



For Mechanical Works



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Head Office : Cairo – El Maadi City – 500 Street –
Building 2- Floor 3 .



Factory: Industrial Zone - Autostrad - 15th of May City - Cairo

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• Mission Statement

Mechasol is A specialty Manufacturer of Mechanical Works .

■ **Our Mission is :**

- *To become A value Supplier to Our Customers While Building Trust Client At A time.*
- *We are Focused on Building Relations and Providing Solutions .*
- *Our Pledge is to Exceed Customer Expectations Via Superior Customer Service .*
- *Mechasol Employees will, Individually and Collectively, Strive to Provide a working Environment that is Professional and Well Organized.*
- *Performance and Customer Satisfaction.*
- *Deliver Products on Time.*
- *We Have A Strong Focus on Quality.*
- *Developing and maintaining.*
- *To Design and Develop Mechanical Works That Can Be Installed Anywhere, With an Optimal Quality & Price .*

➤ VISION

- *Grow and Expand in To Being One of Leading Mechanical Works Companies in Egypt. To Be Leader in The Mechanical Sector by Developing Mechanical Works Using Designs That Are Unique, Safety & In A Sophisticated Manner.*
- *To Build A Reputation for Our Company Based on Integrity.*
- *Have an extensive Experience Which Leads us to Compete with Stronger Companies, Especially with The Company's Management Policy Which Aims to Achieve All the Requirements of The Clients with The Highest Quality .*

➤ VALUES

- *Safety Is Number One.*
- *Our Passion for People Is One of The Fundamental Principles Around Which Our Corporate Strategy Revolves.*



➤ PARTNERSHIP WITH PEOPLE

- *Focus Customer Satisfaction on First and Proud of Ourselves for Delivering Products That Exceed Expectations*
- *In a world of ever increasing mass production our experienced team prides ourselves on our ability to manufacture bespoke items to the highest of standards.*
- *Whether we design, manufacture and install, we approach every project with confidence and creativity.*

➤ TECHNICAL OFFICE

- *We Stay at Your Side in The Whole Process from Beginning to Ending.*
- *Our Team of Service-Oriented Individuals Who Are Highly Qualified Not Only in Their Professions, But Also in The Way They Deal with People, They Are Always Ready and Willing to Assist You And Answer Any Questions at Any Time.*



• About Us

The company was established in 2020 for the purpose of manufacturing, supplying and installing electromechanical equipment for drinking water purification plants and sewage plants. The company includes a group of skilled engineers and technicians. Our company keeps pace with modern technology in the field of manufacturing station equipment to obtain the highest efficiency in manufacturing and installation. The company's priorities are maintaining quality and commitment to delivery dates while providing the best prices. The company seeks to develop and expand in the field of manufacturing electromechanical equipment using the latest technologies. And equipment to save time and Quality.

• Company Profile

- **Mechasol** Company for Design, Supply and Install All Mechanical Works (Steel – Stainless Steel- & Cast Iron Other).
- **Mechasol** Attention to Detail and Demand for Perfection Ensures That from Initial Brief to Final Installation, Client Satisfaction Is Always Guaranteed
- **Mechasol** Can Provide Complete Solution for Every Project from Design to Finishing Installation for All Mechanical Works Requirements.





List of Our Products

1) Screen :

- **Manual Screen.**
- **Basket Screen.**
- **Mechanical Screen.**

2) Tanks :

- **Water Hammer Tanks (Vertical & Horizontal)**
- **Fuel Tank**
- **Primary and Scenery Sedimentation Tank**
 - **Rectangular Tanks , Circular Tanks , Hopper Bottom Tanks, Fill & Draw Sedimentation, Continuous Flow Tank**

3) Multi Media Filters :

4) Penstocks (Stainless Steel & Cast Iron) :

- **The Channel Penstock.**
- **Wall Penstock**
- **LAYFLAT GATES (TILTING WEIR GATES)**

5) Stop Logs:

6) Belt Conveyor

- **Rolled Bed Belt Conveyors.**
- **Flat Belt Conveyors.**
- **Curved Belt Conveyor.**
- **Belt Conveyor In wastewater treatment plants.**





7) Screening Container

8) Central Drive Sludge THICKENERS:

9) Sand Classifier

10) Bridge

- *Grit & Grease Bridge Scraper*
- *Travelling Bridges.*
- *ROTATING BRIDGE.*
- *Electricity panel*

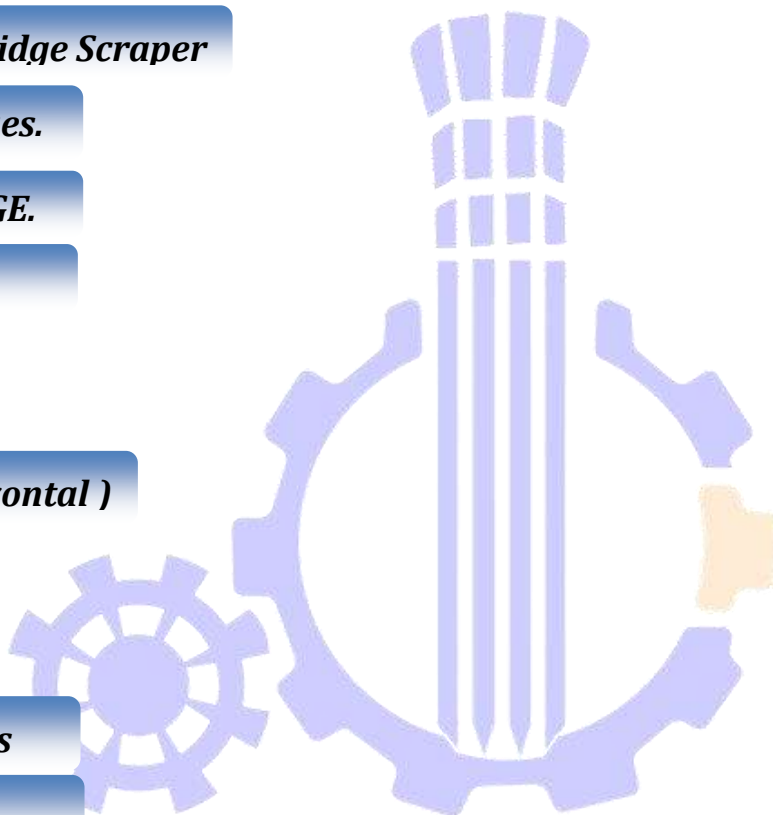
11) Surface Aerators Fan

- *(Vertical & Horizontal)*

12) Sand Silo

13) Valve

- *Telescopic valves*
- *GATE VALVE*
- *Globe VALVE*
- *CHECK VALVE*
- *PLUG VALVES*
- *Safety Relief Valves*
- *Butterfly Valves*
- *BALL VALVES*





14) CRANE

- **Jib Crane.**
 - **Pillar Jib Crane**
 - **Wall Mounted Jib Crane**
 - **Portable Mobile Jib Crane**

- **Monorail Crane**

15) Handrails

- **Fiber Glass Handrails**
- **Steel Handrails**
- **Stainless Steel Handrails**

16) Ladders

- **Steel Ladders Steel Ladders .(H.D.G – EPOXY)**
- **Fiber Glass Ladders**
- **Stainless Steel Ladders**
- **Including Safety Cage & Excluding**

➤ **All Mechanical Requires for in & Out (Sewage plants - Water purification plants ...etc).**

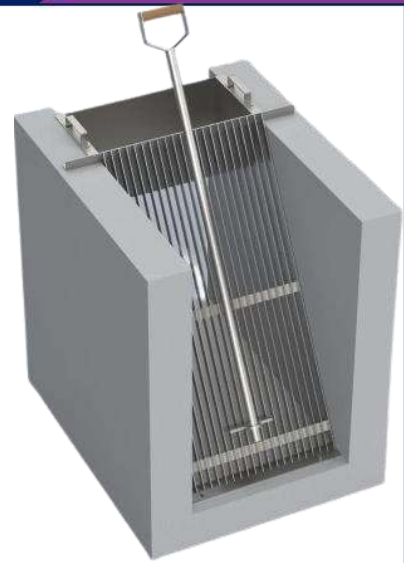


• Manual Bar Screen

MANUAL BAR SCREEN is used for manual cleaning and is ideal for Capture all sizes of wastes at waste water treatment plants.

It consists of a stainless steel frame fixed to the wall in the channel with an inclination angle (usually 75°), they typically consist of a series of vertical steel bars spaced between 1 and 3 inches apart.

Wastewater passes through filtration area (bars) and screenings are captured through a rake, used manually, and moves them to the discharge chute.



Product Specification

Operation : Manual
MOC : CS/ SS/ Other material.
Channel Depth : Up to 5 m
Channel Width : up to 3 m
Bar Spacing : 6 mm & above



Manual Bar Screen Features

1. Customized design
2. Low Maintenance
3. Easy installation
4. Safe operation in hazardous area
5. Spares easily available.

• Manual Basket Screen

Manual operated screens are used for collecting of coarse impurities in waste

Technical Description

Screens are made up from bars which are welded to a metal sheet plate at the top and to a platform at the bottom. A part of a screen is also a perforated trough which partially drains the raking

Material

ST. ST 304 & 316



Mechanical Screen

Mechanical Screens consist of a robust steel frame and a bar filter, Varying according to the screening efficiency required. Screens are used for coarse screening in waste water plants.

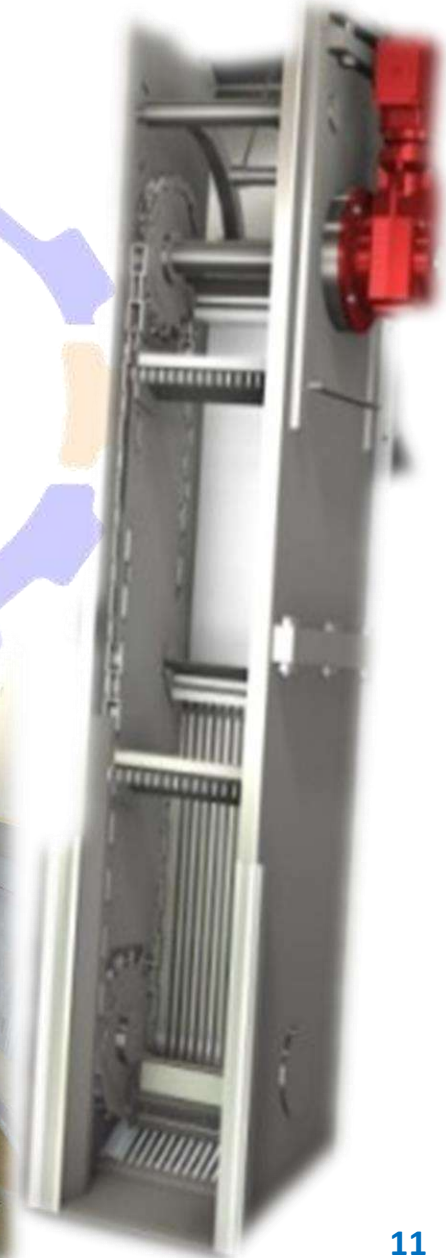


Mechanical Screens Features

1. No Maintenance
2. No Clogging of Screen.
3. Ease of Installation.
4. Simple Operation

Spaced steel bars are used to catch coarse and even fine debris. Debris is removed from the screen field periodically by a continuous traveling rake bar screen.

These traveling rake bars may be activated by a timer, run continuously or run with the signal from a level sensor



• Water Hammer Tank

Tanks and Containers for Drinking Water and Waste Water play an important role in various industries, providing a safe and efficient solution for storing larges of Water.

There are two main types of tanks vertical and horizontal.

Vertical tanks

Vertical tanks are commonly used when space is limited, offering a small footprint while maximizing storage capacity. On the other hand,

Horizontal tanks

Horizontal tanks are ideal for larger quantities and offer easy access for maintenance and inspection.

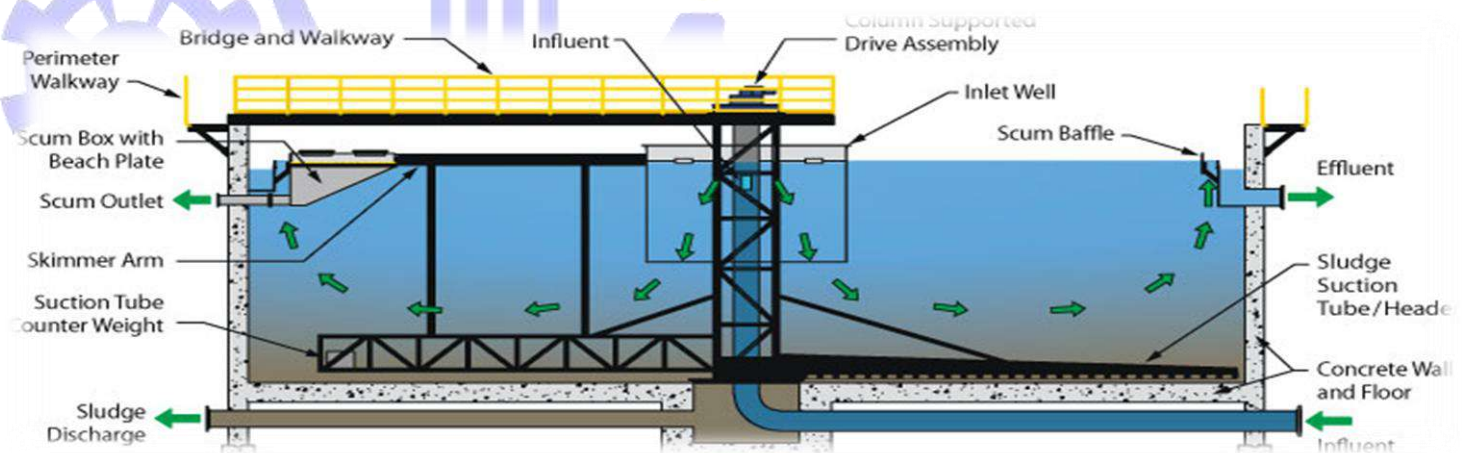


- *Fuel Tanks*



• Primary and Scenery Sedimentation Tank

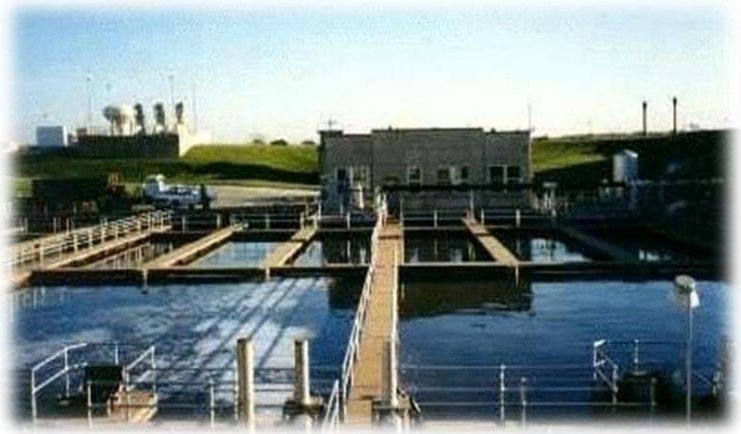
Sedimentation tank, also recognized as a settling tank or clarifier, is a component of a modern water supply or wastewater treatment system. A sedimentation tank enables suspended particles in water or wastewater to settle out as it flows slowly through the tank, providing some level of purification. At the bottom of the tank, a layer of accumulated solids known as sludge forms and is eliminated. Coagulants are added to the water prior to sedimentation to aid in the settling process, which is then followed by filtration and other treatment steps in drinking-water treatment.



Types of Sedimentation Tank

1. Rectangular Tanks:

Rectangular sedimentation tanks are mostly preferred sedimentation tanks and are used widely. The flow takes place in horizontal direction that is length wise in rectangular tanks. Sometimes baffle walls are provided for rectangular tank to prevent short circuiting. Maintenance costs are low in case of rectangular sedimentation tanks. They are also suitable for large capacity plants.



2. Circular Tanks:

There are 2 types of circular sedimentation tanks on the basis of the flow of water: -

- **Radial Flow Circular Tank:**

Water enters this tank through the central inlet pipe located inside the deflector box, and the deflector box deflects the water downwards. The water then flows radially from the deflector box, where an outlet is provided on the entire periphery, through the holes provided in the bottom sides of the deflector box, towards the circumference of the tank.



- **Circumferential Flow Circular Tank :**

Water enters the tank through two or three vertical slits, and one rotating arm moves water around the tank's circumference. To allow suspended impurities to settle in the tank water, which moves at a very low velocity and can be eliminated from the sludge outlet.



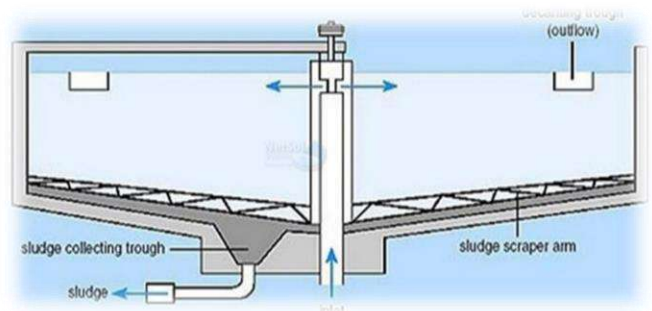
3. Hopper Bottom Tanks:

In case of hopper bottom tank, a deflector box is located at the top which deflects the influent coming from central pipe to downwards. Sludge is collected at the bottom and it is disposed through



4. Fill & Draw Sedimentation :

In this type, water out from inlet is stored for a period of time, possibly 24 hours, and the suspended particles settle at the bottom of the tank during that time. After 24 hours, the water is discharged through the outlet. The settled particles are then removed, which takes 6 to 12 hours, so in the case of a fill and draw-type sedimentation tank, one complete sedimentation action takes 30 to 40 hours.



5. Continuous Flow Tank:

In this case, the water is not allowed to rest, and flow occurs at a very low velocity. During this flow, the suspended particles settle at the bottom of the tank, which can be vertical or horizontal. Benefits of sedimentation tank these tanks have the following benefits:



- 1. It is a low-cost and simple water pre-treatment technology.*
- 2. It has low operating costs and can handle a variety of flows.*
- 3. Coagulants shorten the time required to settle out suspended solids.*
- 4. It has a high clarification efficiency and is simple to remove sludge .*

• Multi Media Filters



Penstock

Square or rectangular port sliding wall penstocks sealed on all 4 sides.

two application (manual & electric) penstock .

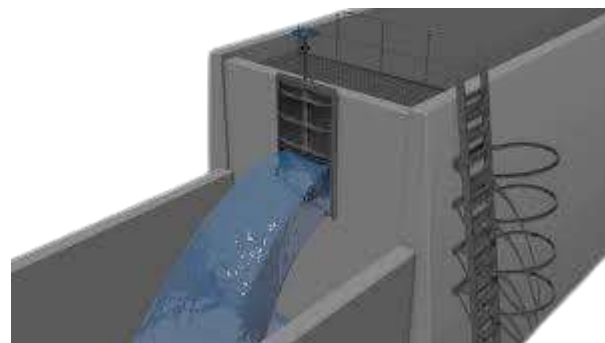
Used for on-off seat in wells, tanks, pipe outlets, etc.

Carbon or stainless steel fabricated construction.

Available in a wide range of dimensions and for many different pressure heads.

Application Hand wheel, Pneumatic, Electric actuator

Penstocks are an ideal way to accurately control water levels, adjust flow rates, or even divert floating debris/scum away from operational equipment. The penstocks are manufactured in Stainless Steel 316L, making them lightweight for ease of handling and installation, without compromising strength.



The channel penstock



The channel penstock is intended to be embedded in concrete to ensure the water is not obstructed as it flows through the channel. Thus, when the channel penstock is open, it allows the liquid to flow freely which prevents the build up of waste inside.



Wall Penstock

Wall penstock is designed to be assembled onto a concrete wall using expansion or chemical anchors. It is two-way, allowing the liquid to move in both directions and sealed on all four sides to prevent leaks. It is suitable for use with clean liquids or those with solid content from waste water treatment plants, irrigation farming, pipes, etc.



Guillotine Sluice Gate

Guillotine Sluice Gate is designed to work with liquids in open channels. It is sealed on three sides (bottom and the two sides) to prevent leaks. It is suitable for use with clean liquids or those with solid content from waste water treatment plants, irrigation farming, water treatment, pipes, etc.

The Guillotine Sluice Gate is intended to be installed on a concrete wall, plugging the hole in the channel. The water level may be adjusted by 0 - 0.5 metres



Sluice Swing Gate

Sluice Swing Gate is designed to work with liquids in open channels. It is sealed on the bottom and the two sides (three sides) to prevent leaks. It is suitable for use with clean liquids or those with solid content from waste water treatment plants, irrigation installations, pipes, treatment plants,

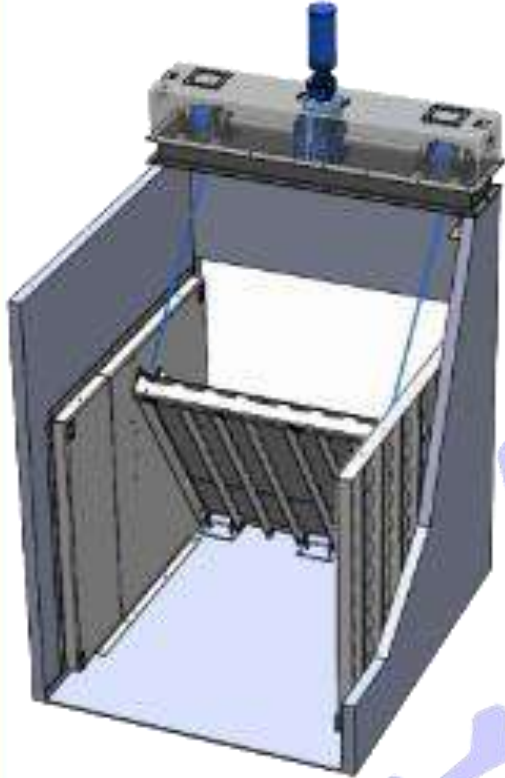
The Sluice Swing Gate is intended to be installed on a concrete wall, plugging the hole in the channel.

The water level may be adjusted by 0 - 0.3 metres



• LAYFLAT GATES (TILTING WEIR GATES)

THE LAYFLAT IS A DOWNWARDS OPENING TILT GATE FOR THE ACCURATE REGULATION AND ISOLATION OF FLOWS.



• Stop logs

Stop logs are used for closing channels temporarily for performing revision or maintenance work on pumps, valves or building sections. They are also used for flood protection. Stainless Steel Stop Logs are mainly used in structures where the removal, installation, and replacement of the logs are expected frequently

Features

- Suitable for flows in either direction
- A pressure-sensitive intermediate lip seal design for effective inter-log sealing
- Extensive combination of wall and channel mounting configurations available
- All logs are supplied with lifting pins



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• Belt Conveyor

A belt conveyor system consists of two or more pulleys (sometimes referred to as drums), with a closed loop of carrying medium—the conveyor belt—that rotates about them. One or both of the pulleys are powered, moving the belt and the material on the belt forward

Types of Belt Conveyors

1. Rolled Bed Belt Conveyors

The surface just under the belt on this version of a conveyor belt is made of a series of rollers. The rollers are closely stacked so that there is hardly any sagging of the belt.

Roller bed belt conveyors are used mainly where there is hand sorting, assembling, transporting, and inspection. Examples include in:

- *Airport baggage handling*
- *Courier items sorting including postal offices.*



2. Flat Belt Conveyors

The flat belt conveyor is one of the most common conveyor types. It is typically used to transport items within a facility. Internal conveyance requires a series of powered rollers/ pulleys to pull the belt.



Curved Belt Conveyor

This conveyor uses a frame that is fabricated already curved so as to carry items around tight corners. It is used where space is limited and winding conveyors would save space. The curves can go as steep as 180 degrees.



Belt Conveyor In wastewater treatment plants

In wastewater treatment plants, BCV conveyor belts are used to transport waste from screening equipment and to transport thickened sludge. The products can be discharged from the end of the conveyor to a feed hopper.

Every major waste water treatment plant operation also finds a use for a belt conveyor. We offer proven solutions for the removal of sludge, sludge cakes, raking, and the like. Belt conveyors are always solved individually according to the specific project and the investor's specification.



• SCREENING Container

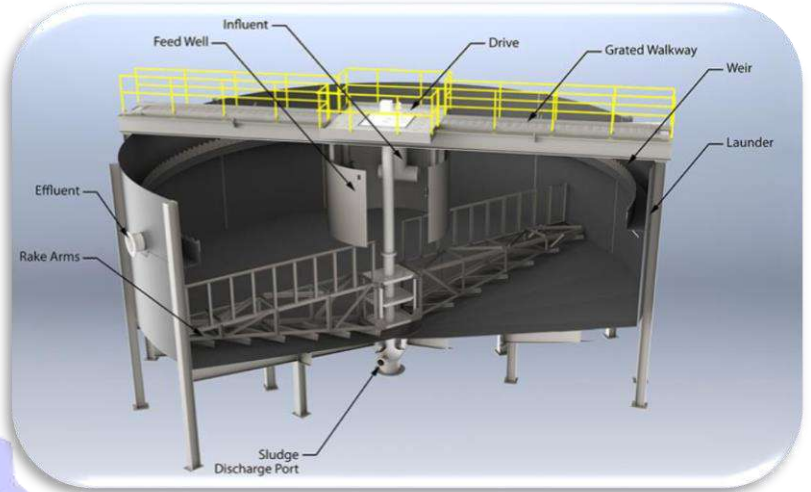


• Central Drive Sludge THICKENERS

Circular Thickeners are designed to receive waste sludge from various unit processes and prepare them for dewatering and other sludge conditioning processes.

Thickeners reduce the volume of sludge which reduces the cost associated with dewatering and disposal. They require higher torque ratings than similarly sized circular clarifiers because of higher sludge concentrations and densities.

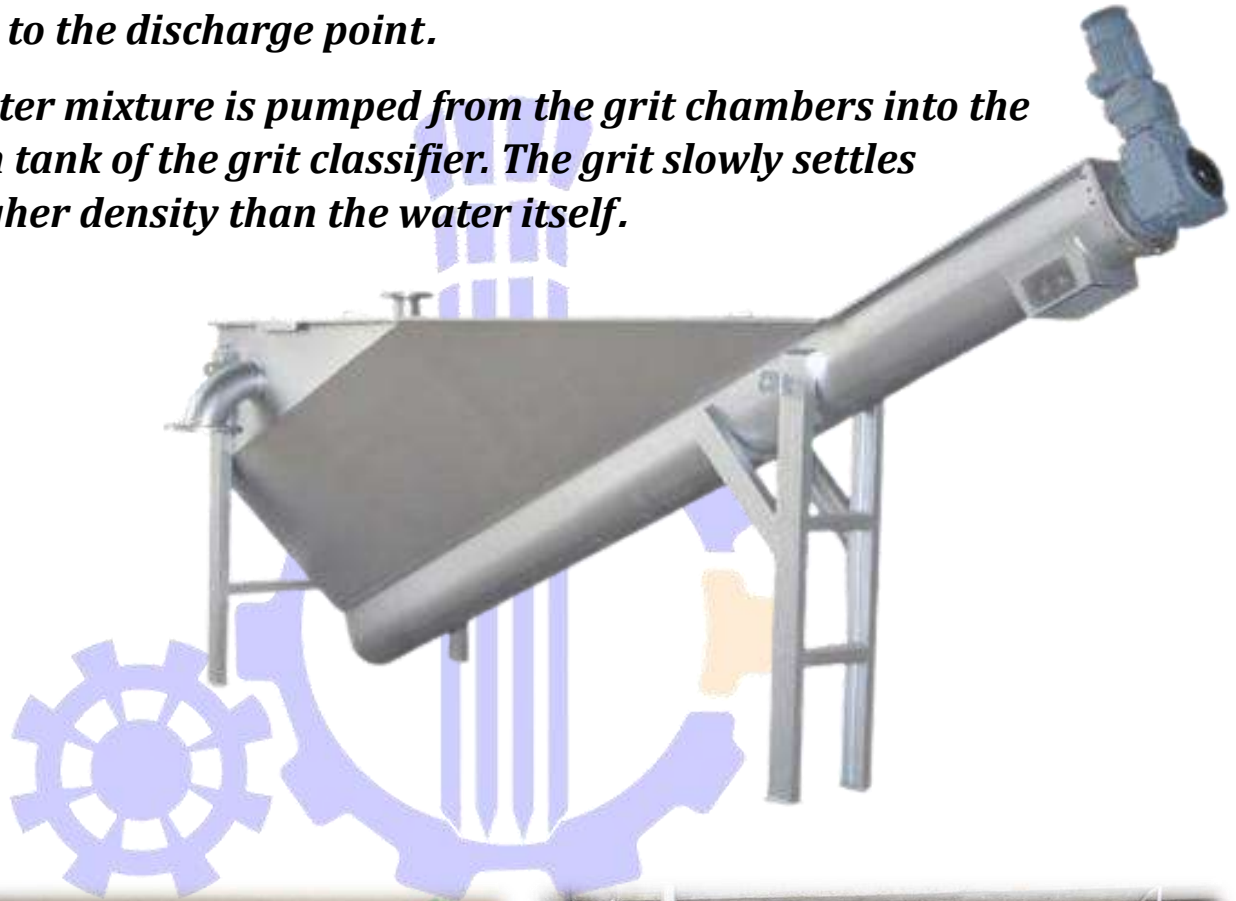
The scraper bridge is designed to be installed in all circular settling tanks (primary or secondary settling tank). It is generally used for the treatment of urban or industrial waste water which contains heavy matter which can settle quickly, and in which it is important to be able to extract the sludge as it is formed.



• SAND CLASSIFIER

Sand Classifiers are designed to separate grit from the water and transport it to the discharge point.

The grit-water mixture is pumped from the grit chambers into the decantation tank of the grit classifier. The grit slowly settles as it has higher density than the water itself.



• Bridge

According to the customer needs the bridge can be manufactured as semi, extended or full bridge type.



Types of Bridge

Grit & Grease Bridge Scraper

Grit and grease bridge scrapers are installed in rectangular grit chambers, designed to separate and capture the grit and grease that is found inside the wastewater after screening process.

Air is blown along one side of a rectangular tank to create a spiral flow pattern throughout the tank. The spiral flow increases the distance that the wastewater travels. Therefore it helps heavy materials such as grit to sink while making lighter materials such as grease to float.

The grit that is settled to the bottom of the tank is removed by the stationary or travelling pumps as the scum is removed by surface scrapers.

The grit that is captured is pumped to the grit classifier while the surface scrapers remove the floating grease.



Travelling Bridges

Travelling Bridges for Settling Tanks are used to remove sludge and scum in both municipal and industrial wastewater treatment plants.





ROTATING BRIDGE

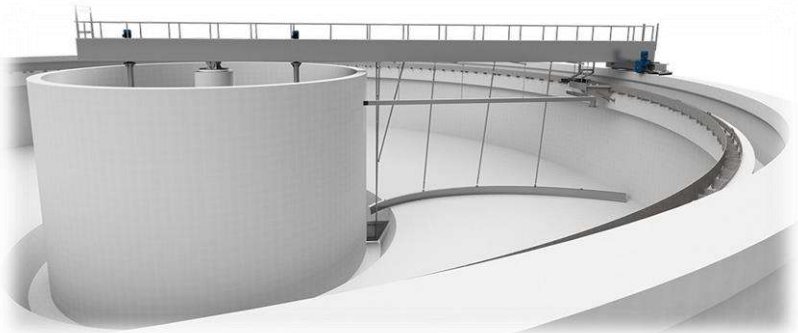
Suspended Solids in the Influent, Settle to the Bottom of the Settling Tank and Continuously Revolving Peripheral

Drive Scraper Bridges Move the Settled Sludge to the Central Sludge Hopper.

Revolving Bridge Scrapers are Designed as Cage Type, Folded Low Profile with Handrail or High Profile Types.

Their Lengths are Calculated Based on Tank Diameter and They Can be Half Bridge, Extended Bridge and Full Bridge Type.

Optionally, a Surface Skimming Unit can be Installed on the Bridge and Move the Surface Scum into a scum Collecting Box or Trough.

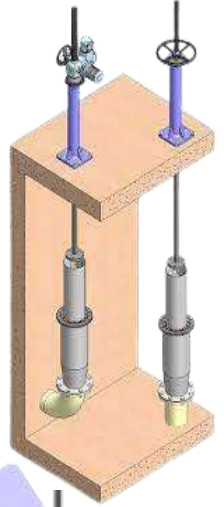


• Valve

Telescopic valves

To regulate the overflow by adjusting or discharging.

The Hook Service telescopic valve is used to regulate the flow of sludge from clarifiers. It consists of a double telescopic slip pipe, a driving rod and a hand wheel. The double telescopic pipe is stiffened and equipped with concentric gaskets. The driving rod drives the telescopic pipe by means of a screw/nut screw system which flows externally to the lower fixed tube. This avoids any accumulation of residuals in the overlapping area between the fixed and sliding pipe. The control can be manual with hand wheel or automatic with actuator.

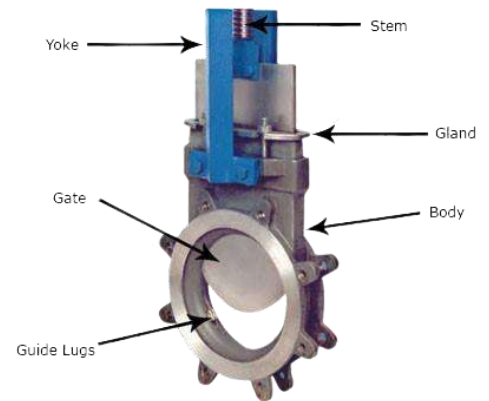


VALVE CATEGORIES

The main valve categories, based on the different body styles include:

GATE VALVE

Gate Valves have a significant feature of having less flow obstruction and lower turbulence within the valve creating only a small pressure drop across the valve. The main variations of gate valve designs are by the type of disc.



Globe VALVE

Globe Valves are commonly constructed with its inlet and outlet in line and with its port opening at right angles to the inlet and outlet.



CHECK VALVE

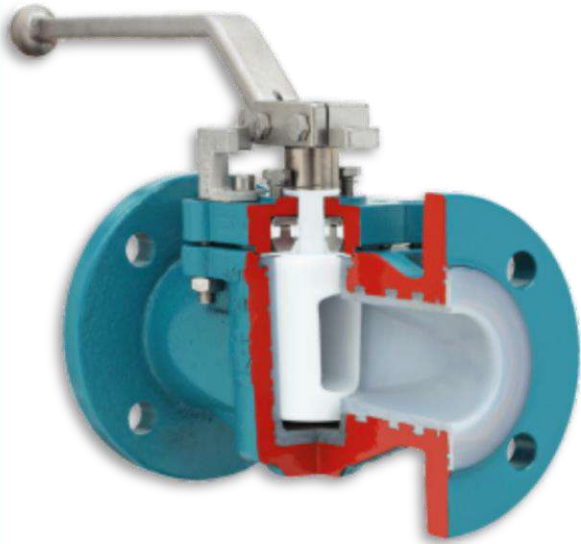
Check Valves are entirely automatic in their operation and are activated internally by the flow of fluid or gases which they regulate. check valves permit the flow in only one direction and if the flow stops or tries to reverse its direction, the check valve closes immediately and prevents backflow. As soon as the pressure in the line is re-established, the check valve opens and the flow is resumed in the same direction as before.

There are three basic designs of check valves:

- Swing check
- Lift check
- Wafer (2 swinging flappers closed by a spring)



PLUG VALVES



Safety Relief Valves



Butterfly Valves



BALL VALVES



• Crane

Types of Bridge

First : JIB CRANE

Pillar Jib Crane:

Jib Crane is a kind of crane that fixed on the ground. Its operation area is circular due to its has a rotatable cantilever. Combined with hoist unit like electric hoist, chain hoist, chain block, it can realize transportation of cargos in its coverage.

Wall Mounted Jib Crane :

Wall mounted jib crane can be directly installed on steel/concrete columns, walls or other self-supporting devices. Wall mounted jib crane has all functional features of column-type cantilever jib crane, but more economical and no floor space needed.

Hoisting unit can be chain hoist or wire rope hoist.

Portable Mobile Jib Crane:

Portable Mobile Jib Crane (also called mobile jib crane), can move to any position required with movable lifting hoist on cantilever. So it's perfect choice for situation the loads need to move and rotate in limited space. Hoisting of loads depends on electric hoist or chain block.



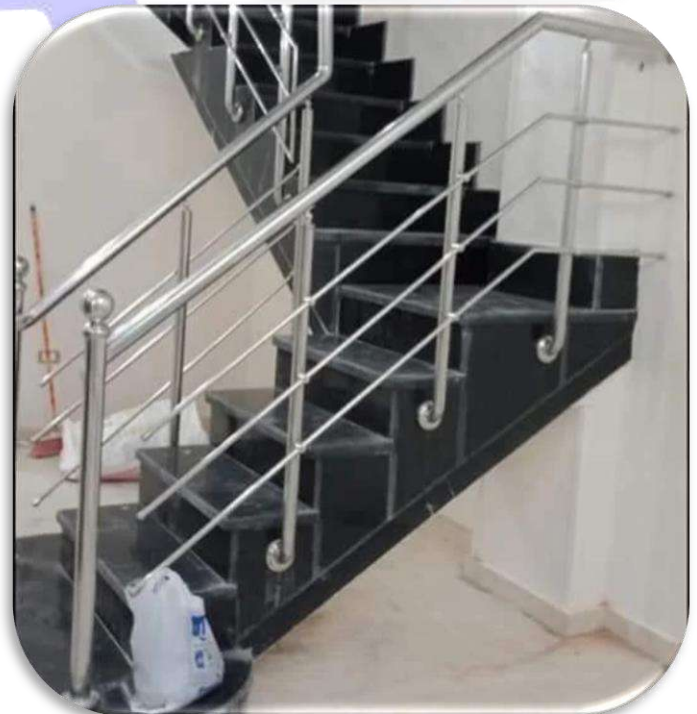
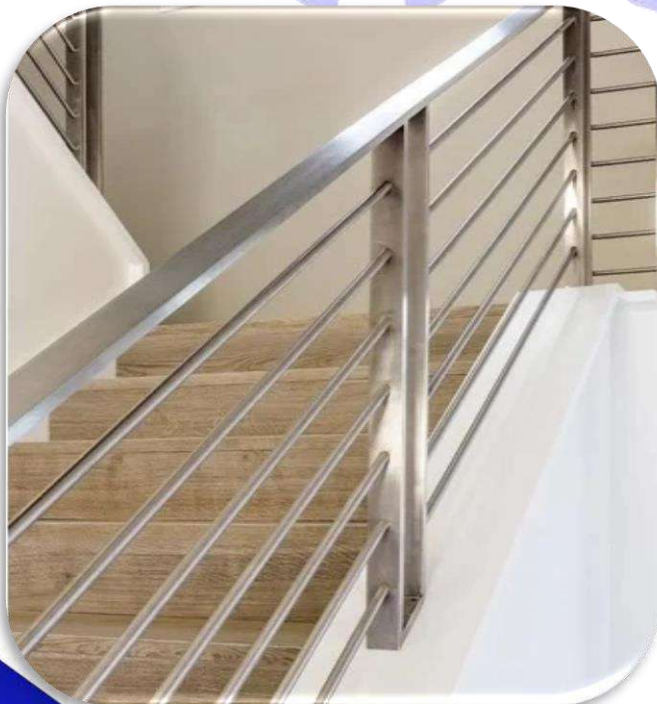
Second : Monorail CRAIN

Monorail Crane is a type of crane that acts as a substitute for conventional cranes and conveyor belts. These cranes are mostly used to relocate materials or products within a limited area.

Such sites could be a factory or throughout the working station. Monorail crane design is simple and can be compatible with the structure of the building without major Changes .



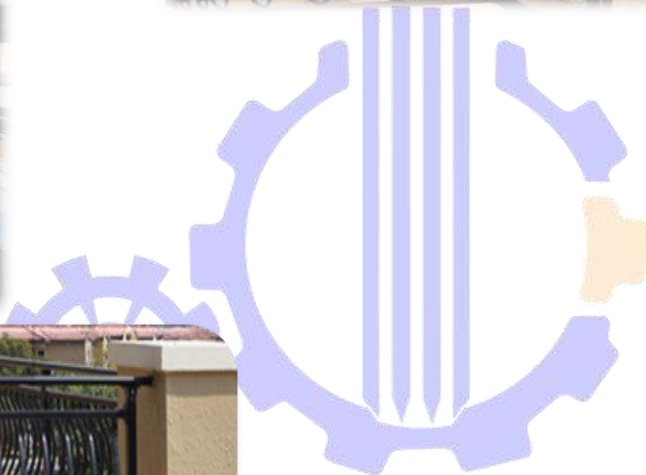
• *Stainless Steel Handrail*





Mechasol

• Steel Handrail



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• Steel & Stainless Steel Ladder



• Steel Gate



• Steel Fence



- *Wire Mesh Fence*





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