



Thin-film Dryer (LiquiDry H & V)

- 1 Full drying up to 99 % dry substance
- 2 Heating temperature up to 500°C
- 3 Heat exchange surface up to 120 m²
- 4 Special rotor design/know-how
- 5 Operating pressure up to 50 mbar

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Thin-film dryers fall into the category of so-called contact dryers and are mainly used for continuous operation in horizontal or vertical units. Depending on the application, they are operated either under vacuum, atmospheric pressure, or overpressure. A TFD is characterized by the fact that only the jacket is heated, which is designed as double-walled cylinder in most applications. The heating media used are steam or commercial thermal oils. For special applications, e.g. in case of process temperatures up to 500°C, the use of molten salt or electric heating (single jacket) is also an option.

The rotor running in the jacket is equipped with attached wiper and conveyor elements and provides for the required turbulence in the drying chamber, on the one hand, and for a regular distribution of the material on the heated inside jacket surface, on the other hand. Additionally, the material to be dried is gradually conveyed towards the outlet nozzle, while the accumulating vapours stream upward in the counter current to leave the unit near the inlet nozzle. Depending on the starting material, the wiper and conveyor elements are arranged at the smallest possible gap clearance to the jacket without touching it. The relatively high rotational speeds at the end of the wiper element prevent an encrustation of the jacket surface. After standstill of the dryer, the rotor can be pulled out of the dryer jacket for maintenance and cleaning purposes. To this end, a removal trolley is available.

The TFD can be used for a wide range of applications. It allows drying to the point as required for the respective application, starting with partial drying in the order of several tenths of a percent to full drying to approx. 99% of the dry substance. The so-called adhesive phase and/or slurry zone is passed through smoothly without requiring any laborious product return.

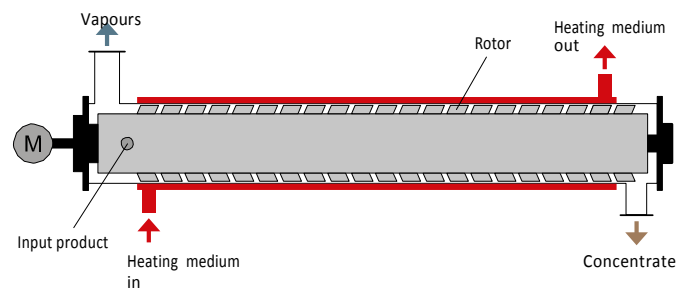
Moreover, the process is characterized by low emissions (smell, dust, and noise), and it excels due to a compact design and low maintenance and space requirements.

In addition to drying, the process can also be used for melting, cooling, heating, and mixing. Availability amounts to 8.200 operating hours per year.

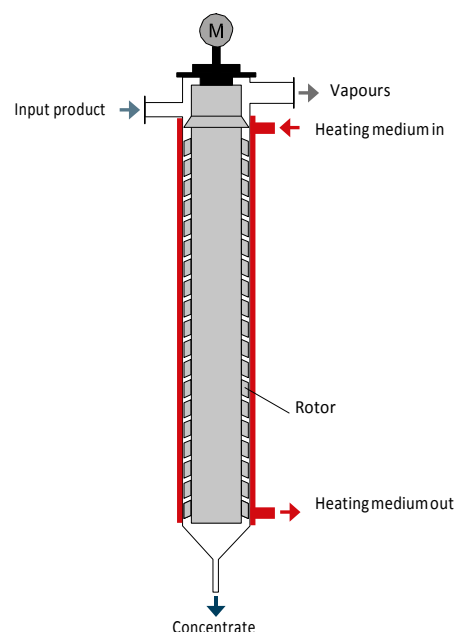
Along with the tendency toward increasing environmental standards such as "zero liquid discharge" (ZLD), the requirements on process temperature are rising, too. Kremsmüller is able to realize 500°C and more for sludge processing in horizontal TFDs. Moreover, vertical and horizontal TFDs can be operated in series, depending on the task.

Applications

- + All kinds of sludge (sewage sludge, drill sludge, industrial sludge, and similar)
- + Precursors and intermediates for the chemical industry
- + Inorganic saline solutions
- + Solvent recovery out of saline solutions
- + Suspensions and pastes
- + Lecithin
- + Fibre and pulp industry, beverage and food industry, sugar and starch industry, milk-processing industry, fatty acid industry;
- + Petrochemistry; polymers
- + Environmental technology



Functional principle Thin-film Dryer horizontal (LiquiDry H)



Functional principle Thin-film Dryer vertical (LiquiDry V)

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