

# **WATER POLLUTION CONTROL SYSTEMS**



**ISHAN PARYAVARAN PVT. LTD.**

**At ISHAN PARYAVARAN We Design,  
Manufacture, Operate and Maintain Water Pollution System.**

## MAINTAIN CLEAN AND USABLE WATER

Treated wastewater ensures to get clean water all through that can be reused.

## ENERGY PRODUCTION

The generated energy through wastewater treatment is used to power the plants. This makes industrial water treatment self-sustaining.

## WASTE REDUCTION

The amount of waste released into the environment is reduced through wastewater treatment.

# BENEFITS OF INDUSTRIAL WASTEWATER TREATMENT

## HELPS THE ECONOMY

It helps in the country's economy as it reduces the amount of money spent to initiate environmental projects to prevent pollution.

## PREVENT DISEASE

Treating throw-away prevents disease-causing bacteria from getting into the water sources.

# ISHAN DUAL CLARIFIER



IDC (Ishan Dual Clarifier) works on dual process of floatation sedimentation. A brief description is given below :

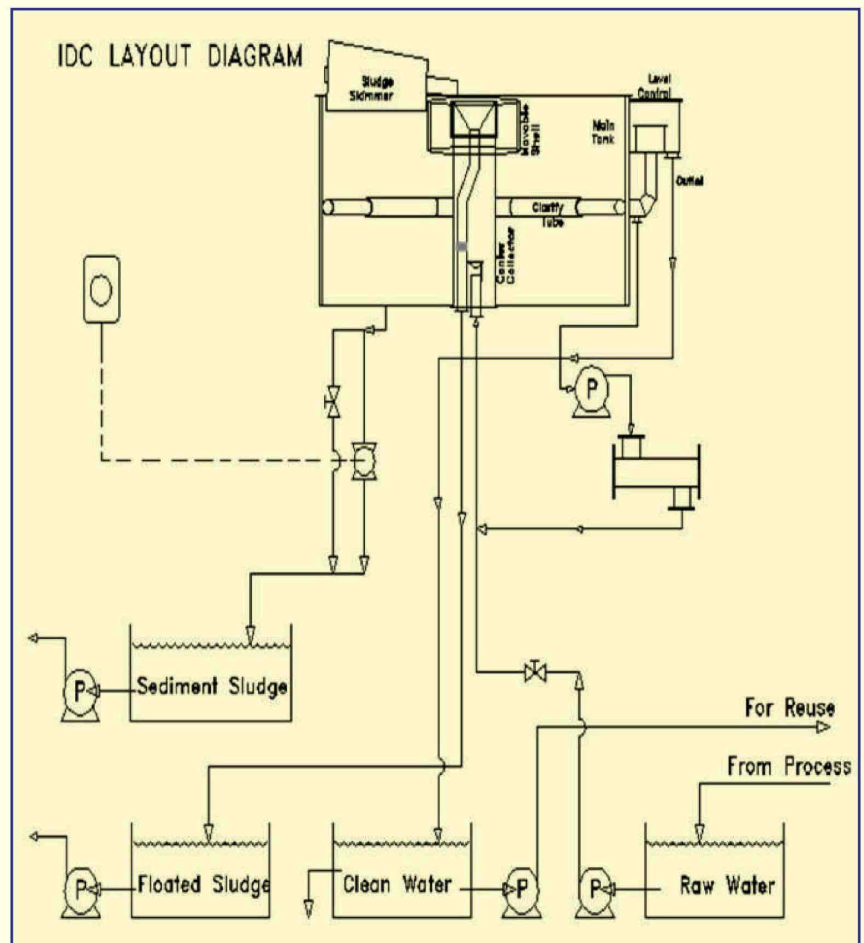
In floatation process a part of output water (about 20-25%) is mixed with air at high pressure and is re-calcuated with incoming water. The air bubbles take the suspended particles along with it to the top where this is skimmed as sludge with the help of skimmer. A air mixing unit is used to mix air with water.

In the second process, the heavier suspended particles settle at the bottom of the tank through gravity separation. The settled particles which are called sediment sludge are swept with the help of bottom scraper and collected in the sump at the bottom of tank, from where it is sent to further processing.

IDC is very economical and has very high processing efficiency.

It reduces the TSS and FOG by 85% to 95%.

BOD reduction is 40% to 55%



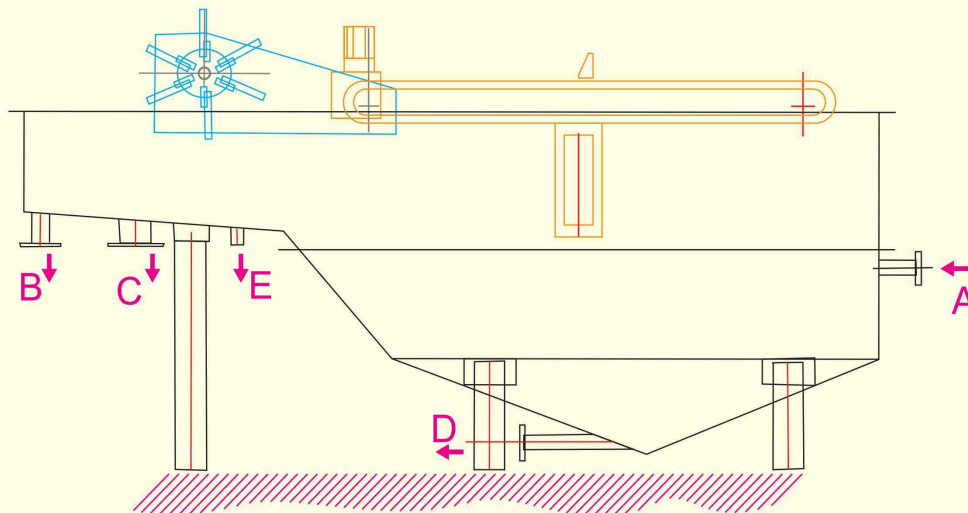
## CONVENTIONAL CLARIFIER



Clarifiers are settling tanks built with mechanical means for continuous removal of solids being deposited by sedimentation.[1] A clarifier is generally used to remove solid particulates or suspended solids from liquid for clarification and/or thickening. Inside the clarifier, solid contaminants will settle down to the bottom of the tank where it is collected by a scraper mechanism.[2] Concentrated impurities, discharged from the bottom of the tank, are known as sludge, while the particles that float to the surface of the liquid are called scum.

1. Scum Removal: Removes scum buildup from within the feedwell and from the clarifier surface.
2. Basin Configuration: Uses deeper side water depth (SWD) and proper floor slope design for maximum capacity and highest effluent quality for the least cost.
3. Density Current Baffle: Eliminates wall currents and prevents short-circuiting. The wall-mounted baffle is low in cost and requires no maintenance.
4. Flocculating Feedwell: Promotes hydraulic flocculation in the inlet area and is designed to eliminate scouring of the sludge blanket.
5. Energy Dissipating Inlet (EDI): Converts the high energy feed from the center column into a lower velocity flow that is gently mixed in an impinged or tangential flow into the flocculating feedwell to maximize flocculation.
6. Center Column: Minimizes floc shearing and reduces influent energy. bottom of the tank, are known as sludge, while the particles that float to the surface of the liquid are called scum.

# ISHAN RECTANGULAR DAF SYSTEM



- |                                |                                |
|--------------------------------|--------------------------------|
| A - INLET PIPE                 | D - SETTLED SLUDGE OUTLET PIPE |
| B - OUTLET PIPE                | E - RECIRCULATION PIPE         |
| C - FLOATED SLUDGE OUTLET PIPE |                                |

New Rectangular DAF : **Old Technology New Product**, **ISHAN PARYAVARAN** has come up with new product of daf technology replacing old conventional type circular DAF SYSTEM

## ADVANTAGES

- Lower civil cost & Easy to install
- Lesser covered area required
- Much Lower running Power cost in comparison to Present DAF Technology
- Better Output Performance;
- Lesser weight more reliable
- Best suited for any ETP Industry any type

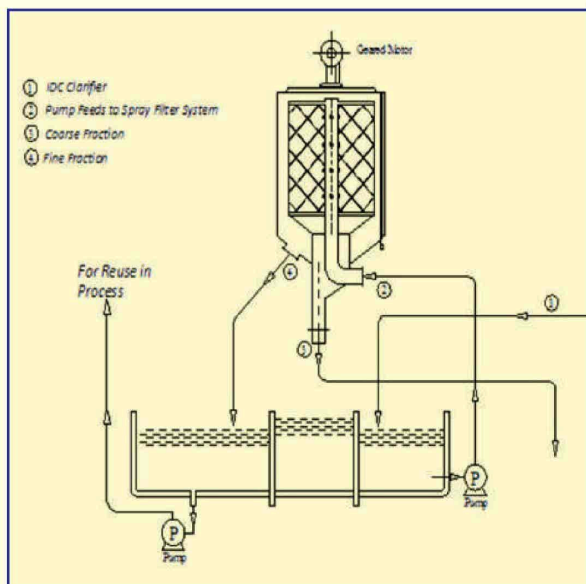
## Rectangular DAF Technical detail

Description Product	Maximum Flow(m <sup>3</sup> /h)	Power (HP)
IRD-5	50	0.5
IRD-10	100	0.5
IRD-15	150	1.5
IRD-20	200	2.0
IRD-25	250	2.0
IRD-30	300	2.0
IRD-35	350	2.0
IRD-50	500	2.0
IRD-65	650	2.0
IRD-75	750	2.0
IRD-100	1000	2.0

## ISHAN SPRAY FILTER

Ishan Spray Filter is designed for filtration of the effluents generated by the industrial activity; particularly generated by the industrial activity; particularly by paper industry. Effluent containing solids from 100 ppm to 5000ppm. A synthetic cloth of fine mesh from 65 to 500 microns is used as media for efficient fiber recovery and effluent fractionation.

It is fitted with cleaning shower mechanism which eliminates the cloth removal for cleaning.



Raw water enter the system under pressure of about  $1\text{Kg}/\text{Cm}^2$  (14.2psi)

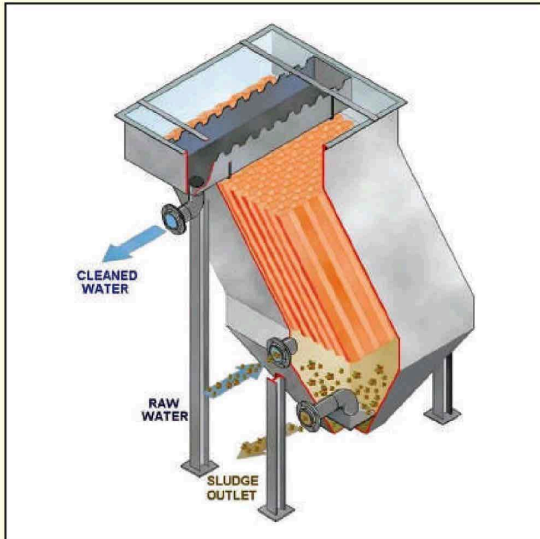
Through non-clogging nozzles it is sprayed uniformly on the cloth media.

A geared motor continuously rotates the drum with cloth. Coarse fraction fall inside the drum and is directed for reuse.

Fine fraction passes through cloth and is discharged separately.

Cloth is cleaned periodically with shower spraying it.

## ISHAN TUBE/PLATE SETTLER



### ADVANTAGES OF ISHAN TUBE/PLATE SETTLER

- Unit is completely assembled, easy to operate
- Low Installation cost
- Reduced floor space
- High Settling efficiency

### APPLICATIONS

- The basic purpose of clarifier is to remove solids from the stream of waste water.
- Our clarifiers are build to suit every specific requirements to give optimal solutions
- Most suitable for industrial waste water treatment

## PRESSURE SAND FILTER & ACTIVATED CARBON FILTER



### APPLICATIONS SAND FILTER:

- Waste water treatment
- Filtration for swimming pools
- Prefiltration for membrane system
- Filter high quality of water
- Thermoelectric power plants
- Irrigation and farming
- Aqua culture

### APPLICATIONS ACTIVATED CARBON FILTER

- Pharmaceutical Production Water
- Dairy and Food Products
- Beverages
- Packages Drinking Water

## COMPACT SEWAGE TREATMENT PLANT



For Different Types of Industries, Special Economical Zones (SEZs), Industrial Complexes, Municipal Corporations, Nagar Nigam, Hotel Industries And Residential Colonies

Compact (Plug & Play) Sewage Treatment Plants for inland applications have been designed for gravity or pumping treatment of domestic sewage and built to be installed on the surface these plants carry out the sewage treatment by biological means. The Plants are of the activated sludge process & MBBR process without requiring any other kind of dosing or addivation.

The Plant is single built in a closed module which has different chambers have been arranged, facilitating their transport and installation. Every chamber has been provided with the necessary access and inspection registers. This modular construction allows the increase of the processing capacity by placing more Plants in parallel. The air diffusers responsible

## PLATE FILTER PRESS



**A Filter press is a tool used in separation processes, mainly to separate solids and liquids.**

The process uses the principle of hydraulic pressure drive to hold the press under pressure. Among other uses, filter presses are utilized in Paper, leather, dyeing industries etc., in order to separate water from solids in order to reuse the water during the paper, leather, dyeing industries etc.

### Concept & Technology

Generally, the sludge that will be separated is injected into the center of the press and each chamber of the press is filled by ensuring the last chamber of the press is loaded before the sludge in the first chamber begins to become cake. As the chambers fill, pressure inside the system will increase due to the formation of thick sludge. Then, the liquid is strained through filter cloths by force using compressed air or water.

### Applications

- Filter presses are used in a huge variety of different applications, from dewatering the sludge and to make further use of water.
- Filter press technology is widely established for ultrafine coal dewatering as well as filtrate recovery in coal preparation plants.

### Efficiency

Plate and frame filter press produces cake with solid concentration upto 22-27%. It is the best sludge dewatering machine for secondary sludge.

- Fewer parts for easy maintenance.
- Captures a high amount of solids.
- In some areas, it is the only device capable of producing a cake that is dry enough to meet landfill requirements.

## BELT FILTER PRESS



Belt Filter Press is a Continuous sludge dewatering device which uses chemical conditioning, gravity drainage and mechanically applied pressure to dewater sludge.

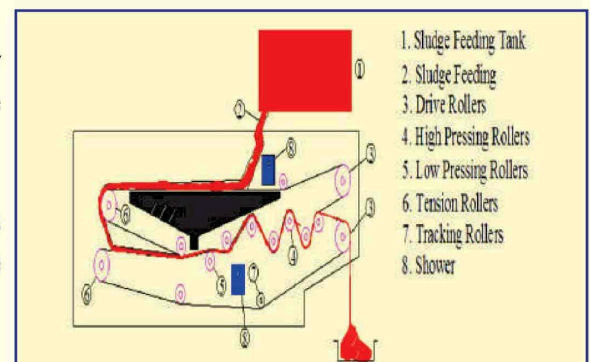
First, the conditioned sludge is introduced through a hopper to gravity drainage section where thickening takes place through the drainage of free water through the belt. Suspended solids concentration increases in this section. Following this sludge is subjected to gradual in-creasing pressure by squeezing opposing belt fabric. The belts are held in place by series of rollers that subjects the sludge to shearing forces as belt pass through a series of rollers that define a serpentine path. These forces thus introduced, release additional quantities of water from sludge increasing the solid content further. a continuous water spray keeps the pores of belt get plugged. The sludge cake is out at the outlet end.

It works with almost every type of sludge including primary biological from anaerobic and aerobic processes after some chemical conditioning.

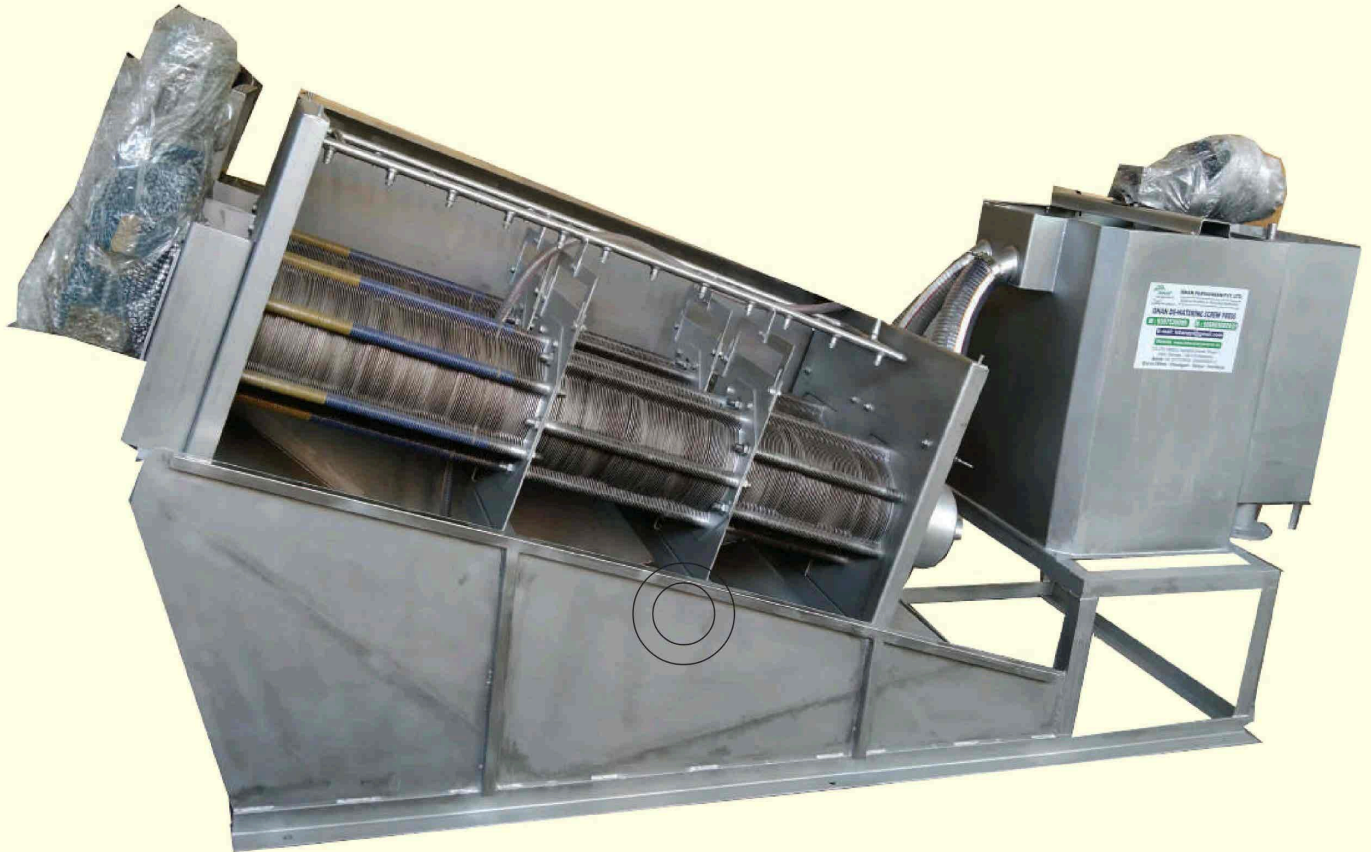
Sizes varies from 0.5 meter to 2.5 meter of belt with capacities of 10m<sup>3</sup>/m. Through the output also depend on the characteristics of the sludge.

Our BFPs works with sludge of 0.5% to 2.0% DS.

The output sludge is of 22% to 30% DS.



## SCREW PRESS FOR SLUDGE



**Note : Size available 6m<sup>3</sup>/hr to 75m<sup>3</sup>/hr at 1% input consistency and 25±2 Output consistency**

### SLUDGE DEWATERING TECHNOLOGY

#### Benefits of the Multi-Disc Screw Press :

- Simple installation and Operation
- Low energy consumption
- Wide range of applications
- Low noise and vibrations levels
- Automated mode
- Affordable spare parts
- Low maintenance costs
- Economical Operations
- Smaller footprint than other technologies
- High quality workmanship

#### Where we operate :

- Pulp and Paper Industry
- Food & Beverages Inc. Dairy
- Textile Industry
- Tannery and Slaughter House
- Chemical Industry
- Pharma Industry
- Automobile Industry
- Edible Oil
- CETP Industry
- STP/FSTP

## PRODUCT DESCRIPTION

Multi-Disk Screw Press is a new technology developed in solid-liquid separation equipment. The pitch of the screw and the gaps between the rings decrease, increasing its internal pressure, thus dehydration is achieved. It can be widely used in municipal sludge, food, beverage, slaughtering breeding, printing and dyeing, Oil chemical industry, paper making, leather, pharmaceutical and other industries of sludge dewatering. The unique dewatering principle makes the equipment suitable for high and low concentration, creating a precedent for direct dehydration of low concentration sludge. The innovation structure design makes the equipment suitable for all kinds of sludge with high and low viscosity, especially oily sludge, which can be called a dewatering tool for oily sludge!

Due to the innovation of the structure design, It is highly suitable for various high and low concentration sludge, most especially the oily sludge.

## DE-WATERING PROCESS

The type and the added quantity of the polymer should first be determined by experiment. If two kinds of polymer are required, we recommended the dehydrator with two flocculation tanks. The stirring device in the sludge tank runs continuously to ensure the relatively stable concentration of inlet sludge.

Polymer solution needs to be ready using polymer preparation device before screw press starts running. Polymer solution and sludge are mixed and stirred, forming flocs in the flocculation tank, As the sludge makes its way down to the drum by the rotation of the screw, thickening and dewatering takes place. Filtrate comes out from the gap and sludge cake is discharged from another end. Filtrate can be reused by further treatment. Sludge cake can be transferred by conveyor.

Simple process, efficient and energy saving dewatering, low system investment system can be programmed to make the operation more convenient and accurate Unique flocculating agent to make sludge dewatering easier Uniform and Accurate dispensing, saving running cost.

## OPERATING PRICIPLE

### 1. Structure Principle

Layers of the spacers, which are fixed and moving rings, are secured in place by a tie rod. The inner diameters of moving rings are slightly smaller than the outer diameter of the screw and their rings. Mobilized by the screw, it continuously cleans the sludge out of the gaps, therefore preventing clogging.

### 2. Dewatering Principle

Screw pitch becomes smaller towards the end plate, which gives pressure to dewater sludge.

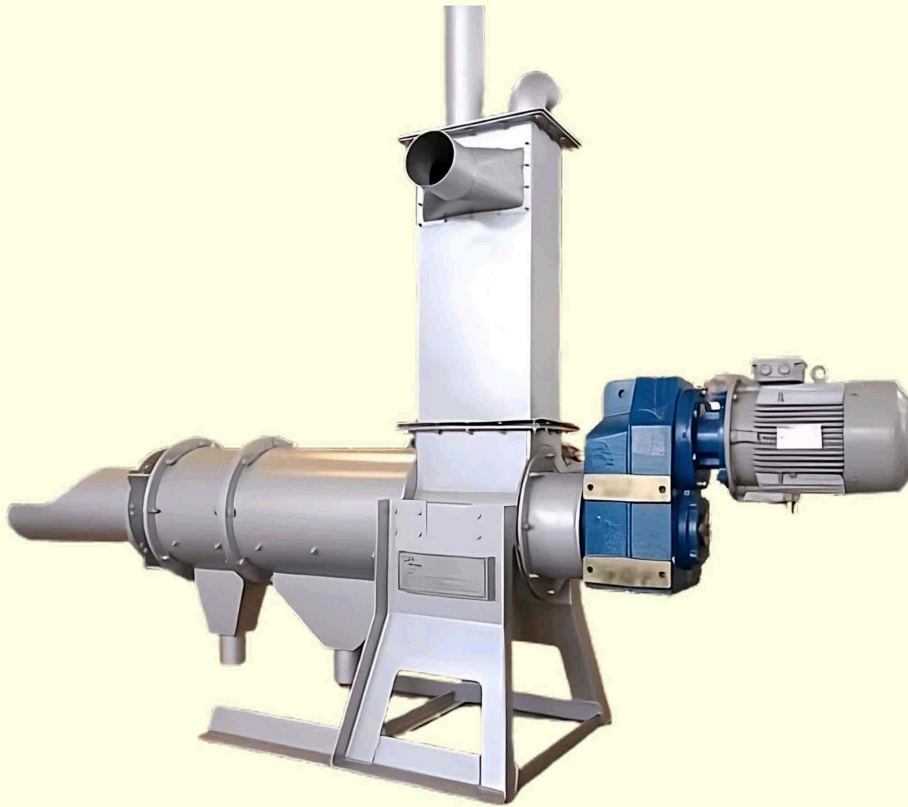
### 3. Filtering Zone

Dewatering drum comprised interlaminated fixed rings and moving rings. Filtrate is discharged between the gaps of the rings.

### 4. Clog-free Structure

Moving rings are mobilized by the screw to prevent clogging

## ISHAN DEWATERING MACHINE (DUNK PRESS)



The new technology solid liquid separator to withstand market needs has been introduced. Thanks to widely used application, any type of Semi solid waste or processing material from Dairy, Slaughter House, Pulp & Paper, Organic Waste, Bio fertilizers plants, Paddy rice husk, Vegetable waste, Pig farm, Chicken farm, Spent brewery waste, Spent coffee, Shrimp waste etc. from which excess moisture is to be removed.

### **Construction an Overview:**

The Press consist of compensator and overflow hopper. Thoroughly made in stainless steel casing having screw conveyor and slotted basket screens that conveys the semi solid/liquid phase flowing through the screen while the solids is pushed with the screw forward and liquid kept flushing through the horizontal moment inside the casing thanks to specially designed wedged wired screens. The drive unit consists of motor with gearbox which is coupled through output shaft further coupled through screw.

### **Process- Solid liquid separation:**

Machine is based on screw conveyor technology having separation of both gravity based and mechanical compaction based. Any material from which moisture to be reduced can be fed in the machine. Slurry having consistency with over 5 to 6 % solids can also be fed into the machine to get up to 40+ consistency on dry basis which can be easily handled.

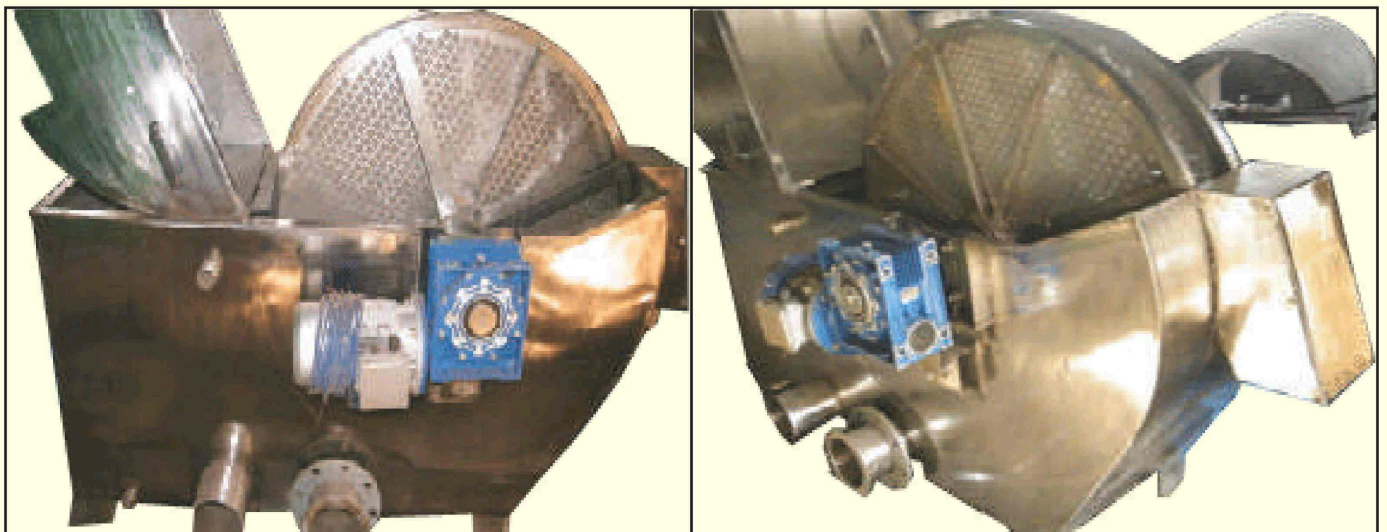
### **Features:**

- Simple & chemical free operation.
- Durable high performance with screw baskets.
- Customizable slotted screens according to input material.
- Built with corrosion-resistant materials, ensuring durability in industrial environment
- Lesser maintenance with lesser power required and no or minimal wear and tear.
- Equipped with a high-efficiency motor, it consumes less power while delivering optimal costs.

### **Benefits:**

- All in one machine having plug & play system with no need of assembling the parts.
- Best and cheapest machines in solid liquid separation technology with durability to manage different consistency of slurries.
- Different and customized diaphragm outlets.
- Continuous operation.
- No or very less chemical required.
- Low energy consumption.

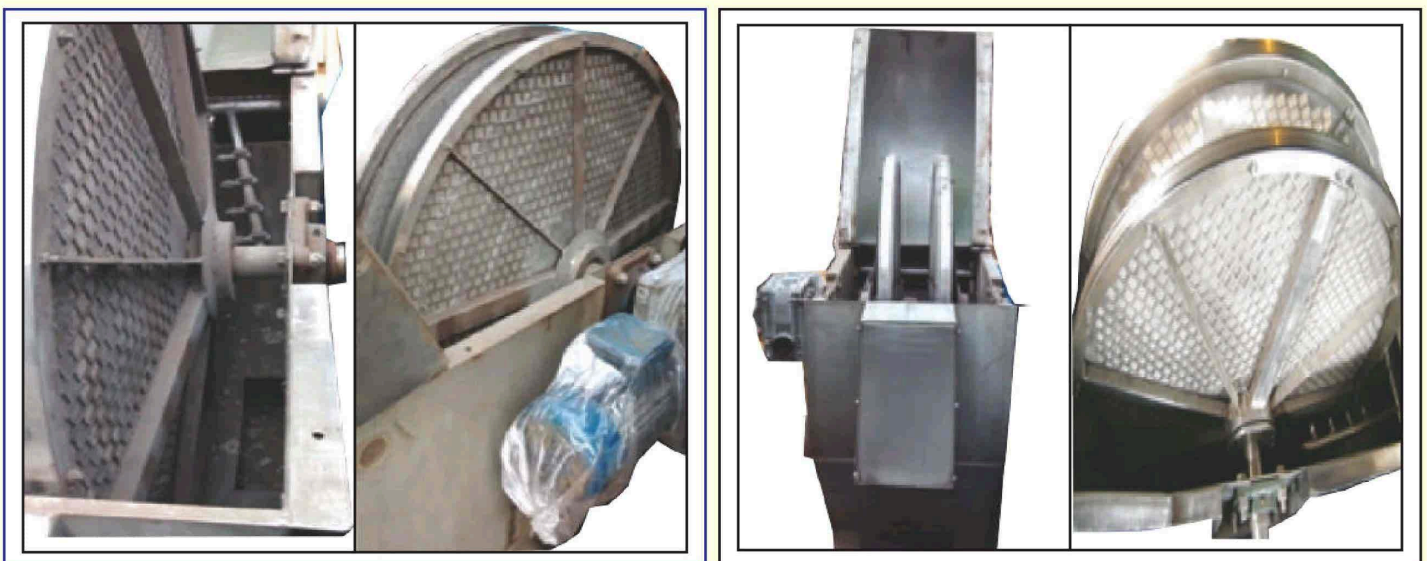
## ISHAN DISC SCREEN



**The DISC SCREEN finds many applications in both the municipal and industrial sectors where solids such as wool, lint, textile fibers, hair, and other organic residues, need to be removed or recovered as valuable by-products.**

The Disc Screen Micro-filter comprise of a caisson structure, divided into three separate zones having the purpose of feeding the waste stream, discharging the filtrate and discharging the overflow, with one or more pairs of revolving conical discs. The discs are complete with filter media capable of retaining suspended particles as small as 30 microns. The liquid to be filtered is fed to each pair of conical discs, through feed ducts; while the liquid portion passes through the filter media tangentially, the solid particle retained on the face of the conical discs are controlled by a densifier comb located inside the conical discs, in conjunction with the speed of the discs themselves.

While the solids layer is building up on the conical face of the screen, it in essence 'precoats' the media and increases the performance of the Disc Screen by making it easier to remove finer solids. The filtrate is discharged from the bottom of the screen and can then be recycled and processed further. The Disc Screen can be provided with an automatic pressure cleaning system with spray nozzles, where the thickness of the solids layer gradually builds up, increasing their volume. The conical shape of the discs makes it easier for the solid particles to accumulate on the face of the discs; when the layer of solids reaches a point at which it is too heavy to adhere to the disc, solid layer rolls over the face of the disc, performing a self cleaning action. These are then automatically discharged from the DISC SCREEN through the opening located between the discs, opposite the feed end of the machine.



## RO SYSTEM (REVERSE OSMOSIS)



For Different types of Industries, Specially for boiler feed, Industrial Complexes, Municipal Corporations, Nagar Nigam, Hotel Industries and Residential Colonies.

The RO System works on the principle of Reverse osmosis, also known as hyper-filtration. One of the finest techniques for treating water, reverse osmosis eliminates contaminants from water thus making it fit for drinking purpose and other commercial and industrial applications. The RO system is provided with sediment pre-filter as the membranes are degraded by chlorine, bacterial attack, manganese, hydrogen sulfide and iron.

Reverse Osmosis & RO Membranes – Reverse osmosis, often abbreviated to RO is a technique employing a membrane which is “semi permeable” that is; under the influence of pressure a larger proportion of water (the solvent) passes through the membrane than do the dissolved salts or organic molecules (the solutes).



## ETP and It's Benefits

ETP plays an important role in treating industrial wastewater as well as sewages generated from households.



## ISHAN PARYAVARAN PVT. LTD.

**Deals in :** O&M OF E.T.P., S.T.P., RO, SOFTNER, WASTE WATER TREATMENT, SPECIALIST IN AIR & WATER POLLUTION, TURNKEY SUPPLIER OF ETP & STP

**Corporate Office :**  
357, Industrial Area, Phase - I, Panchkula (Hry.)  
Tele. : 0172-2585801

**Mobile :** 094170-11473, 93575-30009  
**E-mail :** ishanpp1@gmail.com, ishanparyavaran@gmail.com  
**Website :** www.ishanparyavaran.in

**Works Unit II :**  
274-275, Industrial Estate, Alipur Barwala-134118  
**TEL:** 0173-3258801, **Email:** ishaanpp1@gmail.com

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