

PENTAIR®

DAIRY MEMBRANE TECHNOLOGY

YOUR IDEAL SOLUTION FOR THE SEPARATION OF CASEIN-WHEY PROTEINS FROM SKIMMED MILK

CHALLENGE

The need for whey protein is growing, and will do for the next decade. This implies the dairy industry needs a reliable, sustainable, cost efficient solution to obtain native whey protein from skimmed milk, and to separate it from casein protein.

Such a solution must meet the highest hygienic standards, be predictable, easy to operate and control – with a robust performance and flawless operation.

Next, water and energy consumption must be low, just like product loss. Last but not least, cost levels must be as low as possible, due to increasing competition and rationalization in the dairy industry.

SOLUTION

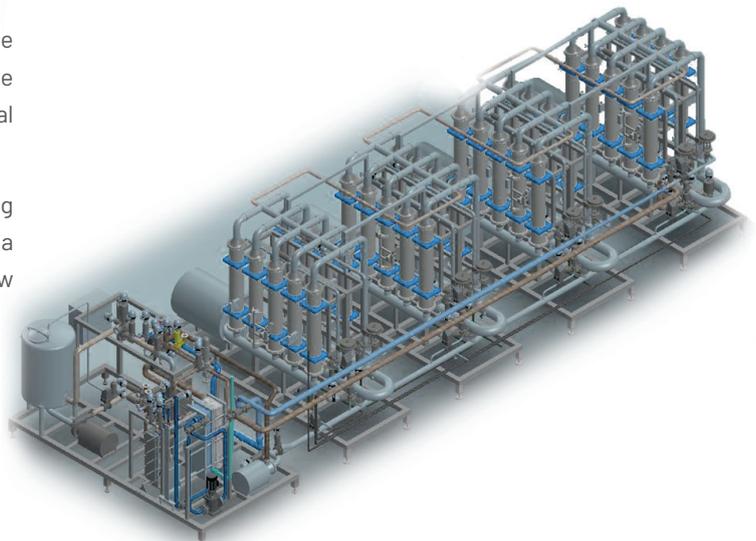
To meet these challenges, a hollow fiber membrane system is the ultimate choice. These straw like membranes are manufactured from poly ether sulphon, a polymer known for its excellent properties regarding food contact and chemical and high temperature compatibility.

The hollow fibers are hygienically constructed in a membrane element with the optimal pore size and length. Multiple elements are manufactured in a membrane unit, and several membrane units are in a so called cascade system.

Pentair's hollow fiber technology provides outstanding performance in purity and recovery, at 10°C and 50°C. With a long life time and a small system volume, one can expect low operational expenses.

CUSTOMER BENEFITS

- **Sustainability – Low energy and water consumption.**
Long life of the membranes.
- **Quality – High whey and casein protein purity levels.**
Excellent hygienic level.
- **Operation – Reliable & Predictable.**
Vertical orientation.
- **Cost of Ownership – Lowest operational expenses.**
Favorable CapEx. Small foot print.



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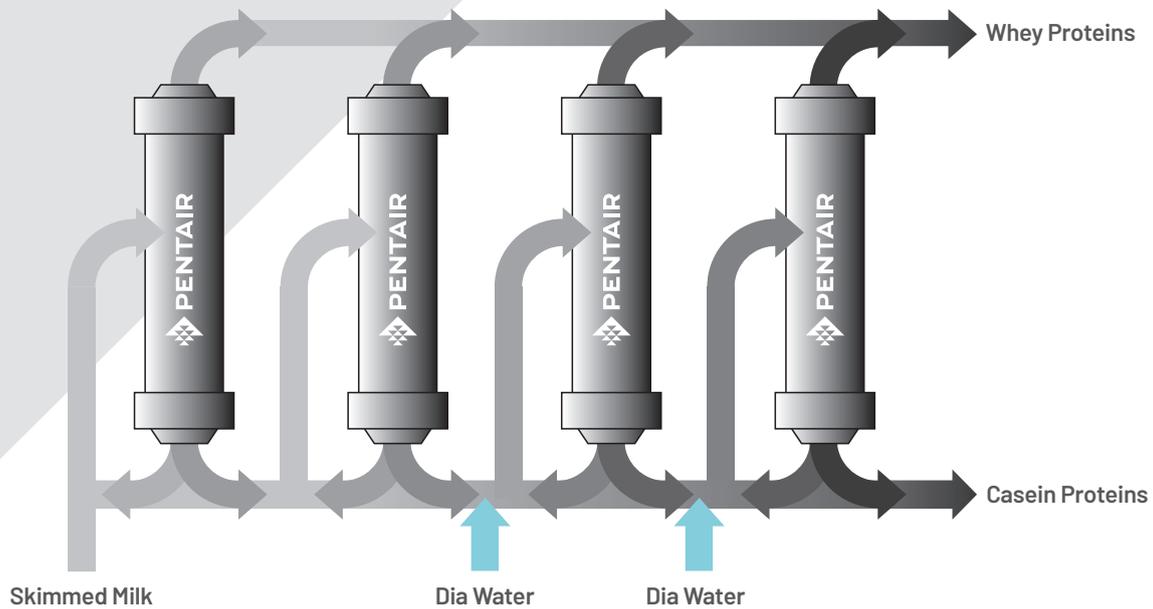
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PROCESS DESCRIPTION

The hollow fiber membrane system works via a cascade system; multiple membrane units, in crossflow mode, are operating in a series configuration. The first unit is fed with skimmed milk and the concentrate flows to the second unit as a feed flow. This is repeated several times; all permeate flows, with whey proteins, are collected in a tank.

In the last unit, the concentrate, with casein proteins, is also collected. A feed tank, with the skimmed milk, a tank with dia water, and a cleaning tank make it a complete system. The dia water is used to dilute the concentrate flow in between membrane units.



A membrane cascade system for separation of casein and whey proteins from skimmed milk



Four membrane units - Capacity to treat 6 ton/h of skimmed milk



Consistent quality through the use of hollow fiber membranes



LEARN MORE

Interested in an inquiry or more information:
Reach out to your Pentair point of contact.

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