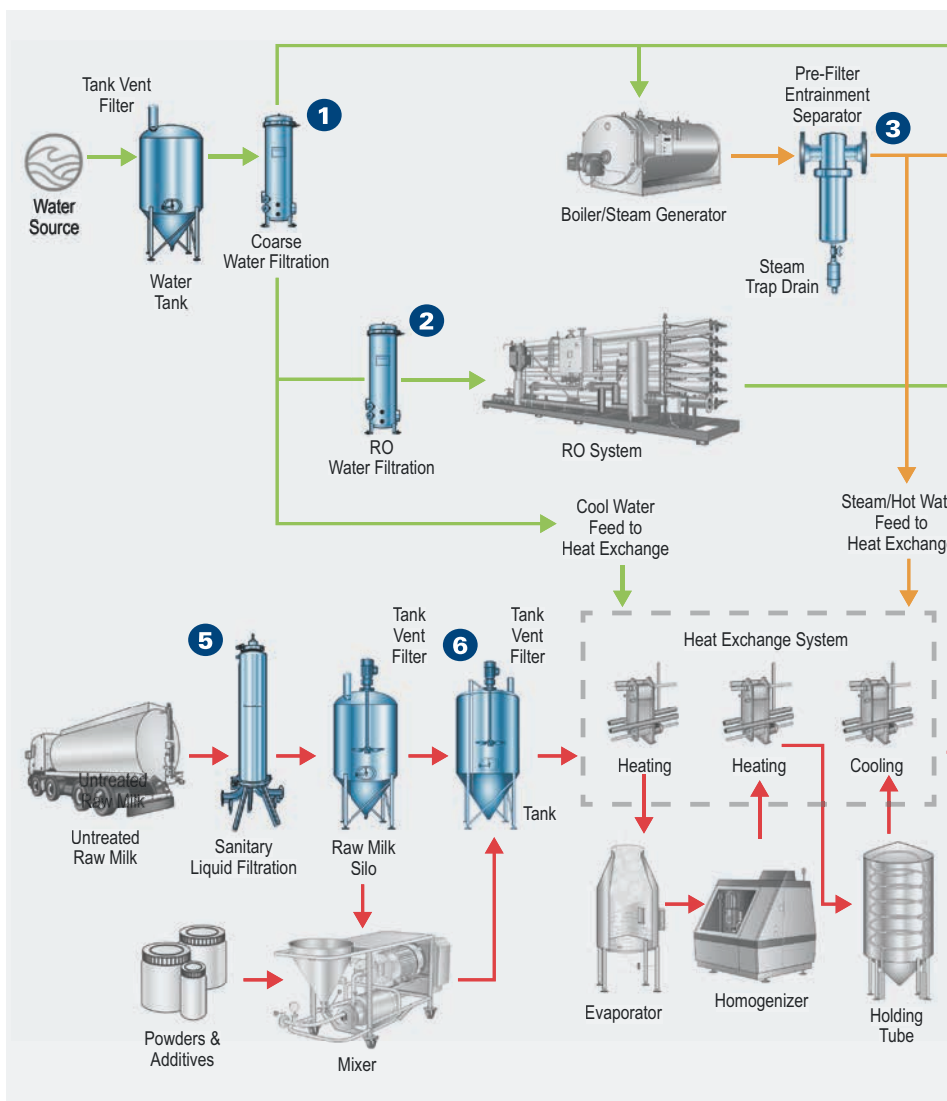
Contamination from boilers can be especially problematic for steam based cleaning processes. Even the smallest amounts of contamination can clog wands and spray balls of Clean-In-Place (CIP) and Sterilization-In-Place (SIP) systems, and render them ineffective. Use a P-EG housing with a P-GS 5 micron element to produce 3-A culinary grade steam. Install stainless drains on all steam filter housings to evacuate condensate.

5 Raw Milk Filter

Raw milk is supplied with varying levels of contamination due to supplier handling and transportation. Types of contamination include dirt, rust and grime from shipping containers, and various sizes of organic and inorganic particulates. If left unchecked, contaminants can degrade the milk quality and contaminate the manufacturing process. Use a sanitary PF-EG housing and 10 micron PP N elements to remove particulates and ensure a cleaner process and product.

6 Tank Filter

Enclosed tanks for raw milk, processed milk, and starter bacteria in inoculant tanks require vent filters to prevent airborne contaminants from getting inside the tank. Consider a P-BE and 0.2 micron P-SRF V sterile air element to prevent harmful bacteria from contaminating critical ingredients stored in enclosed tanks.



FOR THE CHEESE INDUSTRY

7 Curd Production

Heat treatment is required during cheese making to regulate size and acidification of the curd. In many cases, hot water and/or culinary steam can be directly injected to supply heat. Use Donaldson steam elements and 3-A certified housings to meet 3-A sanitary liquid and culinary steam requirements.

8 Brining and Rinse

Sanitary water is used in the brine solution and post brining rinse once excess whey has been removed from cheese. Steam can also be used to help maintain a precise temperature during this process. Use Donaldson certified 3-A housings to meet 3-A sanitary liquid and culinary steam requirements and reduce the risk of contamination.

9 Molding and Pressing

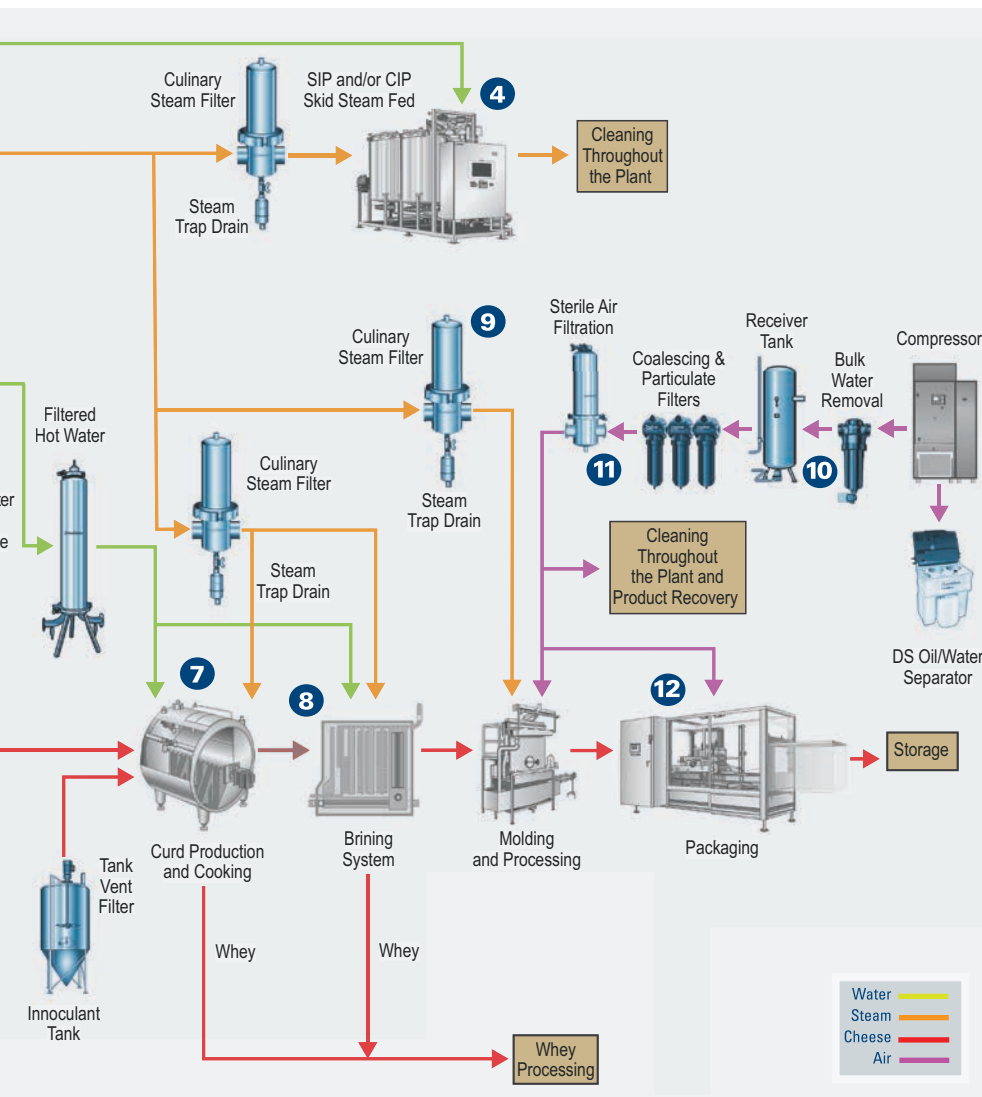
Low pressure steam is used heat the molding and pressing equipment to maintain a precise temperature without over cooking the cheese. Use Donaldson steam elements and 3-A certified housings to meet 3-A sanitary guidelines and culinary steam requirements.

10 Compressed Air Condensate

Hot air leaving the air compressor is often cooled by an aftercooler or refrigerated air dryer which causes water vaporize to condense. Use a DF-C cyclone separator to remove this water and ensure that storage tanks remain relatively clean and dry to prevent rust from forming and to comply with the FDA Pasteurized Milk Ordinance. Run the condensate drains from all compressed air equipment to a DS oil-water separator which will allow the wastewater discharge stream to be clean and compliant with environmental and safety regulations.

11 Plant Compressed Air

Other compressed air users such as airveyors, packagers, palletizers, and general pneumatic equipment should be supplied with clean, dry air to prevent malfunction. The DF filter housings and elements can remove both dirt and oil and water



aerosols to protect equipment. Use three DF housings in series with V, M, and S filter elements to meet SQF regulations for compressed air.

12 Sterile Air and Nitrogen Supply

Sterile air and nitrogen are used in processing equipment and to run many of the pumps used to move milk and whey through the plant. Sterile air and nitrogen are also used to provide positive pressure to keep airborne contaminants out during molding and packaging. A Donaldson certified 3-A PF-EG housing with 0.2 micron PF-PT sterile air elements meets 3-A requirements for sterile air and gas, and will protect your process.

SUPERIOR FILTRATION. **MAXIMUM PROTECTION.**

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



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Important Notice

Many factors beyond the control of Donaldson can affect the use and performance of Donaldson products in a particular application, including the conditions under which the product is used. Since these factors are uniquely within the user's knowledge and control, it is essential the user evaluate the products to determine whether the product is fit for the particular purpose and suitable for the user's application. All products, product specifications, availability and data are subject to change without notice, and may vary by region or country.



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