



A R ENGINEERING

Engineering Efficiency, Delivering Purity



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About Us

An Engineering and Construction Company Deals in Civil and Mechanical Projects, Equipment's, Spares and Maintenance Services in Infrastructure Sector.

The company has a dedicated team of Technical Professionals having industry experience of more than 15 Years, to Provide you the Best Solutions in low-Cost Capex and Opex.

Company Incorporation :

Company Incorporated in 2019, Having Registered Office at New Delhi Dwarka, Having Financial Turn Over of Approx 2CR (FY 24-25)

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CATEGORY 1: PRELIMINARY PROCESS

SCREENS

1. Multi Rake Screen

Multi Rake screen is a mechanically cleaned medium or coarse screening equipment which is applicable to screen out the medium & coarse sized floating materials from the wastewater. The screenings are lifted, transported and discharged using rakes, that are also suitable for cleaning the filtration area. Rakes are guided by rails at the bottom without any bearings/mechanical components submerged by the raw water. These screens are used before pumping stations & prevent breakdown in pump.

Features:

- ❖ Bar spacing: 2mm to 50mm (Larger on request)
- ❖ Bar size: 50x10/50x8 (other on request)
- ❖ Channel width: up to 5,000mm (Larger on request)
- ❖ Channel depth: up to 50,000mm (Larger on request)
- ❖ Material of construction: SS304, SS316 (other on request)

2. Step Screen

Step screen is a mechanically cleaned fine screening equipment which is applicable to screen out the finer sized floating materials from wastewater like bags, pouches, paper wastages, cloths, plastics many others. These screens operated either motor mounted on the shaft or hydraulically through power pack.

Hydraulic Step Screen Features:

- ❖ Bar spacing: 2mm to 6mm (Larger on request)
- ❖ Channel width: 300 to 2,000mm (Larger on request)
- ❖ Channel depth: up to 2,200mm (Larger on request)
- ❖ Lamella thk: 2-3 mm
- ❖ Material of construction: SS304, SS316 (other on request)

3. Drum Screen

Drum screen is a rotary screen which works in externally and internally feed both. This is also a fine type screen which removes the finer sized materials from wastewater. Filtration area of these screens are constructed through wedge wire or perforated sheet.

Internal Feed Drum Screen Features:

- ❖ Wedge wire slot size: 0.5mm to 8mm
- ❖ Drum dia: 600 to 2200mm
- ❖ Drum length: 600 to 3000mm
- ❖ Material of construction: SS304, SS316 (other on request)

External Feed Drum Screen Features:

- ❖ Wedge wire slot/Perforated dia. size: 0.5mm to 6mm
- ❖ Type: Externally feed/Internally feed
- ❖ Drum dia: 200mm to 1500mm (depends on data)
- ❖ Drum length: 600 to 2,500mm (depends on data)
- ❖ Material of construction: SS304, SS316 (other on request)

4. Rotobrush Screen

Rotobrush screen is a mechanically cleaned screening equipment which is used to remove fine sized floating materials. These are mostly used in MBR, sugar, breweries, textile, chemical, food processing units. Filtration area of these screens are constructed through wedge wire. Screenings are conveyed by a shafted screw until the compacting/dewatering section where both the volume and the weight are reduced (up to 40%).

Features:

- ❖ Wedge wire slot size: 0.5mm to 8mm
- ❖ Drum dia: 600 to 2200mm
- ❖ Drum length: 600 to 3000mm
- ❖ Material of construction: SS304, SS316 (other on request)

5. Hyperbolic / Static Screen

Hyperbolic screen is a manually cleaned very fine screening equipment which is used to remove very fine floating materials from the wastewater. These are mostly used in MBR, sugar, breweries, textile, chemical, food processing units. The screen is built with stainless steel wedge wire mesh from 0.25 mm to 1.5 mm to remove any solids above this mesh size. No power required.

Features:

- ❖ Wedge wire slot size: 0.25mm to 1.5mm
- ❖ Opening: 500 to 2000mm (larger on request)
- ❖ Material of construction: SS304, SS316 (other on request)

6. Trace Rake

Trace Rake is a manually/mechanically cleaned coarse screening equipment which is used to remove coarse floating materials from the water & wastewater. These are mostly used in river, power plant & for high amount of wastewater. These screens are constructed through bars and channels.

Features:

- ❖ Bar spacing: 50mm to as required
- ❖ Lifting arrangement: manually/chain & pulley
- ❖ Channel width: as required
- ❖ Channel depth: as required
- ❖ Material of construction: carbon steel / SS304, SS316 (other on request)

7. Bar Screen

Bar screen is a manually cleaned fine & coarse screening equipment which is used to remove fine & coarse floating materials from the wastewater. These are mostly used in inlet channel. These screens are constructed through bar & channel.

Features:

- ❖ Bar spacing: 20mm to as required
- ❖ Channel width: as required
- ❖ Channel depth: as required
- ❖ Material of construction: carbon steel / SS304, SS316 (other on request)

8. J-Type Screen

J-Type screen is a mechanically cleaned medium or coarse screening equipment which is applicable to put down all the screenings into basket & screen out all the medium & coarse sized floating materials from the wastewater. These screens are used before pumping stations & prevent breakdown in pump.

Features:

- ❖ Bar spacing: 6mm to as required
- ❖ Channel width: as required
- ❖ Channel depth: as required
- ❖ Material of construction: SS304, SS316 (other on request)

CONVEYORS

1. Screw Conveyor

Screw conveyor is very suitable for non hazardous transportation of screening. This is installed at the discharge points of the screens & screening conveyed to the discharge pit or screw compactor. Compactor compacts screening through its compaction zone & discharges to the specified destination.

Features:

- ❖ Capacity: up to 15m³/hr
- ❖ Screw dia: 200 to 400mm (Larger on request)
- ❖ Overall length: Variable
- ❖ Inclination angle: 2-5 deg.
- ❖ Material of construction: SS304, SS316 (other on request)

2. Flat Belt Conveyor

Flat Belt conveyor is very suitable for long distance transportation of screening. This is installed at the discharge points of the screens & screening conveyed to the discharge pit or screw compactor.

Features:

- Capacity: up to 15 m³/hr
- Overall length: Variable
- Width: 600-700mm (Larger on request)
- Material of construction: SS304, SS316 (other on request)

3. Jet Breaker with Wash Compactor

Jet Breaker with Wash Compactor is very useful for non hazardous transportation of screening. This is installed at the discharge points of the screens & screening volume compacted up to 80% & conveyed to the discharge pit. It reduces transportation cost and land fill area.

Features:

- ❖ Screw dia: 200 to 400mm (Larger on request)
- ❖ Overall length: Variable
- ❖ Inclination angle: 2-5 deg.
- ❖ Dewatering: up to 60% dry
- ❖ Volume & weight reduction: up to 70-80%
- ❖ Trough Protection with HDPE/UHMWPE liner
- ❖ Washing system with solenoid valve
- ❖ Material of construction: SS304, SS316 (other on request)

DEGRITTING

1. Vortex Type Grit Chamber

The vortex-type grit chambers (also called accelerated grit separation devices) utilize both gravitational and centrifugal forces for the separation of grit. This type of unit is designed to remove grits of specific gravity 2.5 or larger with sizes ranging from 0.15 (100-mesh) to 2mm (10-mesh).

Features:

- ❖ Capacity: up to 4.3 m³/s
- ❖ Height: up to 6700 mm
- ❖ Upper chamber dia: 1800 to 9800 mm
- ❖ Lower hopper dia: up to 2400 mm
- ❖ Detention time: 20-30 Second
- ❖ Material of construction: MSEP / SS304, SS316 (other on request)
- ❖ Drive: as required
- ❖ Removal efficiency: 85 to 95%

2. Detritors

Detritors are the grit collection and washing chambers in which grit is settled down, scrapped towards the collection pit then organic materials washed out through the organic return mechanism & then collected grit taken out through screw classifiers / reciprocating rake classifiers.

Screw Classifier is a motorized operated equipment which is used to classify the grit and then screw out them into grit pit/chamber with the help of screw arrangement.

Features:

- ❖ Scraper shape: di or tri arm (as required)
- ❖ Size: as per chamber size
- ❖ Screw classifier dia: 200 to 800mm
- ❖ Grit separation: $\geq 90\%$ for particles up to 200 μm
- ❖ Material of construction: MSEP/SS304, SS316 (customized)
- ❖ Shape: square/circular
- ❖ Screw classifier Shaft: shafted/shaftless
- ❖ Trough Protection with HDPE/UHMWPE liner

3. Screening & Grit Removing (Mini Unit)

Screening & Grit Removing (Mini Unit) is a combined equipment for screenings and grit removing; it represents the most economical solution to treat low flow rates. The incoming wastewater is filtered through a screw screen then goes into the settling tank.

Features:

- ❖ Capacity: up to 30 m^3/hr
- ❖ Screw dia: 200 to 400mm

- ❖ Shaft: shafted/shaftless
- ❖ Oil/Grease extraction: optional
- ❖ Drive: as required
- ❖ Grit separation: $\geq 90\%$ for particles up to $200\ \mu\text{m}$
- ❖ Trough Protection with HDPE / UHMWPE liner
- ❖ Material of construction: MSEP / SS304, SS316 (other on request)

4. Grit Washer

Grit washer is an equipment which is used for the separation and cleaning of sandy material from wastewater. These machines consist of a conical decantation hopper, provided with an agitation system that gives to sandy waste water a rotational movement.

Features:

- ❖ Capacity: up to $90\ \text{m}^3/\text{hr}$
- ❖ Screw dia: 200 to 400mm
- ❖ Shaft: shafted/shaftless
- ❖ Drive: as required
- ❖ Grit separation: $\geq 90\%$ for particles up to $200\ \mu\text{m}$
- ❖ Trough Protection with HDPE / UHMWPE liner
- ❖ Material of construction: MSEP / SS304, SS316 (other on request)

5. Septage Acceptance Unit / Large Unit / Combo Unit

Combo Unit (Large Unit) is a grit/sand classifier with longitudinal hopper that makes a selection of the grit for the principle of gravity and thanks to the whirling motion created by blower, moving the particles, separates the grit from the organic material.

Features:

- ❖ Capacity: more than 30 m³/hr (as required)
- ❖ Type: with / without screen (as required)
- ❖ Air blower: optional
- ❖ Oil / grease extraction: optional
- ❖ Grit separation: $\geq 90\%$ for particles up to 200 μm
- ❖ Trough Protection with HDPE / UHMWPE liner
- ❖ Material of construction: MSEP / SS304, SS316 (other on request)
- ❖ Screw dia: 200 to 400mm
- ❖ Shaft: shafted / shaftless
- ❖ Truck port: optional
- ❖ Drive: as required

1. High-Rate Solid Contact Clarifier (HRSCC)

It is one type of clarifier. In HRSCC coagulants and the re-circulating sludge is mixed thoroughly in intimate contact for a long time in the cone sections of the clarifier.

Features:

- ❖ Capacity: as required
- ❖ Shape: circular
- ❖ Walkway bridge mounting: end to end & center pier
- ❖ Walkway bridges: half & full
- ❖ Material of construction: MSEP/SS304, SS316 (other on demand)
- ❖ Size: 8m to 60m
- ❖ Impeller RPM: 3-8
- ❖ Scraper RPM: 0.03
- ❖ Drive: Dual drive

2. Clarifiers / Clariflocculators / Sludge Thickener

Clarifiers/Clariflocculators are the settling tank where suspended/attached particles are settled down on the bottom of the tank then scraped it in a centered cone and then pumped out through sludge pump into the sludge thickener.

Features:

- ❖ Capacity: as required
- ❖ Shape: Rectangular/circular
- ❖ Walkway bridge mounting: end to end & center pier
- ❖ Walkway bridges: half & full
- ❖ Material of construction: MSEP/SS304, SS316 (other on demand)
- ❖ Size: 8m to 60m
- ❖ RPM: 0.03
- ❖ Drive: DH, CM / Turn table

3. Tube Settler / Lamella Clarifier

It is a compact inclined plate type clarifier. Clarification of water, wastewater or liquid having suspended solids and colloidal particles can be clarified using lamella clarifier/Tube settler.

Features:

- ❖ Capacity: as required
- ❖ Tube/plate angle: 55-60 deg.
- ❖ Scraper speed: 0.03 m/s
- ❖ Shape: Rectangular/conical
- ❖ Size: depends on data
- ❖ Material of construction: MSEP/SS304, SS316 (other on demand)

1. Surface Aerators

Surface aerators are very useful for municipal sewage & industrial wastewater plants to fulfill the required amount of oxygen.

Features:

- ❖ Capacity: up to 1.8 kg/HP-hr
- ❖ Material of construction: MSEP / SS304, SS316 (other on demand)
- ❖ Type: Fixed / floating

2. Agitator / Flash Mixer

Agitator/flash mixer is a motorized mixing equipment which is used for the mixing of chemical in chemical, flocculation or digester chamber.

Features:

- ❖ Capacity: as required
- ❖ Type: One end Fixed / both end fixed
- ❖ Material of construction: MSEP / SS304, SS316 (other on demand)
- ❖ RPM: as required

3. SBR Decanter

The Sequential Batch Reactor (SBR) is an activated sludge process designed to operate under sequences of various phases of biological treatment where aeration and sludge settlement both occurring in the same tank.

Features:

- ❖ Capacity: up to 220 MLD
- ❖ Type: Motorized/floating
- ❖ Size: 100 NB to 700 NB
- ❖ No of decanter in one chamber: 01 No.
- ❖ Material of construction: SS304, SS316 (other on demand)

CATEGORY 4 : TERTIARY TREATMENT / FILTRATION PROCESS

1. Activated Carbon Filter (ACF)

Activated carbon filter consists of a vertical pressure vessel fitted with a set of frontal pipe and valves, different type of filtration media will be supported by layers of a bed consisting of pebbles and gravels.

Features:

- ❖ Capacity: up to 100KLPH (larger on demand)
- ❖ Vessel dia: 1500-2600 mm (MSEP)
- ❖ Vessel dia: less than 1500 mm (FRP)
- ❖ Shape: circular
- ❖ Vessel height: 1800-2000 mm
- ❖ Plate thk: 6-12mm
- ❖ Material of construction: MSEP/FRP (other on demand)

2. Disk Filter

Disk filter is a machine designed for the micro filtration of wastewater, used in the final phase of their treatment.

Features:

- ❖ Capacity: 25 m³/hr
- ❖ Discharge quality: TSS ≤ 5 mg/l
- ❖ Efficiency: excellent
- ❖ Type: up to 16 disk
- ❖ Maintenance: very low
- ❖ Space required: very less
- ❖ Material of construction: SS304, SS316 (other on demand)

3. Pressure Sand Filter (PSF)

The Pressure Sand Filter consists of a multiple layer of sand with a variety in size and specific gravity. These Filters are designed to remove turbidity and suspended particles present in the feed water with minimum pressure drop.

Features:

- ❖ Capacity: up to 100KLPH (larger on demand)
- ❖ Vessel Dia: 1500-2600 mm (MSEP)
- ❖ Vessel Dia: less than 1500 mm (FRP)
- ❖ Shape: circular
- ❖ Vessel height: 1800-2000 mm
- ❖ Plate Thk: 6-12mm
- ❖ Material of construction: MSEP/FRP (other on demand)

4. Dual Media Filter (DMF)

Dual Media Filter (DMF) is ideal for filtration of water having very fine suspended matter like mud, dust particles and biological growth.

Features:

- ❖ Capacity: up to 100KLPH (larger on demand)
- ❖ Vessel dia: less than 1500 mm (FRP)
- ❖ Vessel dia: 1500-2600 mm (MSEP)
- ❖ Material of construction: MSEP/FRP (other on demand)
- ❖ Shape: circular
- ❖ Vessel height: 1800-2000 mm
- ❖ Plate Thk: 6-12mm

5. Multi Grade Filter (MGF)

Multi grade filter is a depth filter that makes use of coarse and fine media mixed together in a fixed proportion.

Features:

- ❖ Capacity: up to 100KLPH (larger on demand)
- ❖ Vessel Dia: 1500-2600 mm (MSEP)
- ❖ Vessel Dia: less than 1500 mm (FRP)
- ❖ Material of construction: MSEP/FRP (other on demand)
- ❖ Shape: circular
- ❖ Plate Thk: 6-12mm
- ❖ Vessel height: 1800-2000 mm

CATEGORY 5 : MEMBRANE TDS REDUCTION / INDUSTRIAL RO

Membrane based TDS reduction process is used to treat the varied wastes including sewage, organic and inorganic matter and water soluble oil wastes.

UF/NF/RO Features:

- ❖ Type of process - Pore size
- ❖ Ultra-filtration (UF): 0.01 to 0.1 micron
- ❖ Nano-filtration (NF): 0.001 to 0.01 micron
- ❖ Reverse Osmosis (RO): 0.0001 to 0.001 micron

1. Screw Sludge Dewatering Press

Sludge Dewatering Press is a machine which is used for thickening and dewatering sludge.

Features:

- ❖ Capacity (flow): 1.5 m³/hr to 75 m³/hr (larger on request)
- ❖ Dry Sludge: 15kg/hr to 750kg/hr
- ❖ Min. Sludge Concentration: 10 gm/Ltr. (1%)
- ❖ Type: Single Screw, Double Screw & Triple Screw
- ❖ Moisture: Less than 80%
- ❖ Material of construction: SS304, SS316 (other on demand)

2. Paddle Dryer

Paddle Dryer is a machine which is used to dry the dewatered sludge (80% moisture to 30-40% moisture) for reducing the volume of the dewatered sludge.

Features:

- ❖ Capacity (flow): 100kg/hr to 2100 kg/hr (larger on request)
- ❖ Type: oil & steam
- ❖ Moisture: less than 40%
- ❖ Material of construction: carbon steel, SS304, SS316 (other on demand)

CATEGORY 6 : FLOW CONTROL GATES

1. Slide Gate / Sluice Gate

These are the vertically sliding gates which are used to isolate/control the water flow from the chamber/in the chamber.

Features:

- ❖ Mounting: wall mounted/thimble mounted (as suitable)
- ❖ Sizes: 200x200 up to as required
- ❖ Sealing: Metal to Metal & Metal to non metal
- ❖ Water heads: up to 35mm
- ❖ Material of construction: SS304, SS316, Alu (other on demand)

2. Open Channel Gates

These are the vertically sliding gates which are used to isolate/control the water flow through the open channel/in the chamber.

Features:

- ❖ Mounting: wall mounted/channel mounted (as suitable)
- ❖ Sizes: 200x200 up to as required
- ❖ Water heads: till door depth (seating/unseating)
- ❖ Sealing: Metal to Metal & Metal to non metal
- ❖ Material of construction: SS304, SS316, Alu (other on demand)

3. Knife Gate valves

Knife Gate valves are mainly used for on-off and isolation services in systems with high content of suspended solids.

Features:

- ❖ Sizes: DN 50 (2") up to DN 1500 (60")
- ❖ Pressure rating: PN 3 (45 PSI) to PN 10 (150 PSI)
- ❖ Body type: bonneted/non bonneted
- ❖ Operating: Manual, geared operated, Electric, Pneumatic, Hydraulic
- ❖ Seat: Metal seated/Resilient seated
- ❖ Stem: Rising/Non Rising
- ❖ Direction: Unidirectional/Bidirectional
- ❖ Material of construction: DI / SS304, SS316 (other on request)

CATEGORY 7 : WATER & WASTEWATER TREATMENT PLANTS

1. Packaged STP Plant

We design and manufacture Packaged Sewage Treatment Plants with premium quality raw materials and upgraded technologies.

Features:

- ❖ Capacity range: 2KLD to 500KLD
- ❖ Size: as per effluent data (BOD, COD, TSS, TN etc)
- ❖ Air blowers: required as per BOD & COD
- ❖ Oil & Grease removing basin: yes
- ❖ Material of construction: MSEP, SS (other on demand)
- ❖ Chemical dosing system: yes
- ❖ Permeate: as per PCB
- ❖ Head loss: very less

2. Packaged ETP Plant

The Effluent treatment plants (ETP) are used for the removal of high amounts of organic compounds, debris, dirt, grit, pollution, toxic, non-toxic materials and polymers etc. from industrial effluent.

Features:

- ❖ Capacity range: 2KLD to 500KLD
- ❖ Size: as per effluent data (BOD, COD, TSS, TN etc)
- ❖ Air blowers: required as per BOD & COD
- ❖ Material of construction: MSEP, SS (other on demand)
- ❖ Head loss: very less

- ❖ Permeate: as per PCB
- ❖ Chemical dosing system: yes
- ❖ Oil & Grease removing basin: optional

3. Drive Heads

The drive head is the heart of the Thickener & Clarifier mechanism. There are three types of drives which are mostly used in wastewater industries: Bridge mounted, Turn table (center pier mounted) and Center drive mechanism.

Features:

- ❖ Mounting: Bridge mounted, Center pier mounted
- ❖ Power: as required
- ❖ Chamber type: Circular
- ❖ Scraper mounting: Vertical shaft/Centre cage
- ❖ RPM: as per request
- ❖ Plane bearing: Bronze
- ❖ Gear and housing material: Cast Iron (others on request)

4. Oil & Grease Skimmer

We manufacture and supply the Oil & Grease skimmer systems for the removing of oil & grease from the wastewater at the primary level of the processes.

CATEGORY 8 : PROCESS EQUIPMENTS

1. Storage Tank

Wastewater tanks can be installed in any number of commercial or industrial application processes. These tanks can be above ground or under ground.

Features:

- ❖ Type: above Ground/Under Ground
- ❖ Size: as required
- ❖ Standard: as per applications
- ❖ Storing material: as per client
- ❖ Material: Carbon Steel, SS (others on request)

2. Heat Exchanger

Heat exchanger is a system used to transfer heat between two or more fluids. They are widely used in various industrial applications.

Features:

- ❖ Type: Vertical/Horizontal
- ❖ Size: as required
- ❖ Standard: as per applications
- ❖ Heating medium: Steam
- ❖ Material: SS (others on request)

OUR PASSIONATE TEAM

Our qualified, experienced and dedicated AR Engineering family are very passionate to fulfill all needs and requirements of our valuable customers. We all are very keen towards quality products and best solutions for our customers. We research, design, develop and manufacture all the water and wastewater equipment.

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