



Manufacturer of Dewatering Systems

GBT™ – Gravity Belt Thickener and Rotary Drum Concentrator

www.bdpindustries.com

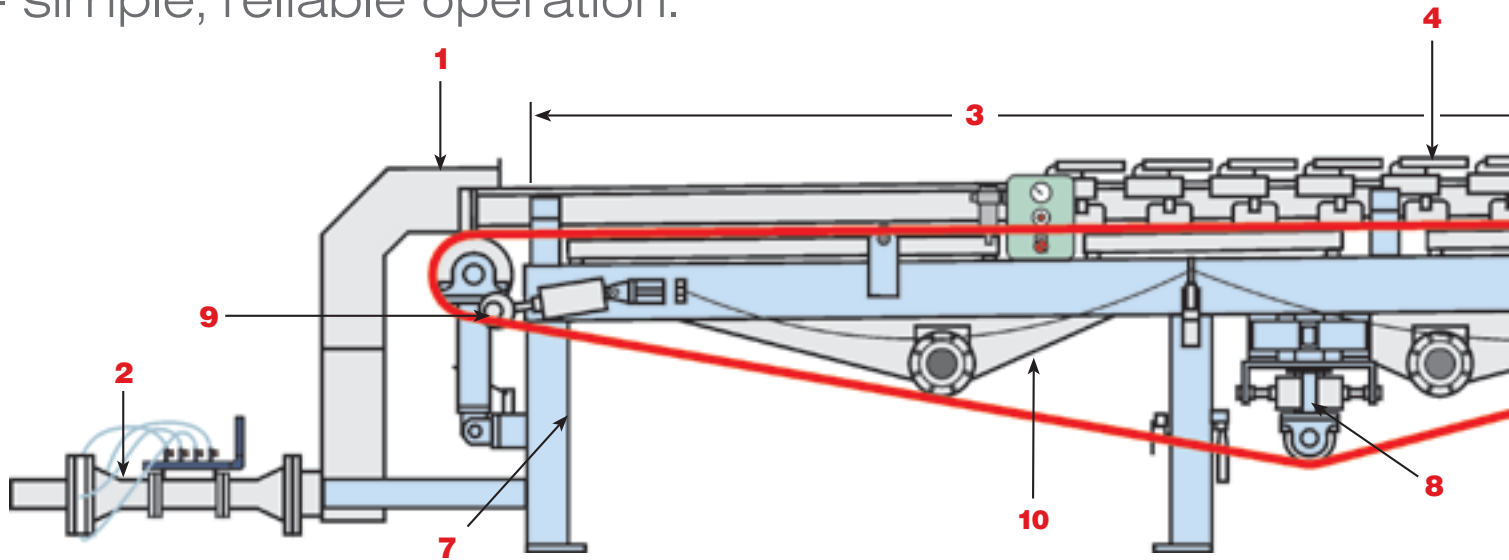


Industry Leader in Design and Manufacture of Filtration Equipment

GBT™ – Gravity Belt Thickener

Superior sludge thickening

– simple, reliable operation.



Design Features

1 Feed Box: Upflow smooth full width weir configuration. Dissipates flow energy, provides retention time for flocculation and insures extremely even slurry distribution so vital to maximizing slurry thickening.



Venturi Mixer

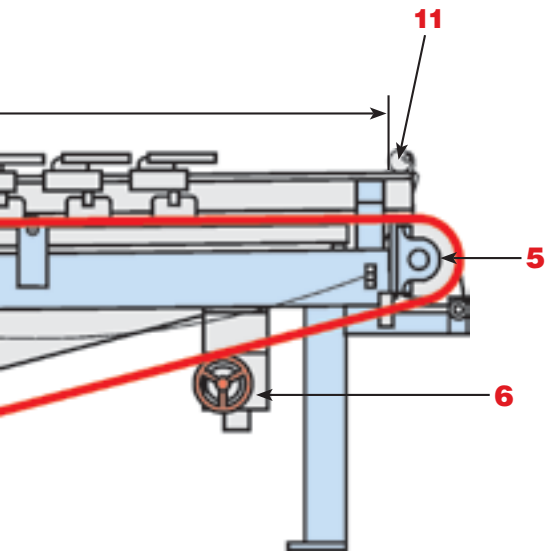
2 Venturi Mixer: Polymer is injected through (4) tangential inlets in the "injection ring" up stream of the "venturi and counterweighted orifice plate".

3 Gravity Deck: (above) Plastic belt supporting slide strips are easily removed with no disassembly of deckles, Apex curvature along centerline of belt eliminates belt wrinkling. Foil configuration of each slide effectively removes filtrate improving sludge thickening.

4 Adjustable Angle Plows: The adjustable angle allows for maximizing the furrowing action as the sludge thickens.



Adjustable Angle Plows



5 Belt Drive: Capable of varying output speed from 8 to 100 feet per minute, a right angle gear reducer / electric motor with speed control through a control panel mounted "Variable Frequency Controller".

6 Belt Washing: Spray header is mounted inside stainless steel enclosure, eliminating misting. Spray nozzles are internally cleaned and flushed by hand wheel operated wire brush and valve assembly.



7 Tubular Steel Frame: Significantly easier to keep clean. Extremely high moment of inertia (bending and radial inertia 3 to 10 times that of competitors') Hot dipped galvanized inside and out. Precision machined bearing and cross member mounting pads for accurate bearing, roll and frame alignment.



8 Belt Tracking: Tracking systems are available in both pneumatic and hydraulic systems providing trouble free operation. Tracking systems offer smooth and continuous tracking without excessive movement.

9 Belt Tensioning: The belt tensioning is adjustable to automatically maintain proper tension. Swing arm assembly provides uniform tension across the full width of the belt. Controls are located on the frame for ease of operation.



10 Collection Pans: Extremely rugged heavy gauge stainless steel collection pans are provided to keep filtrate from falling on filter belt, tracking and tensioning assemblies, to prevent blinding/fouling of these critical components.



11 Thickening Sludge Dam: Adjustable height sludge dam provides additional dewatering to optimize sludge thickening.

GBT™ – Gravity Belt Thickener

Unique Features and How they Work

The Gravity Belt Thickener is used to thicken sludge prior to centrifuge or digestion processes. A mix of primary or secondary sludge can easily be thickened to +7% wt, pure secondary to over 5%.

The GBT offers:

- High unit capacity per floor space
- Low residence time eliminates septicity and float scum
- Superior thickening
- Low maintenance and simple, reliable operation.

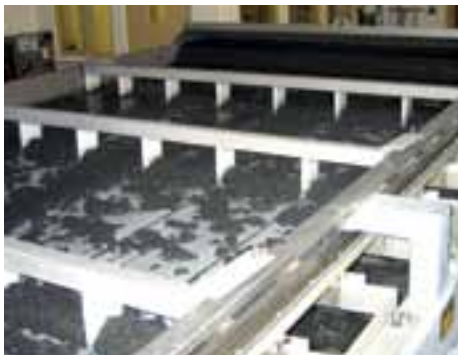


Venturi Mixer: Provides excellent dispersion of flocculent. The adjustable counter-weighted baffle allows efficient optimization of slurry flocculation for shortened drainage time.

Feed Distribution: The up-flow smooth, full width, weir design provides necessary time for optimum floc growth and dissipates the feed pipe velocity so the floc isn't sheared. Slurry is distributed very uniformly across the entire width, regardless of feed consistency.

New Plow Design

The Foil Doctor® Plow represents a new breakthrough in dewatering technology. The basic concept behind any plow design is to furrow deposited solids on the surface of the filter cloth to expose filter cloth so filtrate can go through with less resistance to flow.



Gravity Deck: The GBT delivers the largest filtration area per meter of belt width in the industry providing high efficiency thickening and cost effective chemical utilization.

Furrowing Plows: The combination Foil Doctor and adjustable angle plows provide two times the liquid removal of the conventional plow designs of our competitors. The floating mount minimizes filter media wear.

The foil design enhances this short circuiting action by lifting the deposited solids across the full belt width. This action, coupled with the incorporated plows just ahead of the foil, creates a compressive force on the slurry that further enhances dewatering.

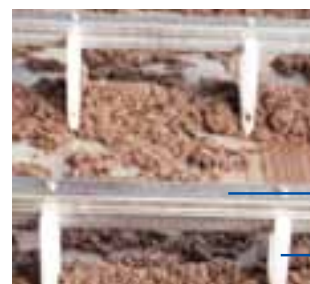
The Foil Doctor blade assembly floats on the surface of the filter cloth. Because the assembly floats, as the Foil Doctor assembly wears it still maintains optimum contact. With the conventional furrowing design, wear usually results in a smearing of sludge aggravating clogging of the filter cloth. Testing has found that one Foil Doctor Plow assembly is equivalent in thickening action to two conventional furrowing plow assemblies.

References: Will be provided from over 100 installations. Request appropriate process list and confirm for yourself unmatched process performance and reliability.

Rugged Durable Construction: Tubular construction, hot dip galvanized coating, highest structural moment of inertia, most wetted components, feed box, drainage pans, etc are constructed of stainless steel and all other wetted components are of suitable materials, plastic etc, to provide maximum corrosion protection and construction that will last the life of the facility.



Significantly thickened slurry coming over Foil Doctor Plow.



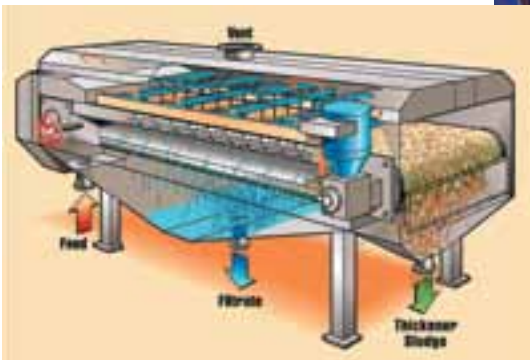
Sludge in compression, filtrate being expressed from slurry.

Metal cross support

Vertical plastic supports for Foil Doctor Plow

The Totally Enclosed GBT

With more stringent air quality restrictions, it has become necessary to limit the quantity of air associated with the GBT operation, thus enters the BDP's Totally Enclosed unit. The design incorporates a monolith frame constructed from stainless steel plates cut with the state of the art "Water Jet" plate cutting center. Belt drive, bearings and other components are mounted outside the enclosure for ease of maintenance.



The design encloses the feed distribution assembly, gravity deck, filtrate collection pan and thickened cake discharge. Units are avail-

able in width from 0.5 meter to 4 meter. The enclosed GBT can provide with manual or automatic tensioning and tracking depending on the owners preference.



Rotary Drum Thickener

RDT as an Alternative to a GBT

– when space is limited or requirements are less demanding.

The RDT offers:

- **Lower space requirement and lower capital cost than a GBT.**
- **Minimal operator attention.**

Each Rotary Drum Element is composed of five stainless steel discs supported off a center shaft. The shaft rotates in externally mounted bearings, to prevent contamination from the slurry.



Filtrate Drips into Stainless Steel Drip Pan

Slurry is conveyed through the RDC with a spiral screw assembly attached to the five discs. Filter cloth is wrapped around the perimeter of the five discs and held in place with stainless steel bands; forming the rotary drum. Feed enters the RDC from an overflow weir tank/ launder assembly.

Filtrate is collected in a stainless steel drip pan below the rotary drum.

Thickened slurry flows out the open end of the Rotary Drum and down a chute deflecting it away from the filtrate pan. A shaft mounted gear reducer motor and torque arm drives the rotary drum on the outboard center shaft. A Variable Frequency Controller controls rotating speed of the drum.

An adjustable angle, self-cleaning shower cleans the filter cloth during each revolution.

Rotary Drum Elements are made in 3' and 4' diameters and lengths up to 10'.



Slurry Discharge



Cloth Shower

If higher through put is required two drums can be operated in parallel with a common feed and discharge.



Typical Performance Results

GBT Belt Filter Press

| TYPE OF SLUDGE | FEED CONC. WT% | THICKENED DISCHARGE CONC. WT% | | LOADING RATE GPM/M BELT WIDTH | | SLUDGE VOLUME REDUCTION, % | |
|------------------------|----------------|-------------------------------------|--------|-------------------------------|-----------|----------------------------|---------|
| | | RDT | GBT | RDT | GBT | RDT | GBT |
| | | 4'x8' Drum Prop. to dia. and length | | gpm/m | | | |
| Waste Activated Sludge | 0.5 - 0.9 | 3.5 - 4.5 | 5 - 7 | 100 - 150 | 200 - 300 | 75 - 80 | 85 - 95 |
| Primary | 3 - 5 | 5 - 10 | 8 - 15 | 40 - 70 | 60 - 100 | 45 - 75 | 60 - 80 |
| Primary/WAS | 0.8 - 2 | 5 - 8 | 6 - 11 | 80 - 130 | 130 - 200 | 75 - 80 | 85 - 90 |

Pulp & Paper There are too many types of slurries for this industry to generalize. BDP Industries has many installations. Please call factory for details.

* The representative performance values in the table can fluctuate substantially and are provided only for estimating purposes.



4.0 m Gravity Belt Thickener



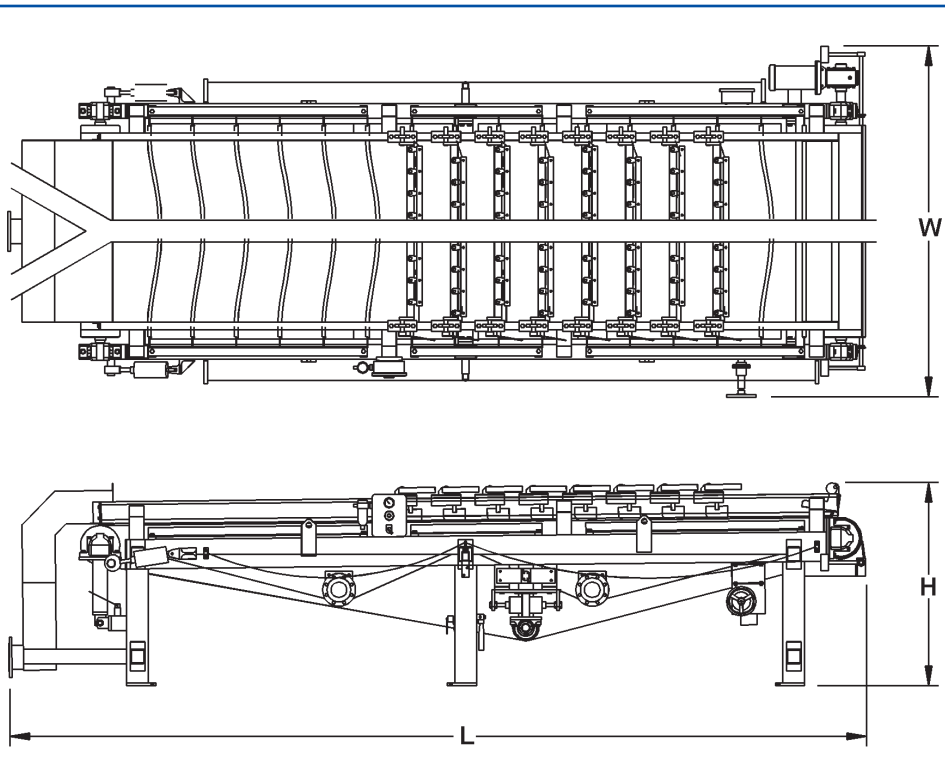
Rotary Drum Thickener



Totally Enclosed GBT



Filtrate



BDP GBT Gravity Belt Thickener Data

| SIZE (m) | | OVERALL APPROX. DIMENSIONS inches (mm) | | | OPERATING WEIGHT | BELT WIDTH |
|----------|----|--|-------------|------------|------------------|------------|
| | | LENGTH | WIDTH | HEIGHT | lbs (kg) | m |
| 0.5 | CP | 180 (4,572) | 60 (1,524) | 54 (1,372) | 4,000 (1,814) | 0.6 |
| 0.75 | CP | 180 (4,572) | 70 (1,778) | 54 (1,372) | 5,000 (2,268) | 0.9 |
| 1.0 | CP | 180 (4,572) | 80 (2,032) | 54 (1,372) | 6,000 (2,722) | 1.2 |
| 1.0 | XP | 232 (5,893) | 87 (2,210) | 55 (1,397) | 7,500 (3,402) | 1.2 |
| 1.5 | XP | 232 (5,893) | 107 (2,718) | 55 (1,397) | 8,500 (3,856) | 1.7 |
| 2.0 | XP | 232 (5,893) | 127 (3,226) | 55 (1,397) | 9,600 (4,355) | 2.2 |
| 2.5 | XP | 232 (5,893) | 147 (3,734) | 55 (1,397) | 10,800 (4,899) | 2.7 |
| 3.0 | XP | 232 (5,893) | 167 (4,242) | 55 (1,397) | 12,000 (5,443) | 3.2 |
| 4.0 | XP | 238 (6,045) | 207 (5,258) | 57 (1,448) | 21,000 (9,525) | 4.2 |

* Custom sizes and designs available upon request

A Leader in Solids Dewatering.

BDP Industries is an OEM supplier of solids dewatering equipment for several prestigious Fortune 500 companies. With a 40,000 sq. ft. manufacturing facility and the most hands on experience in the industry, BDP has evolved into one of the most modern and complete solids dewatering suppliers in the world.



BDP Industries produces a range of high quality products and services:

- Gravity Belt Thickeners
- Belt Presses
- Screw Presses
- Rotary Drum Concentrators
- Lime Stabilization Systems
- Polymer Systems
- Compost Turning Equipment
- Pulp & Paper Stock Thickeners
- Plate & Frame Presses
- Conveyors
- Process Control Panels
- Equipment Restoration
- On-Site Service
- Mobile Dewatering Demonstrations



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We're located near you.



Your local BDP representative:

