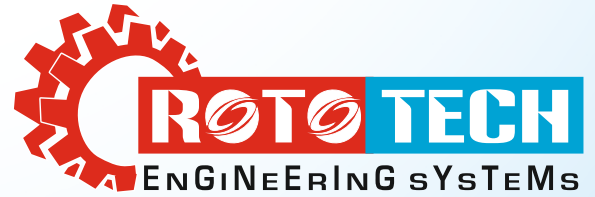


ZERO LIQUID DISCHARGE SOLUTIONS



We Serve, Technical Expertise.. From Concept to Commissioning..



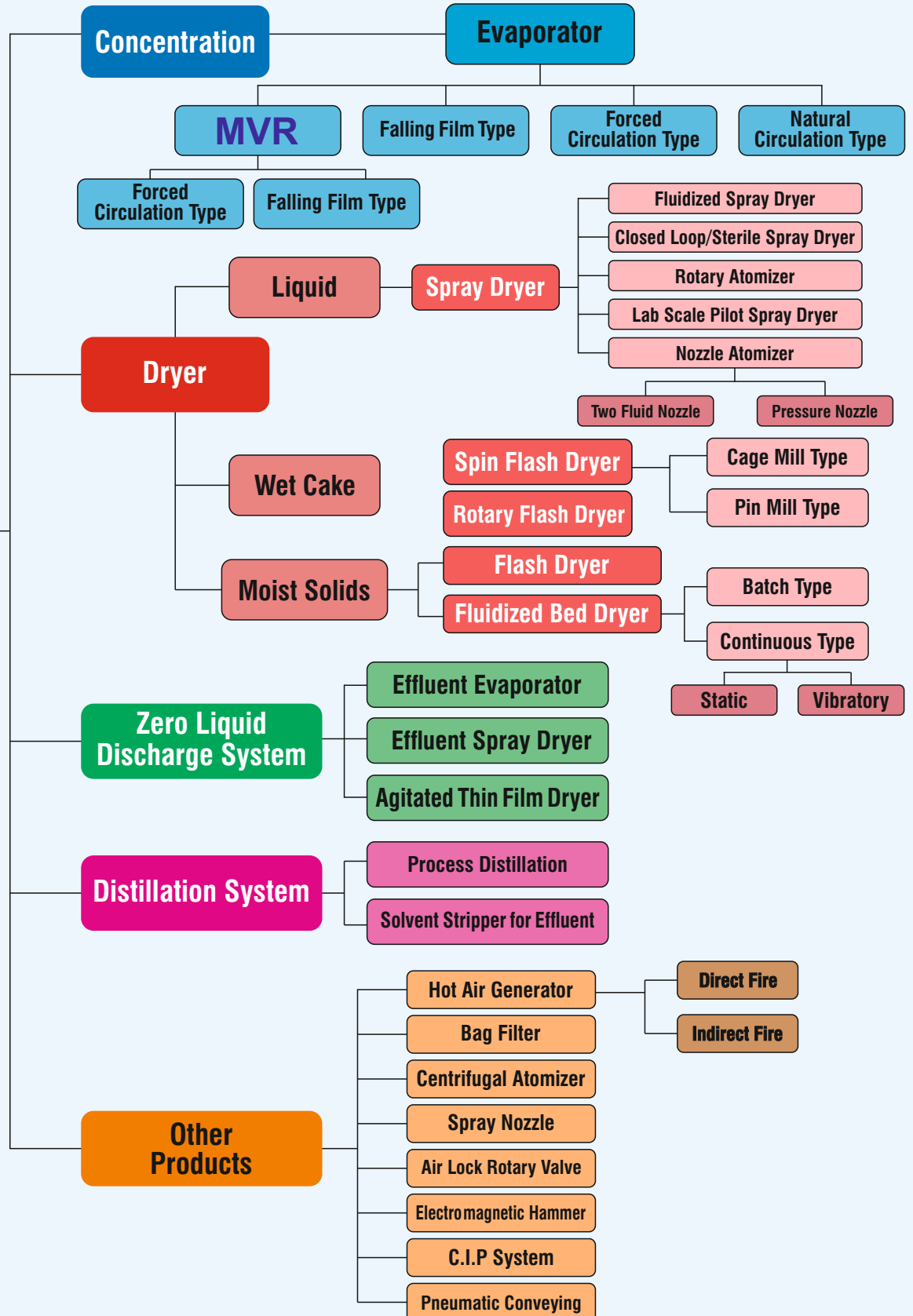
We are the Turnkey Solution Provider of specialized systems based on Evaporation and Drying technologies.

SAVE WATER, SAVE ENVIRONMENT, SAVE FUTURE...

Website : www.rototech.co.in **E-mail :** rototechengg@yahoo.com, sales@rototech.co.in

Tel : +91 79 22810062, **M :** 9428101936 / 9016075167 / 99984 47948

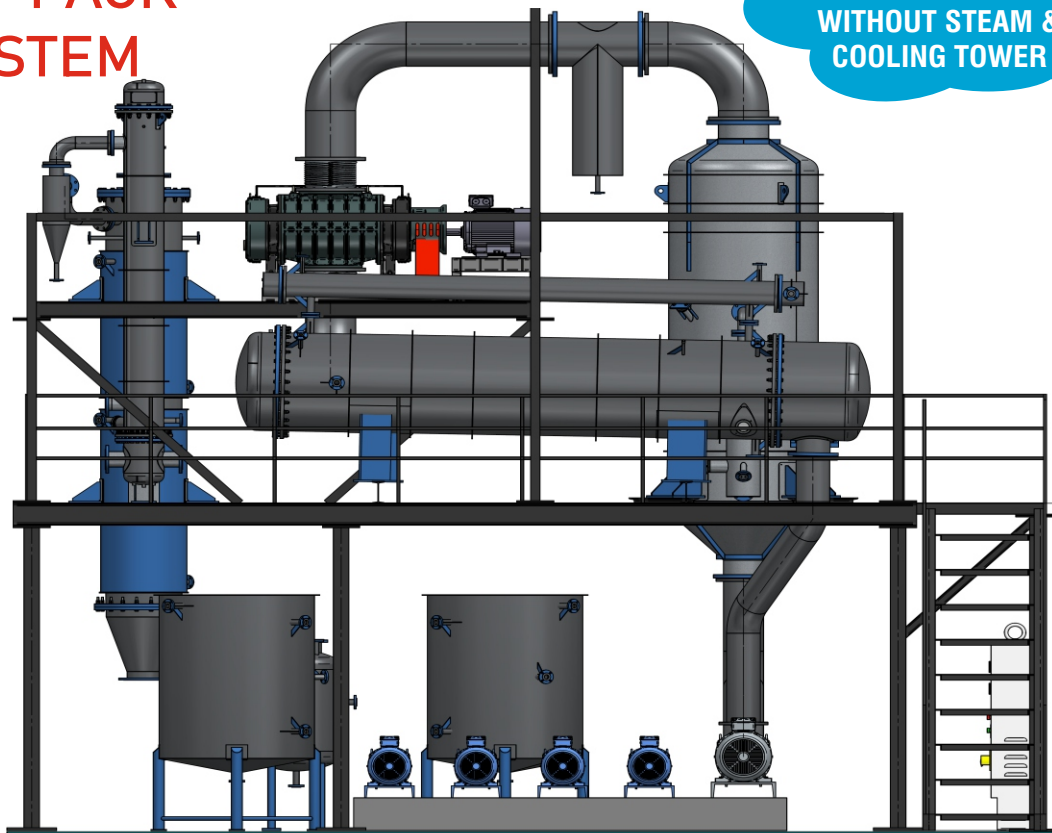
ROTOTECH ENGINEERING SYSTEM is latest technology developing oriented organization since 2015, which serves in the field of Waste Water Treatment, Vacuum Systems, Multiple Effect Evaporators (MEE), Mechanical Vapor Recompression Evaporators (MVR) etc. We also deal for technical services which includes case study for typical water purification or waste treatment, basic & detailed engineering for specific MEE, Stripper, Distillation System, Drying System etc. With an objective of saving **precious gift from nature** : “ **WATER**” as well as helping small scale industries for cost effective solutions to become responsible towards the environment sustainability. Our aim is to conserve more water as possible.



ECONOMICAL EVAPORATION SYSTEM USING MVR TECHNOLOGY

ECO-PACK SYSTEM

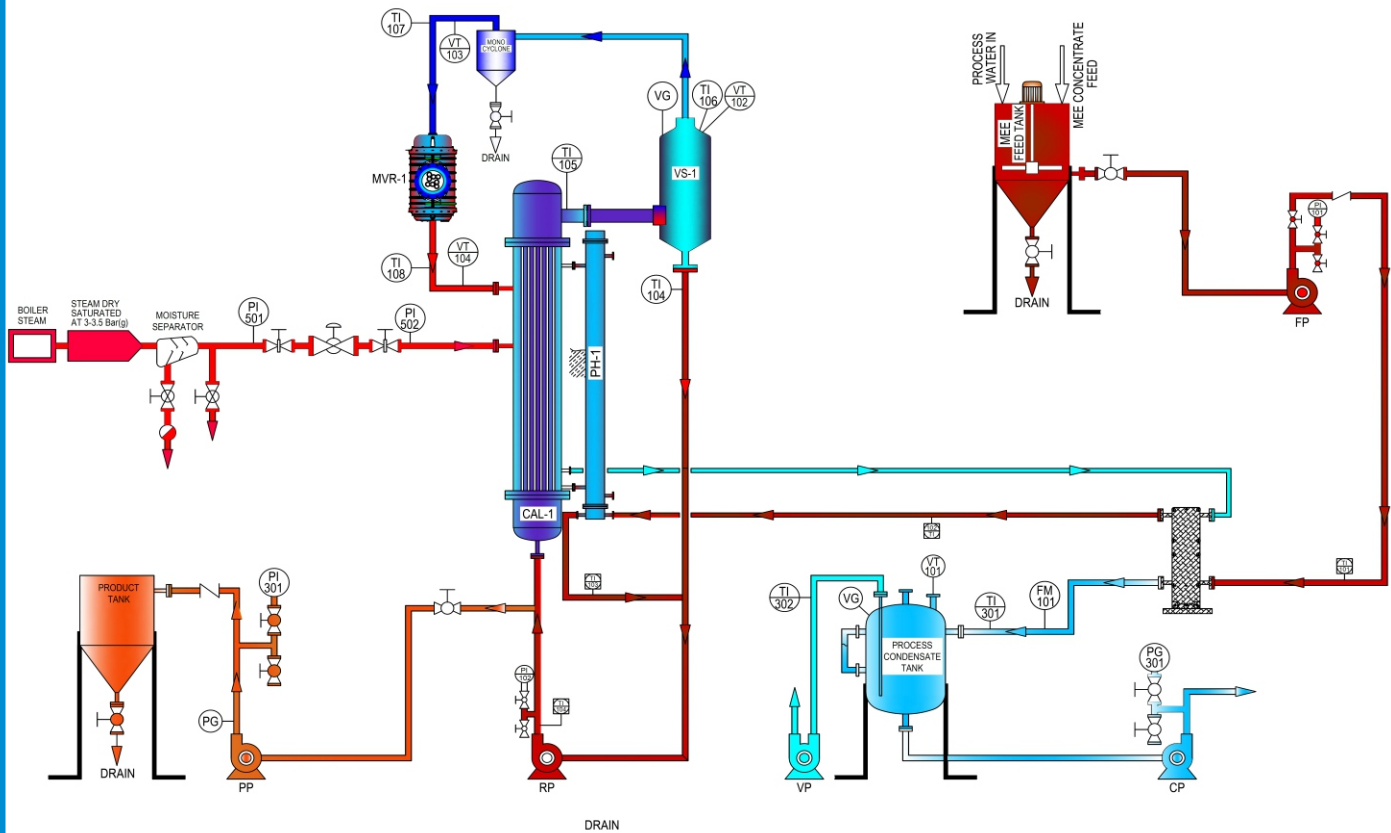
WATER DISTILLATION
WITHOUT STEAM &
COOLING TOWER



ROTOTECH has developed Force circulation **MVR evaporator (eco pack)** system for treating waste water to achieve Zero liquid discharge and providing environment friendly Solution.

Why MVR

- Evaporation using steam is energy intensive when we burn fuel to generate steam. Evaporation based on **MVR** technology is a cost effective alternative to treat waste water.
- Eliminates the boiler and cooling tower which reduces the both capital investment and fuel cost for steam generation.
- Reduces the man power requirement as auxiliary equipment are not required.
- Utilizes only electrical energy which is clean, cheap and easily available among all energy options.
- Less foot print area required for installation
- Suitable to concentrate wide variety of liquor to very high level with minimum temperature difference using tubular Heat exchanger force circulation technology.
- MVR technology system structure is simple, fully-automated, with continuous operation
- MVR technology is more efficient than traditional multi-effect evaporation technology, savings in terms of energy and reducing operating costs.



FLOW DIAGRAM FOR MVR SYSTEM (ECO PACK)

Why ROTOTECH MVR

Rototech **MVR** will Work on **FORCE CIRCULATION** principle with high flow/pressure in tube side material to prevent scaling & choking issues with this system, WE can handle material concentration up to 35% .(350000ppm)

Rototech **MVR** Is with Dynamically Balanced rotor of **MVR** resulting in very Low vibration levels with Lip seal & piston ring type labyrinth seal. (With double oil seal arrangement) to avoid water contamination during process operation.

- Skid Mountable In many applications.
- High heat transfer performance thus specific energy consumption is very low.
- Execution in minimum time period strictly as per schedule
- Overall process temperature and pressure is very low which will results in slower fouling of heating surface and also control the product quality

At the end we will achieve better result with less energy consumption, so that our operation cost (evaporation cost) will be reduce and also saving the space as because other utility equipment not required for **MVR (ECO PACK SYSTEMS)**

MECHANICAL VAPOR RECOMPRESSION (MVR)

FORCE CIRCULATION MVR EVAPORATOR SYSTEM

Mechanical Vapor Recompression (MVR) systems recover and reuse energy normally lost through Condensation of vapour in last stage. Because of the ability to use and upgrade wasted energy, **MVR** can significantly increase the efficiency of industrial heating and evaporation processes. They achieve this by recompressing vapour for reuse as a heat source from the same process from which the heat was generated.

Using **mechanical vapor recompression**, a mechanically operated compressor recompresses practically the complete vapour of an evaporation effect from a lower evaporation pressure and temperature level to the heating pressure of the same evaporation effect. In this way, its heat energy is re-used for heating and does not have to be condensed without being used.



APPLICATIONS OF MVR

- Bulk drugs, API, Pharmaceuticals and Intermediates Industries
- Petrochemicals & Chemicals Industries
- Food and Dairy Industries
- Textile & Dyeing Industries
- Spent wash treatment for sugar industries
- Breweries Waste water recycling
- Common Effluent Treatment Plants
- Semiconductors Manufacturing Industries
- Battery Manufacturing Industries
- Mining Industries / Oil & Gas
- Nuclear Industries
- Metals and Minerals Industries
- Automobile Manufacturing Industries
- Paper Industries
- Desalination

MULTI EFFECT EVAPORATOR (MEE)

Industrial evaporation is employed for the large scale production of concentrated solutions, playing a critical role in the manufacture of a variety of process industries, including chemicals, specialty and fine chemicals, polymers, fertilisers, pulp & paper, pharmaceuticals and foods. Nowadays evaporation is widely used to treat effluents waters and often allowing the recovery of valuable products.

Rototech offers all sizes and all type of evaporators namely falling, forced circulation, scrapped surface, Evaporator & Crystallizer in effective combination with multiple effect evaporation system. Optimum number of effects in combination with falling film and forced circulation provided by **Rototech** is the least operating cost of the capital cost

Rototech offer a system comprising of Thermovapour re-compressor (TVR), Feed pre-heaters, Condensate flashing to reduce the steam consumption & thus achieving higher steam economy.



MEE PLANT



APPLICATION OF MULTI EFFECT EVAPORATOR

Properly selected & designed scheme, adequate heat transfer area at best operating temperatures ensures the plant performance for longer time and reduces CIP frequency & plant stoppages.

Easy & Quick CIP facility for the plant, Fully automated and manual operation mode as per requirement

- RO Reject.
- Mix salt Recovery.
- Pharma Industries.
- Automobile Industries.
- Food Industries.
- Textile Industries.
- Chemicals and Organic Chemicals.
- Dye Bath Water.
- Dairy & Food Products.
- Sugarcane Industries.
- Tea/Coffee Extract.
- Steel Industries.



MEE PLANT

Particulars	Single Effect	Double Effect	Triple Effect	Quadruple Effect
Recommended for Water evaporation capacity in Kg/hr	<500	>500<=1200	>1200<=2500	>2500<=5000
Steam Economy (Kg of Evaporation/Kg of Steam Consumed)	1.2	2.2-2.4	3.1-3.3	4.0-4.2

AGITATED THIN FILM DRYER (ATFD)

Rototech ATFD are used to concentrate, refine or recover a valuable product through distillation or similar thermal separation process.

The typical Agitated thin film Dryers consists of a tubular heat transfer area with an external heating jacket and fast revolving inner rotor with flexible or rigid wiper elements.

The feed is distributed by the rotor and its wipers evenly over the heating surface and forming a thin film of uniform thickness and heat will transfer in to thin film, Feed progressively passes through different phases like Liquid Slurry, Past Wet powder and finally powder of desired dryness.

The vapors produced and flow counter current to the film and pass through cyclone separator, further these vapors condensed in to indirect contact condenser

The powder gets collected in a receiver at the bottom.



STRIPPER COLUMN

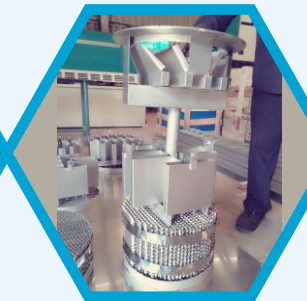
Rototech design & manufacture some of the most efficient and low maintenance stripper columns.

Rototech Engineers has been design and manufacturer the stripper columns for various industries.

Stripper column is specially designed for solvent recovery.

Steam is introduced from the bottom of the column, which carries volatile substance out at the top of the column.

When high COD stream is to be evaporated, Stripper column is mandatory for recovery of the SC low boilers.



Distillation Columns:

Technology:

- Continuous and batch
- Single and Multi Stage
- Extractive
- Azeotropic

Column Internals:

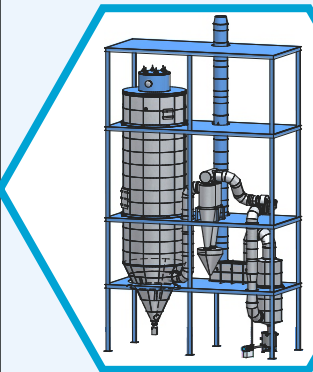
- Structured Packing
- Random Packing
- Bubble Cap, Sieve Tray
- Phase Separators
- Distributors & Connectors

SPRAY DRYING TECHNOLOGY

SPRAY DRYERS

This is the only single step drying operation in which liquid feed solutions, emulsions, dispersions or slurries are directly converted to free flowing powder or granules.

Spray Dryers are custom made designs having different atomisation and flow patterns to suit the feed and product characteristics and can be used for multi product drying.



NOZZLE ATOMISATION

Feed Solution or Slurry at high pressure is atomised through a nozzle into fine droplets and then dried instantaneously. Different kinds of air flow patterns are possible with nozzle atomisation systems. Nozzle type spray dryers are used to produce material in the granular, non-dusty form or powder form as required.

Depending on the required physical properties of end products, the choice of co-current, counter current or mixed air flow is selected.

APPLICATIONS:

- Wide range of materials can be dried.
- Options of both single fluid/two fluid nozzles.
- Easy to operate and user friendly.
- Compact Layout
- Automatic nozzle change over with steam / air flushing.



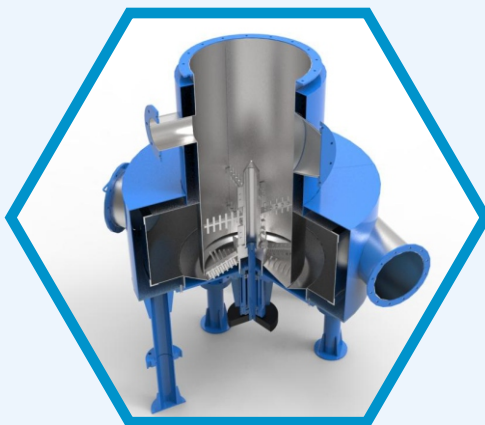
FLASH DRYER



SWIRL AGITATED (SPIN) FLASH DRYER

SPIN Flash Dryers are ideal for drying sticky, thixotropic cakes. In these dryers the wet feed is introduced in a swirling fluidised bed of material. The bed is kept in continuous agitation by means of an Agitator mounted at the bottom. Adequate residence time of drying is provided in the Dryer. Particle size of the final product can be controlled in this Dryer. If cake is solvent laden, then Closed Loop Designs of the Swirl Agitated (Spin) Flash Dryer operating with nitrogen as the heating media are available.

Rototech offers SPIN Flash Dryers with Feed Capacities ranging from 50 kg/hr to 6000 kg/hr.



FLASH DRYER

Flash Dryers are used for drying wet cakes, crystals or granular products, sticky or non sticky in nature. These are long ducts carrying air at a high velocity and the material is dried while it is pneumatically conveyed along with hot air.

Advantages

- Continuous operation & single step drying of free flowing powders, crystals.
- Unique feeding devices for taking care of uneven feed moisture.

CAGE MILL FLASH DRYER

For materials where size reduction is desired along with drying these are ideally suited. Materials in the nature of lumps, semi-hardcakes can easily be dried.

Advantages

- Continuous operation & single step drying disintegration of dry hard product lumps or crusts.
- Particle size control.
- Recycling of hot gases.



HOT AIR GENERATOR

Direct Gas/Light Oil Fired:

Direct fired air heater is provided for generating hot air by combustion of fuel. The air heater has suitable burner mounting arrangement and air inlet and outlet nozzles. In direct fired air heater, flue gases mix with process air.

- Max temp - 1000 Deg C.

Indirect Gas/Light Oil Fired-

The indirect air heater is made up of multiple shells. It is shell in shell construction. The multiple shells are arranged in such a way that the product of combustion flue gases do not mix with the process air. Cleaning nozzles and Explosion/access door are provided to enable cleaning of the shells.

- Max Temp- 320 Deg C

Features:

- Durable and compact construction
- Easy operation and minimal maintenance
- High level of safety in operation, thus greater reliability
- Optional recirculation system to improve overall thermal efficiency
- Fully automatic burner control and temperature control
- Horizontal & Vertical Mounting Options



Soild Fuel Fired HAG

These hot air generator are designed for maximum efficiency using a variety of solids fuels. It is designed with fuel flexibility in mind and can fire a range of use of any type solid fuel. It allows low and medium process temperatures without operating pressures.

Feature:

- High capacity heating system
- Multi-fuel option – wood, coal, brickets, any type solid fuel.
- Rugged - requires very little maintenance
- User-friendly systems.
- Fully automatic temperature control

Type
Direct Max Temp 550 Deg C
Indirect Max Temp 320 Deg C



ELECTROMAGNETIC HAMMER

FEATURES

- Maintenance of Our Electromagnetic Hammer is Very Low; where as others is very costly.
- Installation cost of our Hammer is very low compared to other hammering systems.
- In operating system no man power is required.
- Our Hammer can be serviced without any prior maintenance even after long shut down.
- Our hammer consume less electric power i.e. saves monthly electric bill.

APPLICATION

Our hammer is generally used in:

- Ceramic;
- Chemical;
- Cement;
- Silica;
- Dairy Products;
- Pharmaceutical;
- Food Products

TECHNICAL SPECIFICATION

DATA / MODEL	PEC / EH-25	PEC / EH-50	PEC / EH-75
RATED VOLTAGE	220V,AC, 50Hz	400V,AC, 50Hz	400V,AC, 50Hz
OPERATING VOLTAGE RANGE	220 V	380 V - 460 V	380 V - 460 V
RATED PULSE CURRENT	1 Amp	4.2 Amp	6 Amp
POWER @10 STROKES / MIN.	0.002 UNITS / HR	0.003 UNITS / HR	0.045 UNITS / HR
IMPACT FORCE	30 KG	70 KG	125 KG
WEIGHT	9 KG	15 KG	20 KG



ROTARY VALVE

The basic use of the rotary airlock feeder is as an airlock transition point, sealing pressurized systems against loss of air or gas while maintaining a flow of material between components with different pressure and suitable for air lock applications ranging from gravity discharge of filters, rotary valves, cyclone dust collectors, and rotary airlock storage devices to precision feeders for dilute phase and continuous dense phase pneumatic convey systems. Rotary Valve Rotary airlock feeders/ rotary airlock valves are used in pneumatic conveying systems, dust control equipment, and as volumetric feed-controls.

The Benefits of our Rotary Airlock Valves and Feeders:

- Our rotary airlock valves are used in a wide range of applications where there is need to minimize system air loss while transferring material between vessels with differing pressures.
- They are used as feeder valves to meter the flow of material between vessels with equivalent pressures.
- You will also find them doing double duty in systems where there is a need to minimize system air or gas loss while regulating the flow of material between vessels with differing pressures.



POLLUTION CONTROL SYSTEM

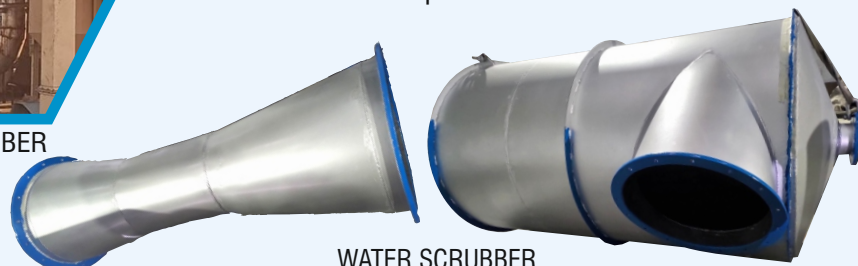
- To sustain moral and environment values we believe to serve industries modern technologies with most eco-friendly solutions.
- We manufacture and supply Pollution control equipments like Multi cyclone dust collector, Bag Filter, Electrostatic Precipitator etc.
- Our supplied Pollution control equipments comes with assurance to achieve pollution control board norms for SPM level and temperature.



BAG FILTER / DUST COLLECTOR



BOILER SCRUBBER



WATER SCRUBBER

CAUSTIC RECOVERY PLANT



95 % RECOVERY OF THE CAUSTIC WHICH WILL ANY HOW GOING IN WASTE AND INCREASE YOUR ETP LOAD.

Mercerizers in Textile Mills are used to Mercerize Cotton. This Cotton can be Grey/ Desized/ Bleached OR It can be Yarn / Dyed Yarn OR Knit OR Denim Fabric. Depending on the Design of Mercerizer they generate large Amount of Dilute Caustic Liquor of concentration of about 7 be of 5% containing impurities of various natures. if drained to effluent treatment plant it creates substantial loss of caustic soda and also severe problems in meeting the Enviromental standards.

ADVANTAGE

- No alkaline waste water from mercerizing machine.
- Generation of hot water from the waste energy.
- Generation of soft water, the vapor condensate is slightly alkaline.
- Recovery of surplus lye for wet-on-wet mercerizing.
- No contamination of the heating steam environmental protection.
- Less chemicals for neutralisation are needed.

MANUFACTURING FACILITY

Rototech Engineering System having working area of 1500m² with all Morden manufacturing facility.



PRODUCT RANGE

- Falling film Evaporator Plant
- Forced Circulation Evaporator Plant
- Rising Film Evaporator Plant
- ATFD Plant
- Crystalizer System & Vacuum System
- Distillation Systems (Batch & Continuous)
- Spray Dryer
- Flash Dryers
- Spin Flash Dryer
- Cage Flash Dryer
- Rotary Dryers

APPLICATIONS



FOOD & BEVERAGES



CHEMICALS



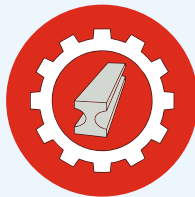
PHARMACEUTICALS



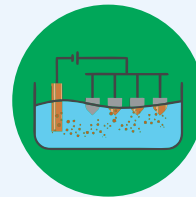
PRINTING & DYEING



PESTICIDE

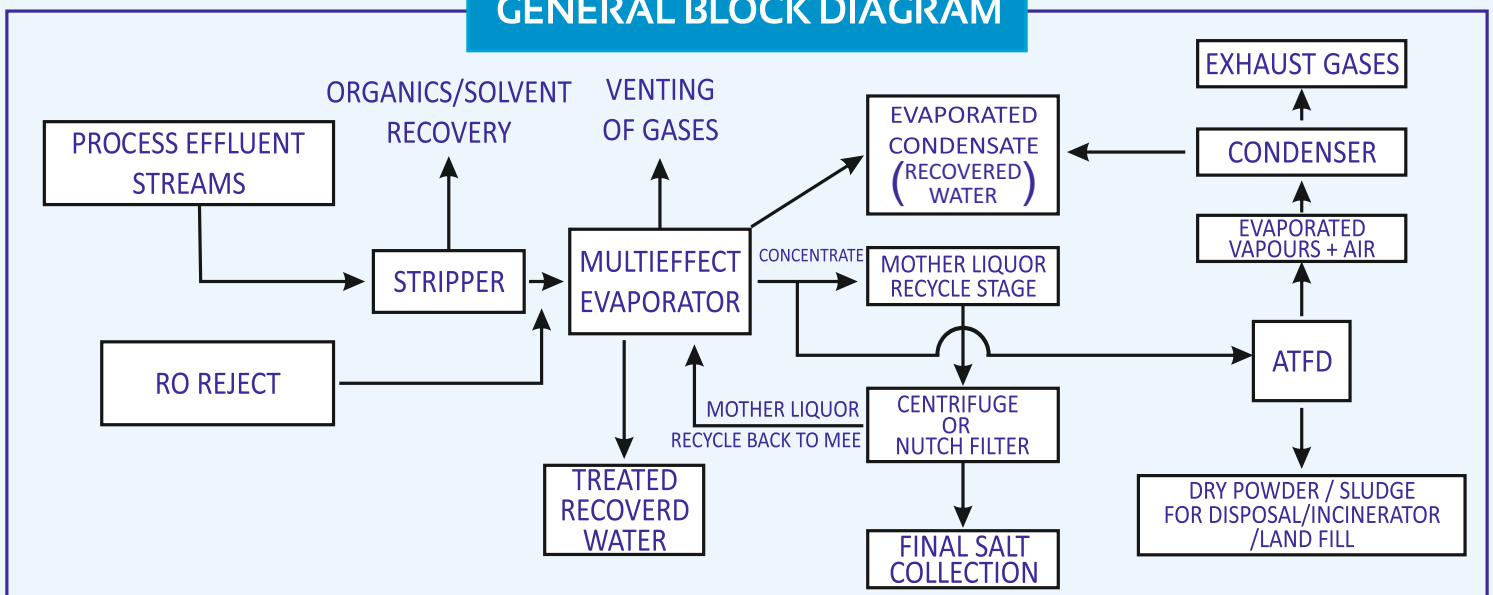


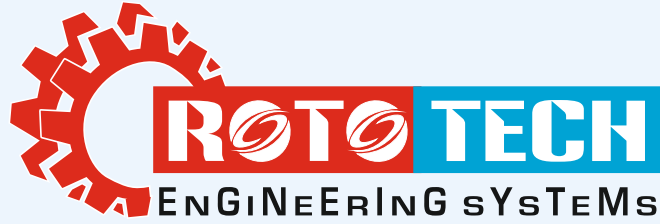
METAL INDUSTRY



ELECTRO-PLATING INDUSTRY

GENERAL BLOCK DIAGRAM





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We Support:

