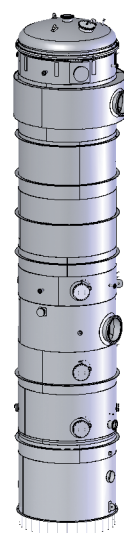


FALLING FILM EVAPORATORS





Application

Falling film evaporators are commonly used in many technological lines. Their advantage is lower sensitivity to variable process parameters when comparing to other types of equivalent solution. They are used in all sections of evaporation stations. An example of the application of falling film evaporators is the juice concentration line in a sugar factory, where the process of water evaporation from beet juice takes place. They are irreplaceable for high density liquids processing.

Design and principles of operation

Falling film evaporator is a vertical cylindrical tank inside which a tubular heating chamber is placed. Process pipes are installed vertically between top and bottom sieves. To ensure maximum efficiency of the process, inlet juice is fed to the lower part of the apparatus where it is mixed with a part of the processed juice, from where it is fed by a recirculation pump to the top part of the evaporator. A specially designed juice distributor ensures even flow of juice over the entire surface of the top sieve. The separated juice flows from the top gravitationally along the inner walls of the tubes. When the juice flows down, it is heated and some of the water from the juice is evaporated. The tubes are heated externally by steam from the previous section. The vapours from the juice flow down the tubes. Juice leaves tubes and flows into a cylindrical funnel in the lower part of the apparatus and from there it is collected to the next section of the evaporation station. The vapours generated in the lower chamber pass through the side ducts to the upper part of the apparatus or to the side droplet separator. Due to the very low velocity in the side pipes and in the upper part of the steam chamber, final condensation of juice takes place. The vapours are used as heating steam for the next section of the evaporation station. Depending on the application, the devices are made of carbon steel or stainless steel.

Technical specification

SIZE OF THE EVAPORATOR		3000	4000*	4200	5000	6000*	7000
HEAT TRANSFER SURFACE	m ³	3000	4000	4200	5000	6000	7000
DIAMETER OF THE HEATING SECTION	mm	3000	3200	3700	3800	3600	4000
DIAMETER OF THE LOWER CHAMBER	mm	4200	3200	3700	3800	3600	4000
NUMBER OF PIPES		3166	3220	4620	5000	5000	5800
LENGTH OF PIPES	mm	10000	12000	9060	10000	12000	12000
TOTAL HEIGHT	mm	17340	22000	19525	18060	22000	235000

* Evaporator equipped with side droplet separator