**Hatco Thermic Fluid Evaporator** - These type evaporators are generates the heat from thermic fluid by heating up through heater power, Steam or gas. Mechanical evaporator incorporated with this exchanger to evaporate the waste water or polluted water to concentrate more. Thermic fluid Heat evaporator are not consider IBR / non IBR.

Available capacity 100 LPH to 20000 LPH
Model – Indoor or Outdoor

**Falling Film evaporators**

Falling Film Evaporator Operation

- HATCO Falling Film Evaporators offer distinct operating advantages in the concentration of many materials, such as certain food products, fruit juices, pharmaceuticals and similar materials, which are particularly suited to evaporation in this type of equipment.
- Our Falling Film Evaporators are unique in that they utilize novel operating principle from other types. The dilute liquid is fed to the top of the tubes, flows downward as evaporation occurs.
- Uniform distribution of the liquid to the tubes is assured by an exclusive feature which controls the flow of the liquid to the top of the vertical heating tubes. The liquid flows over the edge of the tubes and runs down the inside surface in a thin, uniform film. The vapor travels down the tubes in the same direction as the liquid, gaining in velocity by the addition of more vapor as the mixture descends, resulting in high velocity for both the liquid and vapor.

**Forced Circulation Evaporator**

As the name implies, force is used to drive the liquid through the evaporator tubes thus producing high tube velocities. A high efficiency circulating pump, designed for large volume and sufficient head, is used to supply the force. Proper design results in controlled temperature rise, controlled temperature difference and tube velocities that give optimum heat transfer. Forced Circulation Evaporators are recommended for viscous, scaling and salting liquids. As the liquid is only heated in the steam chest with flashing taking place in the separator and no boiling taking place within the tubes, fouling on hot tube walls is reduced.

HATCO Forced Circulation Evaporators may be equipped with either horizontal or vertical steam chests. The circulating pump withdraws liquid from the lower part of the vapor-liquid separator and circulates it through the tubes at a high velocity. Boiling is suppressed in the tubes either by liquid head or an orifice plate. The heated liquid is discharged into the separator where the vapor flashes off due to the temperature difference and is removed through the top outlet. The liquid is discharged at a maintained liquid level.

**Forced Circulation Evaporator Characteristics**

- Operates with extremely low temperature differences
- High tube velocity
- Velocity mechanically produced and controlled
- Gives high rate of heat transfer, rapid evaporation and high concentration without requiring high operating temperatures or large heating surface
- Maximum recovery of solids
- Can use horizontal or vertical tubes
- Tubes are readily accessible for cleaning and inspection
- Suitable for single or multiple effects
Rising Falling Film Evaporator Product Operation

HATCO Falling Evaporator or Concentrator delivers high tube velocities which assures uniform product distribution and high coefficients of heat transfer. The rising falling film evaporator (RFC), or recirculating version, RRFC, works on uniform metered flow entering the bottom of the steam chest and rises through the first pass with rapidly increasing velocity. After leaving the first pass the flow of the vapor liquid mixture is reversed and directed downward through the second pass at extremely high velocity. The mixture then enters the separator where the vapor and liquid are separated.

When not designed as a circulation unit, the rising falling film evaporator provides once through evaporation of heat sensitive materials, requiring minimum retention time. It is particularly adaptable to multiple effect systems but provides a lesser turn-down capability than the RRFC configuration.

Rising Falling Film Evaporator Characteristics

- High tube velocity minimizes fouling.
- Able to achieve high concentrations at low temperatures.
- Risk of entrainment is greatly reduced since the major portion of the liquid passes directly out of steam chest rather than being re-entrained with vapor from the separator.
- System may be turned down without loss of efficiency or effectiveness.
- Holding time is a matter of seconds (RFC).
- Suitable for evaporation of a wide range of liquid concentrations.
- Low headroom requirement.

Rising Falling Film Evaporator Product Applications

- Heat sensitive liquids requiring minimum process time.
- Pure or non-crystal forming liquids.
- Liquids having low to medium viscosities.
- Foamy liquids.
- Liquids containing fine suspended solids.
- Readily handles thixotropic materials.

Rising Falling Film Evaporator Application Examples

- Ammonium-Nitrate
- Apple Juice
- Cane Sugar Syrup
- Caprolactam
- Corn Syrup
- Caustic
- Coffee Extracts
- Gelatin
- Glue
- Grape Juice
- Lemon Juice
- Orange Juice
- Pharmaceuticals, Heat-sensitive
- Pineapple Juice
- Tea Extracts

AGITATED THIN FILM DRYER

Hatco Agitated thin film evaporator consists of a vertical steam-jacketed cylinder and the feed solution flows down as a film along the inner surface of large diameter jacket. Liquid is distributed on the tube wall by a rotating assembly of blades mounted on shaft placed coaxially with the inner tube. The blades maintain a close clearance of around 1.5 mm or less from the inner tube wall.

The main advantage is that rotating blades permits handling of extremely viscous solutions. The device is suitable to concentrate solutions having viscosity as high as up to 100 P.
HATCO systems
No.4, Pillayar Koil Street, Padikuppam Main Road, Padikuppam, Chennai – 600 107.
( Opp: canara Bank ATM )
Phone: +91 – 44 – 26151393 Mobile : 98412 93450
hatcosystemsales@gmail.com www.hatcosystems.com