



Run safer.  
Run better.  
Run longer.

Service for gasketed  
plate heat exchangers  
in the dairy industry.



A person wearing a white lab coat, a white hairnet, and a white face mask with a yellow strap is looking at a tablet. They are standing in front of large, cylindrical industrial equipment, likely part of a dairy processing plant. The background is slightly blurred, focusing attention on the person and the equipment.

# Run safer. Run better. Run longer.

**Gasketed plate heat exchangers** are among the most resilient pieces of equipment in your dairy. With proper maintenance and cleaning, they can perform several vital functions for years, if not decades. They are reliable – but that doesn't mean they are unbreakable. Alfa Laval Services ensure the safety, reliability and efficiency of your dairy's heat exchangers.

Issues can develop when gaskets reach end-of-life, and plates can, over time, become corroded or deformed. Excess chemical cleaning can also put a strain on your equipment. In the dairy industry, small flaws can lead to serious repercussions if not addressed properly. Unplanned shut-downs can quickly lead to your product being ruined, and leakages can cause contamination and threaten consumer safety. For these reasons it's crucial that you bring in experts to maintain your equipment and avoid failures.

In any dairy, product safety and quality are top priorities. Alfa Laval's **Condition Audits** analyze the state of your equipment, and provide comprehensive findings and recommendations. Our recommendations are based on solid evidence – our specialists will inspect your site and gather data from your heat exchangers. These audits identify developing flaws, and they also help you to devise maintenance plans to keep your operations hygienic and efficient into the future.

**Integrity Testing** is our innovative, hydrogen-based technology for detecting non-visible holes. It's an incredibly quick and accurate method of checking gasket

and plate integrity, and it lets you take preventive action before any damage to your product can happen.

At Alfa Laval we understand that most dairies will alter their product range from time to time, and that's when the **Redesign** service can be especially useful. Alfa Laval's specialists can advise on the effectiveness of your heat exchanger setup, and propose ways to optimize your processes and improve efficiency. This might involve assessing the gaskets and plates to make sure they are appropriate for the task at hand – whether that be pasteurization, thermization, cooling whey, or heating CIP fluid. We can also advise on **heat recovery**. Very small improvements in heat recovery can lead to significant reductions in energy use and costs, and Alfa Laval's experts can make sure that you make the most of your resources.

This guide will help to introduce the services that Alfa Laval offer, and it is specifically tailored for gasketed plate heat exchangers in the dairy industry. It's about helping our customers get the best out of their equipment – allowing them to run safer, run better and run longer.



# Gasketed plate heat exchangers in the dairy process

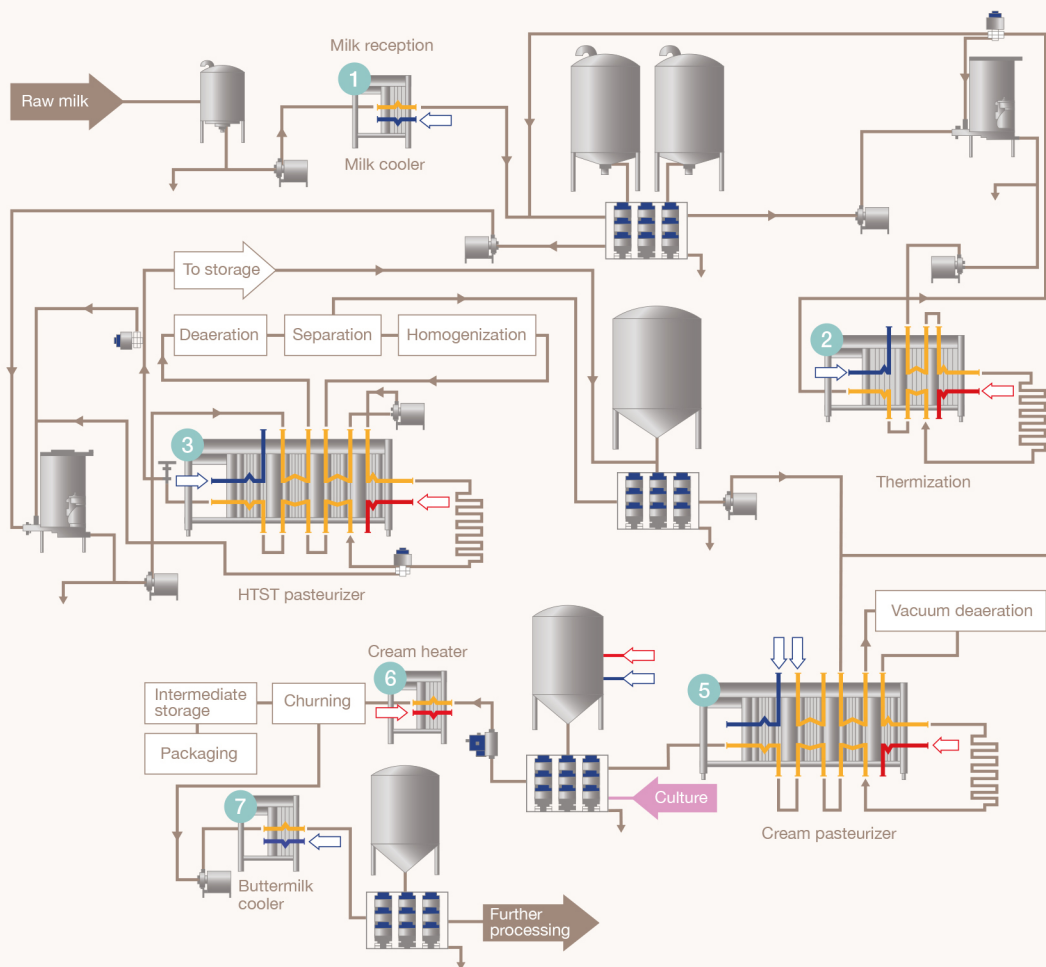
## 1 Milk reception

Incoming milk is cooled to storage temperature in a milk cooler. It's important that it is cooled immediately upon arrival (max. 4°C) to prevent bacteria from multiplying during storage. Because of the low temperatures, NBRB<sup>2</sup> gaskets may be an economical choice here.

## 2 Thermization

In many large dairies, not all incoming milk can be pasteurized and processed immediately. In such cases, heating to 63-65°C is necessary to kill off coliform bacteria. You may be able to reduce energy costs throughout the dairy by improving heat recovery at this stage. Your Alfa Laval representative can tell you how the Redesign service can help you achieve this.

Milk, cream, butter and dairy spreads process



## 5 Cream pasteurization

Cream pasteurizers are typically multi-section heat exchangers, with slightly higher temperatures than in milk pasteurizers (we often see temperatures of up to 95°C depending on the type of cream). This heat will eventually strain gaskets, so it is helpful to consult Alfa Laval about your spare part inventory. We occasionally see scaling on the heating media side of cream pasteurizers, and we can advise on CIP and Reconditioning to make sure that these units continue to operate safely and efficiently.

## 6 Churning cream tempering

Cream heaters are used in, for example, butter manufacturing (cold cream needs to be heated slightly before entering churning). Temperatures are not high in these units, so you may find NBRB<sup>2</sup> gaskets are an economical choice.

## 7 Buttermilk cooler

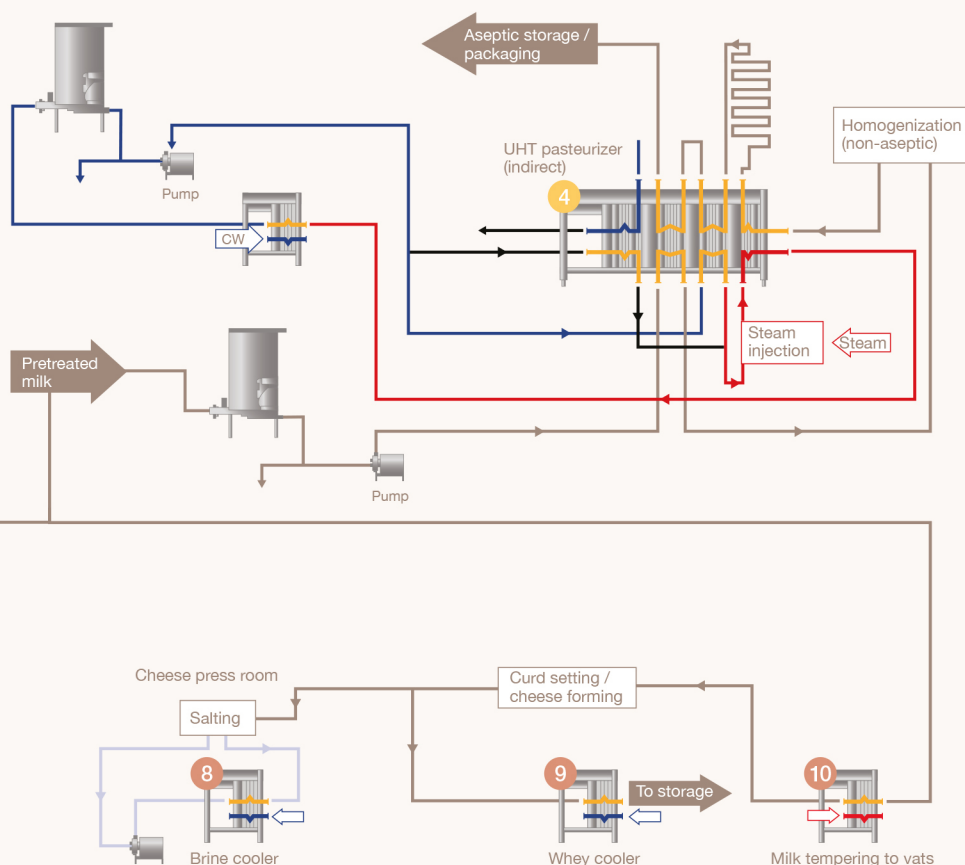
These units are where buttermilk is cooled before being collected in the storage tank to await further processing. Gasketed plate heat exchangers used for this purpose often have long gasket and plate lifetimes, and NBRB<sup>2</sup> gaskets might be an economical choice here.

### 3 Pasteurization

The pasteurizer is probably the most important heat exchanger in your dairy. Typical high temperature short time pasteurization (HTST) is done at 72-75°C for 15-20 seconds, to deactivate the phosphatase enzyme, and kills pathogenic bacteria. Alfa Laval can maintain this critical unit, with Visual Condition Assessment and Integrity Testing. When you make process changes, we can maximize efficiency and productivity as part of the Redesign service. You receive expert advice, specific to your goals and circumstances.

### 4 High temperature pasteurization

To achieve the longest shelf life for milk, ultra high temperature treatment (UHT) requires a temperature of 135-140°C. Whether this is done with indirect or direct steam injection, the high temperatures put a strain on gaskets – Alfa Laval can make sure you always have the right replacement parts at hand, with the Exclusive Stock service. There are very high hygiene demands here too, so these units need to be aseptic. Condition Audits can ensure that hygiene standards are not compromised.



Long life milk process

Cheese process

### 8 Milk tempering to vats

After storage, the milk is heated in a plate heat exchanger before it is transported to the next processing stage, curd setting. These units do not operate at high temperatures, and your Alfa Laval representative can advise you of the benefits of NBRB<sup>2</sup> gaskets here.

### 9 Whey cooling

If whey is to be stored before processing, it must either be chilled or pasteurized as soon as the fat and casein has been removed, to avoid bacteria growth. NBRB<sup>2</sup> gaskets could be an economical choice in these units.

### 10 Brine cooling

The most common brine salting method is to place the cheese in a container with brine. When this happens, the brine must pass a plate heat exchanger for cooling. In many situations, titanium plates can be a smart choice to cope with the pH and salt concentration of the brine.

1. NBR - nitrile butadiene rubber, elastic material, the most oil- and fuel-resistant elastomer. It is also known for maintaining its stability in low temperatures.
2. NBRB - basic
3. NBRP - for improved performance
4. NBRFF - for fatty food



# 360° Service Portfolio

## Visual Condition Assessment

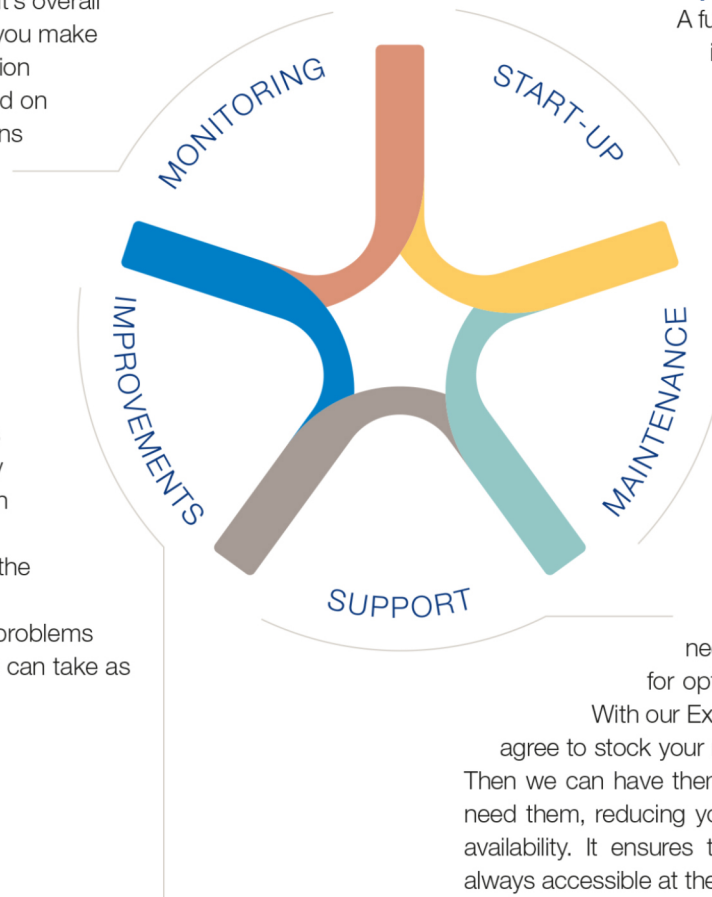
Heat exchangers in dairies often run for long periods, so shutting them down to check their condition may not be feasible. Alfa Laval's Visual Condition Assessment uses thermal imaging to look inside your heat exchangers while they are in operation. Our specialists also make a visual inspection of your units and discuss their performance with you and your staff. From these sources, we compile a report on the condition of your plates, gaskets and frames, and the unit's overall performance. This lets you make plans for future production and maintenance, based on reliable recommendations from experts.

## Integrity Testing

Alfa Laval's Integrity Testing method is an extremely accurate and quick way of assessing the condition of your plates and gaskets. Our highly sensitive equipment can detect the smallest of flaws, without opening the plate pack. It identifies developing problems before leaks occur, and can take as little as twenty minutes per section.

## Redesign

We can help adapt and optimize your Alfa Laval equipment to your changing needs. When your product range changes, our experts make sure you get the most out of your new arrangement. This could involve changing plate packs and advising on gasket material, but we can also help maximize heat recovery throughout your dairy and make sure that your CIP process is delivering hygienic results without damaging equipment.



## Spare parts

A fundamental rule to maximize uptime in your brewery is the availability of genuine spare parts. High-quality, durable original equipment manufacturer (OEM) plates, gaskets and auxiliary parts ensure increased productivity and a longer lifespan for your dairy equipment.

## Installed base audit with Exclusive Stock

With these strategic services, we gather information at the site of your dairy, to assess your needs and provide recommendations for optimizing your spare part inventory. With our Exclusive Stock service, we can also agree to stock your most important parts only for you. Then we can have them shipped to you on the day you need them, reducing your storage costs while improving availability. It ensures that your critical spare parts are always accessible at the right place, at the right time.



#### **Alfa Laval in brief**

Alfa Laval is a leading global provider of specialized products and engineering solutions.

Our equipment, systems and services are dedicated to helping customers to optimize the performance of their processes. Time and time again.

We help our customers to heat, cool, separate and transport products such as oil, water, chemicals, beverages, foodstuffs, starch and pharmaceuticals.

Our worldwide organization works closely with customers in almost 100 countries to help them stay ahead.

#### **How to contact Alfa Laval**

Contact details for all countries are continually updated on our website. Please visit [www.alfalaval.com](http://www.alfalaval.com) to access the information.

