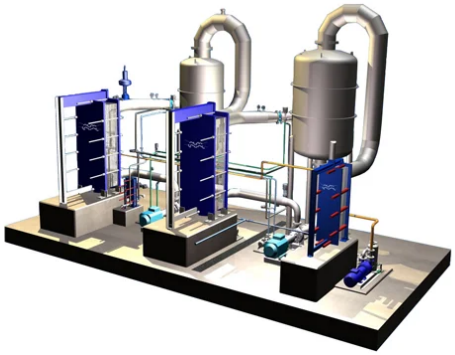
AlfaFlash



Alfa Laval AlfaFlash evaporation systems are designed for optimal fouling resistance. With numerous plants around the world, AlfaFlash is the well-proven reliable solution for concentrating stillage, corn steep liquor, salty effluents, fish and meat stick water and spent wash. The considerably higher shear rate (already at quite moderate flows) leads to substantially higher heat transfer efficiency, significantly lower pump costs and a more compact installation.

Space saving

AlfaFlash systems are compact with a low height and a low weight of the system. The compact size of AlfaFlash plate evaporators gives a lean installation and low installation costs. A range of AlfaFlash evaporators is available to suit different liquids and capacity requirements.

High heat transfer efficiency

Our reliable AlfaFlash evaporators offer a very high thermal efficiency. The considerably higher shear rate in the AlfaFlash evaporators – already at quite moderate flows – leads to a very high heat transfer efficiency, especially for shear thinning liquids.

Viscous liquids

AlfaFlash is beneficial in the evaporation of liquids having a high viscosity. The AlfaFlash evaporator is designed with a high wall shear to minimize viscosity, in the case of shear thinning liquids (the viscosity decreases with increased shear rate). In a multi-effect evaporation system the AlfaFlash is often used in the final concentration step as a finisher. Using AlfaFlash in one or more effects of an evaporation system

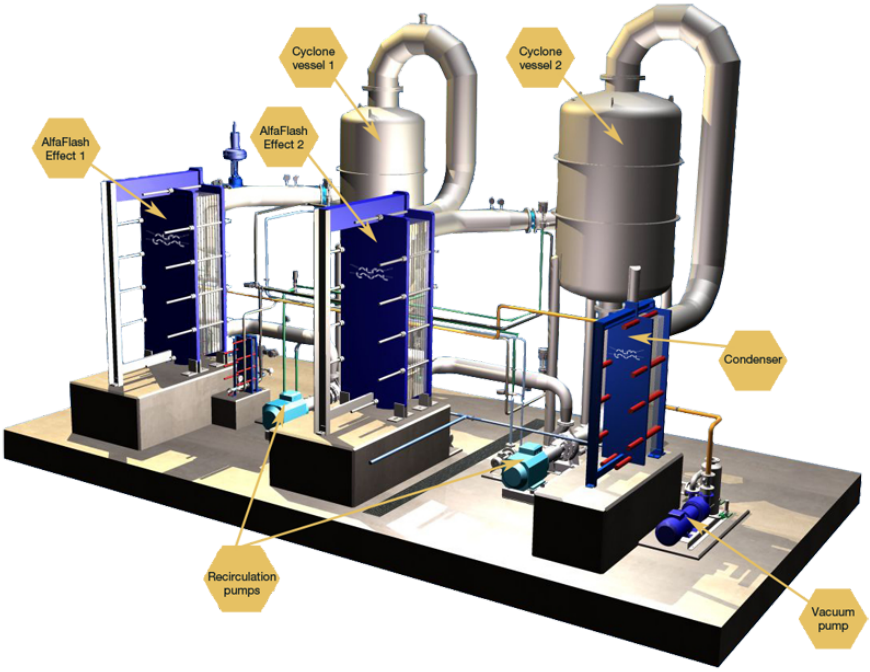
makes it possible to reach very high final concentrations, even for liquids with a high viscosity.

Maximized time intervals between cleaning

AlfaFlash systems are designed to handle fouling liquids. The AlfaFlash plate evaporator in forced circulation mode gives high turbulence and high shear rate on the plate surfaces - giving a self-cleaning effect. This will cut down the fouling and increase the up time of the system. The heat transfer surfaces in the AlfaFlash plate evaporators are easily accessible for inspection or mechanical cleaning. Savings can be made since the AlfaFlash system requires less use of CIP cleaning chemicals and gives less waste water due to a low hold-up volume of the system.

Принцип работы

The AlfaFlash is a plate evaporator working as a forced circulation flash evaporator. Forced circulation means that a pump recirculates the liquid between the cyclone separator vessel and the AlfaFlash plate evaporator. The re-circulation creates a highly turbulent flow of the liquid inside the AlfaFlash



evaporator. Usually a special type of plate heat exchanger with a wider gap is used for AlfaFlash.

In the AlfaFlash, boiling does not take place in the plate heat exchanger but the liquid to be concentrated is just heated under pressure. The actual evaporation takes place when the heated liquid is discharged to the separator vessel where the pressure is released and the liquid then flashes.

Vacuum is applied in the AlfaFlash system to decrease the boiling temperature. The vacuum is created by condensing the vapour from the last effect in a condenser, e.g. the highly efficient and compact AlfaCond condenser. A vacuum pump is normally used to remove the non-condensable gases. By designing with multiple effects, the steam consumption is reduced: the vapour produced in one effect is used as heating media in the subsequent effect. In combination with thermal vapour recompression TVR and/or mechanical vapour recompression MVR, the steam consumption can be reduced to only a fraction of the evaporation capacity.

A complete AlfaFlash system includes the plate evaporators, pre heaters, separator vessels, TVR or MVR, recirculation pumps, instruments, valves, ducting, piping and a control panel.