

FOCUS ON THIN FILM EVAPORATOR

Thin film evaporator is a vertical cylindrical shell enclosed in an heating jacket with an internal rotor distributing a thin layer of oil on the heated wall, by means of rotating blades.

By the action of rotor (electrically driven) high turbulence and back mixing occur in the thin layer of the oil film and product degradation at high temperature is avoided.

Main features of thin film evaporator are:

- short residence time in order of few seconds;
- high heat transfer rate through the film;
- efficient and regenerative cleaning of the contact surface

Cracking and fouling problems are avoided by keeping low residence time, low wall temperature and high flow turbulence.

Lube oil is recovered as distillate while heavy components, additives, metals and degradation products are concentrated in the bottom residue.

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■ OPERATING PRINCIPLE

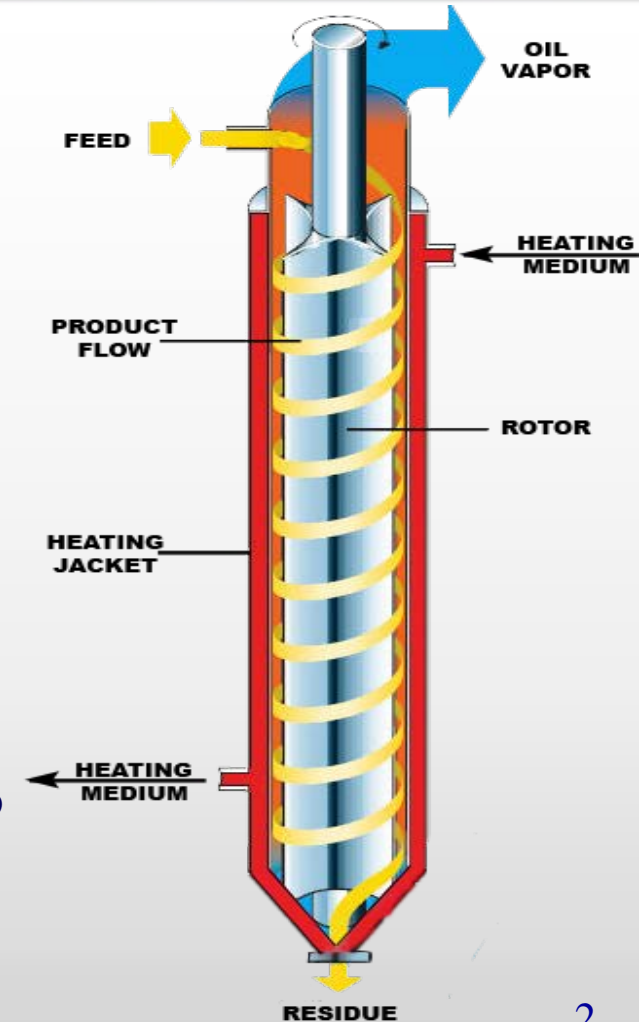
A Thin Film Evaporator consists of a cylindrical shell with internal rotor and external heating jacket

■ FEED

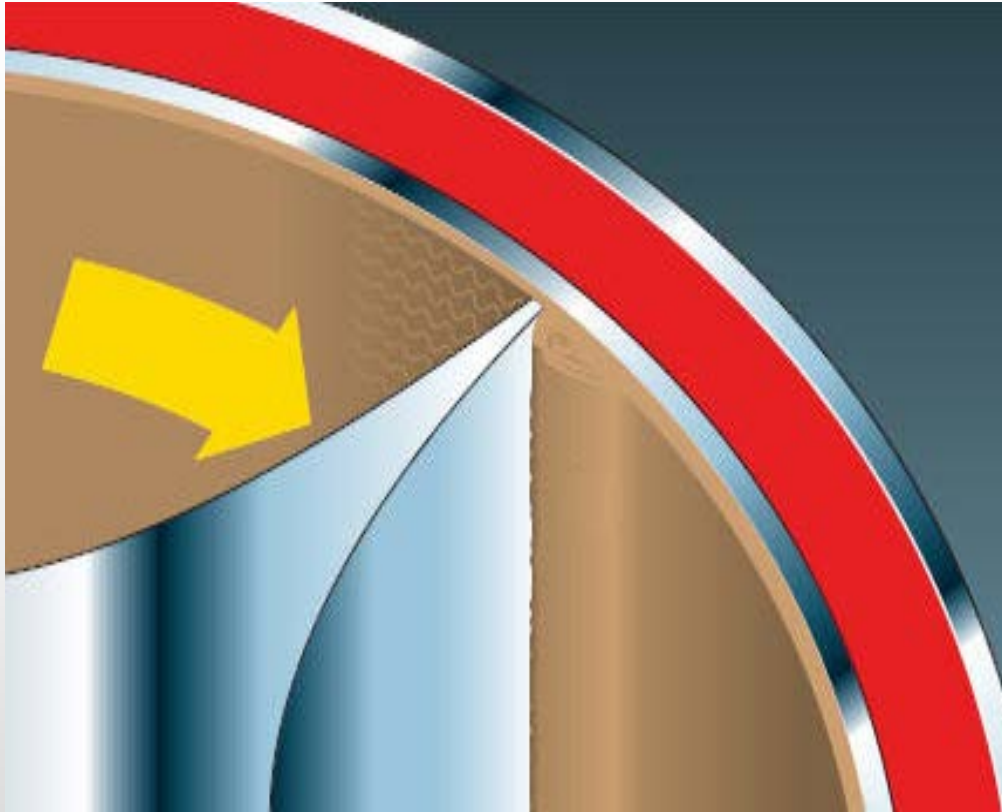
The feed is distributed by the rotor blades and spread on the heated wall to form an highly turbulent thin layer.

■ PRODUCTS

Oil fractions are evaporated and flow out up towards the top
Heavy components flow in a spiral path down to the bottom



FEATURES



- Short residence time and high turbulence in the film give high heat transfer coefficient and avoid overheating, cracking and fouling
- High evaporation rate is obtained by a simple pass
- High oil yield is achieved without degradation or polymerization of the oil
- High onstream factor and easy maintenance