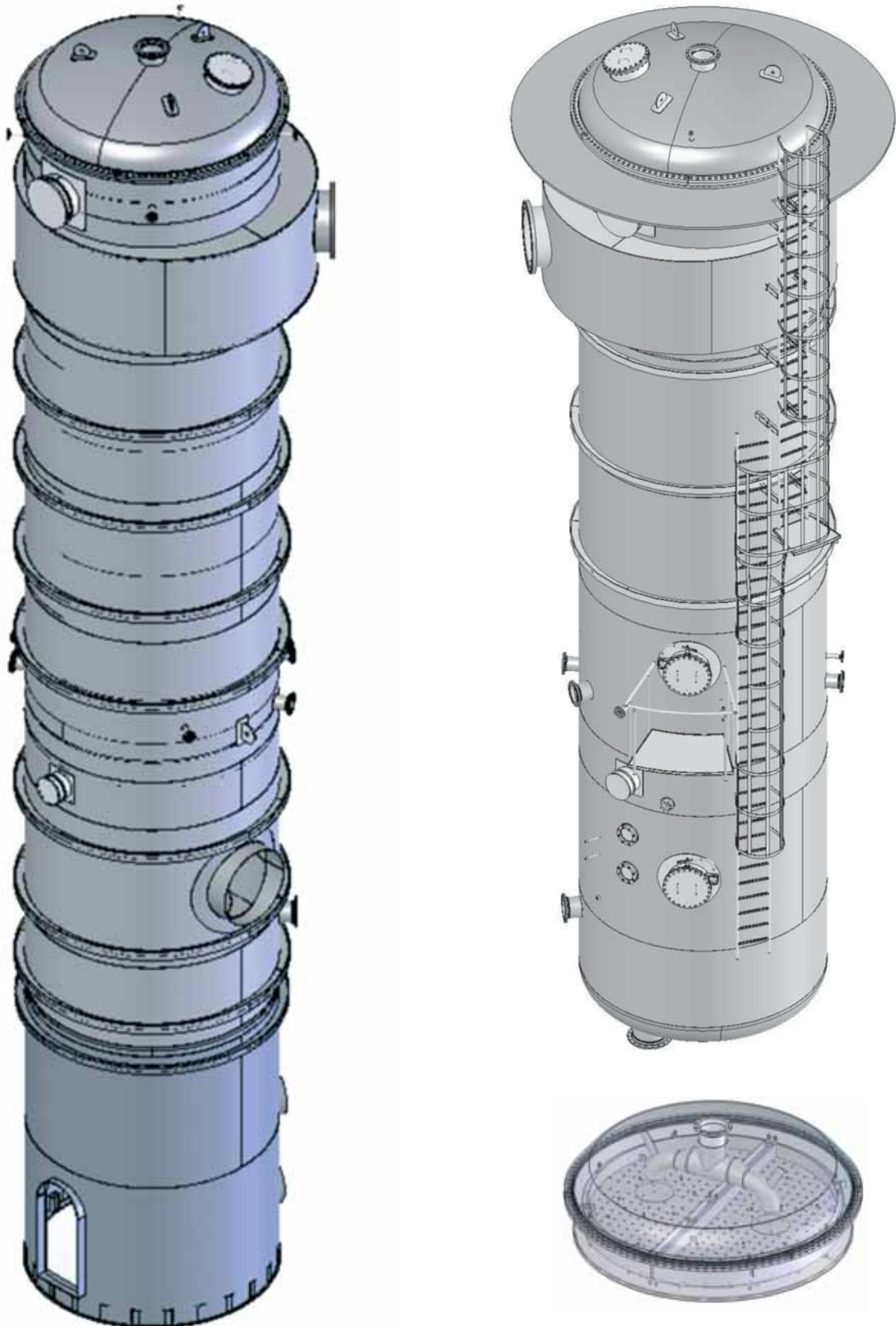


DROPLET EVAPORATORS



Application and Principle of Operation

Evaporators droplet type - also called thin-film evaporators - installed in line technological evaporator station in the sugar mills operate in a continuous manner and are used to thicken sugar juices. To ensure maximum effectiveness of the thickening process, the juice is fed into the lower part of apparatus where is mixed with a portion of thickened juice hence through the recirculation pump is supplied to the apparatus head. Steady flow of juice on the entire surface of the upper bottom of the mesh provides a special distributor with distribution pipes above the bottom of the upper- sieve. The separated juice in form of film flows by gravity along the inner walls of the tubes. Flowing juice is heated and due to this water evaporates from the juice. Tubes are heated externally by vapor from the previous department. The resulting vapor is also flowing down inside tubes. Juice leaving the tubes flows into the cylindrical drain funnel into the lower part of the apparatus, and hence to the next part of evaporator station. The generated vapor in the lower chamber pipes penetrate the side tubes for vapor to the upper part of the apparatus. Due to the very low rise of the vapor inside the pipes and in the upper part of the vapor chamber, condensation of vapor juice molecules follows. Fumes in form of a heating vapor go to the next section of the evaporator station or are discharged into the condenser.

The advantages of droplet evaporators in comparison to Robert evaporators are:

- Work at a lower, usable difference temperature - due to the lack of a hydrostatic juice column,
- lower juices capacity, and thus shorter average residence time especially at higher temperatures resulting in lower losses and intense coloring,
- significantly more favorable conditions of heat transfer, mainly for juices with a higher concentration,
- thanks to the long tubes we can build devices of larger heat exchange surface unit up to 8000 m², with diameters of 4 - 4.5 m, in a small area,
- Juice distribution system ensures regular distribution of juice,
- relocation of the vapor collector ensures regular distribution of steam over the entire surface.

Technical specification

Basic parameters / size	3000	4000 *	4200	5000	6000 *	7000
Area of surface heat exchange	3000 m ²	4000 m ²	4200 m ²	5000 m ²	6000 m ²	7000 m ²
diameter of the heating part	3000 mm	3200 mm	3700 mm	3800 mm	3600 mm	4000 mm
diameter of the lower chamber	4200 mm	3200 mm	3700 mm	3800 mm	3600 mm	4000 mm
number of heating tubes	3166 szt.	3220 szt.	4620 szt.	5000 szt.	5000 szt.	5800 szt.
length of the heating tubes	10000 mm	12000 mm	9060 mm	10000 mm	12000 mm	12000 mm
total height	17340 mm	22000 mm	19525 mm	18060 mm	22000 mm	23500 mm

Droplet Evaporator – Dimensions

