

# Anhydro Falling Film Tubular Evaporator

Evaporator Upgrading



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– building on existing investments

*SPX can help you to increase throughput and make significant energy savings by rebuilding and modernising an existing Falling Film Tubular Evaporator (FFTE) from SPX or another supplier. You can also upgrade equipment to ensure compliance with the latest product standards by modifying the product heat treatment system.*

## Boost capacity and concentration

The most common way to upgrade an evaporator with Thermal Vapour Recompression (TVR) is to add additional effects and perform vapour recompression across more effects. (See fig. 1). This means higher capacity and lower specific steam consumption.

As an example for concentration of whey products, an existing evaporator can be equipped with a high concentrator (finisher), enabling you to raise the final solids content to between 60 and 62 % TS.

## Cut energy consumption and ensure quality

Another frequently used option is to install a Mechanical Vapour Recompression (MVR) evaporator as a pre-evaporator, and to convert the existing TVR evaporator into a finisher/ high concentrator. This provides a significant capacity increase and a substantial reduction in energy consumption.

Older evaporators often fail to ensure that the final product meets specific functional, physical and bacteriological requirements. Rebuilding can thus also include a modernisation of the pasteurisation system. And by splitting up the existing effects, you can also achieve precise product retention times in a single pass.

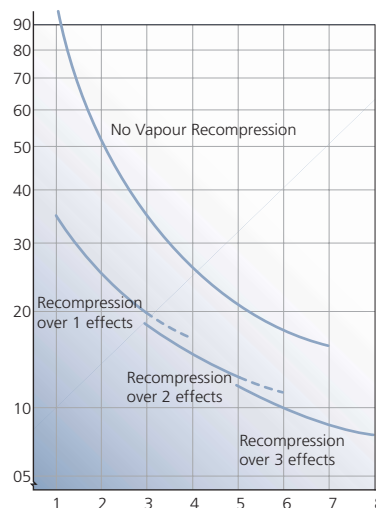


Fig. 1: Steam consumption for SPX multi-effect evaporators and vapour recompression over various effects. The curves represent standard conditions for a typical product.

## Optimise benefits through careful planning

SPX will work closely with you to define your objectives, evaluate your existing equipment and the available options, and help you achieve the most cost-effective, long-term capacity increase, energy savings and product enhancement by building on your existing investments.

## Evaporator control system

Many customers choose to implement new automated process control systems in connection with an upgrade. Automated process control ensures minimum deviations from programmed parameters, and is the most cost-effective way of ensuring that specific physical, functional and bacteriological final product properties always comply with ever more stringent quality and hygiene standards.

Advantages with an automated process control system:

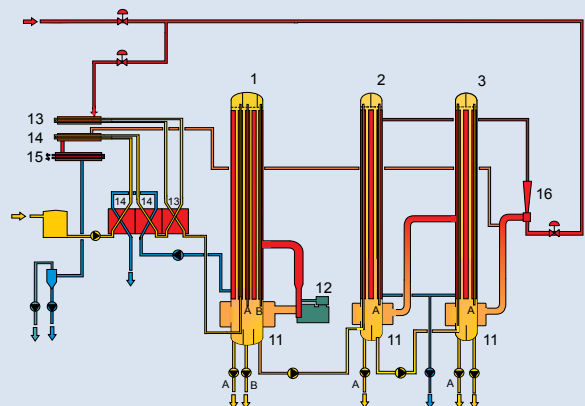
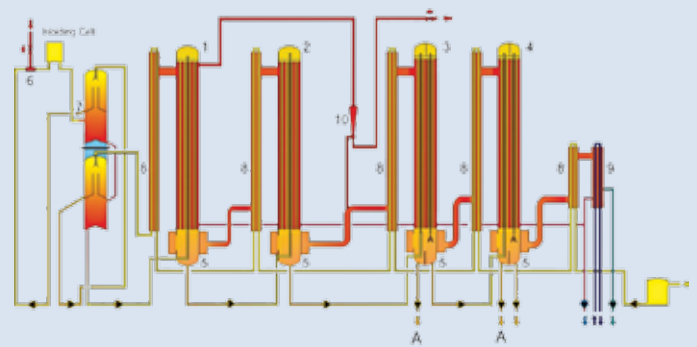
- centralised plant control
- reduced waste – less environmental impact
- plant and operator safety
- minimised production tolerances
- optimum operating economy

- Flow diagram – Anhydro falling film evaporator with TVR (FFTE-TVV)

- 1-4 Calandrias
- 5 Vapour separator
- 6 DSI unit
- 7 Heating / Flash
- 8 Preheater
- 9 Condenser
- 10 Thermocompressor

- Flow diagram – Anhydro falling film tubular evaporator (FFTE-MVR/TVR)

- 1-3 Calandrias
- 11 Vapour separator
- 12 High-pressure fan
- 13 Pasteurizing unit
- 14 Preheater
- 15 Condenser
- 16 Thermocompressor



SPX Flow Technology provides a full range of Anhydro Evaporation and Drying equipment for the global dairy, food and beverage, chemical, healthcare and pharmaceutical industries. Focusing on flexibility and attentiveness to individual customer needs, SPX enables excellence at every point along the value chain as part of our commitment to our customers' success.

SPX acts as a strategic development partner for leading manufacturers all over the world. Through close collaboration with our customers, we promote the development of innovative concepts and optimization of existing processes, enabling customers to introduce new products into the market as quickly and as cost effectively as possible.



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