

# Industrial Sedimentation and Filtration Equipment



**WESTECH**<sup>®</sup>

# Industrial Sedimentation Experts



WesTech's advanced line of industrial sedimentation equipment includes a wide range of clarifiers and thickeners to meet your process requirements.

With precision engineering to meet rigid standards, WesTech provides high torque, long life, and reliable equipment.

WesTech's sedimentation equipment is supported by a reliable engineering staff with extensive experience. This experience aids our customers in creating solutions for today's complex and automated flow sheets.



**Industrial COP™ Clarifier**

## Sedimentation Configurations

### Bridge-Supported Units

These mechanisms can be truss or beam supported for light, medium, or heavy-duty applications. A steel center shaft transmits torque from the drive to the rake arms. Superstructures are supported from the tank walls and vary in construction according to tank diameter and torque requirements.

### Shaft Drive

### Center-Column Units

WesTech center-column units are suitable for larger mechanisms/tanks. The drive is supported by a stationary steel or concrete center column. A bridge from the tank wall to the center column supports feed launders and provides inspection and maintenance access to the drive head.

### Cage Drive

### Traction-Drive Units

The WesTech clarifier or thickener mechanism is rotated by a peripheral drive located at the end of the access bridge which attaches to the rake arms. This configuration provides the most economical approach to mechanism construction for large-diameter units. A center column and pivot bearing support the cage and rake arms at the center of the tank.

### Rakeless Units

The AltaFlo™ is a rakeless thickener that uses rapid dewatering in the hindered settling zone to achieve a very high settling rate. The AltaFlo typically operates at twice the settling rate of a high-rate thickener. The geometry of the unit provides for a deep compaction bed, allowing the thickener to achieve relatively high underflow densities.



## **The Right Sedimentation Equipment for Your Application**

### **HiFlo™ High-Rate Thickeners**

WesTech HiFlo thickeners are used to separate solids from liquids at high flow rates. These rates are 10 to 20 times higher than those of conventional thickeners.

### **AltaFlo Ultra High-Rate Thickeners**

The AltaFlo ultra high-rate thickener is a rakeless thickener providing mixing, flocculation, and internal dilution. The AltaFlo also provides clarification and positive sludge collection and removal in a single tank. The AltaFlo typically operates at twice the settling rate of a high-rate thickener.

### **TitanTraction™ Thickeners**

The TitanTraction thickener is designed for large flow rates and high tonnages where center drive units become uneconomical. The rake arm is driven by a tractor mounted on the rim of the thickener tank.

### **Solids CONTACT CLARIFIERS™**

The WesTech Solids CONTACT CLARIFIER has the ability to act as both an enhanced flocculation device as well as a high-rate chemical precipitator. Mixing, internal solids recirculation, gentle flocculation, and gravity sedimentation are all combined into a single unit.

### **Clarifiers: Standard, COP, Suction Header**

WesTech leads the way in clarifier design through our field testing and ongoing research of sedimentation equipment. With the introduction of the Clarifier Optimization Package (COP) to the industry, WesTech has become synonymous with spiral blade clarifiers. WesTech also provides suction-header-type clarifiers and custom-built clarifiers to meet your plant requirements.

**All WesTech sedimentation and filtration equipment is available in a wide range of materials.**

- Mild steel
- Stainless steel
- Duplex stainless steel
- Alloy 20
- Monel
- Hastalloy
- FRP
- Rubber covered
- Polypropylene
- Titanium



**TitanTraction Thickener**

# Rake Arm Designs, Effective Solids Removal



***Straight Blade***

## **Straight Blades**

Straight blades are the most commonly used blades in clarifiers and thickeners today. Their design progressively moves pulp or settled material toward the center of the tank for withdrawal.

## **Interrupted Curved Blades**

Interrupted curved blades rake at a constant attack angle to the settled solids and move the solids more quickly toward the tank center.

## **Continuous Spiral Blades**

For most biological applications, continuous spiral blades clean the entire tank bottom with each revolution of the rake arms.



***Interrupted Curved Blades***

## **Thickening Posts**

Thickening posts extend the raking blades below the level of the rake arms, keeping the arms clear of the heaviest concentration of solids, thereby reducing torque on the drive unit.

## **Pickets**

Pickets are attached to the rake arms and extend upward, aiding in the release of the liquor trapped in the pulp bed. This allows for increased underflow densities.

## **Pipe or Tubular Construction**

When used for rake arm members, pipe or tubular construction allows less build-up within the traditional rake arm structure, reducing torque within the unit.



***Continuous Spiral Blade***

## **Cable Lift Design**

Cable lift design utilizes cable-supported and cable-driven arms to provide minimum surface area for solids build-up and the processing of sticky thixotropic solids. Cable-lift rake arms can swing up and ride over heavy concentrations of solids.

## **Cone or Trough Scrapers**

Cone or trough scrapers are provided on all WesTech thickeners, facilitating the removal of settled solids from the center discharge cone or trough.

# Rake-lifting Devices, Feedwells, Skimmers



**Shaft Drive with Lift**



**Cage Drive with Lift**



**Cage Drive with Hydraulic Lift**

## Rake-Lifting Devices

Rake-lifting devices used on WesTech thickeners keep the unit running in the event of process upsets or overloads. Both shaft and cage-type drives are available with lift devices. WesTech lift devices can exert downward pressure on the rake arms to break up heavy

concentrations of solids in the thickener tank as needed. Motorized lifts can be activated by the Torkmatic™ torque-limiting device or can be controlled by the plant operator. Remote lift position and torque indicators are available.

## Torkmatic Drive Control

WesTech's Torkmatic drive control is the brains of any WesTech drive. The Torkmatic unit senses increasing torque at a pre-determined value and sounds an alarm to alert the operator. If excessive overloading is encountered, the Torkmatic unit will shut the thickener down completely. The Torkmatic unit can be designed to automatically raise and lower the lifting device as torque values warrant. Transmitters can be incorporated into the Torkmatic unit for remote torque indication.



**Feedwell and Skimmers**

## Feedwells

Feedwells can be either stationary, or if surface skimming is desired, can rotate with the drive/cage shaft. Feedwells are sized to yield the desired velocity and mixing energy required for the process.

## Skimmers

WesTech can provide positive skimming systems which will remove floating material from the liquid surface of the clarifier/thickener. Whether shaft-driven, cage-driven, or with a rotating feedwell, WesTech skimmers can effectively remove scum on any clarifier or thickener.

# Dewatering



## Rotary Drum Vacuum Filters

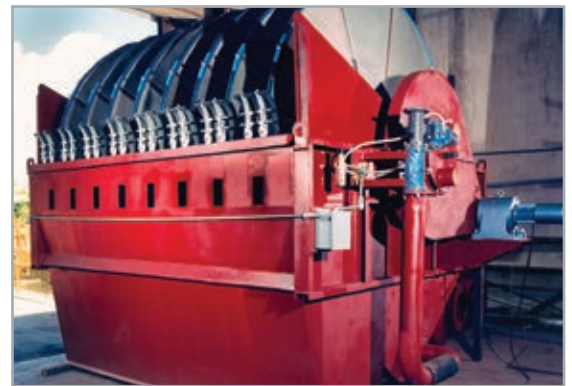
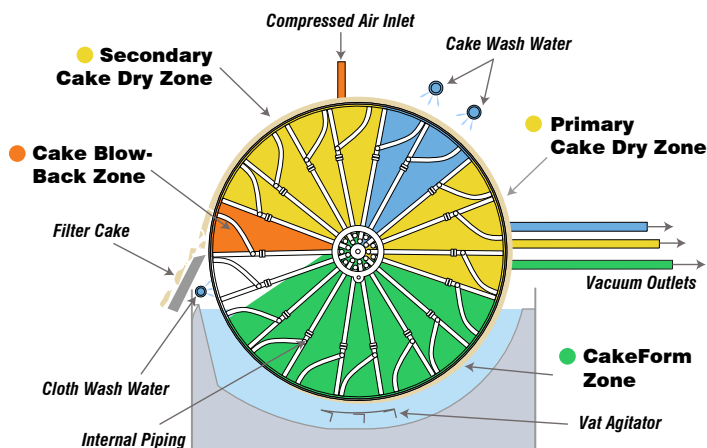
WesTech Rotary Drum Vacuum Filters provide a wide range of liquid-solids separation for many types of industrial processing flow sheets. They have the operating flexibility to handle dewatering, washing, and filtration applications, or a combination of these processes. Different methods of cake discharge can be chosen: standard scraper, continuous belt, roll, and precoat systems to fit any process requirement.

WesTech's patented precoat filter design eliminates problems associated with rotary precoat filtration. Filter valve design assures maximum hydraulic flows while drum configuration reduces turbulence and pressure drops. WesTech filter designs are a product of educated engineers with firsthand field experience in start-up, maintenance, and operation of large industrial installations. A WesTech filter will ensure you top performance, operator-friendly equipment, and low maintenance cost. WesTech drum filters are available with drums up to 13.5 feet in diameter and 36 feet in length.

## Disc Filters

WesTech Disc Filters are available with mechanical or air agitation, high-rate, or conventional center barrels with sectors of wood, plastic, or molded construction and stainless steel, natural, or synthetic medias.

### Rotary Drum Vacuum Filter Zones



## Accessories and Instrumentation

A full line of accessory equipment and instrumentation is available to meet your filter needs. WesTech electrical controls are built from stock components and provide you with one-source supply and establish system responsibility. Filters and accessories that are skid mounted can be shipped fully plumbed and wired for your installation convenience.

## Horizontal Vacuum Belt Filters

WesTech's Horizontal Vacuum Belt Filter is a continuous vacuum unit operating on a horizontal plane. Slurries are fed from above onto a filter cloth supported by a traveling drainage belt. The unit utilizes both vacuum and gravity to effect rapid separation of liquids and solids. A full range of slurries from coarse granular materials to fine slimes can be filtered as a result of the hydraulics.

The Horizontal Belt Filter is especially adaptable to the process flow sheet for applications where low cake moisture and multi-stage or counter-current cake washing is desirable.



# Solution for Ultra-dry Cake



The **WesTech Rotary Vacuum Filter** provides continuous filtration for handling large flow rates. The horizontal orientation of the rotary table enables a thick filter cake to form on the surface. The WesTech Rotary Table Vacuum Filter is an ideal alternative to horizontal belt filters, rotary drum vacuum filters, and filter presses.

## Screening



### **Linear Screens**

The Linear Screen is a revolutionary screening system that has solved a major problem in gold plants. It was developed to remove wood fiber and tramp oversize from milled gold slurries and is capable of screening between 150 and 2,000 microns.

### **Media Retention Screens**

Ideal for installation in carbon-in-pulp, carbon-in-leach, resin-in-pulp, and resin-in-leach circuits, WesTech's Media Retention Screen allows for the use of larger tanks in plants with higher production tonnage. The Media Retention Screen also reduces downtime incidents and operating costs associated with earlier generations of screen design.





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