

Process Equipment

Water & Waste Water
Chemical Industry
Pharmaceuticals
Food Processing
Mineral Ore Processing



Process Equipment



PARAMOUNT LIMITED

(An ISO 9001 Company)

ABOUT US

Paramount Limited was established in the year 1976. With an intention to provide the most optimum solution to customers, Paramount also established a most modern R&D centre in pollution control in 1976. Through the years, Paramount has established itself as a leading "**Total Environment Management Company**" providing solutions to any kind of complex pollution problems.



The main areas of specialisation include design and execution of projects and manufacturing of equipments/systems for treatment of water and waste water including its reuse, DM water treatment including condensate polishing for industrial uses, solid and hazardous waste management, Air Pollution Control Systems and Hazardous waste incinerators.

A wide range of process as well as equipment/ system choice is available to enable custom design of systems to meet individual needs in this area.

Paramount offers turnkey solutions as well as supplies a wide range of tailormade pollution control equipments to suit client needs for compliance to the most stringent effluent discharge norms specified by the pollution control authorities. Paramount's team of engineers comprising of chemical, environmental, civil, mechanical, electrical, instrumentation & the scientists at R&D centre have conceptualized & solved many of the most complex problems of the industries.

Our R & D centre



Paramount's R&D can boast of a number of processes developed in-house for solving specific pollution problems & have been implemented on full scale plants. Paramount has always been in the forefront to introduce & commercialise new processes & equipments in the process industry.



OUR SPECIALITY AREAS

Paramount by now has already successfully executed hundreds of plants for *Water & Wastewater Treatment, Sewage Treatment, Demineralisation, Air Pollution Control, Flue Gas Desulphurisation, Hazardous Waste Incineration* & process plants for various industries viz. petrochemicals, refineries, oil & gas installations, fertilizers, Pharmaceuticals, municipal bodies, chemicals industries, power plants, copper smelters & many others.



Hazardous waste incinerator at a large Petrochemical complex



Ammonia steam strippers at a Fertilizer Complex

Paramount is proud to be associated with a number of projects in the oil sector for setting up large scale turnkey **water pollution control facilities (upto 1500 m³/hr capacity)**, supply of advanced pollution control equipments like **Tilted Plate Interceptor (upto 2000 m³/hr capacity)**, **Dissolved Air Flotation units (upto 1500m³/hr capacity)**, **Clariflocculators (upto 50 m dia)**, **Deep Bed Plastic Media Biotowers (upto 35 m dia)**, **Vacuum Drum Filters (up to 12 ft. dia) & Classifiers (up to 72 inch spiral)**

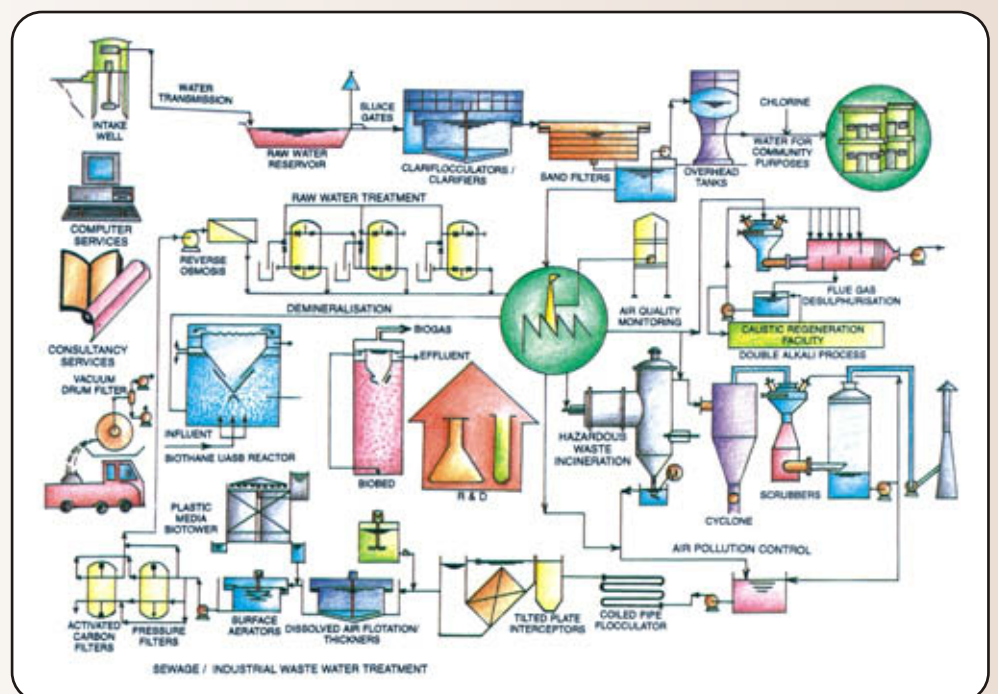


PLATE PACK SYSTEM

Introduction

The phenomenon of "Gravity Separation" is used by engineers extensively for separating solids from liquids or fluids as the case may be. It is therefore apparent that material with high density will settle and with lower density will float to the surface of fluid. However, the effectiveness of this technique is subjected to various factors such as difference in the density, viscosity factors of the medium, temperature, turbulence and also the nature of impurity, etc.

An enlarged separating surface can be achieved by placing various smaller planes on the top of each other in a tank. If these planes are subsequently inclined in a fitted position, the oil/solids separated between the plates can be removed by gravity. This principle has been realized in the counter-current Tilted Plate Interceptor (TPI), Cross Flow

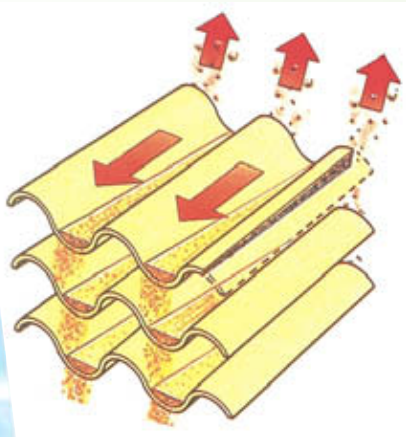


Plate packs under assembly

Interceptor (CFI) and Tilted Plate Flotator (TPF).

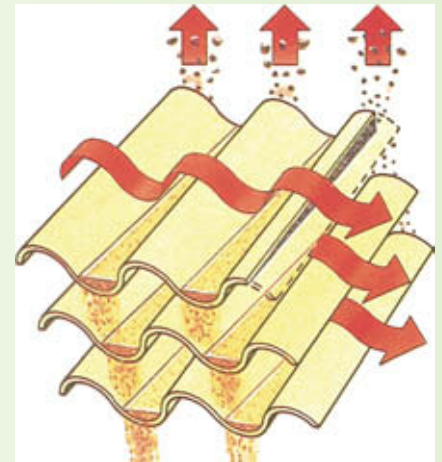
Plate Pack

The corrugated plate pack, invented by M/s PWT, Netherlands in the 1950's from whom Paramount acquired this technology, is the heart of our various purification systems. The standard plate pack consists of corrugated plates mounted in parallel, between which the liquid along with pollutants like solids & oil are allowed to flow. Cluster pack, half pack, quarter pack, special mini pack are also manufactured to suit system design requirements.

Much attention has been given to the profile of the corrugated plates. This has been chosen so that a smooth transfer and compaction of the separated particles is effected.

In order to reduce the frictional resistance between the separated material and the corrugated plates to the minimum, particular attention is paid to the smoothness and hardness of the plate surface. The corrugated plates are made from glass fiber reinforced polyester resin. This

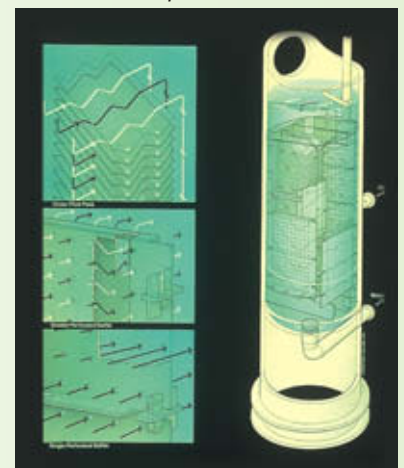
material is resistant to the most frequently used chemical additives and temperature.



Advantages

- Highly efficient operations
- Compact volume
- Handles temperature variation
- Handles shock oil loads
- Prefabricated & modular construction
- No moving parts
- No power requirement
- No maintenance
- Handles shock hydraulic loads
- Low installation cost

Cross Flow Interceptor for a 3-Phase Separator



Applications

- | | |
|-----------------------|---------------------|
| Petrochemicals | De-salter plants |
| Refineries | Steel plants |
| Fertilizers | Edible oil refinery |
| Chemical plants | Automobile plants |
| Oil/Gas installations | Pharmaceuticals |
| Off-shore platforms | Pickling operations |
| Power plants | Food processing |
| Bilge water | Polymer units |
| Ballast water | Dairy |
| Oil tank farms | Soaps & Detergents |
| Lube oil plants | Tanneries |

TILTED PLATE INTERCEPTOR (TPI)

For Free Oil Removal

Highly efficient oil removal systems are required to recover maximum quantity of hydrocarbons as well as to make effluent amicable for further treatment & also to meet the stringent pollution control requirements.

TPI is widely used for separation of free oil/hydrocarbons from the effluent. With the objective of not disturbing the particle size distribution unnecessarily, this oily effluent is preferably fed by gravity. The oily water flows into the interceptor through various components and oil gets separated as described below :

A double slotted baffle at inlet evenly distributes incoming water at the entrance of the corrugated plate pack.

In the plate pack, the oil droplets are intercepted and coalesce into large droplets. They leave the pack rapidly counter current upwards against the liquid flow to the surface.

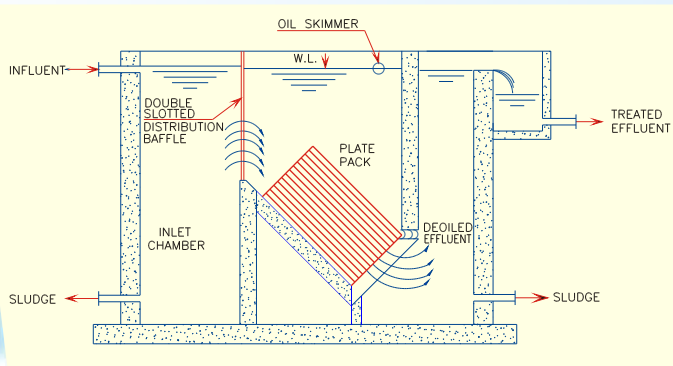


TPI for a oil tank farm

Settleable material, if present in the aqueous phase, is similarly separated in the plate pack and then slides down to the sludge compartment.

The treated clear water leaves the plate pack at the bottom and gets discharged over the weir to outlet nozzle.

API oil separators are also offered for specific applications depending on system requirements.



TPI internals in concrete tank



Battery of TPI's for ballast water

TPI internals in concrete tank



A large TPI in concrete basin (Cap. 1500m³/hr) at 12.5MMTPA refinery



Special mini TPI for Dept. of Space



COILED PIPE FLOCCULATOR (CPF)

Introduction

In conventional water/waste water treatment installations using flocculation of colloidal particles (solids) with flocculating agents, its settling or rising properties are affected unfavorably by a number of factors. To compensate for these effects due to short circuit of flow and back mixing, a three to five times longer residence time is often selected than normally required by jar test experiments.

The Coiled Pipe Flocculator is virtually a new concept which facilitates accelerated flocculation with flocs having extremely low variation in size distribution, shape and structure. This phenomenon strongly improves settling or rising characteristics, thus having a favorable effect on the subsequent flotation or sedimentation process.

Other Advantages

Since this is a stationery unit without any moving parts, it totally eliminates any power requirements, maintenance & use of mixers for mixing coagulants/flocculants.

CPF is supplied in one piece totally assembled unit with mixing nozzles, sampling ports, and bubble generators. Since, the unit is preassembled, it thus provides ease of installation.

CPF-TPF for Food Processing Industry



About CPF

The Coiled Pipe Flocculator (CPF) is a strict plug flow reactor which offers process optimized performance without causing any back mixing or short circuiting. Thus the coagulation & flocculation of contaminants occur under well defined process conditions, which is most optimum for flocculation based on the specific requirements of the type of contaminant to be flocculated. Optimum length of each section of CPF is calculated for each application independently and location of injection points for various coagulants and flocculants are decided. The coagulant is injected immediately at the initial section of the CPF where plug flow condition exists. It is dosed through a mixing flange where total mixing is achieved in less than 0.5 sec, by maintaining a very high G value. The injection of coagulants and flocculants at exactly predetermined points on CPF provides optimum reaction adjustments and offers gradual build up of flocs along the total length of CPF.

The final result of this proprietary device is an ultrashort reaction time, optimum chemical consumption and most optimum settling or flotation characteristics of the contaminants. When CPF is used in conjunction with flotation units, the bubble generators provided in its last length provide for optimum mixing of air saturated water with flocs in a combined space thus achieving favorable flocs characteristics for flotation.

Particular care is taken for the design of mixing nozzles for coagulants / flocculants to ensure its complete mixing in the liquid phase.

CPF-TPF for a Refinery



TILTED PLATE FLOTATOR (TPF)

For Solids & Emulsified Oil Removal

The Tilted Plate Flotator (TPF) is selected for removal of emulsified oils and/or slow settling solid particles from the effluent where TPI, CFI or TPS may not be effective.

TPF works on the basic principle of Dissolved Air Flotation (DAF). Air is dissolved in the recycle stream (which is generally treated effluent) at a high pressure in a dissolving vessel. This saturated liquid when depressurized, releases a large amount of micro sized air bubbles which when mixed with the flocculated effluent gets attached to the flocs to be separated thus reducing the combined specific gravity of the material less than the effluent.

These conglomerates are separated in the TPF (Tilted Plate Flotator) system. Here, flocs are separated in the corrugated plate pack which is installed at an inclination to create maximum surface area for separation in minimum volume. Flow through these plate packs is maintained as laminar

thus creating ideal separation conditions. The separated conglomerates collect in the corrugated crests and subsequently moves upwards in the pack counter-current, eventually forming a compact floating layer on the liquid surface.

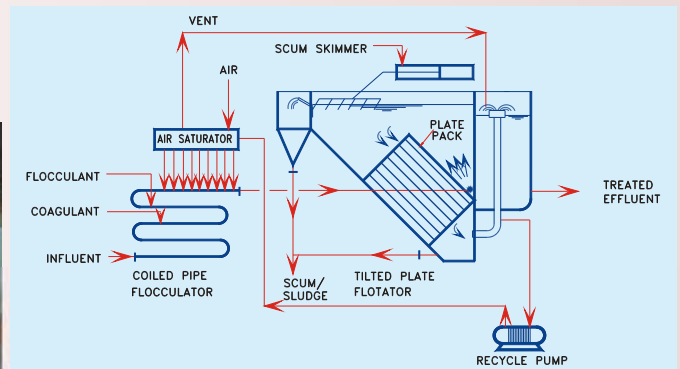
The floating layer of the TPF units is continuously compacted and skimmed by a skimmer. The treated water leaves the plate pack at the bottom end, rises and is then discharged over an adjustable weir.

Other Systems Offered

Paramount also offers other types of plate pack systems like **Tilted Plate Settler (TPS)** for removal of suspended solids, **Cross Flow Interceptor (CFI)** for simultaneous removal of free oil & suspended solids, **Pressurised Cross Flow Interceptor (PCFI)** especially for off-shore applications & simultaneous separation of oil, suspended solids & gases in one single separator.



CPF-TPF for a coke oven effluent of steel plant



CFI and CPF-TPF units for a Gas Processing Complex

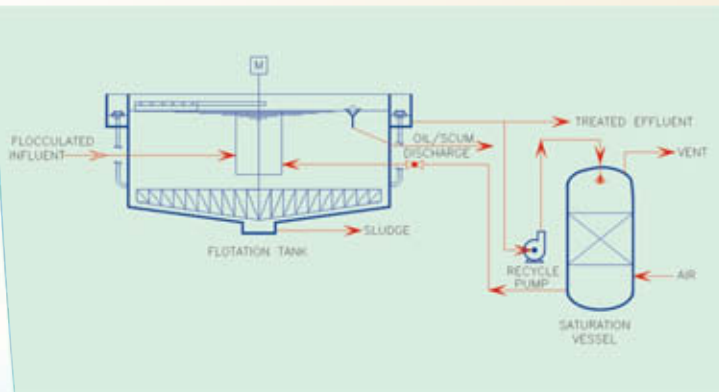
DISSOLVED AIR FLOTATION (CIRCULAR)

For Solids & Emulsified Oil Removal

Paramount offers conventional circular DAF systems. In this system, effluent dosed with flocculant/coagulant from flocculation tank is fed into coagulation tube situated at the centre of DAF unit. Coagulation tube is a vertical cylinder suspended in the centre of the tank where the flocculated effluent enters tangentially to ensure intimate mixing of the flocculated solids with the micro bubbles which are generated due to depressurisation of re-cycled effluent which is also fed tangentially.

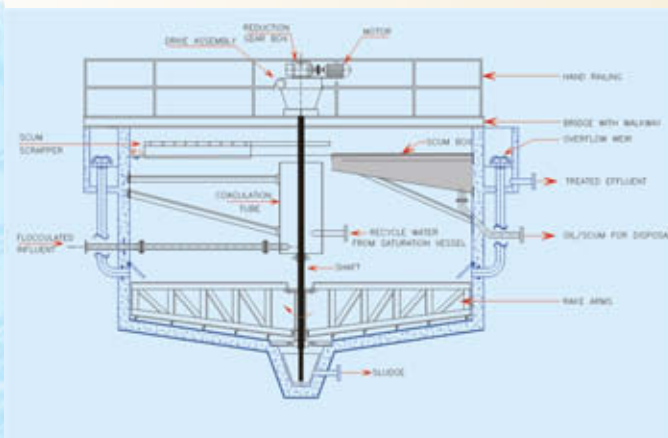


A view of a DAF at a Refinery



When the mixture of air & solid reach the top of the coagulation tube, the centrifugal force tends to throw air/solids mixture horizontally towards periphery of the tank which moves upward to form a blanket of skimming (froth). This accumulated skimming which floats on the top is continuously skimmed from the surface by the skimmer arm into the scum box.

DAF separation principle is based on the fact that air is soluble in liquid in direct proportion to the pressure applied. The treated effluent is recycled to the saturation vessel by means of high pressure recycle pump where plant air is injected which ensures saturation of this liquid with air. This saturated liquid is depressurised through a valve located on the discharge line of the saturation vessel which is connected to the coagulation tube. When the pressure is released, the air dissolved under pressure comes out of the solution in the form of minute bubbles. These minute bubbles get attached to the flocculated effluent thus forming solids with combined specific gravity less than the effluent, which finally floats to the surface.



A view of a DAF at a Refinery



PLASTIC MEDIA BIO-TOWERS



ETAPACK 120 is random filter media specially designed and manufactured with technology acquired from **ETA Process Plants, U.K.** It is a advanced version of stone media trickling filters, where the biofilm is developed over the exposed surface of packing. It has been successfully used for aerobic and anaerobic biological treatment process worldwide for removal of upto 95% BOD.

The packing is ideally suited & has proven performance for treatment of high strength effluent either aerobically or anaerobically in deep bed applications including domestic, industrial, petrochemical, pulp & paper, pharmaceutical, pesticides, food processing, dairy and refinery wastes. Aerobic biological process is carried out in randomly packed biotower with Etapak-120 Plastic media, commonly known as 'Plastic Media Biotowers.'



Features

The size and shape of Etapak 120 random media have been specifically developed to provide maximum surface area for growth of micro-organisms. It is manufactured from thermoplastic homopolymer, fully stabilized to UV light and resistant to industrial solvents. The material is non-toxic to micro-organisms and immune to fungal or bacteriological degradation. The approximate 1:1 aspect ratio ensures truly random orientation. Mechanical tests by RAPRA (Rubber And Plastic Research Association) confirm the excellent potential for deep bed applications. The open nature and high voidage of 95% ensures flow patterns which gives continual contact between effluent, the biomass and circulating air. The provision of windows (not available with most competitive products) enhances sloughing characteristic and minimises potential blockage problems.

Aerobic Treatment

Single stage treatment with continuous flow through the filter can be maintained by a recirculation loop for BOD & COD reductions of 50-70%.

Dual stage configuration is employed for treatment of strong effluents or when higher BOD/COD reduction efficiency is desired. Here, the first stage works like a roughing stage followed by a polishing stage.

Plastic media biotowers are widely used as first stage biological treatment known as '**Roughing Stage**' and are generally combined with a final stage activated sludge process .

Upgrading an existing Plant

Where existing low rate stone media filtration or activated sludge plants have been overloaded by increased industrial discharges, Etapak 120 can be used to upgrade capacity without major change & incurring high civil engineering costs to reduce the load by 50% - 70% and increase the overall system capacity by as much as 300%.

The stone media can be simply replaced by Etapak 120 to handle 3 to 5 times higher BOD loads to take care of increased pollution load without major changes in the plant.

Anaerobic Systems

Anaerobic Bio-tower installations have a proven record of success in the treatment of industrial effluents. The balanced effluent, with nutrient and pH control as necessary, is passed through a flooded packed tower. The bed acts as a plug-flow reactor, with each part of the column maintaining a pre-determined level of catabolic organisms. Degradation takes place, firstly to acetic acid and then to methane and carbon dioxide. Biogas can be used a valuable fuel.

Glaring Advantages

- Very low power consumption
- Capacity to absorb shock loads
- Compact plant area
- Uniform distribution of effluent
- Efficient oxygen transfer
- Maintenance free operation
- Low irrigation rates & sludge production

Brief Specifications

Material	Polypropylene
Diameter	115 mm
Height	90 mm.
Voidage	95%
Temp. range	0-90°C
Surface area	min. 100m ² /m ³



A view of Bio-Tower for a Refinery

VACUUM DRUM FILTERS

Introduction

Paramount drum filters provide high filtration rates and have excellent washing characteristics. Wide variations are possible in cycling time to ensure optimum cake formation, dewatering and washing on any application flow-sheet. Paramount drum filters are ideally suited for filtering solids when cake washing is necessary, when a uniform deposit of cake on the media is desired, or when the cake is difficult to discharge.

Several variations of drum filters are available, usually differentiated by the type of discharge mechanism. Paramount has developed a basic drum filter incorporating pre-engineered components adaptable to all five discharge types—an economical approach to design selection. Variable submergence units are available with scraper blade, continuous belt, precoat, roller, or string discharge mechanisms.

Operating Design Features

The drum is mounted to rotate through the feed in the filter tank where cake or sludge is picked up on the media for ultimate discharge. The drum is of rigid box and gusset construction, with unitized end plates for maximum strength. Weight of the drum is carried by fabricated steel trunnions which are an integral part of the drum head. Drum head and division strips are completely sealed to prevent liquor infiltration or air-leakage.



The deck of the drum is constructed of a series of grids to permit rapid unobstructed filtrate removal. The drum shell is supported by accurately machined annular gusset rings to enhance trueness of surface and assure even rotation.

The drum is rotated by the chain and sprocket drive for the 3' dia. and 4' dia. filters. Proprietary drives with a worm and wheel arrangement find use in filters of larger diameters. The speed of rotation of the drum can be varied through standard Eddy Current drives or through Inverter type electronic variable frequency drives.

An inboard valve with large diameter ports is provided for maximum hydraulic flow. Minimal restrictions reduce pressure drop. Little moisture entrapment occurs during operation. All pipes and connections have large diameters to make maximum use of vacuum with minimum turbulence.

For some standard applications a moulded thermoplastic valve is employed with rubber lining available as an option if required.

VACUUM DRUM FILTERS

All media rollers on continuous belt type mechanisms run on anti-friction, sealed bearings for long operating life. The endless media belt is raised slightly over the end of the drum surface to seal the vacuum side. Consistent high vacuums result in high production rate and a drier cake.

As the drum rotates through the feed in the filter, vacuum is applied to dewater cake picked up on the media. Vacuum cut off occurs just prior to the cake discharge point.

Vapour-retaining hoods are available with any of the Paramount drum filters for special applications.

Standard Sizes

Filtration Area in Sq. Ft.

DIAMETER	FACE LENGTH							
	3'	4'	6'	8'	10'	12'	16'	18'
3'	28							
4'	37	50						
6'		75	113	150				
8'				200	250	300		
10'					314	377	502	565

Materials of Construction

Paramount drum filters have fabricated metal parts for standard applications. When required, rubber coverings and linings are available. For handling acids and other corrosive materials, stainless steels of various grades, Hastelloy and Titanium can be used in fabrication. Paramount can supply filter with plastic moulded components as well.



Customised Design

Special, customized drum filter designs are available in sizes upto 10 feet in diameter and 18 feet in face length with options and accessories for specialized requirements. Paramount offers variations to the standard design. Specialized construction materials, alternate cake washing methods, compression rollers and vapor hoods can be provided as needed. For a customized design, Paramount has the technical experience and knowledge to solve any filtration problem economically.



DISC FILTERS

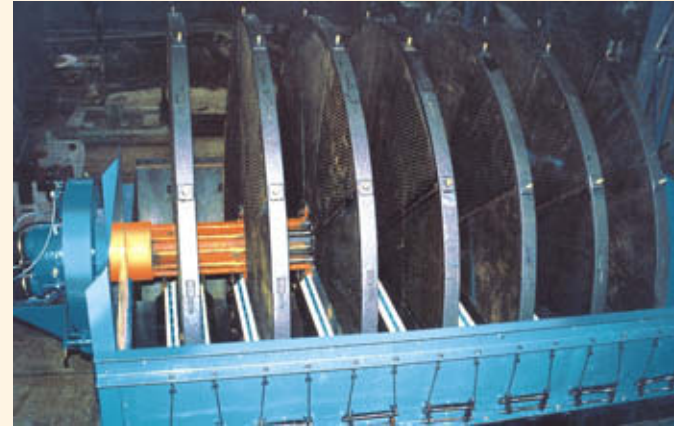
Operating Principle

Primary application for Paramount Disc filters is dewatering of sludges, especially where large filtration areas are required. They are best suited when dewatering free-settling solids to form a non-blinding cake. Disc filter provides maximum filtration area with minimum cost and operating space.

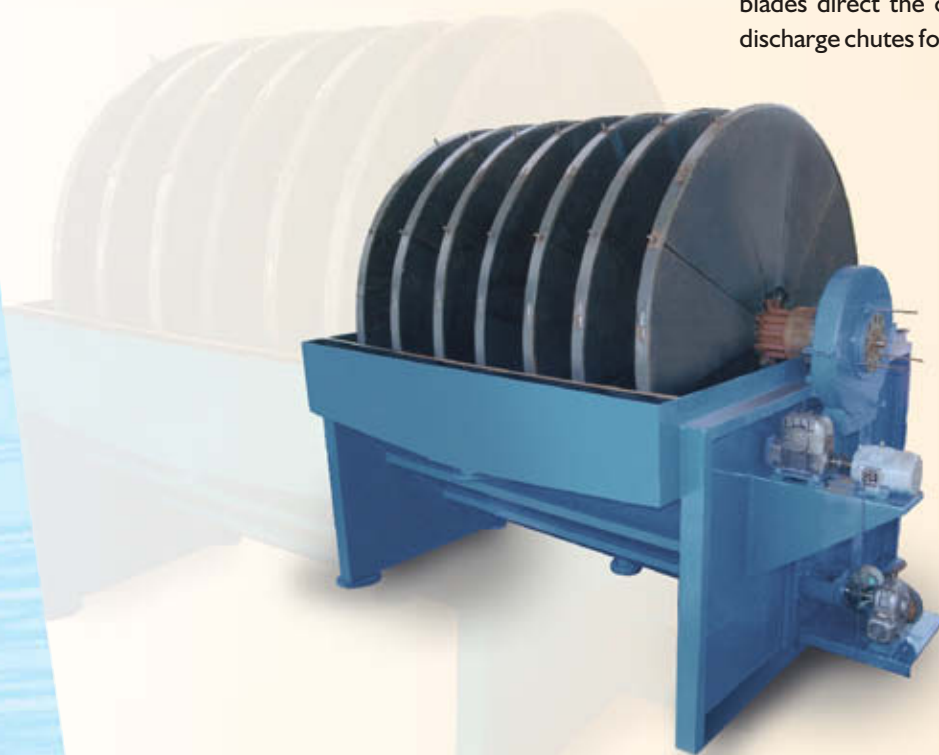
Paramount Disc filters are made of several parallel discs, each with a series of sectors radiating from a center barrel. Each sector is covered individually with a filter cloth (or metal screen) selected for the specific application. Positive connections between sectors and center barrel are assured by use of a one piece, rubber-covered steel ferrule with integral gasket.

Operating Design Features

Slurry is fed to the tank and kept in suspension by an efficient rotating paddle-shaft agitator which maintains a homogeneous slurry providing uniform cake thickness, resulting in lower moisture and higher production. As the center barrel rotates, the filter discs travel through the slurry. Vacuum is applied to the sectors as they enter the slurry, and cake forms on the surface of the filter media. After



the sector leaves the slurry, the continuous vacuum pulls air and filtrate through the inside of the sector, into and along the longitudinal port of the center barrel, and out through the valve to the vacuum receiver. Vacuum cut-off occurs just before the dewatered cake-laden sector approaches the discharge point. Pressurized air then loosens the cake from the filter media, and guided scraper-blades direct the cake as it falls through the wide discharge chutes for removal.



INDUSTRIAL THICKENERS / CLARIFIERS

Bridge Supported

Paramount type B thickeners are bridge supported units which can be used with light, medium or heavy-duty applications. A wide range of sizes are available.

Feed enters a center feedwell. Settled solids are raked to a center bottom cone and discharged. The overflow is collected in a peripheral launder. The driving torque is transmitted to the arms from the gear head through a solid steel or pipe shaft.

Superstructures vary in construction according to tank diameter. For tank diameters upto 40 feet, beams (which also serve to support the walkway) are supported by the tank wall. For tank diameters greater than 40 feet, the superstructure is a truss, supported on the tank wall.

Drive heads and arms are ruggedly manufactured to meet specified load requirements for standard, heavy-duty and extra-heavy duty applications.



Column Supported

Paramount Type C thickeners are center-column supported units suitable for basins and raking arms with diameters up to 600 ft. They are supported by a stationary steel or concrete center column.

Description

Feed normally enters the center feed well by way of the radial launder. In certain cases, it is desirable to have the feed enter the feed well through a hollow center column. Settled solids are removed from a discharge trench, and the overflow from a peripheral launder.

Paramount uses spur gear and pinion drive heads on centre column mechanisms. Rugged construction provides reserve strength for key drive components.

All gears and bearings run in an oil bath with lubricated fittings that are easily accessible. Torque is transmitted to the arms through the centre cage which is supported on columns and rotates with the main gear.

If a roof is required on a Type C thickener, the drive mechanism is designed so that the center roof support column and the drive head both rest on the main center column.

A torque indicator, overload alarm, motor cutout switch and manual or motorized lifting devices can be provided.



CLASSIFIERS

Features

Paramount Wet classifiers find extensive use in the separation of ores with pre-determined cut off sizes from the liquid media of the feed slurry. These equipments have proven design features which have stood the test of time.

Paramount spirals are built around a large diameter tubular shaft supported by upper and lower bearings. Experience has shown that our shaft design carry greater loads without failure than small diameter, heavy walled shafts.

With our large shaft designs, flight arms are short with a large cross section. Hence, arms resist tremendous loads without bending. Arms are integral with clamps that bolt around the shaft.

A continuous helix is formed by heavy, pre-formed steel flight sections which bolt to the flight arms. While flights are subjected to very little wear, they are replaceable when necessary.

Abrasion-resistant wearing shoes are fastened to flights with bolts. Field data has proven exceptionally long life on most abrasive applications. On larger models, lifting action is provided by a piston-type hydraulic cylinder mounted inside vertical column at the lower end of the tank. The design eliminates costly and burdensome overhead frames used in many other classifiers. On smaller sizes, where spiral weight offers no particular problems, a simple, fast-action hand-wheel operated device is used.

Proven upper and lower bearings assure long, trouble-free operation. The lower bearing is designed to be absolutely grit-free while operating in a submerged position. The lower bearing housing is flanged so that removal for inspection is easy and fast, without need to drain the tank. The heavy- case upper bearing housing is sealed with a spring loaded shaft seal.

The compactness, efficiency and strength of the gear drive assembly used exclusively on Paramount Classifiers is gained through the simplicity of the drive arrangement. The heavy duty main bevel gear is flanged to the upper end of the spiral shaft. The gear is driven by a cast steel pinion mounted on the output shaft of an efficient, enclosed oil bath, worm gear speed reducer that is V-belted to drive motor. Drive gears are enclosed in grit proof steel casings.



Aerators

Paramount Surface Aerators are recommended for aeration in activated sludge treatment, aerated equalisation, aerated lagoons, aerobic sludge digestion, contact stabilisation and pre-aeration. Paramount aerators have high oxygen transfer efficiency. The radial blade impeller is specifically designed to have self cleaning feature and to suit several reactor configurations to suit individual requirements.



Pressure Filters

Paramount 'Pressure Filters' are designed and manufactured upto 300 m³/hr capacity, with different filtering media such as sand, anthracite or activated carbon. These filters are used as polishing units for treatment of cooling water, for industrial water treatment as a pretreatment system and also for the tertiary treatment of sewage and Industrial wastes. The filters are either horizontal or vertical type units. Each filter is provided with independent inlet and outlet and automatic backwash system can be provided if required. Horizontal pressure filter units sometimes are provided with individual compartment backwash system which provides uniform backwashing and also effects economy in the capacity of backwash system.



Clariflocculators

Paramount Clariflocculators incorporate the system in which both flocculation and clarification is carried out in the same tank and are extensively used in water and waste water treatment. Special dual drive mechanism is provided in which the clarifier scraping as well as flocculating paddles are separately driven in concentric compartments. Paramount also offers **Reaction Clarifiers** where the settled sludge is brought into contact with incoming water. The mechanism incorporates the same dual drive and inner compartment is suitably modified.



Package Plants

Paramount manufactures and supplies package sewage treatment plants incorporating either contact stabilisation type activated sludge or extended aeration activated sludge system. Depending upon the quantity of waste water involved, the tank can be either rectangular or circular. The clarifier compartment is located in the central portion of the tank. The waste water or sewage is aerated by means of specially designed non-clog diffusers in the annular portion of the tank. The overflow is allowed to enter the central clarification compartment. The underflow from the clarifiers is again aerated in another segment of the annular part of the tank and re-cycled along with the inlet sewage. The overflow from the clarifying compartment is let out as treated effluent.

List of Clients (Partial)

- Indian Oil Corporation Ltd.,
- Chennai Petrochemicals & Corporation Ltd.,
- Cochin Refineries Ltd.,
- Essar Oil Ltd.,
- Mangalore Refineries & Petrochemicals Ltd.,
- Hindustan Petroleum Corporation Ltd.,
- Maharashtra Gas Cracker Project (IPCL),
- Indian Petrochemicals Corporation Ltd.,
- Reliance Petrochemicals Ltd.,
- Petrofils Co-operative Ltd.,
- Oil & Natural Gas Commission,
- Gas Authority of India Ltd.,
- Rashtriya Chemicals & Fertilizers Ltd.,
- National Fertilizers Ltd.,
- Gujarat State Fertilizers Co. Ltd.,
- Gujarat Narmada Valley Fertilizers Co. Ltd.,
- Indian Farmers & Fertilizers Co-op. Ltd.,
- Shriram Fertilizers & Chemicals Ltd.,
- National Aluminium Company Ltd.,
- Hindustan Copper Ltd.,
- Indian Rare Earths Ltd.,
- Gujarat Water Supply & Sewerage Board,
- Baroda Municipal Corporation,
- G.E. Plastics India Ltd.,
- CIDCO, Vashi, Maharashtra,
- Kota Thermal Power Station (RSEB), Kota,
- Gujarat Narmada Auto Ltd.,
- Ciba-CKD Ltd.,
- National Dairy Development Board,
- Godrej Soaps Ltd.,
- Tata Iron & Steel Co. Ltd.,
- Associated Cement Companies Ltd.,
- Orchid Chemicals & Pharmaceuticals Ltd.,
- Motor Industries Company Ltd.,
- Chemcontrol A/S (Denmark),
- South Nyanza Sugar Co. Ltd., (Nairobi, Kenya)
- The World Bank,
- Finolex Pipes Ltd.,
- SWIL India Ltd., Copper Smelter Project,
- National Environmental Engineering Research Ins.
- TNO - The Netherlands,
- Nuclear Power Corporation,
- Aquatech International Corporation Ltd., (USA),
- GEPL Holdings Pvt. Ltd., Singapore,
- Pan-Century Ltd., Malaysia,
- Dept. of Space,
- Bhabha Atomic & Research Centre,
- Rolls-Royce Industrial Power (India) Ltd.,
- Toyo Engineering Ltd.,
- Chowgule Industries
- Lupin Laboratories

Air Pollution Control Equipment and Systems

- Cyclonic separators
- High Efficiency Air Filters (Dry/Wet)
- Venturi Scrubbers
- Disc and Doughnut Scrubbers
- Packed Bed Scrubbers
- Spray Dryers
- Sulphur Dioxide Scrubbers
- Flue Gas Desulphurisation
- Odour Control Systems
- Bag Filters
- Hazardous Waste Incinerators

Water & Waste Water Treatment Equipment and Systems

- Mechanical Screens
- Grit Separation Systems
- Flash Mixers
- Agitators / Sludge Mixers
- Aerators
- Clarifiers / Thickeners
- Reaction Clarifiers
- Clariflocculators
- Trickling Filter Distributors
- API Oil Separators
- Tilted Plate Interceptors
- Tilted Plate Separators
- Cross Flow Interceptors
- Pressurised Cross Flow Interceptors
- Dissolved Air Flotation
- Vacuum Drum Filters
- Disc Filters
- Classifiers
- Lime Slaker Classifiers
- Sluice Gates
- Pressure Filters
- Activated Carbon Filters
- Packaged Sewage Treatment Plants
- Coiled Pipe Flocculators



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