



shailvac

Preserving the 'Tree of Life'

Zero Liquid Discharge Plants



2 Sets of 250 KLD Solvent Stripper + MEE

37+

Years of Experience

500+

Evaporation
Plants Supplied

30+

Countries

600 KLD

Largest Capacity of
Evaporation Plants
Built

\$ 30

Million
Group Revenue

Multiple Effect Evaporators

Designing and Supplying most efficient and reliable Zero Liquid Discharge plants for all kinds of chemical effluents worldwide

200 KLD MVR



Shail Vac Engineers

Carrying an enormous experience of over three decades in designing and manufacturing of Multiple Effect Evaporators, Shail Vac has emerged as a reliable and trustworthy name in the national and international market.

Our modern production facilities, engineering excellence and highly experienced and dedicated team of engineers and technicians have made us capable of undertaking turnkey projects for wide range of Evaporation Plants for various type of effluents and processes.



MANUFACTURING FACILITY AT SURAT



2 Sets of 300 KLD MEE



300 KLD CETP MVR



In the evaporation process, concentration of a product is accomplished by boiling out a solvent, generally water. The recovered end product should have optimum solids content consistent with desired product quality and operating economics.

A multiple-effect evaporator is an apparatus for efficiently using the heat from steam to evaporate water. In a multiple-effect evaporator, water is boiled in a sequence of vessels, each held at a lower pressure than the last. Because the boiling point of water decreases as pressure decreases, the vapor boiled off in one vessel can be used to heat the next, and only the first vessel (at the highest pressure) requires an external source of heat.

In most of the cases it becomes essential that during evaporation, product undergoes minimum thermal degradation. So accordingly temperature and the time exposure must be minimized. A large number of evaporator types have been introduced for such special requirements.

Increasing demands for energy efficiency and minimum environmental hazards have driven Shail Vac towards very innovative plant configurations and equipment design.

Falling Film Evaporator

In falling film evaporators, the liquid product enters from the top of the calandria where it gets evenly distributed into the heating tubes. Steam is usually used as the heating medium and a thin film of product which flows downwards in the tubes is partially evaporated at its boiling temperature.



2 Sets of 300 KLD
Stripper + MEE + ATFD

Due to gravity, the product and the vapor both flow downwards in a parallel flow. This gravity-induced downward movement is increasingly augmented by the co-current vapor flow. At the bottom of the calandria, vapor is separated from the concentrated product. Vapor is then used as heating medium in the next calandria.

As film is flowing in the direction of gravity, a thinner and faster moving film flows through the tubes. With a shorter product contact time, Heat transfer coefficient improves further. Uniform distribution of the product takes place in all the tubes with help of distribution plates placed in the top of calandria.

A temperature difference of about 14°C is required as a driving force between the heating surfaces in rising film evaporators. But in the falling film evaporator, there is no driving force limitation, which permits a greater number of evaporator effects to be used within the same overall operating conditions.

Falling film evaporators can be operated with small temperature differences and with low liquid holding volume in this type of unit, starting up and cleaning process can be made easy and simple.

250 KLD
Stripper + MEE



120 KLD MEE



Forced Circulation Evaporator



In a Forced Circulation Evaporator, product is fed from bottom of the calandria at a high rate and usually steam is used as the heating medium. The boiling of the product is prevented within the calandria by virtue of a hydrostatic head maintained above the calandria.

The absolute pressure is slightly less in vapour separator than in tube bundles in calandria.

So as the product enters the vapour separator, it flashes to form a vapour.

Forced circulation evaporators are used for crystallization, concentrating inversely soluble materials and thermally degradable materials which result in the deposition of solids.

2 Sets of 300 KLD MEE

MVR Evaporator

Evaporation plants with mechanical vapour recompressors normally require very low live steam and shifts the necessary energy to electric energy. Compressor discharges the evaporated vapour at a higher pressure and temperature which is then re-used as heating media to evaporate more vapours thus saving captive consumption of steam. It is the most efficient evaporation technology. Shail Vac was the first company in India to set up a MVR Evaporation plant for effluent treatment (300 KLD feed capacity) back in 2010 for a CETP.



Advantages

- Shail Vac provides the most efficient multi stage evaporation systems with MVR and TVR options.
- Shail Vac has been designing and supplying evaporation systems upto 600 KLD feed capacities for various chemical effluents.
- In our Evaporators, minimal maintenance, Jet Cleaning and down time is required.
- Our Evaporators are rugged in design to give our clients the same performance with their ever changing effluent characteristics.
- Great turn down ratio.
- Simple in construction.
- Floor space requirement is less.



Applications

Salts

- Aluminum Chloride
- Ammonium Chloride
- Ammonium Nitrate
- Ammonium Sulphate
- Calcium Chloride
- Calcium Sulphate
- Ferrous Sulphate
- Manganese Sulphate
- Mercerizing Caustic
- Monoethylene Glycol
- Phosphoric Acid
- Potassium Chloride
- Potassium Sulphate
- Sodium Acetate
- Sodium Carbonate
- Sodium Chloride
- Sodium Hydroxide
- Sodium Nitrate
- Sodium Phosphate
- Sodium Silicate
- Sodium Sulphate
- Sodium Chloride
- Sodium Thiosulphate
- Sulphuric Acid

Industries

- Chemicals
- Pharmaceuticals
- Specialty Chemicals
- Agro Chemicals
- Dyes & Intermedeates
- Petrochemical
- Heavy chemical
- Food
- Refinery
- Desalination Plants



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Stripper + MEE + ATFD



ZLD Divison

- Single Effect Evaporators
- Multiple Effect Evaporators
- Forced Circulation Evaporators
- Falling Film Evaporators
- MVR Evaporators
- Evaporators with TVR
- Oslo Type Evaporators
- Stripper Columns
- Agitated Thin Film Dryers

Vacuum Division

- Steam Jet Ejectors
- Liquid Jet Ejectors
- Gas Scrubbers
- Steam Jet Refrigeration Plants
- Air Evacuation Systems for Power Plants
- Adiabatic Flash Cooling Crystallizers

Overseas EPC Projects

- Edible Oil Refineries
- Detergent & Soap Plants
- Pharmaceutical Plants
- Agro Chemicals
- Dyes & Intermediates Plants
- Warehouse & Storages

Defense

- Heavy Lift Drones
- Medium Lift Drones
- Surveillance Drones
- Tethered Drones
- Loitering Drones
- Fire Fighting Drones
- Agri Drones

Specialized Equipment Fabrication

- Heat Exchangers
- Oil Coolers
- Reactors & Coolers
- Pressure Vessels



Design and Engineering Head Quarters

704, Rajhans Montessa, Dumas Rd,
Beside Le Meridien Hotel, near Airport, Surat,
Gujarat - 395007
sales@shailvacgroup.com

Manufacturing Unit

1-13, Royal Industrial Estate,
PO Delad, Sayan, Surat,
Gujarat - 394130
info@shailvacgroup.com

Shail Ventures

80 Micro Ct #100,
Markham, ON L3R 9Z5, Canada
info@shailvacgroup.com