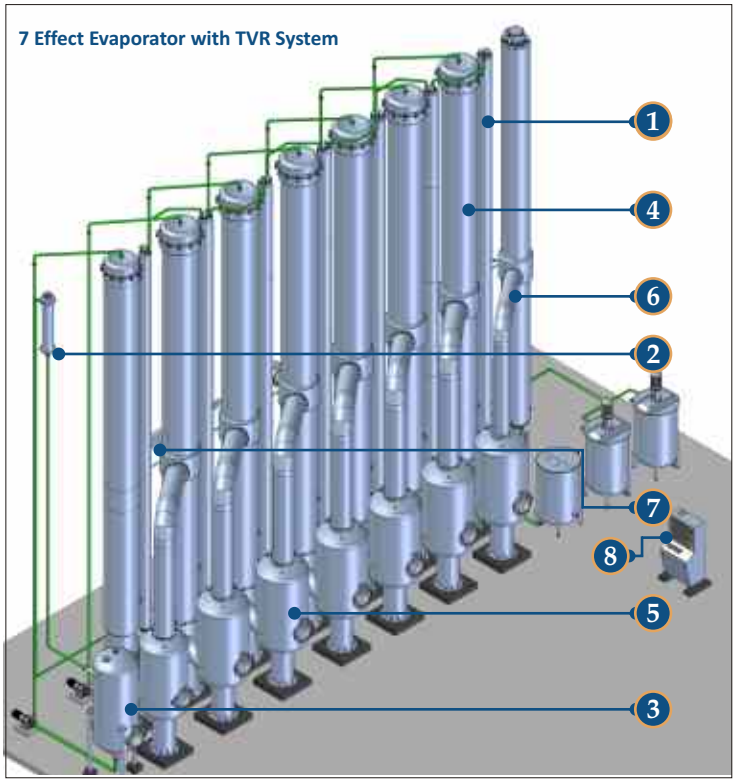
SSP PVT LIMITED

SSP™ Since 1977
THE PROJECT PEOPLE

Industrial Evaporators

TO TAKE CARE OF ALL YOUR EVAPORATING NEEDS

About Company



1. Pre-heater
2. Direct Steam Injection Unit
3. Flash Vessel
4. Calandria
5. Vapour Separator
6. Condenser
7. Thermal Vapour Re-compressor
8. Operating cum instrument panel

- The company was founded in 1977.
- The company provides customized turnkey projects & solutions to the industries, pertaining to food processing sector, dairy processing sector, fruit & vegetable processing sector, chemical industries and effluent treatment plants for various industries.
- It has client base in **42 countries.**
- **'SSP'** is an ISO 9001:2008 and **GMP** certified company.
- "**SSP**" has **FOUR** manufacturing units with latest generation fabrication machines.
- **'SSP'** has technically sound, highly skilled & experienced work force, numbering to **450+.**
- Supplied more than 600 Evaporators & 400 Dryers round the globe.
- Proven Technology.
- Highly Energy Efficient Plants.
- Receives 50 - 60% repeat orders every year.
- Follow International Standards of Operation & Production.
- User's friendly.

SSP Evaporator

SSP is one of the most experienced manufacturers of multiple effect evaporators in India for dairy, food processing and chemical industries. SSP has developed energy efficient evaporators indigenously and in a short span of its existence has become a force to reckon with. SSP has to its credit more than 600 evaporators installed across the globe, for handling varieties of products.

Five Stage Evaporator

Double Stage Forced Circulation Evaporator

Falling Film Evaporator

Use of falling film evaporator with multiple effects ensures high energy efficiency & is ideal for concentration of heat sensitive products, with low scaling tendency. Multi-effect falling film evaporators with TVR as well as MVR are designed and manufactured at SSP's manufacturing centres.

Applications:

Milk
Coffee
Soy milk
Apple Juice
Tea extract
Dye intermediates
Distillery Waste Water Effluent with low TSS, etc.

Forced Circulation Evaporator

This is ideal for concentration of high viscous material and products with higher solids. This is also used as evaporative crystallizer. Some times these are used in series with falling film evaporators as finishing effect for achieving higher concentration. In this type of evaporator, liquid is pumped through heat exchanger tubes at high velocity (1.5-4.0 m/s) avoiding precipitation and creating high turbulence; liquid is then passed through vapour separator for separation of vapour and finally condensing the vapour in the condenser. Concentrated liquid is continuously discharged from bottom of vapour separator.

Applications: Brine evaporation (Vacuum Salt processing) Effluent concentration with High suspended solid. Fruits Pulp Concentration Tomato Paste Sodium Sulphate Crystallization.

Industrial Evaporators

SSP's Unique Design Ensures

- Highest energy efficiency.
- High Product Quality.
- Compact design.
- Easy operation & automatic control.
- Minimum manpower required.
- Low operation and maintenance cost.

Types of Evaporators

SSP designs and manufactures the following types of evaporators: -

- Falling Film Evaporator.
- Rising Film Evaporator.
- Forced Circulation Evaporator.
- Scrapped Surface / Thin film Evaporator.
- Combination Evaporator.
- Evaporative Crystallisers.
- Flash Evaporator.
- Freeze Concentrator.
- Wiped Film Evaporator.

Criteria for Selection

- Nature of Product.
- Scaling Tendency.
- Heat Sensitivity.
- Foaming Tendency.
- Viscosity of product.
- Thermal Characteristics of Product.
- Degree of Concentration.
- Evaporation Rate.

Applications:

Dairy & Food Products

- Milk
- Honey
- Whey
- Fruit Juices
- Tomato Juice
- Malt Extract
- Sugar Cane Juice
- Invert Sugar
- Coffee Extract
- Tea Extract
- Tannin Extract
- Dextrose/Fructose
- Herbal Extract

Chemical & Pharmaceuticals

- Spent Wash
- Black Liquor
- Salt
- Amino Acid
- Enzymes
- Gelatine/Glue
- Sodium Sulphate
- Katha & Kutch
- Dye
- Dye Intermediaries
- Effluent
- Caustic Soda
- Phosphoric Acid etc.

STEAM CONSUMPTION CHART

Particulars / No. of Effects	1	2	3	4	5	6	7
1. Specific Steam Consumption without TVR	1.1	0.55	0.40	0.30	0.24	0.16	0.12
2. Specific Steam Consumption with TVR over 1st effect	0.40	0.33	0.25	0.20	0.16	0.14	0.12
3. Specific Steam Consumption with TVR over 2nd effect	-	-	0.20	0.17	0.14	0.13	0.11
4. Specific Steam Consumption with TVR over 3rd effect	-	-	-	-	0.13	0.11	0.10
5. Specific Steam Consumption with TVR over 4th effect	-	-	-	-	-	0.10	0.09

Seven Effect Falling Film Evaporator with Forced Circulation

Agitated Thin Film Evaporator

Rising Film Evaporator

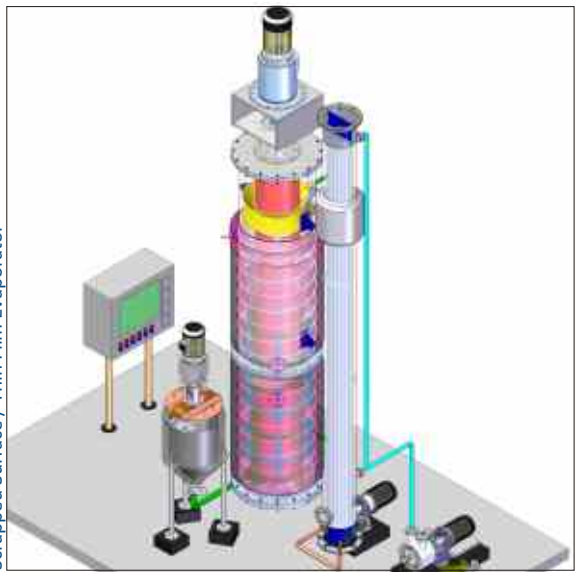
In a Rising Film Evaporator liquid feed enters from the bottom of steam heated tubes. The parallel movement of liquid and vapor along tube surface imparts effective water evaporation from the liquid feed. This type of evaporator is ideal for liquids which attain high viscosity or have fouling tendency.

Applications:

Fruit Juice concentration.
Sugar Cane Juice Concentration.

Agitated Thin Film Evaporator

The agitated thin film evaporator is well suited for concentration of viscous and heat sensitive liquids such as gelatin, antibiotics, fruit juices, and solvent mix etc. The thin film evaporator reduces fouling and liquid residence time in the evaporator. In the vertical agitated thin film evaporator feed liquid is feed at the top of evaporator and is uniformly distributed in the form of thin film by the wiper blades on vertical cylindrical heat transfer area, inside the unit. Evaporation of water / solvent takes place as the thin film moves down the heat transfer area.



Scrapped Surface / Thin Film Evaporator

Scrapped Surface / Thin Film Evaporator

Scrapped Surface/Thin Film Evaporators are designed for evaporation of highly viscous and sticky products, which cannot be otherwise evaporated. This type of evaporators have been specially designed to provide high degree of agitation, effecting heat transfer as well as scrapping the walls of the evaporator to prevent deposition and subsequent charring of the product.

Applications:

Tomato Paste	Honey	Solvent Recovery
Milk concentrate (Khoa)	Jam/Jelly.	

Design

SSP's design department is well equipped with computer network system using the latest CAD facilities and Pro-Engineer software.

Vapour Recompression System (TVR & MVR)

The vapour is compressed to higher condensation pressure by means of either Thermal Vapour Recompressor (TVR) or Mechanical Vapour Recompressor (MVR), which results in steam economy. In TVR portion of vapour discharged from one effect is sucked and compressed using motive steam and the resulting mixture is used as a heating medium to bring down the specific steam consumption. In MVR the vapour is recompressed by using two stage compressor with mechanical seals. A typical five effect plant with TVR over three effect has a sp. Steam consumption of 0.12. & a seven effect plant with TVR having vapour suction from 4th effect has a specific steam consumption of 0.09.

Evaporator Expansion

SSP is capable of not only in designing new evaporators but also enhancing the capacity of the existing ones. This results in improved operating conditions, increased capacity, lower specific steam consumption and saving in capital investment as well as operating cost. The capacity is enhanced by adding effects, thermo-compressors, etc. as the case may be.

Research & Development

SSP's Research & Development Centre is recognized by DSIR under the Ministry of Science & Technology. the main thrust of its ongoing R&D activities is on developing Energy Efficient & Cost Effective plants & equipment.

The following pilot plants are available for conducting trial runs with various products:

- Falling Film Evaporator
- Forced Circulation Evaporator
- Agitated Thin Film Evaporator
- Scrapped Surface Evaporator
- Three Stage Spray Dryer
- Spray Dryer (Single Stage)
- Fluid Bed Dryer
- Flash Dryer
- Fluid Bed Dryer
- Spin Flash Dryer
- Rotary Dryer
- Freeze Dryer
- Vacuum Band Dryer
- Agglomerator
- Soya Milk Machine - 100 lph.
- Aroma Recovery Plant

Innovations - Evaporator without Condenser

SSP:MKD:CTG:03:REV-001:07/2010

SSP PVT LIMITED
An ISO 9001:2008 CERTIFIED COMPANY

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